EXPLORING THE COMPLEXITIES INVOLVED IN BRIDGING THE GAP BETWEEN HOSPITAL AND COMMUNITY CARE FOR OLDER PEOPLE

BY

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A thesis submitted to the University of Birmingham for the degree of

DOCTOR OF PHILOSOPHY

Institute of Applied Health Research

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May 2022

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ABSTRACT

Introduction

The UK has an ageing population and there is an increasing need for additional care and support services for older patients discharged from hospital. Despite a large evidence base on different discharge services, there are inconsistent findings on their effectiveness and a lack of research on factors that impact service implementation. This research: identified different types of discharge interventions and evaluated the impact of these discharge interventions on older people leaving hospital to aid the understanding of factors that impact implementation into practice.

Methods

This convergent parallel mixed method research has two main methods: a systematic review of reviews and a qualitative case study (comprising a stakeholder mapping exercise and semi-structured interviews with service stakeholders). For the review, ten databases were searched for discharge intervention for people aged over 60 using multiple key search terms related to ‘systematic reviews’, ‘older people’ and ‘discharge’. Outcomes of interest included mortality, readmissions, length of hospital stay, patient health status and costs. A narrative data synthesis was conducted. The case study of a supported integrated hospital discharge service involved, process mapping to understand the service from different perspectives alongside qualitative interviews to explore stakeholders’ experiences. Semi-structured interviews were undertaken with service staff (hospital, community and social care), patients and carers. Data were analysed using thematic analysis and by generating/reviewing

process maps. The two elements of the case study were triangulated using an implementation framework.

Results

As part of the review, 8,748 title and abstracts were reviewed and 859 full texts were assessed for eligibility. Of these, 91 were taken forward to quality assessment and 66 reviews were included in the final synthesis. As part of the case study, staff in a variety of roles (n=14), patients (n=11) and their informal carers (n=4) were interviewed. The evidence included in the review highlighted that: readmissions and length of hospital stay could be significantly reduced, costs reduced and patient health significantly improved by elements of discharge services (e.g. patient assessments and discharge planning) but there was no impact on mortality. The case study found that providing transitional support in the gap between hospital and community care was important, along with equipment aids and collaborative working across health, community, and social care (including admission prevention services). A number of factors should be considered when implementing discharge services, including service (and resource) coordination and access to records across key partners, identifying development needs of staff and ensuring regular data collection, monitoring and review.

Conclusions

This study has identified multiple types and formats of discharge support for older people. The findings deepen the understanding of the impact of discharge services, key stakeholders and outcomes. The findings from this research provide practical insights to help inform the design and delivery of discharge services and the direction of future research.

DEDICATION

I dedicate this work to my parents **LORRAINE O'CONNELL** and **GARY O'CONNELL**.

They raised me to believe I could achieve anything I put my mind to and worked hard for. They have selflessly given their time to help me throughout my life, from driving me hundreds of miles every week as a teenager to looking after their grandson (as soon as they were able to) to give me the valuable time I needed to finish this thesis. They are my constant inspiration, and I cannot thank them enough for their endless belief, support and encouragement.

ACKNOWLEDGEMENTS

First, I would like to thank all my PhD supervisors, especially my lead supervisor Dr. Sarah Damery. Thank you for dedicating your time, offering outstanding support, guidance and sharing your expert knowledge throughout the whole period of my part-time PhD. Having you as my supervisor from start to finish has been invaluable, so thank you. Thank you to Dr. Janet Jones, Dr. Kerry Allen and Gill Combes, for their support and guidance over the course of this part-time PhD.

Thank you to my wonderful family: Jobson, Lorenzo, Mum, Dad, Lee, Aud, William, Sally and my in-laws for your support, encouragement and welcome distractions from work.

This research was funded by a PhD studentship from the University of Birmingham College of Medical and Dental Sciences and undertaken in affiliation with the NIHR CLAHRC West Midlands (now ARC West Midlands) Chronic Diseases research group.

Thank you to all of my colleagues who have assisted or advised me with aspects of my research: Pamela Nayyar and Hannah Jones for helping with the identification and recruitment of patients for the qualitative case study; Suzanne Nicholl, Paula Agostini and Liz Lees-Deutsch for acting as local collaborators for my qualitative case study; Sarah Davies for helping with the double screening in the systematic review of reviews;

Dr Jeremy Grimshaw who met with me at a CLAHRC-WM Scientific advisory meeting and offered advice on managing the data from my systematic review of reviews; and Miranda Pallan thank you for being my mentor, I am grateful to you for listening to me and offering much appreciated guidance.

Thank you for all the participants who took part in my qualitative case study and for their time and valuable contribution to this thesis.

This thesis was copy edited for conventions of language, spelling and grammar by Lorraine O'Connell, thank you for voluntarily giving your time to read my work.

CONTRIBUTION STATEMENT

All of this thesis is my own work, but I have had assistance from my supervisors to complete certain aspects of the research: Gill Combes and Sarah Damery helped to design the research; Sarah Damery helped with double screening and double data extraction in the systematic review of reviews; Gill Combes acted as a reviewer to agree decisions on 'unsure' full text papers; Janet Jones double coded a proportion of the interviews; Sarah Damery, Janet Jones and Kerry Allen were part of the research team, so discussed data analysis and synthesis, as well as giving critical feedback on the research and thesis itself.

I had further assistance from people external to my supervision team. Sarah Davies, who helped with the double screening of abstracts and full texts for inclusion in the systematic review of reviews. Pamela Nayyar and Hannah Jones assisted with administration of the case study information packs and/or returned reply slips for the patient interviews. Adrienne Dunn was paid to provide transcription services and transcribed the case study interviews. Brasshouse Language Centre were paid to provide translation services and translated the case study patient and carer documentation into Punjabi and Urdu.

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LIST OF ABBREVIATIONS

Abbreviation	Description
A&E	Accident and Emergency department
ADL	Activities of Daily Living
AMSTAR	A Measurement Tool to Assess Systematic Reviews
CGA	Comprehensive Geriatric Assessment
CI	Confidence Interval
COPD	Chronic Obstructive Pulmonary Disease
DSF	Dynamic Sustainability Framework
GP	General Practitioner
GROOVE	Graphical Representation of Overlap for OVErviews
ICS	Integrated Care Systems
IT	Information Technology
LA	Local Authority
MD	Mean Difference
MESH	Medical Subject Headings
NHS	National Health Service
NICE	National Institute for Clinical Excellence
NPT	Normalization Process Theory
OR	Odds Ratios

Abbreviation	Description
Ph.D.	Doctor of Philosophy
PHM	Population Health Management
PIS	Participant Information Sheet
PPI	Patient and Public Involvement
PRISM	Practical Robust Implementation and Sustainability Model
PRISMA-P	Preferred Reporting Items for Systematic review and Meta-Analysis Protocols
PRECEDE-PROCEED	Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation-Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development
QI	Quality Improvement
RCT	Randomised Controlled Trial
REACT	Rapid Emergency Assessment and Communication Team
RE-AIM	Reach, Effectiveness, Adoption, Implementation, Maintenance
RR	Risk Ratios
RRR	Relative Risk Reduction

Abbreviation	Description
SIHDS	Supported Integrated Hospital Discharge Service
SMD	Standardised Mean Difference
SR	Systematic Review
TDF	Theoretical Domains Framework
UK	United Kingdom
WMD	Weighted Mean Difference

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PUBLICATIONS AND CONFERENCE PRESENTATIONS

Publications

O'Connell Francischetto, E., Damery, S., Davies, S and Combes G. Discharge interventions for older patients leaving hospital: protocol for a systematic meta-review. Syst Rev 5, 46 (2016).

Oral Presentations (virtual)

O'Connell Francischetto, E., Jones, J., Davies, S., Allen, K., Combes G and Damery, S. Impact of discharge interventions for older patients leaving hospital: a systematic review of reviews. *President's Round presentation* at British Geriatrics Society Autumn Meeting 2021

O'Connell Francischetto, E., Jones, J., Allen, K., Combes G and Damery, S. Understanding how discharge services for older patients can bridge the gap between hospital, community and social care. *Platform presentation* at British Geriatrics Society Autumn Meeting 2021

Poster Presentations

O'Connell Francischetto, E., Damery S and Combes G. Bridging the gap between hospital and community care for elderly patients being discharged from hospital. Research Poster Conference, University of Birmingham, June 2015.

CHAPTER 1: INTRODUCTION

1.1 Introduction

This thesis explores the services that need to be in place at hospital discharge to bridge the gap between hospital and community care for older people. This chapter will introduce: the impact of an ageing population on hospital services in the United Kingdom (UK); describe UK policies designed to address the pressures an ageing population puts on health and social care systems; outline the current evidence base on hospital discharge interventions and introduce the aims of the research undertaken in this thesis and the research methods used.

1.1.1 Hospital usage and older age in the UK

Levels of all hospital admissions in England are increasing and in 2019 an average of 17,899 people were urgently admitted to hospital each day; this was an increase of 4.1% on 2018 and a 19.6% increase over the preceding five years (1). The UK has an ageing population and it is expected that those aged over 85 will double to 3.2 million by the middle of 2041 (2). Of hospital admissions that involve stays of more than two weeks, 80 per cent are amongst people aged over 65 (3). From April 2019 to March 2020 older patients had more episodes of care compared to all admitted patients, particularly those aged 70-74 who had the highest number (1.9 million) which accounted for 9.3 per cent of all episodes (4). The prevalence of multi-morbidity has

been found to rise with age, and Ferguson et al., (2019) reported that an ageing population may increase the demand for health and social care services (5). It is widely acknowledged that ageing populations pose challenges for health and social care systems and that these systems need to be organised and integrated to fulfil the needs and preferences of older people (6). If hospital capacity constraints continue, quality of care, mortality, health outcomes and waiting lists for healthcare may continue to worsen (7, 8).

Ultimately, this ageing population and increasing prevalence of multi-morbidity could lead to a growing population of adults who need support to allow them to be safely discharged from hospital, to ensure that they do not remain in hospital beds despite being medically fit enough to be discharged. From 2013 to 2019 discharge delays more than doubled due to waits for home care (e.g. waiting for a care package to be set up in the home of the patient or waiting for non-acute National Health Service (NHS) care) (1). Older people with complex needs, including long-term conditions and frailty, have been found to be at a particularly high risk of being readmitted to hospital (3). In 2017, Healthwatch England published a briefing showing that in the previous five years the number of people readmitted to hospital within 30 days of discharge had increased by 22.8%, costing the NHS around £2.4 billion per year (9). In the UK in 2017, 47% of people aged over 75 had a long-term illness, disability or health problem that limited their daily activities (10). In 2021 there was also a reported rise in people suffering from dementia, where just under 17% of the population aged over 80 had been diagnosed with dementia, although in care homes 70% of the residents had dementia or severe memory problems (11); this could have increasing financial and care implications for health care, social care and individuals (and their families) (11). Discharge support

such as discharge planning or education around the time of discharge, have been found to potentially reduce patient readmissions to hospital after their discharge (12, 13).

This demonstrates a need to further understand services that support older people admitted to hospital and identify whether services (e.g. secondary care, community care, primary care and social care) can work together to help facilitate safe discharges, expedite care package set up/community support and identify if this support can improve patients' functional status and reduce readmissions.

1.1.2 UK Policy

Healthcare policies have changed over time to try and respond to the needs of patients and reduce delayed discharges and readmissions. To respond to the growing demand on health and social care services from older patients with complex health needs, the UK Government has published key policy documents, which have attempted to reform the NHS and introduce new approaches to patient care over the last 30 years.

It has been acknowledged that the nature of discharge for older people is problematic. This is due to both health and social care needs having to be met despite these being within the remit of different organisations, and the situation whereby health-care is free

whilst social care requires payment (14). There has been key policy and guidance to promote integrated working and support for patients at discharge over the years which is summarised in Figure 1.1.



Figure references (14-31)

Figure 1.1: Summary timeline of official guidance, policies and legislation on integrated support at discharge for older people

Before the late 1980s there was limited policy or guidance focusing on discharge support for patients (14). In 1989 updated guidance on discharging patients from hospital was released by the Government, but Glasby (2003) reported that from inspections of five local authorities, it was found that only one local authority had implemented recommendations around joint discharge policies detailed in the 1989 Government guidance, although there was a lack of available evidence on why the guidance was not implemented (14). The 1990 NHS and Community Care Act outlined that local authorities (LAs) should take the lead on assessing patients' needs and the development of care packages within available resources; although it is not clear what the actual impact of this was on finances and relations between health and social care, Glasby (2003) reported this change within available resources could have increased financial difficulties and caused tensions between health and social care (14). In the mid to late 1990s, the Government published guidance and policies on their vision of a primary care focused NHS; the most significant being the National Health Service (Primary Care) Act of 1997 (32). Two distinct approaches were highlighted, first allowing general practitioners (GPs) to purchase care for their patients and secondly to provide more care in community-based settings. Furthermore, a hospital discharge workbook was published emphasising good practice, and schemes such as 'hospital at home' were seen as new developments allowing patients to be treated at home (14, 32, 33).

By the early 2000s, UK Government policy and legislation (including the 2000 NHS Plan, the Health and Social Care Act of 2001 and Community Care Delayed Discharges Act of 2003) showed an awareness of barriers to joint working and

proposed an increase in joint partnership and integrated working to promote population health and personalised care; along with a continued emphasis on collaborative working and supporting patients between hospital and community care services especially at patient discharge (17, 18, 20, 33-35). The concept of intermediate care (care between hospital, home and primary care services for older people) was established in the *NHS Plan* (2000), which was implemented through the National Service Framework for Older people 2001 (19). The NHS Plan proposed to invest £900 million in intermediate care services, including intensive rehabilitation services and multidisciplinary rapid response teams (17, 14). The National Service Framework for Older people was a key Government quality standard, as it outlined the importance of supporting older patients in the community to prevent hospital admission and the need for providing rehabilitation after a hospital admission (support at discharge) (19). The differences between health and social care services from how they were funded, managed and systems that they used; to the culture, models of care (biomedical versus social), responsibilities and roles of professionals who worked within them could have caused barriers to implementing guidance and policy (14). Further barriers could have been due to the development of choice and competition within the NHS (14, 36).

Over the following decade, the guidance was reiterated and further developed to give an agenda for integrated care and services being moved out of hospital. The 2006 UK Government White Paper *Our health, our care, our say*, proposed that services should be moved out of hospitals, into community services and care at home; it also detailed plans that allowed for different providers to compete to deliver services and explained how to improve outcomes for older people by focusing resources on prevention (21).

However, the focus was still on individual organisations and services, not the health and care system as a whole. The 2010 UK Government White Paper *Equity and excellence: Liberating the NHS* expanded on this previous guidance and proposed using incentives to encourage hospitals and social care to work together following patient discharge, with the aim of reducing avoidable readmissions (22). At the same time a discharge workbook was published that highlighted the need for: effective communication; continuity of care; processes in place to support discharge; well defined discharge plans and dates; the identification of discharge co-ordinators; discharge planning 7 days a week and organisation review (15). Despite this, discharges at weekends had been shown to increase the likelihood of death, also barriers to joint working such as funding were reportedly not overcome (16). In 2012, the *Caring for our future: reforming care and support* White Paper committed to providing joint funding between the NHS and social care, to further support integrated care; the legislation also highlighted the need for better integration at transitional care points, including older people moving from hospital to home (23):

> *"Good reablement, intermediate care and post-discharge support means that older people returning home after a stay in hospital should have a temporary support plan that helps them to regain their independence"* (UK Government, 2012; p.60 (23))

The NHS also underwent major reforms when the Health and Social Care Act 2012 came into force, as clinical commissioning groups were formed and public health teams were moved to LAs, who started to take a greater role in improving health and reducing inequalities (24). At the same time Health and Wellbeing Boards were formed to improve local health and wellbeing in an integrated way, by bringing together local commissioners of health and social care along with elected representatives (24).

Despite these moves on integration the ongoing emphasis on competition may have detracted from aims to improve collaboration between health and social care (36).

Over the last 10 years policy has been built upon and there have been drives to improve relationships, planning and joined up working between hospital, community health, social care and local government (37, 38). Subsequent legislature, guidance and policy such as the Care Act in 2014, National Institute for Clinical Excellence (NICE) Guidelines on Intermediate care in 2017, the NHS Five Year Forward View in 2017 and the NHS Long Term Plan in 2019 have continued to focus on integration across systems, intermediate care, enablement (to help people to continue to or regain the ability to live independently at home), improving health and supporting people to age well (26-28, 39). A 2017 Government report on discharging older people from hospital mandated that more should be done to improve integration to support patients at discharge, and that barriers such as information sharing between health and social care sectors and taking up good practice should be addressed (40). Furthermore, NICE guidance was published in 2015 and made recommendations for the transition between inpatient hospital and community settings (e.g. communication, person-centred care, care plans, multi-disciplinary teams and discharge co-ordinators) (25).

Despite a long history of policy, legislation and guidance promoting integration and discharge support, there are still challenges regarding patient length of stay and readmissions (1, 8, 9, 41). In 2021 the UK Government published the Health and Care Bill and White paper on *Integration and innovation: working together to improve health*

and social care for all, which set out a shift in focus away from previous reforms that promoted competition; some procurement and competition rules were removed to further promote joined up integrated care provided by the NHS, local government and partners, this was to swap the focus from just providing services to improving health (30, 31, 42). It has been acknowledged that the plans in the 2021 NHS White Paper (for increasing integration across health and social care by reducing bureaucracy) to remove some barriers to integration, may help older people access services (43). Further UK Government guidance *Hospital discharge and community support: policy and operating model* was published in 2020 in response to the Covid-19 pandemic and updated in 2021. This guidance outlined hospital discharge service pathways for NHS trusts, social care and community providers (44) and advocated a 'discharge to assess' model to reduce the length of stay and allow patients to be discharged as soon as they were medically fit (to free hospital capacity) by providing support at discharge (44); 'discharge to assess' is defined as:

> *"Where people who are clinically optimised and do not require an acute hospital bed, but may still require care services are provided with short term, funded support to be discharged to their own home (where appropriate) or another community setting. Assessment for longer-term care and support needs is then undertaken in the most appropriate setting and at the right time for the person.*" (NHS, 2021; p.2 (41))

Despite over a decade of policies, legislation and guidance emphasising the importance of support at discharge and integrated working, there are still unnecessary delays to discharge and trends of increased hospital admissions (1, 41). Furthermore, there is still more understanding needed about how service integration could work at discharge and the potential barriers that are still faced such as differences in professionals skills, funding (free NHS care at point of use or means tested for social

care), commissioning approaches, knowledge across services, information sharing and focus of service (healthcare focuses on cure and social care focuses on maintenance) (36). Therefore, discharge support and integrated care for patients is still at the forefront of government policy and there is a growing body of research in this area.

1.1.3 Support at discharge

Providing discharge support is not a new area of research and findings from UK and international research have meant that discharge interventions have impacted guidance and policy, such that there are many ways to achieve the broad aims of reducing delayed transfers of care between settings and improving the quality of patient care by refining the discharge process for patients leaving hospital (45). Interventions provide elements of clinical care at home, planning, assessments or support to allow patients to be discharged from hospital, even if they are waiting for some form of additional care to be put in place e.g. social care or home alterations (46). The structure, content and delivery of discharge interventions are highly variable, and although discharge from hospital takes place at a particular point in the care pathway, interventions to support patients at discharge can be administered before, during and after discharge (some interventions start in hospital and are carried on in the home/community). Discharge interventions have been previously classified into the four categories of intermediate care: crisis response (short term services in the

community that provide care in homes/care homes to avoid admission), bed based intermediate care (services provided for up to six weeks in alternative settings to prevent admission to hospital or support patients after hospital discharge), home based intermediate care (services provided for up to six weeks in a patient's home to prevent admission to hospital or support patients after hospital discharge) and enablement services (provided for up to six weeks in a patient's home to help them to be independent at home and recover skills and confidence) (47). Discharge interventions can include interventions such as: comprehensive geriatric assessment (CGA) (48); discharge planning (49); home rehabilitation/enablement, or follow up visits to a patient's home to provide additional support after discharge, as well as any combination of these along with intermediate care (50, 51). NICE (25) define CGA as:

> "*interdisciplinary diagnostic process to determine the medical, psychological and functional capability of someone who is frail and old. The aim is to develop a coordinated, integrated plan for treatment and long-term support*" (NICE, 2015; p.345 (25))

Despite an abundance of discharge interventions that have been used in the last twenty years, the evidence about which broad interventions and/or specific intervention components are most effective is inconclusive. A systematic review completed in 2019 reported that some forms of discharge intervention have been found to reduce hospital readmissions (including joint working between hospital and community care, multidisciplinary services, personalised services, in hospital-initiated discharge planning and specialist follow-up) (52). However, this review only included discharge intervention studies where readmissions were explicitly stated as a primary outcome; so, it was not clear whether these interventions had impacts on other outcomes such as costs, patient health status, mortality and length of hospital stay and what the

impacts might be. Another review completed by NICE in 2017 looked at the impact of alternatives to hospital care on multiple outcomes and identified the potential benefits and risks of early discharge hospital at home interventions, step up/down care (care provided in a setting other than an acute hospital such as community hospitals or homes) and virtual wards (53). However, results in this review were conflicting and different forms of hospital at home research reported benefits such as reduced readmissions and length of hospital stay plus improved patient quality of life and patient/carer satisfaction; whilst others reported possible increases in mortality, readmissions and length of stay as well as reduced carer satisfaction (53).

The large amount of primary research on discharge interventions for older people (aged 60 years and over) has led to a substantial number of systematic reviews being conducted in this area, but they have varied in their focus, intervention type(s), health and social care staff involved, and the patient populations included. Reviews have found that forms of discharge interventions could improve outcomes including: clinical nurse specialist-led hospital to home transitional care was found to reduce costs (54); CGA around the time of discharge and early discharge support at home services could reduce the likelihood that a patient would be admitted to residential care/institutions (55-58); discharge planning and early discharge hospital at home could potentially improve patient satisfaction (49, 55, 57) and early discharge support at home services and discharge planning could reduce length of hospital stay (46, 49, 59); discharge planning could reduce readmissions (49); early discharge support at home services and discharge planning could improve independence and mobility (55, 57, 60); and CGA and early discharge support at home services could improve clinical outcomes

(56, 57). However, some studies published contrasting results and the impact of discharge interventions on outcomes such as: costs (patient, health, community and social care); post discharge resource use, as well as patient and carer reported outcomes were unclear (55, 57, 61, 62). Despite the large evidence base, there is no recent review of the evidence that compares the impact of the full array of discharge interventions to 'usual care' across multiple outcomes. A systematic review of reviews focusing on discharge interventions was conducted in 2007 (61), but this review did not focus on older people and only included evidence up to 2004. Despite an existing and evolving evidence base, results have been mixed and it remains unclear what impact various discharge interventions might have on key outcomes.

Furthermore, the systematic reviews do not generally include qualitative evidence. Qualitative evidence can complement review evidence, as it allows further understanding of what works (or does not work), why and how; so can be fundamentally important to gain a deeper understanding of interventions (63). Other research has investigated experiences and perspectives of discharge services from the perspectives of patients, carers and health care professionals. There has been qualitative research published in different areas looking into:

- Patients' and carers' experiences and perspectives of early supported discharge, discharge planning or home health care after discharge (64-66)
- Clinicians' views on discharge and readmissions (67)
- Barriers and facilitators to patient-centred care in the hospital discharge processes (68)

- Views on patient-orientated discharge summaries (69)

Qualitative research also shows that supportive discharge services have been perceived as positive by patients and carers (64, 70). However, communicating information to patients, as well as understanding the support needs of patients (and carers) could be addressed and patient engagement in discharge services improved (64-66, 68, 69). Furthermore, the study that reported on clinicians' views of discharge found that they felt that discharge processes were very complicated and that early hospital discharges, poor communication between multiple services and the level of post discharge care could cause readmissions (67). Discharges could be influenced by hospital pressures and community resources (67, 68). Reviews of early discharge hospital at home and transitional care interventions highlighted that research was needed on the implementation of services outside of the research setting to help identify elements to refine and improve future interventions and research gathering data on caregivers' views (46, 71).

Despite an established policy focus on integrated care and support at discharge, there is a lack of agreement in research on the effectiveness of discharge interventions on different outcomes and factors that can impact how discharge services are implemented in practice. Due to the ageing population and pressures on hospital beds, it is important to understand what discharge services work best and how multiagency support at hospital discharge can work across settings and services to provide patient centred care, reduce length of hospital stay and prevent readmissions. Therefore,

research is needed to firstly, understand the evidence base regarding different types of discharge interventions and their impact on outcomes compared to standard care; secondly, understand how discharge care that spans multiple service structures work, and lastly, understand what elements are important for discharge services working across multiple settings to be implemented in practice. The research processes and research objectives for this thesis and how this research will address these gaps are discussed in Section 1.2.

1.2 Thesis research process and structure

Denzin and Lincoln (2011; p.12 (72)) describe five phases of the research process: phase 1 looks at the researcher as a multicultural subject; phase 2 looks at the theoretical paradigms; phase 3 looks at the research strategies; phase 4 looks at the methods; and phase 5 looks at interpretation and evaluation. The first three of these phases are introduced below, whilst phases four and five are discussed in Chapter 2 Methods.

1.2.1 The Researcher as a multicultural subject

The researcher is a conduit of the research, with life experiences, knowledge and a perspective that will guide, as well as potentially limit, the work undertaken in this thesis (72). Therefore, it is important to understand more about the researcher's history, background and experiences that may have influenced and impacted any decisions and approaches to this research (63); a brief profile of the researcher is presented below. In qualitative research it is important that researchers are aware of any potential biases that may impact their understanding of certain topics (73). The profile will be followed by a discussion of points the researcher feels it is important to highlight.

The researcher is female, White British, married, in her mid-thirties and has a young son. The researcher has grown up and still lives in a predominantly rural County, where 21.6% of the population were aged 65 and over (in 2019), 16.7% of the population had a long-term limiting health problem or disability (in 2011) and 91.6% of the population were White British (in 2011) (74). On a personal level, the researcher has lived in a multicultural household for over a decade, due to her husband being Brazilian. The researcher has an applied health research background and has undertaken pragmatic mixed methods research for over twelve years. Although the researcher has no clinical training, she has worked in different clinical areas including mental health, sexually transmitted infections, cancer, liver transplants, patient reported outcomes, inappropriate prescribing, Covid-19 and public health.

Although the researcher lives in a multicultural household, it needs to be acknowledged that society is multicultural. Discharge services are provided to patients that may have different cultural backgrounds to the researcher; and these participants from different cultural backgrounds may be more reluctant to participate in research and may have experiences the researcher cannot relate to as a white woman in her thirties (75). The researcher may also have less in common with some participants when it comes to age, profession, gender and personal experience of discharge. However, the researcher may have more in common and have a shared understanding of experiences with patients' informal carers and professionals being interviewed than the patients themselves.

The researcher's background, research skills, perspectives and experiences have influenced and informed methods employed, the undertaking and the drawing of conclusions from this research (63). Although the researcher has designed and undertaken the research in this thesis, from the philosophical foundation of the thesis, to the methods of analysis used and the interpretation of the findings, the research processes were developed *a priori* to avoid bias and triangulation was used to enhance validity (72, 76). For example, data extraction forms and semi structured interview schedules were designed in advance and supervisors were involved in processes such as duplicate literature screening, data extraction, interview coding and theme development to increase reliability (76). Furthermore, the researcher's continued critical awareness of potential influence allowed them to consciously focus on being neutral and objective when collecting, interpretating and presenting data in this thesis.

1.2.2 Theoretical paradigms

There are different epistemological and ontological stances that could be adopted for this thesis. The epistemological and ontological approaches form the philosophical foundation for this thesis and impact aspects of the research undertaken, as well as the way knowledge is understood and constructed (77).Traditionally qualitative and quantitative research have differing theoretical underpinnings, in terms of the way social reality is viewed (78). Some paradigms are linked very closely to certain methods, for example qualitative methods are linked to interpretive paradigms (72). However, traditional ideologies have been challenged and the evidence base shows that qualitative and quantitative methods are not always characterised by an underpinning philosophical paradigm (78, 79). Therefore, specific methods do not need to be used within a narrow set of paradigms and can also be used within other paradigms (80).

Pragmatism recognises that different forms of knowledge need to be valued and that knowledge can be gathered and analysed using the most appropriate methods (81). The gaps in this area of research on discharge services are as follows: looking at the effectiveness of different intervention types and understanding how services are implemented in a real-world setting. To answer these research gaps, it would be appropriate to utilise qualitative methods to understand how the services work in practice and quantitative methods to understand the effectiveness of different intervention types.

Pragmatism is sensitive to different contexts and within the approach it is believed that paradigms should not constrain researchers with rigid applications of theory that require certain methods, especially in complex real-world settings (81). This is why pragmatism is often considered to underpin mixed method research (80). A pragmatic approach would best answer the research objectives, as it encompasses the belief that: qualitative and quantitative approaches can be synthesised; reality is known through different research tools and evidence; knowledge reflects the views of researchers and participants; and that there is an importance of producing socially useful knowledge (72, 81-83).

Therefore, this Doctor of Philosophy (Ph.D.) thesis was undertaken using a pragmatic approach to the data. As previously highlighted this pragmatic approach has a number of underlying philosophical assumptions including the ontological belief that the nature of reality is what practically works; the axiological belief that values are considered because of the way knowledge reflects the views of researchers and participants; and the methodological belief that both qualitative and quantitative approaches can be incorporated (72, 82), and the belief that reality is known through different research tools and evidence (inductive and deductive) (72, 82, 83). This approach to pragmatism will be defined as a philosophical and epistemological framework that will interrogate and evaluate data gathered in terms of their practical functioning (84). This pragmatic approach allows different forms of data to be collected and data collected from different methods to be synthesised to allow the most appropriate methods to be

used to understand the research objectives in a real world context (85). Furthermore, it allows practical research objectives to be realised and recommendations for policy and practice to be made by employing a variety of research methods, theories and utilising different forms of evidence. The pragmatic focus on ‘what works’ can further validate research objectives and allow enquiries to respond to issues identified by respondents (84).

1.2.3 Research objectives

In sections 1.2.1-1.2.2, the first two stages of the research process in this thesis have been described according to the five phases of research processes defined by Denzin and Lincoln (72). This section will outline the research objectives and the approach to the research in this thesis.

There are three main objectives to this research:

1. To identify interventions used to support patients around the time of discharge
2. To understand the impact of discharge support on patient and health service outcomes
3. To understand how a hospital discharge service works and identify the factors that could impact service implementation

In pragmatic research, the objectives are important and influence the subsequent research processes utilised in the research project (86). Further to the three overarching thesis research objectives, there are sub-objectives for the different research methods.

The sub-objectives for the systematic review of reviews were:

1. Identify any reviews of interventions aimed at supporting older people around the time of discharge
2. Group interventions based on their intervention components
3. Identify any reviews that looked at discharge interventions that provided therapy/support in patients' homes (or in the community) for older people around the time of discharge, as well as the intervention impact on any of the following pre-defined outcomes such as those relating to resource use, intervention acceptability and patient health status.
4. Identify and analyse reviews of the remaining intervention types and interrogate their impact on five main outcomes:
    a. Readmissions
    b. Patient health status
    c. Mortality
    d. Length of hospital stay
    e. Costs
5. Identify any theories or conceptual frameworks highlighted in the reviews included

The sub-objectives for the qualitative case study were:

1. Understand how the service operates and what it involves
2. Identify who and what organisations are involved in patient care at each stage of a discharge service
3. Determine any transitional care points
4. Establish if there are any bottlenecks
5. Identify any duplication of work
6. Explore the experiences and opinions of staff, patients and carers involved in a discharge service

A convergent parallel mixed method research design was used to fulfil these research objectives. A convergent parallel mixed method is an approach where the researcher concurrently (i.e. at the same time) conducts the quantitative and qualitative components of the research process (87). The two components are analysed independently and then the results are synthesised and interpreted together in a final analytical stage (convergence) (87). A diagram of how this mixed method approach (a review of the literature and qualitative case study) is used in this thesis can be seen in Figure 1.2.

This research design involved a review of the literature and a qualitative case study. This mixed method research design allowed the research objectives to be accomplished using the most appropriate methods, as well as adding more depth and

understanding through synthesis of the findings. Figure 1.2 shows a summary of the timelines of this part-time Ph.D., the mixed method research design and how the methodological components link to the thesis research objectives and chapters. The full methods of this convergent parallel mixed method research are described in the Methods Chapter 2.

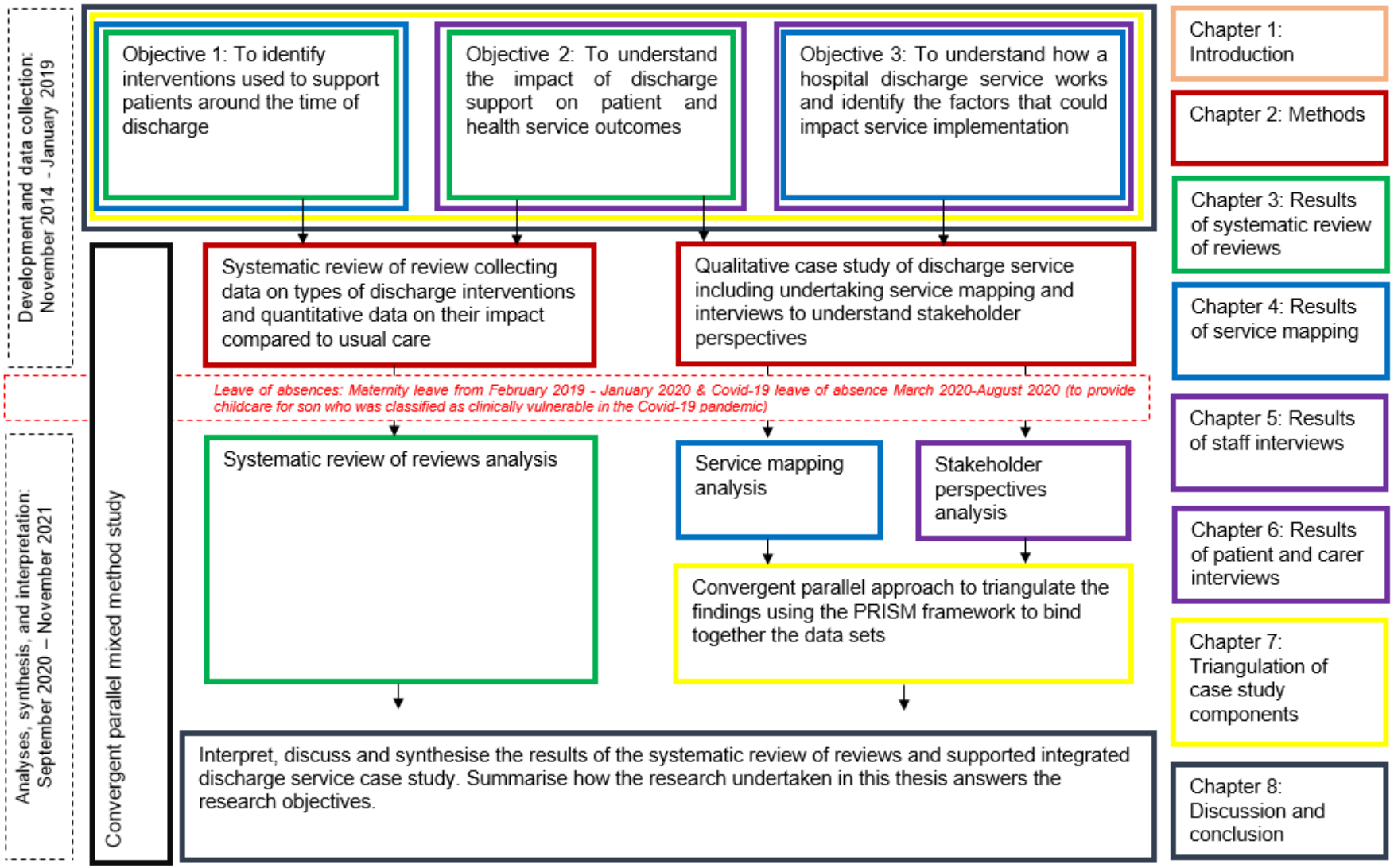


Figure 1.2 Thesis overview, research objectives and timelines

1.3 Overview of Ph.D. Thesis

Below is an overview of the research, which will be presented in this Ph.D. thesis in the following seven chapters.

Chapter 2: Methods

This chapter will detail the research methodology used in the thesis, including methods for the systematic review of reviews, the qualitative case study of a hospital discharge intervention and synthesis processes.

Chapter 3: Results of a systematic review of reviews

The systematic review of reviews identifies various interventions used to support older patients at discharge, then reports on the impact of discharge interventions that provided rehabilitative support/therapy at home (or in the community) around the time of discharge on different outcomes. Lastly, the review interrogates broader data from other discharge intervention types, focusing on the five main outcomes of readmissions, patient health status, mortality, length of hospital stay and costs.

Chapter 4: Process mapping of a supported integrated hospital discharge service

Process mapping of a hospital discharge service was undertaken with staff to explore perceptions of how the service worked. The organisational characteristics of the

discharge service were mapped from different staff perspectives and convened by the researcher.

Chapter 5: Results of staff interviews

Semi-structured interviews with discharge service staff were undertaken to help understand and explore: the discharge service from different perspectives; influences of the external environment and patient characteristics.

Chapter 6: Results of patient and carer interviews

Semi-structured interviews with patients and carers who used the discharge service, were undertaken to understand the impact of SIHDS service on patients from different perspectives.

Chapter 7: Triangulation of case study components

The findings from the case study elements (mapping and stakeholder perspectives) were triangulated, using the Practical Robust Implementation and Sustainability Model (PRISM).

Chapter 8: Thesis discussion and conclusion

This chapter synthesises and discusses the findings from the thesis in the context of recent literature and the implications of the findings for different stakeholders. It also

explores the challenges and limitations of the research undertaken in the thesis, makes recommendations for future research and draws conclusions from the research.

1.4 Summary

This chapter introduced the background to the topic of discharge services and key UK Government policies and legislature. It then went on to detail the objectives of the research and pragmatic philosophical standpoint. An overview of the convergent parallel mixed method research undertaken in this thesis was detailed, including how the research linked to the objectives and thesis chapters. The next chapter will discuss in detail the research methods used in this thesis.

CHAPTER 2: METHODS

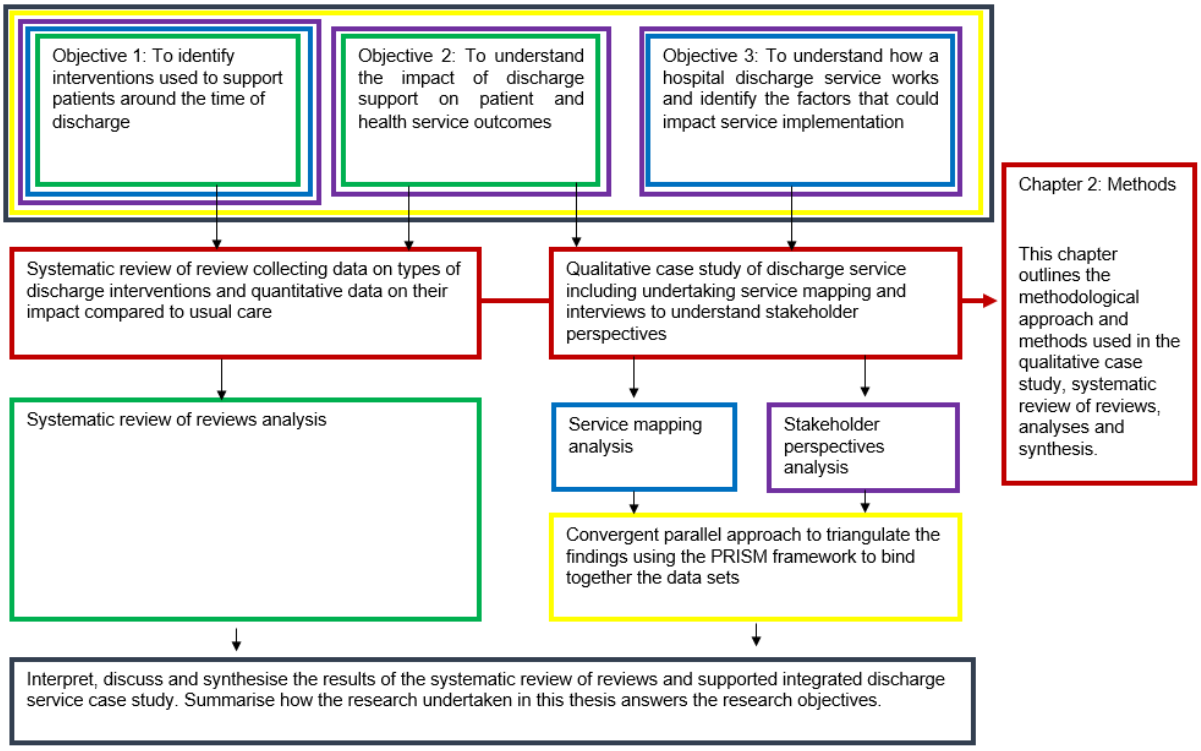


Figure 2.1: Thesis overview and methods chapter

2.1 Introduction

The previous chapter gave an introduction to the topic of this thesis, setting out the background of discharge services and the current evidence base; as well as detailing the overarching objectives of the thesis and summarising the convergent parallel mixed method research processes used in this research. This chapter will now outline the methodological approaches and specific methods used in the thesis. The chapter will start by describing the approach to case study research and the methods used in the mixed method research. First, detailing the methods for the systematic review of reviews, then going on to detail the methods used to undertake the qualitative case study of a therapy led supported integrated multiple component discharge service. To allow the case study research and review to be mutually informative, the review explores and presents additional detail on the intervention type most similar to the case study discharge service. Lastly, this chapter will describe the synthesis processes used to interpret, discuss and understand the results of the case study and review.

2.2 Methodological approach

There are many methodological approaches that could be used when trying to understand health service organisation and delivery (88). The approaches used depend on what is appropriate for the service, what the research objectives are and

furthermore the complexity, setting and aims of the service need to be considered (88, 89). Randomised controlled trials (RCTs) are considered to be the ‘gold standard’ approach to obtain high quality evidence, however there are situations where other methods are more appropriate and an RCT would be unnecessary, insufficient or appropriate (88, 90). For example, although RCTs may find statistically significant results, qualitative methods such as interviews, help with understanding the meaning and interpretation of findings as well as understanding complex services; mixed method approaches can potentially do both (91). Case studies are a methodological approach which often uses multiple and varied methods to collect data and then triangulate findings (91).

2.3 Review of the evidence

Quantitative data were gathered by reviewing the evidence base on discharge services. Literature reviews can be used to identify existing evidence and to develop new insights into particular areas of interest, summarise the evidence and identify where further research is required (92). There are different types of reviews that can be used, for example:

- Scoping reviews can be used to understand what literature is available for a certain topic and map it (93)

- Narrative reviews that do not follow a specific set of methods, but can be used to identify, critique and summarise the literature on a specific topic (92)
- Systematic reviews that follow strict protocols to summarise the results of all available high-quality studies (normally controlled trials) to provide evidence on whether interventions are effective (92-94)

Unsystematic narrative reviews can be a pragmatic choice, as they are less onerous to complete and can give a summary of key literature; however, they do not often follow a specific and systematic methodological process, which may lead to biased reviews showing a partial picture of the area of interest (92). Scoping reviews can be useful to understand a topic, but do not synthesise findings to answer a research question or critically appraise the included studies (93). Systematic reviews are comprehensive, rigorous and repeatable ways of answering a specific research question, however they are often demanding and time–consuming to conduct (92, 94)

A form of review which has increasingly emerged in recent years is the systematic review of reviews. This approach is useful when multiple systematic reviews have already been conducted in the research area of interest; they can bring together the existing evidence base allowing data to be compared and contrasted (95). Discharge services are very broad and can include different intervention types and systematic review evidence is already available for a variety of discharge interventions such as patient assessments, home visits, rehabilitation at home and discharge planning (46, 49, 50, 56). Therefore, a systematic review of reviews was used in this thesis to

understand what interventions could be used to support patients around the time of discharge, as well as to gather quantitative evidence on the effect of different discharge services on key outcomes compared to ‘usual care’. A further unsystematic narrative review was subsequently completed, with the aim of summarising any systematic reviews of discharge interventions that were published after the systematic review of reviews update searches were completed. This narrative review allowed more recent literature to be contextualised alongside the systematic review of reviews findings.

2.3.1 Systematic review of reviews methods

A systematic review of reviews can be referred to as a meta-review, overview of reviews or umbrella review (95, 96). In this thesis, this type of review is referred to as a systematic review of reviews and the review undertaken in this thesis will be referred to as a ‘SR of reviews’ in the text from this point onwards. The protocol for this SR of reviews was written in accordance with the PRISMA-P (Preferred reporting items for systematic review and meta-analysis protocols) guidelines (97), published (98) and registered on the PROSPERO database (registration number CRD42015025737).

This SR of reviews aims to answer the main thesis research objectives 1 & 2 (Section 1.2.3) by:

a) Building knowledge on the different types of discharge intervention and support for older patients

b) Increasing the understanding of intervention components within different intervention types
c) Increasing the understanding of the impact of different types of discharge interventions on older people compared to ‘usual care’

This review will help understand different discharge services and the impact that various discharge interventions have on older people. Outcome data will be presented on discharge interventions that provide therapy in a patient’s home (or community); these intervention types are most similar to the case study and may provide a more in depth understanding of this particular intervention type. This review will provide high quality quantitative data, which was synthesised with qualitative case study findings. The synthesis of these different findings will be the basis of the main findings and conclusions of the thesis.

2.3.1.1 Inclusion and exclusion criteria

Only English language systematic reviews, meta-analyses or other systematic reviews of systematic reviews were included in this SR of reviews. Reviews including non-UK research were included as long as the review was published in English and did not focus on less economically developed countries. In the published protocol (98), it was stated that eligible reviews must have all of the key characteristics for systematic reviews as defined by Higgins and Green (95). The key characteristics included:

- A clearly stated set of objectives with pre-defined study eligibility criteria; an explicit, reproducible methodology
- A systematic search that attempted to identify all studies that would meet the eligibility criteria
- An assessment of the validity of the findings of the included studies, for example through the assessment of risk of bias; and a systematic presentation, and synthesis of the characteristics and findings of the included studies

However, during the screening process it became clear that some reviews of interest were potentially excluded based on the reviewers' interpretation of whether the review had fulfilled all of the key characteristics. Therefore the decision was made to use the AMSTAR checklist (A Measurement Tool to Assess Systematic Reviews) to assess the quality of all of the reviews (99). This meant a validated measure of quality was used to exclude reviews of low quality and inclusion was not solely based on the reviewers interpretation of the Higgins and Green definition.

2.3.1.1.1 Population

Studies with data for older patients that were hospital inpatients (reported with a mean age 60 years and over) were included. If studies included a younger adult cohort (e.g. inclusion criteria 18+) and the overall mean age was not reported and there were no

subgroup analyses, results or discussion aimed at patients over 60 years of age, then the study was excluded.

2.3.1.1.2 Interventions

Systematic reviews that focused on interventions that provided additional support or adapted the process around the time of discharge from hospital were included. This could have been an intervention before, during and/or after discharge from hospital, it could have also included multiple component interventions with discharge support as a key intervention component. Intervention settings included a patient's own home, a carer/family member's home, community rehabilitation settings or residential/nursing home. A previous systematic review (100) described categories for discharge interventions and these categories were used to structure the data extraction forms as follows:

- ***"Discharge planning schemes****: primarily interventions that utilise comprehensive discharge planning protocols*
- ***Discharge support schemes:*** *a variety of models in which new and existing services were targeted at recently discharged patients and included schemes with early discharge from inpatient hospital care*
- ***Geriatric assessment programmes****: assessment services focused on hospital inpatients and patients recently discharged from hospital*
- ***Educational programmes****: a distinct group of studies with the objective of educating patients in aspects of management of their illness"* (Parker *et al.*, 2002; p.9 (100))

Originally, the protocol for this SR of reviews described categorising the reviews according to the above Parker et al. (100) categories. However, once the synthesis

was underway it was clear that some of these categories did not describe the included studies well enough to allow detailed comparison and investigation of their impact on outcomes, as reviews and interventions they included could often fit into multiple Parker et al. categories. Therefore, interventions were categorised based on intervention components to allow effectiveness of different intervention types to be understood. The data synthesis Section 2.3.6 shows how interventions were categorised.

2.3.1.1.3 Comparators

Due to hospitals offering different types of discharge services and support, comparators of any type of standard care or alternative interventions were included in this review.

2.3.1.1.4 Outcomes

Outcomes of interest were selected following a scoping review of key papers; team discussion and Patient and Public Involvement (PPI) meetings. To be eligible for this SR of reviews, reviews must have included data on at least one of the following

outcomes of interest: mortality, readmissions, length of hospital stay, patient health status, patient satisfaction, admission to institutional care, carer outcomes, staff outcomes, care process measures (e.g. number of complications), costs, emergency department visits and resource use.

Exclusion criteria included:

- Interventions focused on specialist mental health discharge services, except discharge services for delirium or dementia as these conditions are common in the older population (101)
- Reviews where there were no full research papers available
- Reviews that focused solely on less economically developed countries
- Interventions that evaluated the effectiveness of drugs administered to patients
- Reviews that were written in languages other than English
- Reviews that scored less than 5 on the AMSTAR checklist (99)

2.3.2 Search strategy

The search strategy itself had no restriction on review publication date. However, an *a posteriori* decision was made to only include reviews published after the year 2000, as reviews published before this date would be likely to have little relevance to the current

health care context and findings about effective interventions/intervention components may have lacked generalisability.

The search strategy was intentionally broad and ten databases (Table 2.1) were searched using multiple key search terms, Medical Subject Headings (MESH) and filters related to ‘systematic reviews’, ‘older people’ and ‘discharge’. Where individual databases included a systematic review search filter, these filters were used in order to maximise specificity (102) (Appendix 1 shows the full details of the search strategies).

Table 2.1: Databases searched

Databases searched
Medline
PsycINFO
Social Policy and Practice (includes: Social Care Online and AgeInfo)
The Cochrane Library
Social Science Citation Index
Embase
Health Management Information Consortium (HMIC)
Cumulative Index to Nursing and Allied Health Literature (CINAHL)

Databases searched
Applied Social Sciences Index and Abstracts (ASSIA)
Grey Literature Report

The reference lists of each included review were also screened for relevant reviews. A non-systematic key word search using Google was also conducted. The first electronic searches were performed on the 10th July 2015 and an update search was completed on 4th September 2017. The update was completed at this time to ensure that the quantitative data derived from the review was concurrent with the commencement of the qualitative case study data collection (87).

The unsystematic narrative review of relevant literature published since the most recent update of the SR of reviews was completed on 3rd October 2021. This narrative review did not include a systematic search, but included key word searches of the Cochrane Library, Medline and Google Scholar to identify systematic reviews of discharge services. As Cochrane reviews are considered a gold standard for high-quality reliable information and are often updated, Cochrane reviews included in this SR of reviews were also checked for new updates (269).

2.3.3 Study selection

Following the database searches, citations were transferred to RefWorks and duplicates were removed. Citations were then exported into Microsoft Excel to complete the remaining deduplication, manage the citations and record screening decisions. The titles and abstracts of all citations were independently screened for eligibility against the inclusion and exclusion criteria by at least two reviewers. A pre-defined algorithm determined whether or not a review was taken forward for full text screening – full text screening was undertaken in instances where:

1. The study was considered eligible by two reviewers
2. A reviewer was unsure of a review's eligibility and the full text needed to be reviewed
3. There was disagreement between the two reviewers as to whether the study was relevant

Due to the high percentage of 'unsure' selections during the title and abstract screening process, the decision was made to amend the protocol for the full text screening stage. This amendment meant that at least three members of the review team met to discuss and agree decisions for any unsure full text papers. Where several versions of a review were eligible for inclusion, only the most recent version was included in the final synthesis.

2.3.4 Assessment of review quality

AMSTAR was used to assess the quality of the systematic reviews, and reviews were scored from 0-11 using the AMSTAR checklist (99) (Appendix 2). In summary, the AMSTAR checklist assesses studies according to: whether there was an *a priori* design; duplicate study selection and data extraction; comprehensive literature search; status of publication part of inclusion; list of included and excluded studies; characteristics of included studies; assessment and documentation of scientific quality; scientific quality used appropriately to inform conclusions; appropriate methods used to combine findings; assessment of publication bias and conflict of interest declared. Previous studies that reviewed the quality of systematic reviews have classified AMSTAR scores into the following groups: a low-quality score ranging from 0–4; a moderate quality score ranging from 5–8 and a high-quality score ranging from 9–11 (103, 104). To allow the best available evidence on this topic to be included, whilst minimising error and bias, only reviews with a moderate/high score (5 or above) were included in this review (105).

2.3.5 Data extraction and management

A data extraction form (Appendix 2) was developed before the SR of reviews began. Data were extracted on country of lead author, type of review, search strategy, settings, aims, study designs included, number of articles included, AMSTAR score, patient

population, descriptions of interventions and comparators, outcomes measured, results of outcomes, conclusions and gaps identified. Data extraction was completed by the Ph.D. student, plus one of the Ph.D. supervisors independently extracted data on five randomly selected reviews and the data extraction was then reviewed by the two reviewers to check for consistency.

2.3.6 Data Synthesis and analysis

The SR of review evidence was synthesised narratively for two main reasons:

1. There was substantial heterogeneity in the intervention designs and characteristics
2. To avoid the introduction of bias by double counting some primary studies (which were included in multiple reviews) and giving them undue influence on review findings (95)

Due to the large number of different intervention types included in this review, processes based on elements of inductive content analysis methods were used to categorise interventions according to their descriptions and common components. This involved documenting data on the intervention descriptions included in the reviews and categorising them to allow the intervention groupings to be developed (106). This involved reviewing the specific intervention components described in the reviews (e.g. discharge planning, assessments or rehabilitation/therapy in the community) and

service leads (e.g. nursing led care or primary care) and then grouping the interventions based on the specified component types and service leads. For clarity, intervention types are in bold ***italics*** in the text when reporting the results. Where interventions could not be grouped with similar studies, these interventions were grouped as ***miscellaneous interventions around the time of discharge***. If it was unclear what groups interventions should be included in, the intervention description was discussed at a team meeting and decisions made through consensus. As the intervention groups were derived from the data, this allowed different interventions reported within reviews to be grouped into categories based on their specific intervention components such as ‘CGA’ or ‘discharge planning’. Results of the groupings can be seen in Table 2.2 on ‘intervention types’. This allowed data reported from full reviews that focused on one intervention and larger reviews that reported on multiple interventions (intervention subgroups) to be interpreted and compared within and across reviews based on similar intervention components (Figure 2.2 shows an example of this). To show where a larger review included intervention subgroups, superscript letters have been added after the review reference number. These intervention subgroups can be seen in the results text in Chapter 3 as well as the results tables in Appendix 3.

Table 2.2: Full list of intervention types included in this review

Intervention types	Section number
Interventions that provided rehabilitative support/therapy at home (or in the community) around the time of discharge	3.2.4
Interventions that provided patient assessments around the time of discharge	3.2.5
Primary care interventions around the time of discharge	3.2.6
Interventions that provided multiple component inpatient specialist care including preparation for discharge	3.2.7
Interventions that provided patient education around the time of discharge	3.2.8
Interventions that provided discharge planning/coordination or case management	3.2.9
Interventions that provided multiple component transitional care at discharge	3.2.10
Interventions that provided nursing led care around the time of discharge	3.2.11
Interventions that provided specialist care pathways around the time of discharge	3.2.12
Miscellaneous interventions around the time of discharge	3.2.13

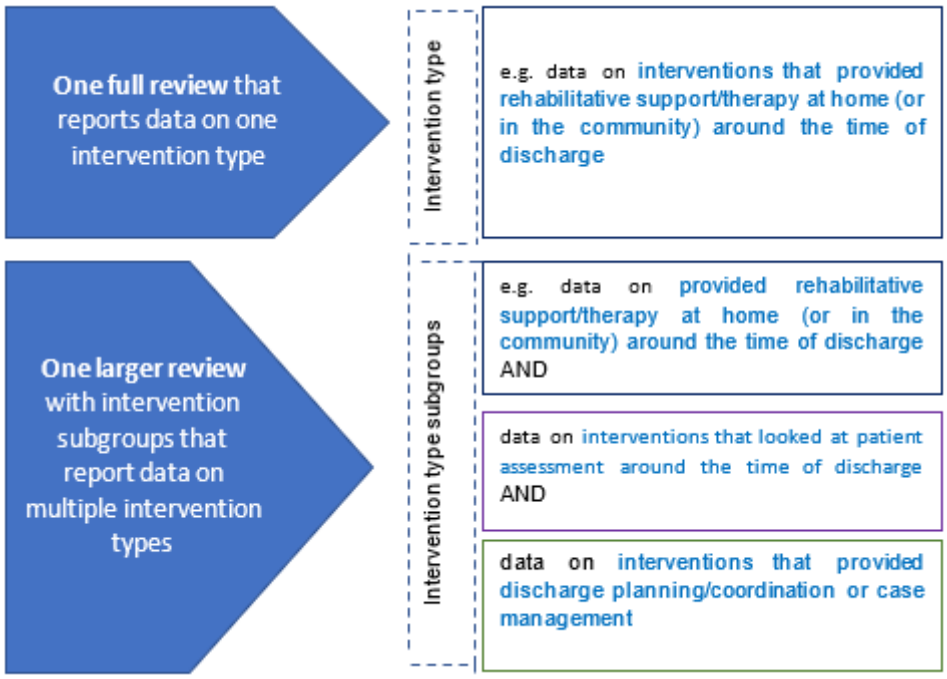


Figure 2.2: Explanation of the difference between full reviews and intervention subgroups within larger reviews

2.3.6.1 Overlap between primary studies

The degree of overlap between primary studies included in systematic reviews was assessed to understand any 'double counting' and potentially making the results of some studies more prominent. There is no standard approach to assess overlap and there are different approaches that can be taken to deal with primary study overlap in systematic reviews of reviews (107). The Cochrane handbook suggests that a way to overcome overlapping reviews is to only include Cochrane reviews of interventions, this is because Cochrane attempts to avoid duplication of effort by publishing only one review of interventions on any given topic (95). There are benefits to this approach as it would limit the search to one database, the included reviews would likely be of high

quality (with risk of bias assessed and reported), primary study overlap would be reduced and Cochrane reviews have a standardised format for reporting (which would make data extraction less complicated and time consuming) (108 109, 110). However, this could mean removing a large number of reviews, so the SR of reviews would not have had the same comprehensive coverage. A similar method to the Cochrane approach is to use criteria to select which systematic review to include, for example the review which includes the highest number of trials; however, some trials will be missed and the review may not be the highest quality or include the most recent trial (107). Another option is to include all of the reviews and quantify the overlap and potential impact by looking at the number of primary studies included in the reviews or the proportion of primary studies within a given review that were also covered in other reviews (107).

Understanding the overlap between primary studies was achieved in two different ways, firstly by documenting the primary studies included in each review in rows in Excel and then cross referencing each primary study across reviews in columns in Excel, to develop a matrix to determine how many times a primary study was included in a review. This information was then presented simply with numbers, percentages and a pie chart (the systematic reviews of reviews and reviews that included primary studies and systematic reviews were not included in this assessment). Secondly, the primary study and review study matrix data was entered into GROOVE (Graphical Representation of Overlap for OVErviews) an Excel tool that calculated corrected covered area (CCA) and gave a more complex graphical representation of CCA formula for each pair of the included reviews (111, 112). The decision to undertake two

approaches to review overlap was made as: one approach (matrix and pie chart) is numerically understandable and presentable even with large numbers of reviews, but does not give a proportion of overlap across reviews; the second approach (CCA) provides a proportion of overlap across reviews but when there is a large number of reviews graphical images are large, so they can be harder to read and interpret, furthermore CCA can underestimate the degree of overlap (especially when there is a large number of reviews) (107, 113). The process on how to manage overlapping reviews was based upon results of the primary study overlap assessment and more information about this is in Chapter 3 Section 3.2.2.

2.3.7 Presentation of results of the review

The first section of the review results focuses on the results of the searches and primary study overlap, findings are reported from reviews focusing on ***therapy at home (or in the community) around the time of discharge*** then there is a discussion of the different intervention components within this intervention type focusing on *early discharge interventions, discharge with home care/support* and *rehabilitation or therapy interventions* (highlighted using italics). Subsequent sections will interrogate the other intervention types compared to 'usual care', focusing on the most complete outcome data on readmissions, patient health status, mortality, length of hospital stay and costs.

Results for each of the interventions and outcomes of interest are presented in tables within Appendix 3. The approach used to classify results from different studies and draw overall conclusions is detailed in Table 2.3. This shows the symbols that are used to describe if there are significant or non-significant trends that favoured the intervention or control groups; no significant differences, or unclear evidence. Due to the complexity of reported results, the narrative will prioritise discussions of meta-analyses and 'majority results' (i.e. reviews that report 50% or more of their primary studies as being in agreement). Where only individual study data were available from a review (e.g. no meta-analysis completed) or the authors did not report 50% or more of their included primary studies as being in agreement, the findings are reported in the tables within Appendix 3 only and are not discussed in the narrative (these include findings where a minority (less than 50%) of included studies were in agreement; where only one primary study is reported, or where only two primary studies reported were in disagreement).

Table 2.3 Classification of results

Result	**Symbol in Tables in Appendix 3 and overview Tables**
Significant difference in favour of intervention	+
Trends in favour of intervention (but results not reported as significant)	NS+
No significant difference between groups (and no trend reported)	ND

Result	Symbol in Tables in Appendix 3 and overview Tables
Trends in favour of control (but results not reported as significant)	NS-
Significant difference in favour of control	-
Unclear or insufficient evidence.	?

Formal meta-analyses and standardised forest plots were not completed in this SR of reviews for two main reasons: Firstly, data were not consistently provided on the numbers of participants included in studies, therefore weighting for a meta-analysis and overall combined results could not be calculated for all of the meta-analyses. Secondly, where reviews had done meta-analyses of primary studies on similar interventions/patient groups then different review meta-analyses could include the same primary studies; therefore, if they were combined, overlapping primary studies could be double counted and give a bias to the results. However, when there were two or more meta-analysis that reported odds ratio (OR), risk ratio (RR) or mean difference (MD) along with confidence intervals (CI) for the same outcome for a single intervention type; forest plots (developed using Excel) were used as a visual tool to present multiple meta-analysis results alongside each other (including different patient groups).

There are different measures of effect, these can be ratio measures (e.g. OR, RR) or MD (which compares mean values between two groups) (95). Although both RR and

OR describe the relative effects of one intervention versus another; OR compare the ratio of odds of an event between two groups, whilst RR compare the ratio of risk of an event in one group versus the risk of the event in the other group (114). Therefore, although both odds and risk ratios indicate the nature of association between two groups, they are calculated differently and cannot be used interchangeably (114). Furthermore, the Cochrane handbook for systematic reviews recommends using a consistent measure of effect (95), so for this review, RR, OR and MD will be presented in separate forest plots depending on what was reported in the included reviews.

Forest plots were not produced for an intervention outcome when only one meta-analysis reported significant differences and the rest of the meta-analyses reported no significant differences. Furthermore, individual meta-analyses were excluded from forest plots if significant heterogeneity was reported as comparability of these results is unclear. To present the majority findings, a grid showing interventions versus outcomes shows the direction of effect for each outcome (Table 3.11: Summary of effects of all intervention types on five main outcomes). When describing results of the outcomes reported for each intervention, these will be presented with the outcomes with positive findings shown first, followed by outcomes with the largest number of included reviews, followed by alphabetical order (if more than one outcome have the same findings). Where there were limited data available for an outcome, the data are briefly described in an ‘other outcomes’ section.

The results of the SR of reviews were compared with findings from an unsystematic narrative review summarising more recently published literature. This process allowed newly published literature to be covered in the thesis. The results of the narrative review are described in Section 3.3. Results of the SR of reviews were then synthesised with findings from the qualitative case study. The methods for the qualitative case study, patient and public involvements and synthesis are discussed in Sections 2.4, 2.5 and 2.6.

2.4 Qualitative case study

Case studies are defined as:

> "an empirical enquiry that investigates a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009; p.14 (115))

Case studies are useful when a service is not standardised, involves multiple separate components, is in a real-life context and case study data are triangulated with data from different sources (116-118). A case study helps to understand perspectives and increase our knowledge of how the intervention and environment impact the outcomes and services (116). Case studies allow for multiple methods to be used, for complex interventions to be captured and for cases and/or contexts to change whilst research is being conducted (83, 117, 118). Stake (1995) discusses three categories of case study: an *intrinsic case study* is normally used to study an atypical or unique

phenomenon or issue; an *instrumental case study* can be a more typical example and helps to gain a deeper understanding of an issue or phenomenon; and a *collective case study* uses multiple cases to generate broader insights into an issue or phenomenon (119). Crowe et al., (2011) discussed these categories of case studies alongside examples and raised the point that they do not necessarily need to be mutually exclusive categories (120). To increase the strength of case study research, synthesis of different sources of evidence are often used (83, 118). The evidence from multiple sources is then synthesised to check and review the findings (82, 83, 118).

Using qualitative methods in a case study is a valuable approach; however, this approach does have some limitations that need to be considered. Some qualitative case studies have faced criticism regarding the rigour of methods used and validity (117). These limitations can be addressed to minimise their impact on the case study. It is important to have a clear rationale for the methods used, which can answer the research objectives; validity can be addressed by using appropriate sampling, triangulation of data, clear processes and robust analysis (118, 121, 122).

Qualitative methods are useful to understand barriers and facilitators to effective service implementation; this is particularly important where there are variables that cannot be controlled and experimental approaches would not be appropriate (88, 118, 123). A further strength is the ability to focus on and understand one particular complex service (83). Case studies are considered higher quality when they are synthesised with a quantitative evidence base, as it allows findings to be further understood and

generalised (91, 117, 118). Case studies have been used to evaluate services, including complex intermediate care type services (124-126).

A qualitative *instrumental case study* was chosen for the research in this thesis, as this approach allowed a deeper understanding of how a service responding to Government guidelines around discharge could be implemented into practice. Unlike a *collective case study* an *instrumental case study* normally uses one case (119, 120). To strengthen the case study approach, the case study was synthesised with quantitative evidence from a review of the evidence base (83, 118). This approach allowed the research objectives to be met, regarding the impact of discharge services and how discharge services worked and were implemented in practice. Furthermore, the case study approach is suited to understanding complexities of modern healthcare (120).

The case study has two main parts, firstly staff involved in the case study were asked by the interviewer to draw a diagram of the main parts of the service, to visualise how the service worked and who was involved in the different steps (116). Secondly, stakeholder perspectives were sought to understand the impact and experiences of the service on discharge from different perspectives.

2.4.1 Visual description of discharge service

It is important to clearly define a service intervention, especially when a service is complex as it is of value to understand how the service processes work; this aids understanding and gives context to findings from other elements of the case study (117). Writing and drawing are used as visual research methods; they are considered useful to extend knowledge, as well as being a relatively easy and inexpensive technique to use (127). Creating visual descriptions of services can identify areas of improvement (128). There are different methods for creating these visual descriptions of services for example: service documents could be reviewed to review existing service structure diagrams, although this may be the most straightforward approach it may oversimplify the service, may give a poor understanding of how the service works in practice and may lack insight from different perspectives. NHS service improvement methods commonly use writing and drawing techniques in their process mapping methods to understand how a service works, these techniques are a simple creative process used to get a complete picture of the service, as well as identifying areas for improvement (129, 130). There are published methods on conducting process mapping and quality criteria to improve rigour, which can include: clearly identifying those involved in mapping the service; gathering information to inform process mapping and obtaining a variety of perspectives from a diverse set of roles (130, 131). Therefore, process mapping methods used in the NHS quality improvement (QI) methods were used in this research.

2.4.2 Stakeholder perspectives

Various methods have been used to understand stakeholder perspectives of discharge services these include: interviews, focus groups and participant observations. Semi-structured or unstructured (narrative) interviews are often preferred methods of data collection in health service research (132). Unstructured interviews are seen as beneficial to gain depth and pursue emergent themes, however they can be vulnerable to drifting off subject and away from the objectives of the research (133). Therefore, semi structured interviews can be a useful tool to keep some structure while still allowing emergent themes to be pursued. There are alternative methods that require less resources, such as focus groups as well as those that require more resources, such as participant observation.

Focus groups generate a lot of data by facilitating interactions between participants, which stimulates discussion and produces in depth data on a topic (89). However, they can be challenging to facilitate as people may talk over each other and some participants may not feel comfortable (or be given the opportunity) to share their personal experiences in the group setting (89). Although considerable data can come from one focus group, focus groups may be more challenging to arrange than interviews, due to the need to find a suitable time when all participants are available.

Participant observations, can allow complex services to be observed in practice and do not rely on people being willing to be interviewed or the accuracy of participant

recall, as is the case with focus groups and interviews (89). However, participant observation methods are more labour-intensive forms of data collection than interviews and focus groups, as they observe services in practice requiring long lengths of time in the field and may involve more time-consuming transcription and analysis (134). It is also acknowledged that where participant observation is taking place the observer may have an impact on the behaviour of participants due to their presence and as this method relies on the researcher interpreting observational data, bias could be introduced into the data at this point (89).

Semi-structured interviews were chosen for this thesis for three main reasons, firstly they are useful to understand complex research areas and explore participants experiences (135). Secondly, they allow the researcher to explore emerging themes, whilst tailoring the interview process and schedule to answer the research objectives (133). Thirdly they are a manageable and time efficient way of collecting data (135).

2.4.3 Discharge service case study

Local health and social care systems are expected to regularly review their current hospital discharge services, to establish any improvements that could be made in line with Government guidance (136). NHS Trusts have been running various forms of hospital discharge services for a number of years, which have often evolved in line

with Government guidance and research evidence. When using case study methods, site selection is important and the site should be purposefully sampled on the basis that it is a typical example of the service being investigated (118). One option when selecting a case study for this PhD, was to focus on a UK hospital that had been running a supported integrated hospital discharge service (SIHDS) since 2012. The service was based at a hospital in the West Midlands, so as well as being an established discharge service, it was also based in the same region as the researcher with established links to the University of Birmingham, so access to conduct the qualitative research made it a pragmatic choice. The service was provided by hospital therapists, physiotherapists, nurses and therapy assistants, who worked with LA enablement service staff, community therapists and social workers. The service was purposefully sampled to be the focus of this case study for two main reasons. Firstly, it reflected a typical example of a service that was designed and delivered in response to Government recommendations for local health and social care systems to provide rehabilitation and enablement services to support patients at discharge. This response to Government guidance focusing on 'Discharge to Assess' models, means that there are similar discharge services elsewhere in the country, so other areas of the UK are likely to have comparable experiences and be facing similar challenges. For example similar services exist in the Wirral (137), Kent (138), Somerset (139) and Lothian (140); and similar models are in place in Wales called 'Discharge to Recover then Assess' (141). Secondly, due to the fact that SIHDS had been running for a number of years it allowed for exploration into how the service was implemented into practice.

The service provided support and had multiple components:

- Up to 14 days of rehabilitation within the patient's home after hospital discharge, through hospital therapists; therapists included physiotherapists, occupational therapists (both typically starting at NHS band 5) and therapy support workers (typically starting at NHS band 3 and more experienced at band 4) who worked with occupational therapists to help patients carry out everyday tasks or use equipment aids)
- The discharge support included:
    - Discharge planning
    - Home visits
    - Patient assessments
    - Equipment aids
- Up to six weeks of enablement support provided by carers and if needed a full community social work assessment
- Arrangement of longer-term health and social care packages for patients who needed ongoing support following the rehabilitation and enablement phases

This model was facilitated through shared Information Technology (IT) arrangements, that allowed the Hospital Trust and LA to access each other's patient databases, and regular multidisciplinary team meetings that allowed patient needs to be discussed and reviewed by all collaborating organisations.

Based in an urban area the hospital's catchment included diverse, socioeconomically deprived communities (in the LA area where the hospital was located, 43% of the population were living in neighbourhoods considered to be in the 10% most deprived

in England), with a larger than average proportion of non-white ethnicity (48% white with 52% black and minority ethnic groups compared to 78.7% white for England as a whole) and only 1.8% were aged 85 and over (compared to 2.2% aged 85 and over in England and Wales) (142-145). This case study was not in a rural area, so the perspectives of those taking part in this research may be different from if this service was based in more rural locations. For example, in the South West a higher percentage of the population are White British (91.8%) and older than 65 years (21.1%) than in the West Midlands, where 18% are older than 65 years of age and 79.2% are White British (146, 147).

The overall aim of the service was to maximise opportunities for patients to maintain or regain their independence and physical function after a hospital stay, with each transitional point from hospital to home, rehabilitation to enablement, and enablement to longer term social care (if necessary) being seamless for the patient. Specific objectives of the SIHDS were to:

- Support patients returning to their home environment as soon as possible following a hospital admission
- Prevent patients being transferred to long term nursing/residential care straight from acute care
- Provide rehabilitation and enablement support at the most appropriate points in the care pathway and in the best environment for the patient
- Reduce the average length of stay in hospital by 10 days per patient and reduce hospital readmission rates

- Facilitate resource savings for the individual partners involved in providing the service
- Allow the acute sector to permanently reduce capacity through ward closures
- Promote quality and continuity of care for patients and maximise therapeutic outcomes

There was a need to understand the effectiveness of the service from the perspective of staff (service managers and frontline health and social care staff) involved directly in service delivery; patients who used the service; and carers of patients, to see whether the service met local needs and if it could be improved. To understand effectiveness of the SIHDS, broader perspectives from stakeholders were considered alongside the objectives of the SIHDS. Furthermore, evaluating the implementation of the service allowed a broader understanding of how this type of service worked in practice and this could then be used to inform guidance on discharge services.

The next section will outline the methods being used in the qualitative case study of the SIHDS. The qualitative case study comprises of two main components, first the service was process mapped with staff involved in managing and delivering the service. Then, semi-structured interviews were conducted with staff, patients and their informal/formal carers to understand their experiences of different aspects of the service.

2.4.4 Summary of case study design

The two components of this qualitative case study are:

1. Staff process mapping - This work characterised: the service that operated in the hospital and across the various settings involved in its delivery; who was involved and identified any potential gaps in care. Methods of conventional process mapping used in NHS QI were used and staff involved in the SIHDS were asked to 'map' their involvement and understanding of the service (148). Staff developed individual process maps on a blank page using boxes and arrows showing the SIHDS processes to create a pictorial representation (149). Individual process maps were then combined to develop shared process maps from service partner perspectives. Process mapping identified useful information about the service and gave an understanding of how it worked.

2. The SIHDS stakeholder interviews - Staff (service managers, plus frontline health and social care staff), patients and carers involved in the SIHDS service were invited to take part in semi-structured interviews to understand their perspectives and experiences of the SIHDS. This provided rich data on the many stakeholders' experiences and how the service helped people and how it could be improved. Consideration of the broader concepts of how this type of service could be implemented were highlighted.

2.4.5 Sample

Semi-structured face-to-face or telephone interviews were conducted with key hospital, community and social care staff involved in the service, patients and informal carers/family members. Giving a choice to participants of how they can participate in research (e.g. telephone or face-to-face) is important to allow for participant preferences, it can aid recruitment and interview quality, where a format suits a participant better (150). Furthermore, researchers have found the quality of data from telephone interviews to be just as good as face-to-face interviews and that telephone interviews are effective when there is a purposeful sampling strategy to answer a specific question (151, 152). All the staff chose to take part in face-to-face interviews, while the patient and carer interviews were a mix of face-to-face and telephone interviews.

Staff interviews were first conducted with hospital therapy leads, managers and individuals with managerial oversight of the service at the hospital, LA and community partners. There were no strict limits placed on sample size, as it was considered more useful within qualitative research to focus on understanding the ideas and evidence identified in the research itself (153). However, a pragmatic approach was taken to ensure the sample was: small enough to be practically manageable; but wide enough to fulfil the sampling strategy and the data were rich enough to allow interpretation and meaningful insights (153-155). Gareth et al., 2017 recommend between 15-30 interviews for a Ph.D. project, so this was used to inform sampling strategies (156).

Snowball sampling was used, whereby managers for each partner in the discharge service were asked to identify other staff (operational, administrative and frontline) who were involved in the service (157). These staff members were then invited to take part in interviews, so staff interview samples reflected the staff involved in SIHDS across health, social and community care.

The SIHDS patients were purposefully sampled to include a mixture of patients who had experience of the service but included diversity in terms of older age groups and gender. Stratified purposeful sampling identifies typical cases but ensures some variation (153). Therefore, stratified purposeful sampling was used to identify patients of different ages (aged under 70 and over 70) and a mix of genders to ensure a range of different perspectives were captured (153). Although the service was mainly for older people, service staff suggested that there was not a strict age cut off and support was occasionally offered to younger people with complex medical and support needs typically seen in the older population. Due to this the inclusion criteria for this research were people aged over 18. Anecdotal evidence suggested that 10-15% of the patients that used the SIHDS did not speak English well enough to take part in an interview in English. This 10-15% were generally Indian or Pakistani ethnic minorities who spoke Punjabi or Urdu. Therefore, recruitment materials were translated into Punjabi and Urdu and an interpreter was contacted to assist the researcher if needed thus allowing patients from these groups to take part. Some participants that were invited to take part in the interviews may have had early signs of dementia. However, the service lead suggested that the number of patients with dementia who used the service was small. Therefore, dementia was not one of the criteria used to purposively sample patients. If

a carer or relative was at the face-to-face patient interview or contacted the researcher directly, the researcher asked if the participant would be happy for their carer/family member to be invited to take part in an interview. Table 2.4 shows the eligibility criteria.

Table 2.4: Eligibility criteria

Inclusion criteria	**Exclusion criteria**
Staff	
Staff over the age of 18 who worked in or with the SIHDS team	Staff who did not work in or with the SIHDS team
Able and willing to give informed consent	Those who did not wish to take part in an interview
	Anyone under the age of 18
Patients	
Adults (over 18 years old) who had used the SIHDS	Unable to speak or read English, Punjabi or Urdu.
Able and willing to give informed consent	If the patient was identified by the SIHDS staff as a potential safeguarding risk.
	Those who did not wish to take part in an interview
	Anyone under the age of 18
Carers	
Carer/family member of patients who had used the SIHDS	Carer/family member of a patient who was not offered the service

Inclusion criteria	Exclusion criteria
Able and willing to give informed consent	Carer/family member of a patient offered the SIHDS who did not want their carer/family member to take part in an interview
Adults (over 18 years old)	Unable to speak or read English, Punjabi or Urdu.
	Those who did not wish to take part in an interview
	Anyone under the age of 18

2.4.6 Recruitment

2.4.6.1 Staff

All staff identified via the above method were emailed the study information (including the participant information sheet (PIS) (Appendix 4) by their manager who copied in the researcher. Staff then either contacted the researcher by email and/or telephone directly or were contacted by the researcher (within a week) to find out if they wanted to take part and if they had any questions about what participation in the research would involve. All staff participants were interviewed face-to-face and interviews were carried out at the relevant hospital site, LA or community trust premises. Written

informed consent was completed by participants prior to taking part. The first part of the interview was about mapping and the second part of the interview was understanding staff perspectives of the SIHDS.

2.4.6.2 Patients and carers

All eligible patients using the SIHDS were invited to take part in an interview and were given an information sheet and reply slip (with a pre-paid addressed envelope) by a SIHDS staff member whilst they were in hospital. If the patient was happy to discuss the study, they completed the reply slip (including information regarding their discharge date, if known, plus age, gender and contact details) then posted the reply slip back to the research team in the pre-stamped addressed envelope (or gave it to the SIHDS staff to do so). Due to the recruitment process relying on patients returning the reply slip, no reminders were sent to patients. If patients matched the sampling criteria, they were followed up in the order of their returned reply slips, until sampling was completed, or data saturation was reached. Patients were contacted via telephone to see if they had any questions about participation and to arrange a time for the interview if they were happy to take part. Consent was completed via post for telephone interviews and immediately prior to face-to-face interviews, patients were also asked to complete a brief socio-demographic questionnaire. The socio-demographic questionnaire included multiple choice questions regarding marital status, age, gender,

ethnicity, employment and living situation. The PIS, patient invitation letter, reply slip, and brief-socio-demographic questionnaire can be seen in Appendices 4-9.

The PIS, detailed that if the patient had a carer or family member present at their face-to-face interview, the researcher would invite them to take part in an interview (if the patient was happy for them to do so). This gave the patient the opportunity to talk to their carer/family member about them taking part and show them the PIS before the time of the interview. At the time of the patient interview (if the patient agreed), the carer/family member was invited to take part and given a PIS explaining why interviewing carers was important to the study. After the patient interview, they were given the opportunity to ask questions and decide whether to take part. Those who agreed to take part were asked to sign a consent form and complete a brief socio-demographic questionnaire.

2.4.7 Data collection

Between August 2017 and January 2019 informal conversations with service leads took place, service paperwork was reviewed, recruitment and formal interviews were undertaken. Two different methods were used to collect the process mapping and stakeholder perspectives data. These methods are described below.

2.4.7.1 Staff process mapping

Process mapping is well established in the NHS as part of the QI processes, as it allows the sequential steps in health services to be analysed (148, 149, 158, 129). Data were gathered through completing individual process mapping diagrams with 14 members of staff from the separate organisations involved in the SIHDS service. The process mapping involved two stages of data collection (131, 130):

- Organisation and process identification – to identify a formal service system map of how the staff and organisations involved in the SIHDS should work as well as a review of the process and guidance documents to give a high-level understanding of discharge service processes (128)
- Information gathering – after an introduction to process mapping processes, staff were individually asked to explain and physically draw a map (onto blank paper) of the actual steps taken in the SIHDS processes from their perspective, identifying their role and other key people/organisations that were involved. After the 'map' was completed, staff were then asked to verbally explain their map to the researcher

2.4.7.2 Stakeholder perspectives of the SIHDS

Stakeholder interviews were in-depth and semi-structured, allowing important issues to be explored with all participants, whilst allowing flexibility regarding content and

direction as required. Interviews were audio-recorded then transcribed in full by an independent transcription company. The interview topic guides were informed by the service objectives and stakeholder expertise. To further help explore implementation and the wider impact of the service, the domains of PRISM are structural themes within the topic guides, such as staff and patient perspectives; the impact of the external environment, organisational characteristics, and the organisations/providers involved (159). The full topic guide can be seen in Appendix 10 and covered the following areas for staff, patients and carers:

- Staff
    - How integration, information sharing and transfer of care worked in practice
    - Opinions of the SIHDS
    - Impact on patients
    - Perceived strengths and weaknesses of the service

- Patients and carers
    - Expectations of discharge and experience of the SIHDS
    - Involvement of patient and carer in decisions, perceived quality of communication between all involved
    - Experience of transition between different elements of the service
    - Perceived benefits and disadvantages of the service
    - Potential areas where support was missing

2.4.8 Analysis

2.4.8.1 Staff process mapping

The audio recordings of the process mapping conversations and physical maps drawn were used in the analysis to map the service and identify any potential gaps or possible improvements. There were two stages to the process mapping analysis (130, 131):

- Process map generation – maps and verbal information collected from staff were used to generate combined visual representations from different service perspectives (hospital SIHDS, social health care, community services and enablement services) of processes carried out by staff members linked to the service
- Analysis – the SIHDS documentation and process maps created by staff were reviewed by the researcher, then used to compare and contrast data gathered and key questions described by Trebble et al. for process mapping analysis were considered (160) (Box 2.1)

This process produced process maps and an accompanying narrative, which allowed combined perspectives from multi-disciplinary teams involved in the SIHDS service to be considered, differences to the formal service system map to be highlighted and the identification of potential changes for improvement.

Process for analysing the mapping data using a series of simple questions and adding this information as a narrative to accompany the final process map. The following points were considered during the analysis of the mapping data:

- Number of steps involved
- Number of staff-staff interactions and handovers
- The time between each step
- The total time start to finish
- Any patient queue and how regular
- Unnecessary steps/processes
- Any patient complaints
- Any problems for staff

Trebble et al. (160) process for analysing the mapping data

Box 2.1: Process mapping analysis questions

2.4.8.2 Stakeholder perspectives

Interview transcripts were checked and analysed using thematic analysis (161). There are considered to be three main types of thematic analysis: *coding reliability*, *codebook* and *reflexive* (162). Sud (2020) described these as follows: *coding reliability* thematic analysis is where coding is guided by a pre-determined coding frame and themes are based on agreement between multiple coders; *codebook* thematic analysis is where themes can be identified from data collection questions, as well as those generated from data analysis processes, themes are then conceptualised in domain summaries; lastly *reflexive* thematic analysis involves analytical work by the researcher to develop an understanding of patterned meaning across the dataset and themes are grounded in the data (162, 163).

Reflexive thematic analysis described by Braun and Clarke was chosen as: it has clear analytical stages (to conduct a robust analysis); themes are generated from an organic, open, iterative and reflexive data analysis process completed by the researcher; it allows the analysis to tell a story of the data and answer the thesis research questions; it can be used with most theoretical frameworks (e.g. PRISM); and can be used alongside other methods (e.g. process mapping) (156, 163). The analysis was guided by the objectives of the qualitative research. The thematic analysis was carried out in line with the methodology described by Braun and Clarke (156, 161, 163, 164), which involved 6 stages of analysis including:

1. Familiarisation with the dataset

2. Generate codes
3. Examine the codes/data and generate initial themes
4. Develop and review initial themes
5. Refine, define and name themes
6. Writing up a narrative of the findings (164)

Furthermore, a constant comparative method was used to allow emerging issues from earlier interviews to be explored in later interviews (165). Double coding of entire datasets was not considered necessary, but it was recognised that there were benefits in double coding a percentage of interviews to understand potential alternative interpretations and allow insights to further refine the analysis (166). Therefore, once all of the interviews were complete, four (14%) of the manuscripts were coded independently by a second researcher (Ph.D. student's supervisor) using the same process. The two researchers then met to discuss the analysis and review the coding that had been completed. The themes and subthemes that emerged from the interviews were then discussed and refined separately for staff and patients/carers. The next section will outline the ethical considerations of undertaking this research.

2.4.9 Ethical considerations

The qualitative research was reviewed and approved by the NHS Health Research Authority (HRA) reference number: 17/NE/0279. The research also received research

governance approval from the University of Birmingham, the local NHS Foundation Trust, community health service and council, where the research was undertaken. The study was conducted in compliance with the study protocol, the Declaration of Helsinki, the Data Protection Act (1998), University of Birmingham Code of Practice for Research and local Research Ethics Committee approval.

All participants gave informed consent and signed consent forms. It was not anticipated that participants or the researcher would be at risk or get upset, but certain procedures were followed. The participant interviews took place at a time and place that suited the participant. Participants were allowed to withdraw from the study and their interview within four weeks of their interview date by contacting the researcher. Anonymity was insured by using participant IDs. Research documents were stored in locked filing cabinets in a University of Birmingham office or on password protected computers.

Although risks for the participants were not anticipated there was some potential risks for the researcher working in the community to conduct face to face interviews at patients' homes. Therefore, the University of Birmingham's Guidance on community visits and the Lone Worker Policy (167) were followed to ensure the safety of the researcher. This included giving the interview details (name of interviewee, location and time) to a reliable person and informing them of when the interview started and when the researcher was safely out. As well as procedures to follow if no contact occurred in the expected time or a pre agreed codeword was mentioned.

2.5 Patient and public involvement and engagement

This research was developed with regular input from a Patient and public involvement and engagement (PPIE) group. PPIE has been found to add to the importance, integrity and quality of research (168). In this case study and SR of reviews, a PPIE group reviewed and commented on the study protocols, outcomes of interest, recruitment processes, information sheets, topic guides and data collection forms. This allowed expertise, ideas and perspectives to be considered and ensured that there was PPIE input that helped shape the research. The next section will outline methods being used to synthesise the case study findings with each other as well as the results of the SR of reviews.

2.6 Synthesis

The synthesis and interpretation of findings is critically important as it allows elements of theory, findings, actions and policy to come together (72). Triangulation was used to synthesise, interpret and evaluate results from the thesis. Triangulation can enhance validity and bring together the findings from various research methods, this was done by comparing and contrasting findings against each other (78). Furthermore, triangulation of findings further enhance the understanding of a topic as different methods bring broader insights (63).

2.6.1 Approaches to synthesis

There are a number of approaches to synthesising mixed methods data that can be used, a convergent parallel research design was chosen as: the concurrent timing of the review and case study gives a more complete understanding of a topic (87); the different strands of research are analysed independently and then mixed during the synthesis stage, so they do not depend on each other's findings (87); and the different methods are prioritised equally during the synthesis, but one method may contribute more than another when synthesising data for individual research objectives (87).

The thesis synthesis was done in two stages. First, an implementation framework was used to guide the synthesis of information derived from the case study service mapping and stakeholder perspectives data (87). Secondly, the findings from the systematic review of reviews and case study were reviewed, interpreted and synthesised according to the thesis research objectives, then presented in the discussion.

2.6.2 Conceptual framework

The triangulation of the case study service mapping and stakeholder perspectives, used a conceptual framework, this helped guide the synthesis to evaluate the discharge service. To help answer a specific objective looking at implementation of

services, the triangulation was guided by an implementation science theory to help understand how discharge services could be implemented in practice. Implementation science theories can be used to deepen understanding of how and why services succeed or fail in practice and subsequently improve health services (169, 170). Implementation science does not aim to evaluate the impact of services on health, instead it identifies factors that may affect interventions in practice (171). This is done by identifying and evaluating barriers and facilitators across the service and stakeholders (171).

There were a number of implementation science frameworks that could be utilised to categorise the findings from the case study, to help understand barriers and facilitators to the implementation of discharge services. Nilsen (169) proposes a classification of conceptual frameworks used in implementation science into groups having three principal aims: 1) Process models that describe and/or guide the process of translating research into practice (process models); 2) Determinant frameworks, classic theories or implementation theories that help understand and/or explain what influences implementation outcomes, and 3) Evaluation frameworks that evaluate implementation. There are a number of implementation evaluation frameworks that are available to be used to sort the findings from stakeholder interviews and process mapping elements of the case study (Table 2.5).

Table 2.5: Summary of key Implementation Science Methodologies and Frameworks

Model or Frameworks	Summary
PRISM (practical robust implementation and sustainability model)	The PRISM evaluates how the health services or interventions interact with the stakeholders to impact service use, implementation, sustainability, spread, and success (159).
RE-AIM model (Reach, Effectiveness, Adoption, Implementation, Maintenance)	The RE-AIM was developed for evaluating public health interventions and assesses five dimensions (reach, effectiveness, adoption, implementation, and maintenance) at multiple levels such as individual, organisation, community (172).
PRECEDE-PROCEED (Predisposing, Reinforcing and Enabling Constructs in Educational Diagnosis and Evaluation-Policy, Regulatory, and Organizational Constructs in Educational and Environmental Development)	The PRECEDE-PROCEED Model is used in health programme planning and evaluation, by examining the impact of the organisational and environmental systems. The phases in the model include situational analysis, development, and evaluation (173, 174).
Normalization Process Theory (NPT)	The NPT details four main factors needed for successful implementation and integration of interventions into routine work. These include: coherence; cognitive participation; collective action and reflexive monitoring (175).
Theoretical Domains Framework (TDF)	The TDF aims to simplify and integrate an abundance of behaviour change theories to make one accessible and usable theory; it details 14 theoretical domains including: knowledge, skills,

Model or Frameworks	Summary
	intentions, goals, roles, social influences, beliefs about capabilities and environmental context (176).
Dynamic Sustainability Framework (DSF)	The DSF comprises of continued learning and problem solving, with continued adaptation of interventions focusing on the fit between interventions and multi-level contexts, and the potential for ongoing improvement over time (177).

As summarised in Table 2.5, implementation science methodologies and frameworks offer a variety of tools and concepts that could be employed to evaluate a hospital discharge service and triangulate the findings from the case study. For example, the RE-AIM framework has been developed and used for evaluating public health interventions; PRECEDE-PROCEED Model is often used for planning and evaluation of health programmes; the NPT looks at the integration of interventions into routine practice and DSF helps understand the potential for continued learning and ongoing improvements.

The PRISM framework was chosen as the overarching implementation model to triangulate the findings of the supported integrated hospital discharge case study. The choice of PRISM was based on a number of factors:

- The model development was built upon existing work in the areas of: Chronic care model; the Diffusion of Innovations; the RE-AIM framework, as well as more pragmatic QI concepts, which link in with the case study approaches (159)

- The model has a primary focus in health care practice (159)
- The model allows for multiple levels and factors to be considered including: staff and patient perspectives; the external environment, organisational characteristics, implementation infrastructure and the adopting of organisations/providers (159)
- The model has been used in previous research to identify challenges and successes, as well as assisting with assessing, evaluating and disseminating health services (178-180)

2.6.2.1 Case study triangulation using PRISM

PRISM concentrates on four contextual domains that influence service implementation and outcomes. These domains include: 1) the programme (including organisational and patient perspectives); 2) the external environment (including competition, regulations, reimbursement and resources); 3) the implementation and sustainability infrastructure (including performance data, adaptable procedures, sharing of best practice and training/support) and 4) the recipients (including organisational and patient characteristics) (159). Using PRISM as a framework allowed findings to be triangulated to understand how the intervention adoption, implementation and maintenance was influenced by factors including: who received the intervention; the external environment; the intervention design and implementation infrastructures (159).

The findings from the staff process mapping and stakeholder perspectives triangulation were sorted into a table. The table comprised of PRISM domains listed in the first column, followed by in subsequent columns details of ‘barriers’ and ‘facilitators’ identified in the case study and then ‘PRISM elements that discharge services in development should consider’. The process also allowed further conceptualisation of the evaluation and structured the findings from the qualitative case study to answer the thesis research objectives. The findings of this triangulation are described in Chapter 7.

2.6.3 Synthesis of systematic review of reviews and case study

The findings from the SR of review and qualitative case study were interpreted, evaluated and synthesised according to the thesis research objectives. This synthesis and findings regarding each of the main thesis research objectives is discussed in Chapter 8.

2.7 Summary

To summarise, the research approach in this thesis is a convergent parallel design as described by Creswell and Plano Clark (77). This means that although the different methods are concurrent, they are undertaken and analysed separately using relevant methods and only synthesised as a final analytic step (77). During the process of data synthesis, structures, theories or conceptual frameworks can be used to structure the synthesis of findings (77). Therefore, the triangulation (of the case study findings of the process mapping and stakeholder perspectives) uses the PRISM domains to bind together the two sets of findings. The synthesis of the findings from the SR of reviews and case study findings are structured and presented to address the thesis research objectives. This chapter has outlined the methods used to undertake the SR of reviews, the qualitative case study and synthesis. In chapter three, the results of the SR of reviews are presented along with a description of the impact of the various discharge interventions on key outcomes compared to ‘usual care’.

CHAPTER 3: RESULTS OF A SYSTEMATIC REVIEW OF REVIEWS

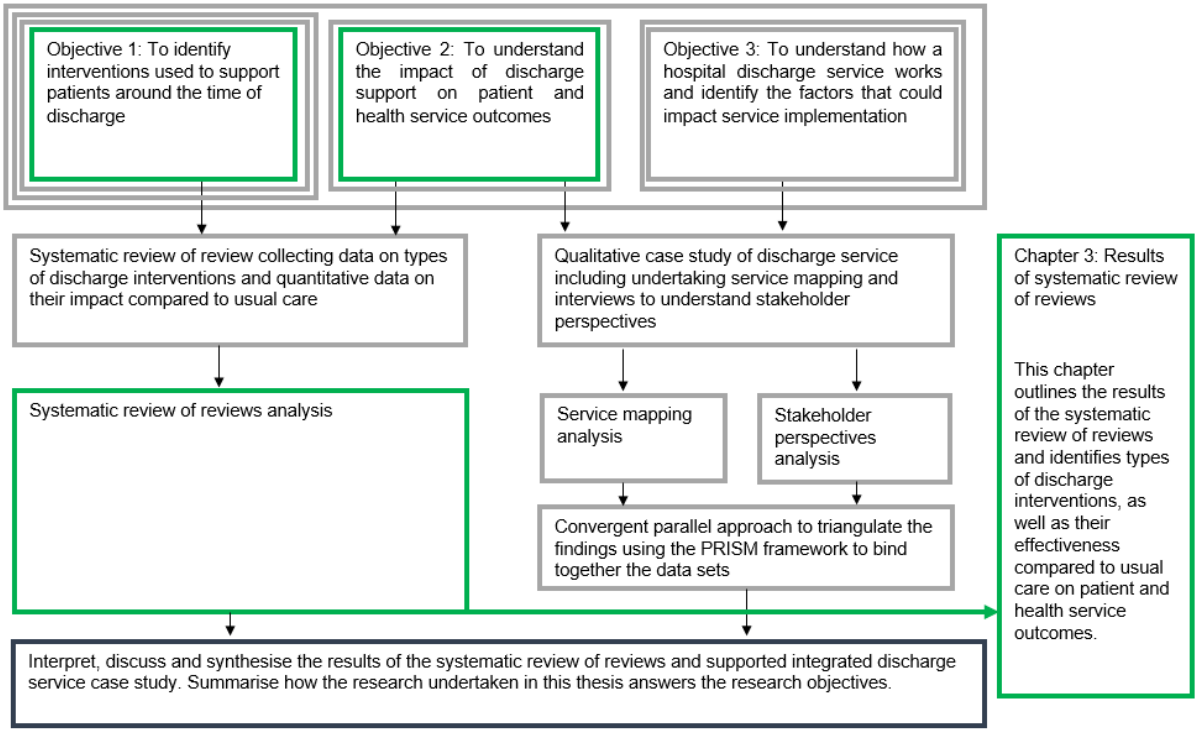


Figure 3.1: Thesis overview and SR of reviews chapter

3.1 INTRODUCTION

The first two chapters of this thesis introduced the topic of discharge services for older people and described the research processes and methods being used. The methods used in the research have previously been described in Chapter 2, with the SR of reviews methods being described in Section 2.2. This chapter is the first of the findings chapters and presents the results of the SR of reviews of discharge services for older people. First the results of the searches are presented, then a review of the overlap in the primary studies, before describing the review characteristics and findings by intervention type.

3.2 RESULTS

3.2.1 Results of searches and screening

A total of 11,233 potentially eligible reviews were identified from the search. After removal of duplicates, 8,748 title and abstracts were reviewed, and of these, 859 full texts were assessed for eligibility. After quality assessment, 66 reviews were included in this review, this included reviews with multiple versions. The main reasons for the exclusion of reviews included: not a discharge intervention; not a systematic review;

and not an older patient group. Figure 3.2 shows a PRISMA diagram summarising the search results (97).

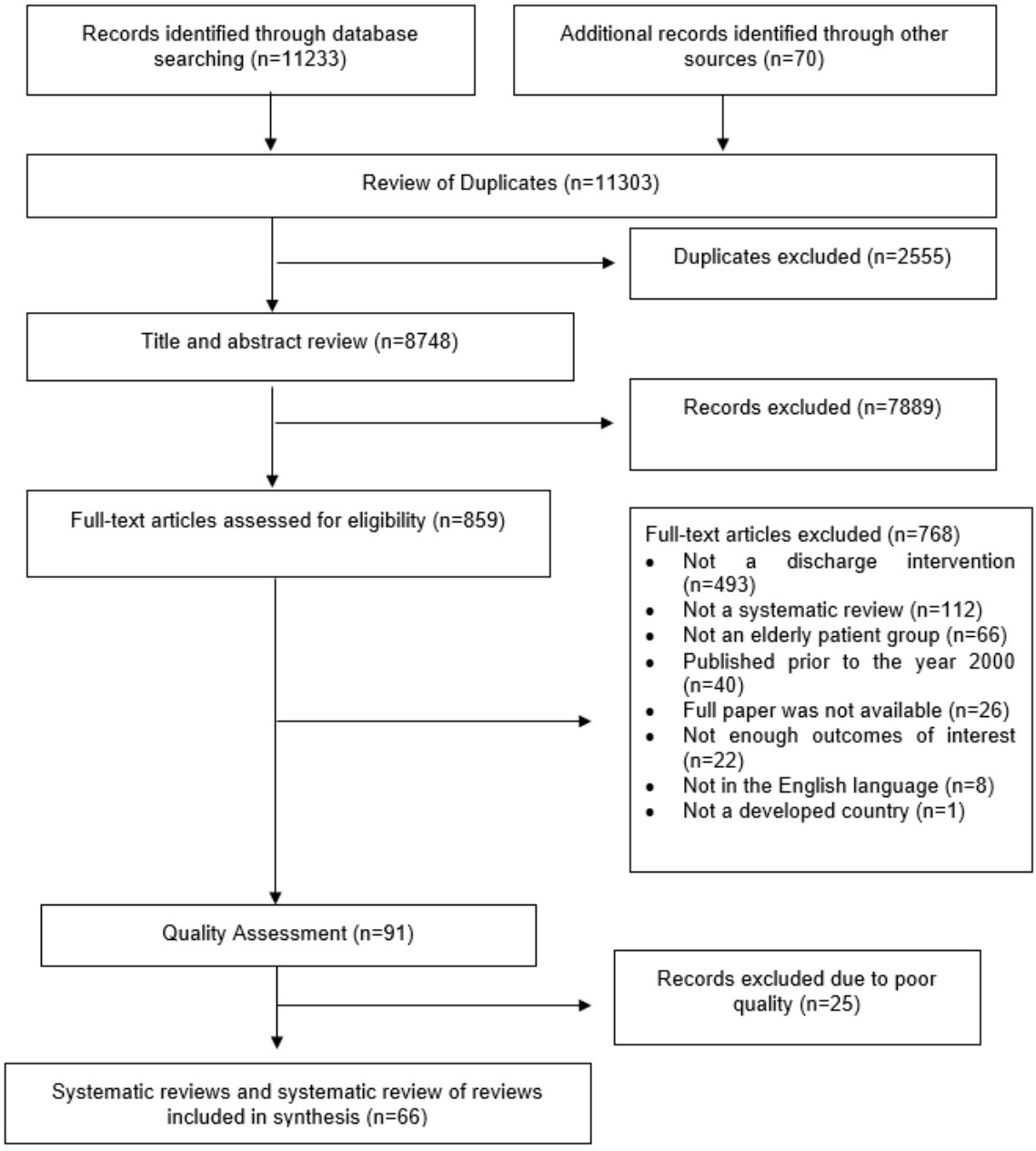


Figure 3.2: PRISMA Flow Diagram

Characteristics of the included reviews can be seen in Appendix 11. Of the reviews included, three were systematic reviews of reviews (61, 181, 182); two reviews

included primary studies and reviews (183, 184); and all of the others were systematic reviews of primary studies (although two of these reviews included the same primary studies but reported different intervention components and outcome data) (185, 186).

3.2.2 Primary study overlap

As detailed in the methods, primary study overlap across the systematic review of reviews was assessed in two ways.

First a matrix was developed with all of the primary studies in rows and all of the reviews in columns detailing where primary studies were included in reviews. The matrix found that a total of 548 primary studies were identified across the 61 systematic reviews included. The review of the matrix found that the majority (n=384; 70.1%) of primary studies were only included in one systematic review, although there was some overlap identified with 164 (29.9%) primary studies included in more than one review. Examining the primary studies that were included in multiple reviews, these ranged from 80 primary studies (14.6%) that were each included in two different reviews to one primary study (0.2%) that was included in 13 different reviews (Figure 3.3).

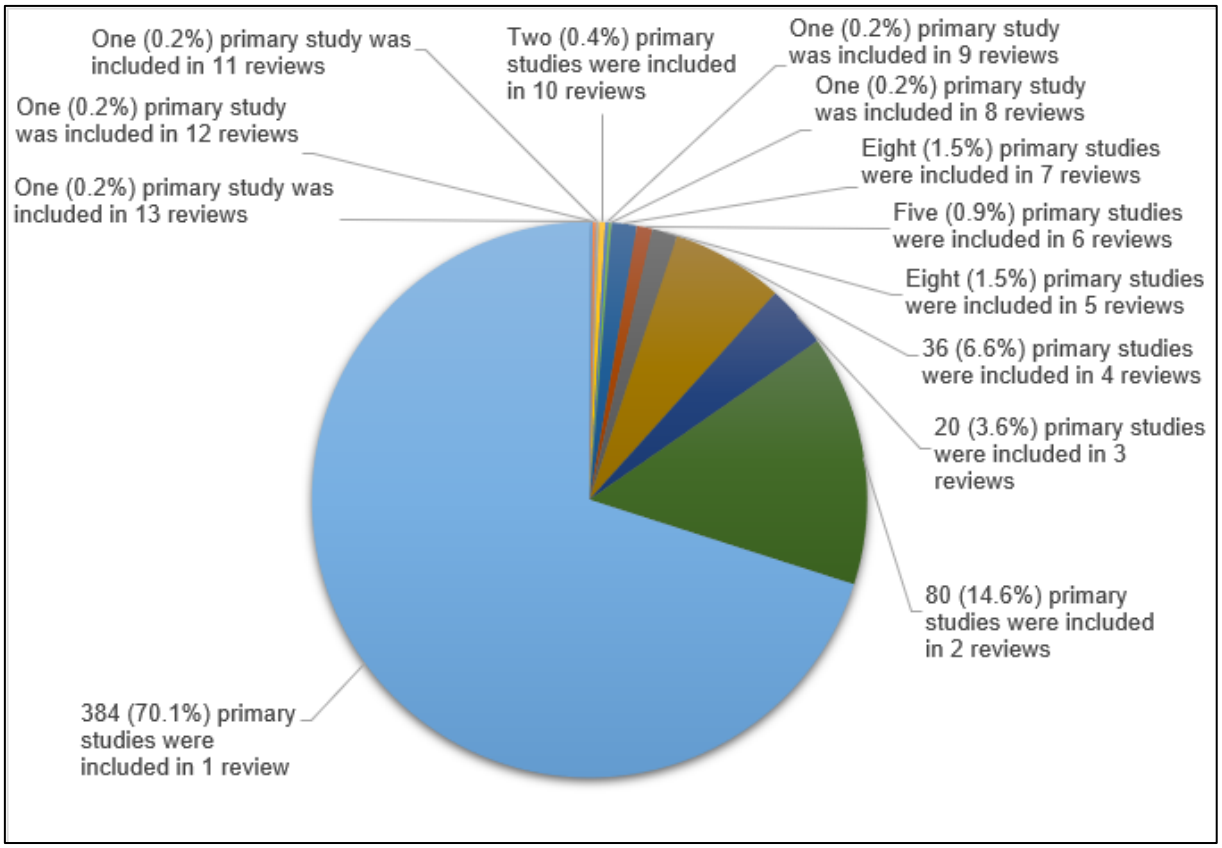


Figure 3.3: Pie chart of primary study overlap across included systematic reviews

Secondly, the primary study and review study matrix data was entered into the GROOVE Excel tool developed by Pérez-Bracchiglione et al. (113, 114). This tool found that CCA for the whole review was 1.5%, which is considered slight overlap. Pieper et al. score CCA calculations to define overlap as follows: Slight overlap (<5%); Moderate overlap (5% to <10%); High overlap (10% to <15%); Very High overlap (>15%) (113). This means that using CCA there is not considered to be a large amount of overlap, but there could be overlap between individual studies and CCA can underestimate overlap with large numbers of reviews. The GROOVE tool goes a stage further and produces a graphic (Figure 3.4), which compares the overlap using CCA

between every pair of reviews (113, 114). Figure 3.4 shows that although in general overlap is low, of 1128 possible review pairs, there were 54 (4.8% of total pairs) with high overlap and 49 (4.3% of total pairs) with very high overlap. The one review pair with 100% overlap, Fox A and Fox B (185, 186), are the two reviews previously discussed that included the same primary studies but reported different components of interventions and outcome data.

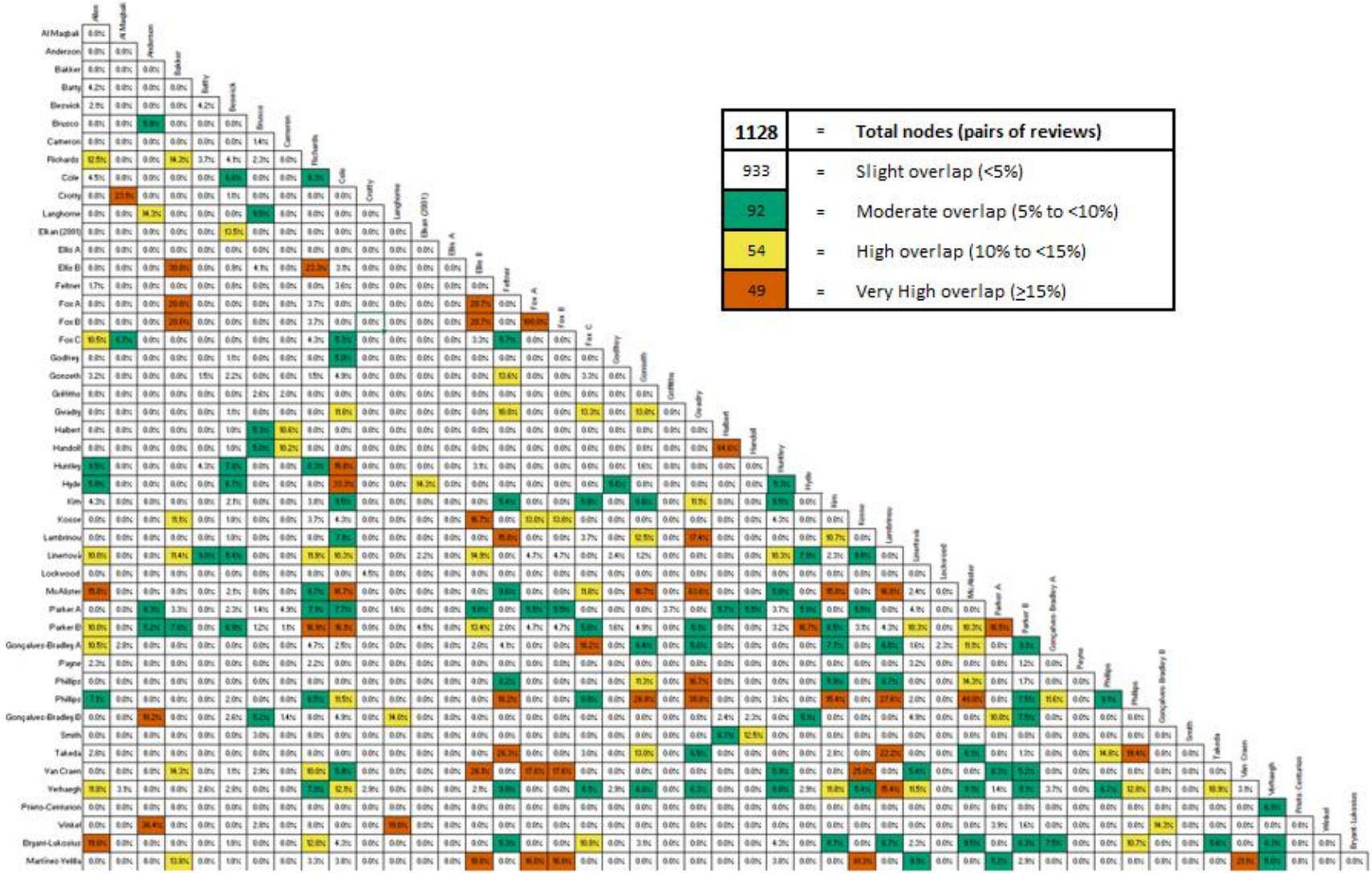


Figure 3.4: GROOVE tool output of SR of Reviews overlap by review pairs

The purpose of this review was to identify and describe the evidence on interventions that provided support at discharge, consequently it was deemed appropriate to include the results of all relevant systematic reviews, document the level of potential overlap and not exclude any studies to manage overlap (95, 107). Although primary study overlap is considered slight overall, there needs to be an awareness that there is some primary study overlap when specifically assessing all possible pairings of reviews included in this review (as seen in Figure 3.4).

To pragmatically manage the overlap in this thesis the following steps were taken: no synthesis of multiple meta-analyses was completed to provide a summary estimate (this was to avoid potentially double counting and impacting the estimates of the intervention effect, results of meta-analysis were included in forest plots, but these were without summary estimates); and where review pairs were classified as very high overlap (according to GROOVE tool) and the pair of reviews were included in the same intervention type results sections, these pairs of reviews and the CCA of their pair is presented at the start of the section. This approach ensured that estimates of intervention effect were not mispresented and showed clarity regarding which pairs of reviews had very high levels of overlap. Appendix 12 details all of the review pairs that are highlighted by the GROOVE tool as having ‘very high overlap’ (>15%).

3.2.3 Review characteristics

A broad range of patient populations were represented, including: mixed patient cohorts with a mean age 60 and above (n=42) (46, 49-51, 54-56, 60, 61, 100, 181-212) heart failure patients (n=9) (13, 205, 213-220); stroke patients (n=8) (57, 59, 221-226); fracture/joint replacement patients (n=5) (227-231); hip fracture and dementia patients (n=1) (232); and patients with chronic obstructive pulmonary disease (COPD) (n=1) (233). Comparison groups were often poorly defined, with most reviews offering no definition of 'standard' or 'usual' care. A wide variety of outcome measures were reported, but included papers were most likely to report on readmissions (n=59 out of 66), patient health status (n=51 out of 66), mortality (n=49 out of 66) and length of stay in hospital (n=47 out of 66); and the papers were least likely to report on staff outcomes (n=5 out of 66), medication (n=8 out of 66), emergency room visits (n=10 out of 66), and carer outcomes (n=19 out of 66) (Figure 3.5). For the intervention type linked to the third thesis research objective and the case study, ***rehabilitative support/therapy at home (or in the community) around the time of discharge***, the results of all outcomes of interest with data available were reported; this allowed for synthesis with the qualitative case study to deepen the overall understanding. As previously discussed in the methods, for the other intervention types only the five most reported outcomes (readmissions, patient health status, mortality, length of stay in hospital and costs) were included in the written results, this ensured that there was enough outcome data for comparison across reviews and interventions types. Full data on all outcomes included in the review are available in Appendix 3 Results tables by intervention type.

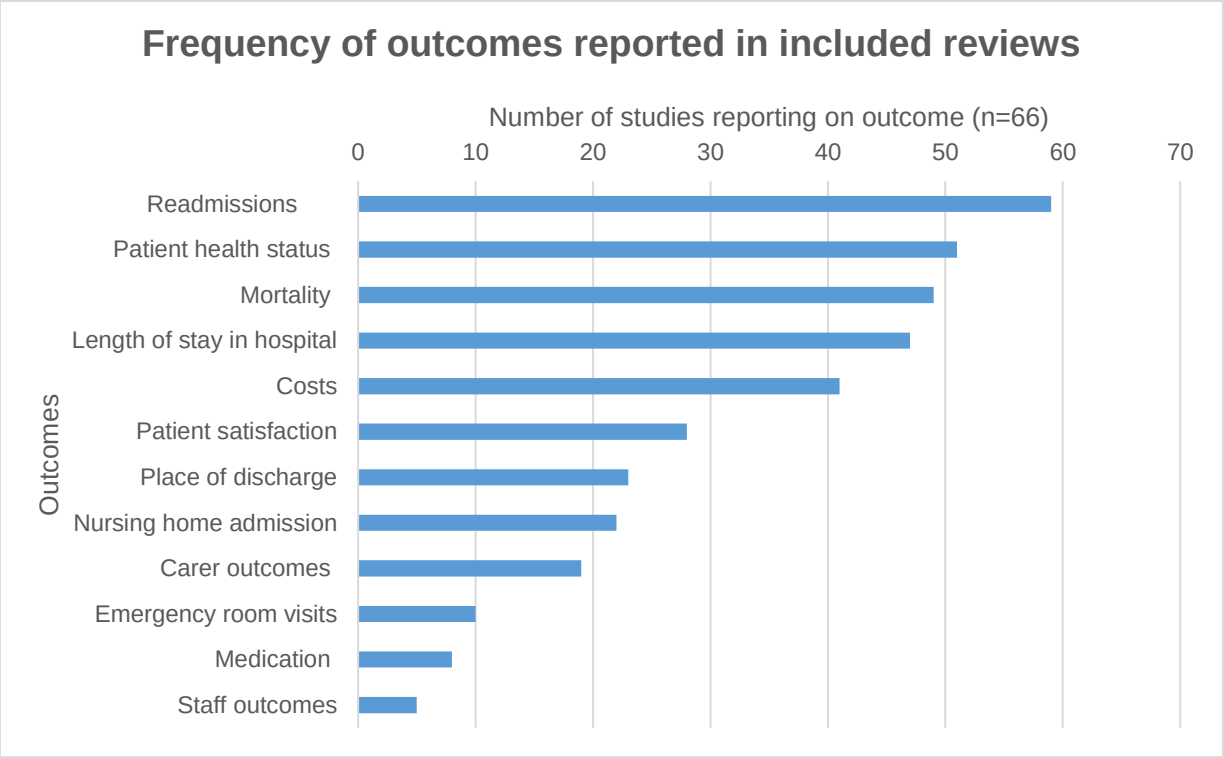


Figure 3.5: Frequency of outcomes reported in included reviews

Appendix 11 describes the quality of reviews included. Twenty-six were high quality (46, 49, 55-57, 59, 60, 100, 190, 194, 196, 204-206, 208, 209, 214, 219, 220, 222-224, 229-232) and 40 were moderate quality (13, 50, 51, 54, 61, 181-189, 191-193, 195, 197-203, 207, 210-213, 215-218, 221, 225-228, 233). The moderate quality papers were often lacking on the AMSTAR assessment elements of: 'a priori' design provided; assessing publication bias and duplicate study selection/data extraction (99). The results of the impact of different intervention types on outcomes are discussed below.

3.2.4 Interventions that provided rehabilitative support/therapy at home (or in the community) around the time of discharge

The effects of interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** are presented below (see Table 3.1). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.1: Overview of effectiveness using combined data for each outcome for interventions that provided *rehabilitative support/therapy at home (or in the community) around the time of discharge*

Effect	Outcomes
+	Length of stay in hospital (mostly 'early discharge' intervention components)
+	Admission to nursing home
+	Patient satisfaction
+	Place of discharge
NS+	Costs
NS+	Staff outcomes
ND	Patient health status
ND	Readmissions
ND	Mortality

Effect	Outcomes
ND	Carer outcomes
ND	Emergency room visits
No data	Medication

3.2.4.1 Included reviews

There were nine full reviews (46, 50, 51, 192, 195, 199, 212, 221, 228), thirteen intervention subgroups within larger reviews (59[a,b], 100[b], 190[a], 203[a,b], 226[a,b,c], 229[a], 230[a], 231[a], 232[c]), one review of reviews (181[b]) and two reviews that included primary studies as well as reviews (183[a], 184) that reported outcome data on interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge.*** Specific components of interventions were administered by multidisciplinary teams (e.g. nurses, doctors and physio/occupational therapists) and included:

- *Early discharge interventions* where the length of hospital stay was reduced, or discharge was accelerated through the provision of discharge planning, care and rehabilitation at home/in community setting (46, 59[a], 183[a], 203[a], 221, 226[a,b,c], 229[a])

- *Discharge with home care/support* such as practical support, personal care, advice, assessment and signposting (51, 100[b], 192, 195, 199)
- *Rehabilitation or therapy interventions* which were often multidisciplinary, started in hospital and then carried on in the home/community. Some interventions comprised of multiple components that included elements such as therapy, discharge planning, assessment and home visits (50, 59[b], 181[b], 184, 190[a], 203[b], 212, 228, 230[a], 231[a], 232[c])

Where these different components of interventions are written in the text, italics will be used to show these are the specific components being referred to.

Some reviews included data on specific populations such as stroke (46, 59[a,b], 190[a], 221, 226[a,b,c]), fracture/joint replacement (190[a], 228, 229[a], 230[a], 231[a], 232[c]) and COPD (46), while others were a mixed cohort of patients with an average age 60 and over (50, 51, 100[b], 181[b], 183[a], 192, 195, 199). Of the reviews/review subgroups included, nine were high quality (46, 59[a,b], 100[b], 190[a], 229[a], 230[a], 231[a], 232[c]) and sixteen were moderate quality (50, 51, 181[b], 183[a], 184, 192, 195, 199[b], 203[a,b], 212, 221, 226[a,b,c], 228). Review pairs included in this results section that were categorised as very high primary study overlap (CCA over 15%) by GROOVE included:

- Halbert et al. (228) and Handoll (231) CCA of 84.6%
- Anderson et al. (221) and Winkel et al. (226) CCA of 36.3%
- Cole et al. (192) and Hyde et al. (199) CCA of 33.3%
- Langhorne et al. (59) and Winkel et al (226) CCA of 19%

- Anderson et al (221) and Goncalves-Bradley et al. (46) CCA of 18.2%
- Hyde et al. (199) and Parker et al. (100) CCA of 16.7%
- Parker et al. (203) and Parker et al. (100) CCA of 16.5%
- Cole et al. (192) and Parker et al. (100) CCA of 16.1%

3.2.4.2 Length of stay in hospital

Length of stay in hospital was an outcome of interest in four full reviews (46, 212, 221, 228) and eight intervention subgroups within larger reviews (59[a], 100[b], 203[a], 226[a,b,c], 229[a], 232[c]), five of which conducted meta-analysis (59[a], 46, 100[b], 221, 229[a]) on length of stay and four reported majority findings (212, 226[a,b], 228). The results of the remaining three reviews/review subgroups (203[a], 226[c], 232[c]) can be seen in Table 1 in Appendix 3.

Of the five reviews/review subgroups that conducted meta-analysis on length of stay, four (46, 59[a], 221, 229[a]) looked at the *early discharge* subgroup and one (100[b]) looked at the *discharge with home care/support* subgroup. The reviews/review subgroups that looked at *early discharge* focused on different patient groups, these included stroke (46, 59[a], 221) , fracture (229[a]), COPD (46) and a mixed patient cohort (46) and reported a significantly shorter length of hospital stay in the *early discharge* groups (46, 59[a], 221, 229[a]). Data from a meta-analysis reported that MD of length of stay were available

from four reviews; 5.5 days for stroke patients (95% CI: -2.9 to -8.2; p<0.0001) (59[a]); 6.7 days (95% CI: -10.19 to -3.17) for stroke patients and 6.8 days (95% CI: -10.60 to -2.92) for a mixed cohort (46); 6.9 days for fracture patients (229[a]); and 13 days (95% CI: –19 days to–7 days) for another stroke patient cohort (221). The review subgroup (100[b]) on *discharge with home care/support* reported no difference in a meta-analysis (MD: 3.9 days; 95% CI:–9.9 to +2.0; p=0.196). Figure 3.6 shows that interventions that provided rehabilitation or support at home in the community around the time of discharge reduced the length of stay, this difference was substantial for one review on early discharge interventions for stroke patients (221). Other reviews found the reduction in length of stay was not as large when focused on stroke patients and mixed older cohorts (46, 59[a], 100[b]).

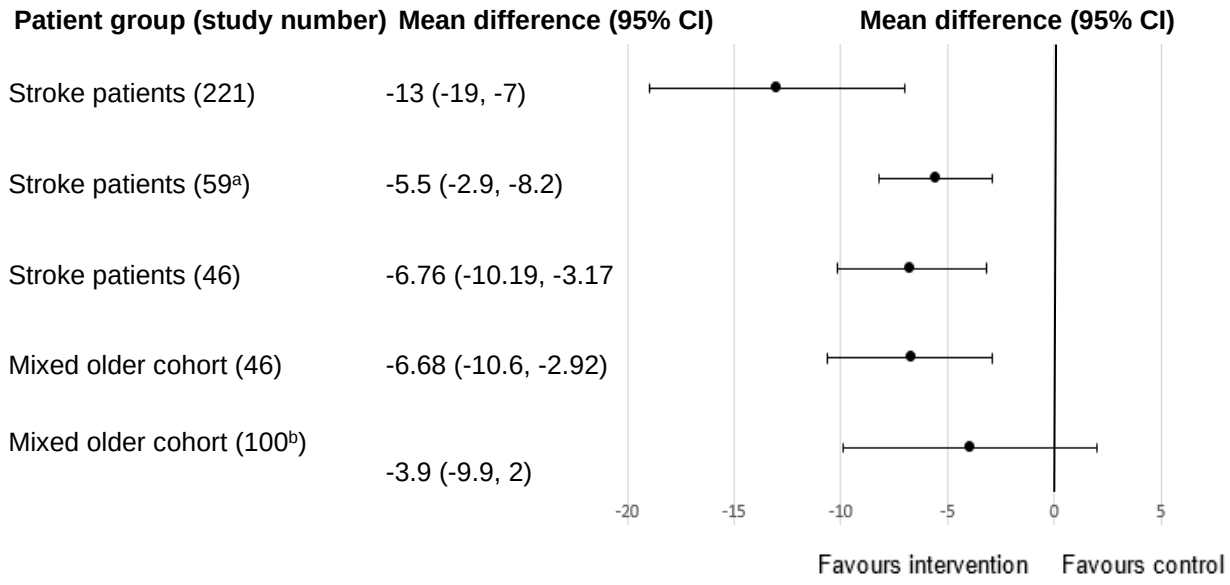


Figure 3.6: Forest plot of meta-analysis results that looked at the impact of interventions that provided *rehabilitative support/therapy at home (or in the community) around the time of discharge* on length of stay

For the remaining seven reviews/review subgroups only four (212, 226[a,b], 228) reported findings for the majority of studies on length of stay in hospital. The first a review that looked at *rehabilitation/therapy* interventions (228) reported that the largest number of studies (5 out of 11) found intervention patients had a shorter length of stay (statistical significance unclear); the other studies found no difference (4 out of 11) or for a longer length of stay (2 out of 11). The second review (212) that looked at *rehabilitation or therapy* interventions reported the majority of studies found a significantly shorter hospital stay. The final review included two subgroups (226[a,b]) that reported on two slightly different formats of *early discharge interventions* for stroke patients (226[a]: outgoing early supported discharge teams from hospital *who provided* rehabilitation services and 226[b]: outgoing early supported discharge teams from hospital *who did not provide* rehabilitation services) and reported majority results for length of stay. The form of intervention where "hospital early supported discharge teams *provided* rehabilitation services" (226[a]) reported majority findings and found a significantly shorter length of stay in intervention groups in the majority of studies; conversely, the form of intervention where "hospital early supported discharge teams who *did not provide* rehabilitation services" (226[b]) did not report a significantly shorter length of stay for the majority of studies.

In summary, interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** could reduce hospital length of stay, especially 'early discharge' type interventions.

3.2.4.3 Nursing home admission

Nursing home admission was reported in five full reviews (46, 51, 199, 212, 221), four intervention subgroups within larger reviews (59[a], 226[a,b], 232[c]) and one review that included primary studies as well as reviews (184); four of which completed a meta-analysis (46, 51, 59[a], 221) on nursing home admission and one reported majority findings (199). Table 1 in Appendix 3 shows the results of the remaining five reviews/review subgroups (184, 212, 226[a,b], 232[c]).

Of the four reviews/review subgroups that conducted meta-analysis on nursing home admission, three (46, 59[a], 221) looked at an *early discharge* subgroup and one (51) looked at *rehabilitation or therapy interventions.* The reviews/review subgroups that focused on *early discharge* all did a meta-analysis of data from stroke patient cohorts. The first (221) reported trends of lower nursing home admissions in the intervention groups (significance unclear). The second (59[a]) showed a significant reduction in the likelihood of patients dying or requiring nursing home admission (OR: 0.75; 95% CI: 0.59 to 0.96, p=0.02). The third (46) reported on a stroke and a mixed older cohort; they found early discharge significantly reduced the likelihood of nursing home admission in a stroke patient cohort at a six month follow up (RR: 0.63; 95% CI: 0.40 to 0.98; p=0.041) and in a mixed patient cohort at one year follow up (RR: 0.69; 95% CI: 0.48 to 0.99; p=0.044). The fourth review (51) reported that a meta-analysis for nursing home admission for *rehabilitation or therapy interventions* found the intervention had a significant effect on nursing home admission or residence at follow-

up (RR: 0.77; 95% CI 0.64-0.91; p=0.003). The final review (199), which just reported majority findings for *discharge with home care/support interventions* in a mixed older patient cohort reported the majority of studies found trends of lower nursing home admissions in the intervention groups (significance unclear).

To summarise, the majority of interventions that looked at the impact of ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** for nursing home admission reported improvements that favoured the intervention groups, but this was not always statistically significant.

3.2.4.4 Patient satisfaction

Patient satisfaction data were available in five full reviews (46, 50, 195, 199, 212) and four intervention subgroups within larger reviews (59[a], 100[b], 226[a,b]), one of which completed a meta-analysis (59[a]) on patient satisfaction and three reported majority findings (46, 100[b], 226[a]). The results of the remaining five reviews/review subgroups (50, 195, 199, 212, 226[b]) can be seen in Table 1 in Appendix 3.

The one review (59[a]) subgroup that completed meta-analysis on *early discharge* for a stroke patient cohort reported intervention patients were more likely to be satisfied with outpatient services or services in general (OR 1.60; 95% CI: 1.08 to 2.38; p=0.02).

Three reviews/review subgroups also reported findings for the majority of studies that reported on patient satisfaction; two of these also looked at *early discharge* (46, 226[a]) and one looked at *home care/support interventions* (100[b]).

The first review subgroup that looked at *early discharge* (226[a]) reported on stroke patient satisfaction and found high satisfaction in the intervention patients in one study at three months (p=0.021) and in another at six months (p=0.021). The second review that looked at *early discharge* (46) for a mixed cohort and stroke patients reported that the majority of studies found no significant difference. The final review that reported majority results looked at *home care/support interventions* (100[b]) for mixed older populations and the authors reported that there was little generalizable information; nevertheless some of the included studies suggested increased satisfaction for intervention patients.

It has been shown that, the majority of interventions that looked at ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** for patient satisfaction reported improvements that favoured intervention groups, but this was not always statistically significant.

3.2.4.5 Place of discharge

Place of discharge was an outcome in two full reviews (50, 228) and seven intervention subgroups within larger reviews (100[b], 190[a], 203[a], 226[a,b,c], 229[a]), one of which pooled results (203[a]) on place of discharge and five reported majority findings (50, 100[b], 226[b], 228, 229[a]). Table 1 in Appendix 3 presents the results of the remaining three reviews/review subgroups (190[a], 226[a,c]).

The one review subgroup (203[a]) that pooled results on *early discharge* for a mixed older patient cohort reported a significant advantage for intervention patients that returned home. Five reviews/review subgroups also reported findings for the majority of studies in the reviews; two of these also looked at *early discharge*. The first a review (229[a]) that looked at a fracture/joint replacement patient cohort reported that significantly more intervention patients were returned home. The second review subgroup (226[b]) that looked at a stroke cohort reported more patients in the intervention group were discharged directly home. For the remaining three reviews, two (50, 228) looked at *rehabilitation or therapy interventions* and both reported majority results that favoured the intervention but the significance was unclear. The last review which looked at *home care/support interventions* in a mixed patient cohort (100[b]) also reported the majority of studies finding non-significant trends that favoured the intervention.

In summary, interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** could improve the chances of a patient being returned/discharged to their own home, then again, this outcome was expected to a certain extent as the aim of these interventions was to facilitate patients returning to home.

3.2.4.6 Costs

Cost outcomes were included in four full reviews (46, 195, 212, 221), nine intervention subgroups within larger reviews (59[a], 100[b], 190[a], 203[a,b], 226[a,b,c], 229[a]), and one review that included primary studies as well as reviews (184); three of which conducted meta-analysis on costs and six reported majority findings. Table 1 in Appendix 3 shows the results of the remaining five reviews/review subgroups (100[b], 184, 195, 226[b,c]).

In the three reviews/review subgroups (190[a], 221, 229[a]) that conducted meta-analysis on costs, the first reported on a meta-analysis of *rehabilitation or therapy interventions* for stroke patients (190[a]) and found that inpatient rehabilitation was more costly compared with rehabilitation in the home (95% CI: 0.15 to 0.48) (190[a]). The second and third reviews both looked at *early discharge*, the first combined study results and reported on *early discharge* for fracture patients (229[a]) while the second did so for

stroke patients (221); both studies reported non-significant trends in reduced costs that favoured *early discharge* (221, 229[a]).

Six reviews/review subgroups (46, 59[a], 203[a,b], 212, 226[a]) reported findings for the majority of studies that included cost outcomes. Four of these studies looked at *early discharge* (46, 59[a], 203[a], 226[a]) interventions and two reviews/review subgroups looked at *Rehabilitation or therapy* (203[b], 212) interventions. The first (46) looked at *early discharge* interventions for patients with stroke, COPD and older people with a mix of conditions and although a mixture of results were reported, the majority of studies showed significant differences in costs that favoured *early discharge* interventions. The second review (59[a]) that looked at *early discharge interventions* for stroke patients reported a range in costs from 23% lower to 15% greater for the *early discharge* group, but reported that all studies concluded there were opportunities for savings from reduced hospital stays. The third review subgroup (226[a]) that looked at *early discharge intervention* (226[a]: outgoing early supported discharge teams from hospital who provided rehabilitation services) reported majority findings and found lower costs for the *early discharge* groups in the two studies it included and one reported this was significant ($p<0.001$). The fourth review (203) looked at two subgroups, *early discharge (*203[a]) and *Rehabilitation or therapy (*203[b]) interventions. This review reported slightly lower costs for *early discharge* for the majority of studies; and although a mixture of results were reported for studies that looked at *Rehabilitation or therapy* interventions the majority of the studies reported significant economic disadvantage to the health service for inpatient rehabilitation/day hospitals (203[b]). The final review looked at

Rehabilitation or therapy interventions and reported that the majority of studies showed no significant difference in costs (212).

Thus, interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** appeared to reduce costs if they had elements of *early discharge,* although this was not always significant and appeared to be linked to the length of stay in hospital.

3.2.4.7 Patient health status

For patient health status, different outcome measures were reported including quality of life and ADL. Patient health status was reported in eight full reviews (46, 50, 192, 195, 199, 212, 221, 228), ten intervention subgroups within larger reviews (59[a], 100[b], 190[a], 226[a,b,c], 229[a], 230[a], 231[a], 232[c]) and one review that included primary studies as well as reviews (184); three of which conducted a meta-analysis and ten reported majority results. Appendix 3, Table 1 shows the results of the remaining six reviews/review subgroups (184, 199, 212, 230[a], 231[a], 232[c]).

Three reviews/review subgroups reported a meta-analysis on patient health status. The first a review subgroup (59[a]) that looked at *early discharge interventions* for stroke patients reported on meta-analysis for several different patient health outcomes. No

differences were found between groups for measures of ADL or subjective health status or mood scores; however, there was an increase in extended ADL score for patients who received early discharge interventions (SMD 0.14; 95% CI: 0.03 to 0.25; p=0.01). The second review subgroup (100[b]) that looked *at discharge with home care/support* for a mixed cohort of patients aged over 60, reported a meta-analysis that found no significant differences between groups for physical functioning (MD 0.135; 95% CI: –0.59 to +0.32; p=0.6), mental function, morale, health status, quality of life or social interaction. The third a review (50) that looked at *rehabilitation or therapy interventions* for a mixed group of older people reported no statistical differences from meta-analysis that reviewed patient measures of activity and quality of life.

Ten reviews/review subgroups reported majority findings for patient health outcomes. Of these, six reviews/review subgroups reported on *early discharge interventions,* two reported on *rehabilitation or therapy interventions* and two reported on *discharge with home care/support.* The first review (192) that looked at *discharge with home care/support interventions* reported the majority of studies found no difference in mental health state, emotional state or self-perceived health. The second review (195) that looked at *discharge with home care/support* interventions for mixed cohorts of patients, reported one study that found no significant differences across a range of health outcomes such as physical functioning, anxiety, depression or subjective wellbeing.

The first review (190[a]) that looked at *rehabilitation or therapy interventions* for stroke patients reported that the majority of studies found no significant difference between groups for functional and quality of life outcomes. The second review (228) that looked at *rehabilitation or therapy interventions* for fracture/joint replacement patients reported that five out of ten included studies found higher physical functioning in the intervention group and the other five reported no differences between the groups.

A review (46) that looked at *early discharge interventions* reported that the intervention made little or no difference to functional status or patient reported outcomes in stroke cohorts and COPD cohorts. The authors also reported findings from a mixed cohort of patients aged over 60 where although some individual studies reported differences in psychological wellbeing, the majority of trials reported little or no difference between the groups for patient reported outcomes (e.g. quality of life, health status and cognitive functioning); furthermore, no statistical difference was found when combining data on functional status (MD 0.34; 95% CI: -0.18 to 0.86). Another review (229[a]) that looked at *early discharge interventions* for fracture/joint replacement patients reported that the majority of studies found no significant differences between groups for patient health status. An additional review (221) that looked at *early discharge interventions* for stroke patients, reported that in general quality of life results were broadly similar for both the control and intervention groups at the end of follow-up.

One review had three subgroups (226[a,b,c]) that looked at three different formats of *early discharge interventions* for stroke patients and reported majority results for a number

of patient health outcomes at different time points. The first form of *early discharge intervention* (226[a]: outgoing early supported discharge teams from hospital who provided rehabilitation services) reported majority findings and found no differences between the groups for functional skills, general health/quality of life and basic, personal and instrumental ADL; yet, some sub scores of measures and time points in individual studies reported results in favour of and against the intervention. The second format of *early discharge intervention* (226[b]: outgoing early supported discharge teams from hospital who did not provide rehabilitation services) reported on majority results and found no differences in general health/quality of life, basic or instrumental ADL; whereas, some sub scores of measures and time points in individual studies reported results that favoured the intervention. The third form of *early discharge intervention* (226[c]: community-based rehabilitation services) reported on majority results for general health/quality of life and found no differences between the groups (only 1 study reported on ADL).

Overall, these findings suggest that interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** have little impact on patient health status.

3.2.4.8 Readmissions

Readmission was reported in seven full reviews (46, 50, 51, 195, 212, 221, 228), nine intervention subgroups within larger reviews (59[a], 100[b], 203[a], 226[a,b,c], 229[a], 230[a], 231[a]), a review of reviews (181[b]) and two reviews that included primary studies as well as reviews (183[a], 184). Meta-analysis was conducted in seven reviews (46, 50, 51, 59[a], 100[b], 221, 229[a]) and ten reported majority results (181[b], 184, 203[a], 212, 228, 230[a], 231[a], 226[a,b,c]). The results of the two remaining reviews/review subgroups (183[a], 195) are shown in Table 1 within Appendix 3.

Of the seven reviews that completed meta-analysis of readmissions from *early discharge interventions* three included stroke patients (46, 59[a], 221), one COPD patients (46), one fracture/joint replacement patients (229[a]) and four included a mixed cohort of patients over 60 (50, 46, 51, 100[b]). For stroke patients, the three reviews (46, 59[a], 221) reported no significant differences between the control and intervention groups, that aside, one review did state there was a small non-significant trend for intervention patients to have an increased risk of hospital readmissions compared to those in the control groups (221). One review (46) found *early discharge interventions* may increase the risk of readmissions for a mixed older cohort of patients (RR 1.25; 95% CI 0.98 to 1.58) and a meta-analysis of fracture/joint replacement patients (229[a]) reported a non-significant increase in readmissions for the intervention compared to the control group (OR 1.74; 95% CI 0.79 to 3.82). This is in contrast to one study that

reported *early discharge interventions* may decrease the risk of readmissions for people with COPD (RR 0.86; 95% CI 0.66 to 1.13) (46).

A subgroup from a review (100[b]) that looked at *discharge with home care/support* completed a meta-analysis and reported that the intervention could potentially reduce readmissions compared to the control group, but the effect was not statistically significant (Relative risk reduction (RRR) 0.92; 95% CI 0.81 to 1.04; p=0.183). An additional review subgroup that looked at *discharge with home care/support* (51) conducted a meta-analysis and reported significantly less hospital readmissions for people that received community-based care after their hospital discharge (RR 0.95; 95% CI 0.90 to 0.99; p= 0·02); however, they also reported heterogeneity (χ^2 =32·53, df =14 (p=0·003), I^2 =57·0%). One review that looked at *Rehabilitation or therapy interventions* (50) conducted a meta-analysis of four studies and reported no significant difference in risk of readmission (RR 0.75; 95% CI 0.31 to 1.82; I2 = 63%). Figure 3.7 shows that only two reviews reported results that favoured the interventions, one was *early discharge* interventions for people with COPD (46) and the other was *discharge with home care/support* for a mixed older cohort (100[b]). Three of the other reviews reported no significant difference for stroke patients (46, 221) and a mixed older cohort of patients (50). Whilst the final review on a mixed older cohort of patients favoured control (46).

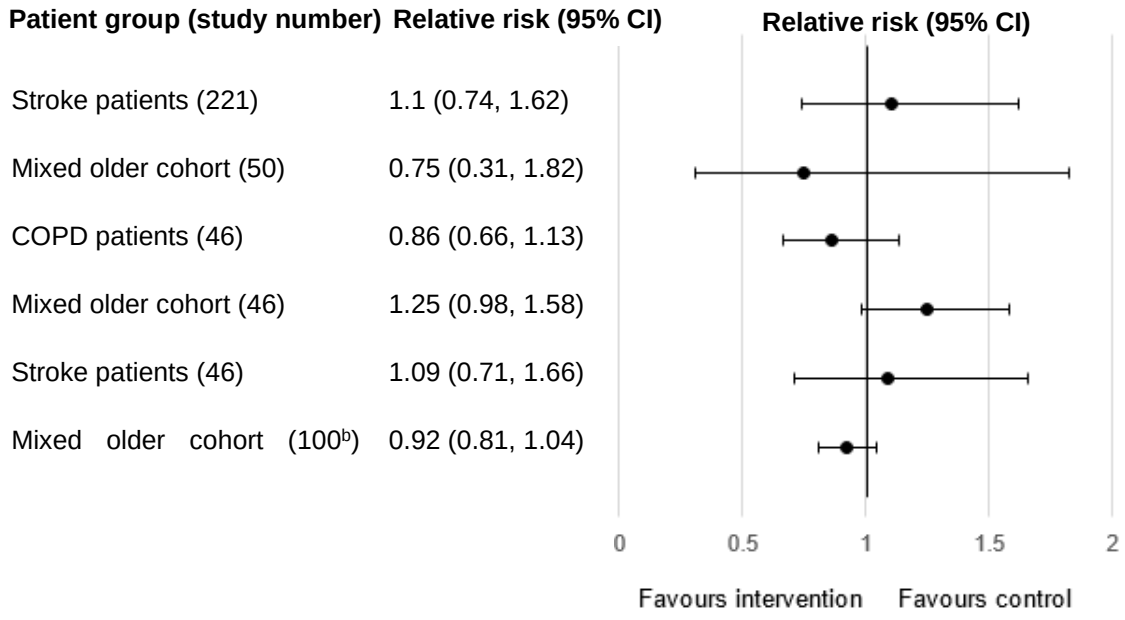


Figure 3.7: Forest plot of meta-analysis results that looked at the impact of interventions that provided *rehabilitative support/therapy at home (or in the community) around the time of discharge* on readmissions

Ten reviews/review of reviews/review subgroups (181[b], 184, 203[a], 212, 226[a,b,c], 228, 230[a], 231[a],) did not complete meta-analysis but reported findings for the majority of the studies included. One review (212) reported on *rehabilitation/therapy interventions* and found a reduction in readmissions in the majority of studies (3 out of 4). However, three other reviews (228, 230[a], 231[a]), one review that included primary studies and reviews (184) and one review of reviews (181[b]) that looked at *rehabilitation/therapy interventions* all reported no statistically significant differences in readmissions between intervention and control groups for the majority of included studies. One review subgroup (203[a]) from a review that looked at *early discharge interventions* reported the majority of studies (4 out of 7), showed similar rates for readmission

compared to normal care over various follow up periods. Three review subgroups (226[a,b,c]) from a single review all looked at slight variations of *early discharge interventions* for stroke patients and reported that the majority of studies found no difference in readmissions between intervention and control groups.

These findings suggest that overall, the majority of interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** had no impact on readmissions. For the majority of studies there were no significant differences found for *early discharge* or *rehabilitation or therapy* interventions. Furthermore, there were varying results for individual patient groups in *early discharge* interventions; studies reported they could potentially increase risk of readmissions for mixed groups of older people and decrease the risk of readmissions for patients with COPD. Reviews that looked at interventions that provided *discharge with home care/support*, reported they could potentially reduce readmissions compared to control groups.

3.2.4.9 Mortality

The outcome of mortality was reported in seven full reviews (46, 51, 195, 199, 212, 221, 228) and ten intervention subgroups within larger reviews (59[a,b], 100[b], 190[a], 203[a,b], 229[a], 230[a], 231[a], 232[c]), twelve of which conducted a meta-analysis and four

reported majority results. Review interventions included five *early discharge* interventions (59[a], 46, 203[a], 221, 229[a]), four *discharge with home care/support* (51, 100[b], 195, 199) and eight *rehabilitation or therapy interventions* (59[b], 190[a], 203[b], 212, 228, 230[a], 231[a], 232[c]). Different populations of patients reviewed included stroke (59[a,b], 46, 190[a], 221) fracture/joint replacement (228, 229[a], 230[a], 231[a], 232[c]), COPD (46) and mixed cohorts of patients aged over 60 (46, 51, 100[b], 195, 199, 203[a.b], 212).

One study that completed a meta-analysis reported a significant difference in case fatalities between subgroups, suggesting a higher case fatality in the subgroup (*rehabilitation or therapy interventions*) without a co-ordinated *early discharge* team, but reported no significant difference between *early discharge* and 'usual care' (59[a,b]). The remaining fifteen studies included did not report any significant difference between intervention and control groups with regard to mortality, whether reported on a meta-analysis or majority findings (46, 51, 100[b], 195, 190[a], 199, 203[a,b], 212, 221, 228, 229[a], 230[a], 231[a], 232[c]). To conclude, the findings from these reviews, demonstrated that interventions that provided *rehabilitative support/therapy at home (or in the community) around the time of discharge* had no significant impact on mortality.

3.2.4.10 Carer outcomes

Carer outcomes were reported in three full reviews (46, 50, 199) and five intervention subgroups within larger reviews (59[a], 226[a,b,c], 231[a]), two of which completed a meta-analysis (46, 59[a]) on carer outcomes and two reported majority findings (226[a,b]). The results of the remaining four reviews/review subgroups (50, 199, 226[c], 231[a]) are presented in Table 1 in Appendix 3.

The two reviews/review subgroups that conducted meta-analysis on carer outcomes (46, 59[a]) both looked at *early discharge* interventions. The first (46) reported on a meta-analysis of carer outcomes for stroke patients and found no significant difference between intervention and control groups. The same review (46) also reported majority results for different carer outcomes in a mixed older cohort and found the majority of results (3 out of 5) reported: no significant difference in caregiver strain; but an increase in carer satisfaction (significance unclear). The second review subgroup (59[a]) reported a meta-analysis for *early discharge* and reported no difference for subjective health status, mood status or carer satisfaction.

The two review subgroups (226[a,b]) that reported majority results are from the same review that looked at different formats of early discharge interventions for stroke patients. The first form of early discharge intervention (226[a]: outgoing early supported discharge teams from hospitals who provided rehabilitation services) reported majority findings for caregivers' quality of life and found no difference between groups (2 out of

3 studies). The second form of early discharge intervention (226[b]: outgoing early supported discharge teams from hospitals who did not provide rehabilitation services) reported on majority results on spouses' quality of life and satisfaction and found no difference between groups (3 out of 3 studies).

In brief, the majority of *rehabilitative support/therapy at home (or in the community) around the time of discharge* interventions that looked at carer outcomes did not appear to have any impact.

3.2.4.11 Other outcomes

Emergency room visits were reported in one full review (46) and two intervention subgroups within larger reviews (100[b], 232[c]) and staff outcomes were reported in two full reviews (46, 212), however none of these reported on a meta-analysis or majority findings so the results can be seen in Table 1 in Appendix 3. There was no outcome data regarding any medication outcomes.

Summary of outcomes reported for interventions that provided rehabilitative support/therapy at home (or in the community) around the time of discharge

To conclude, the findings from meta-analyses and majority findings showed that interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** could significantly shorten hospital length of stay (particularly in the form of early discharge interventions), reduce admissions to nursing homes, increase patient satisfaction and increase the number of patients discharged home.

There also appeared to be non-significant trends that favoured the intervention for costs and staff outcomes.

The review results suggested interventions had no impact on readmissions, mortality, patient health status, carer outcomes and emergency room visits.

Box 3.1: Summary of outcomes reported for interventions that provided *rehabilitative support/therapy at home (or in the community) around the time of discharge*

3.2.5 Interventions that provided patient assessments around the time of discharge

The effects of interventions that conducted **patient assessments around the time of discharge** are presented below for the five main outcomes (see Table 3.2). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.2: Overview of effectiveness of combined data for each outcome reported for interventions that conducted *patient assessments around the time of discharge*

Effect	Outcomes
ND / NS+ / +	Patient health status (+ = functional outcomes)
NS+	Costs
ND	Readmissions
ND	Mortality
ND	Length of stay in hospital

3.2.5.1 Included reviews

There were two full reviews (56, 210) and six intervention subgroups within larger reviews (100[a], 191[a,b], 202[a],) or review of reviews (181[a], 182[a]) that reported outcome data on ***patient assessments around the time of discharge***. All interventions focused on a mixed cohort of patients with an average age over 60 and data were available for five different outcomes detailed below. Of the reviews included two were high quality (56, 100[a]) and five were moderate quality (191, 182[a], 181[a], 202[a], 210). Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status. Very high primary study overlap (CCA over 15%) between reviews pairs that are both presented in this results section include:

- Ellis et al. (56) and Van Craen et al. (210) CCA of 26.1%
- Richards et al. (191) and Ellis et al. (56) CCA of 23.3%
- Richards et al. (191) and Parker et al. (100) CCA of 16.9%

3.2.5.2 Patient health status

Different outcome measures of patient health status were reported in two full reviews (56, 210) and three intervention subgroups within larger reviews (100[a], 191[a,b]), three of which conducted a meta-analysis and two reported majority results. One review (56) carried out meta-analysis focused on ADL and cognitive status, the intervention

patients were found to have significantly better cognitive status compared to control patients (p=0.02); yet, no significant differences were found between the intervention and control groups for ADL (p=0.33). A review of reviews (100[a]) calculated an OR for a subgroup of six studies, which found that the intervention was beneficial for physical functioning (OR: 1.40; 95% CI: 1.03 to 1.90; p=0.03); in comparison, in the same review the majority of studies reported no differences in the mental status between groups. A meta-analysis reported in another review (210) showed significantly less functional decline at discharge in the intervention patients (p=0.04), but this effect was not sustained at one year post discharge (p=0.09).

Two review subgroups from the same review (191[a,b]) did not conduct a meta-analysis on patient health status but did report some majority findings. The first subgroup (191[b]) reported three studies that looked at outpatient geriatric assessment and management, they reported improvements in 'life satisfaction' and 'health' in two out of three studies, but it was unclear if these were statistically significant; no differences were reported for the majority of studies that looked at functional health/disability. The second review subgroup (191[a]) that looked at inpatient geriatric assessment and management, reported mixed results: two out of four studies reported a positive impact on functional ability in the intervention group compared to the control group, but it was unclear if this was statistically significant; and the majority of studies found no differences between the groups for depression or cognitive function. These findings suggest that interventions that focussed on conducting ***patient assessments around the time of discharge*** had mixed results with regard to patient health status; despite this, the majority of reviews showed it could potentially improve functional outcomes.

3.2.5.3 Costs

Costs were reported in one full review (56) and three intervention subgroups within larger reviews (100[a], 191[a,b]), meta-analysis could not be completed in any of the reviews due to the heterogeneity of the reported studies and the measures used in primary studies. Two of these reported majority results (56, 100[a]) and the results of the remaining two review subgroups (191[a,b]) are shown in Table 2 in Appendix 3.

The first review subgroup (100[a]) reported on five studies that reviewed costs and the majority found hospital stay costs (5 studies) and post discharge service (4 out of 5 studies) costs were lower in the intervention compared to control groups (significance was unclear). The second review (56) also found that the majority of studies reported a reduction of costs in the intervention group compared to the control group (again significance was not clear). These results looked at interventions that conducted ***patient assessments around the time of discharge*** and demonstrated that the intervention could potentially reduce costs but the significance of potential savings was unclear.

3.2.5.4 Readmissions

Readmissions were reported in two full reviews (56, 210) and six intervention subgroups within larger reviews (100[a], 191[a,b], 202[a]) or review of reviews (181[a], 182[a]), of which four (56, 100[a], 181[a], 210) reported meta-analysis on the outcome of readmissions and three reported majority findings (182[a], 191[b], 202[a]). Table 2 in Appendix 3 shows the results of the remaining review subgroup (191[a]).

One review subgroup (100[a]) reported that there was a relative reduction in the risk (RRR) of being readmitted to hospital (RRR: 0.9 95% CI: 0.73 to 1.11; p=0.310) and that the majority of studies (7 out of 10) found patients in the control group had a higher rate of readmissions. One review of reviews (181[a]) reported a meta-analysis and found a significant reduction in readmissions compared to the control group (no p-value reported). The final two reviews (56, 210) conducted meta-analyses and both reported no significant differences between the intervention and control groups (p=0.48 and p=0.22 respectively).

Three reviews/review of reviews reported on majority results and they all reported that the majority of studies that they included had found no differences between the control and intervention groups (182[a], 191[b], 202[a]). The results from the reviews that reported on readmissions were mixed, but the majority of studies found that ***patient assessments around the time of discharge*** had no impact on hospital readmissions.

3.2.5.5 Mortality

Mortality was an outcome of interest in two reviews (56, 210) and three review subgroups (100[a], 191[a,b]), three of which conducted a meta-analysis and two reported majority results.

One review (56) found no significant differences between the intervention or control groups at either the interim or end of study follow up periods in a meta-analysis (p=0.20 and p=0.29 respectively). Another review (210) found no significant differences between the intervention and control groups at three (p=0.10), six (p=0.28) and twelve (p=0.61) months after discharge in a meta-analyses. One review (100[a]) reported mortality rates at different time points from eleven primary studies. The authors combined three of these eleven studies to calculate an OR, which demonstrated that there were no significant differences between the control or intervention groups at three and six months follow-up; but showed a non-significant trend towards a reduction in mortality at 12 months follow-up (OR: 0.73; 95% CI: 0.45 to 1.19). On the other hand, the majority of the other included studies did not find any significant differences in mortality at any time period.

The remaining review with two subgroups (191[a,b]) did not conduct a meta-analysis on mortality data but reported majority findings. The first review subgroup that looked at

inpatient geriatric assessment and management (191[a]) found 50% of studies (2 out of 4) that reported on mortality found improvements in the intervention group compared to the control group (significance unclear), the other two studies reported no differences between the groups. The second review subgroup that looked at outpatient geriatric assessment and management (191[b]) found the majority of studies reported no difference in mortality between the control and intervention groups. The results from these reviews demonstrated that ***patient assessments around the time of discharge*** did not appear to have any impact on mortality.

3.2.5.6 Length of stay in hospital

The outcome of length of stay in hospital was included in two full reviews (56, 210) and two intervention subgroups within larger reviews (100[a], 191[b]), two of which conducted a meta-analysis (56, 210) and two reported majority results (100[a], 191[b]).

One review (210) conducted a meta-analysis of mean length of stay and found no significant differences between the intervention and control groups (p=0.46). Another review (56) completed a meta-analysis but it was not reported in the paper due to significant heterogeneity. A variation was seen in the MD of CGA on geriatric wards and CGA by mobile teams compared to the control groups; where length of stay ranged

from a mean reduction of -9.20 days to 9.00 days more for hospital ward CGA to a MD of -0.79 days to an increase of 3.60 days for mobile CGA (56).

Two review subgroups did not complete meta-analysis but reported findings for the majority of studies included. A review subgroup (100[a]) reported results from eleven primary studies and found that in the majority of those studies there were no reported significant differences in length of stay between control and intervention groups (only 1 or 2 days). Another review subgroup (191[b]) did not complete meta-analysis on length of stay; the majority (2 out of 3) of included studies reported no difference in length of stay, although the third study did report a significant difference $P<0.05$ in favour of the intervention compared to the control groups or a more limited service. These results

suggest that interventions that focussed on conducting ***patient assessments around the time of discharge*** had no impact on the length of stay in hospital.

Summary of outcomes reported for interventions that provided *patient assessments around the time of discharge*

The findings showed that interventions that administered ***patient assessments around the time of discharge*** could potentially improve patient health status, in particular physical functioning.

There was evidence it could potentially reduce costs but the significance of savings was unclear.

This intervention appeared to have no significant impact on readmissions, mortality or length of stay in hospital.

Box 3.2: Summary of outcomes reported for interventions that provided *patient assessments around the time of discharge*

3.2.6 Primary care interventions around the time of discharge

The effects of ***primary care interventions around the time of discharge*** are detailed below for the five main outcomes (see Table 3.3). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.3: Overview of effectiveness of combined data for each outcome reported for *primary care interventions around the time of discharge*

Effect	Outcomes
+	Readmissions
ND	Length of stay in hospital
?	Mortality
No data	Costs
No data	Patient health status

3.2.6.1 Included reviews

There were three intervention subgroups within larger reviews (187[a], 211, 213[a]) that reported outcome data on ***primary care interventions around the time of discharge***. One review included data on heart failure patients (213[a]), and the other two included a mixed cohort of patients with an average age of over 60 (187[a], 211). For the reviews included all three were of a moderate quality (187[a], 211, 213[a]). None of the reviews in this section were identified as review pairs with very high primary study overlap. Data were available on two key outcomes of readmissions and length of stay in hospital.

3.2.6.2 Readmissions

Readmissions was an outcome of interest in three intervention subgroups within larger reviews (187[a], 211, 213[a]) one of which conducted a meta-analysis (211). They reported the intervention was significantly associated with reduced rates of short-term readmissions (OR: 0.33; 95% CI: 0.12 to 0.87; p=0.03).

3.2.6.3 Length of stay in hospital

Length of stay in hospital was reported in one intervention subgroup within a larger review (187[a]) and the authors did not complete a meta-analysis. However, they reported individual study data, which showed the majority of studies that reported on this outcome found the intervention did not reduce the length of stay in hospital (187[a]).

Summary of outcomes reported *for primary care interventions around the time of discharge.*

The findings showed that ***primary care interventions around the time of discharge*** could potentially reduce readmissions.

These interventions appeared to have no significant impact on length of stay in hospital.

Box 3.3: Summary of outcomes reported for *primary care interventions around the time of discharge*

3.2.7 Interventions that provided multiple component inpatient specialist care including preparation for discharge

The effects of interventions that provided ***multiple component inpatient specialist care including preparation for discharge*** are presented below for the five main outcomes (see Table 3.4). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.4: Overview of effectiveness of combined data for each outcome reported for interventions of *multiple component inpatient specialist care including preparation for discharge*

Effect	Outcomes
ND	Patient health status
ND	Mortality
ND	Readmissions
ND	Costs
ND	Length of stay in hospital

3.2.7.1 Included reviews

There were four reviews (185, 186, 201, 215) and fourteen intervention subgroups within larger reviews (188[a,b,c], 190[b,c], 191[c], 202[b], 203[c,d], 229[b], 230[b], 231[b], 232[a,b]) that reported outcome data on interventions that provided *multiple component inpatient specialist care including preparation for discharge* (e.g. condition expertise units, geriatric wards). Note that two of these reviews (185, 186) included the same primary studies but reported different components of interventions and outcome data. Furthermore, there was one review pair identified as having very high primary study overlap (CCA over 15%) which was Bakker et al. (188) and the two Fox et al. papers (185, 186) (CCA of 20%).

Nine reviews/review subgroups included a mixed cohort of patients with an average age of 60 and over (185, 186, 188, 190, 191[c], 201, 203[c,d], 202[b]), five included an older cohort of fracture patients (229[b], 230[b], 231[b], 232[a,b]) and one review included data on heart failure patients (215). Of the reviews/review subgroups included, six were high quality (229[b], 230[b], 232[a,b], 231[b], 190) and eight were moderate quality (203, 215, 191[c], 202[b], 185, 186, 188, 201). Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status.

3.2.7.2 Patient Health status

Patient health status data was included in three reviews (185, 186, 201) and nine intervention subgroups within larger reviews (188[a,c], 229[b], 191[c], 230[b], 231[b], 232[a], 190[b,c]), two of which conducted a meta-analysis (186, 190[b]) and six reported on majority findings (188[c], 229[b], 191[c], 185, 201, 190[c]). In Appendix 3 Table 4 find the results for the remaining four reviews/review subgroups (188[a], 230[b], 231[b], 232[a]).

One review (186) conducted a meta-analysis that reported on patient health status for two different time points (baseline 2-week prehospital admission status and discharge). Intervention patients were 13% significantly less likely to experience functional decline than those that received ‘usual care’ (RR: 0.87; 95% CI: 0.78 to 0.97; p=0.01). Between

baseline hospital admission status and discharge, there was no significant differences reported in risk of functional decline between intervention and ‘usual care’ (RR: 0.83; 95% CI: 0.64 to 1.08; p=0.16), although significant statistical heterogeneity was reported in this analysis. A further review intervention subgroup (190[b]) completed a meta-analysis and reported functional status scores (Barthel Index) that favoured the intervention compared to general acute care. A different subgroup within the same review (190[c]) also reported majority findings that favoured the intervention on functional and quality of life outcomes compared to modified inpatient rehabilitation.

Five other reviews/review subgroups also reported majority findings for patient health status (185, 188[c], 191[c], 201, 229[b]). One review subgroup (188[c]) reported on majority results for a mixed cohort of older patients and reported significant improvements in physical outcomes for intervention patients. Another review subgroup (229[b]) reported on majority results and found no statistical differences between groups for ADL or health related quality of life. A review subgroup (191[c]) that reported on majority results for a mixed cohort of older patients, found no differences in functional status. Another review (185) found no significant differences for the majority of studies that reported functional decline for individual components. The last review (201) found no significant difference in ADL at the time of discharge for the majority of studies.

These results were mixed, but the majority of reviews/review subgroups that reported on meta-analysis or majority results for patient health status reported no differences

for interventions of ***multiple component inpatient specialist care including preparation for discharge.***

3.2.7.3 Mortality

The outcome of mortality was included in one review (186) and ten intervention subgroups within larger reviews (188[a], 190[b,c], 191[c], 203[c.d], 229[b], 230[b], 231[b], 232[a]), one of which conducted a meta-analysis (or pooled results) (186) and six reported on majority findings (188[a], 190[b,c], 203[c,d], 229[b]). Table 4 in Appendix 3 presents the results of the remaining four review subgroups (191[c], 230[b], 231[b], 232[a]).

Two reviews/review subgroups reported on meta-analysis for mortality (186, 231[b]) and both reported no significant differences in mortality (231[b]: RR: 0.90; 95% CI: 0.76 to 1.07). Six reviews/review subgroups reported majority findings for mortality. One review subgroup (188[a]) reported on majority results for a mixed cohort of older patients and found that mortality was not significantly different between the control and intervention groups for three out of five reported studies. Three review subgroups (190[b,c], 229[b]) also reported majority results and found no evidence that interventions had any effect on mortality. In contrast one review subgroup (191[c]) reported on majority results for a mixed cohort of older patients and found that there was a short-term effect on mortality that favoured the intervention in two out of three reported

studies (however significance was not clear). Two review subgroups from the same review (203[c,d]) reported majority results for mortality and found condition expertise units could improve a patient's chance of survival but only for stroke (not for hip replacement or elderly specific care) and specialist rehabilitation also reduced mortality compared with 'usual care'.

These results demonstrate that the majority of reviews that reported on meta-analysis or majority results for mortality found no differences between groups for ***multiple component inpatient specialist care including preparation for discharge*** interventions.

3.2.7.4 Readmissions

Readmissions were an outcome of interest in two reviews (186, 215) and nine intervention subgroups within larger reviews (188[a,b], 191[c], 202[b], 203[c,d], 229[b], 230[b], 231[b],), two of which conducted a meta-analysis (or pooled results) (186, 215) and three reported on majority findings (202[b], 203[d], 231[b]). Table 4 in Appendix 3 displays the results of the remaining six reviews/review subgroups (188[a,b], 191[c], 203[c], 229[b], 230[b]).

Two reviews reported on meta-analysis or pooled results for readmissions. The first review (186) conducted a meta-analysis and reported no significant difference in

hospital readmissions. The second review (215) pooled relative risks of heart failure related and all-cause readmissions and reported results that favoured the intervention (RR: 0.68; 95% CI: 0.53 to 0.86) compared to the control group (RR: 0.85; 95% CI: 0.76 to 0.94), although heterogeneity was also reported.

Three review subgroups reported majority findings for readmissions. One review (231[b]) that reported on majority results for an older cohort of fracture patients found that readmissions were not significantly different between the control and intervention groups. In contrast, another review (203[d]) that reported on majority results for a mixed cohort of older patients found that readmissions were substantially lower for intervention patients than control patients. Lastly, one review subgroup (202[b]) found that the majority of studies reported no differences in readmissions between the intervention and control groups.

These results demonstrate that the majority of reviews that reported on readmission in meta-analysis/pooled results found no differences between groups for ***multiple component inpatient specialist care including preparation for discharge*** interventions. In contrast, specific intervention components of specialist rehabilitation specifically for a mixed cohort of older patients and condition expertise units for heart failure patients could potentially have reduced readmissions.

3.2.7.5 Costs

Costs were reported in two reviews (185, 186) and eight intervention subgroups within larger reviews (188[a,b], 190[b,c], 203[c.d], 229[b], 231[b]), three of which conducted a meta-analysis (or pooled results) (186, 190[b], 229[b]) and five reported on majority findings (185, 190[c], 203[c,d], 231[b]). The results of the remaining two reviews/review subgroups (188[a,b]) can be seen in Table 4 in Appendix 3.

Two reviews/review subgroups reported on meta-analysis/pooled data for costs. The first a review subgroup (229[b]) reported on pooled data and found that the intervention appeared to be cost-neutral; although the authors stated it could potentially be cost-saving but that depended on how the costs were calculated. The second review (186) conducted a meta-analysis and reported the intervention cost less than 'usual care' but that this was not significant (weighted mean difference (WMD): $431.37; 95% CI: $933.15 to $70.41; p=0.09; *U.S. dollars for a common price year of 2000*).

Two other review subgroups (190[b,c]) reported on meta-analysis and majority findings (due to heterogeneity). The first of these subgroups (190[b]) reported on a meta-analysis of three studies and found inpatient rehabilitation provided for stroke patients had cost savings when compared with general acute care. This review subgroup (190[b]) also reported on inpatient rehabilitation provided for a geriatric cohort where the majority of studies reported no difference compared with general acute care. In the second

subgroup inpatient rehabilitation was compared to modified inpatient rehabilitation (190[c]) and the majority of studies reported no difference.

The five remaining reviews/review subgroups reported majority findings for costs. A review (185) that reported majority results found no significant differences for individual components with regard to costs. Another review subgroup (231[b]) reported mixed results but 50% of the studies reported greater costs in the intervention groups (two studies with greater costs, one study with significantly reduced costs and one study with similar costs). Two review subgroups from the same review (203[c,d]) reported majority results for costs and found no significant differences between groups for the majority of studies.

It can be observed from these results that the majority of reviews/review subgroups that reported on meta-analysis or majority results for costs found no significant differences for interventions of ***multiple component inpatient specialist care including preparation for discharge.***

3.2.7.6 Length of stay in hospital

Length of stay in hospital was an outcome of interest in three reviews (185, 186, 201) and six intervention subgroups within larger reviews (188[a], 203[c], 229[b], 231[b], 232[a,b]),

two of which conducted a meta-analysis (or pooled results) (186, 229[b]) and three reported on majority findings (185, 188[a], 231[b]). The results of the remaining four reviews/review subgroups (201, 203[c], 232[a,b]) are shown in Table 4 in Appendix 3.

Two reviews/review subgroups reported on meta-analysis/pooled data for length of stay. The first a review subgroup (229[b]) reported on pooled data and found no evidence that it reduced the length of stay (WMD: 1.5 days; 95% CI: –16.0 to +19.1). The second review (186) conducted a meta-analysis and reported a significantly shorter length of hospital stay for intervention groups (WMD: 1.28; 95% CI: 2.33 to 0.22; p=0.02); however significant statistical heterogeneity was reported.

Three reviews/review subgroups reported majority findings for length of stay. One review subgroup (188[a]) reported on majority results for a mixed cohort of older patients and reported no significant differences between the control and intervention groups. A review (185) that reported majority results found no significant differences with regard to length of stay for individual components. Another review subgroup (231[b]) reported that in the majority of studies (7 out of 11) lengths of stay were shorter in the intervention groups.

These results demonstrate that the majority of reviews/review subgroups that reported on meta-analysis or majority results for length of stay in hospital found no differences between groups for interventions of ***multiple component inpatient specialist care including preparation for discharge.***

Summary of outcomes reported for interventions that provided *multiple component inpatient specialist care including preparation for discharge*

These findings demonstrated that the majority of reviews/review subgroups that reported on meta-analysis or majority results for interventions of ***multiple component inpatient specialist care including preparation for discharge*** found no significant differences for any outcomes assessed.

Box 3.4: Summary of outcomes reported for interventions that provided *multiple component inpatient specialist care including preparation for discharge*

3.2.8 Interventions that provided patient education around the time of discharge

The effects of interventions that provided ***patient education around the time of discharge*** are presented below for the five main outcomes (see Table 3.5). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.5: Overview of effectiveness of combined data for each outcome reported for interventions of *patient education around the time of discharge*

Effect	Outcomes
+	Readmissions
ND / NS+	Patient health status (Quality of life ND, Mental function NS+)
ND	Mortality
ND	Costs
No data	Length of stay in hospital

3.2.8.1 Included reviews

There was one review (13) and three intervention subgroups within larger reviews (100[d], 230[c], 213[b]) and one intervention subgroup within a review of reviews (181[f]), that reported outcome data on interventions that provided ***patient education around the time of discharge.*** Two reviews/review subgroups included data on heart failure patients (213[b], 13), one review looked at an older cohort of fracture patients (230[c]) and the other two review subgroups included a mixed cohort of patients with an average age of over 60 (100[d], 181[f]). Within the reviews included, two were high quality (100[d],

230[c]) and three were moderate quality (181[f], 213[b], 13). No review pairs were identified as having very high primary study overlap. Data were available on four key outcomes of readmissions, mortality, costs and patient health status.

3.2.8.2 Readmissions

Readmissions were an outcome of interest in one review (13), two intervention subgroups within larger reviews (100[d], 213[b]) and one intervention subgroup within a review of reviews (181[f]), three of which reported a meta-analysis/pooled results (100[d], 181[f], 13). A summary of the results of the remaining review subgroup (213[b]) can be found in Table 5 in Appendix 3.

The first review subgroup (100[d]) that reported on pooled data for ***patient education around the time of discharge*** found that there was a reduced likelihood of hospital readmissions in intervention groups (RR: 0.67; 95% CI: 0.57 to 0.78; p<0.001). Another review (13) reported a significant reduction in readmission in favour of the intervention group (RR: 0.79; P<.001). The final review was a review of reviews (181[f]) and it reported the findings from the first review (100[d]) mentioned above and found in favour of the intervention. These results demonstrate that the majority of reviews/review subgroups that reported a meta-analysis for readmissions found that patients in

interventions of ***patient education around the time of discharge*** were less likely to be readmitted to hospital.

3.2.8.3 Patient health status

Patient health status was reported in one review (13) and two intervention subgroups within larger reviews (100[d], 230[c]), two of which reported majority findings (100[d], 13). The results of the remaining review subgroup (230[c]) can be seen in Table 5 in Appendix 3.

The first review (13) that reported majority findings on ***patient education around the time of discharge*** found that intervention groups had a significant improvement in health-related quality of life (2 out of 3 studies). The second review subgroup (100[d]) reported majority findings for some measures of patient health. They reported that the majority of studies found no difference in quality of life (3 out of 4 studies) and potentially improved mental function, but the significance was unclear (3 out of 3 studies). These results demonstrate that the majority of reviews/review subgroups found that interventions of ***patient education around the time of discharge*** had no impact on quality of life but could potentially improve elements of mental function but that the significance was unclear.

3.2.8.4 Mortality

The outcome of mortality was reported in one review (13) and three intervention subgroups within larger reviews (100[d], 213[b], 230[c]), two of which reported a meta-analysis/pooled results (213[b], 13) and two reported majority results (100[d], 230[c]). The two reviews/review subgroups (213[b], 13) that reported on pooled data/meta-analysis for ***patient education around the time of discharge*** both reported no significant differences between the control and intervention groups (13 reported RR: 0.98; 95% CI: 0.72 to 1.34; p=0.90; 213[b] reported RR: 1.20; 95% CI: 0.52 to 2.76). The two intervention subgroups within a larger review (100[d], 230[c]) reported majority results and found no difference in mortality. It can be seen from these results that the majority of reviews/review subgroups found that interventions of ***patient education around the time of discharge*** had no impact on mortality.

3.2.8.5 Costs

Costs were an outcome of interest in one intervention subgroup within a larger review (100[d]) and they reported that the majority of reviews reported no significant difference. It can be seen that the majority of studies found that interventions of **patient education around the time of discharge** had no significant impact on costs.

Summary of outcomes reported for interventions that provided *patient education around the time of discharge*

The findings showed that ***patient education around the time of discharge*** interventions could reduce readmissions and potentially improve mental function although the significance was not clear.

There appeared to be no significant impact on mortality, quality of life, or costs.

Box 3.5: Summary of outcomes reported for interventions that provided *patient education around the time of discharge*

3.2.9 Interventions that provided discharge planning/coordination or case management

The effects of interventions that involved ***discharge planning/coordination or case management*** are presented below for the five main outcomes (see Table 3.6). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.6: Overview of effectiveness of combined data for each outcome reported for interventions that provided *discharge planning/coordination or case management*

Effect	Outcomes
+	Readmissions
NS+	Costs
ND +	Patient health status
ND	Length of stay in hospital
ND	Mortality

3.2.9.1 Included reviews

There were three reviews (49, 194, 198) four intervention subgroups within larger reviews (100[c], 191[d], 219[a], 227[a]), one review that included primary studies as well as reviews (183[b]) and four intervention subgroups within a systematic review of reviews (181[c,d,e], 182[b]) that reported outcome data on interventions that provided ***discharge planning/coordination or case management.*** Ten review subgroups included a mixed cohort of patients with an average age of over 60 (49, 100[c], 181[c,d,e], 182[b], 183[b], 191[d], 194, 198) one subgroup included data on heart failure patients (219[a]), and one review looked at an older cohort of fracture patients (227[a]). Of the reviews /review

subgroups included, four were in reviews of high quality (49, 100[c], 194, 219[a]) and eight were in reviews of moderate quality (181[c,d,e], 182[b], 183[b], 191[d], 198, 227[a]). There were two review pairs that were identified as having very high primary study overlap (CCA over 15%) that are included in this results section: Fox et al. (194) and Goncalves-Bradley et al. (49) had a CCA of 18.2%, whilst Richards et al. (191) and Parker et al. (100) had a CCA of 16.9%. Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status.

3.2.9.2 Readmissions

Readmissions were included in all twelve reviews/review subgroups. Four of which reported a meta-analysis/pooled results (49, 100[c], 194, 219[a]) , two majority findings (191[d], 198) and five reported results from systematic review of reviews or reviews that included primary studies as well as reviews (181[c,d,e], 182[b], 183[a]). The results of the remaining review reported no meta-analysis or majority results (227[a]) and are shown in Table 6 in Appendix 3.

Four of the included reviews/review subgroups included a meta-analysis of the impact of ***discharge planning/coordination or case management*** interventions on readmissions (49, 100[c], 194, 219[a]). Three reviews/review subgroups reported the intervention could significantly reduce readmissions and found that: in the early

discharge planning group there was a 22% reduction in readmissions within one to twelve months of discharge (RR: 0.78; 95% CI: 0.69 to 0.90, p=0.0003) (194); while in the discharge planning group there was a lower readmission rate at three months of discharge (RR: 0.87; 95% CI 0.79 to 0.97) (49); whilst in the case management group there was a reduction in readmissions that favoured the intervention at six months (OR: 0.64; 95% CI: 0.46 to 0.88; p= 0.007, I2 = 0%) and at around twelve months (OR: 0.47; 95% CI: 0.30 to 0.76, p= 0.002, I2 = 76%). The final study that reported a meta-analysis for this outcome reported a trend in the reduction in readmission but that this was not statistically significant (RRR: 0.795; 95% CI: 0.574 to 1.100; p=0.166) (100[c]). Figure 3.8 shows that there was a trend for reductions in readmissions for interventions that provided **discharge planning/coordination or case management** in mixed older patient groups and the reduction was larger in two reviews (49, 194).

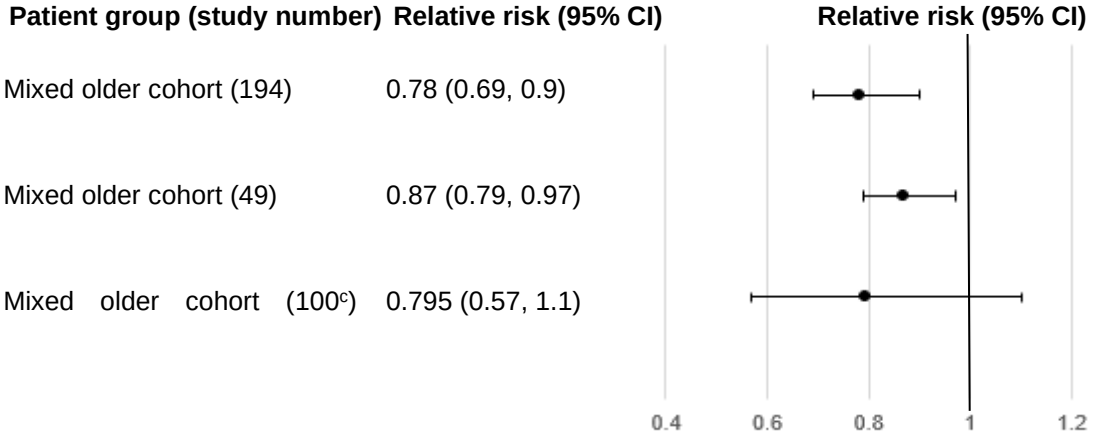


Figure 3.8: Forest plot of meta-analysis results that looked at the impact of interventions that provided *discharge planning/coordination or case management* on readmissions

Three further reviews/review subgroups reported on majority results (183[b], 191[d], 198). One study reported a significant difference in readmissions that favoured discharge planning coordinators in the two studies included (191[d]). The remaining review (198) along with a review that included primary studies as well as reviews (183[b]) both reported that the majority of studies (4 out of 6; and 3 out of 4) included in their reviews found no significant differences in readmissions for case management interventions.

Four reviews/review subgroups reported results from systematic review of reviews (181[c,d,e], 182[b]). One review with three subgroups reported that: discharge arrangement interventions were found to give a significant reduction in readmissions that favoured interventions in one review subgroup meta-analysis (181[d]); discharge planning intervention results varied, one review subgroup reported a reduction while the other review reported no statistical differences (181[c]); and nurse led case management interventions had no significant impact on readmissions (181[e]). The final systematic review of reviews (182[b]) reported the majority of reviews it included found discharge planning could have a significant reduction in readmissions.

These results demonstrate that the majority of reviews/review subgroups that reported a meta-analysis or majority results for readmissions found that patients in interventions of ***discharge planning/coordination or case management*** were less likely to be readmitted to hospital.

3.2.9.3 Costs

Costs were reported in five reviews/review subgroups, of which four reported majority findings (49, 100[c], 191[d], 198) (none reported meta-analysis). Table 6 in Appendix 3 presents the results of the remaining review subgroup that reported no meta-analysis or majority results (227[a]).

The three reviews/review subgroups (49, 191[d], 198) that reported majority findings found that there were lower costs in the discharge planning or case management groups, while this was the case it was sometimes reported as small and the majority of reviews did not state whether it was a statistically significant reduction. One of the reviews (49) reported it was uncertain whether there was any difference in hospital care cost. In the final review subgroup (100[c]) that looked at costs for discharge planning, they found in the majority of studies (2 out of 3) costs were higher in intervention groups but the significance was unclear. As a result, the majority of studies found that interventions of ***discharge planning/coordination or case management*** may slightly reduce costs, but the significance of this reduction was unclear.

3.2.9.4 Patient Health Status

Results on the outcome of patient Health Status were detailed in six reviews/review subgroups, of which four reported majority findings (49, 191[d], 194, 219[a]). Table 6 in Appendix 3 shows the results for the remaining review subgroups that reported no meta-analysis or majority results (100[c], 227[a]).

The four reviews/review subgroups (49, 191[d], 194, 219[a]) that reported majority findings found conflicting results. Of two reviews/review subgroups, where one looked at discharge planning (194) and the other looked at case management (219[a]), it was found that the majority of studies reported significantly higher scores in quality of life domains for intervention groups at different time points and using a number of measures. The other two reviews/review subgroups (49, 191[d]) reported that the majority of studies that looked at discharge planning found no differences in patient health outcomes such as functional health, quality of life, mental status and self-rated health. The evidence suggests that the impact of ***discharge planning/coordination or case management*** interventions on patient health status is unclear as some studies reported a significant impact of the intervention whilst others found no difference.

3.2.9.5 Length of stay in hospital

Length of Hospital stay was an outcome of interest in eight reviews/review subgroups (49, 100[c], 183[b], 191[d], 194, 198, 219[a], 227[a]). Seven of which reported a meta-analysis/pooled results (49, 100[c], 194) or majority findings (183[b], 191[d,] 198, 219[a]). Table 6 in Appendix 3 presents the results of the remaining review that reported no meta-analysis or majority results (227[a]).

Three of the included reviews/review subgroups included a meta-analysis of the impact of ***discharge planning/coordination or case management*** interventions on length of stay. No significant differences were reported in any of these meta-analyses for discharge planning. However, two of the reviews (49, 100[c]) reported a small reduction in length of stay in the intervention groups, although the differences were not reported as statistically significant (100[c]: MD: +1.42; 95% CI: -2.46 to +5.28; p=0.47; 49: MD: -0.73; 95% CI: -1.33 to -0.12). The third review (194) that reported on a meta-analysis found no significant differences (MD= -0.41, CI: -1.19 to -0.36, p=0.30).

There were four reviews/review subgroups that reported majority results, one review (198) and one review that included primary studies as well as reviews (183[b]) reported that the majority of studies found a significant reduction in length of stay for case management interventions. The other two review subgroups found in the majority of studies discharge planning (191[d]) and case management (219[a]) made no significant difference to length of stay.

The findings from meta-analysis or majority results that looked at the impact of interventions of ***discharge planning/coordination or case management*** on length of stay were mixed. Of the seven reviews, three reported no significant differences, whilst two reported non-significant reductions in length of stay and two reported significant reductions in length of stay. So, although the majority of reviews did not report any significant differences, there may be some non-significant trends in reduction of length of stay in the intervention groups.

3.2.9.6 Mortality

Mortality was an outcome of interest in six reviews/review subgroups, of which five reported a meta-analysis/pooled results (49, 100[c], 194, 219[a]) or majority findings (191[d]). The results of the remaining review reported no meta-analysis or majority results (227[a]) and are shown in Table 6 in Appendix 3. Of the four reviews/review subgroups (49, 100[c], 194, 219[a]) that reported on meta-analysis for ***discharge planning/coordination or case management*** interventions, one review subgroup (219[a]) reported meta-analysis that showed a non-significant trend in reduction of mortality at 12 months or more (OR: 0.87, 95% CI: 0.64 to 1.17, p=0.35, I2 = 0%). The other three reviews (49, 100[c], 194) all reported no significant differences between control and intervention groups (194 reported RR: 0.97, 95% CI: 0.80 to 1.17; p=0.73; 49 reported RR: 0.99, 95% CI 0.79 to 1.24). The one intervention subgroup within a

larger review (191[b]) also reported majority results and found no difference in mortality. It can be observed from these results that the majority of reviews/review subgroups found that interventions of ***discharge planning/coordination or case management*** had no impact on mortality.

Summary of outcomes reported for interventions that provided *discharge planning/coordination or case management*

The findings showed that ***discharge planning/coordination or case management*** interventions could have reduced readmissions and potentially also had a small impact on reducing costs.

It is unclear what the impact of the intervention on patient health status was, as there was no consensus between included review results.

There appeared to be no significant impact on mortality or length of stay.

Box 3.6: Summary of outcomes reported for interventions that provided *discharge planning/coordination or case management*

3.2.10 Interventions that provided multiple component transitional care at discharge

The effects of interventions that provided ***multiple component transitional care at discharge*** are presented below for the five main outcomes (see Table 3.7). See Table

2.3 in Chapter 2 for the classification of results. This intervention type is distinct from the interventions classified as providing ***rehabilitative support/therapy at home (or in the community) around the time of discharge***, as although these interventions also provided some support at home or in the community, rehabilitation or therapy were not specified in the intervention description.

Table 3.7: Overview of effectiveness of combined data for each outcome reported for interventions that provided *multiple component transitional care at discharge*

Effect		Outcomes
NS+	+	Readmissions
NS+	+	Costs
ND		Length of stay in hospital
ND		Mortality
ND		Patient health status

3.2.10.1 Included reviews

There were seven reviews (54, 189, 193, 200, 207, 218, 233) four intervention subgroups within larger reviews (187[b], 227[b], 211[b,c]), one systematic review of reviews (61) and two subgroups within a larger systematic review of reviews (182[c,d]) that reported outcome data on interventions that provided ***multiple component***

transitional care at discharge. Twelve reviews/review subgroups included a mixed cohort of patients with an average age of over 60 (54, 61, 182[c,d], 187[b], 189, 193, 200,207, 211[b,c], 233), two reviews/review subgroups included data on heart failure patients (54, 218), and one review subgroup looked at an older cohort of fracture patients (227[b]). Of the reviews /review subgroups included, all fourteen were in reviews of moderate quality (54, 61, 182[c,d], 187[b], 189, 193, 200, 207, 211[b,c], 218, 227[b], 233). Two review pairs in this section were identified as having very high primary study overlap (CCA over 15%), these were Kim et al. (197) and Phillips et al. (2) with a CCA of 15.4 and Allen et al. (185) and Bryant-Lukosius et al. (5) with a CCA of 19%. Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status.

3.2.10.2 Readmissions

Readmissions were reported in fourteen reviews/review subgroups, of which five reported a meta-analysis (54, 200, 211[b,c], 218,), four reported majority findings (187[b], 193, 227[b], 233,) and three reported results from systematic review of reviews (61, 182[c,d]). The results of the two remaining reviews reported no meta-analysis or majority results (189, 207) and their results can be seen in Table 7 in Appendix 3.

Five of the reviews/review subgroups included a meta-analysis on the impact of **multiple component transitional care at discharge** on readmissions (54, 200, 211[b,c], 218). The first two reviews (200, 218) reported that fewer patients in the intervention group were readmitted and yet the effect was not reported to be statistically significant (200: OR 0.87; 95% CI 0.69 to 1.04; 218: RR 0.75; 95% CI 0.64 to 0.88). Another review reported on two review subgroups one with low intensity interventions (211[b]) and one with higher intensity interventions (211[c]) and found that: lower intensity interventions had no significant impact on readmissions for all of the time points reported (Short: OR 1.30, p=0.51; Intermediate: OR 0.94, p=0.65; Long: OR 0.62, p=0.43) (211[b]); whereas higher intensity interventions had a significant impact on the reduction of readmissions for all of the time points reported (Short: OR 0.59, p=0.03; Intermediate: OR 0.69 p<0.0001; Long: OR 0.57, p=0.05) (211[c]). The final review (54) reported a meta-analysis of **multiple component transitional care at discharge** on readmissions for both heart failure patients and older patient groups. A non-significant reduction in readmissions was reported for heart failure patients (RR 0.83; CI 0.69 to 1.00; p=0.06) and a significant reduction in readmissions in favour of the intervention for older patients (RR 0.38; 95% CI 0.19 to 0.77; p=0.007). Figure 3.9 shows that there were trends in reduced readmissions for interventions that provided ***multiple component transitional care at discharge*** for heart failure and a mixed older cohort; but this was only significant in the review that looked at a mixed older cohort (54).

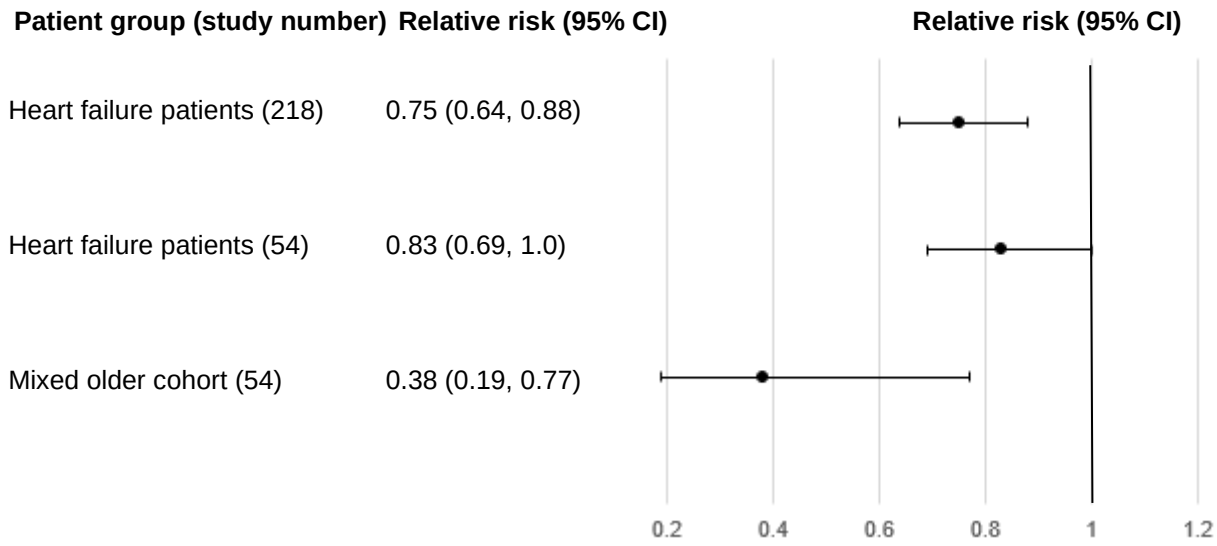


Figure 3.9: Forest plot of meta-analysis results that looked at the impact of interventions that provided *multiple component transitional care at discharge* on readmissions

Four further reviews/review subgroups reported majority findings, three of these reported that in the majority of studies the intervention had no significant impact on readmissions (193, 227[b], 233). The one contrasting review subgroup (187[b]) reported that six of the eleven primary studies found a significant reduction in readmissions for the intervention group.

The final three reviews reported results from systematic review of reviews (61, 182[c,d]). The first review of reviews found the majority of reviews included, reported inconclusive findings (61). The second review (182[c,d]) detailed the findings of two review subgroups and the authors reported bridging interventions (e.g. geriatric assessment with home follow-up, telephone calls or an intermediate care home programme) appeared to significantly reduce readmissions in a mixture of interventions reported in the

intervention type, but there was no consensus on the impact of post discharge support (e.g. telephone calls, home visits, outpatient follow-up and enhanced communication) interventions.

These results demonstrate that the majority of reviews/review subgroups that reported a meta-analysis or majority results for readmissions found that patients in interventions of ***multiple component transitional care at discharge*** were less likely to be readmitted, but the effect was not always significant.

3.2.10.3 Costs

Costs data were included in six reviews/review subgroups, of which one reported on pooled data (218) and two reported majority findings (54, 187[b]) and one reported results from a systematic review of reviews (61). Table 7 in Appendix 3 shows the results of the remaining two reviews which reported no meta-analysis or majority results (207, 227[b]).

One review (218) reported pooled data on the impact of ***multiple component transitional care at discharge*** interventions and found that costs were lower for intervention patients and this difference was significant in trials conducted in the United States (−US$536; 95% CI: −US$956 to −US$115; p=.03) but not for trials conducted

elsewhere (−US$359; 95% CI: −US$763 to US$45; p=0.10). Two trials reported majority results, the first (187[b]) found reduced costs for the intervention but the significance was not clear, whereas the second (54) reported no significant differences in costs for the majority of the studies. The final systematic review of reviews (61) reported that due to heterogeneity the impact of interventions on costs was inconclusive. These results demonstrate that the majority of reviews/review subgroups found that interventions of ***multiple component transitional care at discharge*** could potentially reduce costs but this reduction was not always significant.

3.2.10.4 Length of stay in hospital

The outcome of length of Hospital stay was reported in eight reviews/review subgroups (54, 61, 187[b], 193, 200, 207, 218, 227[b]). Three of which reported a meta-analysis (54, 200, 218), two reported majority findings (187[b], 227[b]) and one reported results from a systematic review of reviews (61). Table 7 in Appendix 3 shows the results of the remaining two reviews that reported no meta-analysis or majority results (193, 207).

All of the five reviews/review subgroups that reported on a meta-analysis or majority results for length of hospital stay found no significant differences (54, 187[b], 200, 218, 227[b]). On the contrary, one review (218) that conducted a meta-analysis did report there was a small difference that favoured shorter length of stay in the intervention

group but this was not statistically significant (Length of stay difference −0.37; 95% CI, −0.15 to 0.60). The systematic review of reviews (61) reported four reviews where no differences were found, four where the results were inconclusive and one that found a decreased length of stay.

These results demonstrate that interventions of ***multiple component transitional care at discharge*** had no significant impact on length of stay.

3.2.10.5 Mortality

Mortality was an outcome of interest in seven reviews/review subgroups, of which two reported a meta-analysis/pooled results (54, 218), three reported majority findings (193, 227[b], 233) and one reported results from a systematic review of reviews (61). The results of the remaining review reported no meta-analysis or majority results (187[b]) and are shown in Table 7 in Appendix 3.

No significant differences in mortality were reported in all of the reviews/review subgroups that reported on a meta-analysis or majority results. However, one review (218) did report a statistically significant trend for lower all-cause mortality in interventions patients (RR: 0.87; 95% CI 0.73 to 1.03). These results show that the

majority of reviews/review subgroups found that interventions of ***multiple component transitional care at discharge*** had no impact on mortality.

3.2.10.6 Patient Health Status

Patient Health Status was reported in six reviews/review subgroups, of which one reported meta-analysis (218) four reported majority findings (54, 187[b], 193, 227[b]) and one reported the results of systematic review of reviews (61). One review (218) reported pooled data on the impact of ***multiple component transitional care at discharge*** interventions and found that quality of life improved in intervention patients significantly more than 'usual care' patients (p= 0.01).

In the four reviews/review subgroups that reported majority results, the first review subgroup (187[b]) reported no differences in the majority of studies that reported on functional status, but the studies that reported on quality of life found improvements in quality of life, but this was not always significant. The second review subgroup reported the majority of results found improvements in the measure of ADL, but this was not always significant (227[b]). The final two reviews that reported majority of results found no significant differences in different measures of patient health status (54, 193). The systematic review of reviews (61) reported that the majority of reviews included, concluded that there were no significant differences in measures of emotional and physical status. Therefore, the majority of findings suggest that interventions of

multiple component transitional care at discharge did not have a significant impact on patient health status.

Summary of outcomes reported for interventions that provided *multiple component transitional care at discharge*

The findings showed that ***multiple component transitional care at discharge*** interventions could reduce readmissions and costs, although this was not always significantly so.

The intervention did not appear to have any impact on patient health status, length of stay or mortality.

Box 3.7: Summary of outcomes reported for interventions that provided *multiple component transitional care at discharge*

3.2.11 Interventions that provided nursing led care around the time of discharge

The effects of interventions that included ***nursing led care around the time of discharge*** are presented below for the five main outcomes (see Table 3.8). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.8: Overview of effectiveness of combined data for each outcome reported for interventions providing *nursing led care around the time of discharge*

Effect	Outcomes
NS+ +	Readmissions
NS+	Patient health status
NS- NS+	Costs (NS+ US based, NS- UK based interventions)
ND	Mortality
-	Length of stay in hospital

3.2.11.1 Included reviews

There was one review (196) and four intervention subgroups within larger reviews (188[d], 211[d], 213[c], 230[d]) that reported outcome data on interventions that provided ***nursing led care around the time of discharge***. Of these, three reviews/review subgroups included a mixed cohort of patients with an average age of over 60 (188[d], 196, 211[d]), one review subgroup included data on heart failure patients (213[c]), and one review subgroup looked at an older cohort of fracture patients (230[d]). Within the reviews/review subgroups included two were in reviews of high quality (196, 230[d]) and three were in reviews of moderate quality (188[d], 211[d], 213[c]). No review pairs were identified as having very high primary study overlap in this section. Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status.

3.2.11.2 Readmissions

Readmissions were reported in four reviews/review subgroups (196, 211[d], 213[c], 230[d]) of which three reported a meta-analysis/pooled results (196, 211[d], 213[c]) for interventions of ***nursing led care around the time of discharge***. Table 8 in Appendix 3 shows the results of the remaining review that reported no meta-analysis or majority results (230[d]).

Two of the reviews/review subgroups (196, 211[d]) that reported meta-analysis found reduced rates in short term readmissions for intervention groups (196: OR 0.63; 95% CI 0.36 to 1.12; 211d: OR 0.60; 95% CI: 0.37 to 0.98, p=0.04) although this reduction was only statistically significant in one review (211[d]). The third review (213[c]) did a meta-analysis of all-cause readmissions, at 3–6 months and reported no significant differences (RR: 0.88; 95% CI 0.57 to 1.37). These findings suggested that interventions of ***nursing led care around the time of discharge*** could reduce short term readmissions to hospital but this was not always a statistically significant difference.

3.2.11.3 Patient Health Status

Patient Health Status was an outcome of interest in two reviews/review subgroups (196, 230[d]), of which one reported meta-analysis (196) and results of the remaining review subgroup that reported no meta-analysis or majority results (230[d]) can be seen in Table 8 in Appendix 3.

The one review (196) that reported a meta-analysis for patient health outcomes found intervention patients had better functional status (SMD: 0.35; 95% CI 0.16 to 0.53), health status (SMD: 0.28; 95% CI 0.09 to 0.48) and psychological wellbeing (SMD: 0.36; 95% CI -0.03 to 0.74) although statistical significance was not always reported. With regard to this review, it appears interventions involving ***nursing led care around the time of discharge*** could improve patient health status.

3.2.11.4 Costs

Costs were included in two reviews/review subgroups (188[d], 196), but none reported meta-analysis and only one reported majority findings (196). In Appendix 3 Table 8 find the results of the remaining review subgroup (188[d]).

The review that reported majority findings found daily cost of care was lower for the intervention group; while this was the case the methods used for conducting cost analyses were not consistent and were not always clear. Additionally, costs of care in UK based studies were higher than 'usual care', but lower than 'usual care' for US based studies. Subsequently, interventions involving ***nursing led care around the time of discharge*** may have lower costs, but costs may be higher for studies undertaken in the UK.

3.2.11.5 Mortality

Mortality was an outcome of interest in three reviews/review subgroups and all three reported a meta-analysis/pooled results (196, 213[c], 230[d]). All three meta-analysis reported no significant differences in mortality for interventions involving ***nursing led care around the time of discharge*** (230[d]: RR 0.32; 95% CI: 0.08 to 1.28; 213[c]: RR 0.59; 95% CI: 0.12 to 3.03; 196: OR 1.08, 95%CI 0.71 to 1.65).

3.2.11.6 Length of stay in hospital

Length of Hospital stay was reported in three reviews/review subgroups (188[d], 196, 230[d]). None reported a meta-analysis and only one reported majority findings (196). The results of the remaining reviews that reported no meta-analysis or majority results (188[d], 230[d]) can be seen in Table 8 in Appendix 3.

The one review (196) that reported majority results found, eight out of nine studies had longer stays in the intervention group and in most cases the increase in length of stay was significant. The evidence from this one review suggests that interventions involving ***nursing led care around the time of discharge*** appeared to increase the length of hospital stay.

Summary of outcomes reported for interventions that provided *nursing led care around the time of discharge*

The findings showed that interventions that provided ***nursing led care around the time of discharge*** could potentially reduce readmissions and improve patient health status, although this was not always significantly so.

They may also have had lower costs but this finding was only linked to studies in the US, where UK studies were found to have had higher costs.

Furthermore, this intervention type may have increased the length of stay, which may be why the UK costs were higher.

The intervention did not appear to have any impact on mortality.

Box 3.8: Summary of outcomes reported for interventions that provided nursing led care around the time of discharge

3.2.12 Interventions that provided specialist care pathways around the time of discharge

The effects of interventions that initiated ***specialist care pathways around the time of discharge*** are presented below for the five main outcomes (see Table 3.9). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.9: Overview of effectiveness of combined data for each outcome reported for interventions of *specialist care pathways around the time of discharge*

Effect	Outcomes
NS+	Readmissions (short term)
NS+	Costs
NS+	Patient health status
NS+	Length of stay in hospital
ND	Mortality

3.2.12.1 Included reviews

There were two reviews (214, 216), four intervention subgroups within larger reviews (217[a,b], 229[c,d]), and one intervention subgroup within a systematic review of reviews (181[g]) that reported outcome data on interventions that provided ***specialist care pathways around the time of discharge.*** Of these, three reviews/review subgroups included data on heart failure patients (216, 217[a,b]), two reviews/review subgroups included a mixed cohort of patients with an average age of over 60 (181[g], 214); two review subgroups looked at an older cohort of fracture patients (229[c,d]) and one review subgroup included data on stroke patients (181[g]). For the reviews/review subgroups included, three were in reviews of high quality (214, 229[c,d]) and four were in reviews of

moderate quality (181[g], 216, 217[a,b]). One pair of reviews in this section Gonseth et al. (4) and McAlister et al. (216) (CCA 16.7%) was identified as having very high primary study overlap (CCA over 15%). Data were available on all five key outcomes of readmissions, length of stay in hospital, mortality, costs and patient health status.

3.2.12.2 Readmissions

The outcome of readmissions was reported in seven reviews/review subgroups, of which four reported a meta-analysis/pooled results (214, 216, 217[a,b]). Table 9 in Appendix 3 presents the results of the three remaining reviews/review subgroups which reported no meta-analysis or majority results (181[g], 229[c,d]).

Three of the reviews/review subgroups (214, 216, 217[a]) meta-analysis reported that interventions that provided ***specialist care pathways around the time of discharge*** appeared to reduce all-cause readmissions, the significance of these reductions was not stated (214: RCTs RR 0.88, 95% CI 0.79 to 0.97/non RCTs RR 0.50, 95% CI 0.34 to 0.74; 216: RR 0.87, 95% CI 0.79 to 0.96; 217[a]: RR 0.30, 95% CI: 0.04 to 2.60). The remaining review subgroup (217[b]) that reported meta-analysis found that less complex interventions did not have a significant impact on readmissions (RR 1.00, 95% CI 0.86 to 1.17]. These results showed that interventions that provided ***specialist care pathways around the time of discharge*** could reduce readmissions but this

reduction was not significant. Figure 3.10 shows that there was a trend for some reductions in readmissions for specialist care pathways around the time of discharge; however, CIs were wide for one review that looked at heart failure patients (217[a]) and another found no significant differences for a less complex intervention (217[b]).

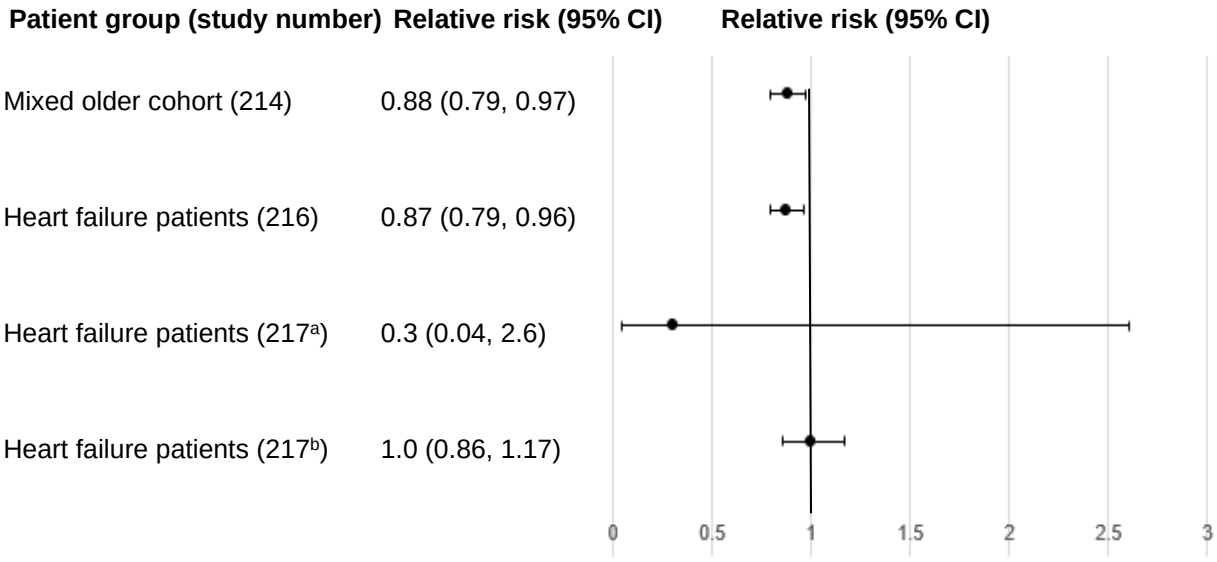


Figure 3.10: Forest plot of meta-analysis results that looked at the impact of interventions that provided *specialist care pathways around the time of discharge* on readmissions

3.2.12.3 Costs

Costs were reported in five reviews/review subgroups (214, 216, 217[a,b], 229[c]), one (229[c]) reported pooled results and four reported majority findings (214, 216, 217[a,b]). All these reviews/review subgroups found interventions that provided ***specialist care***

pathways around the time of discharge had costs savings, but none found these to be statistically significant.

3.2.12.4 Patient Health Status

Patient Health Status was an outcome of interest in five reviews/review subgroups (216, 217[a,b], 229[c,d]) of which one reported meta-analysis (229[d]) and four reported majority results (216, 217[a,b], 229[c]). The review subgroup (229[d]) that reported meta-analysis found there was a non-significant increase in patients who achieved independent mobility at discharge (OR: 2.25; 95% CI 0.95 to 5.31). The other four reviews/review subgroups all reported majority results, three of which found non-significant improvements in mobility (229[c]) or quality of life (217[a,b]). The final review (216) reported majority results for quality of life or functional status but found no statistical differences. These findings suggest interventions that provided ***specialist care pathways around the time of discharge*** may improve mobility and quality of life but this improvement was not significant.

3.2.12.5 Length of stay in hospital

Length of Hospital stay was an outcome of interest in three reviews/review subgroups (216, 229[c,d]) all reported majority findings. All three reviews/review subgroups found that the majority of studies reported reduced length of stay for interventions that provided ***specialist care pathways around the time of discharge***, then again this was only reported as significant in one review (216).

3.2.12.6 Mortality

Mortality was an outcome of interest in six reviews/review subgroups, three reported a meta-analysis/pooled results (216, 217[a,b]) and two reported majority findings (229[c,d]). Table 9 in Appendix 3 presents the results of the remaining review which reported no meta-analysis or majority results (214). None of the meta-analysis or majority findings reported any statistically significant findings. Therefore, interventions that provided ***specialist care pathways around the time of discharge*** appear to have had no significant impact on mortality.

Summary of outcomes reported for interventions that provided *specialist care pathways around the time of discharge*

The findings showed that interventions that provided ***specialist care pathways around the time of discharge*** could potentially reduce readmissions, length of stay and costs, as well as improving patient health status, although none of these reductions or improvements were significant.

The intervention did not appear to have had any impact on mortality.

Box 3.9: Summary of outcomes reported for interventions that provided *specialist care pathways around the time of discharge*

3.2.13 Miscellaneous interventions around the time of discharge

The effects of ***miscellaneous interventions around the time of discharge*** are presented below for the five main outcomes (see Table 3.10). See Table 2.3 in Chapter 2 for the classification of results.

Table 3.10: Overview of effectiveness of combined data for each outcome reported for *miscellaneous interventions around the time of discharge*

Effect	Outcomes
ND / NS+ / +	Readmissions (NS+/+ for home visits and multidisciplinary interventions)
ND / NS+	Mortality (NS+ for home visits, structured telephone support and clinical interventions)
ND	Length of stay in hospital
ND	Patient health status (only reported for stroke liaison worker)
No Data	Costs

3.2.13.1 Included reviews

There was one review (225), eight intervention subgroups within larger reviews (211[e], 213[d,e,f,g], 219[b,c], 230[e]), and two intervention subgroups within a systematic review of reviews (181[h,l]) that reported outcome data on interventions that provided ***miscellaneous interventions around the time of discharge.*** Interventions included *home visits, multidisciplinary interventions, structured telephone support, telemonitoring, pharmacists-led interventions, reorientation measures, referral to stroke liaison worker* and *clinical interventions*; there was a small amount of data on

each intervention type but the outcome data were missing. Three review subgroups included data on a mixed cohort of patients with an average age of over 60 (181[h,l], 211[e]); six reviews/review subgroups included data on heart failure patients (213[d,e,f,g], 219[b,c]), one review looked at an older cohort of stroke patients (225); and one review subgroup looked at an older cohort of fracture patients (230[e]). Within the reviews/review subgroups included, three were in reviews of high quality (219[b,c], 230[e]) and eight were in reviews of moderate quality (181[h,l], 211[e], 213[d,e,f,g], 225). One pair of reviews, Feltner et al. (213) and Takeda et al. (219) 26.3% was identified as having very high primary study overlap (CCA over 15%). Data were available on four of the key outcomes: readmissions, length of stay in hospital, mortality and patient health status. No studies reported data on costs.

3.2.13.2 Readmissions

Readmissions were an outcome of interest in nine reviews/review subgroups, of which seven reported a meta-analysis/pooled results (211[e], 213[d,e,f,g], 219[b,c]) and two reported results from a systematic review of reviews (181[h,l]). Two reviews (211[e], 213[d]) and one review subgroup from a systematic review of reviews (181[h]) reported meta-analysis of the impact of home visits on readmissions. The two review subgroups (211[e], 213[d]) reported *home visits* could reduce all-cause readmissions but the reduction was only reported significant in one review (211[e]) (213[d] RR 0.75, 95% CI 0.66 to 0.86; 211[e] OR

0.44, 95% CI: 0.26 to 0.76, p<0.0001). In comparison, the review subgroup from a systematic review of reviews (181[h]) reported no significant differences.

The impact of *multidisciplinary interventions* on readmissions were reported in two review subgroup meta-analysis (213[e], 219[c]) and they found the intervention could reduce all-cause readmissions but the reduction was only reported significant in one review (219[c]) (213[e]: RR 0.70, 95% CI 0.55 to 0.89; 219[c] OR 0.46, 95% CI 0.30 to 0.69, p < 0.001). Reviews that reported meta-analysis on the impact of readmissions for *structured telephone support* (213[f]), *telemonitoring* (213[g]), *pharmacists-led interventions* (181[l]), and *clinical interventions* (219[b]) all reported no significant impact on readmissions (213[f] RR: 0.92 95% CI: 0.77 to 1.10; 213[g] RR: 1.11, 95% CI: 0.87–1.42; 219[b] OR: 0.78 95% CI 0.48 to 1.26, p= 0.31). As a result, only *home visits* and *multidisciplinary interventions* may reduce readmissions but this was not always significant.

3.2.13.3 Mortality

Mortality was reported in seven review subgroups, six reported meta-analysis/pooled results (213[d,e,f,g], 219[b,c]) and one reported majority findings (230[e]). One review subgroup (213[d]) reported that *home visits* could reduce mortality when compared to 'usual care' but the significance of the reduction was not reported (RR: 0.77; 95% CI: 0.60 to 0.99). Two review subgroups reported meta-analysis (213[e], 219[c]) on the impact

of *multidisciplinary interventions* on mortality. One review subgroup (213[e]) reported the intervention could reduce mortality (although significance was not reported) and the other reported no significant differences (219[c]) (213[e] RR: 0.56, 95% CI: 0.34 to 0.92; 219[c] OR 0.70, 95% CI 0.43 to 1.14, p= 0.15). One review subgroup (213[f]) that reported on a meta-analysis of *structured telephone support*, found the intervention reduced mortality compared to 'usual care', but did not report if this was significant (RR 0.74 95% CI: 0.56 to 0.97). The final review subgroup (219[b]) reported on a meta-analysis of the impact of *clinical interventions* on mortality and found a non-significant trend towards a reduction in mortality (OR 0.74, 95% CI 0.51 to 1.09, p= 0.13). Reviews that reported meta-analysis or majority results for *reorientation measures* (230[e]) and *telemonitoring* (213[g]) reported no significant impact on mortality (213[g] RR 0.93, 95% CI: 0.25 to 3.48). These findings suggested that *home visits*, *structured telephone support* and *clinic interventions* may reduce mortality, but statistical significance of these reductions was unclear.

3.2.13.4 Length of stay in hospital

The outcome of length of Hospital stay was included in three review subgroups (219[b,c], 230[e]) and two reported majority findings (219[b], 230[e]). The results of the remaining review subgroup which reported no meta-analysis or majority results for *multidisciplinary interventions* (219[c]) can be seen in Table 10 in Appendix 3. The two review subgroups reported that the majority of studies found no significant differences

for length of stay between ‘usual care’, *reorientation measures* (230[e]) and *clinical interventions* (219[b]).

3.2.13.5 Patient Health Status

Patient Health Status data was included in three reviews/review subgroups (219[b,c], 225) of which one reported meta-analysis (225); Table 10 in Appendix 3 shows the results of the remaining review subgroups (219[b,c]), which reported no meta-analysis or majority results for *multidisciplinary interventions* (219[c]) or *clinical interventions* (219[b]). The one review that reported on a meta-analysis found that referral to a *stroke liaison worker* had no significant impact on subjective health status (SMD -0.03, 95% CI -0.11 to 0.04, p= 0.34) or extended ADL (SMD 0.04, 95% CI -0.03 to 0.11, p= 0.22) when compared to ‘usual care’.

Summary of outcomes reported for *miscellaneous interventions around the time of discharge*

The findings showed that some ***miscellaneous interventions around the time of discharge*** could potentially reduce readmissions (*home visits* and *multidisciplinary interventions*) and mortality (*home visits, structured telephone support* and *clinic interventions*), however, the significance of reductions was not always reported.

More importantly, not all intervention types within this heterogeneous group reported data for all the outcomes and there was no data available for costs.

Interventions did not appear to have an impact on length of hospital stay (*multidisciplinary interventions, reorientation measures* and *clinic interventions*) or patient health status (*stroke liaison worker*).

Box 3.10: Summary of outcomes reported for *miscellaneous interventions around the time of discharge*

3.2.14 Combined synthesis of intervention type by five main outcomes of interest

The analysis to date has looked at each intervention type, and within it, the degree to which there were positive findings for individual outcomes. However, it is also important

to review the data focusing on each key outcome, assessing the extent to which different interventions may have improved those outcomes. To review the impact of different interventions on mortality, readmissions, length of stay in hospital, patient health status and cost, the findings from combined majority data from each intervention type for each outcome of interest are summarised in Table 3.11. Table 3.11 shows the data in two ways: (1) reviewing the data from left to right you can look at the individual intervention impact on different outcomes and (2) reviewing the data top to bottom you can see which interventions have an impact on the individual outcomes. The data presented in Table 3.11 is discussed in more detail in the sections below. It is important to note that these intervention types have not been compared against each other and Table 3.11 shows the impact of each individual intervention type versus 'usual care'. In Table 3.11 where a cell is spilt with two or more findings this is where there was no majority and half of the studies found one result and the other half found the other, unless there is an alternative explanation in the table footnotes denoted by asterisks and number (for example specifying specific patient health status measures or intervention types). Please see Table 2.3 in Chapter 2 for the classification of results.

Table 3.11: Summary of effects of all intervention types on five main outcomes

Intervention type	Patient health status	Readmissions	Costs	Mortality	Length of hospital stay
Rehabilitative support/therapy at home (or in the community) around the time of discharge	ND	ND	NS+	ND	+[*1]
Patient assessments around the time of discharge	ND / NS +[*2] / +[*3]	ND	NS+	ND	ND
Primary care interventions around the time of discharge	No data	+	No data	?	ND
Multiple component inpatient specialist care including preparation for discharge	ND	ND	ND	ND	ND
Patient education around the time of discharge	ND[*4] / NS+[*5]	+	ND	ND	No data
Discharge planning/coordination or case management	ND[*6] / +[*7]	+	NS+	ND	ND
Multiple component transitional care at discharge	ND	NS+ / +	NS+ / +[*8]	ND	ND
Nursing led care around the time of discharge	NS+	NS+ / +	NS-[*9] / NS+ [*10]	ND	-
Specialist care pathways around the time of discharge	NS+	NS+	NS+	ND	NS+
Miscellaneous interventions*[11]around the time of discharge	ND	ND [*12] / NS +[*13] / +[*14]	No data	ND[*15] / NS+ [*16]	ND

*1 Mostly early discharge interventions; *2 Life satisfaction and Health; *3 Functional outcomes; *4 Quality of life; *5 Mental function; *6 Functional health, Quality of life, mental status, health; *7 Quality of life; *8 US based interventions; *9 UK based interventions; *10 US based interventions; *11 home visits, multidisciplinary interventions, structured telephone support, telemonitoring, pharmacists-led interventions, reorientation measures, referral to stroke liaison worker and clinical interventions; *12 structured telephone support, telemonitoring, pharmacists-led interventions and clinical interventions; *13 Home visits and multidisciplinary interventions; *14 Home visits and multidisciplinary interventions; *15 Reorientation measures and telemonitoring; *16 Home visits, structured telephone support and clinical interventions.

3.2.14.1 Individual intervention impact on different outcomes

The above Sections 3.2.4 to 3.2.13 describe the individual intervention impact on different outcomes in detail and Table 3.11 summarises these findings and shows substantial variation across intervention type in terms of the impact on different outcomes when compared to 'usual care'. Only one intervention type of ***multiple component inpatient specialist care including preparation for discharge*** reported no significant differences for the majority of studies for any of the five main outcomes. The remaining intervention types reported a mixture of results; but only one intervention type of ***nursing led care around the time of discharge*** reported any negative impacts, where it was reported that the majority of studies found increased costs and hospital length of stay; despite this, they reported a potential benefit in patient health status and readmissions.

None of the intervention types found the majority of studies to have a benefit for all of the five main outcomes, nevertheless, ***specialist care pathways around the time of discharge*** did find non-significant trends that favoured the intervention for patient health status, readmissions, costs and length of stay in hospital. Other intervention types reported significant benefits (from the majority of studies) for just one or two outcomes when compared to 'usual care', these included: ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** significantly reduced hospital length of stay; ***patient assessments around the time of discharge*** significantly improved patient health status; ***primary care interventions around the time of discharge*** and ***patient education around the time of discharge*** both significantly reduced readmissions; ***discharge planning/coordination or case management*** significantly reduced readmissions and found mixed results regarding patient health status; and ***multiple component transitional care at discharge*** potentially reduced readmissions and costs but not always significantly.

3.2.14.2 Impact on the individual outcomes

The impact of interventions by outcome were summarised in Table 3.11. The table showed, no intervention types had a significant impact on mortality; but several intervention types appeared to have a significant impact on readmissions and patient health status. The combined majority data for each of the five outcomes listed in the table are discussed in turn below.

3.2.14.2.1 Patient health status

Nine intervention types reported on the outcome of patient health status. Only one intervention type of ***patient assessments around the time of discharge*** was found to significantly improve patient health status (specifically functional outcomes). Other interventions also reported improvements in patient health status, but this was not always reported as significant including ***nursing led care around the time of discharge*** for functional status, health status and psychological wellbeing; and ***specialist care pathways around the time of discharge*** for mobility and quality of life. However, results varied in the reporting of different measures for patient health; this was particularly the case for the intervention types of ***discharge planning/coordination or case management*** interventions and ***patient education around the time of discharge***; where some reviews reported no differences and others reported significantly higher patient health status scores. The remaining intervention types of: ***rehabilitative support/therapy at home (or in the community) around the time of discharge***; ***multiple component inpatient specialist care including preparation for discharge***; ***multiple component transitional care at discharge***; ***and miscellaneous interventions around the time of discharge*** all reported no significant impact on patient health status.

3.2.14.2.2 Readmissions

All ten intervention types reported on the outcome of readmissions. The three intervention types of: ***primary care interventions around the time of discharge; patient education around the time of discharge*** and ***discharge planning/coordination or case management*** were found to significantly reduce readmissions. Two intervention types of ***multiple component transitional care at discharge*** and ***nursing led care around the time of discharge*** were found to reduce readmissions, but this was not always reported as a significant reduction. One intervention type of ***specialist care pathways around the time of discharge*** had a trend in reduced readmissions, but this was not reported as significant. The three intervention types of: ***patient assessments around the time of discharge; rehabilitative support/therapy at home (or in the community) around the time of discharge*** and ***multiple component inpatient specialist care including preparation for discharge*** had no significant impact on readmissions. The final intervention type of ***miscellaneous interventions around the time of discharge*** reported mixed results from a small number of reviews and found that home visits and multidisciplinary interventions could potentially have reduced readmissions (this was not always reported as significant); but review subgroups on structured telephone support (213[f]), telemonitoring (213[g]), pharmacists-led interventions (181[l]), and clinical interventions (219[b]) all reported no significant impact on readmissions.

3.2.14.2.3 Costs

Eight intervention types reported on the outcome of costs. Five intervention types reported potential reductions in costs but this was only reported as significant in some of the reviews included in ***multiple component transitional care at discharge;*** significance was unclear in the remaining four intervention types of: ***rehabilitative support/therapy at home (or in the community) around the time of discharge; patient assessments around the time of discharge; discharge planning/coordination or case management*** and ***specialist care pathways around the time of discharge.*** For the intervention type of ***nursing led care around the time of discharge,*** interventions based in the United States were found to potentially reduce costs but UK based interventions were found to potentially increase costs. The remaining two interventions of ***multiple component inpatient specialist care including preparation for discharge*** and ***patient education around the time of discharge*** reported no significant impact on costs.

3.2.14.2.4 Mortality

All ten intervention types reported on the outcome of mortality. Nearly all of the intervention types found that the intervention had no significant impact on mortality. Whereas, in the group of ***miscellaneous interventions around the time of***

discharge a small number of review subgroups reported that home visits (213[d]), structured telephone support (213[f]) and clinical interventions (219[b]) could potentially reduce mortality, but this was not reported as significant and was based on data from single reviews. It is unclear what impact ***primary care interventions around the time of discharge*** had on mortality.

3.2.14.2.5 Length of stay in hospital

Nine intervention types reported on the outcome of length of hospital stay. Only one intervention type of ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** was found to significantly reduce length of stay and this was mainly for interventions that involved the specific intervention component of 'early discharge'. The intervention type of ***specialist care pathways around the time of discharge*** also appeared to reduce the length of stay but this was not reported as significant. In contrast ***nursing led care around the time of discharge*** was found to significantly increase the length of stay. The remaining intervention types of: ***patient assessments around the time of discharge; primary care interventions around the time of discharge; multiple component inpatient specialist care including preparation for discharge; discharge planning/coordination or case management; multiple component transitional care at discharge*** and ***miscellaneous interventions around the time of discharge*** all reported no significant impact on length of stay.

3.2.14.2.6 Impact of findings in the ‘real-world’

Various discharge interventions were found to have a positive impact on key outcomes. In the ’real world’ the impact of these interventions could: help meet national ambitions such as reducing the number of long stays in hospital; help ease pressures on health care resource use (such as reducing readmission); and improve care from the perspective of patients. It is important to look at the impact of interventions on more than one outcome, for example, whether a reduction in hospital length of stay could increase readmissions. It is also necessary for services to be adapted for local contexts, even when interventions have been found to be effective for health care systems in other countries, contexts or specific patient groups, interventions should not be simply copied. These real-world impacts are now discussed in more detail in the context of the results of the SR of review.

In June 2018 the UK Secretary of State announced a national ambition to reduce the number of long stays in hospital (21 days or more), as these have a greater resource use and the risks of long hospital stays lead to an increased risk of falling, sleep deprivation, catching infections and mental/physical deconditioning (234). A significant reduction in length of stay was reported in meta-analysis for sub-groups of interventions providing ***rehabilitative support/therapy at home (or in the community) around the time of discharge***.

For example *early discharge* interventions reported in meta-analysis that the MD in length of stay ranged from 5.5 days to 13 days for stroke patient cohorts (46, 59[a],

221), 6.8 days for a mixed patient cohort (46) and 6.9 days for fracture patient cohort (229[a]). Average length of hospital stays have been reported for stroke patients at around 20 days (235) and fracture patients at around 21.7 days (236). Therefore, reductions in length of stay ranging from 5.5-13 days, could help reduce the number of long stays in hospital and the subsequent hospital resource usage for fracture and stroke patient groups. Furthermore, these reductions are potentially important to patients, considering the reported risks associated with long hospital stays (234).

It is important to consider reductions in length of stay alongside the potential impact on other outcomes, for example, the SR of review reported that *early discharge* interventions for older mixed patient cohorts could potentially increase the risk of readmissions, but for COPD patient cohorts *early discharge* could decrease the risk of readmissions.

Trends of reductions or significant reductions in readmissions were reported for several intervention groups. These reductions are important for patients as they indicate that fewer patients have needed to be readmitted following discharge, as well as important for hospitals as they have reduced resource use associated with readmissions. Readmissions have also been linked to the quality of patient care along the patient pathway, particularly in terms of transitional care and discharge support (237). Therefore, as well as reductions in readmissions potentially having a positive effect on resource usage and patients, it could imply that the intervention also improved the quality of post discharge care.

Reductions in costs are important to healthcare organisations and were reported in several intervention groups. ***Rehabilitative support/therapy at home (or in the community) around the time of discharge*** subgroup of *rehabilitation or therapy interventions* meta-analysis for stroke patients, found that inpatient rehabilitation was more costly compared with rehabilitation in the home (95% CI: 0.15 to 0.48) (190[a]). Furthermore, non-significant trends favouring early discharge were found for stroke patients (221). The societal cost of stroke has been estimated to cost £26 billion per year, including £8.6 billion for NHS and social care, and £20.6 billion related to ongoing care, this highlights that rehabilitative interventions showing cost savings could be important to save hospital and ongoing care costs (238).

There is a lack of research on how to determine 'big' or 'small' cost savings in healthcare and this limits the understanding of meaningful cost savings (239). NICE assesses cost effectiveness in relation to: effectiveness of the intervention or service to achieve what it sets out to; how much more effective it is than alternatives; and how much it costs compared to the best alternative (240). Therefore, as well as being cheaper than alternatives, interventions need to be effective in achieving what they set out to do, for example, 'early discharge' interventions reduced length of stay but only non-significant trends in the reduction of costs were reported.

Context is also important regarding costs, for example, ***multiple component transitional care at discharge*** interventions only had a significant impact on costs in the US, the same cost finding was not reported for other countries (US −US$536; 95% CI: −US$956 to −US$115; p=.03 versus other countries −US$359; 95% CI:

−US$763 to US$45; p=0.10) (218), furthermore for ***nursing led care around the time of discharge***, one review found trends for increased costs of care in UK based studies, but lower costs compared to 'usual care' for US based studies. It is accepted that there are organisational differences between health systems in the US and UK, due to this, interventions or services for the different systems should be adapted through learning partnerships rather than simply copied (241).

Lastly, the impact of these positive findings on patients should be acknowledged, such as, reducing a patient's length of time in hospital or reducing their risk of being readmitted may have had a positive impact on individual patients. Furthermore, significant and non-significant trends of interventions benefitting patient health status were reported for several interventions; improvements in wider aspects of patient health such as quality of life, life satisfaction, well-being and mental function are important for patients and health services.

3.2.15 Theories or conceptual frameworks identified in reviews

As well as outcomes data, data were extracted on any theories or conceptual frameworks reported in the 66 included reviews. In 64 of these 66 reviews (97%), there was either no mention, or just an extremely brief reference to any theories or conceptual frameworks. Where there was a brief reference to a theory or framework, it was not clear in the information provided what impact (if any) the theories or

conceptual frameworks had on the interventions or results presented. The remaining two reviews (215, 230) mentioned conceptual frameworks: one detailed a theoretical basis for interventions being Social Cognitive Theory (230) and the other highlighted the American Heart Association taxonomy of Disease Management Programme Framework as a tool in their analysis (215).

3.3 Narrative review of reviews published since update search

A narrative review of discharge services was undertaken to identify reviews published after the formal update search for the SR of reviews was completed in 2017. The more recent systematic reviews identified are summarised in the context of the findings of SR of reviews undertaken in this thesis in Sections 3.3.1 to 3.3.3.

3.3.1 Cochrane reviews

The narrative review identified that three of the ten Cochrane reviews included in the SR of reviews had been updated since the update searches were completed. These three reviews covered the intervention types (as defined in the SR of reviews) of: ***rehabilitative support/therapy at home (or in the community) around the time of***

discharge; patient assessments around the time of discharge e.g. CGA; multiple component inpatient specialist care including preparation for discharge; discharge planning/coordination or case management and ***miscellaneous interventions around the time of discharge (clinical interventions)*** (58, 242, 243). All three Cochrane reviews stated that despite adding additional primary studies, updates had no impact on the conclusions of this SR of reviews.

One new Cochrane review was identified as potentially relevant. It investigated CGA for older surgical patients and found that it could reduce the risk of dying (in contrast to the majority results for patient assessment in this thesis review), but had no impact on readmissions (the same as the SR of review in this thesis majority results for patient assessment) (244). Nevertheless, it needs to be noted that in this review CGA was not specifically at discharge, but at any point in a patient's care including postoperatively, so timing of CGA could have an impact on mortality for surgical patients (244).

3.3.2 Non-Cochrane reviews

Five systematic review or meta-analyses were identified. These reviews looked at a number of the key outcomes also reported in the thesis SR of reviews. The majority of reviews drew similar conclusions as the SR of review in this thesis. One review reported that: discharge planning, patient education, multiple component transitional care, home visits and multidisciplinary teams could reduce readmissions (52). Another

review that focussed on multiple component transitional care reported reduced readmission (reported RRs ranged from 0.26 to 1.29) for older patients, but the impact varied depending on the timing of the outcome measure (the largest impact of interventions was reported to be within the first 30 days of discharge) (71).

A further review that focussed on transitional care interventions for older people reported components of education (RR 0.81, 95% CI: 0.74 to 0.89) and telephone follow-up (RR 0.84, 95% CI: 0.73 to 0.97) could reduce readmissions (245). The SR of reviews undertaken in this thesis found that multiple component transitional care and the specific component of patient education could reduce readmissions, but no significant difference was found for structured telephone support, although there was limited data reported on this intervention type in isolation.

A systematic review reporting specifically on interventions where nurses undertook discharge planning, reported lower readmissions for studies undertaken in the USA (OR 0.57, 95% CI:0.40 to 0.81, p=0.01) but when all studies were included, the reductions in readmissions was not significant (p=0.06) (246). The review also reported an increased length of stay (WMD 0.29, 95% CI: 0.24 to 0.35) and no impact on quality of life (mental SMD=0.37, 95% CI: 0.19 to 0.93, p=0.19; and physical SMD=0.47, 95% CI: 0.17 to 1.10, p=0.15) (246). In the SR of reviews undertaken in this thesis, nursing led care was also found to increase length of stay and lower readmissions, however quality of life was not reported. The final review identified, focused on interventions that could improve communication at discharge (of which most interventions had an

element of education) and found that interventions reduced readmission rates (RR 0.69, 95% CI: 0.56 to 0.84) (247), which is the same conclusion as patient education interventions reported in the SR of reviews in this thesis.

One other review identified in the narrative review was initially thought to be relevant due to the intervention type of hospital at home, but a full text review found that the review concentrated solely on hospital at home for admission avoidance from a hospital emergency department, not early discharge from hospital so was not relevant in the context of the SR of reviews (248).

3.3.3 Systematic review of reviews

Two systematic reviews of reviews were identified, neither had the same remit (in terms of intervention types included, population or outcomes reported) as the SR of reviews completed in this thesis, but they did include findings relevant to some intervention types. The first reported only on early supported discharge interventions, it found no significant differences in mortality (RR 0.92–1.03) and readmissions (RR 1.09–1.25) but a shorter hospital length of stay (MD −6.76 to −4.44 days) (249). This is the same conclusions as in the SR of reviews for interventions providing rehabilitative support/therapy at home/in the community (which included early supported discharge interventions). The second systematic review of reviews looked at hospital at home

interventions, however the description of the interventions included was not clear (e.g. whether they were early discharge or admission avoidance hospital at home services) and the review did not focus on older people or report on outcomes; the authors reported limited data on indicators associated with the interventions and factors that influenced its implementation (250). This second review identified that the main facilitator of home-based hospitalisation implementation was related to organisational factors such as multidisciplinary collaboration and skill mix within the service (250). Barriers were linked to the service characteristics such as eligibility criteria and the complexity of patients (250).

3.3.4 Conclusion of narrative review

This narrative review was undertaken to summarise any reviews of discharge interventions that were published after the SR of reviews update searches were completed. Twelve recently published reviews were identified and their findings were discussed in the context of the thesis, alongside any potential impact on the review conclusions. The narrative review found that the majority of reviews supported the findings from the SR of reviews reported in this thesis and would not have changed the overarching conclusions of the SR of reviews.

3.4 Summary

This thesis chapter showed the results of the SR of reviews and addressed thesis research objectives 1 and 2, identifying different types of interventions and their impact on patient and health service outcomes. It detailed a broad spectrum of interventions used to support patients and the impact that different configurations of discharge interventions could have on older patients when compared to 'usual care'. It found that most intervention types were equivalent or better than 'usual care', as well as identifying intervention types that could have a significant impact on certain outcomes. The narrative review identified reviews published after the update search was completed and showed that the findings of this SR of reviews are supported by more recently published reviews. The detailed discussion of this SR of reviews chapter can be seen in Chapter 8. The following chapter (Chapter 4) is the first of two findings chapters from the qualitative case study and will present the findings from the service mapping that was undertaken with SIHDS staff to understand how the service worked in practice.

CHAPTER 4: PROCESS MAPPING OF A SUPPORTED INTEGRATED HOSPITAL DISCHARGE SERVICE

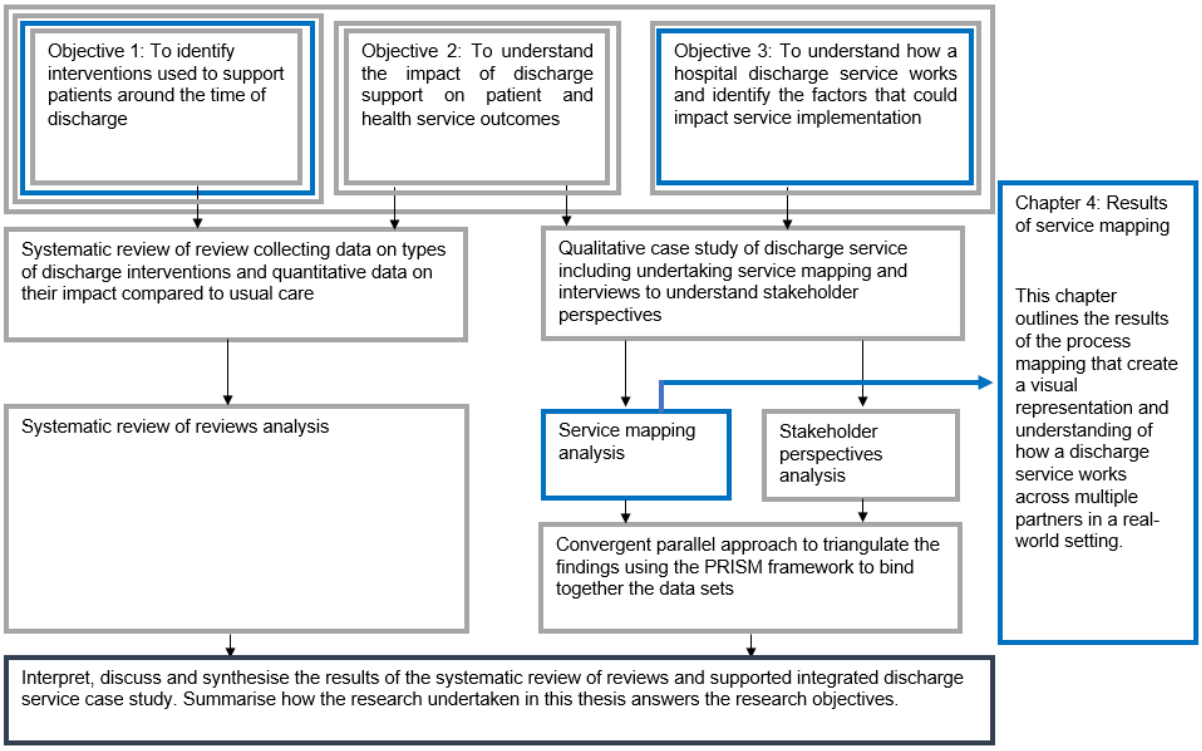


Figure 4.1: Thesis overview and process mapping chapter

4.1 Introduction

In the previous chapter, the results of the SR of reviews showed the effectiveness of various discharge services compared to 'usual care' for different outcomes (Chapter 3). The SR of reviews first focused on the impact of ***interventions that provided rehabilitative support/therapy at home (or in the community) around the time of discharge*** on nine outcomes (length of hospital stay, admission to nursing home, patient satisfaction, place of discharge, costs, staff outcomes, patient health status, readmissions, mortality, carer outcomes and emergency room visits). The SR of reviews found that interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge*** could have a significant positive impact on length of hospital stay, admission to nursing home, patient satisfaction and place of discharge. Thus, the choice of qualitative case study was based on a typical discharge service that provided rehabilitative support and or therapy in a patient's home after discharge in line with discharge guidance. This chapter will report the findings of the first part of the qualitative case study and give an understanding of how this type of service works in practice, detail who is involved at different stages of the patient journey, as well as showing the findings from a process mapping exercise undertaken with staff from the SIHDS hospital team, social care services and community health services.

4.1.1 Recap of process mapping methods

As previously described the process mapping formed part of the staff interview process. Process mapping data was collected by asking participants to draw a map of the service and then asking them to describe their maps. Each interviewee was given a blank piece of paper and asked to create a visual representation of their perceptions about the people, hospital departments and organisations involved in the delivery of SIHDS and how they linked together. After completing the visual representation, they were asked to explain the processes they had created. The level of detail provided during this process (and the service components selected) varied across staff (Appendix 13) from simple to quite complex process maps but they followed the same general themes. The visual and audio data collected during this process was used to develop process maps. Individual process maps drafted by staff were combined by the researcher to form shared views from four different perspectives, the SIHDS hospital team, social care services, community health services and enablement team. This process formed a shared view from individual mapping and allowed varying levels of knowledge and detail to be incorporated into the process maps. In contrast to the semi structured interviews discussed in Chapters 5, a reflexive thematic analysis was not used for the process map analysis. The analysis process described by Trebble et al. (160) was used for analysing the mapping data, the analysis process involved considering key questions, to add information as a narrative to accompany the process map diagrams. The narrative developed from the process mapping analysis was then included in the case study triangulation using PRISM. Although separate analysis and methods were used to analyse the process mapping data and stakeholder

perspectives (with triangulation at a later stage in analysis), there may have been some thought processes and reflections that crossed over during the analysis and data collection processes. This was because both sets of analysis were completed by the same researcher and staff were the same that completed both the mapping and semi-structured interviews. This was seen as a strength, as it may have helped staff share experiences on all aspects of the service and it helped the researcher gain more in-depth reflections on the case study as a whole.

This chapter shows the results of this work starting with a summary of participant characteristics, then an explanation of how the service structure was summarised in formal/official SIHDS paperwork, followed by the service design compared to Government recommendations for discharge services at the time and finally giving an understanding through process maps of how the SIHDS operated in practice across a number of service perspectives.

4.2 Participant characteristics

Interviews were completed with 14 members of staff who worked directly as part of the SIHDS or with SIHDS through partnership working. The four organisations, hospital (n=9), social work team (n=2), enablement team (n=2) and community health services (n=1) that the staff belonged to are highlighted in bold in Table 4.1.

Table 4.1: Staff characteristics

Organisation	**Role***	**Number of staff**
Hospital SIHDS service staff	Senior Occupational therapist	1
	Occupational therapists	2
	Nurse	1
	Therapy support worker	1
	Undisclosed role	1
Joint role across: **Hospital** admission prevention service/SIHDS staff	Clinical lead	1
	Therapy team lead/Senior Occupational Therapist	1
	Therapy support worker	1
Council **social work** team	Team manager	1
	Senior practitioner	1
Council Home care **enablement service**	Service manager	1
	Assistant team manager	1
Community health services rehabilitation team	Team lead	1

*To ensure anonymity, only roles of 13 staff interviewed are included in the characteristics (one member of staff requested their role was anonymised).

4.3 SIHDS formal service system map

The SIHDS has a formal service system map from an internal NHS Hospital Trust report produced in 2016 that described and reviewed service operation. The report documents the discharge process prior to the establishment of SIHDS (Figure 4.2), followed by how the SIHDS was expected to work in 2016 (Figure 4.3). These SIHDS system maps show that the goal of SIHDS was to provide therapy in the patients' home to reduce their length of stay in hospital, as the map prior to SIHDS shows a much longer hospital stay and therapy inputs and assessments in hospital. Whereas the SIHDS undertook health and social care assessments of patients on the ward and then set up further assessments and appropriate support at home. This included personal care for up to six weeks (through the enablement service) and SIHDS support for up to 14 days including therapy, home assessments, nursing care and equipment aids. If further therapy was needed for longer than 14 days, then the SIHDS team referred patients to community therapy teams for continued therapy and if more care was needed, social workers were contacted to conduct full social work assessments for longer term packages of care. This discharge care was provided through partnership working and onward referrals.

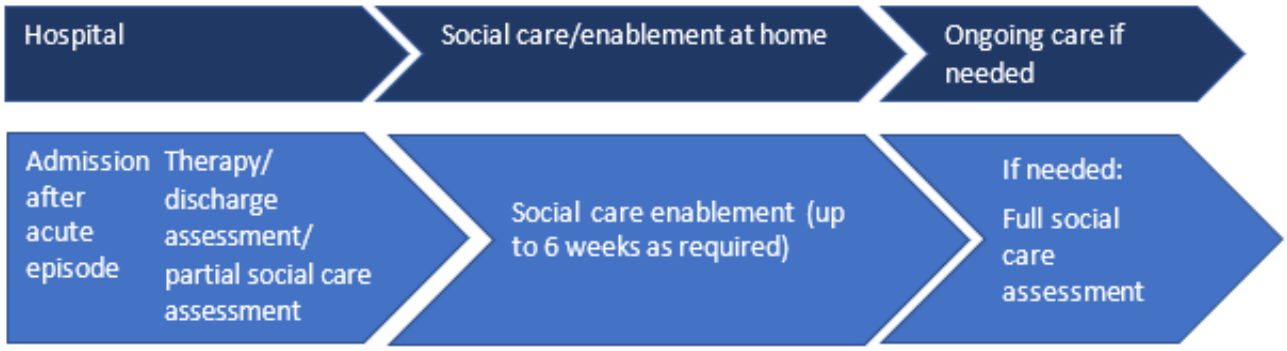


Figure 4.2 SIHDS 2016 formal system map prior to SIHDS

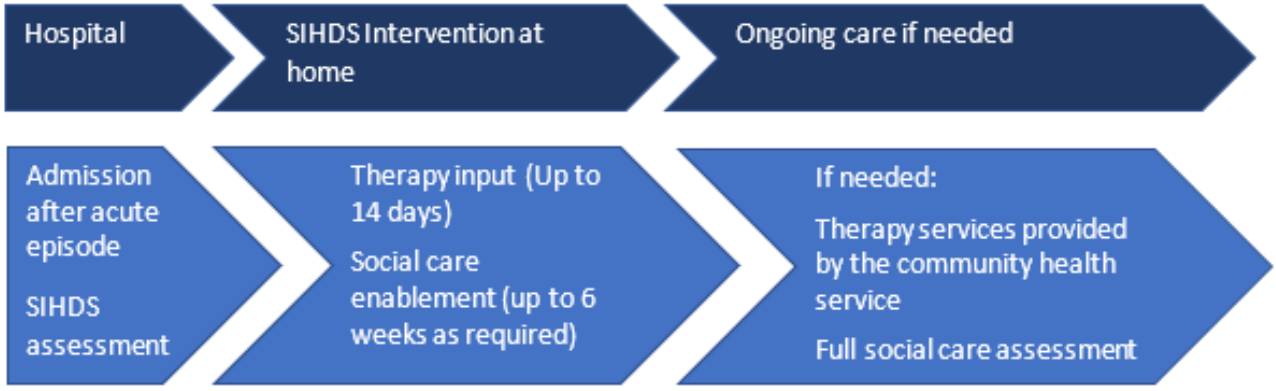


Figure 4.3 SIHDS 2016 formal system map with SIHDS

These formal service system maps (Figure 4.2 and 4.3) show in dark blue the setting of the main care provided and in light blue the care that patients were offered. Figure 4.3 shows how the service should work in practice and visually demonstrates that SIHDS was meant to reduce time in hospital by providing therapy at home and combining assessments. Although these diagrams are useful for a high-level summary of the service structure, there is a lack of information on how these different services contribute to the patient pathway and work together. There is a lack of information particularly regarding the personnel who would be expected to undertake different

tasks from normal and how the involved staff groups should liaise with each other in providing integrated support to patients. The next section of this chapter will discuss the NICE guidance (251), which would have been the broad discharge guidance influencing the design of the localised service at this stage of SIHDS in 2016.

4.4 NICE flowchart

NICE detail a flowchart for the transition from hospital settings to community or care home settings for adults with social care needs (251). The flowchart was developed based on the 2015 NICE guidelines and 2016 NICE quality standards on the same topic (252, 25); so would have been a prominent guidance for discharge services at the time that the SIHDS system map (Figure 4.3) was produced. A copy of this discharge part of the NICE flow chart (253) is in Figure 4.4.

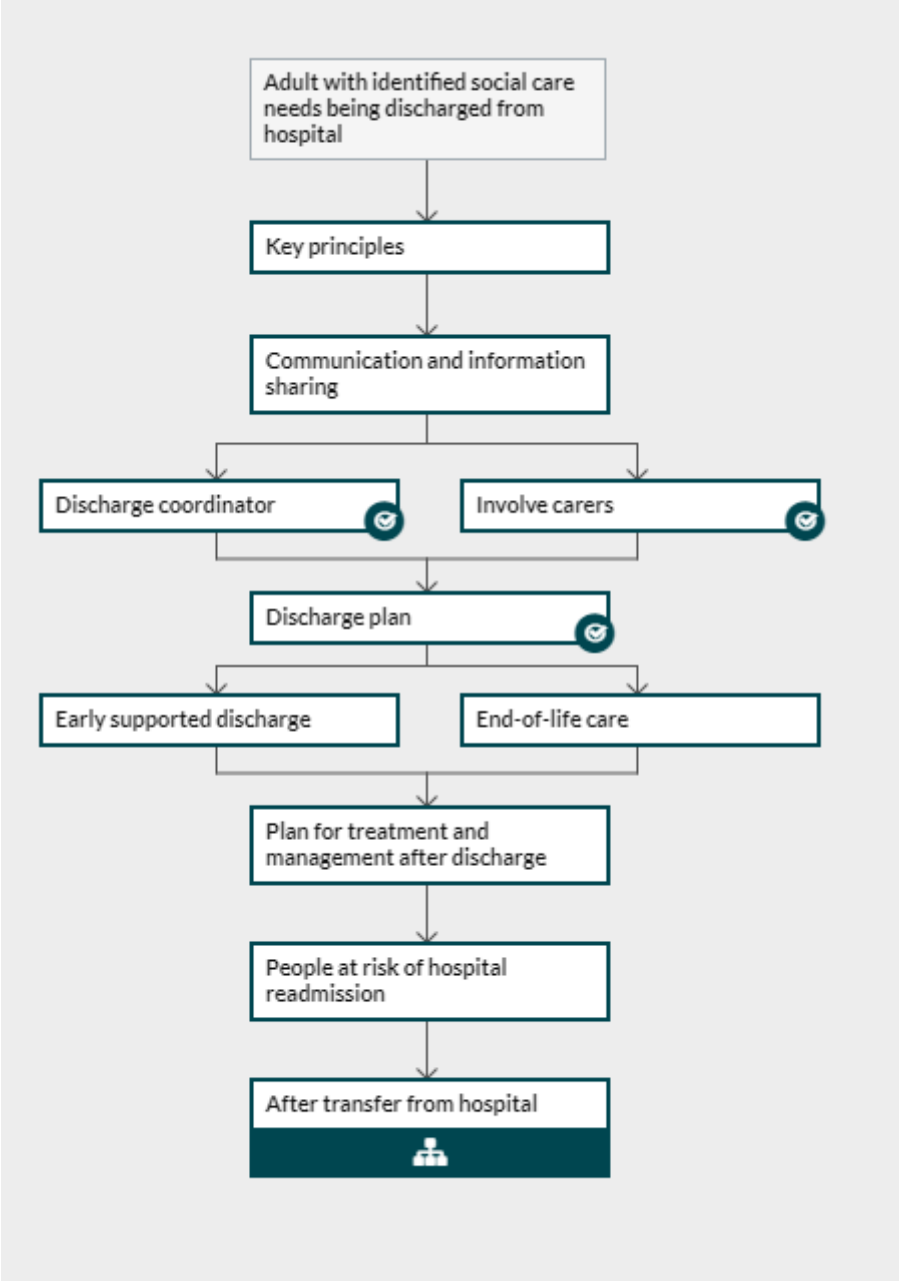


Figure 4.4: Image of the NICE flowchart: Transition between inpatient hospital settings and community or care home settings for adults with social care needs (253)

Accompanying each stage of the flowchart is a summary of the applicable related guidance (253). This guidance emphasises: continuity of care, particularly for older people; coordinated discharges and discharge plans (including the need for ongoing health, social or community support and equipment), managed by a health professional

responsible for coordinating discharge; clear communication on discharge planning between health and social care professionals, patients and their carers (including agreed discharge planning processes across health and social care services organisations); and ensuring that older people are offered early supported discharge with a home care and rehabilitation package.

The following sections will show visual representations of how the service actually worked in practice from the perspective of SIHDS hospital, social care services, enablement team and community health services staff. Some of the interviews raised the fact that the social care and enablement processes were under review at the time, and that this may have impacted process maps due to temporary procedures that were in place. The maps have been produced from the perspective of how the service was working prior to the temporary procedures.

4.5 SIHDS process map from the perspective of SIHDS hospital staff

Nine members of the SIHDS hospital staff team took part in mapping interviews (described in Table 4.1), despite not being shown the original SIHDS system map, staff identified the main components of the service that were described in the SIHDS system map (Figure 4.3). Staff also described additional aspects to the service, which can be seen in Figure 4.5, which shows the consolidated process map the researcher put

together from all nine interviews. As previously described, these interviews mainly took place in 2018 so these additional aspects may have been included as the service evolved between 2016 and 2018. These additional aspects of the service processes included:

- The Hospital Discharge Hub, which managed the Transfers of Care to SIHDS (for patients awaiting discharge)
- The LA funded bridging service, a commissioned care agency that provided personal care in the home (to patients who needed it) from the point of discharge
- 'First point of contacts for LA adult social care', which at the time managed enablement service referrals (which previously went directly to the enablement service)
- Rapid Emergency Assessment and Communication Team (REACT); an admission avoidance service that had the same manager as SIHDS and staff worked across both the SIHDS and REACT services to help with site pressures.
    - The service consisted of a team of therapists who worked with Hospital and Community services to conduct early assessments in the hospital Accident and Emergency department (A&E) to avoid unnecessary hospital admissions. REACT referred patients to SIHDS, community and social service for support instead.

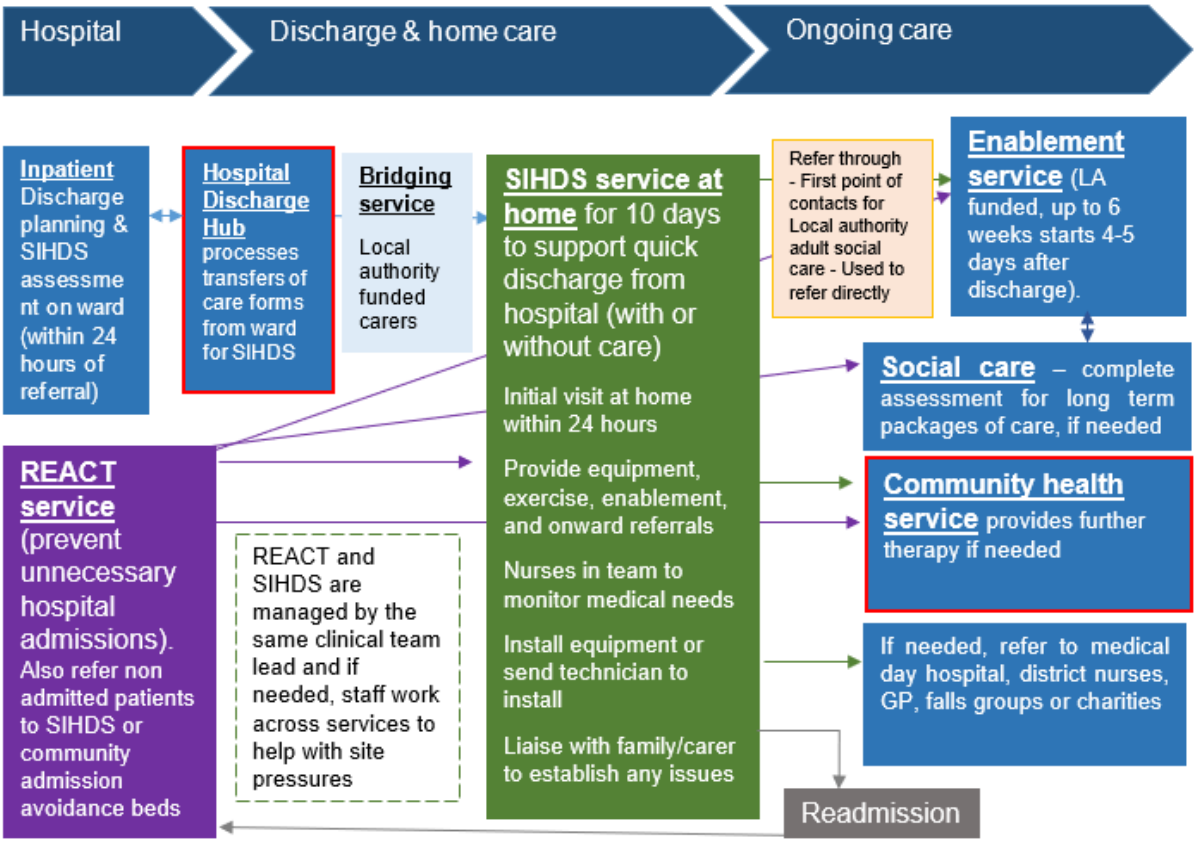


Figure 4.5: SIHDS hospital staff SIHDS process map

The process map in Figure 4.5 shows the SIHDS hospital team mapping of SIHDS processes. First, the SIHDS team were notified by the Hospital Discharge Hub of patients that the ward had referred to them. Within 24 hours a member of the SIHDS team visited the patient on the ward to undertake an assessment to see if they were appropriate for SIHDS and what support they would need (therapy only or therapy alongside personal care). Subsequently, the SIHDS team then set up personal care, if needed, through the short-term bridging service for 4-5 days whilst waiting for enablement to start (enablement could be for up to six weeks). The bridging service provided immediate personal care and SIHDS therapy input enabled the patients to be discharged home from hospital as soon as they were medically fit to continue

rehabilitation at home. SIHDS hospital staff arranged to see the patient in their home within 24 hours of their discharge from hospital.

The SIHDS provided support at home for up to ten days, which entailed assessment of the patient in their home and the provision (and installation) of equipment, therapy, exercises and enablement. Nurses on the team monitored and assisted with any medical needs (e.g. blood tests, wound care). The SIHDS team liaised with family members or carers to identify any personal/health issues the patient was having at home. Once patients approached the end of the 10 days of therapy, SIHDS hospital staff could refer patients through two main routes that were part of the SIHDS: to community health therapy services for ongoing therapy needs and/or onto social services if they felt that the patient had long term care needs. Although not formally considered part of the service, SIHDS staff also undertook other referrals/signposting depending on an individual patient's needs (for example referring patients to medical day hospital, district nurses, GP, falls groups or charities).

If a patient deteriorated and returned to A&E, they may then be seen by the REACT team and if they did not need to be readmitted, REACT could refer the patient back to SIHDS, enablement services or social care services. As described previously, REACT avoided unnecessary admissions to hospital by assessing patients in A&E and either admitted patients or referred them to appropriate outpatient care. REACT referred some patients into the SIHDS who presented at A&E but did not need to be admitted. So SIHDS may have also supported these patients to safely go home from A&E and helped prevent unnecessary admissions to hospital.

Staff did discuss some complications to the process. Depending on a patient's home LA area they may have been eligible for different enablement and community health services (dependent on what the LA commissioned), this led to a variety of paperwork and processes that needed to be completed to refer patients. Staff also discussed where there could be delays, which are outlined in the red boxes on Figure 4.5. The Discharge Hub was where patients were on a list to be discharged, there could be delays to the discharge process if it took longer to do assessments, therapy, medication or setting up care. Where possible, SIHDS hospital staff chased any delays, but some delays could have been due to the SIHDS capacity to assess patients. Other delays could have occurred where patients with more complex needs required more in-depth discussions regarding whether they were right for SIHDS or whether they had longer term needs and as a result required a full package of care set up from social care services (rather than SIHDS). Furthermore, a ward may have occasionally processed a transfer of care to the Discharge Hub too early when a patient might not be medically fit for discharge. In these circumstances, patients needed to be monitored which could lead to more conversations with ward staff (and SIHDS staff time).

Delays could also happen if a patient lived in a different LA area to the hospital, this could mean that they would have to wait a few days for care to be started before discharge could happen, as the bridging service only provided bridging care in the LA area where the hospital was located. Another point of possible delays was a waiting list for community therapy, as it could sometimes be two to three weeks after referral

before the community team had capacity. To mitigate this, staff often referred patients early to community health services, if the staff felt that the patient would need ongoing therapy to improve continuity of care. The referral route for 6 weeks of enablement was not clear and referral varied, either through SIHDS via the 'First point of contact for LA adult social care' or through hospital social workers linked to the SIHDS team. The extra steps on the referral route may have been due to the temporary changes made by social work, but the process may also have added complications to referrals that could have been done directly.

4.6 SIHDS process map from the perspective of social care staff

Two social care staff mapped the SIHDS from their perspective. They did not discuss any additional processes but focused on the part of the SIHDS where SIHDS hospital therapists undertook assessments for packages of care as 'trusted assessors' and how the service linked into referrals to social care services and enablement services. The 'trusted assessor' scheme in the UK was an initiative to help reduce hospital discharge delays. This operated by allowing social care services to establish formal agreements with partners within local organisations or hospital trusts to allow appropriately qualified and skilled staff to assess and formulate plans of care on behalf of adult social care providers (254). In the process map (Figure 4.6), the social care team received referrals from the SIHDS hospital therapists, directly from the Hospital Discharge Hub and the enablement service. The social care staff also spoke about the bridging

service, which provided personal care in the short term for patients at discharge from hospital.

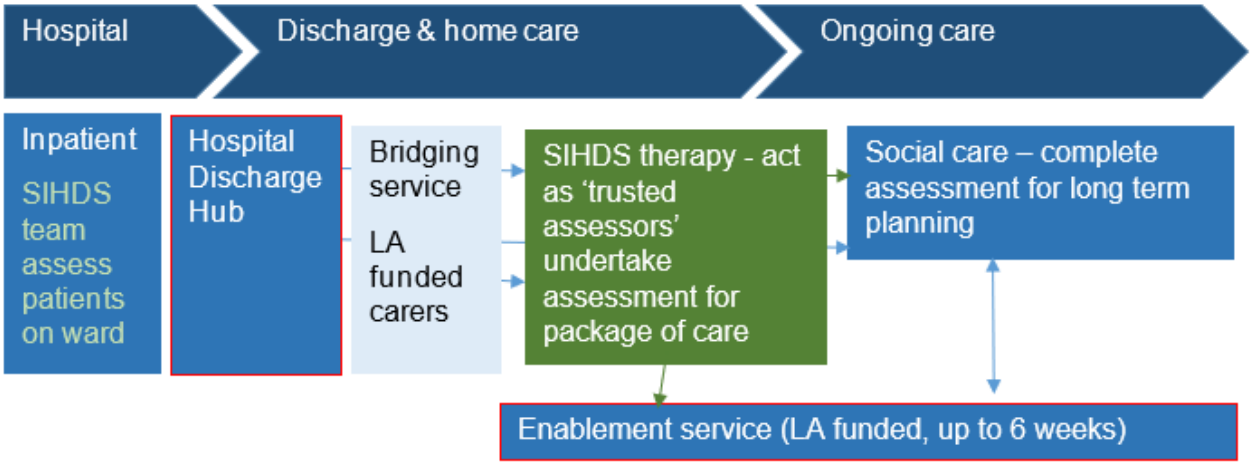


Figure 4.6: Social Care staff SIHDS process map

Information governance was reported as a cause of logistical challenges (e.g. a lack of data sharing and confidentiality agreements in place) due to the complicated steps that were necessary to allow health care staff to access social care systems and the inability of social care services staff to access Health Care Trust IT systems. Patient delays were also discussed; these could occur if there were more patients than normal at the Discharge Hub point that needed assessments, this capacity needed to be managed by the SIHDS and social work teams. One social care member of staff reported the potential for delays when the enablement service did not have the capacity to provide patient care and sometimes external care agencies were used to allow patients to be discharged or for continuation of care after the bridging service had ended. Social care staff also spoke about the impact of UK Legislation (e.g. the Care

Act 2014) that was related to the funding of social care, which meant that 'trusted assessors' needed to ask patients about their finances. Social care staff reported that this did cause some issues with SIHDS hospital therapists acting as 'trusted assessors' as they were not trained to talk to people about their finances. Social care staff helped work through this by meeting SIHDS 'trusted assessors', doing workshops and facilitating shadowing across the SIHDS and social care teams.

4.7 SIHDS process map from the perspective of enablement staff

Two members of the enablement team mapped the SIHDS process. They did not add in any additional processes but focused on how the enablement service worked alongside SIHDS and how they received referrals. They discussed how the enablement service used to receive emailed referral forms directly from the SIHDS (identified using the red arrow) however, they had not received any referrals directly from SIHDS for approximately 11 months (as of November 2018). The enablement service received referrals through social workers in the community and hospital, as well as through the LA point of contact for adult social care (centralised referrals). It was unclear from the enablement team perspective if SIHDS patients still received care from the enablement service or if the patients were referred to the service through one of the other referral routes (through social workers or the 'first point of contacts for LA adult social care'). As the referral route for SIHDS patients for enablement had changed, they no longer knew which were SIHDS patients. In the past, the enablement

service had prioritised SIHDS patients as they had been discharged from hospital, so were more likely to have enablement potential. However, they were no longer able to do this, as they were not informed of which patients were SIHDS. In the enablement service, enablement assistants (carers who focus on enabling patients) went into a patient's home within two days of referral and followed an enablement plan drawn up by therapists, with the level of support being led by the needs of the patient. Due to the referral route changing, there was uncertainty from enablement service staff regarding what the process was at that time for SIHDS patients. In Figure 4.7 the yellow arrows have been added showing the likely referral routes of SIHDS patients to enablement services, although this could not be confirmed by the enablement service staff.

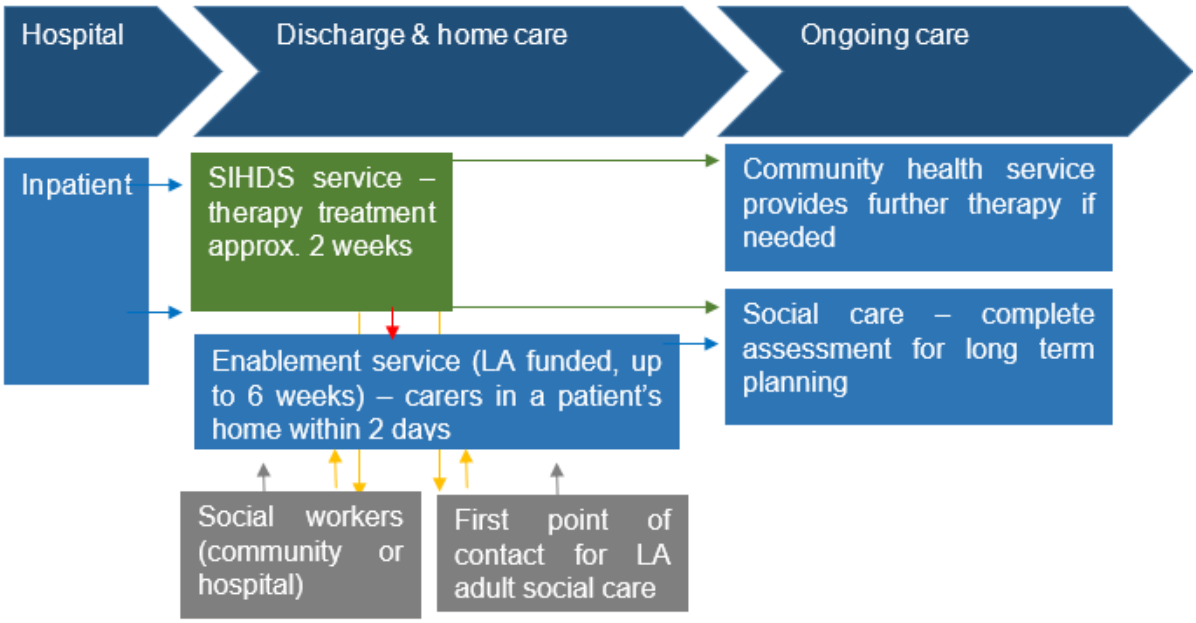


Figure 4.7: Enablement service staff SIHDS process map

4.8 SIHDS process map from the perspective of the community team

Only one member of the community health service team took part in the process mapping; they did not specify any new processes to those described already, but they focused on the community health service physiotherapists who worked in the SIHDS and the paperwork that was completed by the SIHDS hospital team that was used in the SIHDS to community care referral process (Figure 4.8).

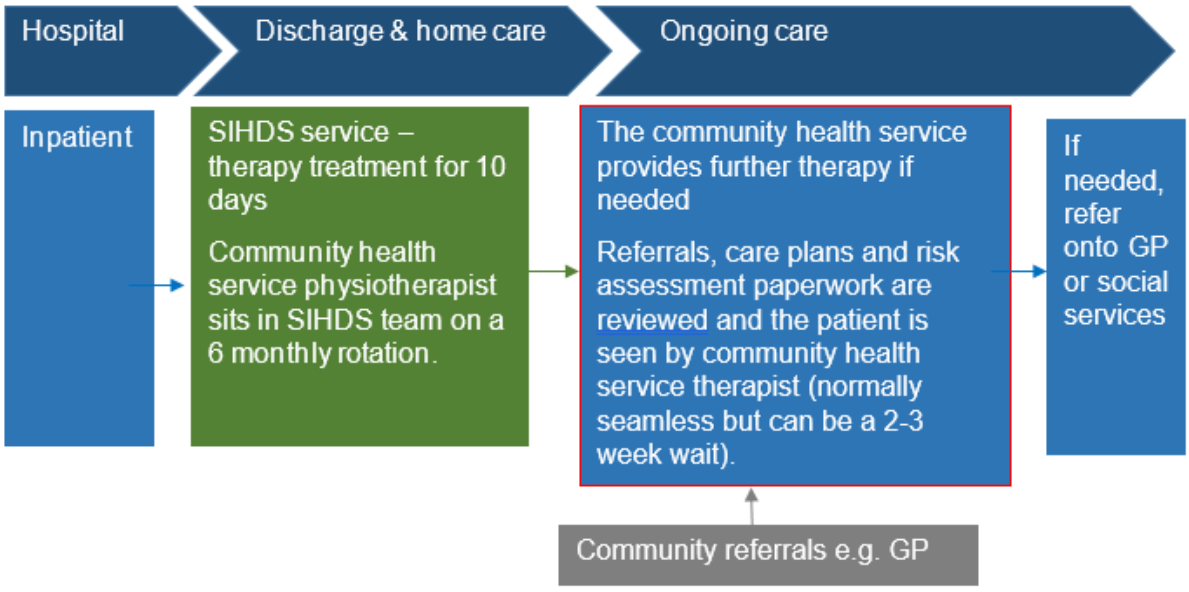


Figure 4.8: Community health service SIHDS process map

The community health service was contracted by the SIHDS to provide community therapist support to the SIHDS team, so physiotherapists from the community team worked specifically in the SIHDS hospital team on six monthly rotations. The

physiotherapists were managed day-to-day by the SIHDS lead, but formal supervision, personal development and annual leave was managed by the community health service lead.

Referrals from SIHDS for ongoing therapy in the community were discussed. Some patients were referred due to having outstanding rehabilitation needs (e.g. outside mobility or stair practice) and in these cases the patient's care plan and risk assessment were passed onto the community team from the SIHDS hospital team. The referral process was normally seamless, but if the community team had a large number of referrals (for example from the community), there could be a 2-3 week wait for community therapy. If additional needs were identified the community therapists could also refer a patient to their GP or social care services.

The community health service also received therapy referrals from GPs, some of these were for current SIHDS patients, this led to a duplication of effort on occasion. The team member noted that either SIHDS did not always inform a patient's GP they were involved in their care or that GPs may not have been aware of what the service provided. It was highlighted how important SIHDS was as a seamless therapy service from hospital, as the community health service therapists did not have the capacity to see patients straight away at discharge.

4.9 Overview of process maps

The process maps in this chapter show how the service was documented to work, how guidance says these services should work and how the SIHDS service worked in practice from different perspectives. From a high-level perspective, the mapping shows that SIHDS responded to the 2016 NICE discharge guidance by managing the discharge process for older patients. This was achieved by co-ordinating discharge through conducting assessments, providing therapy and enablement, as well as managing ongoing care and information sharing through referrals to community and social care. Furthermore, although the SIHDS process maps created by staff seem more complex than the formal service system map and NICE guidance, the maps do fit within the general topics detailed on both. This demonstrates the overarching themes identified within the service (communicating with colleagues, co-ordinating discharge, support at home and referrals for ongoing care) all fit conceptually across the formal service system map and NICE guidance. This suggests that the main topics of guidance were tailored to the local context to allow support to be provided by local services. The SIHDS team working with the admission avoidance service (REACT), was not included in the paperwork or guidance and showed how the service was evolving. Despite the process maps completed by staff showing that SIHDS was fulfilling elements of the guidance, this mapping process had also highlighted perceived challenges to some elements, which are discussed in more detail below and summarised in Table 4.2. It is important to note that these are individuals' perceptions of a service and the need for improvement perceived by staff, could have been shared due to lack of knowledge or experience, but this possibly highlights that extra training,

knowledge sharing or support could be needed in these areas. Key words have been highlighted in bold to allow issues to be understood at a glance.

Table 4.2: Summary table of the SIHDS process

Participants perceived processes that worked	**Participants perceived processes that needed improvement or review**
Responding to **NICE guidance** on co-ordinating, planning and supporting older patients at discharge	It could be **complicated** for staff to do **onward referrals** as where a patient lived impacted what processes needed to be followed and what services were available
Assessments on the ward and setting up **care, equipment and support** for patients at home	There could be **delays** for patients being discharged from hospital, these could be due to **service capacities** and time taken to do **assessments**, set up **care** and get a patient's **medication**
Onward **referrals/signposting** if patients have ongoing **health needs** e.g. to community, social care or to their GP	Sometimes it was **not clear** if some patients were **eligible** for the SIHDS or needed a full package of care from social care services
Admission prevention service **referring** into **SIHDS** to prevent unnecessary hospital admissions	**Transfers of care** to the Discharge Hub were sometimes completed **too early**, which caused **extra work** for the SIHDS team
SIHDS **hospital therapists** act as 'trusted assessors' to **complete social work assessments**	The two to three weeks **wait** for Community health Service therapy

Participants perceived processes that worked	**Participants perceived processes that needed improvement or review**
	could have **impacted continuity of care**
Dedicated SIHDS team and **named SIHDS leads** in social care and Community health service physiotherapist embedded in the SIHDS team	**Unclear** SIHDS **referral process** to six-week enablement service
Community health service **uses SIHDS paperwork**	The enablement service no longer received **referrals** directly from SIHDS, which meant that **patients were not identified as SIHDS** so they could no longer prioritise them
SIHDS **filled the gap** of two to three weeks **wait** for community therapy, so patients had improved continuity of care	There was **limited access** for health, social and community care staff to access patients' **medical records** on each others systems
	SIHDS **hospital therapists** did not always feel they had the **skills** to act as **'trusted assessors'** despite social care staff giving additional support to them
	Occasionally there was **duplication** with SIHDS for example when a GP referred a patient discharged from hospital for community therapy when they were already receiving SIHDS

The process maps showed that there were several steps involved in the SIHDS pathway, from referral to assessments, paperwork completion, staff interactions and handovers of care. The total time on the service and processes followed was also dependant on patient needs, this led to individual patients not having the same pathway or length of time in the service; although maximum lengths of service were detailed. It also showed that timings and processes could vary depending on the capacity of each of the partner organisations involved in the SIHDS pathway e.g. external care agencies were commissioned if the enablement service had no capacity. There were points where delays to patients' care could occur, this was mainly due to capacity issues, for example the capacity of the SIHDS team to do assessments on the ward, the capacity of the community services therapists to see patients and the capacity of the enablement service to take SIHDS patients.

There were some problems that the staff identified regarding:

- Access to partners systems to input assessment data
- Patients being referred too early to SIHDS (when they were not medically fit) which caused additional follow-up
- Managing what services were available to patients (depending on where they lived) and what processes needed to be followed for that service due to different commissioning processes
- Knowing when a patient with more complex needs was appropriate for SIHDS (and agreeing the decision on eligibility with social care and hospital colleagues)

There was a limited amount of duplication of effort reported, although there was an occasional overlap with community therapists, as they could receive referrals directly from primary care, so sometimes duplicate therapy visits occurred (SIHDS and community); this was due to a lack of primary care awareness of the SIHDS where a GP may refer a SIHDS patient to community therapy.

The process maps from the different perspectives showed that the SIHDS process was often susceptible to change, as if one of the partner organisations changed their processes, service or eligibility this could impact the service. So regular review, awareness of change and active communication regarding change is important to ensure relevant people are informed. This echoes what Hollnagel et al. (255), discussed about health care being a complex system, where one process change could have a widespread impact. Furthermore, the health and social care landscape is dynamic, and services like SIHDS can also be impacted by changes in policy and local commissioning. The impact of changes was demonstrated in two situations, the first was regarding referral processes for the enablement service and the second concerned the SIHDS hospital therapist role as a social care ‘trusted assessor’.

Although the enablement service was considered integrated with SIHDS from an organisational perspective, at the time of the interviews it was no longer receiving referrals directly from SIHDS. This limited their ability to prioritise SIHDS patients in their schedules. As a further consequence of the enablement service not knowing to prioritise SIHDS patients, social care services sometimes had to fund personal care through an agency to ensure continuation of care for a SIHDS patient. This indirect

process also added an extra stage to referral, which could be considered an unnecessary process for an integrated service partner.

A member of the social care services team who discussed the impact of UK legislation on the SIHDS hospital therapists working as ‘trusted assessors’, said it had changed the hospital therapist’s role to also having to discuss finances, which they had limited experience of and lacked training in. This meant that social care services needed to provide additional support to SIHDS therapists to enable them to fulfil the assessment role in the process map. These changes in the role of SIHDS therapists also demonstrated how roles could change over time with staff being required to learn new skills whilst doing a job. The impact of these small changes showed how important it was to assess potential consequences of changes before they were made (255).

4.10 Summary

This chapter has clearly outlined the processes involved in the discharge service used in the qualitative case study. It shows how the service worked in practice compared to NICE guidance and formal documented processes. This chapter addressed thesis research objectives 1 and 3, to understand what interventions were used in practice to support patients, as well as understanding how the service was implemented across services and settings. The process mapping showed key aspects of the service and that the high-level themes of discharge services were consistent across guidance,

paperwork and staff perspectives. This process mapping chapter is triangulated with the other case study chapters in Chapter 7 and discussed in Chapter 8. The next chapter will explore the staff perspectives of the SIHDS.

CHAPTER 5: RESULTS OF STAFF INTERVIEWS

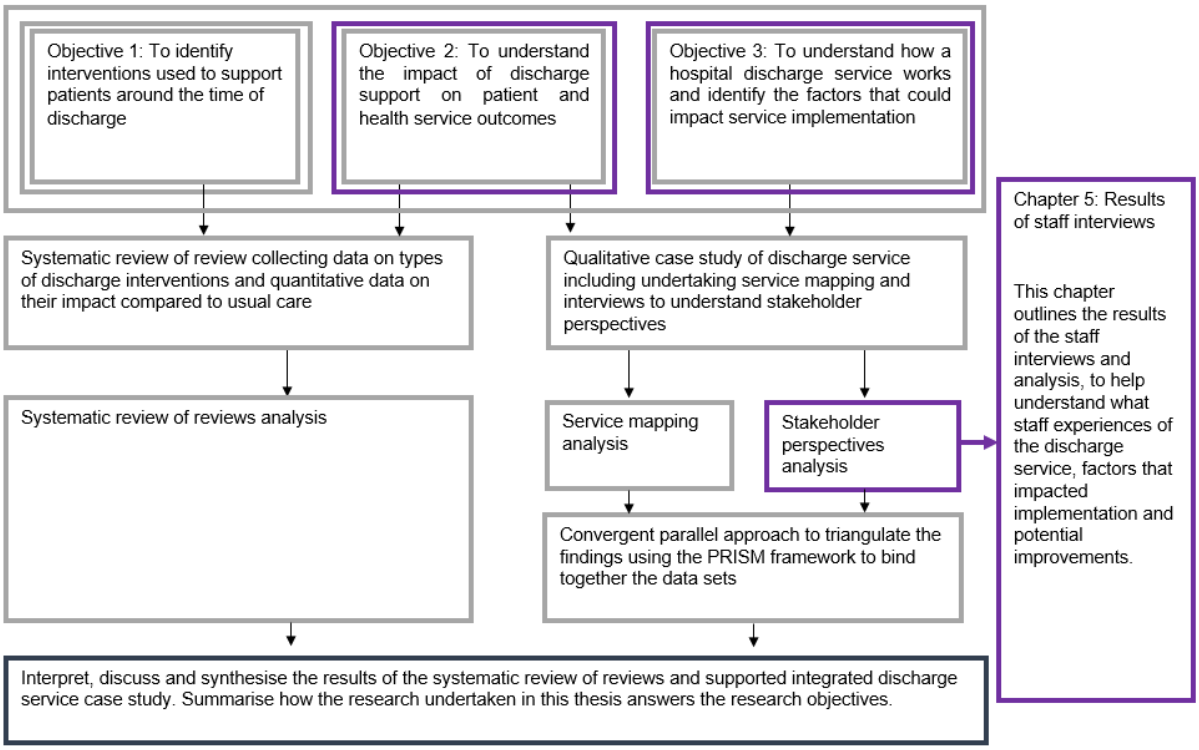


Figure 5.1: Thesis overview and staff perspectives chapter

5.1 Introduction

This chapter builds on the process mapping findings, to understand stakeholder perspectives of the SIHDS service. It will discuss the findings from interviews with staff and explores: the SIHDS from different perspectives; contextual influences; how service integration worked and potential improvements.

5.2 Staff characteristics

A total of 14 staff took part in qualitative interviews and all the staff interviews were face-to-face. These interviews were undertaken with 14 staff members who worked as part of the SIHDS or with them through partnership working arrangements. These are the same members of staff already described in the mapping chapter and the descriptive characteristics table is repeated in Table 5.1. Staff were interviewed due to their work with the discharge service and interviewees were not stratified based on age or gender.

Table 5.1: Staff characteristics

Organisation	Role*	Number of staff
Hospital SIHDS service staff	Senior Occupational therapist	1
	Occupational therapists	2
	Nurse	1
	Therapy support worker	1
	Undisclosed role	1
Joint role across: Hospital admission prevention service/SIHDS staff	Clinical lead	1
	Therapy team lead/Senior Occupational therapist	1
	Therapy support worker	1
Council social work team	Team manager	1
	Senior practitioner	1
Council Home care enablement service	Service manager	1
	Assistant team manager	1
Community Health service rehabilitation team	Team lead	1

* To ensure anonymity only roles of 13 staff interviewed are included in the characteristics (one member of staff requested their role was anonymised).

5.3 Staff themes

Separate analyses were completed for the staff, staff analyses are discussed in this chapter followed by the patient/carer interviews in Chapter 6. Analysis of the interviews resulted in the identification of three main staff themes, with nine underlying sub-themes. Figure 5.2 shows a diagram of the themes and sub themes with the relationships between the themes.

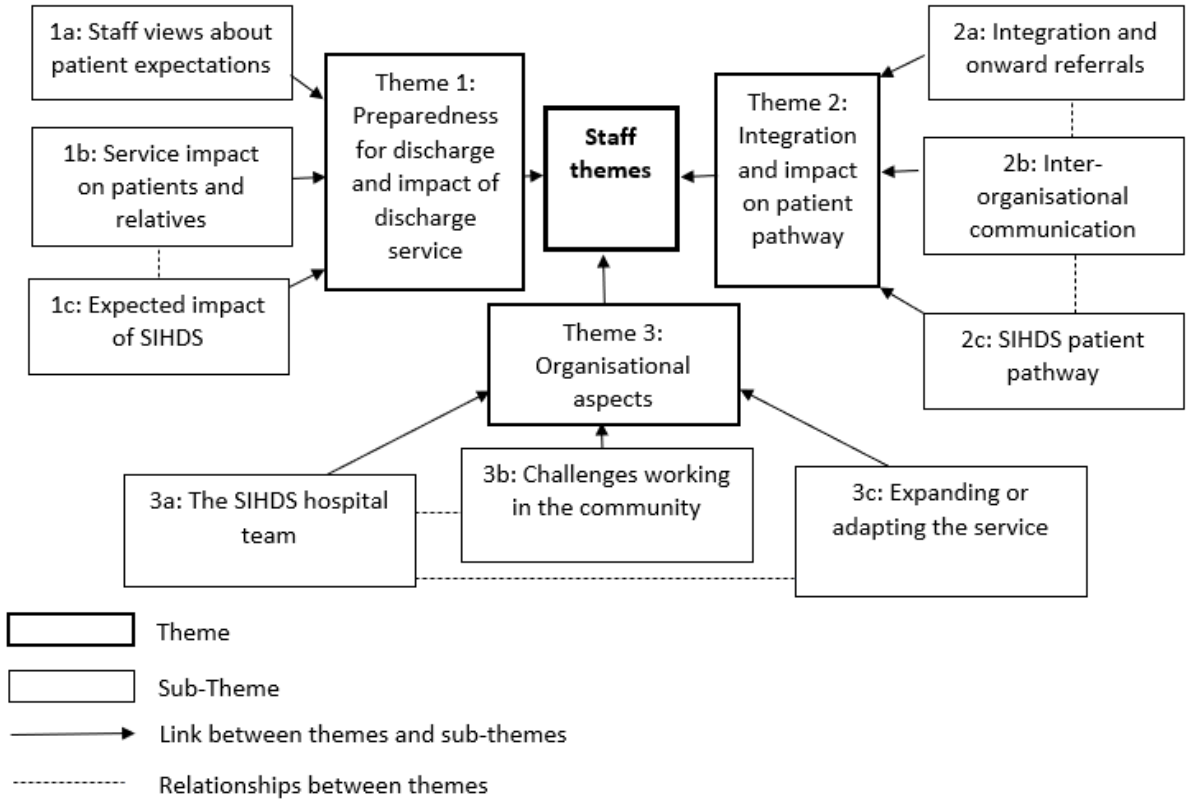


Figure 5.2: Staff themes and sub-themes

An outline of the sub-themes within the three themes is outlined in Table 5.2. The descriptions of the staff themes, sub-themes and selected illustrative quotes are explored and presented in the following text. Verbatim quotations will be followed by participant identifiers alongside staff job role and organisation. Summary boxes are provided at the end of each theme, key words are highlighted in bold.

Table 5.2: Outline of staff sub-themes

Theme	**Sub-theme outline**
Theme 1: Preparedness for discharge and impact of discharge service	
Sub-theme 1a: Staff views about patient expectations	This sub-theme explores expectations that patients had around length of time in hospital, discharge and recovery at home. This sub-theme does touch on communication between staff and patients, but not staff communicating between organisations and other staff involved in discharge, which makes it distinct from Sub-theme 2b: Inter-organisational communication.
Sub-theme 1b: Service impact on patients and relatives	This sub-theme highlights the service impact on patients and relatives that staff actually experienced, such as facilitating patients to be independent and identifying any problems.
Sub-theme 1c: Expected impact of SIHDS	This sub-theme covers what staff expected the SIHDS service to do, such as facilitating discharges and preventing readmissions. This sub-theme has a relationship with sub-theme 1b as both touch on impact of the service however this theme is focused on staff expectations not actual impact (as in 1b).
Theme 2: Integration and impact on patient pathway	
Sub-theme 2a: Integration and onward referrals	This sub-theme explores themes around the complexities on integrating services and making onward referrals such as data sharing, paperwork and processes.
Sub-theme 2b: Inter-organisational communication	This sub-theme covers communication between the organisations involved in patient discharge; including meetings, informal as well as formal conversations and sharing information on the service. Communicating with wider colleagues was a part of integrated working and patient pathways, therefore this sub-theme is linked to elements of sub-themes 2a and 2c.

Theme	Sub-theme outline
Sub-theme 2c: SIHDS patient pathway	This sub-theme highlights the complexities involved in the discharge pathway and understanding across the system of which patients should be referred.
Theme 3: Organisational aspects	
Sub-theme 3a: the SIHDs hospital team	This sub-theme explores the mix of skills, competencies and roles within the SIHDS hospital team, as well as how it has adapted to closely link and communicate with the admission prevention services (REACT) within the same organisation. This sub-theme is linked to the sub-theme 3c as staff spoke about expanding the SIHDS hospital team to include a social worker who was part of the SIHDS hospital team (not just as a partner).
Sub-theme 3b: Challenges working in the community	This sub-theme covers some of the challenges of community working and how the team has managed these, for example, traffic, risk assessments and language barriers. This sub-theme has a relationship with sub-theme 3a, as the SIHDS service managed these challenges as a multidisciplinary hospital team.
Sub-theme 3c: Expanding or adapting the service	This sub-theme highlights the areas that participants felt the SIHDS service could be expanded into or adapted for, such as, expanding to work with ambulance services, remote access to records and regular review.

5.4 Staff Theme 1: Preparedness for discharge and impact of discharge service

All staff felt that patients were not always physically or psychologically prepared for discharge, but the supported discharge service was seen – particularly by hospital staff - as important to enable patients to receive care/therapy at home and identify potential problems that could cause readmissions. There were three sub-themes within this theme: (1a) staff views about patient expectations; (1b) service impact on patients and relatives and (1c) expected impact of SIHDS. These sub-themes are discussed in turn below. Table 1 (Appendix 14) contains additional quotations relevant to this section.

5.4.1 Staff views about patient expectations (1a)

The SIHDS hospital staff reported a range of expectations from patients, especially regarding the right time to be discharged, also patients' expectations were managed regarding the tasks that they would be able to complete as their recovery progressed. Patients did not expect to be discharged from hospital quickly (although some patients wanted to get home as soon as possible) and tended to expect to stay in hospital for long periods of time. The SIHDS hospital staff reported that they felt communication regarding discharge could be improved to help manage patients' expectations:

> *"I've had scenarios where by the time we go and see the patient they have been seen by A&E, they have been admitted onto a ward, they have been through their doctors, therapists, nurses, and then you go and see them and you go, "I'm from the discharge team, come to talk about going home." [and they say] "I'm not going home yet."…had that have been put in place from the moment they came in then I wouldn't be breaking the news to them they are going home that day."* Senior occupational therapist – SIHDS (S2)

This meant the SIHDS hospital staff had to deal with both negative and positive responses to being discharged. The SIHDS hospital staff spoke of needing to have clear communication with patients, relatives and ward staff members. The SIHDS hospital staff felt that hospital/ward staff could have had more conversations with patients about their discharge at regular periods throughout a patient's hospital stay. As well as expectations about discharge, the SIHDS hospital staff spoke about having challenging conversations with patients regarding their expectations of their own capabilities and personal goals after discharge, when recovering at home. These

expectations could have negative impacts for patients' recovery if they tried to do too much too soon. The SIHDS hospital staff tried to manage patients' high expectations by agreeing and communicating achievable goals with patients:

> *"It's hard sometimes because patients feel …what they can and can't do…but.. when they go home because they have been quite poorly sometimes it's not always possible to achieve what they want to achieve. So I suppose we're quite realistic with our goals, but patients sometimes are unrealistic, so I think that can jeopardise sometimes their potential."* Occupational therapist – SIHDS (S7)

To summarise the sub-theme of *staff views about patient expectations*, staff felt that patients built up expectations regarding their length of hospital stay and the speed of their recovery at home, which could be challenging for staff to manage when reality did not match what patients expected. This impacted patients' preparedness for discharge and views on impact of the service. Improved communication could be beneficial to make sure that the expectations of patients were managed.

5.4.2 Service impact on patients and relatives (1b)

Perceived benefits to patients were often discussed by interviewees. It was felt by all staff that the service impacted patients positively, by assessing patients and providing practical elements based on their needs such as therapy, support and equipment aids for patients in their own home after discharge:

> *"Mobility and transfer, like OTs [occupational therapists] with kitchen assessments, and we do quite a lot of kitchen prep at home, microwave meals can they find it, can they use it, can they get to it with everything there, or stairs adaptations where they need extra rails, just to make life easier to get into a*

shower if they've got a rail to hold onto and a seat to sit on, they can get washed and dressed independently." Occupational therapist – SIHDS (S5)

The continuity of care after discharge was seen to be important and the SIHDS hospital staff spoke about how they tried to ensure that patients saw the same member of the team, but this was not always possible. The service eliminated waits for community care support and allowed the SIHDS hospital staff to identify and respond to any outstanding needs or potential problems a patient had at home. The SIHDS hospital staff also reported that when problems had not been identified in hospital, these were often identified through the home visits and assessments; and subsequently most interviewees felt the service stopped problems escalating (e.g. the installation of safety rails on the stairs or by the bed/bath to reduce falls) and consequently reduced readmissions. Furthermore, the majority of staff interviewed spoke about how the service increased patients' independence and confidence:

"It allows people to engage back in the community, it allows for any issues and problems to be picked up that may not be thought about prior to discharge, but also what it's doing is allowing any outstanding needs then to be passed over without having to wait long periods of time for people to be seen." Team Lead - Community health service(S3)

Interviewees placed importance on the fact that the service facilitated patients' recovery at home and prevented patients from staying in hospital unnecessarily and potentially becoming more immobile (and deconditioned):

"*They are getting their independence far.. quicker and their confidence once they are home, and I think that has to be the biggest thing, their independence and their confidence, and particularly when they live alone, to have somebody just continuing those few things, just to make sure that yes they are okay and they are functioning properly as they should be has a massive impact I think."* Team Lead - Community health service(S3)

The SIHDS hospital staff discussed how the extent of the benefits varied between patients and that they felt a small number reported that patients did not progress as well as expected at home with the SIHDS; despite this the SIHDS hospital staff felt that the service was still beneficial as it facilitated patients living in their own homes safely:

> *"So it's we get quite good feedback from patients that they have been really pleased with the service, and they feel that they have really done well. Others sometimes feel that they haven't done very well, but at least we've been able to get them home which is what their wishes were, to go home."* Occupational therapist – SIHDS (S7)

There was also an acknowledgement that some patients did not see the benefits of them having the SIHDS service due to being independent or having family support in place:

> "*I think a lot of people are very independent and …they don't want to have to rely on somebody, they just convince themselves that they are independent, and I think from a more cultural point of view there's a lot of religions that don't want that support, their families can do everything."* Occupational therapist – SIHDS (S5)

The SIHDS hospital staff reported mixed experiences with patients' relatives when discussing patients using the service. The SIHDS hospital staff had to be flexible when sharing information on the SIHDS and what support they provided, as relatives often had different reactions to the offer of the SIHDS. The SIHDS hospital staff reported that relatives had various levels of involvement and interest in the patient's care:

> "*I think that it varies from patient to patient, when some of the families they will love to be involved, and they are very eager to get as much as they can information wise and support, and some of the families they rather hospital to sort out everything for them."* Therapy support worker – SIHDS (S9)

The SIHDS hospital staff mentioned that some relatives did not feel the service was needed as they believed they had an effective support system in place for their

relatives at home already. At other times, patients themselves did not want relatives involved, as they felt that this would impact on their independence. Knowing how much a relative could help was considered an important discussion for the SIHDS team to have with relatives, to ensure that patients had all the support they needed.

The sub-theme of *service impact on patients and relatives* found that assessment and provision of practical support based on patients' needs such as safety rails were perceived to increase patient independence, safety and reduce readmissions. Staff also saw the service as important to reduce patients time in hospital and enable them to recover in their own home, although staff reported a small number of patients did not progress well at home or want SIHDS support. Relatives/informal carers had varying involvement in a patient's care and reacted differently to the offer of the service, some family/informal carers welcomed all the support that was available; others expected the hospital to care for their relatives or did not feel that support was needed as they had informal support in place. This shows that the service had a varying impact on patients and informal carers from a staff perspective, but positive impact of the discharge service was reported by staff.

5.4.3 Expected impact of SIHDS (1c)

The majority of staff across the SIHDS, community and social care services had positive opinions of the SIHDS and perceived positive impacts, these included bridging

the gap between hospital and community care through working together; reducing the workload for partner organisations (e.g. social care services) and helping to prevent readmissions. All staff interviewed felt that the SIHDS had become an essential discharge service and that support for patients in the first 10 days after discharge was vital:

> *"I think it's excellent. I think it should run from more hospitals. Because we've already got it set up and it works and it works quickly"* Assistant team manager - Home care enablement service (S14)

> *"It's about facilitating discharges, supporting early discharges, creating patient flow out of the hospital, freeing up capacity in the hospital again."* Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)

Participating staff discussed the different aims of the SIHDS including early discharge, preventing readmission and providing support at home to facilitate discharge. They mentioned multiple aims, including that the service reduced length of hospital stays by providing therapy and support at home, which in turn helped patients to manage at home safely and prevent readmissions:

> *"Once they are out in the community hopefully alleviate any problems, so prevent readmission, early readmission in 24/48 hours"* Undisclosed role – SIHDS (S10)

Safety was mentioned when talking about the aims in terms of making discharges safer and making sure patients were safe at home. The SIHDS hospital staff also talked about hospital data showing that the SIHDS was achieving aims such as reducing length of stay:

> "*The SIHDS data shows that we can quite significantly reduce length of stay from in comparison to what they would have been if the SIHDS team didn't exist."* Senior occupational therapist – SIHDS (S2)

The sub-theme of *expected impact of SIHDS* found that all partner organisations interviewed were aware of what was expected of the service and what it aimed to do from promoting joint working, to reducing hospital length of stay and readmissions. Staff also mentioned how data was monitored against these expectations such as reducing length of stay. The aims and expectations of the service closely link to the impact of the discharge service.

Summary of staff theme 1 Preparedness for discharge and impact of discharge service

This theme showed that:

- Staff felt that patients were **not** always well **prepared** for what to expect when **discharged** from hospital and had to manage positive and negative situations
- Staff perceived the service had a **positive** impact on patients and allowed **problems** for patients at home to be **identified** and **equipment aids** to be installed
- Staff expected the SIHDS to have **positive** impacts regarding improving **partnership** work, reducing **hospital length of stay**, making discharges **safer** and reducing **readmissions**

Box 5.1: Summary of staff theme 1 Preparedness for discharge and impact of discharge service

5.5 Staff theme 2: Integration and impact on patient pathway

Processes and pressures of the various health/care partners appeared to impact the patient pathway and how the SIHDS team worked with partner organisations. There were three sub-themes within this theme: (2a) Integration and onward referrals; (2b) Inter-organisational communication and (2c) SIHDS patient pathway. Table 2 (Appendix 14) includes more quotations relevant to this section.

5.5.1 Integration and onward referrals (2a)

The SIHDS hospital staff discussed how they referred and signposted patients to other health/social care partners, and the processes that were followed. The SIHDS had integrated working partnerships with social care services, enablement service and community health services; with patients being moved through the service by onward referrals. The SIHDS hospital staff spoke about the time it took for patients who had been referred to receive services; depending on where referrals were being sent, they could be in different formats requiring a variety of information (e.g. paper form posted or faxed, or information given via email or a telephone call). Furthermore, the organisations had no or limited access to each other's IT systems, which limited joint working, the ability to share information on patients possibly caused delays and frustrations to all partners involved:

> *"I think what would really improve the service is the whole issue that we encounter around information, governance and IT, because information governance is the key to everything, because of the hoops that we have to jump through, sometimes it makes things very difficult for us, and because of the information governance that then has an impact on the IT, and IT has an impact on the access, it leads to delays and a lot of frustration. So joined data sharing I think."* Team manager - Council social work (S4)

Although the relationship between the SIHDS and community care was considered mostly good, there were some issues regarding: referral waiting times from the SIHDS perspective; paperwork issues from the community care perspective; and care plans and risk assessments not always being completed fully (or were completed by an inappropriate member of the SIHDS team):

> *"There's been some problems where the referrals will arrive but there's no care plan or risk assessments so we have no idea what that person has achieved to date, what needs to be done. If that's the case then our intervention doesn't go any further until we receive those, and that's as straightforward as it is unless we have that information."* Team Lead - Community health services (S3)

The members of the enablement service raised some issues regarding the SIHDS referrals to them and processes that changed over time. The enablement service no longer received referrals directly from the SIHDS and the reason why was not known. This meant the SIHDS patients were potentially not being offered the 6 weeks enablement service available to them, although the enablement team staff did say there were other hospital and community routes through which patients could get referred to them:

> *"No, because really all the lessons learnt were really good, and it's a shame that it's gone, that we're not getting… it would be interesting to know from SIHDS's point of view what their experience now that they don't refer to us."* Service manager - Home care enablement service (S13)

When they were receiving referrals, they spoke about some patients not having enablement potential and as a result, were not benefitting from gaining more independence with the aid of the service.

Referral processes for different organisations were not the same and the waiting time for patients after referral to services could vary. Sometimes care was not continuous and there were gaps between the hospital 10 days of SIHDS ending and patients receiving community services they were referred to. This was often seen as a barrier by the SIHDS hospital staff, who felt that delays in receiving other services could lead to patients deteriorating. The SIHDS hospital staff put in referrals as soon as possible and worked closely with colleagues in other services to try and prevent the delays. As well as referrals to formal service partners, the SIHDS hospital staff spoke about referring and signposting to other organisations including charities, local services, GPs, district nursing and falls clinics. There were challenges identified with regard to support being available to patients, dependant on: where they lived; the GP surgery they were registered with or the referral criteria of the local service. This impacted the SIHDS hospital staff as to what onward referrals they could make or external support they could offer patients:

> "*Hospital to Home are a voluntary organisation, and linked to our trust, they can be for advocacy and support with shopping, and they're a befriending service. They do only cover* [city] *which is quite disappointing sometimes.*" Occupational therapist – SIHDS (S7)

Due to the SIHDS being integrated with elements of social care, the SIHDS hospital staff were involved in completing social care assessments as trusted assessors. Although there was an awareness that this helped remove elements of duplication and

helped manage demand for both the SIHDS and social care services; a lot of the SIHDS hospital staff raised issues with completing social care assessments, particularly as they felt uncomfortable discussing finances with patients:

> *"So we have to ask about savings, we have to provide them with financial leaflets which on a personal level I don't think sits well with some people in the team, but that's in the process of changing, to a social worker it's something they do naturally every assessment they do, but for us it's a little bit more uncomfortable."* Senior occupational therapist – SIHDS (S2)

Of the SIHDS hospital staff interviewed, more than half felt they would benefit from additional support to become more familiar and comfortable with the social care assessment processes:

> "*There's a lot of dealing with care packages and restarts and stuff like that which as a* [role] *I feel I am extremely unfamiliar with, and then there are times when I feel I've been really thrown in the deep end with very little information, support, I don't know."* Undisclosed role – SIHDS (S10)

A small number of the SIHDS hospital staff felt more strongly and suggested these assessments should only be done by a social worker, as they were time consuming and not part of their role as a therapist.

The sub-theme of *integration and onward referrals* identified that the SIHDS had integration, shared paperwork and processes for referrals in place, but this was limited by not having access to each partner organisation's patient records. This was perceived to prevent seamless information sharing and precluded the possibility of having simple referral processes. There were additional complications when partner organisations changed their processes, where services had capacity issues or according to where a patient lived, as these issues had the potential to impact the level of integration, referral routes and waiting times for services. Integration and shared

paperwork also meant that the SIHDS hospital team were required to complete paperwork that included specific items for social care and community care, which raised challenges for hospital staff.

5.5.2 Inter-organisational communication (2b)

One recurring sub-theme was the importance of regular communication between colleagues in the different organisations that worked with the SIHDS team. The SIHDS hospital staff and social care staff felt the service initiated communication between teams across health and social health care by having regular meetings. Staff who participated in interviews reported becoming more comfortable over time at communicating with colleagues in different organisations while discussing patients and their issues.

> *"We have regular meetings, and we attend twice daily board meetings with the therapists, so where patients are discussed, so there's a continuous dialogue, so we're (aware) of people that the SIHDS are working on."* Team manager - Council social work (S4)

Social care and the SIHDS hospital staff spoke about how well the integrated service worked, despite being composed of different organisations, because there were clear patient pathways, service agreements, shared paperwork and agreed responsibilities:

> "*The main benefit is the fact that it is a single assessment. The main benefit is that we're having that integrated multidisciplinary working relationship with our health colleagues and therapy colleagues."* Senior practitioner - Council social work (S6)

Conversely, some social care, enablement and community health service staff members felt that strategic communication at a senior level had diminished over time, with senior staff no longer communicating as effectively across organisations and communicating relevant information from all organisations down to those delivering services. Staff reported this could be improved by having clearer expectations, processes and more formal and informal communication at all levels across organisational barriers.

> *"Clear on the process, clear on the expectations, and then ensuring that people have sufficient training, but that's both formal and informal, and that can be through regular dialogues, conversation, and it's about having the communication I think, that's the key to it." Team manager - Council social work (S4)*

Some staff members from the SIHDS hospital and community teams also felt there was sometimes not enough communication when the SIHDS hospital staff were liaising with community teams about specific patients. Further to this the SIHDS hospital staff discussed a lack of awareness from ward staff and reported barriers regarding patients and their relatives not understanding the SIHDS and discharge process. There was a perception from the SIHDS hospital staff that communication could be improved with regard to the right time to refer patients into the SIHDS from the ward. If patients were referred too early, then the SIHDS hospital staff would become drawn into sorting out processes for patients on the ward, which then impacted on their time:

> "*I think sometimes the wards refer too quickly to us and the patients aren't always properly medically fit, and so that impacts on our time and what we're doing with chasing up things on the ward and stuff that perhaps if they have done a bit more of their stuff beforehand."* Nurse – SIHDS (S8)

To attempt to overcome this, the SIHDS hospital staff had provided leaflets and allocated more time to discuss the service with patients as well as hospital (e.g. staff

based on the wards), social care and community colleagues; through communicating with patients, staff highlighted the risks of staying in hospital and benefits of going home with support. The SIHDS hospital staff felt that communication had improved over time with ward staff and that those on the ward had increased their understanding of the SIHDS and what patients could achieve. Staff also discussed ways to make improvements; through joint training, more regular meetings and ensuring that the processes and systems supported the patient pathways. The SIHDS hospital staff reported that there was often a lack of awareness and knowledge of what the SIHDS provided, by those who worked in primary care, community services and on hospital wards:

> *"I think we're building awareness, but it's… I just don't think the knowledge is out there with other services, with GPs, your community nursing, other services that don't know enough about us."* Nurse – SIHDS (S8)

The SIHDS hospital staff felt that communication about the service and improving colleagues' knowledge of the service was important. Staff completed in-service training on the SIHDS (with colleagues in the hospital and community environments) to communicate information on the service:

> *"So it's a PowerPoint presentation to all the teams, so we did one recently to all of the newly qualified therapy staff, … so we did ….. an in –service training session to educate them on what SIHDS was, try and tackle some of those myths before they hear them from the wards…. the REACT team do one to the A&E junior doctors, again to try and teach them actually what is the correct processes. So yeah it's challenging one person at a time."* Senior occupational therapist – SIHDS (S2)

The sub-theme of *inter-organisational communication* was seen as important by staff as the SIHDS service initiated regular communication, also informal communication had improved over time for staff undertaking referrals between the services. However,

it was felt that communication could be improved and expanded further (e.g. with ward staff). Furthermore, staff felt communication at a more senior and strategic level had diminished over time. Service reviews, regular meetings and joint training were suggested as ways to improve inter-organisational communication and knowledge of SIHDS to sustain effective integration and clear patient pathways.

5.5.3 SIHDS patient pathway (2c)

Despite the SIHDS hospital staff promoting the service, it took time for colleagues in the SIHDS team to be confident knowing that a patient was suitable for the SIHDS pathway:

> *"it's taken a good 12 months to be able to have that confidence in the decision making to realise that yeah the patient is appropriate for SIHDS, but also communicating with the SIHDS team if you're unsure about something, then I would always pick the phone up and just give them the heads up what do you think about this patient, and would you be happy to accept them"* Occupational therapist – SIHDS (S7)

The SIHDS hospital staff spoke about having eligibility criteria but also how they needed to be flexible, which may have caused confusion to external colleagues regarding who they should be referring. There were occasions when patients had gone home without a referral to the SIHDS, but this may have been due to capacity where the SIHDS could only see a limited number of patients. Users of the services and those who were considered eligible may have fluctuated depending on service capacity. The SIHDS hospital and community health service staff discussed investigations to try and

understand why patients went home without the SIHDS, and this led to the provision of education to ward staff to improve access to the SIHDS for future patients:

> *"I think we're very much reliant on the ward therapists knowing which patients to refer to us, and potentially some patients probably do go home who haven't been referred to us that would have probably benefitted from it. I am sure there's load of patients that get discharged home that would benefit for one reason or another, but just don't get referred to us for whatever reason, that's down to the individual wards and their staff."* Nurse – SIHDS (S8)

When providing therapy at a patient's home, some of the SIHDS hospital staff spoke about partners of patients sometimes being frail themselves, in these circumstances they were not a SIHDS patient, so no care or therapy could be provided but the SIHDS hospital staff made onward referrals for GP care or community teams if they felt support was needed for that person:

> *"We wouldn't be able to provide therapy to them* [husband or wife]*, but we could make onwards referrals, and we could use the GP, we could use rapid* [response]*, we could use the community social work teams."* Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)

To conclude, the sub-theme of *SIHDS patient pathway* identified that it took time for SIHDS staff to feel confident knowing which patients were right for the SIHDS pathway and the flexible eligibility criteria (depending on service capacity) which potentially added complications, but peer support was in place. Reliance on ward staff to identify eligible patients also meant that some eligible patients did not receive SIHDS, so would not have had assessments or support at home after discharge. Furthermore, as SIHDS was a specific pathway from hospital, they could not assist people who appeared frail that they came across in the community setting, such as the spouse of a patient, but staff did signpost or refer them to community services.

Summary of staff theme 2 Integration and impact on patient pathway

This theme demonstrates:

- There were **issues** raised with integration and referrals; such as **patient record** access and completing **paperwork**, especially for paperwork used specifically by community or social services
- Continued **communication** was important to sustain effective service **joint working** with all those that were involved in the patient pathway
- Over time, the **processes** underpinning the service operation had **changed**, and different services were available to patients depending on what was commissioned in their area; this could be **challenging** for the SIHDS hospital staff and could mean that appropriate **referrals** were not made
- **Not** all patients who were potentially **eligible** for the SIHDS **received referrals**, but staff worked with colleagues to try and ensure that eligible patients got offered the SIHDS pathway.

Box 5.2: Summary of staff theme 2 Integration and impact on patient pathway

5.6 Staff theme 3: Organisational aspects

How the service was organised and delivered influenced how it worked in practice. Furthermore, staff that were interviewed discussed how elements of the service

organisation could be improved. There were three sub-themes within this theme: (3a) The SIHDS hospital team; (3b) Challenges working in the community and (3c) Expanding or adapting the service. Appendix 14 Table 3 displays supplementary relevant quotations.

5.6.1 The SIHDS hospital team (3a)

The SIHDS hospital staff reported the SIHDS hospital team had grown over time and included a mix of professions and skills which allowed them to support patients in a variety of ways through multidisciplinary working; staff also developed new skills and competencies from working with each other. The hospital SIHDS team included support workers, occupational therapists, physiotherapists, nurses and team leads:

> *"I think it's about you've got to have the right skill mix, and I think that comes with us having the occupational therapist, the physios, the support workers, a different range of bandings, having the nurses as well, I think it allows us to all think a bit more wider and a bit more generic than just I am an OT, we've got that generic working, and we know for example all of our patients have obs* [observations] *done every visit, but they are not done by a nurse they are done by a therapy support worker."* Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)

The team did have part-time administrative support available, but there was no process in place to use her time effectively and the whole team did not use this support, some felt they did not need it, whilst others felt they should try to use administrative support more:

> *"I think before, we put a lot of pressure on the therapists to do it whereas now we're trying to split it a little bit more and give* [the admin assistant] *a little bit more. I don't think we need any more admin support; I think we just need to share the load a little bit. So sometimes she is twiddling her thumbs with nothing to do because the therapists and the support workers are doing it all, whereas …. they're the ones going out on the visits, because they're the ones with all the information, whereas if there was some sort of system for it to come back to her it won't take as long."* Occupational therapist – SIHDS (S5)

The SIHDS hospital team had also changed over time, as it had to evolve to work more closely with the hospital REACT service. The REACT team had a similar staff mix and made early assessments in the hospital emergency department to try to avoid hospital admissions. The SIHDS and REACT team shared an office and had the same team manager, so the manager saw them as one team and they worked more closely together as a consequence:

> "*Supported integrated discharge, and the REACT service, at* [this hospital site] *they're separate services but at* [another hospital] *site SIHDS is SIHDS and REACT, and they cover the front door. So I consider them to be one team"* Clinical team lead - SIHDS and REACT service (S1)

This meant patients in the hospital A&E, were provided with support and assessments to prevent them being unnecessarily admitted into hospital (REACT), as well as supporting patients who were admitted to safely manage them at home after discharge (SIHDS). The team manager also had the capacity of both services, so they could move staff between both services to respond to hospital pressures:

> *"I say we're looking at the front door, and they're the back door so we've got both areas covered. We communicate together quite well, we help each other out as well, because it's the same assessment but it's different areas. So yeah I think it works well, there's definitely a need for it, because it's been proven from audits and stuff that we do help with the patient discharges"* Therapy support worker - SIHDS and REACT service (S12)

Some SIHDS hospital staff discussed their workload and the complexities and quantity of the paperwork that they needed to complete on visits; if a visit was particularly

complex, they may not have had enough time to complete all of the paperwork. This could mean incomplete paperwork for a patient, which could then negatively impact the care a patient received, either through lack of information on falls risk or poor-quality information passed on for referral, as well as the service level impact of incomplete outcome data for this patient.

> *"I think you walk into a house sometimes and you can walk into whatever situation, and then we've got our outcome measures, our falls assessment, and sometimes because the patients are so complex the basics are sometimes missed, and then we're still trying to stick to our timeframe. So we can sometimes the therapy plan could be executed perfectly, but …. there could be a new problem … then …. our outcome measure isn't done, our falls assessment and care plan isn't done properly."* Occupational therapist – SIHDS (S5)

Although the SIHDS hospital staff discussed multiple benefits with regard to working in a multidisciplinary team, there were some challenges reported with office space and the timing of patient assessments; with regard to both professionals being available at the same time; and to being able to work together even though they had different professional priorities. The multidisciplinary team working within the SIHDS allowed for team members to become competent in different clinical areas through multidisciplinary assessments, this meant that all team members had the benefit of learning from colleagues, as well as in-service training to develop skills in occupational therapy, physiotherapy and nursing. The SIHDS hospital staff members completed mandatory training and discussed disseminating learning from specialist training to other team members:

> *"We have a document which is a competency document, that is banding specific, but in that banding specific competencies there are OT competencies, physio competencies and nursing competencies, so every single person no matter what your profession is you have to be competent in the generic MDT assessments, and to get you competent it's just through clinical practice, spending time with the qualified members of staff, interdisciplinary working, and*

> *again informal in-service training that we do."* Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)

All the skilled professionals worked closely as a multidisciplinary team to support each other and provide peer support. As many of the staff in the SIHDS team had backgrounds in secondary care, additional training could be beneficial alongside community teams:

> *"I actually do think in hindsight looking back, I think it would be really helpful for services being set up from acute hospitals for them to actually have some training and skill development with community teams, particularly where therapists and nurses are involved, because they are very different remits, and very different skill requirements as well."* Team Lead - Community health service (S3)

However, some SIHDS hospital staff reported that working in the SIHDS was not what they had expected or were used to. The SIHDS roles were different as they were not based solely in acute or community settings, so a small number of the SIHDS hospital staff reported some aspects of the role were unfamiliar or unexpected, particularly if the previous experience of the individual was solely based in the hospital or the community (not across both settings):

> *"I've got to admit a lot of it isn't what I thought it was going to be when I came into this role"* Undisclosed role – SIHDS (S10)

Some SIHDS hospital staff also discussed expanding the team to include a social worker to see patients with complex needs, this could also help team members to develop social work competencies:

> *"It would be great to have our own social worker, all the team say that, to actually have a social worker sit in our office would be one for REACT and one for SIHDS that would be great, but how feasible that is, is a different matter,.. the feedback I get a lot from the team .. can we have the money towards a social worker? …that would mean when we have complex patients that we have to refer to the hospital teams, we would have them with us and they could just go and see*

them" Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)

In summary, the sub-theme *SIHDS hospital team* identified that there was a mixture of staff involved from administrators and support workers, through to occupational therapists, physiotherapists and nurses. They all worked together to learn from each other, share skills and develop generic skills specific to SIHDS; although administrative support could be used more effectively and organising the timings for joint working was not always easy. The team had expanded over time and staff felt more peer support and training from social care and community teams could be beneficial. The hospital discharge and admission prevention team had changed over time to work closer together and were now managed by the same manager, which allowed them to manage service capacity to respond to hospital admission prevention and discharge support needs. The hospital team members had to complete the same paperwork regardless of their role in the team, but some paperwork was not always completed (such as outcome measure) due to time constraints and unforeseen issues. As a result, there were elements of how the SIHDS teams worked which impacted the organisational aspects of the service.

5.6.2 Challenges working in the community (3b)

Staff working under the SIHDS umbrella were organised to work in the hospital and the community. The SIHDS hospital staff discussed challenges due to this service structure which included: traffic problems which sometimes made it difficult to keep

appointments for scheduled patient visits; language barriers and being able to safely work in the community:

> *"It's a lot of time you're in traffic, like if you was at* [town] *and you had to get over to* [town], *the traffic would be ridiculous, so they divide it into areas for the staff."* Therapy support worker - SIHDS and REACT service (S12)

These challenges were often mitigated by being pragmatic, where the SIHDS hospital staff: organised the SIHDS hospital staff so they had groups of patients in closer geographical areas; tried to ensure that the SIHDS hospital team members who had certain language skills saw patients with language barriers and completed formal community working risk assessments, which were also used by community teams. Where the SIHDS hospital staff did not speak the patient's language they discussed having access to interpreters, but often relied on family members to interpret for them instead of booking interpreters through the hospital.

> *"So there is a lot of people that we get to come in don't speak English, but we have access to interpreters, and then we always… a lot of our staff can interpret as well, so … we try and get one of our workers who speaks their language to go out which makes it easier. So it's not really a barrier I suppose because we always get round it"* Therapy support worker - SIHDS and REACT service (S12*)*

Despite these pragmatic approaches to overcoming barriers, the SIHDS hospital staff members still had traffic issues and not all potential threats (e.g. vicious dog or hostile housemates) were always identified in the risk assessments. This meant that appointment times could not always be kept and that other people using the risk assessments, such as colleagues in community services, may have had to face a risk they were not made aware of:

> "*But what that risk assessment hadn't identified is that there were people that lived within that person's home that potentially could have been a threat to staff going in, and that hadn't been passed over. So…their risk assessment process …although they had looked at the environment they hadn't passed on the actual*

knowledge that there were family members/carers in the property that had problems that could have posed a threat that ..our staff should have been aware of." Team Lead - Community health service (S3)

Challenges working in the community was a key sub-theme that highlighted issues which could impact important aspects of service organisation and delivery. These issues included dealing with local barriers to home care such as heavy traffic, long travel times and language barriers. Which were overcome by organising staff with language skills and visits to specific geographical areas. As well as safely working in the community, ensuring risk assessments were completed properly and that potential risks were reported to partner organisations.

5.6.3 Expanding or adapting the service (3c)

The SIHDS hospital staff spoke about ways that they felt the organisation of the service could be adapted, including practical changes such as: using falls assessment tools; having a social worker as part of the SIHDS team; expanding REACT to take referrals from ambulance services if people did not need to go to hospital and having access to cleaning services for patients' homes. Furthermore, improving links to primary care and ambulance services was discussed to potentially allow referral through community routes and recently discharged patients to the SIHDS and REACT services.

"*we did want to get on to the ambulances … rather than even the patient getting to the A&E … if an ambulance arrives at an elderly person's house that's had a fall and they don't actually need to go into hospital but they are not managing at home, or their walking is not great, if there was a way we could get them to go out to them there rather than … at the moment they have to come into A&E to*

> *be referred to us, but I think that's one way to expand, ambulance services referring directly to us."* Therapy support worker - SIHDS and REACT service (S12)

The SIHDS hospital staff also suggested having a 24/7 service for patients that were newly discharged and having the flexibility to extend the service to longer than 10 days if a patient might benefit from a slightly longer follow up:

> "*I suppose almost a disadvantage to the service is that we're short term, we're only ten days, and sometimes some of the patients that we come across if we have a little bit longer with them it would probably cut down on some of the ongoing referrals that we then have to do, because we would be able to complete everything that we needed to do if we had a bit longer than ten days*" Nurse – SIHDS (S8)

Access to IT in the community and information governance were important issues for staff across the services involved. The SIHDS hospital staff had no access to patient notes when in a patient's home so had to spend time making notes of a patient's medical history before they went to see them. The SIHDS hospital staff felt remote access could streamline and improve administrative processes in the service, which would result in the staff having more time to see and provide support to patients:

> *"Because I think sometimes before we go out and see patients in the morning we write down on our own personal notes exactly social history and everything about the patients, so there's quite a long… there's a bit of time there that it takes up before. You don't want to go into a patient blind, you need to be able to know everything about medical issues, previous admissions, equipment that's in situ. If we have remote access we would be able to just log on, check that before we went into the patient's property, and then you would still be able to remember it rather than writing it all down."* Occupational therapist – SIHDS (S7)

The SIHDS hospital staff being able to remotely access the records was a change that the service was hoping to implement soon after the interviews, staff felt this would improve the SIHDS staff being able to organise their time:

> *"At the moment we are in the process of gearing every member of the team with the IT, so the information from the hospital can be easily accessed in the community on the iPad for example, so if we need that backup just to check the past medical history or a previous input from the hospital we can check that."* Therapy support worker – SIHDS (S9)

Staff reported how the SIHDS service had gone from being an initial project, looking to improve discharge to being embedded into the patient pathway as an ongoing service. When projects are put in place, they are based on a business case and subject to regular reviews and reporting. However, this is not always the case when a project becomes part of the system and missed regular reviews could impact the service.

> *"I think anything that's a project you should still review it at certain points, and I think apart from reviewing it the following year there was no other review, because perhaps if there had been I would know more about what's going on now, and then it wasn't a project and it became a system, a proper way into our service from health, and I don't think that's happened.*" Assistant team manager - Home care enablement service (S14)

Regular service reviews including more senior partner colleagues to review and evaluate the service from the management and policy perspectives could be integral to ensuring the service responds to an ever-changing health and care landscape.

To conclude, the sub-theme of *expanding or adapting the service* found that staff had suggestions that could improve the service. This included: expanding links and referrals to the REACT and SIHDS services (e.g. ambulance services and primary care); providing 24 hour service 7 days a week with flexibility to provide services for longer than 10 days if needed; having remote access to patient records so they do not have to make and then type up a large amount of notes; and regular reviews even when the service has been embedded in practice.

Summary of staff theme 3 Organisational aspects

This theme found that:

- The staff that made up the **SIHDS hospital team** had **evolved** over time; with the way it was run and organised being **adapted** as necessary
- There were some **challenges** associated with **multi-disciplinary** team working, but the SIHDS hospital staff felt that the way the team was organised gave them **key skills** in different areas, which allowed for effective **peer support** and more holistic patient care
- The **challenges** raised from working in the **community** impacted the organisational aspects of the service, as it required daily service and the SIHDS hospital staff organisation to ensure that all patients **scheduled** to be seen in their homes were seen; the SIHDS hospital staff were kept **safe** and that the SIHDS hospital staff could **communicate** effectively with the patient.
- Staff discussed organisational aspects of the service, considering how it could be adapted or expanded to develop the SIHDS further and how to improve the way it worked for example by having **improved links to community partners** and better **off site IT access**

Box 5.3: Summary of staff theme 3 Organisational aspects

5.7 Summary of staff themes

A variety of staff across hospital, social care, community and enablement organisations took part in staff interviews, which identified three main themes. The first theme: '*preparedness for discharge and impact of discharge service'* highlighted that staff felt that patients were not always well prepared for discharge, but that there were perceived impacts on the discharge service. The second theme: '*integration and impact on patient pathway'* identified that although there was service integration and communication across services in place, there were also barriers. The final staff theme: '*organisational aspects'* highlighted that the multidisciplinary SIHDS hospital team had evolved over time to facilitate joint working and peer support but there were organisational challenges. This staff interviews chapter is triangulated with the other case study chapters in Chapter 7 and discussed in Chapter 8. The next chapter will discuss the findings from the patient and carer interviews.

CHAPTER 6: RESULTS OF PATIENT AND CARER INTERVIEWS

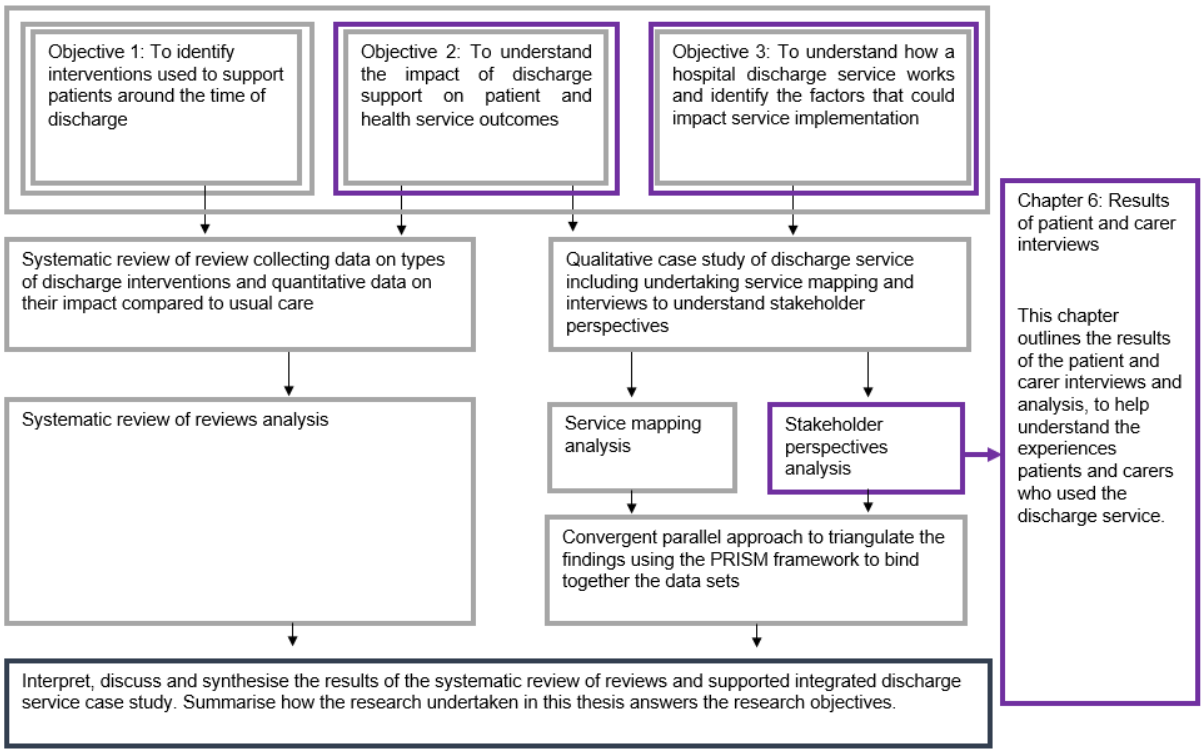


Figure 6.1: Thesis overview and patients (and carers) perspectives chapter

6.1 Introduction

This chapter further builds on the previous case study chapters detailing the results of the process mapping findings and staff interview chapters. This chapter will help to understand the experiences of the SIHDS service from the perspective of patients and carers.

6.2 Patient and carer characteristics

Interviews were completed with eleven patients who used the SIHDS and four carers of SIHDS patients. Six of the patient interviews and all four of the carer interviews were face-to-face; the remaining five patient interviews took place over the telephone. Patients were a mixture of genders (although the carers were female) and all patients were aged over 60. The majority of the patient interviews (8 out of 11) took place around six weeks post discharge (the remaining three took place at three weeks (n=1) and four weeks (n=2) post discharge). All of the patients and carers spoke English. One carer took part where a patient did not (but did give permission for them to do so). Regarding the relationship between patients and carers, all the carers were daughters, and most were present at the patient's home at the time of the interview, but one carer decided to take part on behalf of her mother who did not take part.

Of the 15 total participants: five participants took part in an interview where a carer or patient was also present at the same time; five participants took part in an interview where the participant (carer or patient) was interviewed on their own; five participants completed telephone interviews where the interviewer could not see who else may have been present at the time of the interview. Although all participants were offered separate interviews, during the five interviews where both patients and carers were present at each other's interviews, carers and patients did contribute their thoughts during the other persons interview or were sometimes prompted to speak by the person being interviewed. Further discussion of the potential limitations of joint interviews can be seen in section 8.4.3 Strengths and challenges of the case study. Full details of the patient and carer characteristics obtained via pre-interview questionnaire can be seen in Tables 6.1 and 6.2. These characteristics help to understand more about the range of patients interviewed and aspects of their socioeconomic status.

Table 6.1: Patient characteristics

Patient Characteristics	**Number**
Gender	
Female	5
Male	6
Age (years)	
60-69	3
70-79	6
80-89	1
90 or over	1
Ethnicity	
White British	9
Black/African/Caribbean/Black British	2
Marital status	
Married	5
Widowed	4
Single	1

Patient Characteristics	Number
Cohabiting	1
House type	
Detached	2
Semi-detached	3
Flat	2
Terraced House	2
Prefer not to answer	2
Living situation	
Lives with partner/husband/wife	4
Lives alone	3
Lives with child	1
Lives with child and grandchild	1
Prefer not to answer	2
Employment status	
Retired	10
Prefer not to answer	1

Table 6.2: Carer characteristics

Informal Carer Characteristics	Number
Relationship with SIHDS patient	
Daughter	4
Age (years)	
60-69	2
Prefer not to answer	2
Ethnicity	
White British	2
Black/African/Caribbean/Black British	2
Marital status	
Widowed	1
Cohabiting	1
Prefer not to answer	2
House type	
Semi-detached	2
Prefer not to answer	2
Living situation	
Lives with partner and children	1
Lives alone	1
Prefer not to say	2
Employment status	
Retired	1

Informal Carer Characteristics	Number
Working part-time Prefer not to answer	1 2

6.3 Patient and carer themes

From the patient and carer interviews there were three main themes and seven separate underlying sub-themes. Figure 6.2 shows interlinkages between the themes and their sub-themes, as well as any relationships between the themes.

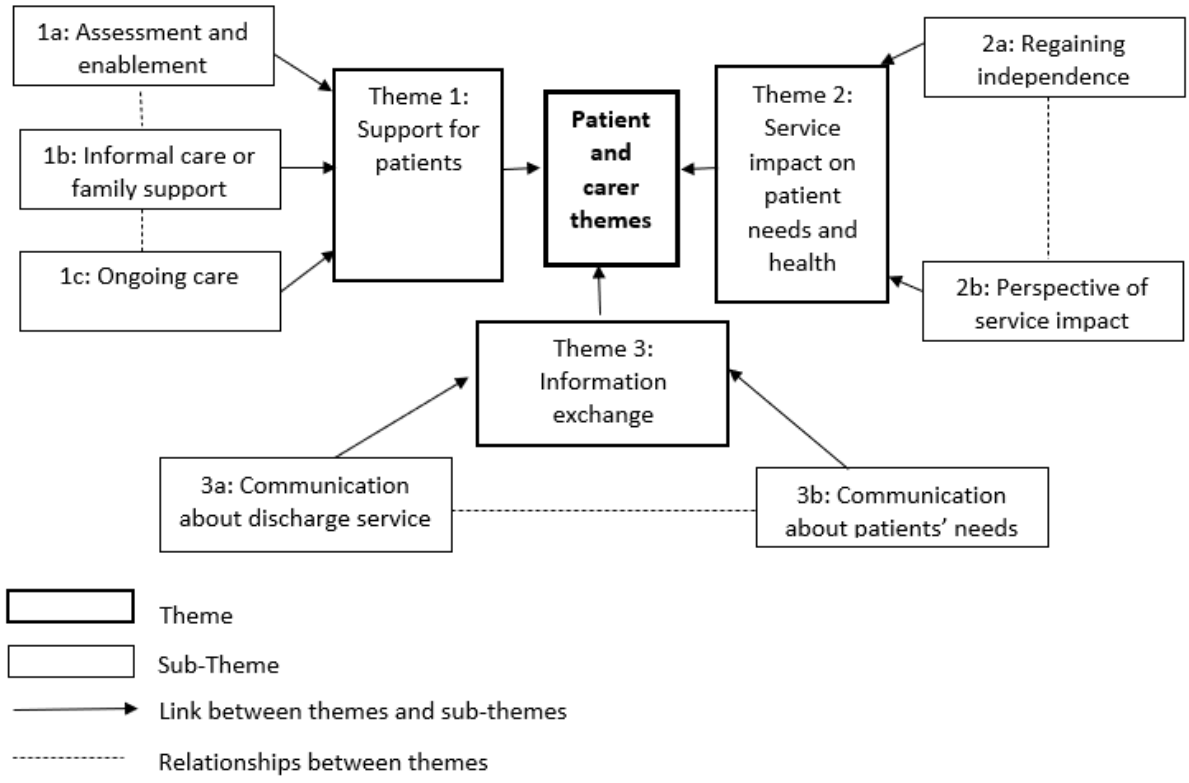


Figure 6.2: Patients and carers themes and sub-themes

An outline of the sub-themes within the three themes is outlined in Table 6.3. The descriptions of the patient and carer themes, sub-themes and selected illustrative quotations are explored and presented in the following text. Verbatim quotations are followed by participant identifiers together with gender and age details for patients; and age and the relationship to patient for carers. Summary boxes are provided at the end of each theme with key words highlighted in bold.

Table 6.3: Outline of patient and carer sub-themes

Theme	**Sub-theme outline**
Theme 1: Support for patients	
Sub-theme 1a: Assessment and enablement	Sub-theme 1a explores themes around assessments completed and subsequent support provided to patients including provision of equipment aids.
Sub-theme 1b: Informal care or family support	Sub-theme 1b highlights the informal care of family support patients received and what further support was needed from this perspective. This theme links to sub-themes 1a and 1b as relatives reported being involved in patient enablement and ongoing care.
Sub-theme 1c: Ongoing care	Sub-theme 1c covers themes around ongoing care patients received after the SIHDS service. This theme touches on duplication of providing equipment aids by SIHDS and social services.
Theme 2: Service impact on patient needs and health	
Sub-theme 2a: *Regaining independence*	Sub-theme 2a explores patients concerns around managing at home and how the services impacted patients trying to regain independence at home following hospital admission.
Sub-theme 2b: Perspective of service impact	Sub-theme 2b highlights themes around the negative impact of hospital admissions on patients and the overall perspective on the service impact.
Theme 3: Information exchange	
Sub-theme 3a: Communication about the discharge service	Sub-theme 3a explores themes around communication specifically regarding the discharge service.

Theme	Sub-theme outline
Sub-theme 3b: Communication about patients' needs	Sub-theme 3b explores themes on communication around patients' needs whilst they were in hospital or whilst at home.

6.4 Patient and carer theme 1: Support for patients

The support provided to patients at home was considered vitally important, from formal/informal carer support, through to equipment aids and therapy. Patients felt they would have struggled to manage safely at home if it was not for the support provided by the service and family members. There were three sub-themes within this theme: (1a) Assessment and enablement; (1b) Informal care or family support and (1c) Ongoing care. Table 6 in Appendix 14 presents further quotes for this section.

6.4.1 Assessment and enablement (1a)

Assessment and enablement were important aspects of the discharge service for patients and their families. To allow patients to be safely discharged, patients reported: that SIHDS staff completed home assessments with patients; visited patients' homes to undertake assessments, ensuring they were a safe environment and installed any equipment aids they might need to safely function in their home settings:

> *"She had been struggling to get off the toilet for a while but hadn't admitted to me but she admitted to them, so straight away they ordered her a raised toilet seat with two arms."* Daughter, aged 60-69 (C2)

SIHDS hospital staff completed assessments on patients to understand their needs and some patients reported being given exercises to help aid their recovery, as well as being reviewed for progress:

> "*as we went along he said, "You're doing the exercises quite well, you're coming along." He took me outside for a walk and he noticed I was doing quite well, so he said, "yeah okay that's fine, you're going well there."* Male, aged 60-69 (p4)

However, a small number of patients reported not being given any exercises and did not feel they had much of an assessment, but this may have been due to the informal way therapists assessed patients' abilities, what patients needed as individuals and the way tasks that were needed to de done were organised without the patient being aware a formal assessment was being completed:

> *"But other than getting someone to measure the chairs, yeah the chairs and the height of the bed I think that was the only thing really. I wouldn't say they did much of an assessment of what I could do, and what I couldn't, didn't see me walking or didn't do any professional assessment as such. But I am not saying I needed it really, anyway"* Female, aged 70-79 (P6)

However, not all patients' experiences of exercises were positive. One patient reported being given an exercise that opened his wound, which the patient felt may have been a contributing factor to their subsequent readmission to hospital:

> "*First time he come we did some exercises, but in doing what he was doing he opened up the wound, and then the next day I had the fall which opened it up more, which ended up with me being referred back to hospital and having an operation."* Male, aged 60-69 (P5)

As well as assessments leading to exercises being suggested to patients, they also helped SIHDS hospital staff identify what other services or aids patients might need. Provision of equipment aids was seen as efficient and extremely important to patients and family members to enable patients in their homes. Patients reported the equipment aids were identified and fitted quickly and enabled them to do activities in their home safely, such as use the toilet, climb the stairs, access areas of their home, get in and out of bed and carry their food and drinks:

> *"She did an assessment and talked to me about what I would need and what I was struggling with, so the second day she brought a load of stuff, and then on subsequent days more and more. So fantastic in that respect."* Male, aged 60-69 (P8)

> *"they went upstairs and manhandled a single bed down and put it up for me in our dining room… so I had a proper bed to sleep on, and then they said that they thought that I needed… a partial rail, so that I could pull myself up…. They put that on the list, and toilet frame….. a caddy to fit onto the Zimmer frame ….so that I could carry drinks and food and that on that when I was on my own… about three hours later they were back and they had got all the stuff, and they fitted it all up."* Male, aged 70-79 (P9)

It was not just occupational therapists that arranged for patients to have equipment fitted, as patients reported physiotherapists also completed assessments and identified equipment needs. This was seen as efficient by patients as staff were looking at patients holistically, not solely in relation to the requirements of their role:

> *"I think you will probably need a rail up the step and grab handles….the physio actually measured the length of everything, and he had gone before I knew what he had done, so it was very efficient, super-efficient."* Female, aged 70-79 (P6)

Overall, equipment aids provided by the service were reported as extremely important to patients and it was even suggested that it might be the most important part of the service from some patients' perspectives:

> *"The equipment, yeah. As I say that was the best part of it…..when they got the equipment here very quick it just changed my whole life for me in a sense. As I say even to this day now I really can't thank them enough for it."* Male, aged 70-79 (P7)

Patients mentioned the different professions involved in their care and enablement since they were discharged, mainly physiotherapists, occupational therapists, nurses and formal carers. Some patients had formal carers coming into their homes to help them after discharge. Formal carers were considered vitally important to some patients to enable them to get out of bed, whilst other patients did not feel there was much for them to do, so assessment of the need for carers may have needed to be more regularly reviewed in the service, especially when capacity was an issue:

> *"*[Formal carers] *came in the mornings, but when I say mornings, it was about ten o'clock, and by the time they had come I had my breakfast and got ready, so there was only a bit of washing up to do."* Female, aged 70-79 (P2)

As patients became more independent, their needs for a formal carer also changed over time. Although patients and informal carers acknowledged that carers were important at specific times for their recovery, some patients raised concerns around having unfamiliar people access their home, different carers coming in on different days and the concerns regarding the security of a key safe:

> *P1: "Well just the fact in the morning that somebody came, that's the only one I could say I've really appreciated that visit, in the morning, but it isn't necessary for them to come.*
> *C1: Well not now.*
> *P1: Not now, may have been at the beginning but not now."* Female, aged over 90 (P1) & Daughter, aged 60-69 (C1)

> C1: "*We were a little bit upset when they changed her from the first set of carers to the second set, because you've got used to one set of ladies, and then suddenly you've got to get different carers."* Daughter, aged 60-69 (C1)

The sub-theme of *assessment and enablement* highlighted patients' perspectives on elements of the support they received. Although not all patients were aware of assessments taking place, they were key to identifying what support, exercises and equipment aids patients needed to recover safely at home. Equipment aids were considered extremely important to patients to enable them to function and be independent in their home. Patients received holistic and patient centred support from a multidisciplinary team including formal carers who contributed to their enablement at home. Patients and informal carers recognised the importance of formal carers to assist with a patient's enablement, but some patients were anxious about having strangers in their home or felt that carers still came past the point they were needed. So regular assessment of the support patients needed at home could be beneficial either to implement more if they were struggling or reduce it if it was not needed.

6.4.2 Informal care or family support (1b)

Patients and family members spoke about informal care and support provided by family members. Some patients consulted family members before accepting the discharge support so some informal carers were involved in decision making regarding a patient's care, whilst others felt the service was put in place almost seamlessly without their input:

> *"Oh yes I did discuss it with my daughter yes, and I think we agreed to it"* Female, aged over 90 (P1)

As previously discussed the SIHDS staff helped to organise a patient's home for them post discharge, patients also reported that family members helped prepare the patient's house after discussions with the SIHDS team. This was to ensure the environment was safe for the patient and included moving beds and making sure bathroom facilities were accessible:

> *"within the hospital before they told my children to bring a bed down because I cannot go upstairs, and so the children they get this moved ready, really a bed and put it here"* Female, aged 80-89 (P10)

As well as preparing the patient's home for discharge, patients discussed how they were dependent on family members (normally spouse, children or grandchildren) to help with every day activities such as shopping, cooking and cleaning. Some informal carers were also more involved in physically helping patients such as getting in and out of bed.

> *"The grandson does it* [grocery shopping] *online, at the moment his charge has gone down, and he's had to send for another one* [laptop], *so we can't… he will pick something up for me if I want it, it's just the garage is only over the road, Greggs, and it's very handy."* Female, aged 70-79 (P2)

> *"My partner does most of it, so my partner cooks for me, yeah. Partner obviously cleans the property etc., does all the washing me clothes etc., and if and when I need, she helps me to get into bed of a night… I've got used to the in and out of bed situation and I have my wheelchair and getting off my wheelchair onto the toilet."* Male, aged 60-69 (P5)

One patient, who lived with her daughter, had to have help from her daughter to have a bath as they were not offered any formal caring support. This was quite an uncomfortable experience for the patient and carer as they had not had any guidance on how to do this safely and the patient reported how they had struggled:

> *"I couldn't have a wash, I smelt, so by the Saturday now I got in to the bathroom with support of my daughter, and then I got in the bath and I couldn't*

> *come out, and she had to lift me out of there, and that was a struggle, so I couldn't go in again… nobody even showed her how to lift me, how to support me to get out of the bath, so it was just this panic"* Female, aged 70-79 (P3)

However, other patients reported that they and their informal carer had been taught how to manage an activity they were struggling with and that lack of a formal carer was not an issue. This highlights the need to understand a patients and carers needs and any support or training that may be needed, as it will be specific to each individual situation.

> *"she was very helpful in teaching both my wife and myself how to put the brace on, because we were really struggling with that"* Male, aged 60-69 (P8)

Informal care or family support was a sub-theme from the patients interviews where levels of informal care influenced support patients received. Some patients consulted with family members prior to accepting the SIHDS, what services they received from SIHDS also depended on what informal support they had in place at home (e.g. washing, shopping, cooking and cleaning). Some patients who had informal support in place at home, did not have formal carers come in to assist them. Patients discussed how this meant they had to rely on informal care, although not all informal carers were given information or guidance on how to safely help the patient e.g. safe ways to help manoeuvre patients for personal care.

6.4.3 Ongoing care (1c)

After discharge from hospital, ongoing care and recovery of patients was often assessed at outpatient appointments. A small number of patients discussed that they had ongoing care that required transport to and from outpatient appointments and raised concerns and challenges that they faced attending them:

> *"I had to get a taxi to the outpatient appointment. Somebody said … in the letter you can use hospital transport, but they are just so busy. I did actually phone them up and they asked me some questions and …they said no if you can walk on crutches or something we think you should get a taxi, so mounts up taxi fares, but it's not a problem for me, but it might be for some people."* Female, aged 70-79 (P6)

Ongoing care also involved the GP and a small subset of patients also discussed communicating with their GP about their ongoing care and the continuation of their prescriptions:

> "*So* [my Grandson] *went to pick up a prescription and take it to the chemist*" Female, aged 70-79 (P2)

The length of the SIHDS service was discussed and a minority of patients and carers felt it could benefit from being longer, with more flexibility for it to be a longer service if needed. One carer reported a patient was discharged from the ten day service in less than seven days, and felt continuation for the full ten days would have been beneficial for the patient:

> "*She was discharged from the service after one week. If resources permitted it I would say two weeks really. I would say another visit, particularly somebody of her age and her mobility would have probably just been nice, but that's in an ideal world."* Daughter, aged 60-69 (C2)

The SIHDS service and social care partnership meant that therapists completed social care assessments as trusted assessors and referred patients with social care needs to social care. However, despite having social care partners linked in with the service and some patients receiving support from formal carers, the majority of patients interviewed said they had not seen social care services and some said they were not needed:

> *"No, I don't really need them. I've always been fiercely independent anyway, so I don't really need them, you know what I mean?"* Male, aged 60-69 (P4)

One patient reported a duplication of effort to provide equipment, which was due to a patient sending a request to social care services prior to their hospital admission that was actioned after discharge. This was the only time social care services were mentioned being contacted and their services used by interviewees:

> *"I suggested to her that I had contacted local social services for some equipment…. at the same time the hospital physio were coming out the following day which I was grateful for, because she was coming out with equipment that I so needed… the hospital physio she came out and she brought this equipment with her… then I think it was a week after that, that the local authorities they sent out their equipment which they had promised me"* Female, aged 70-79 (P3)

To conclude, the sub-theme of ongoing care covered what patients raised about their ongoing support needs. This varied from transport for outpatient appointments to prescriptions from the GP. Ongoing support for patients through social care was not discussed by patients, despite this being part of the SIHDS pathway for those who needed it.

Summary of patient and carer theme 1 Support for patients

This theme outlined:

- Patients and carers felt that the **support** provided by the SIHDS was very **important**, particularly the **equipment** provided to help them at home
- Some patients spoke about relying heavily on **informal care** or family support for assistance with **shopping**, **cleaning**, **self-care** and **cooking**, whilst others had help from formal carers
- Patients also spoke about ongoing **support** from **primary care** services, particularly for **prescriptions**.

Box 6.1: Summary of patient and carer theme 1 Support for patients

6.5 Patient and carer theme 2: Service impact on patient needs and health

Patients and carers felt health was important and spoke about health in hospital, regaining independence, isolation and nutritional needs, alongside their perspective of the service. There were two sub-themes within this theme: (2a) regaining independence and (2b) perspective of service impact. Table 5 in Appendix 14 includes additional relevant quotations for this section.

6.5.1 Regaining independence (2a)

The majority of patients and carers were positive about the impact the service had on their independence and gave them peace of mind after discharge. As well as physical aids to enable patient's independence, it was beneficial to a patient psychologically, as they knew they had support and contacts for professionals who could help them:

> "*I think mum felt that she didn't just come out of hospital and was left. So I think that psychologically was a real big boost …, that you had that follow up …really important."* Daughter, aged 60-69 (C2)

Before leaving hospital, some patients reported being apprehensive about how they would manage at home which caused them anxiety. Patients reported that the SIHDS removed some of that anxiety as the staff understood their needs and enabled them:

> *"You think to yourself what am I going to do, how am I going to do this, how am I going to do that? You get worried, but when they come in and they have asked*

you how you get on and what you can do, and how you do this, and how you do that" Male, aged 70-79 (P7)

Patients and carers reported the service helped them regain independence through giving the patient assistance, confidence, motivation and equipment aids to manage by themselves at home. Only one patient felt the service did not do much for them in terms of their independence and ability to do activities:

> Interviewer: *"Has it helped you do any activities or gain any independence?"*
> *"No. No activities, n*o" Male, aged 60-69 (P5)

Regaining independence was a sub-theme from the patient interviews. After discharge from hospital, patients and their carers were often anxious about how they would manage at home and cope. This impacted the patient's health and what they required from the SIHDS service. The SIHDS team helped alleviate this anxiety by managing continuation of care and addressing patients' specific needs and concerns.

6.5.2 Perspective of service impact (2b)

Patients and carers were aware of the impact that hospitalisation had on their health and they did not expect to receive this sort of service when they were discharged from hospital. Patients had an awareness of losing functional ability and being less capable of doing things whilst they were a patient in hospital due to the impact of inactivity and everything being done for them:

> *"I noticed the difference each time I come out of hospital I've gone down a bit."* Female, aged 70-79 (P2)

> *"We're in bed the whole process, the whole time, which wasn't doing me any good. The only time they got me out of bed was to go to the toilet. Most of the time I just laid down in bed."* Male, aged 70-79 (P11)

Some of the patients noticed improvements in their own health and functional abilities once they were discharged home from hospital. Despite using the SIHDS service and having contact with staff, a small number of patients and carers still reported feelings of isolation, and spoke about how the situation at home contrasted to the complete care that a patient received in hospital:

> *"You are there [hospital], people around you all the time, they are giving you a cup of tea every two minutes, but when you come out that's not there, so you are being thrown back into the deep end then, finding someone to be there to help you."* Daughter, age undisclosed (C4)

> *"Yes, as I said when I'm in the hospital in the morning breakfast, a cup of tea, somebody always there, and I come out I'm alone here."* Female, aged 80-89 (P10)

Some patients had concerns regarding trouble eating and getting enough nutrition, so were relying on nutritional drinks for calories and vitamins. Nutritional assessments were not a part of the SIHDS service, but this highlighted that referral routes for nutritional advice might need to be identified:

> *"they were rather concerned about my weight and although they gave me a leaflet what would be best to eat, I was having three of these bottles of things* [Fortisips] *a day, and then suddenly I can't get any more off the doctor, he said I've got to apply. I even asked if I could buy some, but the chemist told* [my grandson] *that they're not very good, as good as the prescription ones, it's not so many vitamins in it."* Female, aged 70-79 (P2)

Despite some of the concerns raised, patients and carers were surprised to be offered the SIHDS service, without the need to be put on a waiting list as they had expected:

> *"I thought it's going to take about four or five weeks and by then… and of course the aids that they gave her have helped tremendously."* Daughter, aged 60-69 (C2)

The majority of patients felt the service staff were attentive and the service as a whole was helpful, beneficial and had a positive impact on them in some way. Patients reported being grateful and positive about the patient centred support they received. Some people were uncomfortable with people coming into their home, but this was not a barrier to a positive experience of the service:

> "*they just made sure that everything was alright for me and I could manage alright with the things that they gave me which I did straight away, I felt on top of the world as soon as I got them… was really grateful, I still am to this day to be quite honest with you. … I never expected it, the people … very pleasant and helpful and everything else, I really can't fault them."* Male, aged 70-79 (P7)

> *"I was pleasantly surprised the way it was set up, and really I haven't got any fault against it. I think it was well done and everybody that came was polite and friendly. The only thing I found a bit disturbing was people coming into your home. But I got used to that."* Female, aged over 90 (P1)

In summary, the sub-theme *perspective of service impact* identified that patients often struggled at home due to debilitation from being in hospital and receiving 24/7 care. Despite receiving SIHDS, being home alone was a great contrast to the busy hospital environment and a few patients reported feeling isolated. The SIHDS was seen as beneficial to patients as they received the care they needed without having to wait, patients were grateful and positive regarding the support they received to help with the transition from hospital to home. Although some patients struggled to eat and get enough nutrition when home, signposting patients to nutritional advice could be important from a patient perspective when reviewing patient needs.

Summary of patient and carer theme 2 Service impact on patient needs and health

This theme showed:

- The **positive** impact that the service had on patient outcomes in terms of regaining **independence** and giving them **confidence** to do things at home
- Patients spoke about the **impact** of being in **hospital** on their **health** and despite having the SIHDS service, some patients still **struggled** with **caring** for themselves at **home**
- Some patients **struggled to eat** and get the nutrition they needed
- Despite issues that patients had to overcome, patients reported a generally **positive** perspective of the service **impact** on their own **health** by identifying their needs as a patient

Box 6.2: Summary of patient and carer theme 2 Service impact on patient needs and health

6.6 Patient and carer theme 3: Information exchange

Effective information exchange was important to patients and carers, for a positive experience at all stages of the care pathway. Some patients felt there were elements of information exchange that were very good, others highlighted areas where communication could be improved or be more consistent. There were two sub-themes

within this theme: (3a) Communication about the discharge service and (3b) Communication about patients' needs. Appendix 14 Table 4 includes additional quotations for this section.

6.6.1 Communication about the discharge service (3a)

The experiences of patients regarding communication about the discharge service were not consistent. Whilst a lack of communication did not appear to impact on the services patients received, it did appear to impact the satisfaction of patients, as patients who received information were more positive and those lacking information often felt that it impacted continuity of care. Some patients felt they were well informed and communication about the service from start to finish went well, whilst other patients felt that they were not given enough information prior to the service, during the service or at the end:

> *"Yes they did, both written information and verbal. They told me that I would have a nurse coming in for the first couple of weeks and what exactly her roles were and what she would be doing, so more than satisfied with that part of it."* Male, aged 60-69 (P8)

> "*No, she didn't say anything. She didn't say that she's closing the files or she's coming back or nothing. She came, she fitted that other rail, and that was it, I haven't seen her since……they should just send me a letter saying well we've done what we can do and anything else contact, which they should have been doing the same with local authorities as well, so it's paperwork being done, it's a conversation being carried on."* Female, aged 70-79 (P3)

However, in some instances, a lack of communication regarding the timing of formal carer visits after discharge did have an impact on whether it was utilised. For

example, if the formal carer did not turn up at the arranged time and subsequently the patient was not at home, or if the scheduled time was not seen as helpful to the patient, then formal carers were not used:

> *"There was a couple of times she had they turned up when it was too late and they still expect to sign the book to say about at least twice, at least once when I was here it happened, and then the other time she had already gone to church when I came and they didn't do anything but they wanted to come in and sign to say that they have whatever."* Daughter, age undisclosed (C3)

The sub-theme *communication about the discharge service* found that there were instances of good communication and poor communication regarding the discharge service, and although this did not impact the elements of SIHDS that patients received, it did impact the patient's apparent satisfaction with the service. However, poor communication mostly around timings did impact whether formal carers were beneficial and used by patients. This shows that exchanging information about service and timings is important to patients, so they know what to expect and when.

6.6.2 Communication about patients' needs (3b)

Patients raised the uncertainties they felt around their discharge from hospital, during their time in hospital and how to manage pain when they were home. Some patients were not made aware they were likely to be discharged on the day they were actually sent home from hospital:

> *"On discharge day they could have told me when I was about to be discharged, because I have to get dressed you see, so there wasn't enough time. I know it*

sounds trivial, but there wasn't enough time for me to get dressed, so I had to really rush….So they could actually tell you the discharge day… you are likely to be discharged today…can you get dressed please?" Male, aged 60-69 (P4)

However, this could be explained by clinicians being uncertain about when discharge would take place. Especially as some patients recalled being told they were going to be discharged on several occasions but were not discharged home:

"If they kept to their word, that may sound silly but they kept telling me I was going to be discharged." Male, aged 70-79 (P11)

Some patients also picked up on the uncertainty with staff, where their clinical team did not seem to know if they would be going home or staying in. On some occasions patients made arrangements for family to pick them up, only to be told their discharge had been delayed:

"my son came to pick me up because he was told I could come out, and when he got me they sent him home. So he came the next day and I was able to come out, but it took two hours for a doctor to sign a letter." Female, aged 70-79 (P2)

Another patient felt that hospital staff were desperate to discharge them, but the patient themselves felt uncomfortable about the prospect of being discharged home. Shared hospital transport was also seen by patients as a cause of uncertainty regarding discharge and often meant patients took a long time to get home. This illustrates that communication regarding transport home after discharge could be improved:

"Getting out of hospital was quite a chore. There was the hospital transport that was very oversubscribed, I think it always is…the poor sister spends all her years nursing training spent the whole afternoon trying to negotiate with hospital transport, and then she gave up and said, "I'm going to get you a taxi," but she had to get that approved by finance eventually. So I got home at about half past eight in the evening." Female, aged 70-79 (P6)

When patients were sent home, they were often in substantial pain. Some patients felt that what they should expect in terms of pain was not well explained or planned for. A patient being in substantial pain was not always identified as an issue by hospital or service staff:

> *"I had to contact my doctor the next day, all round my ankle and lower part of my leg was really painful, and nobody mentioned anything about pain relief, so I phoned the doctor the next morning and they prescribed me co-codamol. I took four of those tablets, and that was it. So possibly they could have mentioned about pain relief."* Male, aged 70-79 (P9)

This meant that sometimes patients felt the discharge process did not take into account what they could physically do or the amount of pain they were in. Some patients described being in a lot of pain at discharge, but information was not always communicated to them regarding how they should manage pain or what pain they might expect. For example, one patient reported contacting the emergency services because they were suffering unexpected amounts of pain after their discharge from hospital, but were happy once expected pain levels were explained to them:

> *"In fact I went back the next day, because I weren't happy with me pain, so I phoned the ambulance, and I went back a third time, and I seen my consultant and he said, "We don't explain pain properly to our patients," and then when he explained levels of pain etc, I was then sent home again which I was quite happy with then."* Male, aged 60-69 (P5)

But this was not always the case as on some occasions a patient was identified as being in pain by the SIHDS team, these patients reported a positive experience because the SIHDS hospital staff helped by communicating with the patient's GP to organise pain relief for them:

> *"she was very helpful in as much as I'd been on morphine all the time I'd been in hospital and when I was discharged it just stopped and I really was in terrible pain. So she contacted my GP and arranged some proper medication,*

and started off with tramadol and then moved back on to morphine when that wasn't successful. As I say I really don't think she could have done any more than she did." Male, aged 60-69 (P8)

To conclude, the sub-theme *Communication about patients' needs* identified that communication about the discharge time and date was very unclear with some patients not being informed and then suddenly discharged and others being informed several times but not being discharged. Communication around discharge was important to patients and carers needs, as they wanted to organise and have arrangements ready for patients to go home. When pain was communicated and managed there were seldom any problems, but some patients felt that more information could be given to them to explain what levels of pain to expect and how to manage them.

Summary of patient and carer theme 3 Information exchange

This theme demonstrated:

- The **importance** of good **communication** about the SIHDs service itself as well as the **needs** of the patient and what they should **expect** at home
- Patients reported a **lack of information** or incorrect information causing them **frustrations** around their time of discharge, this also caused problems regarding arranging **transport home** and knowing how to **manage pain** at home

Box 6.3: Summary of patient and carer theme 3 Information exchange

6.7 Summary of patient and carer themes

Interviews were held with a group of patients and carers, they ranged from 60 to over 90 years of age and reported a mix of social demographics (such as gender, ethnicity, marital status and living situations) so they represented a relatively varied sample within the limits of the inclusion criteria. Three main themes were identified from the patient and carer interviews. The first theme: '*support for patients'* found the support provided by SIHDS, along with informal and formal care was very important to patients. The second theme: '*service impact on patient needs and health'* identified that SIHDS helped patients regain independence and confidence. The final patient and carer theme: '*information exchange'* outlined the importance of communication to patients. The patient and carers interview chapter is triangulated with the other case study chapters in Chapter 7 and discussed in Chapter 8. The next chapter will present the results of the case study triangulation. It will use the PRISM framework to triangulate the findings of the process mapping and stakeholder perspectives.

CHAPTER 7: TRIANGULATION OF CASE STUDY COMPONENTS

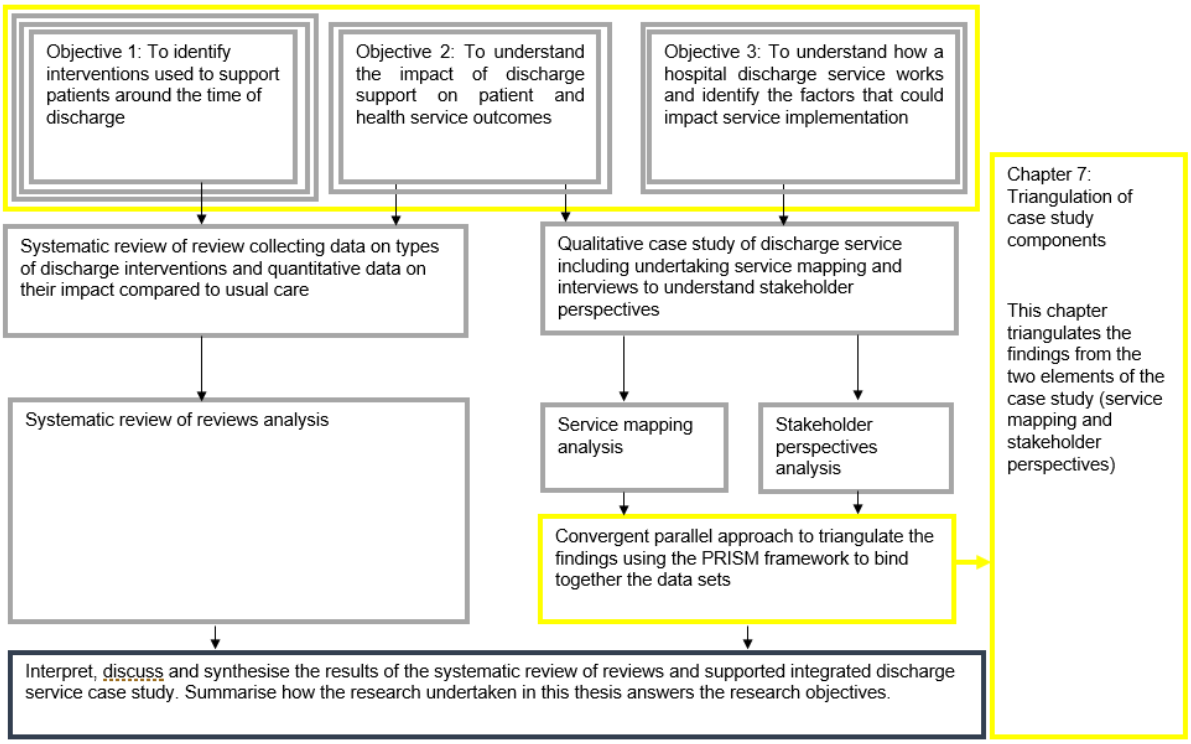


Figure 7.1: Triangulation of case study chapter

7.1 Introduction

The previous chapters detailed the results of the qualitative case study elements starting with the service mapping work outlined in Chapter 4, followed by exploring stakeholder experiences of SIHDS in Chapters 5 and 6. This chapter triangulates the findings from this case study research using the PRISM framework (outlined in Section 2.6) to categorise the findings from the case study mapping, staff interviews and patient and carer interviews. PRISM is an implementation framework and pragmatic research focuses on what works the best to answer the research objectives. Research objective three focused on understanding how a hospital discharge service worked and identified factors that could have impacted the service implementation. Therefore, it made sense to utilise PRISM to triangulate the data from the case study mapping and interviews, to inform how the third research objective was met.

As the first and second research objectives were not focused on implementation (they focused on identifying intervention type and effectiveness), it was decided that to answer research objectives one and two, PRISM would not work the best to triangulate the data from the systematic review of reviews. Therefore, the final aspect of data synthesis in this thesis used the research objectives as a framework, to collate and present the findings most relevant to answer the research questions (without being limited to the PRISM framework). These key findings for each research objective are detailed in Section 8.2: Discussion of key findings according to the research objectives.

This chapter will give an overview of the main points for each PRISM domain, key findings are in bold text and sections are followed by summary *lessons learnt* boxes. Tables summarising the PRISM elements in SIHDS that were facilitators of, or barriers to the implementation of a hospital discharge service and the impact of these are provided in Appendix 15.

7.2 Triangulating the case study findings using PRISM

Section 2.6 described the methods for synthesising the case study findings using PRISM as a framework. The PRISM domains and sub domains used to organise the case study triangulation are shown in Figure 7.2 and detailed in relation to the case study in the following Sections 7.2.1-7.2.4 (159).

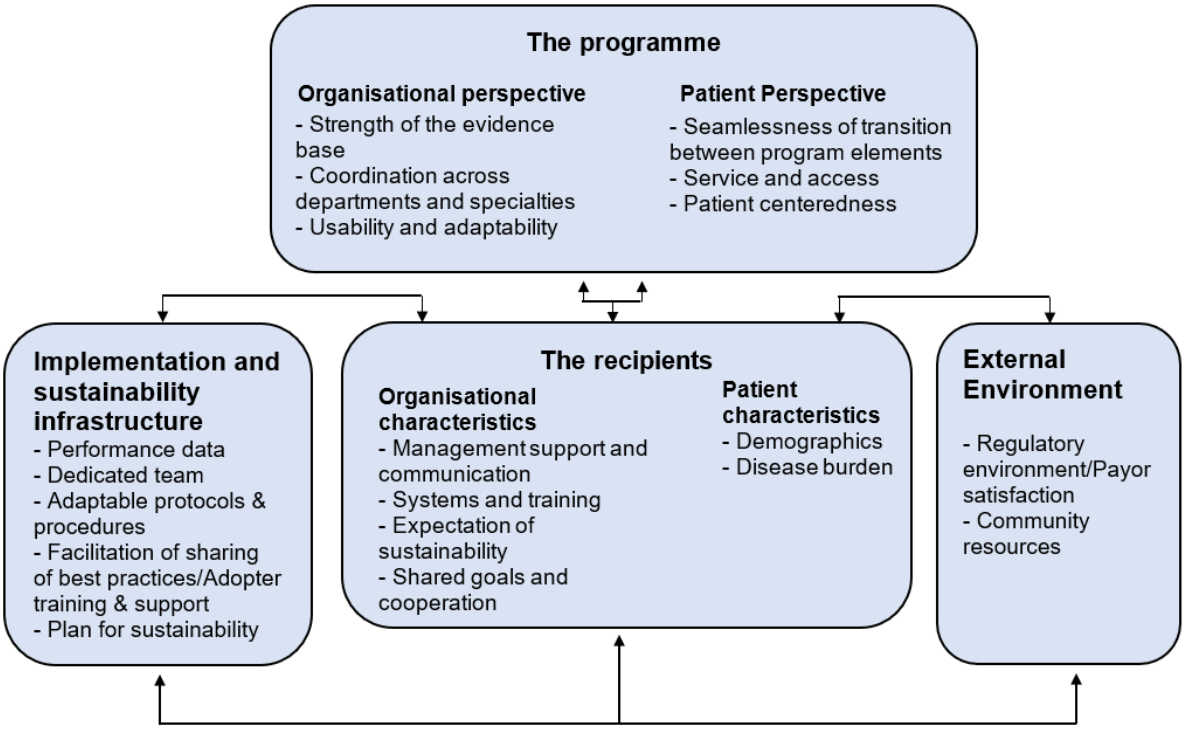


Figure reference Feldstein and Glasgow (159)

Figure 7.2: PRISM domains and sub-domains as described by Feldstein and Glasgow

7.2.1 The Programme

The PRISM framework highlights the importance of reflecting on service elements from an organisational and patient perspective (159). The strength of the evidence base is important to underpin services. The stakeholder interviews found that hospital site data on reduced readmissions was a facilitator to discharge services being funded and expanded locally. However, in the interviews, staff shared that there was not always time to collect all of the data for example on quality of life. This highlights that the **time for collecting data and analysis** processes should be built into services, to allow

evidence on specific services in particular contexts to be collected and evaluated. This would allow for effective reporting on the discharge service impact on key outcomes such as hospital length of stay, readmissions, patient health status and costs; in turn effective reporting could be used to improve services, whilst providing evidence for future service commissioning.

Process mapping and stakeholder interviews found **coordination across departments** and services was also important for discharge services and that the establishment of shared patient pathways, joint working and shared paperwork could aid coordination and reduce potential duplication. With regard to service key processes (e.g. referrals) and personnel delivering services, it was found to be vitally important that patient pathways, paperwork and joint working processes were regularly reviewed and communication was kept open to respond to emerging needs, changes or to identify potential improvements (e.g. to the quality of shared paperwork).

The stakeholder interview and mapping process demonstrated that services often expanded and adapted as they **responded to local needs, policies and emerging evidence**. The stakeholder interviews also highlighted that, when there were service changes, it was important to ensure that existing and new staff had adequate skills, training and support to fulfil the needs of their changing roles. For instance, in the stakeholder interviews it was found that the therapists' roles were expanded to include social work assessments, such that they were acting as 'trusted assessors' but staff felt they could have benefited from ongoing support with the role and some were

uncomfortable with the social care aspect of the assessment. Hence, a review of staff skills to ensure their training needs continued to be met and any issues that they had were identified, was highlighted as beneficial.

From a patient perspective, discharge services could provide continuity of care supporting patients from hospital to home (e.g. assessments, equipment, care and therapy), and that such continuity was valued by those receiving services. In contrast, the mapping and stakeholder interviews identified that the seamless transition in discharge services was not always possible as there was capacity and availability of different services to consider, specifically: capacity and referral times for enablement and community therapy services; the time that was taken to provide patients with medication or the time it took to arrange transport home. Despite the challenges and multiple partners involved in transitions of care, stakeholders felt it was important that delays and processes were communicated with patients, so that they knew what to expect at each point in their care and could communicate their needs. Stakeholders also felt that continuity of care and patient centred care was important so that the service was tailored to the needs of individual patients and had a positive impact on a patient's independence and safety at home.

Access to the service for eligible patients was imperative, yet staff reported that making hospital colleagues aware of the service across large hospitals was sometimes challenging work needed to be conducted to **increase and maintain awareness** of what the service was capable of and what the referral criteria were so that eligible

patients were referred appropriately. Staff felt that service capacity limits also needed to be considered when defining which patients were eligible.

Lessons learnt from SIHDS - elements of 'The Programme'

It is vitally important to involve service stakeholders (from an organisational and patient perspective), have clear communication routes, agreed paperwork and shared patient pathways. However, although these processes aid implementation, pathways need to be continuously monitored and reviewed to ensure services are still working effectively, are fulfilling patient needs and that staff training needs are identified over time. This is particularly important if there has been any policy, process or staffing changes in partner organisations. Additionally, it is important that services are accessible, so wide cohorts of hospital ward staff need knowledge of the service so that they can refer eligible patients.

Box 7.1: Lessons learnt from SIHDS - elements of 'The Programme'

7.2.2 External Environment

The impact that the external environment can have on the success of services and how well they are maintained is highlighted in PRISM (159) and elements of this were identified in the case study. The process mapping and stakeholder interviews found

that discharge services should be set up to **respond to local needs, priorities and guidance**, and that they should be capable of evolving as guidance, needs and priorities change. The process mapping highlighted the NICE guidance focussing on supporting patients at hospital discharge, which the case study had been established in response to. This demonstrates the need for national and local guidance/policies to be regularly reviewed for discharge services that are being developed, as well as those already in practice. It is important that discharge services in practice respond to policy and guidance changes, so that they demonstrate that they are fulfilling needs and offering best practice.

Additionally, the mapping and stakeholder interviews identified that it was important that hospital discharge services had **strong links to community services and primary care**, to ensure an awareness of what care the hospital discharge services provided (e.g. GPs should know what care their patients could potentially receive) and that there was no overlap or duplication of patient care once they returned to living in the community (as well as ensuring co-ordinated care).

Lessons learnt from SIHDS - elements of 'External Environment'

The strong focus in national and local policies on the importance of discharge support from social, community and health services to reduce hospital pressures, have aided the implementation, success and maintenance of discharge services by establishing shared goals and agendas. However, changing health and care agendas need to be considered and sustainability plans need to be in place. Moreover, discharge services need to be promoted outside this 'core' partner group, to ensure they are fully understood.

Box 7.2: Lessons learnt from SIHDS - elements of 'External Environment'

7.2.3 Implementation and Sustainability Infrastructure

The need for support structures to be modified over time to support service maintenance and the development of plans to support service sustainability are highlighted in PRISM and elements of this were identified in SIHDS (159). Stakeholder interviews found that data collection and review was important particularly to be able to provide evidence of the service meeting local needs (such as data on readmissions and patient quality of life). The interviews ascertained the importance of formulating **data collection plans on key outcomes**, but also there is a need to go a step further and ensure that service staff have the time to collect data. It was also found that having dedicated and named multidisciplinary staff within discharge services and key

partners, facilitated the implementation of the service into practice. The mapping and interviews found that it was important that discharge services could adapt over time to respond to local needs. As an example, expanding the service remit to include certain medical needs by having nurses in the team and the establishment of referral routes with other hospital services; such as the hospital admission avoidance service, which allowed patients to be sent home with a package of therapy support without a formal hospital admission being required. The staff interviews found that expanding discharge services to work with **hospital admission avoidance services** could also be beneficial as it **enabled the service to expand to include prevention** and give support to people to help them stay out of hospital. Staff also identified further expansion could include forming closer links with primary care and emergency services.

Staff detailed that as well as adapting the service team it was important that discharge services could be adapted to **consider their local areas**. For instance, in urban areas where the case study took place this might be done by implementing procedures for dealing with potential travel delays due to congestion on the road between patients, while in rural areas this might need to allow for potential long distances between patients on country roads. The procedures staff described included daily planning for visits where locations were cross-checked to ensure that the therapists' appointments were grouped to particular localities as much as possible.

The interviews established that staff benefitted from multidisciplinary peer support by **sharing best practice and training opportunities**, which allowed staff to develop

and improve their skills and provide more holistic discharge care to patients. The interviews found this approach could provide more opportunities if the support was provided by wider partners such as social workers and community care professionals, giving hospital-based staff more competencies in areas of social care and working in the community. However, staff also reported that peer support and multidisciplinary team working could raise logistical issues such as staff availability, which were needed to be overcome. Furthermore, staff raised that **referral criteria needed to be clear and easy to understand** otherwise this could cause challenges for implementation e.g. it took some SIHDS hospital staff a few months or more to fully understand the referral criteria and to be able to identify which patients were appropriate for SIHDS; this meant there were sometimes extensive conversations between the SIHDS hospital staff and the social care staff regarding whether more complex patients were appropriate for the SIHDS. This highlights that evolving services in the NHS need to have regular reviews of training and support needs for staff, from the case study this was identified as additional training or support for therapists doing social care assessments, improving communication about referral criteria and support on how best to undertake risk assessments in the community.

Evaluations of services can **identify areas for improvement** of services after implementation. Some areas were identified in the stakeholder interviews that could potentially improve discharge services, such as improving communication at all service levels and giving remote access to hospital IT systems and partners systems for staff, so they did not have to spend as much time handwriting notes about patients ahead

of, during and after appointments. It is important that services are reviewed and staff consulted to allow improvements to be made.

Lessons learnt from SIHDS - elements of 'Implementation and Sustainability Infrastructure'

Hospital discharge services can benefit from having a dedicated team with named leads in partner organisations to aid integration, partnership working and service maintenance. Yet, just having partners is not enough as services and systems could facilitate greater shared access to patient records (as well as remote access) and have clear referral criteria that are understood and used in the same way by all service partners. This would remove administration required in sharing patient information, the need for staff to make (and type up) paper notes and the amount of detail needed on referral forms. Building on links to preventative services such as, hospital admission avoidance services can be beneficial as supporting patients may help to prevent unnecessary hospital admissions. Furthermore, prioritising the continuation of collecting service data related to local needs (and giving staff time to do so) and evaluating the service can ensure that quality evidence of how these services work in practice can be produced and any training needs or potential improvements can be identified.

Box 7.3: Lessons learnt from SIHDS - elements of 'Implementation and Sustainability Infrastructure'

7.2.4 The Recipients

How organisational and patient characteristics can affect intervention success and effectiveness is also important to consider (159). In terms of organisation characteristics, the service mapping and staff interviews identified it was important that discharge services were supported by high level managers across partner organisations, who **communicated regularly** with each other, had a broad overview of services and agreed shared goals. This service mapping and staff interviews process highlighted that it was especially important when individual service processes changed, to ensure that any changes did not have a negative impact on the discharge services and patient pathways as a whole. Staff also emphasised the importance of Governance agreements being in place to allow all levels of partner organisations to effectively communicate confidential information and enable access to relevant patient records. The stakeholder interviews found it was important that training needs were identified, process changes were reviewed and that benefits of services were reported to commissioners. The stakeholder interviews suggested elements of services may be harder to maintain, especially when changes occurred or service staff roles expanded, so changes in referral routes in any of the key partners should be followed by a process review and therapists acting as ‘trusted assessors’ to complete social work assessments should be given ongoing training and support.

Patient characteristics can also affect discharge services, stakeholder interviews highlighted how important it was that local populations for discharge services were

understood and that **services adapted as necessary to fulfil local needs**; as discharge services in rural districts face different challenges to those in urban areas. This may mean adapting referral criteria or assessments to suit the local population needs or making sure that there are certain skills or resources available to team members, as an example, translators for staff to communicate with patients who do not speak English.

In the study, patients and staff emphasised the importance of considering the burden of disease on individual patients, to ensure that services were tailored to patients by conducting assessments and communicating with patients. This ensured that patients received the elements of the service suited to their needs. For example, from the stakeholder interviews regarding carers: some **patients may have needed a carer** to come in and help them; whilst others may have been more physically able and not needed a carer and some may have needed assistance but had support from informal carers/family members, consequently it would not have been efficient for all patients to have support from carers. **Communication** with patients is important as an assessment or record may state that the patient does not live alone, but in reality, the person they live with may work long hours, be away from home or be a frail older person, so unable to assist the patient when they leave hospital or lack appropriate education on how they can assist safely. So even if a patient lives with someone the patient or carer may communicate a formal carer would be beneficial. Communication could also be improved regarding pain management, as patients felt that expected pain levels at home were not always communicated or managed well, this caused some patients to seek assistance from emergency services for pain. Furthermore, some

patients felt they would have benefited from **wider support**, such as those who were struggling to eat so could have benefited from nutritional advice or support through signposting or referral.

Lessons learnt from SIHDS - elements of 'The Recipients'

With regard to organisational characteristics, it is important that there is adequate support, communication and governance at all levels and between all discharge service partners to ensure that services are implemented and sustained. With regard to patient characteristics, it is important that local populations and their needs are understood, so services can be adapted to respond to local needs and that elements of discharge services can be tailored to meet individual patient's needs.

Box 7.4: Lessons learnt from SIHDS - elements of 'The Recipients'

7.3 Summary of case study triangulation

Triangulating the case study data using the PRISM framework to categorise findings identified key implications that are important when considering the implementation of hospital discharge services. Figure 7.3 shows a summary of the case study triangulation according to the PRISM domains.

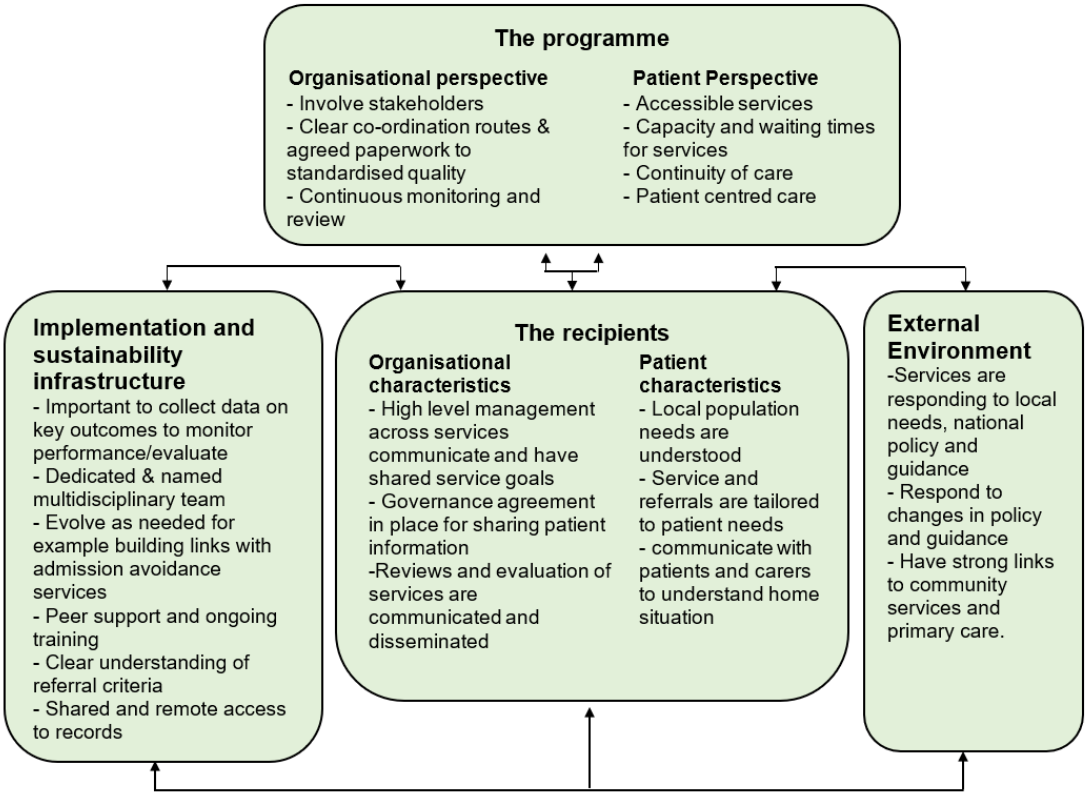


Figure 7.3: Summary of case study triangulation

The discussion of this case study triangulation chapter, along with findings from the systematic review of reviews chapter is discussed in Chapter 8.

CHAPTER 8: DISCUSSION AND CONCLUSION

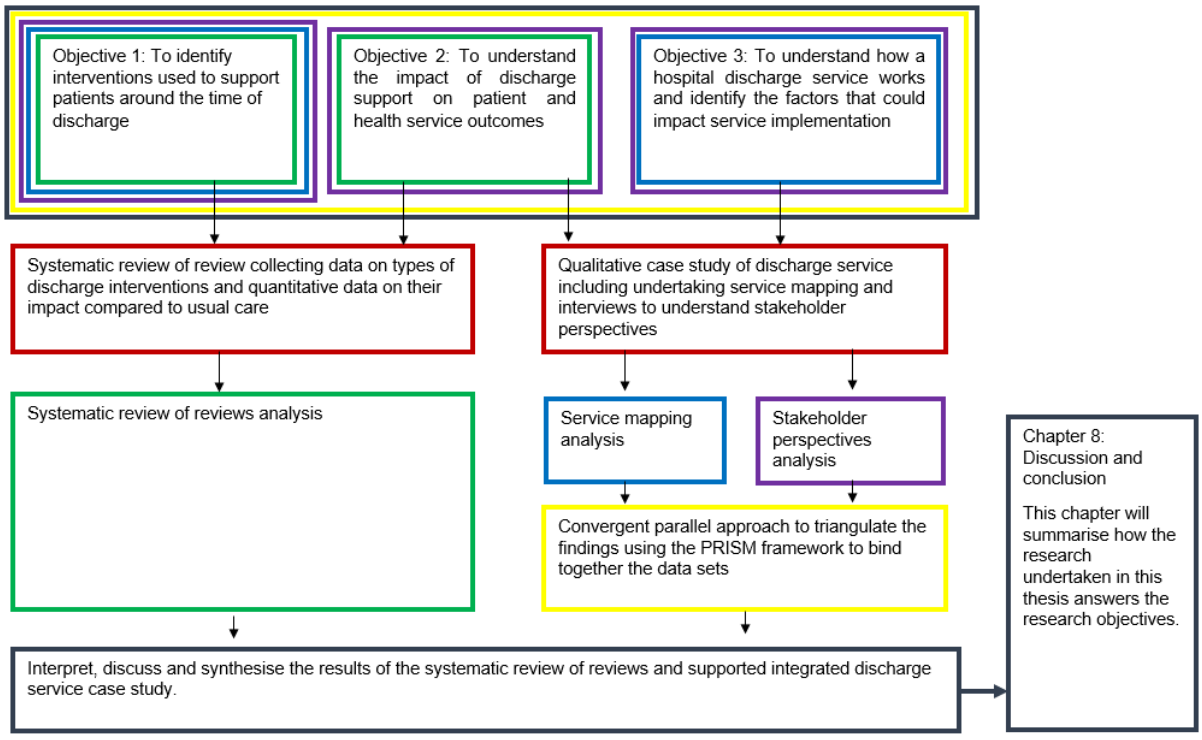


Figure 8.1: Thesis overview and discussion chapter

8.1 Introduction

As far as the researcher is aware this is the first convergent parallel mixed method research looking at discharge services, that synthesises data from a SR of reviews with data from a qualitative case study. The study presents original findings that combine majority results (where 50% or more of review primary studies are in agreement) from across high quality systematic reviews showing the impact of a spectrum of discharge service intervention types (compared to 'usual care') on key health service and patient outcomes. Importantly, this research also identifies the impact of a discharge service in the qualitative case study, alongside identifying key factors that influenced service implementation. Systematic review of reviews include data from systematic reviews of RCTs, which are considered to be the highest quality evidence (256), whilst qualitative data allow further in-depth interpretation and understanding of how discharge services are designed and operate in a 'real-life' context, through capturing the perspectives and experiences of the stakeholder delivering and receiving services (63). Using mixed methods further strengthens the thesis findings and deepens the understanding of discharge services (87, 257).

This work had three overarching research objectives:

1. To identify interventions used to support patients around the time of discharge
2. To understand the impact of discharge support on patient and health service outcomes

3. To understand how a hospital discharge service works and identify the factors that could impact service implementation

This chapter summarises and discusses the findings from this research and their implications. Firstly, Section 8.2 will discuss the findings of this mixed method research in the context of the evidence base, policy and practice, Section 8.3 will discuss the implications for key stakeholders, Section 8.4 will discuss the strengths, challenges and limitations of this thesis and Section 8.5 will discuss areas for future research.

8.2 Discussion of key findings according to the research objectives

The original findings of this thesis, that address the three overarching research objectives are summarised in Figure 8.2. Figure 8.2 allows types of discharge services and their impact to be reviewed at a glance, alongside key aspects of implementation.

Research objective 1: To identify interventions used to support patients around the time of discharge	Research objective 2: To understand the impact of discharge support on patient and health service outcomes					Research objective 3: To understand how a hospital discharge service works and identify the factors that could impact service implementation
	Patient health status	Readmissions	Costs	Mortality	Length of hospital stay	
Rehabilitative support/therapy at home/in the community	ND	ND	NS+	ND	+[*1]	**Coordination and access** • Agree patient pathways, paperwork, goals and responsibilities of staff • Have governance and technology in place to facilitate access to shared records and remote access for service staff • Clear and effective communication
Patient assessment	ND; NS +[*2]; +[*3]	ND	NS+	ND	ND	
Primary care interventions	No data	+	No data	?	ND	
Multiple component inpatient specialist care	ND	ND	ND	ND	ND	
Patient education	ND[*4]; NS+[*5]	+	ND	ND	No data	
Discharge planning/coordination/case management	ND[*6]; +[*7]	+	NS+	ND	ND	**Ongoing training** • Provide existing and new staff with support and training to meet service needs • Ensure there are quality standards for paperwork across services • Educate staff along the whole patient pathway to aid understanding of discharge processes and services
Multiple component transitional care	ND	NS+; +	NS+; +[*8]	ND	ND	
Nursing led care	NS+	NS+; +	NS-[*9]; NS+ [*10]	ND	-	
Specialist care pathways	NS+	NS+	NS+	ND	NS+	
Miscellaneous interventions[*11]	ND	ND [*12]; NS +[*13]; + [*14]	No data	ND[*15]; NS+ [*16]	ND	
Qualitative case study service was a multiple component therapy led discharge service[*17]	Stakeholders reported a positive impact of the case study on health particularly due to patient assessments, home visits and provision of equipment aids	Staff reported services reduced readmissions by supporting patients and assessing the safety of patients in their homes, however some patients reported a lack of communication about expected pain, which caused some patients to seek emergency care	No data on costs	No data on mortality	Staff reported the case study reduced length of stay by providing patients therapy in their homes	**Monitoring and review** • Regular data collection, monitoring and review • Continuous development of the service to meet local needs, policies and challenges (such as working with admission prevention services, responding to policy changes and planning for local issues)

Figure 8.2: Summary of findings answering the three overarching research objectives

*1 Mostly early discharge interventions; *2 Life satisfaction and Health; *3 Functional outcomes; *4 Quality of life; *5 Mental function; *6 Functional health, Quality of life, mental status, health; *7 Quality of life; *8 US based multiple component transitional care interventions; *9 UK based interventions; *10 US based nursing led care interventions; *11 home visits, multidisciplinary interventions, structured telephone support, telemonitoring, pharmacists-led interventions, reorientation measures, referral to stroke liaison worker and clinical interventions; *12 structured telephone support, telemonitoring, pharmacists-led interventions and clinical interventions; *13 Home visits and multidisciplinary interventions; *14 Home visits and multidisciplinary interventions; *15 Reorientation measures and telemonitoring; *16 Home visits, structured telephone support and clinical interventions. *17 Therapy led discharge service included discharge planning, patient assessments, specialist patient pathways (and onward referral/signposting), multidisciplinary team (Occupational therapists, physiotherapists, nurses and therapy support workers plus partnership working with social workers, community care and enablement care), home visits, carers (informal and/or formal) providing personal care and provision of equipment aids.

The discussion of the results will now address each of the three main research objectives in turn.

8.2.1 Research objective 1: To identify interventions used to support patients around the time of discharge

Multiple interventions can be implemented into practice to support patients at discharge. Some interventions are based on a single component; others comprise of multiple components, under broad organisational terms such as ‘therapy led interventions’ or ‘primary care led interventions’, where interventions may include several complementary elements embedded alongside each other. The case study included similar interventions as identified in the SR of reviews as well as some

additional aspects to interventions not specifically detailed in the SR of reviews such as equipment aids.

This thesis identified multiple interventions that were used to support patients at discharge, which could be broadly characterised as individual or multi-component interventions.

Individual intervention types identified included:

- Patient assessment
- Patient education
- Discharge planning/coordination
- Specialist care pathways
- Home visits
- Structured telephone support

Multiple component interventions included:

- Interventions that provided rehabilitation or therapy-based interventions in a patient's home
- Primary care interventions
- Multiple component inpatient specialist care including preparation for discharge
- Nursing led care
- Multidisciplinary interventions

The case study was a multiple component therapy led discharge service which included several interventions including discharge planning, patient assessments, specialist patient pathways (and onward referral/signposting), home visits, provision of equipment aids by hospital therapist, carers (informal and/or formal) providing personal care and a multidisciplinary team (occupational therapists, physiotherapists, nurses and therapy support workers plus partnership working with social workers, community care and enablement care).

The discharge interventions identified in the review and case study, cover discharge service components which are detailed in discharge guidance (25, 136). However, whilst the components themselves may be fairly standard, the key difference between the service components identified in this thesis and those described in guidance, related to which area took responsibility for providing the different elements of the discharge service. For example, the 2021 UK Department of Health policy and operating model on hospital discharge and community support, details that community health service providers should ensure provision of equipment aids to support patients at discharge (44).

8.2.2 Research objective 2: To understand the impact of discharge support on patients and health services

Data from the review showed that some discharge interventions could have a significant impact on several key outcomes when compared to usual care. These results are summarised in Figure 8.3.

	Significant results in favour of control	Trends in favour of control	Trends in favour of intervention	Significant results in favour of intervention
Patient health status			-Nursing led care impact -Patient assessment (life satisfaction and health) -Patient education (mental function) -Specialist care pathways	-Patient assessment (functional outcomes) -Discharge planning/ coordination/case management (quality of life)
Readmissions			-Nursing led care -Multiple component transitional care -Home visits -Multidisciplinary interventions -Specialist care pathways	-Patient education -Discharge planning/ coordination/case management -Primary care interventions -Nursing led care impact (not always significant) -Multiple component transitional care (not always significant) -Home visits (not always significant) -Multidisciplinary interventions (not always significant)
Costs		-Nursing led care around the time of discharge (UK based interventions)	-Nursing led care around the time of discharge (US based interventions) -Rehabilitative support/therapy at home/in the community -Patient assessment impact on -Discharge planning/ coordination/case management -Multiple component transitional care -Specialist care pathways	-Multiple component transitional care (US based interventions)
Mortality			-Home visits -Structured telephone support -Clinical interventions	
Length of hospital stay	-Nursing led care around the time of discharge		-Specialist care pathways	-Rehabilitative support/therapy at home/in the community

Figure 8.3: Summary of SR of review results showing trends and significant results

The case study provided anecdotal evidence (derived from interview data) that a therapy led discharge service could reduce readmissions, hospital length of stay and improve patient health. The case study discharge service incorporated patient

assessments, undertaking home visits to identify issues, provision of equipment aids, provision of support and facilitating a patient's independence at home. Case study data also showed that discharging patients as soon as they were medically fit and providing therapy in a patient's home reduced hospital length of stay.

This research identified that various types of discharge interventions can have a varying impact on key outcomes and that there is no 'one size fits all' discharge solution that can improve patient and service outcomes. These findings are supported by other published research that has also identified that different configurations of transitional care interventions can impact outcomes in multiple ways (258).

The impacts of discharge services on patients and health services are discussed in more detail below, focusing on the key outcomes of readmissions, hospital length of stay, patient health status, costs, mortality and emergency room visits.

8.2.2.1 Readmissions

Evidence assessed in the SR of reviews identified four intervention types (***primary care interventions around the time of discharge; patient education around the time of discharge; discharge planning/coordination; multidisciplinary interventions*** and ***home visits***) that were associated with significant reductions

in readmissions for the majority of studies. Other research has supported these findings regarding support at discharge resulting in reduced readmission rates (52, 243). Furthermore, participants in the SIHDS case study reported that from their experiences and perspectives, discharge services could reduce readmissions by facilitating greater patient independence; reducing waiting times for therapy at home; providing equipment aids to patients (so they could manage in their homes) and proactively identifying potential problems.

Pain has been found to be the most common reason for unplanned readmissions within one day of discharge from acute care (259). In the SIHDS case study, patients reported returning to the hospital emergency department due to pain after discharge linked to lack of communication about pain management at home, this theme was also reported in a 2021 qualitative study (260). In the 2020 NICE published guidance on perioperative care, recommendations were made regarding pain management up to the point of discharge but recommendations regarding pain management after discharge were limited to making 'plans for discharge' (261). So, more guidance may be needed to address potential issues faced by patients suffering from pain after discharge; if pain management was improved, a primary reason for unplanned readmission following a hospital stay could be alleviated. This support could be improved by collaborating more closely with primary care so that they can offer advice to patients, especially as ***primary care interventions around the time of discharge*** were found to reduce hospital readmissions in the SR of reviews.

The case study also found that some patients struggled in terms of nutrition and eating at home. NICE recognise that a person's health and social care outcomes can be significantly affected by malnourishment and that malnourishment is not always well detected or treated (262). In 2012, a quality standard was published on malnutrition that highlighted the need for: screening for malnutrition in care settings; care plans that meet nutritional needs for people at risk of malnutrition; malnutrition screening results and support goals should be communicated within and between settings; training for people and carers to manage nutrition and monitor wellbeing; and that people offered nutritional support should be reviewed at planned intervals (262). However, the NICE quality standard and clinical guideline do not currently specify follow up processes for managing malnutrition after patients are discharged from hospital to home or to other settings (262, 263). Nutrition and pain should be more consistently addressed as part of discharge. When discharge services are reviewed, it could be beneficial to consider referral routes for nutritional advice and diet plans for patients, as nutritional counselling has been found to significantly lower risk of readmission to hospital in older patients (6).

A 2019 qualitative study (67) gathering doctors' views on hospital discharge and readmissions found that patients with complex medical conditions were being discharged earlier than 'normal'. The doctors perceived that these early hospital discharges could increase hospital readmissions, due to poor communication between healthcare services and inadequacies in the discharge process, such as complicated discharge processes, capacity in services (community and primary care) and lack of coordination. This reflects findings from the SR of reviews, where

although there was evidence from interventions looking at ***rehabilitative support/therapy at home (or in the community) around the time of discharge***, there was no significant difference reported between intervention and control groups for readmission for combined data, some reviews specifically aimed at 'early discharge' did report more readmissions in intervention groups.

It has been discussed that readmissions could be reduced by improved communication with patients and between health services (67). Communication was identified in the SIHDS case study as being important for patients, and interview data highlighted that patients did not always feel prepared for discharge or the realities of managing at home after being in hospital. The SR of reviews found that patient education could reduce readmissions and this could be due to interventions including communicating with patients (247). Therefore, communication around the time of discharge, may help reduce readmissions (as well as potentially positively impacting other outcomes such as patient health status); so communication should be clear, have relevant timely information and involve the patients, informal carers and key health professionals (264, 265).

8.2.2.2 Hospital length of stay

From the SR of reviews, a significant reduction in hospital length of stay was largely expected in those intervention types that included 'early discharge' type

interventions, in which a key aim was to discharge patients from hospital earlier than would otherwise have been the case. Specialist care pathways were also found to potentially reduce length of stay although outcomes were not statistically significant. To reduce hospital length of stay, interventions that provided ***rehabilitative support/therapy at home (or in the community) around the time of discharge***, specifically early discharge interventions, could significantly reduce length of stay for a number of patient groups (stroke, fracture, COPD and mixed older patient cohorts). Specialist care pathways also found reductions in hospital length of stay for two patient groups (heart failure and fracture cohorts) but this was not statistically significant for the majority of reviews. Early discharge interventions provided care in the community to allow the patient to leave hospital 'early' and specialist care pathways often provided or coordinated care across healthcare delivery systems which supported discharge.

The case study also aimed to 'support patients returning to their home environment as soon as possible following a hospital admission' and perceptions of reduced hospital length of stay were discussed by participants. The elements of system wide collaboration/support at discharge were identified as themes in the case study. Other research has also found that discharge interventions that reduced discharge delays, streamlined processes, co-ordinated care and provided support after discharge could reduce hospital length of stay (266, 59, 249).

However, a 2021 cross-sectional study looking at the impact of early supported discharge on hospital length of stay, reported contrasting results to previous review

and RCT evidence; the study reported that early supported discharge stroke patients had longer hospital stays by approximately one day compared to non-early supported discharge patients (235). The authors reflected on the impact of these findings and found that the longer hospital stay could have been due to the average hospital length of stay reducing in practice for stroke survivors between 2000 and 2020 due to improved and more effective clinical treatments; furthermore, the time it takes to undertake transfers of care to discharge teams could increase some aspects of length of stay (235). This highlights changes in practice as hospital care and treatments evolve. Research has been undertaken to see how hospital care could reduce patient functional decline, especially as promoting mobilisation in hospitalised patients has been found to reduce the average length of stay and improve walking ability (267), interventions like this may also improve aspects of 'usual care'.

8.2.2.3 Patient health

This research found that patient health status could be improved through the use of interventions that included patient assessments (significant for functional outcomes) and discharge planning (significant for quality of life), as well as being potentially improved (non-significant trends) by specialist care pathways and patient education (mental function). Interview data from the SIHDS case study showed that patients were generally extremely positive about the support that they received. There was an acknowledgment that patients lost some of their

independence in hospital and needed to rely on others for help whilst they recovered, this did cause some people anxiety about how they would manage at home. Some patients discussed just staying in bed in hospital and having everything done for them, so there was a big contrast when they were discharged home. Assessments were seen as extremely important as a means of highlighting where patients would benefit from additional help such as equipment aids, which were an overwhelming positive for patients to function effectively at home. Patient assessments around the time of discharge is often in the form of CGA.

When a CGA is completed, it helps those involved in the care of patients to develop a long-term plan to manage the individual needs of a patient, and subsequently this can lead to improved patient health status (252). In 2015, a NICE guideline on the transition from hospital to a community setting outlined that on admission to hospital and at transitional points of care, older people (with complex needs) should have a CGA started as well as care planning (including for discharge) (25). Guidelines such as this have had an impact on 'usual care' provided, so would potentially impact definitions of 'usual care' for studies undertaken in the UK where this guidance has been implemented. This is further evidenced in the case study, where the discharge service was a multiple component therapy led support including, discharge planning, assessments and support at home (including equipment).

A scoping review published in 2021 identified transitional care programs for older patients, of which 78% included patient assessments and 59% included discharge

planning as core components (268). The scoping review reported that transitional care programmes improved patients' functional outcomes in the majority of studies included in the review. The SR of reviews reported that patient assessments and discharge planning could improve functional outcomes and quality of life. However, the 2021 scoping review did not distinguish between studies with different intervention types when reporting the impact of outcomes and similar to the SR review of reviews, the scoping review did not mention of home equipment/adaptations (which were reported as being important for patients in the case study). A different review (also published in 2021) identified some qualitative evidence regarding the importance of safety after discharge and the assessment of whether patients' home environments were suitable for equipment needs was highlighted in the safety assessments (269). The case study identified the importance of equipment aids to staff and patients for patient independence and safety. There is a limited evidence base regarding providing patients with equipment aids at discharge, and a protocol for a RCT evaluating the effect of occupational therapy home visits (including providing equipment) to ensure safe discharge was published in 2021 to further investigate this (270). The case study also found that agreeing paperwork, assessments and patient pathways (across multiple services) reduced duplication across service partners and helped to respond to patients' needs and provide patient centred care at home.

The SR of reviews undertaken in this research also identified that discharge home could be increased and admissions to nursing homes reduced, by discharge services with elements of therapy or rehabilitation, this could be linked to

interventions specifically set up to provide patients with support and therapy at home.

8.2.2.4 Costs

In the SR of reviews, interventions that had a positive impact on costs included: multiple component transitional care at discharge (some significant and non-significant trends reported); non-significant trends were reported for discharge services with elements of therapy or rehabilitation, patient assessments, discharge planning/coordination and specialist care pathways and a negative impact was reported for nursing led care UK based interventions. However, the majority of these cost savings were not reported as statistically significant and were from majority findings not meta-analysis. The lack of significant results and meta-analysis reported in the SR of reviews for costs could be due to challenges synthesising economic data. These include issues related to the complexity and variability of healthcare systems in different international contexts; the generalisability of cost data potentially due to inflation or different currencies; the variety of methods of economic analysis being used (e.g. cost-effectiveness or cost-benefit analysis); and the different analysis perspectives that can be taken (e.g. patient, hospital, societal) (271). A 2020 scoping review of systematic reviews looking at alternative models of healthcare delivery found that there was a lack of evaluations on costs in the included systematic reviews, which meant that many models had unknown values (272).

Costs could have been impacted differently depending on which costs were included when looking at discharge interventions taking place in hospital and in the community (271). A study evaluating costs of six early supported discharges for stroke, found that costs were higher for: services with a higher adherence to evidence-based early supported discharge service components and services in rural areas which could also explain the variance in findings (273). These challenges could also make it harder to translate cost benefits from research into practice and actual cost evaluations of services in practice could be important.

8.2.2.5 Mortality

This thesis found that there was no significant impact of any discharge support intervention on mortality. That aside, evidence in the review did show limited data on trends showing home visits, structured telephone support and clinical interventions could potentially reduce mortality. A cohort study looking at mortality after discharge during the December holiday season found that patients were less likely to have prompt outpatient follow-up and were at a higher risk of death or readmission within 30 days (274). The authors reported that opportunities for identifying complications or signs of deterioration could be missed due to: reduced outpatient care during holiday periods; patient postponement of follow up appointments until after the holiday period; and care co-ordination and discharge planning may be more limited during these times (274). The interventions of home

visits, structured telephone support and clinical interventions involved increased contact with patients, which may have explained the potential trends for reduced mortality.

8.2.2.6 Emergency room visits

In the SR of reviews, emergency room visits were not significantly impacted by discharge services with elements of therapy or rehabilitation. The case study identified that the discharge service was starting to work more closely with an admission avoidance service (which aimed to keep patients who did not need to be admitted, out of hospital by providing them support at home) and staff suggested the team could expand to work with ambulance services.

A review found that there were issues of inappropriate calls to ambulance services as a last resort due to the lack of alternatives to hospital care (328). A Canadian retrospective cohort study identified that paramedic-initiated referrals to home care, were linked to improved access to (and use of) home care services and a possible reduction in emergency calls and transports to emergency departments (275). Then again, a 2021 scoping review that looked at alternatives to non-urgent patients being taken to the emergency department, found that there was a lack of rigorous evidence and that more research was needed especially around safety, effectiveness and efficiency of alternate care routes (276).

Having home support available to reduce unnecessary admissions is important, as previous research has shown that mortality and admission to long term institutional care could be reduced by making preventative home visits to older people (193). Other reviews have also found that hospital at home interventions for patients who present at emergency departments could be a practical alternative to hospital stays for patients with chronic diseases (248), and that these intervention types could have similar or improved outcomes compared to inpatient treatment (249).

8.2.3 Research objective 3: To understand how a hospital discharge service works and identify the factors that could impact service implementation

Discharge services often work to provide support across organisations (hospital, community and social) and settings (hospital and community) in different formats using various service components. Although these interventions can be described at a high level, how the discharge services actually work in practice across multiple services and settings is complex. This research found a number of important factors that can influence the implementation of therapy led integrated discharge services. They were centred around three main themes: **coordination and access**, **ongoing training** and **monitoring and review**.

Coordination and access were associated with: technological aspects (e.g. infrastructure and governance in place to allow access to partner records/shared records and remote IT access in the community); service processes (such as agreement to use the same paperwork between organisations, assessments, staff responsibilities, service goals and patient pathways); and communication (e.g. named service leads and teams that can be contacted, effective communication across organisations - especially regarding issues that may impact the service, and communication about the service to wider partners).

Ongoing training related to: supporting staff (e.g. provision of training and peer support based on developing staff and service needs such as staff working in social care 'trusted assessor roles' and comprehensive inductions for new staff); quality (e.g. ensuring paperwork is completed to the same standards across services), and wider education (e.g. staff education outside of the discharge service teams on what the discharge service provides throughout the patient pathway to aid understanding of the service and generate appropriate referrals).

Monitoring and review were linked to: data collection (e.g. emphasis and allocated time for outcome data collection, to feed into monitoring and review); evaluation (to identify benefits, potential improvements and training needs), and service development (e.g. ensuring the service can meet patient and local needs, fulfil local and national policy recommendations for discharge support and overcome logistical challenges).

These three main themes are now discussed in more detail.

8.2.3.1 Coordination and Access

Coordination and access between care providers was identified as a key factor for discharge services to streamline the service, reduce duplication and work collaboratively. Due to the agreement of patient pathways, paperwork and goals, discharge-specific staff across partner organisations reduced duplication (of effort and paperwork) and improved coordination/patient centred care. It was found that, discharge specific services could fill gaps in care between hospital and community services. However, case study data showed that patient pathways, shared goals and referral routes needed regular review to identify changes or improvements. This was important as research had also identified problems with discharge when there was limited joint working between health, community and social care. These problems included: delays and a lack of factors such as information exchange (transfer of discharge information), continuity of care (disjointed referrals) and planning for patient needs in the community (235, 64, 277, 278, 279). Another review identified that multidisciplinary collaboration and the skill mix of staff were the main facilitator for implementation of hospital at home interventions (250). Access was also important in terms of access to partner records, remote access to records, as well as patient access to services. Governance and technology need to be in place to allow remote and shared access which could help streamline services and reduce time taken making and typing up notes. Previous publications

have identified integrated information communication technology and shared electronic records as one of the key elements needed when integrating different sectors providing care, however, there are well documented challenges associated with establishing such shared records (265, 280, 281).

Communication was seen as vitally important across all levels of the service for patients and staff in the case study, especially to aid integration of hospital and community care. Communication was reported positively in many instances, but there were areas where communication was perceived as requiring improvement. This was seen as particularly important around the timing of when discharge would happen, as there was inconsistent communication on this point between ward staff, SIHDS staff, patients and informal carers which caused anxiety to the patient and extra work for the SIHDS team. Other research has also found that good communication at discharge can improve adherence to treatment and patient satisfaction (247).

Regarding patient access, the case study identified issues with a ‘Post code lottery’, where local decision making meant that a patient in one geographical area may receive NHS funding for a particular service, whilst another patient in the same hospital with similar clinical needs who lived in another geographical area may not (282). This made the ongoing care of patients complex for staff with regard to the availability of services for all and could have impacted the care that patients were offered. Sometimes variation in care is important, as different areas often commission individual services depending on the local population needs, that

aside, it is important that unwarranted variation is reduced to ensure health equity and that people are given appropriate care (283).

8.2.3.2 Ongoing training

Ongoing training and comprehensive induction training for new staff was also identified as a key factor for discharge services to ensure staff understood the complex service and could effectively complete their evolving roles and responsibilities. The SR of reviews undertaken in this thesis identified that staff outcomes could be improved by discharge services with elements of therapy or rehabilitation, this could be linked to improved multidisciplinary working and skills sharing identified in the case study. Despite this, the case study also identified that discharge services could be challenging work environments for staff that had previously only worked in hospitals, as when staff became part of the discharge service they were required to work across hospital and community settings. Taking on the role of social work 'trusted assessors' also raised challenges. So, it is important to consider training needs, peer support, quality standard and competencies, especially regarding understanding referral criteria, community working (e.g. risk assessments) and social care specific elements of assessments (e.g. funding).

The rationale for trusted assessors is to reduce duplication and speed up response times (284), the ‘discharge to assess’ guidance recommends that a competency based trusted assessor approach should be developed (41). Thus, it is important that discharge service staff acting as trusted assessors have adequate training and peer support to facilitate these potential benefits. The case study found that it was also important that colleagues along the patient pathway were educated about the service, to ensure that these colleagues made appropriate referrals and other colleagues involved in patient care knew what support patients were receiving. This could also be beneficial as education about discharge, has also been found to be useful to improve the skills of health and social care staff including: integrated care skills, attitudes to discharge and knowledge of discharge planning (285,286,287). This thesis also highlighted the complexity of the referral criteria, it could be complex for staff to understand within the discharge service and its partners, which could cause confusion. The narrative review identified a systematic review of reviews which found a complex eligibility criterion had been found as a barrier to home-based hospitalisation services and the review authors suggested interprofessional collaborations and the use of technology to aid implementation of services (250).

8.2.3.3 Monitoring and review

The theme of monitoring and review was identified as a key factor for discharge services to identify benefits and challenges of discharge services that need to be

fed back to commissioners and service leads. Planning for regular review is important as unexpected situations can arrive that mean a review of the service will allow it to adapt accordingly (288); QI improvement online courses are available to those involved in health and social care (289). QI methodology is well established within the NHS to tackle complex problems, and QI methods are used in a systematic and coordinated way to make the changes that improve patient outcomes, system performance or professional development (290, 291), as well as to support evidence based implementation (292).

QI highlights the importance of regular data collection and measurement, through PDSA cycles (Plan, Do, Study and Act) and such methods are increasingly used across the NHS to identify where quality of care can be improved and how improvements can be made (291). The importance of this approach was also identified in this thesis, as well as ensuring that discharge services continue to fit local contexts in terms of local needs, policies and challenges. Context can influence different types of QI in a variety of ways and depending on the level at which changes are made, this can be a facilitator or barrier for changes at lower levels (293, 294). Therefore, It is important to consider local needs and policies (local and national), when collecting data and reviewing services for improvement (292). To ensure that QI projects are clearly described it is important that these factors are considered and regularly reviewed post implementation, as contexts and systems are constantly fluctuating (295).

8.2.3.4 Summary

Key elements of effective discharge services were identified when responding to research objective 3, to understand how a hospital discharge service works and identify the factors that could impact service implementation. These elements of an effective discharge service are summarised in Figure 8.4.

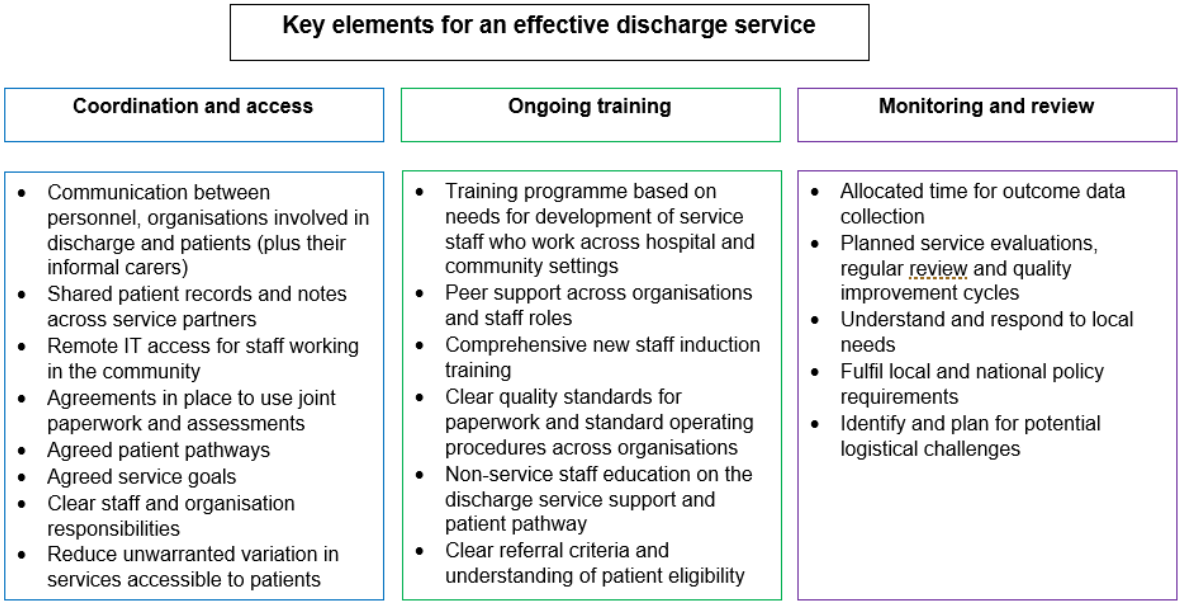


Figure 8.4: Key elements for an effective discharge service

8.3 Implications for policy and practice

This section will discuss the implications from this research on different stakeholders.

8.3.1 Implications for policy makers

The Department of Health and Social Care recommends that patients should be discharged home with support from rehabilitation and enablement services (136). To relieve hospital pressures during the 2020 Covid-19 pandemic, guidance on discharge support to expedite discharge home was strengthened when the Government brought in requirements in March 2020 for a 'discharge to assess' model. The guidance aimed to provide NHS funded health and social care support packages to patients, to get them discharged to their homes as soon as clinically safe and emphasised team work (296). Guidance from 2021 builds on this 'discharge to assess' model and there is an expectation that health and social care systems should build on this work to embed these models by using the Government's national discharge fund; it is expected that this will reduce hospital length of stay and the need for long term care, as well as improving patients' outcomes (29).

Guidance may need to be considered with regard to how it works in practice. For example, discharge guidance details that community health service providers should ensure the provision of equipment aids to support patients at discharge guidance (44). Whereas, in the case study, equipment aids were provided by the hospital discharge team, as in the local area there was a two-week wait for community health service referrals. This meant that within one day of discharge, patients were assessed and given equipment aids (such as rails or walking frames with a tray) to enable them to perform daily activities safely in their homes. If it is

common for community health services to have a two week wait to see patients after referral, then it is unclear how practical it is for community health services to ensure the provision of equipment aids at discharge.

The findings from this thesis provide evidence and rationale for this enhanced discharge support to continue, also the findings have identified which broad intervention types are useful to implement to have an impact on key outcomes. The research in this thesis also identifies factors that can aid implementation of these services and facilitate partnership working, which will aid implementation of guidance on integrated working. These findings add to the evidence base to support future decisions on funding and guidance regarding discharge services. The findings also support the NHS long term plan and integrated working across systems (28) by emphasising the need to remove obstacles to partnership working and shared access to patient records.

8.3.2 Implications for Integrated Care Systems

In 2022, Integrated Care Systems (ICS) are due to become statutory across England in an attempt to diminish barriers to integrated care (297). The ICS will be comprised of partnerships between different organisations that fulfil health and care needs locally. The ICS could facilitate discharge services as they will be expected to have governance arrangements for digital and data requirements

across multiple sites and information sharing through shared care records. The ICS will replace clinical commissioning groups and become responsible for commissioning, subsequently this may potentially streamline the funding of discharge services that bridge more than one ICS organisation.

Based on the research in this thesis, it is important that ICS promote and help facilitate joint working, shared paperwork and co-ordinated patient pathways with awareness of these across the system (which would also reduce duplication). Furthermore, ICS will take responsibility for reducing unwarranted clinical variation, so ICS should consider whether there is health equity in discharge patient pathways within their systems (298).

ICS will also focus on linking data and enhancing analytics by embedding population health management (PHM) processes (which focus on providing services based on needs and evaluating them), and this research emphasises how important it is for systems to prioritise time and capacity to collect and review service data.

Monitoring and review were identified as important and that elements of discharge services could be implemented based on needs. ‘Ageing well’ is part of the NHS long term plan and identifies programmes of work for ICS to implement to support people as they age (28). Therefore, utilising discharge services could be part of ICS PHM projects by: identifying local needs through data analysis (for example the need for support after discharge has been found to be impacted by the

prevalence of frailty, older populations and their levels of physical function, as well as the absence of an informal care giver (299); providing discharge services specifically to meet the local needs (e.g. reducing readmissions, length of hospital stay or improving patient outcomes); and ensuring that services are evaluated and local needs are regularly re-assessed. Furthermore, there is a need for ICS to prioritise overcoming certain barriers (such as shared patient records) and help improve patient outcomes locally. To aid discharge services working in practice, it is important that ICS have the right infrastructure to share records and information across services, as well as ensuring that there is an awareness of local discharge services in place across the system.

8.3.3 Implications for service staff, users and carers

Health and social care staff supporting patients at discharge can be faced with a considerable amount of evidence, when looking to inform and improve their practice. This thesis has reviewed the body of published review evidence and undertaken a case study to: outline what intervention types can have an impact on key outcomes; help to understand how discharge services work in practice, and what factors can aid the implementation of discharge services. Case studies have been published in the past for the purpose of informing service delivery, policy design (and implementation) and empowering service stakeholders (300). This research can directly impact and empower practitioners in how they deliver discharge support to patients and how discharge services can be implemented in

practice. Particularly in terms of: communicating with and delivering key parts of the services for patients (e.g. discharge planning and equipment aids at home); identifying staff training and development needs (e.g. social care assessments and completing shared paperwork); and understanding service facilitators (e.g. clear referral criteria, remote access to records and shared records across service partners). This research also highlights the need for multidisciplinary teams to have clear leadership, communication routes (from strategic levels to those providing frontline services) and professional development, which has also been highlighted in other research (301, 302).

Moreover, this research showed that different elements of discharge support were beneficial to patients, but there were complexities involved in patient discharge depending on patients' individual circumstances. This made it important to assess and listen to each individual patient to ensure patient centred care and support (303). It is also important that patient as well as clinical outcomes are included in data collection and service review. It is acknowledged that involving patients in their care, has the potential to produce efficiency savings for the health system through supporting people to stay well and manage their own conditions better (304). The Health Foundation details four principles of person-centred care that include: (1) affording people dignity, compassion and respect; (2) offering coordinated care, support or treatment; (3) offering personalised care, support or treatment and (4) supporting people to recognise and develop their own strengths and abilities to enable them to live an independent and fulfilling life (305). There is evidence that patient-centred care has a positive influence on patient satisfaction and self-management, so it is important that discharge services have a patient

centred approach (306). This focus in government guidelines on person-centred care and the findings from this research also highlight the requirement for clear communication with patients so that their needs can be understood.

Formal carers were considered important to some patients as they enabled them to function more normally and not just stay in bed. Although some patients acknowledged they needed help from formal carers, they were not always comfortable with having a key safe, strangers coming into their home or a lack of continuity regarding the staff assisting them and this caused some anxiety. Recent research has found it is important for patients receiving home care to feel safe and it is important to trust home care staff; trust can be established by home care staff demonstrating knowledge and skills, as well as an ability to build a positive relationship (307).

The case study also identified that not all patients were offered formal carers due to having a family member/informal carer living with them at home. Although some patients understood why they did not have formal carers coming in, the lack of formal caring support did highlight care gaps when informal carers were not available and where informal carers could benefit from education on how to safely care for the patient. This need for more education and support for carers was also identified by carers of stroke patients using early supported discharge services (64). Issues identified in the case study included, how to safely bathe the patient and get them in and out of bed as this was identified as a worrying experience for the patient and the informal carers. Previous research has found that most of the

information given to the informal caregiver is about the disease or medication and that there is little to no information given to the informal caregivers on patient self-care (308). A scoping review also found that carers were not receiving enough support and that health and care services (specifically in collaboration with primary care) should do more to identify, support and address carers needs (309). So, carers would benefit from additional education on how they could safely support their relatives.

This thesis found that at discharge from hospital older patients should be offered elements of discharge support that are specific to their needs and appropriate service referrals should be made; this should enable them to recover from their hospital stay safely at home.

8.3.4 Summary

Implications of this thesis have been discussed in the context of policy makers, ICS and staff, users and their carers. Some of these key implications are summarised in Table 8.1.

Table 8.1: Summary of key implications for policy and practice

Key implications for policy makers	Key implications for integrated care systems	Key implications for service staff, users and carers

Potential delays in equipment aid provision at discharge, if referrals to community services take time	The importance of ICS to promote and have the infrastructure in place for joint working, shared paperwork/record access and co-ordinated patient pathways across the system partners	Empower professional to deliver discharge services that can improve patient outcomes
Importance of removing obstacles to integrated working (e.g. shared access to patient records across organisations)	Ensuring service staff have time to collect and review service data	Identify facilitator of good practice that practitioners can implement in their practice
Evidence summarised to inform future guidance (e.g. the impact of different intervention types on key outcomes and factors that can impact implementation)	Considering discharge services as part of the ICS 'ageing well' programme of work and to meet local needs	Highlight the importance of patient centred care and support for informal carers to assist patients safely (such as with self-care)

8.4 Strengths, challenges, and limitations

8.4.1 Mixed method approach

There are key strengths to the mixed method research undertaken in this thesis. The SR of reviews incorporates the evidence base for discharge services to

understand impact and the qualitative case study of a discharge service deepens our understanding of how these services work. Reviews and qualitative case studies can expand the overall understanding of the topic and mixing these methods concurrently has been used in previous studies (310, 311, 312). The approach of using review evidence concurrently with the case study data collection allowed synthesised qualitative and quantitative data to more accurately describe relationships between the various sets of data and deepened understanding (257, 87). Nevertheless, each of these approaches have their own strengths, challenges and limitations when looked at individually.

8.4.2 Strengths and challenges of the SR of reviews

There were strengths to the SR of reviews undertaken in this thesis. The SR of reviews is considered high quality evidence, as it includes data from systematic reviews of RCTs, which are considered to be the least susceptible to bias in the hierarchy of evidence (256). The SR of reviews also has evidence for the different types of discharge intervention in one place, so provides a broader more comprehensive understanding than a single review on one intervention type.

Despite the benefits of completing the SR of reviews, undertaking the large piece of work was not without challenges which needed to be overcome. The SR of reviews was a complex and resource intensive process (313, 314). There was

additional work required when completing a systematic review of reviews compared to a standard systematic review, this included data extraction on multiple intervention types, reviewing primary study overlap and a more complex process of interpretation and final presentation of the findings. When the SR of reviews protocol was being drafted, there was limited guidance in the Cochrane handbook on this methodological approach, so there was little direction on how best to design the review and collate the data. There is now more detailed Cochrane guidance available on systematic reviews of reviews (95). In future reviews, it could be a suitable compromise to only include Cochrane reviews in systematic review of reviews, as this would improve the feasibility of undertaking an otherwise large, complex and time-consuming review.

There were challenges as there was no standard terms to describe different models of discharge care, so authors used diverse terms to refer to the similar intervention types, this led the researcher to relying on included review descriptions of interventions and ‘usual care’, to group interventions (which were sometimes limited or not clearly defined such as “clinical interventions” in the miscellaneous interventions around the time of discharge group).

If the SR of reviews was looked at in isolation, the date of the SR of reviews update searches (September 2017) could be considered a limitation to the thesis in terms of the extent to which it was able to capture the most up to date evidence on the effectiveness of discharge services for older people. The guidance on performing systematic review updates outlines informal assessment and judgement of

whether new studies, information, or data would impact the findings of a review to determine whether an update is needed (315). As previously stated in section 3.3, a narrative review was completed (searches up to 03.10.2021) to identify reviews published since the update search was completed for the SR of reviews.

This narrative review identified three updated Cochrane reviews. These did not report data that contradicted the review's previous conclusions, and the nine other (non-Cochrane) reviews identified also supported the findings of the SR of reviews. This narrative review showed that although new papers were identified they were unlikely to change the findings of the SR of reviews. Therefore, in the context of the guidance on when to update a review, it was deemed that an update was not necessary (315). The narrative review also summarised the findings from the recently published literature in the context of the SR of reviews findings, so that these reviews could contribute to the thesis findings. Furthermore, recently published literature was also included in the discussion to ensure that the thesis was nested within the context of the most recent evidence.

8.4.3 Strengths and challenges of the case study

There were both strengths and limitations to the case study approach. There are numerous strengths of the case study approach undertaken in this thesis. A case study is a useful method for highlighting a range of factors and gaining an in-depth

understanding of complex services in real world settings (316, 317, 118). It also enabled complex discharge services to be understood from the different perspectives of multiple people (89). Two different methods (process mapping and stakeholder perspectives) were triangulated in the case study, which expanded the insight (118). Process mapping found that the drawings and verbal explanation complemented each other and provided opportunities for a deeper understanding of the service; furthermore maps were a flexible and useful approach to data generation, exploration and recording tools; and were effective at explaining phenomenon from a shared perspective (318, 319).

Both inductive and deductive stages of analysis were used in the case study. First, the initial analysis used an inductive approach, where the themes generated closely matched and explained the data and there was less impact of ideas and prior understandings (320). The triangulation of the case study components was a deductive approach and used the PRISM framework to help understand implementation. This blended approach ensured that the data from participants was reflected, whilst adding structure, rigour and theoretical application to answer the research objectives (89, 320, 321, 322).

Challenges and limitations to the case study were also identified and overcome. Qualitative research could be criticised for lack of rigour and the case study could be criticised for taking place in one setting and collecting data over a relatively limited time period (89, 118), however synthesising the case study data with the SR of reviews data allowed a more reflexive analysis and improved rigour (118,

92). Reduced length of stay and readmissions were reported verbally not quantitatively assessed by the researcher, unlike with quantitative data the significance of reductions or improvements was not known, however the qualitative data gave a deeper understanding as to how readmissions and length of stay were reduced.

Sometimes telephone interviews are considered inferior to face to face data collection and although the researcher did find they lacked the opportunity to observe body language; the researcher did not find this was the case and the verbal data that was gathered was equivalent (151, 152). It is not clear how much recall bias there could have been for patients and carers, to attempt to reduce recall bias patients and carers were not interviewed too long after their experiences of the service (313).

The recruitment of patients to the case study was slow and the process relied on service staff giving patients the information pack and did not allow the researcher the opportunity to talk to patients about the study before they returned their reply slip. To overcome this, the researcher sent email reminders to service staff and went to the research hospital site to talk to staff to remind them to give the packs out to patients. Lessons were learnt regarding recruitment including: visiting the recruitment site regularly, providing recruitment guidance/training for staff, involving staff in discussions regarding the recruitment process (to gain a variety of perspectives on the best methods and understand constraints on staff), and

ensuring a reminder process during the recruitment of patients is detailed in the study protocol (323, 324, 325).

Regarding the process mapping process, it is acknowledged that working with visual data can be complex, especially if not all participants were talented at drawing or liked to use drawings as a tool and this can make it more challenging to analyse diagrams (318, 326), despite these challenges the maps were effectively analysed in this thesis using QI approaches. Completing interviews when both a patient and informal carer were present meant that some interviews were not completely one to one and elements of 'joint interviews' could be observed such as participants contributing their thoughts during the other person's interview. There was a need to be aware that elements of joint interviews may have also had an impact on what the participants said due to the other person being present. To attempt to reduce this, patients were informed that informal carers would be invited to take part prior to their interviews, so patients could choose a telephone interview (where carers were not approached), arrange a time when their carer was not there or simply ask for them not to be interviewed.

8.4.4 Potential limitations of data reported in the systematic review of reviews

In this thesis SR of reviews, no significant differences were reported between intervention and usual care for a large number of outcomes. There is no definitive rationale for this, but the following four observations could be considered.

Firstly, the review only utilised data that was provided in systematic reviews no additional meta-analyses were completed. So, if the included review did not complete a meta-analysis or did not report the statistical significance of results (or it reported significant heterogeneity), this limited what was reported in the SR of reviews. In addition to this, although moderate and high-quality systematic reviews were included in the SR of reviews, not all of the reviews included, restricted their reviews to RCTs. Consequently, review results may have included findings from smaller lower quality studies, which may have had: a lack of randomisation, small sample sizes, lack of blinding, loss of data in follow up, limited follow up periods or heterogeneity across studies (327). This may have impacted the ability for the review to report statistical significance of the interventions on outcomes.

Secondly, interventions are often targeted at improving a certain outcome and would not necessarily be expected to have a significant impact on other outcomes compared to ‘usual care’. An example of this could be in early discharge interventions, which were specifically focused on reducing patient length of stay but other outcomes were monitored to identify whether interventions had a negative impact on other outcomes such as readmissions.

Thirdly, this research identified that there was a lack of definitions of ‘usual care’ and that in examples such as the case study, ‘usual care’ discharge services can include a number of interventions. This lack of detail for ‘usual care’ is not limited to discharge service research but is an issue for health service research in general. The need for more information on ‘usual care’ could also have impacted the review findings, especially where it was not completely clear what parts of the intervention were additional to ‘usual care’. There is a possibility that ‘usual care’ becomes more advanced over time (due to Government policy focusing on ‘discharge to assess’ models and NICE guidelines) and includes elements such as discharge planning, patient assessments, home visits and therapy at home in practice (such as the case study in this thesis), these interventions compared to evolving ‘usual care’ may seem to have less impact outside controlled environments as the interventions become more integrated into practice. The reduced impact of interventions outside research, was reported by Fisher et al. who looked at the impact of early supported discharge for stroke patients on length of stay (252).

Furthermore, a review of pragmatic trials found that of 73 randomised trials, in most trials control group caregivers could treat patients in whatever way they saw fit and only two studies, restricted what the control care would be (328). Due to risks of study induced behavioural change (from participant information and consent processes) and potential contamination from intervention to control groups, some studies adopt a ‘Zelen’ design (where consent is asked for after randomisation to try and overcome these), but this approach has ethical challenges and the impact of crossover on bias needs to be considered (329, 330). Therefore, a lack of a clear

understanding of ‘usual care’ and where it was different/the same as an intervention could have impacted the significance of results.

Lastly, the patient groups within the reviews were not always clearly defined and the majority of review patient groups were categorised as ‘mixed patient cohorts with a mean age 60 and above’. This meant that patients with different conditions or multiple conditions could have been included across control and intervention groups and it was unclear whether they would have been controlled for in the primary studies. This could have impacted on the findings, as it has been found that people with certain health conditions or multiple health conditions can have higher mortality risk and a poorer quality of life, functional health status and physical functioning (331-334). Also different measurement tools may be used across primary studies, even if this was not the case and the same tool was used, it may not have been as responsive to certain conditions, as demonstrated by the EQ-5D measure of health-related quality of life which does not have the same responsiveness for detecting clinical change across all clinical conditions (335). These were considered when making recommendations for future research discussed in Section 8.5.

8.4.5 Patient and Public Involvement and Engagement

A key strength of this mixed method research was that it was designed with input from discharge service stakeholders, academics and a PPIE group. Involving these

stakeholders was beneficial for feedback on the research protocol, study documentation, design of recruitment processes and aiding recruitment. Other research has found that involving stakeholders and PPIE has been beneficial to enable them to voice their priorities for the research, give feedback on key paperwork or processes, understand research subjects' perspectives and facilitate dissemination (336, 337).

8.5 Recommendations for future work

The varied impact of different discharge interventions on individual outcomes suggests that various elements of discharge services should be considered, with service design contingent on the specific local needs that are identified (e.g. reducing length of stay or reducing readmissions). The SR of reviews allows the impact of different intervention types compared to 'usual care' to be easily identified. Local decision makers that want to improve certain outcomes, could utilise this information to improve outcomes locally, however it is important that these improvements are regularly evaluated. There are specific recommendations from the findings of this thesis for practice and future research, a summary of these recommendations are detailed in Box 8.1.

Summary of recommendations for future research:

- Further understanding of discharge interventions
    - Comparisons of discharge interventions to each other (instead of compared to usual care)
    - Effectiveness of providing equipment aids at discharge
    - Effectiveness of ambulance referrals to home support for patients not medically needing hospital admission
    - Understanding costs and resource for discharge services that work across hospital, community and social care
- Core outcome set development for discharge interventions
- Understand how the results of systematic review of reviews' findings are influenced if only Cochrane reviews are included

Summary of recommendations for future practice:

- Evaluate discharge services in practice
    - Evaluate governance and technological approaches (for remote and shared record access) to facilitate and streamline discharge services
- Reduce unwarranted variation
- Consider referral routes and signposting for patients discharged from hospital with nutritional or pain management needs

Box 8.1: Summary of recommendations

8.5.1 Recommendations for future research

This thesis highlights the need for further research and systematic reviews to focus on comparing various discharge interventions to each other (not just to usual care). For example, using innovative review methods, such as standard network meta-analysis, could help to compare multiple interventions by synthesising direct and indirect evidence (via a common comparator) (338). This would help to identify which discharge interventions/multiple components could have the most benefit, particularly when more than one intervention was found to be of benefit compared to 'usual care', as well as evaluations of services in practice. From the SR of reviews (in Chapter 3) we know that three intervention types (Patient education; Discharge planning/coordination/case management; and Primary care interventions) were found to significantly reduce readmissions compared to 'usual care'; on the other hand, we do not know which of these intervention types would be most effective at reducing readmissions when compared to each other or if they could have a greater impact as a multiple component intervention. Therefore, it would be prudent for further research on discharge services, to focus on identifying the most beneficial form of intervention components, rather than undertaking limited studies or future reviews with comparisons to 'usual care'.

Service evaluations and research looking at costs and resource use (across hospital, community and social care) would be useful as the SR of reviews found that there was a lack of meta-analysis reporting on costs of discharge services. Some costs analysis found that results may differ depending on the geographical

location of where the research was undertaken. Cost evaluations of discharge services in practice would allow an insight into whether potential trends for costs savings identified in the SR of reviews could be translated from research to practice. Local commissioners would then be in a better position to understand the impact of service costs in local contexts and for cost differences to be further understood for instance rural versus urban costs for discharge services (273).

This thesis identified a lack of research on the impact of providing equipment aids to support patients at discharge, whilst the case study identified this was an important aspect of hospital discharge services and it was imperative that equipment was provided in a timely manner to enable patients to function safely at home. Therefore, future research should consider the impact of equipment support on outcomes, as well as the most appropriate timing of equipment aids being provided to patients being discharged from hospital. Additionally, the case study identified a two week wait for community health services to see patients after discharge, this raised the question as to whether guidance or local practice should consider the timings of the support provided at discharge when considering the responsibilities of community health partners, social care and acute health providers.

Discharge services in practice may also need to consider closer working with admission avoidance services. Although this is not part of the Government policy on integrated working, a review published in 2021 stated that preliminary findings suggested prioritisation of admission avoidance models over early supported

discharge models, due to the reported benefits regarding costs, mortality and readmissions (249). The case study in this thesis also highlighted that preventative support could be expanded by working with ambulance services, so future research could look at the impact of ambulance referrals to home support for older patients in the UK compared to admission avoidance home support from hospital emergency departments. Especially as the 2021 Government policy and the NHS Long term plan emphasises prevention and has ambitions for more joint working across health and social care (28, 339).

In addition, future research may want to consider some of the issues raised regarding a large number of reviews that reported no significant differences. The methodological quality of reviews and primary studies have been found to be important, particularly with regard to clearly describing intervention and control groups (in terms of services received and patient demographics) as well as standardising data collection and outcome measures.

A large database of core outcome sets (minimum set of standardised outcomes measures) has been developed for specific areas of health research, to help combat issues due to outcome inconsistency, such as selective reporting and heterogeneity in meta-analyses completed in systematic reviews (340, 341). The core outcome set database does not currently have a core outcome set for discharge interventions, although there are ongoing core outcome set projects looking at the health of older people including for frailty, polypharmacy and dementia (341). Core outcomes sets are also rarely used to inform outcomes

collected in Cochrane reviews (342). For that reason, future research may want to consider developing a core outcome set for discharge research, utilising core outcome sets to inform reviews and even identifying the best outcome measures for evaluating discharge services in practice. Furthermore, future reviews may want to consider focusing on specific medical conditions and prioritising studies/reviews reporting quantitative analyses (or meta-analyses).

This thesis has also raised a methodological area for future research. Due to the resource heavy and complex nature of undertaking a SR of reviews, future research could investigate how the results of the same reviews are impacted when including Cochrane and Non-Cochrane reviews compared to just including Cochrane reviews. This future research could assess how review findings are influenced and whether this could be an appropriate methodological compromise when it comes to undertaking a complex systematic review of reviews. This may be particularly important especially as previous research has found, that an increasing number of systematic reviews are being published but a large proportion of these are poorly conducted and reported (343). This poor quality and reporting of findings adds to the challenges of conducting a systematic review of reviews and the fact that this type of research is extremely labour intensive and complex, more research to understand the impact of just including Cochrane reviews in a systematic review of reviews is needed.

8.5.2 Recommendations for future practice

This mixed method research identified the importance of continuously monitoring and evaluating discharge services in practice. Of particular importance is having the right governance and technology in place to reduce administrative time and streamline discharge services (e.g. remote and shared access to records). A 2021 UK Government policy on Integration and Innovation has emphasised the importance of using technology as a platform to improve support for staff and patient care, as well as the use of data partnerships (339). The policy also supports safe, supported hospital discharges into an environment familiar to patients (339), so it is important that facilitators identified in this review, such as governance and technology are considered in practice, when setting up or reviewing local 'discharge to assess' models.

Discharge services may also want to consider service partners, links, signposting and referral routes for some patient needs. Patients who took part in the case study identified a need for nutritional support and advice for managing pain to live safely in their homes.

There can be variation in what care is available to a patient dependent on where they live, this should be reviewed to ensure any types of unwarranted variation are reduced. NHS RightCare is undertaking work and developing resources for health systems to address unwarranted variation in England, so these resources could be used by commissioners to improve practice (283, 344). In the 2019/20 NHS

Operational Planning and Contracting Guidance, there is also an expectation that health systems work with the NHS RightCare programme to address variation and improve care pathways (345).

8.6 Conclusion

To conclude, the findings from this thesis are valuable and pertinent, especially in the context of hospital pressures that are faced nationally and globally due to ageing populations. The findings from this thesis can be used to understand the evidence base for the impact of a variety of discharge services for older people compared to 'usual care', as well as the identification of factors that can potentially facilitate discharge services being implemented in practice. This enhanced understanding of discharge services can inform the future development of services in England and an understanding of what elements can positively impact patient care.

The findings from this research can be used by local health, community and social care organisations to identify interventions to improve hospital discharge locally. For example, if local health and care systems need **to reduce readmissions,** it should be considered whether the services effectively use: *discharge planning*, *home visits*, *multidisciplinary interventions*, *patient education*, *nurse led care* or *primary care* interventions. If there is a need to **reduce hospital length of stay,** then it might be worth considering implementing *rehabilitation/therapy based*

interventions at home or if there is a need to **improve patient outcomes,** *patient assessments* and *discharge planning* should be considered. It is important to understand whether research-based findings of an intervention's impact on key outcomes are realised in practice (235). This thesis found further **anecdotal** evidence that *patient assessments* and *equipment aids,* **improved patient health status** by identifying their needs and making home adaptations; subsequently improving patients' safety at home, which could potentially **reduce readmissions**. This thesis has also helped identify limitations to intervention types, for example *nursing led care* in the UK was found to significantly increase hospital length of stay and showed trends for increased costs.

The research also established key insights that could help identify areas that could help improve discharge services in practice. For example, discharge services such as those listed above, could be operated in a specific setting, however the effectiveness of their implementation could be impacted by factors identified in this thesis. These include three themes. Firstly, **coordination and access**, to help ensure discharge services have coordination across partner organisations (to remove duplication), effective communication (with system colleagues and patients) and ensuring that any governance and technology issues are tackled to reduce administration time by facilitating access to shared records and remote access. Secondly, **ongoing training**, highlights the need to review staff training needs (e.g. social care competences) to ensure they are fulfilling their evolving service roles and responsibilities. Lastly **monitoring and review** shows it is important to collect data and regularly review services locally, to inform service

development and identify any impact on local outcomes (e.g. costs, readmissions, length of stay and patient health).

Future research could compare discharge interventions types to each other (not usual care), develop a core outcome set for discharge services and understand the impact of only including Cochrane reviews in systematic reviews of reviews. Future practice should evaluate governance and technological approach to allow remote and shared record access, reduce unwarranted variation and consider referral routes for nutritional and pain management needs after discharge. This mixed method research offers a unique and valuable contribution, to further understand services that effectively bridge the gap between hospital and community care for older people, as well as key factors that can aid implementation.

APPENDIX 1: SYSTEMATIC REVIEW OF REVIEW SEARCH STRATEGIES

Where available for databases, review searches were identified from sources (102, 346, 347)

Ovid MEDLINE search

Review search

1. (review or review, tutorial or review, academic).pt.
2. (medline or medlars or embase or pubmed or cochrane).tw,sh.
3. (scisearch or psychinfo or psycinfo).tw,sh.
4. (psychlit or psyclit).tw,sh.
5. cinahl.tw,sh.
6. ((hand adj2 search$) or (manual$ adj2 search$)).tw,sh.
7. (electronic database$ or bibliographic database$ or computeri?ed database$ or online database$).tw,sh.
8. (pooling or pooled or mantel haenszel).tw,sh.
9. (peto or dersimonian or der simonian or fixed effect).tw,sh.
10. (retraction of publication or retracted publication).pt.
11. or/2-10
12. 1 and 11
13. meta-analysis.pt.
14. meta-analysis.sh.
15. (meta-analys$ or meta analys$ or metaanalys$).tw,sh.
16. (systematic$ adj5 review$).tw,sh.
17. (systematic$ adj5 overview$).tw,sh.
18. (quantitativ$ adj5 review$).tw,sh.
19. (quantitativ$ adj5 overview$).tw,sh.
20. (quantitativ$ adj5 synthesis$).tw,sh.
21. (methodologic$ adj5 review$).tw,sh.
22. (methodologic$ adj5 overview$).tw,sh.
23. (integrative research review$ or research integration).tw.
24. or/13-23
25. 12 or 24

Frailty

26. Aged/
27. Exp frail elderly/
28. Exp health services for the aged/
29. Geriatrics/
30. (Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$).tw
31. Exp Aging, Premature/
32. Exp Mobility Limitation/
33. older adult$.tw.
34. 26 or 27 or 28 or 29 or 30 or 31 or 32 or 33

Discharge search

35. ((patient$ adj2 discharg$) or (hospital$ adj2 discharg$) or (discharg$ adj2 plan$) or (supported adj2 discharg$)).tw.
36. ((discharge or Re$ablement or rehab$) adj2 (plan$ or service$ or program$ or intervention$ or model or pattern or occupational therap$ or physiotherap$ or physical therap$)).tw
37. ((organi?ed or multidisciplinary) adj2 (discharge adj2 team$)).tw.
38. (length adj2 stay).tw.
39. (Community adj1 (based or care)).tw.
40. ((service or care$) adj2 (provis$ or provid$ or pattern$ or access$ or delivery or model$)).tw
41. ((home or home?based or home nursing or community or post?discharge or house) adj2 (rehabilitation or support$ or care or visit)).tw
42. hospital adj2 home.tw
43. Exp continuity of Patient Care [MH]
44. Exp Residential Facilities [MH]
45. Exp Community Health Services [MH]
46. (home adj1 (based or care)).tw.
47. 35 or 36 or 37 or 38 or 39 or 40 or 41 or 42 or 43 or 44 or 45 or 46 or 47

Combined searches in Medline

48. 25 and 34 and 47
49. limit 48 to human
50. limit 49 to English language

Ovid Embase search

Review search

1. meta-analysis.tw. (85135)
2. systematic review.tw.(74639)
3. MEDLINE.tw. (78957)
4. or/1-3 (178525)

Frailty

5. Aged/
6. Exp frail elderly/
7. Exp health services for the aged/
8. Geriatrics/
9. (Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$).tw
10. Exp Aging, Premature/
11. Exp Mobility Limitation/
12. older adult$.tw.
13. 5 or 6 or 7 or 8 or 9 or 10 or 11

Discharge search

14. ((patient$ adj2 discharg$) or (hospital$ adj2 discharg$) or (discharg$ adj2 plan$) or (supported adj2 discharg$)).tw.
15. ((discharge or Re$ablement or rehab$) adj2 (plan$ or service$ or program$ or intervention$ or model or pattern or occupational therap$ or physiotherap$ or physical therap$)).tw
16. ((organi?ed or multidisciplinary) adj2 (discharge adj2 team$)).tw.
17. (length adj2 stay).tw.
18. (Community adj1 (based or care)).tw.
19. ((service or care$) adj2 (provis$ or provid$ or pattern$ or access$ or delivery or model$)).tw
20. ((home or home?based or home nursing or community or post?discharge or house) adj2 (rehabilitation or support$ or care or visit)).tw
21. hospital adj2 home.tw
22. Exp continuity of Patient Care [MH]
23. Exp Residential Facilities [MH]
24. Exp Community Health Services [MH]
25. (home adj1 (based or care)).m_titl.
26. 13 or 14 or 15 or 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24

Combined searches in Embase:

27. 4 and 13 and 26
28. limit 27 to human
29. limit 28 to English language

Ovid PsycINFO search

Review search

1. (((comprehensive* or integrative or systematic*) adj3 (bibliographic* or review* or literature)) or (meta-analy* or metaanaly* or "research synthesis" or ((information or data) adj3 synthesis) or (data adj2 extract*))).ti,ab,id.
2. ((review adj5 (rational or evidence)).ti,ab,id.
3. 1 or 2
4. ("Literature Review".md.) or (cinahl or (cochrane adj3 trial*) or embase or medline or psyclit or pubmed or scopus or "sociological abstracts" or "web of science").ab.
5. ("systematic review" or "meta analysis")).md.
6. 4 or 5
7. 3 and 6

Frailty

8. Aged/
9. (frail adj2 elderly).mp
10. (health services adj3 aged).mp.
11. Geriatrics/

12. (Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$).ti,ab.
13. (Aging adj2 Premature).mp.
14. (Mobility adj2 Limitation).mp.
15. older adult$.tw.
16. 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15

Discharge search

17. ((patient$ adj2 discharg$) or (hospital$ adj2 discharg$) or (discharg$ adj2 plan$) or (supported adj2 discharg$)).mp.
18. ((discharge or Re$ablement or rehab$) adj2 (plan$ or service$ or program$ or intervention$ or model or pattern or occupational therap$ or physiotherap$ or physical therap$)).mp
19. ((organi?ed or multidisciplinary) adj2 (discharge adj2 team$)).mp.
20. (length adj2 stay).mp.
21. (Community adj1 (based or care)).mp.
22. ((service or care$) adj2 (provis$ or provid$ or pattern$ or access$ or delivery or model$)).mp
23. ((home or home?based or home nursing or community or post?discharge or house) adj2 (rehabilitation or support$ or care or visit)).mp
24. (hospital adj2 home).mp
25. (continuity adj2 (Patient or Care)).mp.
26. (Residential adj1 Facilities).mp.
27. (Community adj2 (Health or Services)).mp.
28. 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27

Combined searches in PsycINFO

29. 7 and 16 and 28
30. limit 29 to human
31. limit 30 to English language

Health Management Information Consortium (HMIC) search:

Review search

1. (systematic adj2 review$).ti,ab.
2. evidence synthesis.ti,ab.
3. HTA.mp. or health technology assessment.ti,ab.
4. (metaanalys$ or meta-analys$).mp. or meta analy$.ti,ab.
5. Meta?review.mp. or overview.ti,ab
6. 1 or 2 or 3 or 4 or 5

Frailty

7. Aged/
8. frail elderly/
9. (health services adj3 aged).mp.
10. Geriatrics/
11. (Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$).mp.
12. (Aging adj2 Premature).mp.
13. (Mobility adj2 Limitation).mp.
14. older adult$.mp.
15. 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14

Discharge search

16. ((organi?ed or multidisciplinary) adj2 (discharge adj2 team$)).mp.
17. (length adj2 stay).mp.
18. (Community adj1 (based or care)).mp.
19. ((service or care$) adj2 (provis$ or provid$ or pattern$ or access$ or delivery or model$)).mp.
20. ((home or home?based or home nursing or community or post?discharge or house) adj2 (rehabilitation or support$ or care or visit)).mp.
21. hospital adj2 home.mp
22. Continuity of Patient Care/
23. (Residential adj1 Facilities).mp.
24. Exp Community Health Services/
25. (home adj1 (based or care)). m_titl..
26. ((patient$ adj2 discharg$) or (hospital$ adj2 discharg$) or (discharg$ adj2 plan$) or (supported adj2 discharg$)).mp.
27. ((discharge or Re$ablement or rehab$) adj2 (plan$ or service$ or program$ or intervention$ or model or pattern or occupational therap$ or physiotherap$ or physical therap$)).mp.
28. 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25 or 26 or 27

Combined searches in HMIC

29. 6 and 15 and 28

Social Policy and Practice search

Review search

1. (systematic adj2 review$).ti,ab.
2. evidence synthesis.ti,ab.
3. HTA.mp. or health technology assessment.ti,ab.
4. (metaanalys$ or meta-analys$).mp. or meta analy$.ti,ab.
5. Meta?review.mp. or overview.ti,ab
6. 1 or 2 or 3 or 4 or 5

Frailty

7. Aged.mp.
8. (frail adj2 elderly).mp
9. (health services adj3 aged).mp.
10. Geriatrics.mp.
11. (Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$).tw
12. (Aging adj2 Premature).mp.
13. (Mobility adj2 Limitation).mp.
14. older adult$.tw.
15. 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14

Discharge search

16. ((patient$ adj2 discharg$) or (hospital$ adj2 discharg$) or (discharg$ adj2 plan$) or (supported adj2 discharg$)).mp.
17. ((discharge or Re$ablement or rehab$) adj2 (plan$ or service$ or program$ or intervention$ or model or pattern or occupational therap$ or physiotherap$ or physical therap$)).mp
18. (length adj2 stay).mp.
19. (Community adj1 (based or care)).mp.
20. ((service or care$) adj2 (provis$ or provid$ or pattern$ or access$ or delivery or model$)).mp
21. ((home or home$based or home nursing or community or post$discharge or house) adj2 (rehabilitation or support$ or care or visit)).mp
22. (hospital adj2 home).mp
23. (continuity adj2 (Patient or Care)).mp.
24. (Residential adj1 Facilities).mp.
25. (Community adj2 (Health or Services)).mp.
26. 16 or 17 or 18 or 19 or 20 or 21 or 22 or 23 or 24 or 25

Combined searches

7. 6 and 15 and 26

Cumulative Index to Nursing and Allied Health Literature (CINAHL) search

Review search

1. MH “Meta analysis”
2. TX “meta-analysis”
3. TX “meta analysis”
4. TX “MEDLINE”
5. PT “review”
6. TX “systematic review”
7. TX “Overview” or TX “meta review”
8. S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7

Frailty

9. (MH "Frail Elderly")
10. (MH "Health Services for the Aged")
11. (MH "Geriatrics")
12. (MH "Aged, Hospitalized")
13. (MH "Rehabilitation, Geriatric")
14. (MH "Frailty Syndrome") (
15. TX ("Frail" or "frailty" or "vulnerable" or "vulnerability" or "weak" or "infirm" or "elder*" or "geriatric*")
16. TX “older adult*”
17. S9 OR S10 OR S11 OR S12 OR S13 OR S14 OR S15 OR S16 OR S17

Discharge search

18. (“patient*” N2 “discharg*”)
19. (“hospital*” N2 “discharg*”)
20. (“discharg*” N2 “plan*”)
21. (“supported” N2 “discharg*”)
22. (“discharge” N2 “service*”)
23. (“discharge” N2 “program*”)
24. (“discharge” N2 “intervention*”)
25. (“discharge” N2 “model”)
26. (“discharge” N2 “pattern”)
27. (“discharge” N2 “occupational therap*”)
28. (“discharge” N2 “physiotherap*”)
29. (“discharge” N2 “physical therap*”)
30. (“Re-ablement” N2 “plan*”)
31. (“Re-ablement” N2 “service*”)
32. (“Re-ablement” N2 “program*”)
33. (“Re-ablement” N2 “intervention*”)
34. (“Re-ablement” N2 “model”)
35. (“Re-ablement” N2 “pattern”)
36. (“Re-ablement” N2 “occupational therap*”)
37. (“Re-ablement” N2 “physiotherap*”)
38. (“Re-ablement” N2 “physical therap*”)

39. (“rehab*” N2 “plan*”)
40. (“rehab*” N2 “service*”)
41. (“rehab*” N2 “program*”)
42. (“rehab*” N2 “intervention*”)
43. (“rehab*” N2 “model”)
44. (“rehab*” N2 “pattern”)
45. (“rehab*” N2 “occupational therap*”)
46. (“rehab*” N2 “physiotherap*”)
47. (“rehab*” N2 “physical therap*”)
48. (“Organised” N2 “discharge” N2 “team*”)
49. (“Organized” N2 “discharge” N2 “team*”)
50. (“multidisciplinary” N2 “discharge” N2 “team*”)
51. (“length” N2 “stay”)
52. (“Community” N2 “based”)
53. (“Community” N2 “care”)
54. (“hospital” N2 “home”)
55. (“home” N2 “rehabilitation”)
56. (“home” N2 “nursing”)
57. (“home” N2 “support*”) (
58. (“home” N2 “care”)
59. (“home” N2 “visit”)
60. (“home” N2 “based”)
61. (“community” N2 “rehabilitation”)
62. (“community” N2 “nursing”)
63. (“community” N2 “support*”)
64. (“community” N2 “visit”)
65. (“community” N2 “based”)
66. (“post discharge” N2 “rehabilitation”)
67. (“post discharge” N2 “nursing”)
68. (“post discharge” N2 “support*”)
69. (“post discharge” N2 “care”)
70. (“post discharge” N2 “visit”)
71. (“post discharge” N2 “based”)
72. (“house” N2 “rehabilitation”)
73. (“house” N2 “nursing”)
74. (“house” N2 “support*”)
75. (“house” N2 “care”)
76. (“house” N2 “visit”)
77. (“house” N2 “based”)
78. (MH “continuity of Patient Care+”)
79. (MH “Residential Facilities+”)
80. 19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S38 OR S39 OR S40 OR S41 OR S42 OR S43 OR S44 OR S45 OR S46 OR S47 OR S48 OR S49 OR S50 OR S51 OR S52 OR S53 OR S54 OR S55 OR S56 OR S57 OR S58 OR S59 OR S60 OR S61 OR S62 OR S63 OR S64 OR S65 OR S66 OR S67 OR S68 OR S69 OR S70 OR S71 OR S72 OR S73 OR S74 OR S75 OR S76 OR S77 OR S78 OR S79 OR S80

81. 8 and 17 and 80

Cochrane Library search:

Frailty

1. MeSH descriptor: [Aged] this term only
2. MeSH descriptor: [Frail Elderly] explode all trees
3. MeSH descriptor: [Health Services for the Aged] explode all trees
4. MeSH descriptor: [Geriatrics] this term only
5. Frail or frailty or vulnerable or vulnerability or weak or infirm or elder* or geriatric*
6. MeSH descriptor: [Mobility Limitation] explode all trees
7. older adult*.tw.
8. #1 or #2 or #3 or #4 or #5 or #6 or #7

Discharge search

9. Patient* near/2 discharg*
10. Hospital* near/2 discharg*
11. Discharg* near/2 plan*
12. Support* near/2 discharg*
13. (discharge or Re?ablement or rehab*) near/2 (plan* or service* or program* or intervention* or model or pattern or occupational therap* or physiotherap* or physical therap*)
14. (organi?ed or multidisciplinary) near/2 (discharge near/2 team*)
15. length near/2 stay
16. Community near/2 care
17. (service or care*) near/2 (provis* or provid* or pattern* or access* or delivery or model*)
18. (home or home?based or home nursing or community or post?discharge or house) near/2 (rehabilitation or support* or care or visit)
19. hospital near/2 home
20. home near/2 (based or care)
21. MeSH descriptor: [Continuity of Patient Care] explode all trees
22. MeSH descriptor: [Residential Facilities] explode all trees
23. MeSH descriptor: [Community Health Services] explode all trees
24. #9 or #10 or #11 or #12 or #13 or #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23

Combined

25. #8 and #24

Applied Social Sciences Index and Abstracts (via ProQuest) search:

Review search

1. AB,TI(systematic NEAR/2 review*)
2. AB,TI(evidence synthesis)
3. AB,TI(HTA or health technology assessment)
4. AB,TI(metaanalys* or meta-analys* or meta analy*)
5. AB,TI(Meta?review or overview)
6. 1 or 2 or 3 or 4 or 5 or 6

Frailty

7. SU(Aged)
8. SU(frail elderly)
9. SU(health services for the aged)
10. SU(Geriatrics)
11. (older or elder* or geriatric*)
12. older adult*
13. 7 or 8 or 9 or 10 or 11 or 12

Discharge search

14. All(Patient*) NEAR/2 all(discharg*)
15. all(Hospital*) NEAR/2 all(discharg*)
16. (Support* NEAR/2 discharg*)
19. (discharge NEAR/2 program)
20. (discharge NEAR/2 intervention)
21. (rehab* NEAR/2 plan*)
22. (rehab* NEAR/2 service*)
23. (rehab* NEAR/2 program*)
24. (rehab* NEAR/2 intervention*)
25. (discharge NEAR/2 team*)
26. (length NEAR/2 stay)
27. (Community NEAR/2 based)
28. (Community NEAR/2 care)
29. (hospital NEAR/2 home)
30. (home NEAR/2 rehabilitation)
31. (home NEAR/2 nursing)
32. (home NEAR/2 support*)
33. (home NEAR/2 care)
34. (home NEAR/2 visit)
35. (home NEAR/2 based)
36. SU(continuity of Patient Care)
37. SU(Community Health Services)
38. 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR S20 OR S21 OR S22 OR S23 OR S24 OR S25 OR S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33 OR S34 OR S35 OR S36 OR S37 OR S37

Combined searches in ASSIA

1. 6 and 13 and 39

Social Science Citation Index search

Review search

1. TS=systematic review*
2. TS=evidence synthesis
3. TS=(HTA OR health technology assessment)
4. TS=Meta$analys*
5. TS=(Meta$review OR overview)
6. #1 or #2 or #3 or #4 or #5

Frailty

7. TS=Aged
8. TS=frail elderly
9. TS=health services for the aged
10. **WC**=Geriatrics & Gerontology
11. TS=(Frail or frailty or vulnerable or vulnerability or weak or infirm or elder$ or geriatric$)
12. TS=older adult$
13. #7 or #8 or #9 or #10 or #11 or #12

Discharge search

14. TS=patient$ discharg$
15. TS=hospital$ discharg$
16. TS=discharg$ plan$
17. TS=supported discharg$
18. TS=discharge service$
19. TS=discharge intervention$
20. TS=discharge program$
21. TS=discharge therap$
22. TS=Re$ablement service$
23. TS=Re$ablement intervention$
24. TS=Re$ablement therap$
25. TS=Multidisciplinary discharge
26. TS=Multidisciplinary team$
27. TS=Community care
28. TS=home rehabilitation
29. TS=home support$
30. TS=home care
31. TS=post*discharge rehabilitation
32. TS=post*discharge support$
33. TS=post*discharge care
34. TS=Hospital home
35. #14 or #15 or #16 or #17 or #18 or #19 or #20 or #21 or #22 or #23 or #24 or #25 or #26 or #27 #28 or #29 or #30 or #31 or #32 or #33 or #34

Combined:

36. #6 AND #13 AND #35
37. Limited to English and review

http://www.greylit.org/library/search search:

- Frail AND review
- Elderly AND review
- Discharge AND review
- Rehabilitation AND review
- Home care AND review

APPENDIX 2: DATA EXTRACTION FORM

Discharge interventions for older patients leaving hospital: a

Part A: Identifying features

Reference ID Number:	
Citation (Vancouver format): *<Authors surnames and initials>.<Title>.< Journal name>. <Year>; <Volume number> (Issue number): <pages>* *Example* *Arrami M, Garner H. A tale of two citations. Nature. 2008;451(7177): 397–399.*	
Country of publication:	
Extracted by (name and date)	
Checked by (name and date):	
Linked publications	

Part B: Review Characteristics

Type of review	Systematic review ☐ Meta-review☐
Which category does the review fit into as defined by Parker et al.?	Discharge planning schemes ☐ Discharge support schemes ☐ Geriatric assessment programmes ☐ Educational programmes ☐ *Please tick this box if as part of a multiple component intervention* ☐
Databases searched (please select)	Medline ☐ Embase ☐ CINAHL ☐ The Cochrane Library ☐ Pubmed ☐ PsycLIT ☐ PsycINFO ☐ Web of Science ☐ AgeInfo ☐ HMIC ☐ ASSIA ☐ Social Care Online ☐ Other ☐ *If other please detail:*

Additional Sources	Reference Lists ☐ Cited papers ☐ Contacting experts in field ☐ Internet search e.g. google ☐ Other ☐ *If other please detail:*
Years searched (please detail).	
Geographical scope (please select)	No restriction ☐ USA ☐ EUROPE ☐ UK ☐ Other ☐ *If other please detail:*
Language restrictions of included studies (please select)	None ☐ English ☐ Other ☐ *If other please detail:*
Healthcare settings included in review (please select). *Please note if this is a discharge intervention hospital should be selected*	General practice surgeries ☐ Hospitals ☐ Community group/service ☐ Online services ☐ Pharmacies ☐ Health centres ☐ Nursing homes☐ Ambulances ☐ Home care ☐ Social care ☐ Residential care home ☐ Voluntary groups (charities) ☐ Phone services ☐ Other ☐ *If other please detail:*
Overall aim of the review (quote verbatim)	
Review research questions/objectives (quote verbatim)	
Please state the number of studies included in review	
Please state the number of published articles included in review	
Study designs included (Please select and state number of studies where applicable)	Randomised controlled trials (RCT) ☐ Number: *An experiment in which two or more interventions, possibly including a control intervention or no intervention, are compared by being randomly allocated to participants. (348)* Cluster RCTs ☐ Number: *A trial in which clusters of individuals (e.g. clinics, families, geographical areas), rather than individuals themselves, are randomised to different arms. (348)* Controlled before and after studies ☐ Number: *A non-randomised study design where a control population of similar characteristics and performance as the intervention group is identified. Data are collected before and after the intervention in both the control and intervention groups. (348)* Cross-over trials ☐ Number: A type of clinical trial comparing two or more interventions in which the participants, upon completion of the course of one treatment, are switched to another. (348) Interrupted time series ☐ Number:

	A research design that collects observations at multiple time points before and after an intervention (interruption). (348) Cross sectional studies ☐ Number: *A study measuring the distribution of some characteristic(s) in a population at a particular point in time. Also called a survey. (348)* Cohort studies ☐ Number: *An observational study in which a defined group of people (the cohort) is followed over time. The outcomes of people in subsets of this cohort are compared, to examine people who were exposed or not exposed (or exposed at different levels) to a particular intervention or other factor of interest. A prospective cohort study assembles participants and follows them into the future. A retrospective (or historical) cohort study identifies subjects from past records and follows them from the time of those records to the present. (348)* Case control study ☐ Number: *A study that compares people with a specific disease or outcome of interest (cases) to people from the same population without that disease or outcome (controls), and which seeks to find associations between the outcome and prior exposure to particular risk factors. (348)* Qualitative research ☐ Number: *Qualitative research is the type of research people use to gain insight into a problem, issue or theory and is interested in the lived experiences of individuals. Qualitative researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them.349* Other ☐ *If other please detail:*
Data synthesis (please select)	Meta-analysis ☐ Narrative ☐ Mixed ☐
AMSTAR Score (please select)	*Yes* / *No* / *Can't answer* / *N/A* 1. Was an 'a priori' design provided? ☐ ☐ ☐ ☐ 2. Was there duplicate study selection and data extraction? ☐ ☐ ☐ ☐ 3. Was a comprehensive literature search performed? ☐ ☐ ☐ ☐ 4. Was the status of publication (i.e. grey literature) used as an inclusion criterion? ☐ ☐ ☐ ☐ 5. Was a list of studies (included and excluded) provided? ☐ ☐ ☐ ☐ 6. Were the characteristics of the included studies provided? ☐ ☐ ☐ ☐ 7. Was the scientific quality of the included studies assessed and documented? ☐ ☐ ☐ ☐ 8. Was the scientific quality of the included studies used appropriately in formulating conclusions? ☐ ☐ ☐ ☐ 9. Were the methods used to combine the findings of studies appropriate? ☐ ☐ ☐ ☐ 10. Was the likelihood of publication bias assessed? ☐ ☐ ☐ ☐ 11. Was the conflict of interest included? ☐ ☐ ☐ ☐ *For full list and explanation see http://amstar.ca/Amstar_Checklist.php* **Total score** *(count number of 'yes' answers)* Low quality (0–4) ☐ Moderate quality (5–8) ☐ High quality (9–11) ☐ *NOTE: if score is less than 5 the review will be excluded.*

Part C: Review Participants

Please detail the population(s) included in the review. Please include any sub groups within this population group for example have the authors classified the older patient group by age (e.g. over 60), geriatric condition (e.g. dementia), reason for admittance into hospital (e.g. stroke or fall) or any other defining characteristic/s?	
Patient age range (please detail):	
Total number of participants included (please detail):	

Part D: Interventions

General description of intervention(s) *If a review contains more than one type of intervention please fill in this section for each type of intervention.*	
General description of comparator(s)	
Are there any evidence of theories or conceptual frameworks informing the intervention?	
Did intervention involve different care provided by different staff, in different settings or at different time points? (*only narrative not individual study level)*	Yes ☐ No ☐ *If **yes** please detail the specific details below:* *For example 2 weeks rehabilitation provided by the hospital physio/occupational therapist at home, followed by 6 weeks reablement care provided by community carers at the patients home and if needed a full social work assessment by social workers*
Where was the intervention(s) administered?	General practice surgeries ☐ Hospitals ☐ Community setting ☐ Social care setting ☐ Pharmacies ☐ Health centres ☐ Ambulatory care setting ☐ Care homes ☐ Patients' home ☐ Day centre ☐

	Other ☐ *If other please detail:*
How was the intervention administered?	Online ☐ Phone ☐ App ☐ Face to face ☐ Other ☐ *If other please detail:*
Staff involved in intervention(s) (*only narrative not individual study level)*	Nurse ☐ Occupational therapist ☐ Physician ☐ Physiotherapist ☐ Home support worker ☐ Carer ☐ Speech therapist ☐ Social worker ☐ Dietician ☐ Volunteers ☐ Administrative staff ☐ Pharmacist ☐ Other ☐ *If other please detail:*
Timescales over which interventions were administered	0-<3 month ☐ 3-<6 months ☐ 6-<12 months ☐ More than 12 months ☐ Unclear ☐ Timescales do not fit in above categories ☐ *If timescales do not fit please detail (eg. Interventions varied considerably):*
Do interventions have a 'hand over' back into routine care/other service?	Yes ☐ No ☐ Unclear ☐ *If yes please detail:*

Part E: Outcomes Measured

All primary outcome(s) *(please detail)*	
All secondary outcome(s) *(please detail)*	Not distinguished from primary outcomes ☐

Part F: Findings

Results of outcomes of interest: *Collect data on each outcome regarding whether any of the following has had an impact on each outcome:* • *Intervention setting* • *Intervention components* • *Intervention comparator* • *Intervention population*	Mortality *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*
	Readmissions *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*

• *Intervention providers* • *Intervention resources*	
	Length of hospital stay *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*
	Patient health status *((if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available and if more than one measure was used (e.g, patient reported health status, quality of life, functional outcomes and psychological outcomes) please detail separately).*
	Patient satisfaction *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*
	Admission to nursing home or residential care home (please state if this is a temporary stay, such as a step down bed in a nursing home) *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*
	Carer outcomes *((if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available and if more than one type of information was gathered (e.g, health status, service preference, burden and satisfaction) please detail separately).*
	Staff outcomes *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*
	Cost *(if information is available please detail the number of primary studies which assessed outcome, results of outcomes from the intervention group, comparison group and the number of participants included in analysis. Please state if information is not available.)*

	Place of discharge
	Medication use
Please list any patient reported outcome measures that are identified in this review.	
Review authors' assessment of overall quality of the evidence reported in the review *Please detail verbatim*	
Do the authors' state whether the effectiveness of interventions vary depending on their features, population or comparator? *Please include the results of any relevant sub group analysis*	
Do the authors' state any barriers and/or facilitators for implementing the Interventions? *Please note data may come from qualitative work*	
Review conclusion(s)	
Further research/work identified in review? *If none, consider the Population, Intervention, Comparison, Outcomes and Setting (PICOS) detailed in the systematic review question and whether*	

these are represented in the results.	
Please detail any important points from the study that have not been detailed in the form already	

APPENDIX 3: RESULTS TABLES BY INTERVENTION TYPE

Categorised summaries of effectiveness for each outcome by review and intervention

Key

1. *Included patient group 'X'*
2. *To separate mixed results '/'*
3. *Significant difference in favour of intervention '+' (with p=value if combined or single p-value is reported)*
4. *Results not reported as significant but trend in favour of intervention 'NS+'*
5. *Found no difference 'ND'*
6. *Results not reported as significant but trend **not** in favour of intervention 'NS-'*
7. *Significant difference **not** in favour of intervention '-'*
8. *Outcome not reported*
9. *Unclear/Insufficient evidence/information '?'*

Table 1: Rehabilitative support/therapy at home (or in the community) around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
221 - Early discharge through a multidisciplinary hospital outreach/community rehabilitation team			X			NS+	NS-	+	ND		NS+			NS+			
181[b] - hospital-at–home	X						ND										
*190[a] - **Inpatient rehabilitation** vs rehabilitation in the home*			X			ND			ND/NS-					NS-	NS+		
		X												NS-			
229[a] - early supported discharge		X				ND	NS-	NS+	ND					NS+	+		
230[a] - Home rehabilitation		X				ND	ND		ND								

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
59[a] - Early supported discharge (ESD) team			X			ND	ND	+(P < 0.0001)	ND/+(P =0.01)/-(P=0.02)/ NS-	+(P = 0.02)	+(P = 0.02)	ND		NS+/ NS-			
195 -short-term home care programmes offering practical support following discharge	X					ND	ND/NS+		ND	?				ND/NS+			
228 - Multidisciplinary rehabilitation		X				ND	ND/+	ND/NS+/NS-	ND/NS+						ND/ NS+		
199 - Discharge support schemes	X					ND			?	?	NS+	?					
203[a] - Early discharge from hospital	X					ND	ND/NS+	?						NS+/ NS-	+		
203[b] - Community-based rehabilitation	X					ND	ND							ND/+	NS+/ NS-		
100[b] -Discharge support schemes	X					ND	NS+	ND	ND/NS+	?/NS+				ND	NS+		ND(p= 0.56)

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
46 - Hospital at home early discharge	X					ND(P=0.71)	NS-(P=0.069)	+(P = 0.00057)	ND/NS+/+	ND/+	+(P=0.044)	ND/+	ND/NS+	ND/+/-			ND
			X			ND(P=0.73)	ND(P=0.70)	+(P = 0.00019)	ND	ND/+	+(P=0.041)	ND/NS+		ND/+			
				X		ND(P=0.096)	NS+(P=0.29)	NS+/+	ND	ND/+				ND/+/-			
183[a] - Hospital at home	X						-										
226[a] -Early discharge and therapy-based rehabilitation at home intervention			X				ND	+	ND/+	+/-	+(p=0.0003)	ND/-(p=0.02		+(p=0.001)	+(p=0.001)		
192 - post discharge services	X								ND/NS+								
59[b] - No ESD team (subgroup compared to ESD team)			X			-(p=0.01)											

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
231[a] - Multidisciplinary rehabilitation in an ambulatory setting e.g. home, outpatient, day hospital		X				ND	ND		ND/+			ND/+ (P=0.02)					
212 - Multiple component early rehabilitation interventions.	X					ND/NS+	ND/NS+	?/+	?/ND/NS+	?/NS+	?/NS+		?/NS+	ND/NS+			
50 – Occupational therapy home visit for the purpose of assessment/discharge planning.	X						ND		ND/+	?/NS+		?			+		
232[c] - Enhanced interdisciplinary inpatient and home-based rehabilitation and care models		X			X	ND			ND/NS+						ND/NS+		ND
		X			X[1]			ND			ND						
		X			X[2]			+ (P=0.04)			ND/+ (P=0.02)						

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
Dementia categorised *Severe*[1] *Moderate*[2] *Mild* [3]					X[3]			+ (P=0.002)			ND/+ (P=0.01)						
226[b] *- Early discharge and therapy-based rehabilitation at home*			X				ND	NS+/+ (p=0.032)	ND/+ (p=0.02)	ND	NS/+ (p=0.0004)	ND		ND/NS+/+ (p=0.026)	+ (p=0.001)		
226[c] *- Early discharge and therapy-based rehabilitation at home*			X				ND	+ (p=0.02)	ND/NS - (p=0.07)			ND		?/- (p=0.001)	ND		
184 - Occupational therapy home assessment and discharge planning	X						ND/-		NS/+		?/NS+			?/NS+			
51 - Complex community-based	X					ND	?/+				?/+						

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture/joint replacement patients	Stroke patients	COPD	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
intervention after hospital discharge																	

Table 2: Patient assessments around the time of discharge e.g. CGA

(Review reference number) - intervention description	Patient Groups					Outcomes										
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visits
181[a] - CGA with home assessment	X						+										
191[a] - Inpatient geriatric evaluation and management schemes	X					NS+			ND/NS + /+		ND/+			ND/-			
191[b] - Outpatient geriatric evaluation and management schemes	X					ND	ND	+/ND	NS+		ND			NS-/NS+			
182[a] - *Comprehensive geriatric assessment*	X						ND/+ (P < 0.05) / - (P < 0.05)										
56 - *Comprehensive*	X					ND	ND	ND/?	ND/+ P=0.02		+ P<0.0001			NS+/ NS-			

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visits
geriatric assessment																	
202[a] - *Geriatric assessment with home follow-up*	X						NS+/NS-/ND										
100[a] - *Geriatric assessment programmes*	X					ND	NS+	ND/NS+/NS-/+	ND/+ (p = 0.03)		ND/NS+/+			NS+/NS-	NS+/+	NS+	
220 - *Geriatric assessment and management units using CGA & management tools to set up additional/targeted interventions*	X					ND(P=.61) /NS+/+	ND(p=0.22)/+	ND(P=0.46) /NS+/NS-	ND/+(P=.04)/ NS+ (P=.09)		ND(P=0.52) /+(P=.003)						

Table 3: Primary care interventions around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
187[a] - *General practitioner/practice nurse interventions*	X						ND	ND					NS+				
213[a] - *enhanced access to primary care*				X		?	?										
211[a] - *Transitional care interventions with a focus on primary care*	X						+(p=0.03)										

Table 4: Multiple component inpatient specialist care including preparation for discharge

(Review reference number) - intervention description	Patient Groups					Outcomes										
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
188[a] - *geriatric consultant teams*	X					ND/+	ND/+	ND	ND/+		ND			ND/+			
188[b] - *geriatric based ward*	X						ND							ND			
188[c] - *Acute Care for Elders unit*	X								+								
229[b] - *geriatric orthopaedic rehabilitation unit*		X				ND	+	ND/+ /-	ND/+			ND		ND/NS+	ND/NS+		
191[c] - *Geriatric consultation teams*	X					ND/NS+	ND		ND/NS+								
185 - Acute geriatric unit care with at least one of the five ACE model components	X							ND	ND					ND	ND		
186 - Acute geriatric unit care with at least	X					ND	ND	+(P=0.02)	ND(P=0.16)/+ (P=0.01)		ND			NS+(P=0.09)	NS/+ (p=0.01)		

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
one of the five ACE model components:																	
231[b] - *Inpatient multidisciplinary rehabilitation*		X				ND	ND	ND/+/-	?			ND		ND/+/-			
203[c] - *Condition expertise units*	X					ND/+	ND/+	NS+						ND/-	NS+		
203[d] - *Inpatient rehabilitation*	X					NS+	+							ND/-	+		
232[a] - *Enhanced interdisciplinary inpatient rehabilitation and care models*		X			X	?		?	?/NS+						?		
232[b] -*Geriatrician-led inpatient management (compared to orthopaedic-led management)*		X			X			ND									

(Review reference number) - intervention description	Patient Groups					Outcomes										
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
230[b] - *Intensive inpatient occupational therapy,*		X				ND	ND		ND/+								
201 - *Early physical rehabilitation*	X							?/+	ND/+						NS+/+		
215 - *Multiple comp*onent heart failure *management*				X			ND/NS+										
202[b] - *In-hospital geriatric evaluation &discharge management*	X						+/NS+/NS-/ND										
190[b] - ***Inpatient rehabilitation*** *vs general acute care*	X					ND/NS+								ND/+	NS+		
			X			ND/NS+			NS+					NS+			
190[c] - ***Inpatient rehabilitation*** *vs modified inpatient rehabilitation*	X								NS-					-			
			X			ND/NS+								ND	NS+		
		X													NS-		

Table 5: Patient education around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
181[f] - *patient education and home follow up*	X						+										
230[c] - *Coaching (educational and motivational interventions) alone or with exercise*		X				ND			ND/+								
213[b] -*patient education*				X		ND	?										
13 -*Multidisciplinary patient education*				X		ND	+ (P<.001)		ND/+								
100[d] - *Educational programmes*	X					ND	NS+/+ (p<0.001)		ND/ NS+/+	?				ND/NS+		?/NS+	

Table 6: Discharge planning/coordination or case management

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
227[a] - *Discharge planning intervention*		X				NS+/ ND	NS+/ ND	NS+/N D	+/NS +/ND	NS+				?			
181[c] - *Discharge planning*	X						+/ND										
181[d] - *discharge arrangements*	X						+										
181[e] - *nurse-led case management*	X						ND										
191[d] - *Comprehensive discharge planning coordinators*	X					ND	+	+	ND	ND/NS +/NS-	ND			NS +/+			
182[b] - *Discharge planning*	X						+										
194 - *Early discharge planning*	X					ND	+(p=0.0 003)	ND	+	ND							

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
198 - *Case management*	X						ND(P=0.07)	+						NS+/+			+(P<0.025)
100[c] - *Discharge planning schemes*	X					ND	NS+	NS+(p=0.47)	ND(p = 0.33)					+/NS-/?	?		
49 - *discharge planning*	X					ND	ND/+	NS+	ND/+/-	ND/+		ND/NS+	ND	?/ND/NS+	?/ND/+	ND/NS+	ND
219[a] - *Case management*				X		NS+(P=0.35)	+(P=0.002)	ND/NS+/+	ND/+								
183[b] - *Case management*	X						ND/+	?/+									+

Table 7: Multiple component transitional care at discharge

(Review reference number) - intervention description	Patient Groups					Outcomes										
	Mixed cohort of patients, mean age >60	Older cohort of Fracture	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
187[b] - *Transitional care*	X					ND	ND/ +/-	ND	ND/+	ND/+	ND	ND		NS+			
227[b] - *Discharge plan integrated with multidisciplinary intervention*		X				ND	ND	ND	+/NS+					?			
189 - *Multi-professional and multi-component interventions*	X						ND/+/ NS-/?										
200 - *Multiple component case management interventions*	X						NS+	ND									
61 - *Discharge interventions*	X					ND/+	?/+	?/ND /+	ND		ND/+			?	ND/NS +		
207 - *Transfer patient information*	X						ND	NS+		NS+		NS+	NS+/ NS-	?/NS -			

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
between hospital and community																	
218 - *Comprehensive discharge planning with post discharge support*				X		NS+	NS+	NS+	+ (p=0.01)					ND/+ (p=0.03)			
211[b] - *Multiple component transitional care (low intensity)*	X						?/ND										
211[c] - *Multiple component transitional care (high intensity)*	X						+ (p=0.03, p<0.0001 and p=0.05)										
233 - *Multiple interventions implemented as part of a care strategy*	X COPD					ND/- (P=0.003)	ND/+ (P=0.01)										
54 - *Multiple component post-*				X		ND/NS+	ND/NS+/+ (P<0.01)		ND	NS+				ND/NS+		ND/NS+	

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
discharge care provided by nurses	X					ND	+	ND	ND			NS+		ND/+			ND
182[c] - *Bridging interventions*	X						+/NS+/ ND										
182[d] - *Post discharge support*	X						ND/+/ NS+/N S-										
193 - *Multiple component home support after discharge*	X					ND	ND	+ (P<0.05)	ND		ND/+ (P<0.05)						

Table 8: Nursing led care around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
188[d] - *primary nursing model of care*	X							?/+			-			NS+			
230[d] - *Specialist-nurse led care*		X				ND	NS+	+	ND/+								
213[c] - *nurse-led clinic*				X		ND	ND										
196 - *Nurse led inpatient unit*	X					ND	NS+	-	NS+/+	NS+				?/NS+/NS-	NS+		
211[d] - *Specific component of: Care coordination by a nurse*	X						+(p=0.04)										

Table 9: Interventions of specialist care pathways around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
181[g] - *Care pathways*			X				NS+										
229[c] - *geriatric hip fracture programme*		X				ND	ND	?/NS+	ND/+			ND		?/NS+	+		
229[d] - *clinical pathway*		X				ND	ND	NS+	NS+						ND		
214 - *Disease management programme*	X					NS+	+/ND/NS+							ND/NS+			+
216 - *Multiple component*				X		ND/+ (p=0.02)	ND/NS+ / -	+/NS/-	?/+					NS+			

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
disease management,																	
217[a] - *Multiple component heart failure management* – ***complex***				X		?	NS+		?/NS+					NS+			
217[b] - *Multiple component heart failure management* ***– less complex***				X		?	ND/NS+		?/NS+					?/ND			

Table 10: Miscellaneous interventions around the time of discharge

(Review reference number) - intervention description	Patient Groups					Outcomes											
	Mixed cohort of patients, mean age >60	Older cohort of Fracture patients	Stroke patients	Heart failure	Dementia	Mortality	Readmissions	Length of hospital stay	Patient health status	Patient satisfaction	Nursing home admission	Carer	Staff	Costs	Place of discharge	Medication	Emergency room visit
Home Visits																	
181[h] - *home follow up/visit*	X						ND										
213[d] - *home-visiting services*				X		NS+	NS+										
211[e] - *Home visit within 3 days of discharge*	X						+ (p<0.0001)										
Multidisciplinary interventions																	
213[e] - *multidisciplinary heart failure clinic*						NS+	NS+										
219[c] - *Multidisciplinary interventions*				X		ND	+ (P =0.0002)	NS+	?/+ (P<0.001)								
Other																	

181[l] - *pharmacists-led interventions*	X						ND										
230[e] - *Reorientation measures (including a nurse accompanying patients on home visits)*		X				ND		ND									
225 - *Referral to stroke liaison worker*			X						ND			ND					
213[f] - *structured telephone*				X		NS+	ND/+										
213[g] - *telemonitoring*				X		ND	ND										
219[b] - *Clinical interventions*				X		NS+	ND	ND	ND/+								

APPENDIX 4: PARTICIPANT INFORMATION SHEET STAFF VERSION

Title: Supported integrated discharge case study

We would like to invite you to take part in a research study that will involve taking part in one interview lasting 40-60 minutes (or two interviews lasting 20-30 minutes each). The interview will be about how the Supported Integrated Discharge Service works from your perspective and your experiences of the service.

Before you decide whether or not to take part, we would like to explain what the research will involve and why it is being done. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information before deciding whether or not to take part. Our contact details are at the end of this information sheet.

What is the study about?
Researchers from the University of Birmingham are collaborating with the Supported Integrated Discharge Team at [Hospital] to evaluate the service to see what users think about it and if there is anyway it could be improved. This study will interview patients, carers and staff. This will allow them to talk about their experiences of the discharge service. Interviews will then be analysed and what people have said will be compared. The findings will be fed back to those who run the service and the users, and then published to allow other services to learn from the study findings. The overall aim of the study is to find out how the service works, what is good about it and see if the service could be improved for patients in the future.

Why have I been chosen?
You have been invited to take part because you have been identified as someone who works with, or as part of, the supported integrated discharge service at [Hospital].

Do I have to take part?
The decision about whether you choose to take part is entirely up to you. If you decide to take part you can leave the study at any time before the interview, without giving a reason.

What would taking part involve?

If you wish to take part in the study, you will be contacted by a member of the research team within a week of sending this information sheet. The researcher will be able to answer any questions you may have about the research. If you would still like to take part, the researcher will arrange to interview you. This can be either over the phone or face-to-face at a time and place to suit you.

There are two parts to the interview. They can be done separately, in two interviews lasting 20-30 minutes each or in a single longer interview lasting 40-60 minutes. The first part of the interview will be to try and explore how the service works from your perspective to help us map the discharge service and everyone involved. The second part of the interview will be to explore what you think of the discharge service and how you feel it could be improved. If you agree to be interviewed, we would like to record it. After the interview, the recording will be written down but all names will be removed and no comments will be linked to you or any other person. The recording and transcript will be kept completely confidential and only the research team will have access to them.

Expenses and payments
You will not be paid for participating in this research.

What are the possible benefits of taking part?
Although there is no direct benefit to you if you participate in this research, the study will give us important information about how the supported integrated discharge service works and how it could be improved for future patients. This will help inform how discharge services are offered to patients in the future.

What are the possible risks and disadvantages of taking part?
There are no potential risks associated with participating in the research. The main disadvantage is that it will take some of your time to participate in the study interview. However, we have tried to keep the time commitment for the interview to a minimum. You can also choose the type of interview that you have (face-to-face or telephone), and this will be arranged for a time that suits you.

What if there is a problem?
If you have any concerns, please get in touch with us using the contact details provided at the end of this information sheet. We will do our best to answer your questions. If your concerns are clinical, please get in touch with the [NHS Foundation Trust] local collaborator for the study [name and contact]. If your concerns are still not addressed you can direct your concern to the administrative lead for research integrity matters at the University of Birmingham – [name and contact].

Will my information be kept confidential?
All information collected about you during the research will be kept strictly confidential. Any paper information (like consent forms) will be stored in a secure and locked office at the University of Birmingham. Any electronic information (like interview recordings) will be protected by password and stored on secure servers. You will be assigned a study number and will not be identified in any reports or publications that come from this research. The data generated by the research will be securely stored at the University of Birmingham for 10 years and destroyed after 10 years in compliance with the University of Birmingham policies and procedures.

What will happen if I don't want to carry on with the study?
Your participation is completely voluntary. If you choose to take part but change your mind later, you are free to contact us and cancel the interview, without giving a reason. However, please note that if you decide to withdraw from the study after the interview has taken place we ask your consent for the data you have already provided to be used in the analysis. However you are able to withdraw your interview within 4 weeks of your interview date by contacting the research team directly.

What will happen to the results of this study?
The information we collect will be analysed to help us understand how effective the supported integrated discharge service is. The results will be presented in several ways – a written summary of the results will be available to you, we will publish the results in academic journals, and we will present the results at academic conferences. Your details will not be shared at any time and you will not be identified in any of the results from the research.

Who is organising and funding the research?
The research is a collaboration between the University of Birmingham and [NHS Foundation Trust]. The research is being funded by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care West Midlands (CLAHRC-WM).

Who has reviewed this study?
The research has been reviewed and approved by the NHS Health Research Authority (HRA). We have also received research governance approval from the University of Birmingham, [NHS Foundation Trust], [community health service] and [Council].

What happens next?



[researcher email]

If you think you might be interested in taking part in this study, please let the researcher know by email or when they contact you in the next few days. The researcher will then further explain the study and answer any questions you may have. If you decide you are happy to take part in an interview, the researcher will arrange a time and place for the interview that is convenient for you. The interview can be face-to-face or over the telephone. If the interview is over the telephone you will be sent a consent form in the post/via email to sign and return to the researcher.

The research team:
Elaine O'Connell Francischetto (lead researcher and primary contact)
Dr Sarah Damery and Dr Gill Combes (research supervisors)

For more information, contact:
Elaine O'Connell Francischetto
[Address]
[Email]
[Telephone]

APPENDIX 5: PARTICIPANT INFORMATION SHEET PATIENT VERSION

Title: Supported integrated discharge case study

We would like to invite you to take part in a research study that will involve taking part in one interview lasting 30-45 minutes. The interview will be about your experiences of the Supported Integrated Discharge service at [Hospital]. The Supported Integrated Discharge Service is a team of hospital therapists, social workers and carers from the Council, hospital and community trust who work together collaboratively. Once a patient is well enough to return home, the team discuss on-going care needs with the patient and arrange support at home (e.g. physiotherapy and occupational therapy).
Before you decide whether or not to take part, we would like to explain what the research will involve and why it is being done. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information before deciding whether or not to take part. Our contact details are at the end of this information sheet.

What is the study about?
Researchers from the University of Birmingham are collaborating with the Supported Integrated Discharge Team at [Hospital] to evaluate the service to see what users think about it and if there is anyway it could be improved. The [Hospital] service provides support to patients when they are well enough to leave hospital. Hospital therapists work with reablement workers and social workers from [Council] and [community health service] to provide support for up to 6 weeks after discharge. This study will interview patients, carers and staff. This will allow them to talk about their experiences of the discharge service. Interviews will then be analysed and what people have said will be compared. The findings will be fed back to those who run the service and the users, and then published to allow other services to learn from the study findings. People who were interviewed will not be identifiable in any reports or publications. The overall aim of the study is to find out how the service works, what is good about it and how the service could be improved.

Why have I been chosen?
You have been invited to take part because you are using the supported integrated discharge service at [Hospital].

Do I have to take part?
The decision about whether you choose to take part is entirely up to you. Whether you decide to take part or not will have no effect on your treatment now or in the future, and you can leave the study at any time before the interview, without giving a reason.

What would taking part involve?
If you are happy to be contacted to be given more information about the study, please complete the enclosed reply slip. The reply slip also asks for some information about you, for example your age, gender and contact details. For the next few weeks all patients in hospital who are about to use the Supported Integrated Discharge service are being asked if they would be happy to be contacted about taking part in an interview. **However not all who complete reply slips will actually be contacted and invited to take part.** This means you may or may not be contacted, even if you complete the reply slip. We will not contact you after 8 weeks has passed since you were discharge. The researcher will contact patients based on age, gender and those who return the reply slips first. This allows us to get a variety of viewpoints from patients who have used the Supported Integrated Discharge service. If you are contacted by the researcher they will give you the opportunity to ask any questions and give you more information about the study. You can then decide if you would like to take part. If you are happy to take part an interview will be arranged.

Interview
If you choose to participate in the interview, it will last for around 30-45 minutes and will be a discussion of your thoughts about the supported integrated service. Before the interview takes place you will be asked to sign a consent form and complete a brief socio demographic questionnaire. Interviews will take place either face-to-face or over the telephone. If your interview is a telephone interview you will be posted the questionnaire and consent form to complete and return them in a stamp addressed envelope before your telephone interview.

If you agree to be interviewed, we would like to record it. You will be assigned a study number so your name is not used. After the interview, the recording will be written down but any names mentioned will be removed and no comments will be linked to you or any other person. The recording and transcript will be kept completely confidential. Interviews may be arranged to take place between 1 to 8 weeks after you leave hospital. If you have a carer or family member present at your face-to-face interview, the researcher will also give them the opportunity to take part in a separate interview (if you are happy for them to do so). For interviews being completed in Punjabi and Urdu an interpreter from Brasshouse Languages will also be present at the interview.

Expenses and payments
You will not be paid for participating in this research.

What are the possible benefits of taking part?
Although there is no direct benefit to you if you participate in this research, the study will give us important information about how the supported integrated discharge service works and how it could be improved for future patients. This will help inform how discharge services are offered to patients in the future.

What are the possible risks and disadvantages of taking part?
There are no potential risks associated with participating in the research. The main disadvantage is that it will take some of your time to complete the reply slip and participate in the interview. However, we have tried to keep the time commitment for the interview to a minimum. You can also choose the type of interview that you have (face-to-face or telephone), and this will be arranged for a time that suits you.

What if there is a problem?
If you have any concerns, please get in touch with us using the contact details provided at the end of this information sheet. We will do our best to answer your questions. If your concerns are not addressed and you wish to make a formal complaint, you can contact the [NHS Foundation Trust] Patient Services Department. You can call the Patient Services Department hotline on [phone number] (Monday to Friday, 24 hour voicemail facility) or email them at [email]. Alternatively you can contact the University of Birmingham study sponsor [name] on [phone number] or email: [email address].

Will my information be kept confidential?
All information collected about you during the research will be kept strictly confidential. Any paper information (like consent forms) will be stored in a secure and locked office at the University of Birmingham. Any electronic information (like interview recordings) will be protected by password and stored on secure servers. You will be assigned a study number and will not be identified in any reports or publications that come from this research. The data generated by the research will be securely stored at the University of Birmingham for 10 years and destroyed after 10 years in compliance with the University of Birmingham policies and procedures.

What will happen if I don't want to carry on with the study?

Your participation is completely voluntary. If you choose to take part but change your mind later, you are free to contact us and cancel the interview, without giving a reason and without your care from the hospital being affected. However, please note that if you decide to withdraw from the study after the interview has taken place we ask your consent for the data you have already provided to be used in the analysis. However, you will be able to withdraw your interview up to 4 weeks after your interview date by contacting the research team directly.

What will happen to the results of this study?

The information we collect will be analysed to help us understand how effective the supported integrated discharge service is. The results will be presented in several ways – We will produce a CLAHRC BITE (Brokering Innovation Through Evidence) summarising the results of the study, this summary will be published on the CLAHRC West Midlands website and a copy will be available to you, we will publish the results in academic journals, and we will present the results at academic conferences. Your details will not be shared at any time and you will not be identified in any of the results from the research.

Who is organising and funding the research?

The research is a collaboration between the University of Birmingham and [NHS Foundation Trust]. The research is being funded by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care West Midlands (CLAHRC-WM). The University of Birmingham is acting as sponsor.

Who has reviewed this study?

The research has been reviewed and approved by the NHS Health Research Authority (HRA). We have also received research governance approval from the University of Birmingham, [NHS Foundation Trust], [community health service] and [Council].

What happens next?



If you think you might be interested in taking part in this study, please complete the enclosed reply slip and post it back in the pre-stamped addressed envelope provided. **Please make sure you keep this information sheet for your records.** If you are not interested please give the information pack back to a member of the Supported Integrated Discharge team. If you are selected for an interview the researcher will then contact you sometime in the next 5-10 days using the contact details you provided on

the reply slip. The researcher will explain the study and answer any questions you may have. If you decide you are happy to take part in an interview, the researcher will arrange a time and place for the interview that is convenient for you. The interview can be face-to-face or over the telephone. If the interview is arranged to be over telephone you will be sent a consent form in the post to sign and return to the researcher in a stamped addressed envelope.

The research team:
Elaine O'Connell Francischetto (lead researcher and primary contact)
Dr Sarah Damery and Dr Gill Combes (Ph.D. supervisors)

For more information, contact:
Elaine O'Connell Francischetto
[Address]
[Email]
[Telephone]

APPENDIX 6: PARTICIPANT INFORMATION SHEET CARER VERSION

Title: Supported integrated discharge case study

We would like to invite you to take part in a research study that will involve taking part in one interview lasting 30-45 minutes. We would like to speak to carers of patients who have used the Supported Integrated Discharge service at [Hospital] to find out what their experience of the service. By carer we mean a friend, family member or neighbour who may offer the patient support or help. The Supported Integrated Discharge Service is a team of hospital therapists, social workers and carers from the Council, hospital and community trust who work together collaboratively. Once a patient is well enough to return home, the team discuss on-going care needs with the patient and arrange support at home (e.g. physiotherapy and occupational therapy).

Before you decide whether or not to take part, we would like to explain what the research will involve and why it is being done. Please take time to read this information sheet carefully and discuss it with others if you wish. Ask us if there is anything that is not clear or if you would like more information before deciding whether or not to take part. Our contact details are at the end of this information sheet for your records.

What is the study about?

Researchers from the University of Birmingham are collaborating with the Supported Integrated Discharge Team at [Hospital] to evaluate the service to see what users think about it and if there is anyway it could be improved. The [Hospital] service provides support to patients when they are well enough to leave hospital. Hospital therapists work with reablement workers and social workers from [Council] and [community health service] to provide support for up to 6 weeks after discharge. This study will interview patients, carers and staff. This will allow them to talk about their experiences of the discharge service. Interviews will then be analysed and what people have said will be compared. The findings will be fed back to those who run the service and the users, and then published to allow other services to learn from the study findings. People who were interviewed will not be identifiable in any reports or publications. The overall aim of the study is to find out how the service works, what is good about it and how the service could be improved.

Why have I been chosen?
You have been invited to take part because you are the carer of a patient who has agreed to take part in this study regarding their experiences of the supported integrated discharge service at [Hospital] and is happy for you to also be interviewed.

Do I have to take part?
Even though the patient is happy for you to take part, the decision about whether you choose to take part is entirely up to you. Whether you decide to take part or not is completely up to you and you can leave the study at any time before the interview, without giving a reason.

What would taking part involve?
If after reading the information sheet you decide you would like to take part, the researcher will first answer any questions you may have about the research. If you would still like to take part, the researcher will ask if it convenient to interview you and after they have interviewed the patient. If this is not convenient the interview can be arranged at another time or place that suits you (either face-to-face or over the phone).

Interview
If you choose to participate in the interview, it will last for around 30-45 minutes and will be a discussion of your thoughts about the supported integrated service. Before the interview takes place you will be asked to sign a consent form and complete a brief socio demographic questionnaire. Interviews will take place either face-to-face or over the telephone. If you agree to be interviewed, we would like to record it. You will be assigned a study number so your name is not used. After the interview, the recording will be written down but any names mentioned will be removed and no comments will be linked to you or any other person. The recording and transcript will be kept completely confidential.

Expenses and payments
You will not be paid for participating in this research.

What are the possible benefits of taking part?
Although there is no direct benefit to you or the patient if you participate in this research, the study will give us important information about how the supported integrated discharge service works and how it could be improved for future patients and carers. This will help inform how discharge services are offered to patients in the future.

What are the possible risks and disadvantages of taking part?

There are no potential risks associated with participating in the research. The main disadvantage is that it will take some of your time to participate in the interview. However, we have tried to keep the time commitment for the interview to a minimum.

What if there is a problem?

If you have any concerns, please get in touch with us using the contact details provided at the end of this information sheet. We will do our best to answer your questions. If your concerns are not addressed and you wish to make a formal complaint, you can contact the [NHS Foundation Trust] Patient Services Department. You can call the Patient Services Department hotline on [phone number] (Monday to Friday, 24 hour voicemail facility) or email them at [email]. Alternatively you can contact the University of Birmingham study sponsor [name] on [phone number] or email: [email address].

Will my information be kept confidential?

All information collected about you during the research will be kept strictly confidential. Any paper information (like consent forms) will be stored in a secure and locked office at the University of Birmingham. Any electronic information (like interview recordings) will be protected by password and stored on secure servers. You will be assigned a study number and will not be identified in any reports or publications that come from this research. The data generated by the research will be securely stored at the University of Birmingham for 10 years and destroyed after 10 years in compliance with the University of Birmingham policies and procedures.

What will happen if I don't want to carry on with the study?

Your participation is completely voluntary. If you choose to take part but change your mind later, you are free to contact us and cancel the interview, without giving a reason. However, please note that if you decide to withdraw from the study after the interview has taken place we ask your consent for the data you have already provided to be used in the analysis. However you will be able to withdraw your interview up to 4 weeks after your interview date by contacting the research team directly.

What will happen to the results of this study?

The information we collect will be analysed to help us understand how effective the supported integrated discharge service is. The results will be presented in several ways – We will produce a CLAHRC BITE (Brokering Innovation Through Evidence) summarising the results of the study, this summary will be published on the CLAHRC West Midlands website and a copy will be available to you, we will publish the results in academic journals, and we will present the results at academic conferences. Your details will not be shared at any time and you will not be identified in any of the results from the research.

Who is organising and funding the research?
The research is a collaboration between the University of Birmingham and [NHS Foundation Trust]. The research is being funded by the National Institute for Health Research (NIHR) Collaboration for Leadership in Applied Health Research and Care West Midlands (CLAHRC-WM). The University of Birmingham is acting as sponsor.

Who has reviewed this study?
The research has been reviewed and approved by the NHS Health Research Authority (HRA). We have also received research governance approval from the University of Birmingham, [NHS Foundation Trust], [community health service] and [Council].

What happens next?
If you think you might be interested in taking part in this study, please let the researcher know after they have interviewed the patient. The researcher will then explain the study and answer any questions you may have. If you decide you are happy to take part in an interview researcher will either do the interview today or if this is not convenient or you would like longer to decide, they will either contact you again in a few days or arrange a time and place for the interview that is convenient for you. The interview can be face-to-face or over the telephone.

The research team:
Elaine O'Connell Francischetto (lead researcher and primary contact)
Dr Sarah Damery and Dr Gill Combes (Ph.D. supervisors)

For more information, contact:
Elaine O'Connell Francischetto
[Address] [Email] [Telephone]

APPENDIX 7: PATIENT INVITATION LETTER

Elaine O'Connell Francischetto
Research Fellow and Doctoral Researcher
[Address]
[Date]

Dear Sir/Madam

Supported integrated discharge case study

You have recently been approached about the supported integrated discharge service at [Hospital]. We are currently finding out if patients approached about this service would be interested in taking part in an interview about their experiences of the service. This research is being done as part of a Ph.D. taking place at the University of Birmingham. We are evaluating the service to see what users think about it and to see if there is anyway it could be improved. We would be very grateful for your participation in this study, and we will use your feedback to improve discharge services for patients in the future.

I enclose, a 'participant information sheet' that explains the study in more detail, a reply slip and stamped addressed envelope. Once you have read the information sheet, please complete the reply slip if you are interested in finding out more about the study. If you are selected to take part the researcher will then contact you directly to discuss the study with you. Please keep the 'participant information sheet' for yourself, which contains my contact details if you would like to contact me about this study.

I greatly appreciate your time and help with our study. Thank you very much.

Yours sincerely,

Elaine O'Connell Francischetto

Research Fellow and Doctoral Researcher
NIHR CLAHRC West Midlands Chronic Disease Theme
Email: [email address]

APPENDIX 8: PATIENT REPLY SLIP

Title: Supported integrated discharge case study

PLEASE COMPLETE THIS REPLY SLIP IF YOU ARE HAPPY TO BE CONTACTED ABOUT THIS STUDY:

- I am interested in taking part in this study (please tick) ☐

Name (please print):_____

Today's date: _____

Discharge date: _____ Not known ☐

Age: _____

Gender (please tick): Male ☐ Female ☐ Transgender ☐

Best telephone number(s) to contact you on to discuss the study:

_ _ _ _ _ _ _ _ _ _ _ **or** _ _ _ _ _ _ _ _ _ _ _

Please tell us if there is a particular time that is **not** a good time to telephone you and we will avoid calling you at this time:

Please use the stamped-addressed envelope provided to return the completed form to:

Elaine O'Connell Francischetto
[address]
Thank you very much.

If you would like to contact me my details are on the information sheet. Please keep the information sheet for your records

APPENDIX 9: SOCIO-DEMOGRAPHIC QUESTIONNAIRE

The interview is anonymous so we would like to ask you to provide some details about yourself, to allow us to understand more general information about the participants. Please answer the questions below.

1. Please tick the box that best applies to your marital status;

☐ Married
☐ Cohabiting
☐ Separated/Divorced
☐ Widowed
☐ Single

2. How old are you?

☐ Under 50
☐ 50-59
☐ 60-69
☐ 70-79
☐ 80-89
☐ 90 or over

3. What is your gender?

☐ Male
☐ Female
☐ Transgender

4. How would you describe your ethnicity?

☐ White British
☐ Other white
☐ Asian/Asian British
☐ Mixed/multiple ethnic group
☐ Black/African/Caribbean/Black British
☐ Other ethnic group, please detail ……..

5. What type of home do you reside in?

☐ Detached house
☐ Semi-detached house
☐ Terraced house

☐ Flat
☐ Retirement house or flat
☐ Nursing home/care home
☐ Other, please detail ……

6. Does anyone live with you (please tick all that apply)?
☐ Partner/Husband/Wife
☐ Child
☐ Grandchild
☐ Friend
☐ Formal carer
☐ Other, please detail ……

7. Please describe how you are currently employed;
☐ Working full time (more than 30 hours per week)
☐ Working part time (less than 30 hours per week)
☐ Unable to work due to illness / disability
☐ Retired
☐ At home and not looking for paid employment (e.g. looking after your home, family or other dependents)
☐ Unemployed and looking for work
☐ Other, please detail ……

Thank you for completing this questionnaire.

APPENDIX 10: TOPIC GUIDE

STAFF INTERVIEWS

The following staff topic guide was customised as necessary to ensure that the most relevant questions were asked to the appropriate staff groups and to explore emerging issues.

Service mapping interview

1. Role in SIHDS?

Prompts: time spend on SIHDS

2. Development of the SIHDS service

Prompts: why was it needed/how was it implemented/Would you say the service has changed over time?

3. Handovers of patient care

Prompts: Who transfers care to and from your care and how is it done?

4. Organisation involved

Prompts: How does integration and transfer of care responsibility work?

SIHDS experiences interview

1. Information sharing and joined-up service delivery
   Prompts: how does the team work across organisations/change in working relationships/ acceptability/sustainability/monitoring patient progress/transfer of care
2. Opinions of supported integrated discharge
   Prompts: challenges/barriers(and how these have been overcome)/support for its use,
3. How the service works
   Prompts: background and expertise of team/training received/how it works best/enable you to perform better/constrain the way you work?

4. Potential improvements
   Prompts: reached desired or intended objective/was anything worse as a result/ support for carers?
5. Major impacts for patients
   Prompts: patients recognise it as a positive intervention/eligibility criteria for the service are appropriate/could other people benefit

SIHDS PATIENT/CARER INTERVIEWS

The following topic guide was used for patient and carer interviews who took part in the SIHDS service. Prompts were used as necessary and any emerging issues were explored.

1. Expectations of care when you were discharged from hospital

Prompts: did your care meet these expectations/were you offered what you needed after you left hospital/What role did you have in setting your goals/was anyone else involved in decision-making and setting goals? Have you had anyone support you who is not involved in the service?

2. Integrated care and focused around needs

Prompts: how different therapists/support workers worked together/any gaps in care (charities? Mental health? other referral e.g. social?) /did the team providing you with support at home explain clearly to you what was happening/ Any duplication?

the three next questions depend on stage in intervention

3. Experience of rehabilitation

Prompts: what did it help you with, what happened during the visits, how many visits did you have?

4. Experience of reablement?

Prompts: what did it help you with, what happened during the visits, how many visits did you have?

5. Coming to the end of your period of rehabilitation/reablement

Prompts: What benefits has it made to your life (doing activities, independence, social networks)

6. Overall thoughts on the service

Prompts: What has been most helpful/What has been least helpful/Any changes that could be made to improve the service?

APPENDIX 11: CHARACTERISTICS OF INCLUDED REVIEWS

Table 1: Characteristics of included reviews

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
Allen (2014), 187	RCTs, 12; *n=5269*; **2013**	Inpatients aged 60 or over	Transitional care interventions, for example: • Discharge protocol/case management • Primary care models • Self-management and transition coaching • Geriatric evaluation/co-management	'standard discharge' – unclear what control conditions were	-Mortality -Readmissions -Length of stay -Patient health status -Patient satisfaction -Nursing home admission -Carer outcomes -Staff outcomes -Costs	Moderate Only articles in English Language	Findings were mixed in relation to potential sources of bias
Al Maqbali (2014), 227	RCTs, 5; cohort study, 1; quasi	Elderly patients with hip fractures	Discharge planning and home visit/telephone follow up, some included education, counselling, assessment and communication.	Unclear	-Mortality -Readmissions -Length of stay -Patient health status	Moderate Only articles in English Language	Limitations on the studies' design, which may have led to bias were noted.

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
	experimental, 1; *n= 1209*; **2012**				-Patient satisfaction -Costs		
Anderson (2002), 221	RCTs, 7; *n= 1277*; **2001**	Stroke patients	Early discharge through a multidisciplinary community rehabilitation team (with interest in stroke and was an outreach scheme from the hospital) which provided care/rehabilitation in the home/community setting.	Standard care – not completely clear	-Mortality -Readmissions -Length of stay -Patient health status -Nursing home admission -Costs	Moderate	All satisfied our methodological criteria
Bakker (2011), 188	RCTs, 12; Before and after studies, 5; n=*8752*; **2009**	Frail patients aged >65 years and acutely admitted to hospital	Multiple component interventions that included: -patient assessment -discharge planning -post hospital follow-up	Usual care	-Patient health status -Length of stay -Mortality -place of discharge -readmission -resource use -costs	Moderate Only articles in English Language	Unclear if incomplete outcome data were adequately addressed and contamination was inadequately addressed
Batty (2010), 189	RCTs, 2; before and after studies, 1; Interrupted time series, 1; pilot, 1; unclear 1; *n=2662*; **2009**	Older people	Any multi-professional interventions of nursing and/or therapy. That included - Geriatric evaluation - Discharge care/planning - Clinic and home visiting - Outpatient follow up	Unclear	-readmission	Moderate Only articles in English Language Interventions were not always	Risk of bias varied greatly; some studies were at a high risk of bias

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
						described in detail. Some control subjects could access other available services and were encouraged to do so. Therefore, other services could have impacted the results.	
Benbassat (2013), 181	Systematic review/meta-analysis, 99; *n= 180991;* September **2012**	Patients believed to be at risk of hospital readmissions.	Hospital and community interventions to reduce readmissions for example: -discharge planning -geriatric case management/assessment -home visits -supported discharge	Usual care	- readmission	Moderate Readmission period was not always clear and results did not report how many studies looked at each intervention outcome.	Quality was assessed using AMSTAR, the average quality of meta-analyses (8.0 +/− 1.9; range: 3–11) and systematic reviews (6.1 +/− 2.2; range: 2–11) varied.

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
Beswick (2008), 51	RCTs, 21; *n= 2367;* January **2005**	Subgroup of older people after hospital discharge to home.	Complex interventions to improve physical function and maintain independent living in elderly people; subgroup of community-based care after hospital discharge included	Usual care or minimum intervention	-living at home -Mortality -readmissions -nursing home admissions	Moderate	"Study quality in terms of losses to follow-up and randomisation process did not affect our findings"
Brusco (2014), 190	Economic analyses of RCTs, 29; *n=5689*; May **2011**	Patients admitted to a health care rehabilitation program population aged > 18 years	Inpatient rehabilitation	-general acute care -modified inpatient rehabilitation -rehabilitation in the home	-Mortality -Length of stay -Place of discharge -Cost -patient health status	High	Twenty-one trials achieved at least 50% low-risk scores for the 6 criteria in the risk of bias assessment
Cameron (2000), 229	RCTs, 14; Cohort studies, 25; Quasi - randomised, 2; *n=not reported*; **1998**	Patients aged >65 years with any fracture of the lower limbs, pelvis, upper limbs or spine which required hospital care	Interventions designed to improve function (mobility and self-care) and/or reduce hospital stay for example: -packages of care - geriatric orthopaedic rehabilitation unit -geriatric hip fracture programme -early supported discharge -application of a clinical pathway -specific rehabilitative interventions	Unclear	-length of hospital stay -readmission -place of discharge -mortality -patient health status -impact on carers -cost	High	Overall, the quality of the studies was not high. From a possible score of 14, the included studies scored in a range from 2 to 11. The mean score overall was 6.2.
Richards (2003), 191	RCTs, 23; *n= 1597;* **2000**	Older people (>60) expected to be	-Comprehensive geriatric assessment -discharge planning	Usual care	-costs -mortality -readmission	Moderate	The quality of studies was highly variable;

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
		discharged home.	-comprehensive care planning -care coordination.		-length of stay - patient health status -patient satisfaction -nursing home admissions/place of discharge		four out of 15 trials were assessed as being at low risk of bias, with the remaining studies at moderate risk. The discharge planning coordinator studies were poor in terms of reporting quality.
Cole (2001), 192	RCTs, 11; *n= 3814;* **2000**	Older people	Post discharge services including: -Multidisciplinary team assessing and following patients -Nurse assessing and following patients -Home aid helping patients -Volunteers visiting patients -Discharge planning -Physiotherapy	Unclear	- patient health status	Moderate Only articles English or French language Does not seem like the most robust review – search only identified 98 potentially relevant articles.	Not very clear “most studies met most of the 6 validity criteria”

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
Craven (2015), 182	Systematic reviews, 6; *n=not reported*; **2013**	Older people (>65) with medical conditions, but not those on disease specific pathways.	-Discharge planning -Post discharge support -Bridging interventions -Comprehensive geriatric assessment	Usual care	-Readmissions	Moderate Only articles in English language	The authors only included papers that scored above 50% on the CASP tool. Included papers ranged from 50% - 94%
Crotty (2010), 230	RCTs, 9; *n= 1400*; **2008**	Older people with any type of fracture of the proximal femur.	Rehabilitation interventions that provided care in inpatient settings, after discharge in the home/long term care settings and outpatient settings	Unclear – placebo/usual care	-Mortality -readmissions -length of stay -patient health status	High	Studies were too few and small for full confidence in their results. The trials were inconsistent regarding intervention and outcome measures. Pooling of data were challenging. It was difficult to determine attrition rates.
Early Supported Discharge Trialists (2002), 222	RCTs, unclear 7 or 9; *n= 1305*; **2001**	Stroke patients	- Early supported discharge team coordinated and provided care - Early supported discharge coordinated care only - No Early supported discharge coordination (a range of community	Normal care/organised stroke unit/general wards	-Mortality -readmissions -length of stay -patient health status	High	

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n;* **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
			stroke services which were not planned or provided by a coordinated team)		-patient satisfaction -nursing home admissions -carer outcomes -cost		
Early Supported Discharge Trialists (2005), 223	RCTs, 11; *n=not reported*; **2004**	Stroke patients	- Early supported discharge team coordinated and provided care - Early supported discharge coordinated care only - No Early supported discharge coordination (a range of community stroke services which were not planned or provided by a coordinated team)	Normal care or stroke unit	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -nursing home admissions -carer outcomes -costs	High	
Langhorne (2005), 224	RCTs, 11; *n= 1597*; **2004**	Stroke patients	Early supported discharge, defined as aiming to accelerate discharge from hospital with the provision of rehabilitation and support (regular assistance) in a community setting	Usual care (not always clear)	-Mortality -length of stay -patient health status -patient satisfaction -nursing home admissions -carer outcomes -costs	High	
Fearon (2012), 57	RCTs, 14; *n= 1957;* **2012**	Stroke patients	- Early supported discharge team coordinated and provided care	Normal care or stroke unit	-Mortality -readmissions	High	Majority of trials had adequate

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
			- Early supported discharge coordinated care only - No Early supported discharge coordination (a range of community stroke services which were not planned or provided by a coordinated team)		-length of stay -patient health status -patient satisfaction -nursing home admissions -carer outcomes -costs		concealment and blinded outcome assessment
Langhorne (2017), 59	RCTs, 17; *n=2422*; **2017**	Any patient who has been admitted to hospital with a clinical diagnosis of stroke	-Early supported discharge (ESD) team coordination and delivery -ESD team coordination and handover to community services -No ESD team, where patients had access to a multidisciplinary team care in hospital, but this ended at hospital discharge, care was provided by community services	Not clear - Discharge arrangements were variable in the control services	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -nursing home admission -carer outcomes -cost	High	Although the quality of the evidence in general was good, many of the trials were completed over 10 years ago
Elkan (2001), 193	RCTs, 3; quasi experimental, 1; *n= 1209*; **1997**	Older people recently discharged from hospital who were at risk of further admissions	Home support after discharge which could include: Assessment, case management, referrals/service coordination, Counselling/education, companionship, and home visits by nurses/GPs/social workers	No intervention - care not clearly described	-Mortality -readmissions -length of stay -patient health status -nursing home admissions	Moderate Only articles in English Language	The quality scores from 0 to 1 (higher scores = better quality studies). The four studies ranged from 0.36, 0.46, 0.5 to 0.54

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Ellis (2010), 225	RCTs, 16; *n= 3986;* **2009**	Survivors of acute stroke or their closest informal carer or both (subgroup analysis on those aged >65)	Referral to a stroke liaison worker, often at the point of discharge from hospital. Typically this involved a multifaceted service including more than one of: education and information provision, social support and liaison with other services.	Usual care or alternative intervention	-patient health status -carers	Moderate	13 of the studies were described as adequate whilst 3 were described as unclear
Ellis (2011) 56	RCTs, 22; *n= 10315;* **2010**	Adults >65 years admitted to hospital care as an emergency with medical, psychological, functional or social problems	Comprehensive geriatric assessment - a simultaneous, multi-level assessment of various domains by a multidisciplinary team to ensure that problems were identified, quantified and managed appropriately.	Usual care	-Mortality -readmissions -length of stay -patient health status -nursing home admissions -costs	High	Quality varied, all randomised, however reporting varied for key issues. Outcome assessment was seldom blinded.
Feltner (2014), 213	RCTs, 47; *n=not reported*; **2013**	Adults during or within 1 week of hospitalization for heart failure	Transitional care for example: - Home-visiting services by different multidisciplinary team members who educated, performed physical examination, or provided other care. -Structured telephone support monitored, educated, or provided self-care management (or various combinations) using the phone after discharge -Telemonitoring	Normal care or other eligible intervention	-Mortality -readmissions	Moderate Only articles based in the USA and in English language	Overall quality depended on intervention and outcomes. Some were insufficient, some were moderate and some were high

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
			-Outpatient clinic–based services provided in one of several types of outpatient clinics (multidisciplinary heart failure, nurse-led heart failure, or primary care). -Patient education (and self-care training) delivered before or at discharge by various personnel or methods -Other interventions that did not fit into any of the other categories				
Fox (2013a), 185	Unclear, 26; n= 6839; **not detailed**	Patients aged >65 in the acute phase of illness or injury	Acute geriatric unit care including at least one of the five ACE model components or principles: -patient-centred care, -frequent medical review, -early rehabilitation, -early discharge planning, -prepared environment	Usual care - care not provided on an acute geriatric unit.	-length of stay -patient health status -costs -place of discharge	Moderate Only articles in English or French languages	ES differences between the five components were modest and may have been susceptible to bias in reporting in trials or by investigators
Fox (2012), 186	Unclear, 13; n= 6839; **not detailed**	Patients aged >65 in the acute phase of illness or injury	Acute geriatric unit care including at least one of the five ACE model components or principles: -patient-centred care, -frequent medical review, -early rehabilitation, -early discharge planning, -prepared environment	Usual care - care not provided on an acute geriatric unit.	-Mortality -readmissions -length of stay -patient health status -costs -place of discharge	Moderate Only articles in English or French languages	The review included a small number of studies with limited information regarding study methods. Although

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
							randomisation was used in most studies, six had post randomisation exclusions or did not report related information, which may have contributed to an overestimation of effect sizes.
Fox (2013b), 194	RCTS, 7; Quasi-experimental trials/pseudo-RCTs, 2; *n= 1736*; **not detailed**	Adults aged >65 in the acute phase of illness or injury	Early discharge planning often involved: -assessing the needs for discharge home -providing education to patients/carers -reviewing and adjusting medications -transferring information/coordinating care with other healthcare providers -One or more home visits and/or telephone calls after discharge	Usual care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction	High Only articles in English or French languages	Limited information on study methods. Most common bias were performance bias (7 studies), detection bias (5 studies) and inadequate allocation concealment (4 studies).
Godfrey (2000), 195	RCT, 1; Case control, 1; survey 1; *n=1068;* **1999**	Subgroup of patients discharged from hospital using short-	Home care programmes of which the subgroup of studies included were the 'short-term home care programmes offering practical	Unclear	-Mortality -readmissions -patient health status	Moderate	There was little consistency and few outcome measures used within the

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		term home care programmes	support to people in the home, often following discharge from hospital'		-patient satisfaction -costs		studies and there were methodological problems associated with each of the studies.
Gonseth (2004), 214	RCTs, 27; non randomised trials, 27; *n=not reported*; **2003**	Patients aged >65 years with principal or secondary diagnosis of heart failure	Disease management programme – a multi-disciplinary approach to care for chronic diseases that co-ordinated comprehensive care along the disease continuum across healthcare delivery systems.	Not clearly defined – Usual care	-Mortality -readmissions (including emergency room visits) -costs	High Different interventions combined in the meta-analysis	There was often insufficient information to judge the quality of the interventions, their intensity or duration. Most of the RCTs were not blinded.
Griffiths (2007), 196	RCTs, 10; controlled before and after study, 1; *n=1896;* **2006**	Adult patients who were assessed as eligible for nurse-managed care in a nurse led unit	Nursing-led inpatient unit, where the nurse must have been the identified leader of the clinical team for a majority of patients in the unit.	inpatient care that was managed by a consultant (attending) physician or surgeon.	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -costs -place of discharge	High Specific detail of the care provided to both intervention and usual care groups was lacking in many studies and is not	

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
						fully detailed in review	
Griffiths (2005), 197	RCTs, 8; quasi-randomised, 1; *n=not reported;* **2003**	Patients who had been admitted to hospital with a range of medical or surgical needs.	The Nursing led unit was defined as an institutional setting where nurses assumed the care management function and team leadership that was usually vested in doctors for the majority of patients.	Not NLU patients – usual care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -nursing home admissions -costs -place of discharge	Moderate	
Gwadry-Sridhar (2004), 13	RCTs, 8; *n= 1239*; **2000**	Patients who were hospitalised for heart failure	Patient education directed at increasing patients' knowledge of their heart failure diagnosis, signs, symptoms, and/or treatment. The intervention team was multidisciplinary.	Usual care	-Mortality -readmissions -patient health status -costs	Moderate	All studies had a score of 4 or more (Jaded 5-point scale). Blinding to the outcomes of readmission or death was not evident in most of the studies.
Halbert (2007), 228	RCTs, 11; *n= 2177*; **2005**	Older patients who had sustained a hip fracture	Rehabilitation as services provided by a multi-disciplinary team with the goal of reducing disability by improving task-oriented behaviour, for example, walking and dressing	Not consistent across included studies	-Mortality -readmissions -length of stay -patient health status	Moderate	5 trials did not conceal allocation of participants; 7 trials had group

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
					-place of discharge		characteristics that were not comparable at baseline; blinded outcome assessors were unclear in 8; 3 trials did not use intention-to-treat analysis and 6 trials had less than 12 month follow up
Handoll (2009), 231	RCTs, 13*; n= 2498;* **2009**	Older people with any type of fracture of the proximal femur which had been surgically fixed prior	Multidisciplinary rehabilitation where rehabilitation was delivered by a multidisciplinary team, supervised by a geriatrician or rehabilitation physician/clinician.	variations in 'usual care'	-Mortality -readmissions -length of stay -patient health status -carer outcomes -costs	High	Most trials appeared well designed, but some were at risk of bias due to lack of blinding/ incomplete outcome data). Despite randomisation there were imbalances in key patient characteristics.
Huntley (2013), 198	RCTs, 6; *n*=	People aged >65	Interventions initiated in hospital or on discharge which included:	usual care	-readmissions (including	Moderate	The risk of bias was generally

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	2699; **not detailed**		-Intensive advanced practitioner nurse interventions -Specialised geriatric health professionals providing case management -Case management initiated at discharge		emergency room visits) -length of stay -costs	Search restricted to "Organisation for Economic Co-operation and Development" country and English language	low, with varying risks among the included studies.
Hyde (2000), 199	9 randomised or quasi-randomised studies; *n= 2637*; **1997**	Older people (over 65) with undifferentiated clinical problems.	Supported discharge (actual additional support provided to patients or their carers from any source commenced within 1 week of discharge) following an acute admission included: advice, training for carers, home support/care/visits that included rehabilitation and checking/organising services/care/aids	Standard care – not always defined or stated	-Mortality -patient health status -patient satisfaction -nursing home admissions -carer outcomes -costs	Moderate	Not detailed
Kim (2005), 200	RCTs, 12; *n= 2876*; **2003**	Adult inpatients	Case management – multiple component interventions often included: intensive education programs, patient assessment, home visits, case manager-initiated telephone contact, care protocols, collaboration/linkage and discharge plan	Usual care but it was poorly defined or not defined	-readmissions -length of stay	Moderate English language	Overall, the studies were of moderate to high quality, with 6 of 12 studies receiving more than 8/11 points. No study was given a low quality rating.

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Kosse (2013), 201	RCTs, 13; feasibility studies, 3; *n= 4975*; **2013**	Patients aged >65 or over admitted to hospital	Early physical rehabilitation programs: -multidisciplinary programs with an exercise component -usual care with an additional exercise program.	usual care	-length of stay -patient health status -place of discharge	Moderate Search restricted to English language Some studies have a control group which also included discharge planning.	The quality for most studies was moderate (ranged from 3 to 7 with a median score of 5. Most articles scored particularly low on blinding.
Lambrinou (2012), 215	RCTs, 19; *n= 4171*; **2009**	Heart failure patients	Heart Failure management - Nurse-led pre discharge care by means of discharge planning or inpatient education and/or evaluation or consultation. Post-discharge support varied in content and duration between studies.	Usual care – not clearly defined	-readmissions	Moderate English language	Included studies varied in methodological quality
Linertová (2011), 202	RCTs, 25; non-randomized studies, 7; *n= 16183*; **2007** (except MEDLINE which was extended to 2009)	Elderly patients admitted to hospital for any medical problem	Interventions carried out during admission and/or the follow-up in order to reduce readmissions. Included: • In-hospital geriatric evaluation and discharge management including post discharge care plan/follow up (17 studies). • Geriatric assessment with post discharge care plan, care	Usual care	-readmissions	Moderate English or Spanish language	SIGN criteria used to assess 32 studies: '++' All or most of the criteria had been fulfilled (n=14). '+' Some of the criteria had been fulfilled (n=13), ' –' Few or no

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
			coordination, rehabilitation, education and home follow-up (15 studies)				criteria fulfilled (n=5)
Lockwood (2015), 50	RCTs, 5; cohort study, 1; qualitative studies, 3; Questionnaire, 1; retrospective audit, 3; retrospective audit plus qualitative, 1; *n=1342*; **Feb 2014**	Adults who are hospital inpatients	The intervention was defined as a home visit conducted by an occupational therapist for the purpose of assessment and discharge planning prior to the patient's discharge from hospital. This sometimes included: -occupational therapy -in hospital assessments -education -recommendations on equipment or home adaptations.	Usual care but this varied - Four RCTs compared OT pre-discharge home visits with in-hospital assessment and education by an OT. Patients in 1 RCT had no contact with an OT in the control group.	-readmissions -patient health status -patient satisfaction -carer outcomes -place of discharge	Moderate	Low to moderate quality evidence in general. Small sample sizes, and many had insufficient power to find statistically significant effects
McAlister (2001), 216	RCTs 11; *n=not state*d; **1999**	Heart failure patients	Disease Management Programs Interventions were multiple component and generally included education/self-management guidelines, medication review, home/telephone follow up, discharge planning, social care services/primary care	usual care (which was poorly defined)	-Mortality -readmissions -length of stay -patient health status -cost -medication use	Moderate	Not detailed

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			consultation/care and care coordination				
Mistiaen (2007), 61	Systematic reviews, 6; *n=not reported;* **Dec 2004**	Adults being discharged from hospital	Discharge interventions (in-hospital interventions or interventions after discharge) performed (partly) by hospital-based professionals to smooth the transition from hospital to home or to prevent or diminish problems after hospital discharge (Discharge preparation and Discharge support/aftercare).	Usual care/ other intervention	-Mortality -readmissions -length of stay -patient health status -nursing home admissions -costs -place of discharge	Moderate	Only systematic reviews that scored highly on methodological quality were included.
Parker (2000), 203	RCTs, 24; feasibility/pilot, 2; controlled trial, 4; quasi randomised, 1; unclear design, 9*; n=not reported*; **1999**	Older patients	Different locations of care were included but only interventions that were related to early discharge, condition specific expertise (stroke units, hip units, acute care for elders unit and geriatric assessment unit) and Rehabilitation (inpatient rehabilitation, community-based rehabilitation and day hospitals) was included	Unclear and often varied (e.g. outpatient or day hospital and longer term hospitalisation)	-Mortality -readmissions -length of stay -costs -place of discharge	Moderate	Not detailed in text but scores ranged from 1-3 on Jaded and 2-7 on the EPOC
Parker (2002), 100	RCTs, 54; *n=not reported*; **not detailed**	Patients aged >65 years experiencing discharge from inpatient hospital care	-Discharge planning schemes -Discharge support schemes -Geriatric assessment programmes -Educational programmes	Usual care	-Mortality -readmissions (including emergency room visits) -length of stay	High	EPOC quality criteria for each study and only high quality reviews (= with mean scores of

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					-patient health status -patient satisfaction -nursing home admissions -costs -place of discharge -medication use		5 and above) were included.
Parkes (2000), 204	RCTs, 8; *n= 4837*; **1996**	All patients in hospital (acute, rehabilitation or community)	Discharge planning - the development of an individualised discharge plan for a patient prior to them leaving hospital for home. This could have included: -Pre-admission assessment -Case finding on admission. -In-patient assessment and preparation of a discharge plan based on individual patient needs. -Implementation of the discharge plan. -Monitoring.	Standard care with no structured discharge planning (descriptions of control groups varied and some did have elements of discharge planning)	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -costs -place of discharge	High	
Shepperd (2004), 205	RCTs, 11; *n= 5448*; **2002**	All patients in hospital (acute, rehabilitation or community)	Discharge planning - the development of an individualised discharge plan for a patient prior to them leaving hospital for home. This could have included: -Pre-admission assessment -Case finding on admission.	Standard care with no structured discharge planning (descriptions of control	-Mortality -readmissions -length of stay -patient health status -patient satisfaction	High	

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			-In-patient assessment and preparation of a discharge plan based on individual patient needs. -Implementation of the discharge plan. -Monitoring.	groups varied and some did have elements of discharge planning)	-costs -place of discharge -medication use		
Shepperd (2010), 206	RCTs, 21; *n= 7234*; **2009**	All patients in hospital (acute, rehabilitation or community)	Discharge planning - the development of an individualised discharge plan for a patient prior to them leaving hospital for home. This could have included: -Pre-admission assessment -Case finding on admission. -In-patient assessment and preparation of a discharge plan based on individual patient needs. -Implementation of the discharge plan. -Monitoring.	Standard care with no structured discharge planning (descriptions of control groups varied and some did have elements of discharge planning)	-Mortality -readmissions (including emergency room visits) -length of stay -patient health status -patient satisfaction -costs -place of discharge -medication use	High Authors had difficulty in assessing the extent to which contamination between the intervention and control groups occurred	
Shepperd (2013), 60	RCTs, 24; *n= 8098*; **2012**	All patients in hospital (acute, rehabilitation or community)	Discharge planning - the development of an individualised discharge plan for a patient prior to them leaving hospital for home. This could have included: -Pre-admission assessment -Case finding on admission. -In-patient assessment and preparation of a discharge plan based on individual patient needs.	Standard care with no structured discharge planning (descriptions of control groups varied and some did have	-Mortality -readmissions (including emergency room visits) -length of stay -patient health status -patient satisfaction	High Authors had difficulty in assessing the extent to which contamination between the intervention	

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n;* **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
			-Implementation of the discharge plan. -Monitoring.	elements of discharge planning)	-costs -place of discharge -medication use	and control groups occurred	
Gonçalves-Bradley (2016), 49	RCTs, 29; pilot RCT, 1; *n= 11964*; **2015**	All patients in hospital (acute, rehabilitation or community**)**	Discharge planning - the development of an individualised discharge plan for a patient prior to them leaving hospital for home. This could have included: -Pre-admission assessment -Case finding on admission. -In-patient assessment and preparation of a discharge plan based on individual patient needs. -Implementation of the discharge plan. -Monitoring.	Not always described and usual care	-Mortality -readmissions (including emergency visits) -length of stay -patient health status -patient satisfaction -carer outcomes -staff outcomes -costs -place of discharge -medication use	High Comparison groups potentially had access to discharge so it may have affected results.	18/30 trials reported adequate allocation concealment. All but two trials collected data at baseline and 21/30 trials had a low risk of bias for measurement of the primary outcomes
Payne (2002), 207	Type 1, empirical, peer-review, 25; Type 2 empirical non-peer-review, *7; n=unclear;* 2000	Older people	Interventions that transfer patient information between hospital and community including: - liaison/link nurses (district/community/ Orthopaedic) - Early Discharge Schemes - Occupational therapist - home visits - hospital social worker - Hospital-based discharge co-ordinator	Unclear and not all studies had one	-Readmissions -length of stay -patient satisfaction -carer outcomes -staff outcomes -costs	Moderate Only included countries with similar health and social care systems e.g USA excluded insurance-based private	Scores from 10 very poor to 40 good indicated the methodological rigour of studies which ranged from 14.5 to 34.5.

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			- Community services/general practitioner contact or visit pre-discharge			health care system	
Phillips (2005), 217	RCTs 6; *n=949*; **2004**	Heart failure patients	Heart failure disease amendment interventions, which were often multicomponent and included: discharge planning, education, medication counselling and review, increased communication between providers, home visits, telephone follow ups, specialist heart failure nurse and attending heart failure clinics.	Usual care was not specifically or consistently defined	-Mortality -readmissions -patient health status -costs	Moderate English Language	Median Jadad score was 3.5 (IQR 3–4).
Phillips (2004), 218	RCTs 18; *n=3304*; **2003**	Older inpatients with Congestive Heart Failure	Comprehensive discharge planning with post discharge support (that included home visits, telephone contact, home care services, advice, Medication counselling/ review, communication/coordination between providers, day hospital services)	Unclear	-Mortality -readmissions -length of stay -patient health status -costs	Moderate English Language	Not detailed
Shepperd (2005), 208	RCTs, 13; *n= not detailed*; **2004**	Subgroup of elderly medical patients who were discharged early	Hospital at home offered a specific service to patients in their home which required health care professionals to take an active part in the patients' care. Subgroup of studies that looked at early discharge.	Acute hospital in-patient care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -carer outcomes	High The type of care the control group received was not clearly described for	In 18/26 trials the method of randomisation & concealment of allocation was clearly described. The type of care the

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
					-costs -place of discharge -medication use	the majority of the trials.	control group received was not clearly described.
Shepperd (2001), 209	RCTs, 9; *n= not detailed*; **2001**	Subgroup of elderly medical patients who were discharged early	Hospital at home offered a specific service to patients in their home which required health care professionals to take an active part in the patients' care. Subgroup of studies that looked at early discharge.	Acute hospital in-patient care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -carer outcomes -costs -place of discharge	High The type of care the control group received was not clearly described for the majority of the trials.	
Shepperd (2009), 55	RCTs, 24; *n= not detailed*; **2008**	Subgroups of elderly medical patients and stroke patients who were discharged early	Hospital at home offered a specific service to patients in their home which required health care professionals to take an active part in the patients' care. Subgroup of studies that looked at early discharge.	acute hospital in-patient care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -nursing home admission -carer outcomes -staff outcomes -costs	High The type of care the control group received was not clearly described for the majority of the trials.	

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
Gonçalves-Bradley (2017), 46	RCTs, 26; *n= 4746*; **2017**	Subgroups of elderly medical patients and stroke patients who were discharged early	Early discharge hospital at home	Not always clear – inpatient hospital care	-Mortality -readmissions (including emergency room visits) -length of stay -patient health status -patient satisfaction -nursing home admission -carer outcomes -staff outcomes -costs	High	All of the studies were RCTs and the majority were assessed as being at a low risk of bias. The evidence for almost all the outcomes was downgraded due to imprecision, as most of the trials had relatively small sample sizes and reported wide confidence intervals.
Smith (2015), 232	RCTs, 5; *n= 316*; **Jun 2014**	People aged >65 who had any form of dementia, and had undergone hip fracture surgery for a proximal femoral fracture.	- Enhanced interdisciplinary inpatient rehabilitation and care models -Enhanced interdisciplinary inpatient and home-based rehabilitation and care models -Geriatrician-led inpatient management (compared to orthopaedic-led management)	Standard nurse/medical therapy (treatment as normal)	-Mortality -readmissions -length of stay -patient health status -nursing home admission -place of discharge -emergency room visits	High	In aggregate, the quality of the evidence was very low, mostly reflecting the risk of bias in the data and imprecision of point estimates. This grading meant there was uncertainty

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							about the estimates of effect.
Takeda (2012), 219	RCTs, 25; *n= 5942*; **2009**	Adults who had at least one admission to secondary care with diagnosis of heart failure.	Clinical service interventions (defined as inpatient, outpatient or community-based interventions or packages of care) directed specifically at patients with heart failure were included. These interventions included: -Case management - Clinical interventions such as enhanced or novel service provision -Multidisciplinary interventions such as disease management interventions	Usual care	-Mortality -readmissions -length of stay -patient health status	High	Overall, the studies were assessed as having a low risk of bias although a lack of clarity in reporting meant assessment was often unclear.
Taylor (2005), 220	RCTs, 16; *n= not detailed*; **2003**	Adults who had at least one admission to secondary care with diagnosis of heart failure.	Clinical service interventions were defined as inpatient, outpatient or community-based interventions or packages of care, which were applied to patients with heart failure and their relatives or carers. These interventions included enhanced or novel service provision for patients with heart failure.	Usual care	-Mortality -readmissions -patient health status -costs	High	
Van Craen (2010), 210	Completely met randomisation	Older inpatients (65+)	The GEMU used ‘Comprehensive Geriatric Assessment and Management’ tools to set up some	Unclear	-Mortality -readmissions -length of stay	Moderate	Total quality scores ranged from 8 to 15, 0

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
	criterion, 5; partially met randomisation criterion, 2; *n= 4759*; **2007**	hospitalised for at least 48 hours	additional or more-targeted interventions. These interventions included: the development of individual care plans, the early start of discharge planning, post discharge follow up and ensuring timely rehabilitation.		-patient health status -nursing home admission	English, Dutch, or French languages	(low quality) to 20 (high quality).
Verhaegh (2014), 211	RCTs, 26; *n= 7932*; **May 2013.**	Chronically ill adults or patients at risk of poor outcomes.	Transitional care interventions were initiated during hospital admission and continued after discharge through home visits or telephone follow-up for at least one month. Most were multiple component and often consisted of: - Assessment at admission - Self-management education - Care giver involvement - Discharge planning -Care coordination by nurse -Primary care provider communication -Home visit within 3 days -Number of home visits -Telephone follow-up - Number of telephone follow-ups - Total duration of the intervention	Unclear	-readmissions	Moderate	Quality not clear. No publication bias was detected.
Prieto-Centurion (2014), 233	RCTs 5*; n= 1393*; **2013**	Patients who were	More than 15 different strategies formed intervention bundles (i.e., multiple interventions implemented	Usual care/lower	-Mortality -readmissions	Moderate	In the four studies that reported

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
		hospitalised for COPD	as part of a care strategy). These included: discharge planning, education, counselling, action plans, referrals (rehabilitation and social care services), exercise program, communication with primary care, transition navigator, home visits, telephone follow up and patient hotline.	intensity interventions		English language	sufficient information to evaluate the risk of bias in all seven EPOC domains, the risk of bias was considered low in all domains except masking of study participants and personnel to the intervention
Winkel (2008), 226	RCTs, 8; *n=1122*; Unclear	Stroke patients	Early discharge and therapy-based rehabilitation at home interventions: 1. outgoing early supported discharge teams from hospital who provided rehabilitation services 2. outgoing early supported discharge teams from hospital who did not provide rehabilitation services 3. community-based rehabilitation services	Stroke units, rehabilitation in units with specially trained staff; or rehabilitation in other units mixed with day hospital or outpatient services	-Readmissions -length of stay -patient health status -patient satisfaction -nursing home admission -carer outcomes -cost -place of discharge	Moderate English, Swedish, Norwegian or Danish language	Trials were level I n=2 or II n=6 **Level I:** large RCT with low false-positive or low false-negative errors (high power). **Level II:** small RCT with high false-positive or false-negative errors.
Purdy (2012), 183	RCTs, 16; SR, 1; *n=unclear*; **2010**	Older people	Case Management in Hospital/Health Care Systems - a collaborative practice model	Unclear	-Readmissions (including	Moderate	Not detailed

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score *(5-8= moderate; 9-11=high)* and any Review limitations**	**Quality of evidence included in review**
			including a multidisciplinary team, where the process encompassed communication and facilitated care along a continuum through effective resource coordination. Early discharge hospital at home - a service that provided active treatment by health care professionals in the patient's home for a condition that otherwise would have required acute hospital in-patient care.		emergency room visits) -length of stay	English Language and Organisation for Economic Co-operation and Development (OECD) country.	
Barras (2005), 184	RCTS, 4; Systematic review, 1; Descriptive studies, 7; *n=unclear*; **Unclear**	Patients who presented at any acute or rehabilitation hospital	Occupational therapy home assessment and discharge planning.	Not always used and unclear	-Readmissions -patient health status -nursing home admission -cost	Moderate	Low numbers of high quality publications directly relevant to the effectiveness of occupational therapy home assessment and discharge planning were identified.
Bryant-Lukosius (2015), 54	RCTs, 8; *n=1596*; **2013**	Data extracted on population subgroups of "Post-	Interventions varied but most studies included discharge planning, care coordination and patient education. Other frequent intervention elements included medication review, referrals	Standard care	-Mortality -readmissions (including emergency room visits)	Moderate	Post-discharge care of patients with heart failure, one study at low risk and two at

First author (publication date), Review reference number	Study types, number of relevant studies**;** *participants n**;*** **Year last search performed**	**Population**	**Interventions**	**Comparison interventions**	**Outcomes of interest for which data were reported**	**AMSTAR score** ***(5-8= moderate; 9-11=high)*** **and any Review limitations**	**Quality of evidence included in review**
		discharge care of patients with heart failure" and "Post-discharge care of elderly patients"	to other providers and services, counselling, emotional support and teaching self-care skills.		-length of stay -patient health status -patient satisfaction -carer outcomes -cost -medication use		moderate risk of bias. Post-discharge care of elderly patients three studies at moderate risk and two at high risk of bias.
Martínez-Velilla (2016), 212	Unclear assumed 15 RCTs and 2 CCT; *n=unclear*; **2015**	Hospitalised elderly medical patients (although studies carried out in units for a specific disease (e.g., stroke) were excluded).	Early rehabilitation interventions were divided into two types: *multidisciplinary programs with an exercise component *cases in which an exercise program was added to the usual care Some interventions included home visits, phone calls, comprehensive discharge planning and the provision of educational material.	Not clear – usual care	-Mortality -readmissions -length of stay -patient health status -patient satisfaction -nursing home admission -cost	Moderate Spanish, Portuguese or English language	Overall out of 17 studies, 10 presented adequate sequence generation; 10 reported allocation concealment; 7 had blinded assessment of outcomes; 17 described losses to follow-up and exclusions and 7 used intention-to-treat analyses.

APPENDIX 12: REVIEW PAIRS CATEGORISED A VERY HIGH PRIMARY STUDY OVERLAP BY GROOVE

First review in pair (reference number)	**Second review in pair (reference number)**	**GROOVE Corrected covered area (CCA)**
Allen (187)	McAlister (216)	15.8%
Allen (187)	Bryant-Lukosius (54)	19%
Al Maqbali (227)	Crotty (223)	23.1%
Anderson (221)	Goncalves-Bradley B (**46**)	18.2%
Anderson (221)	Winkel (226)	36.3%
Bakker (188)	Ellis B (56)	30%
Bakker (188)	Fox A & Fox B (185, 186)	20%
Richards (191)	Ellis B (56)	23.3%
Richards (191)	Parker B (100)	16.9%
Cole (192)	Huntley (198)	15.8%
Cole (192)	Hyde (199)	33.3%
Cole (192)	McAlister (216)	16.7%
Cole (192)	Parker B (100)	16.1%
Langhorne (59)	Winkel (226)	19%
Ellis B (56)	Fox A & Fox B (185, 186)	20.7%
Ellis B (56)	Kosse (201)	16.7%
Ellis B (56)	Van Craen (210)	26.1%
Ellis B (56)	Martinez-Velilla (212)	18.8%

First review in pair (reference number)	Second review in pair (reference number)	GROOVE Corrected covered area (CCA)
Feltner (213)	Lambrinou (215)	15.8%
Feltner (213)	Phillips B (218)	18.2%
Feltner (213)	Takeda (**219**)	26.3%
Fox A & Fox B (185, 186)	Van Craen (210)	17.6%
Fox A & Fox B (185, 186)	Martinez-Velilla (212)	16%
Fox C (194)	Goncalves-Bradley A (**49**)	18.2%
Gonseth (214)	McAlister (216)	16.7%
Gonseth (214)	Phillips B (218)	26.8%
Gwadry (13)	Lambrinou (215)	17.5%
Gwadry (13)	McAlister (216)	63.6%
Gwadry (13)	Phillips A (217)	16.7%
Gwadry (13)	Phillips B (218)	30%
Halbert (228)	Handoll (231)	84.6%
Hyde (199)	Parker B (100)	16.7%
Kim (200)	McAlister (216)	15.8
Kim (200)	Phillips B (218)	15.4
Kosse (201)	Van Craen (210)	25%
Kosse (201)	Martinez-Velilla (212)	81.3%
Lambrinou (215)	McAlister (216)	16%
Lambrinou (215)	Phillips B (218)	27.6%

First review in pair (reference number)	**Second review in pair (reference number)**	**GROOVE Corrected covered area (CCA)**
Lambrinou (215)	Takeda (**219)**	22.2%
Lambrinou (215)	Verhaegh (211)	15.4%
McAlister (216)	Phillips B (218)	40%
Parker A (203)	Parker B (100)	16.5%
Phillips B (218)	Takeda (**219)**	19.4%
Van Craen (210)	Martinez-Velilla (212)	21.1%

APPENDIX 13: EXAMPLES OF STAFF PROCESS MAPPING

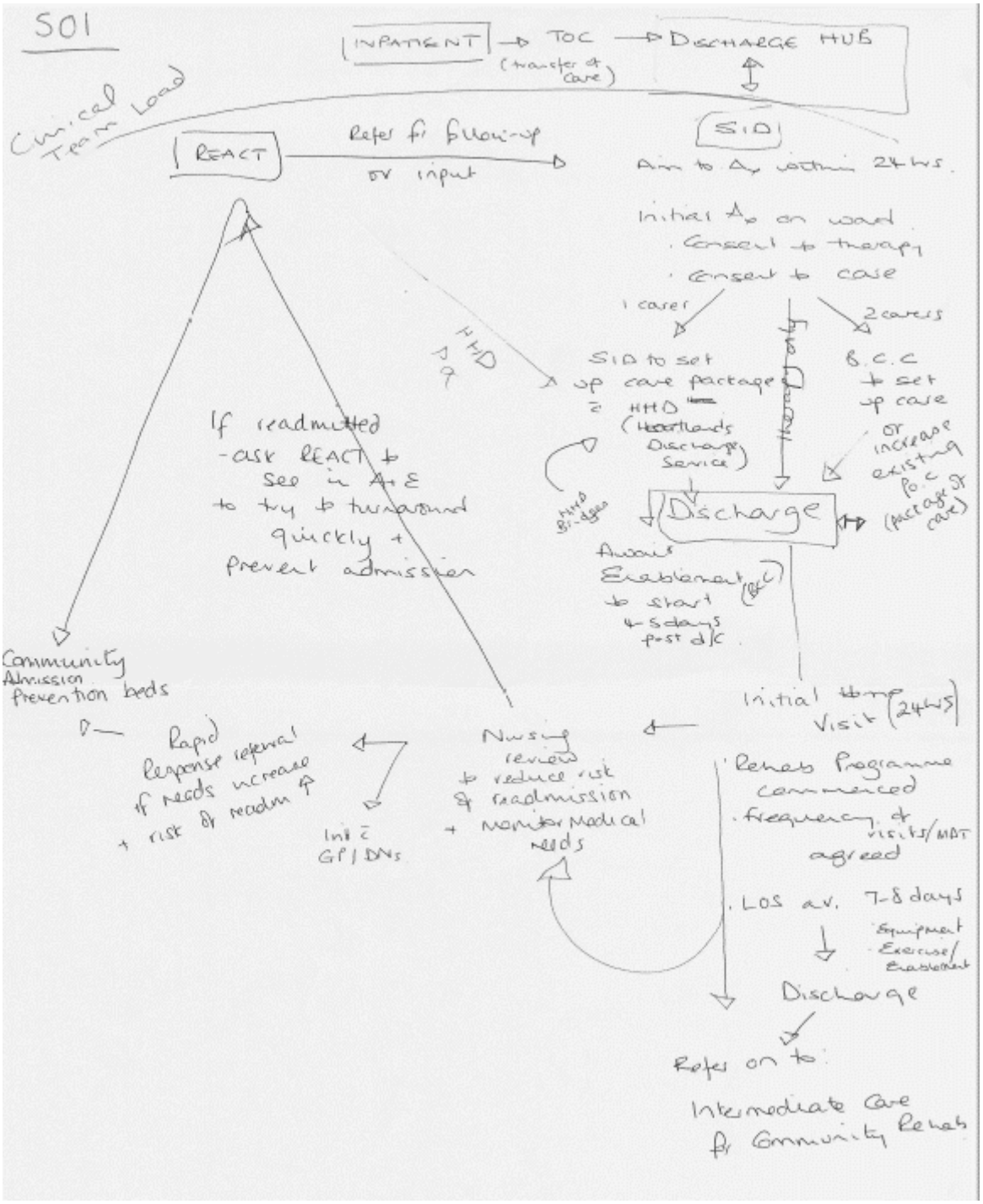


Figure 1: Staff process mapping S01

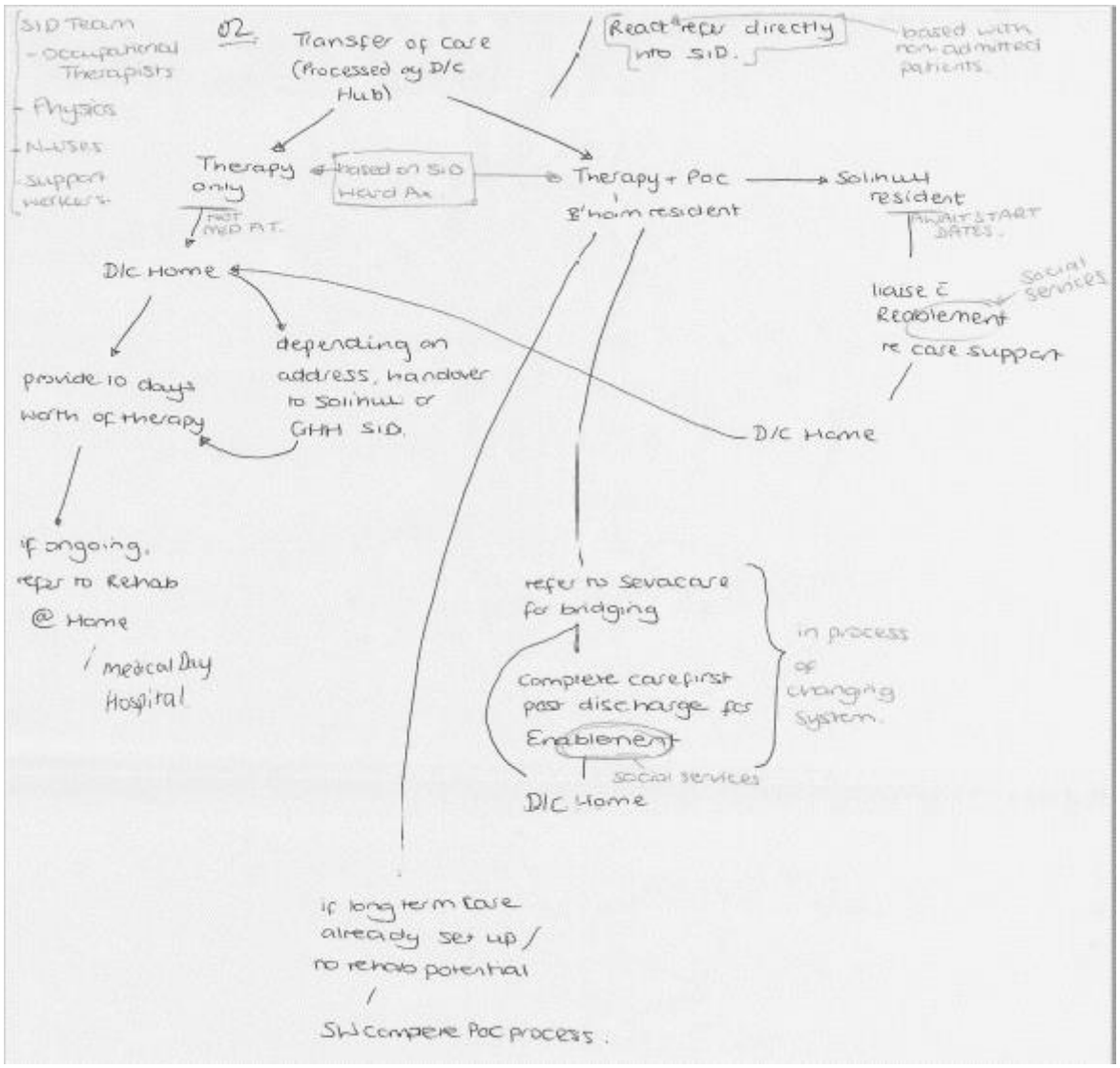


Figure 2: Staff process mapping S02



Figure 3: Staff process mapping S03

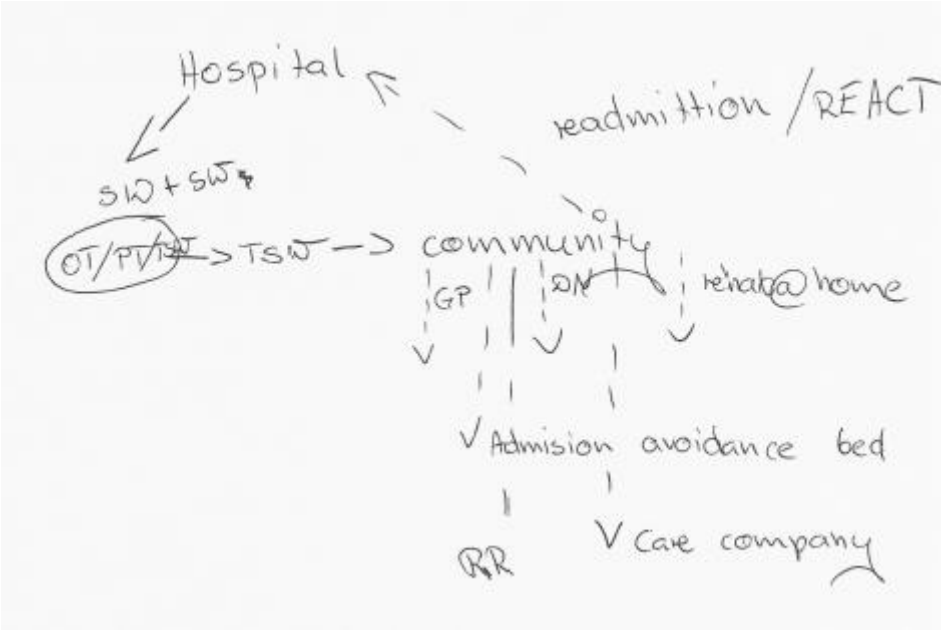


Figure 4: Staff process mapping S09

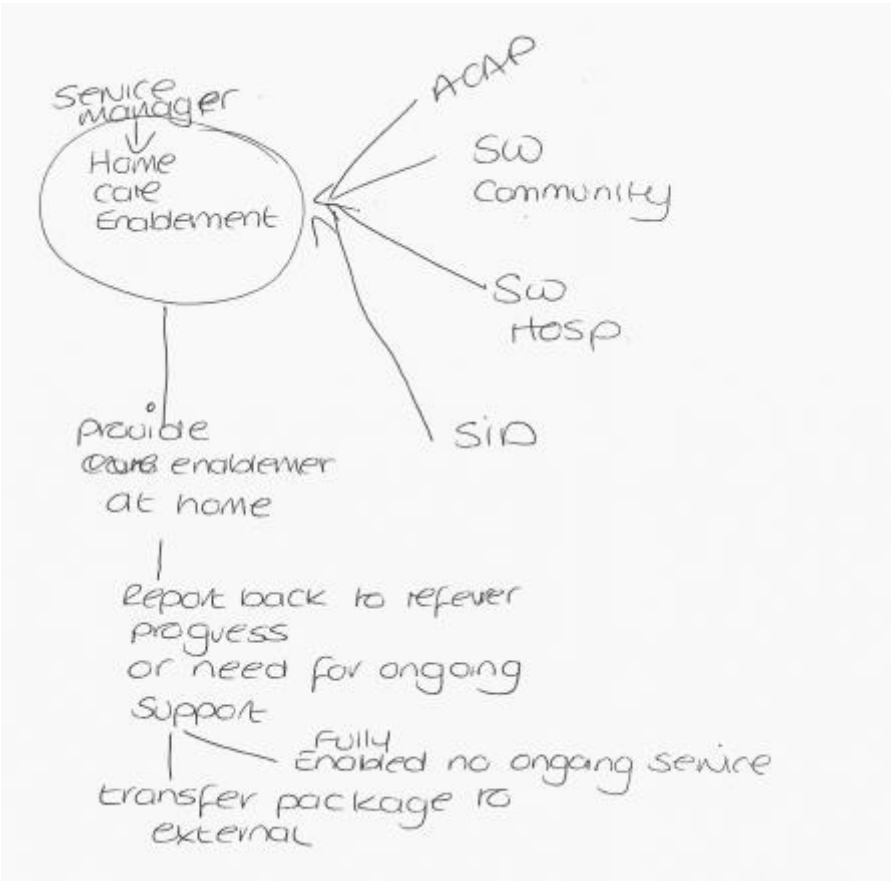


Figure 5: Staff process mapping S13

APPENDIX 14: ADDITIONAL QUOTATIONS

Table 1: Staff theme 1 - Preparedness for discharge and impact of discharge service

Sub-themes	Illustrative quotations
Service impact on patients and relatives	*"So it's fast and it's rapid and it's a continuation of what they were having in hospital, so that's why it works so well, because there isn't that break of service if you like, it's pretty much a step down but in their own home, and it also avoids people unnecessarily going into for instance long term care, in terms of 24 hour care I am saying, or avoids them going into a bedded rehab unit where they potentially don't need that, and they just (need) a little but more therapy." Senior practitioner - Council social work (S6)*
	"So it's sort of like a therapy input but it's like a nice cushion for them, so when they discharge they know they have got that support, so it didn't stop in the hospital for example if the patient has been here for many weeks, and they are going to their house, they are going to their own home, and it can be a bit shocking when you don't have the nurses 24/7 there for them. They can access our service, they have got carers onsite as well, so it's really reassuring for them and for the families as well." Therapy support worker – SIHDS (S9)
	"it's benefitting patients because they are having a shorter length of stay, they are receiving the care in their own home, they are seeing care much more quickly, so before they would go home and then wait weeks for their therapy whereas they're receiving it immediately now." Clinical team lead - SIHDS and REACT service (S1)

Service impact on patients and relatives	*"People flourish in their own environment when they go home, they are quite limited with what they can do on the ward, so patients can become quite immobile really, and they can then rely on therapists only to see them once a day, and walk with the nurses and things like that; So it's so much better for a patient to go home and then get back into their own routine habituation at home really, so it's much better that they go home than stay in hospital."* Occupational therapist – SIHDS (S7)
Patient expectations	*"I've had scenarios where by the time we go and see the patient they have been seen by A&E, they have been admitted onto a ward, they have been through their doctors, therapists, nurses, and then you go and see them and you go, "I'm from the discharge team, come to talk about going home." "I'm not going home yet." And actually had that have been put in place from the moment they came in then I wouldn't be breaking the news to them they are going home that day. So I think it's just making it embedded is probably the right word." Senior occupational therapist – SIHDS (S2)*
	"It's hard sometimes because patients feel that they… what they can and can't do they feel that they can do but sometimes when they go home because they have been quite poorly sometimes it's not always possible to achieve what they want to achieve. So I suppose we're quite realistic with our goals, but patients sometimes are unrealistic, so I think that can jeopardise sometimes their potential." Occupational therapist – SIHDS (S7)

SIHDS aims and impact on discharge	"*Yes, I think it's a really good example how to combine two worlds, how to create a nice marriage between hospital and community, especially for all the generation of patients, although we have got young patients as well the majority of our patients they are over 70, so I think a lot of other hospitals can gain from looking at our service." Therapy support worker – SIHDS (S9)*
	"Social services their caseload should have gone down in the reflection to how many care packages we do" Senior occupational therapist – SIHDS (S2)
	"To provide ongoing support, to ensure someone is okay at home, to provide a little bit of therapy if they're medically fit and don't actually need to be in hospital, to just make sure they're safe and managing at home safely." Occupational therapist – SIHDS (S5)

Table 2: Staff theme 2 - Integration and impact on patient pathway

Sub-themes	**Illustrative quotations**
Communication	"*But we don't sit together, we have different management, different governance arrangements, but that's health and social care isn't it? It's not integrated in that sense, we still have different roles and responsibilities within that, but then we are both onsite*" *Team manager - Council social work (S4)*

	"I think the initial barriers can start with families and relatives in hospital that are not quite understanding why their relative is going home so soon, so that can be the initial barrier, but once we have explained the service and the risks of patients staying in hospital too long, and the potential for patients to improve once they go home, and explain about the full service, whether if the patient requires a package of care as well." Occupational therapist – SIHDS (S7)
	S8: "*I think sometimes the wards refer too quickly to us and the patients aren't always properly medically fit, and so that impacts on our time and what we're doing with chasing up things on the ward and stuff that perhaps if they have done a bit more of their stuff beforehand." Nurse – SIHDS (S8)*
	"So we are working closely with the [ward] therapists so they know what kind of expectation the patient has and what goals we can achieve with them in the community in the short period of time." Therapy support worker – SIHDS (S9)
Integration and onward referrals	*"And postcode lottery I think is the biggest thing that we have had to try and overcome and it's about myself having meetings with certain people to try and say this has been taken away from us the only option we have for these patients is for them to be admitted or we can't support them. So I think those are probably the two main challenges, but [city] is a big area as well, so we cover a lot of patients" Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)*
	"it varies for each different trust and local authority. For the City Council it would be telephone conversations, emails via the NHS net because that's a secure one, completing referrals and sending them via NHS mail, that's

	how we do it to them. With social work I suppose it's more via the telephone really." Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)
	"I think they would have to have a look at what's already existing. So to me one of the biggest things is that commissioning bodies need to with obviously leaders of services such as SIHDS, is they need to have a look at what's already existing in the communities and how those community teams can work with and support discharge, because I don't physically see how it can all just come from the acute sector. You have to have that community clinical expertise as well." Team Lead - Community health service (S3)
	"The only issue that we had early on was them trying to give us referrals that have no potential for enablement whatsoever, and that's when I'm talking about a really dense stroke that needed two carers. There was no way on this planet that this person was going to enable in any way, it was always going to be a hoist, two carers, four calls a day and we said we're not going to take those sort of calls, because that's going to take up so much time that we can't then give two people that have got real potential. So you are so dependent on the person making the referral being really clear about what their aims are for that patient." Assistant team manager - Home care enablement service (S14)
	"The number of referrals has reduced I would say in the last couple of weeks, but that just might be because people aren't appropriate for that pathway. But it very much goes up and down with SIHDS, there will be weeks where I don't have anything, and then there will be weeks where I have about five or six coming through on one day, so it just totally depends on the pace of both the trusted assessors as well as the social workers. But generally it's steady, it's not really heavy as such, so it's generally quite steady and it's generally been really positive I would say." Senior practitioner - Council social work (S6)

	"If it's a nursing issue it would be ourselves that go out and see them and we just refer through [town] or [town] district nurses or speak to the GP." Nurse – SIHDS (S8)
	"SIHDS are assessing for us as trusted assessor it's helping social care because otherwise we would be doing other assessments like we are now. So they are supporting us to manage the demand and capacity." Team manager - Council social work (s4)
	"So it might be in a few weeks' time that we don't assess for packages of care, it's very ambiguous at the moment, but it would be better that it was left on the social worker because I do feel it's quite a social worker role and it's very time consuming. So I think as we are a therapy led service it would be better that we just continue just with therapy rather than setting up packages of care as well." Occupational therapist – SIHDS (S7)
	"we just need to look at getting it re-established, the system called Care First which is the social work's system, and we have access to that, so we could see what care agency they had, what's the assessment been done in the past, so we do have access to that, we just need to look at getting re-established up. But apart from that no we don't really have any other access to other trust's stuff, every trust uses something different, a different system" Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)
	"I suppose the only thing that would be of an enhance the service even more is a better way to share information than by email, a better way, and maybe closer links with individuals. But certainly being able to easily share and give feedback would enhance the service." Service manager - Home care enablement service (S13)
	"I think what would really improve the service is the whole issue that we encounter around information, governance and IT, because information governance is the key to everything, because of the hoops that we have

	to jump through, sometimes it makes things very difficult for us, and because of the information governance that then has an impact on the IT, and IT has an impact on the access, it leads to delays and a lot of frustration. So joined data sharing I think." Team manager - Council social work (S4)
Patients not using SIHDS	*"Sometimes we have had people and we have questioned it, but sometimes we have actually gone to our team members and said, "Do you want to check this, because maybe this person would have been good to have come to you?" We obviously can't refer them back to SIHDS because they have left the hospital, but it's just good for them to know sometimes, and they do actually go and investigate, and sometimes it's maybe because wherever they are being referred from, if they have been referred from the hospital itself they can then go back and give that ward a little bit of education well that person could have come to SIHDS." Team Lead - Community health service (S3)*
	"If someone refuses to have anything we've got all our information that we leave them with and say, "Look here's what you need, you've refused, you don't want us to do that, but here you go that's down to you now." So we've got all our leaflets and things that if, I don't know, stair lifts, or care, or key safes, or pendant alarms, we've got all our leaflets that we say, "Look here you go."" Occupational therapist – SIHDS (S5)
	"Just having a good criteria and not being open to anything and anyone but still being flexible. That sounds like a bit of a contradictory comment, making sure they have got rehab potential, making sure that there is a goal that is achievable or is achievable" Occupational therapist – SIHDS (S5)

Table 3: Staff theme 3 - Organisational aspects

Sub-themes	Illustrative quotations
The SIHDS hospital team	*"But no admin support, but at the moment I think it's been manageable for the last two plus years so it's still manageable." Occupational therapist – SIHDS (S6)*
	"*We've got an ongoing issue with the office because it's too small, because there's loads of us now*" *Therapy support worker - SIHDS and REACT service (S12)*
	"As I've said to you what the nurses do already, we would do joint visits with occupational therapy, look at forms, risk prevention say is one example, look at the equipment as part of a falls risk assessment, medication review, observation like blood pressure and stuff, and then looking at equipment" Nurse – SIHDS (S8)
	"We can do joint working, OTs and the physios can go out and do a visit together, or we can do a joint visit as an MDT approach inter-professional working, we can arrange that. We have a morning meeting in the morning at eight o'clock, and if there's a specific physiotherapy issue or functional relation issue or nurse issue, pressure relief as I say then we allocate specific patients within the MDT in the morning. So as I say it's very much joint working. We've got the therapy support workers as well which are generic, which they're a backbone of the team as well really so we can all work together, so yeah works very well." Occupational therapist – SIHDS (S7)
	"The trouble with these sorts of projects is that people move, or organisation restructure, like I am nowhere near [hospital] now, I work in south, I have nothing to do with the referrals, a project like this needs to be robust enough

	so that when people move they can still work, and that's always my concern." Assistant team manager - Home care enablement service (S14)
	"*Prior to SIHDS the service I worked for intermediate care which is part of this trust actually provided that service that SIHDS are providing now, but just in a different way. So we in-reach team rather than the outreach came out. So I think those services have been about a long time, and think their value has been shown considerably over the years" Team Lead - Community health service (S3)*
	"*supported integrated discharge, and the REACT service, at [this hospital site] they're separate services but at [another hospital] site SIHDS is SIHDS and REACT, and they cover the front door. So I consider them to be one team" Clinical team lead - SIHDS and REACT service (S1)*
	"So coming into acute is very different for me in terms of just experiences of how professionally it's very different. My shortest discharge was nine months, whereas now we're discharging every other day, so I think in that sense for me personally that's been my biggest change that I came in here oh my God what am I doing? I think it was just so different, and it's so quick" Occupational therapist – SIHDS (S5)

	"Training we all do the trust mandatory training, and I think we all just tend to book on individual training then which is appropriate to our role. So I would access tissue viability training for example, or wound care, or infection control as a nurse, and then we just disseminate that training that we've had." Nurse – SIHDS (S8)
	"The staff support is definitely a key thing. I think in terms of formal training there isn't anything, but because there's people that have been here since day one they have evolved the service so they know the ins and outs, and if you have got any concerns we will work together, or any questions just say, "What do you think?" So it works quite well I think. I don't think there's any specific training you could have to figure it out because it's quite a separate…" Occupational therapist – SIHDS (S5)
	"Training in terms of on our system, the assessment, carrying out our initial assessment of how to input onto our system with the enablement plans etc, and also training on mainly from a systems point of view, because that's where a lot of the gaps were that needed improving really from a data quality point of view." Senior practitioner - Council social work (S6)
	"One of the challenges within that sometime might be having both the professionals available at the same time, because it's so fast paced here we all have our different priorities, in terms of our workers here have many different cases as part of their caseload, so they're not singularly working on one case at any given time, they are working on a good couple or handful at the same time." Senior practitioner - Council social work (S6)

	"It would be great to have our own social worker, all the team say that, to actually have a social worker sit in our office would be one for REACT and one for SIHDS that would be great, but how feasible that is, is a different matter. But that's the feedback I get a lot from the team is when I say oh we're recruiting they say can we have the money towards a social worker for each team? And I think everyone is quite keen to have that, because that would mean we would cut out some of our….when we have complex patients that we have to refer to the hospital teams, we would have them with us and they could just go and see them" Therapy team lead/Senior Occupational therapist - SIHDS and REACT service (S11)
Challenges working in the community	"*From a [hospital] reablement point of view they're really good, it's just having to wait for start dates, we haven't got access to the bridging [care provider] that we have for [city] patients, so that could be frustrating. [Town] we have quite a strict referral criteria, so they have to have clear rehab goals, and we have had ones in the past where we have assessed them and then they have refused to take them, so that for the patient isn't the best service." Senior occupational therapist – SIHDS (S2)*
	"*I suppose maybe the only other thing is because the SIHD service has grown in terms of what it's taking on, so I think a couple of times our staff have been asked to go out of borough or out of area, that's not necessarily a challenge, it isn't a criticism either, it's just the fact that they are commissioned to see [Community health service] patients" Team Lead - Community health service (S3)*
	"Yes you do get language barriers, so we rely on… we probably don't use interpreter services as much as perhaps we could, it tends to be families around that interpret for you, and we rely on that heavily." Nurse – SIHDS (S8)

Expanding or adapting the service	*"We've recently looked at things like fall prevention, something traditionally we probably wouldn't have looked at, some of the nurses introduced a falls assessment tool, so looking at reducing… might have come in with a fall but they've gone home and they're fine, and look at their risk of further falls in the future to maybe prevent readmissions for something more serious like a fractured bone. So something that's still in the process of taking off, we haven't got there yet. But it's looking and adapting to those sorts of things a little bit more." Senior occupational therapist – SIHDS (S2)*
	"Yeah, and knowing other services, like with cleaning, we could go into a house that just needs a really good cleaner, you can go through social work, but it takes such a long time and there's such a criteria to get it, and sometimes there's no family to have a good clear out in the house, and there's so many trip hazards, and it's so just unkempt, you need a good deep clean, and the process to get that I think I've tried twice and it was ridiculous." Occupational therapist – SIHDS (S5)
	"At the moment it's not a seven day service, which potential means that… and that's just SIHDS not being a seven day service, in general we're a seven day service in the hospital, that's the only thing that I can think of at the top of my head that would be beneficial, only because then we're not leaving patients potentially over the weekend and whatnot before anyone can get to them, because that is again a bit of a delay for them in getting back home." Senior practitioner - Council social work (S6)
	S8: *"But there isn't that link into us once patients have already gone home, and maybe if the GPs had more knowledge of us we could have that referral system coming in from the community side almost, if it was… I think you would have to have quite a set criteria that it's got to be within a certain timeframe of them going home."* Nurse – SIHDS (S8)

	"We've made a passport today for every today, so we're trialling that, we've made a SIHDS patient passport, so then it goes into the box, it goes out as an initial, comes back the following day, goes out for the discharge, comes back, and then we have all the numbers all the data all on the passport, and then before they're discharged the admin or duty OT or whoever is on will make sure it's all inputted" Occupational therapist – SIHDS (S5)

Table 4: Patient and carer theme 1 – Support for patients

Sub-themes	**Illustrative quotations**
Assessment and enablement	C2: *"They said that occupational therapy would get in touch with us, but they didn't say when, so I must admit I naturally assumed it would be two or three weeks after her discharge. I was really surprised, I think I got a phone call on the Saturday morning to say that could somebody come out on the Saturday afternoon following her discharge and I thought wow"* Daughter, aged 60-69
	P3: *"she said that they were coming out the following day to give me a raised toilet seat which I have had, and the lady that came out was very nice, very helpful, asked questions, and if I had questions I could have asked her because she wasn't running away. I can't remember her name but she was very helpful, and then I think she was due to come back the following day with some other equipment which I needed, and somebody else took over from her, and brought the piece of equipment"* Female, aged 70-79

	P3: *"she was somebody I think was doing her job, she was asking questions, doing her job, but at the same time I had local authorities and physio involved because I had phoned them previously to me and this pain, asking them for equipment which they had promised to send me out a raised toilet seat, which I have got two toilet seats, and the bath."* Female, aged 70-79
	P4: *"My neighbour had my key, so they gave the key to those people, the support people, and they installed all this for me."* Male, aged 60-69
	P7: *"They put me a bar when I could pick myself up off the pillow, and sit on the edge of the bed without falling, I could still hold on to the bar, and that was really good. Even now I can't thank them enough for all this, it really has changed it for me, because they asked me when they came before they had done it how I got in bed, and they said, "Show us how you get in bed?" Well the wife says to them she said, "Well he might fall just coming out the hospital again." Anyway I showed them how I get in bed, and I had to put my arm on the bed and then throw myself on the bed, which was the only way I could do it you see, and they seen that and they said right okay and they got me the bar for that."* Male, aged 70-79
	P9: *"The two came and did the assessment and then there was two came and brought all the equipment and set it all up."* Male, aged 70-79
	P5: *"They organised a ramp to be fitted on my front door just as a bit of a doorstep, wouldn't be able to get the wheelchair in and out. That was organised for me by the occupational therapists"* Male, aged 60-69
	C1: *"No, I did ask if I could be there when they showed her how to use the Zimmer frame, but that didn't happen."* Daughter, aged 60-69

	P1: *"The first one…got me on these [walking sticks], and then this one now he's got me on exercises, so that's this Saturday the second meeting for that."* Female, aged over 90
	P10: *"Nobody came for me to exercise."* Female, aged 80-89 FACE
	P4: *"he came down for two days, says, "Look you don't really need me, you are progressing at quite a very fast rate." So that was it. They gave me some exercises to do, there's a sheet in there which I follow"* Male, aged 60-69
	P6: *"I needed those equipment he knew more precisely because he'd actually seen me do the exercises, he knew more precisely what I needed, so it was good."* Female, aged 70-79
	P9: *"They didn't set me any exercises no, because I had an appointment at [hospital] in the fracture clinic"* Male, aged 70-79
	C1: " Well the only other thing we were both as mum said concerned about the key safe, because it's something we're just not used to, having a set of keys outside in a box, and it does worry you." Daughter, aged 60-69
	P11: "*They just get me in the morning and get me out of bed and dressed and make me breakfast, and lunchtime they make me lunch and if I've been to the commode, and then into bed*." Male, aged 70-79
	P2: *"No, not really, they just really noted it down that they had been, and have a chit chat and then they went. The one day someone only stayed five minutes."* Female, aged 70-79

	P3: *"The equipment that they have given me has helped, because the commode helped. Without the commode from the hospital I don't know how I would manage really. The bed rail helped, the stick has helped, because originally I used a stick, but this one was more supportive."* Female, aged 70-79
Informal care or family support	C2: *"She lives at home with my dad who is also 91 who isn't very mobile. She is fairly mobile with a Zimmer frame, but neither of them can go out on their own, and I am their only daughter, so I am obviously I do a lot of the caring and looking after them."* Daughter, aged 60-69
	P10: *"my son build a shower in the toilet to the back because I cannot go upstairs to the toilet upstairs, so my son build me a shower at the back"* Female, aged 80-89
	P11: *"My wife she provides cooked meals, the washing"* Male, aged 70-79
	P2: *"The grandson do it [grocery shopping] online, at the moment his charge has gone down and he's had to send for another one [laptop], so we can't… he will pick something up for me if I want it, it's just the garage is only over the road, Greggs, and it's very handy."* Female, aged 70-79
	P3: *"I would have benefitted because if somebody was to come in and even offer or speak to her, well speak to her to see how you're going to manage to support your mum, that would have been the thing. Don't just assume, because she might be my daughter but then she has her life, and at the time I've never had care, but at the time I needed care at the time if she wasn't living here what would I do? I would stay in bed and rot then, because I couldn't have come down the stairs, my legs wouldn't take me down it. I was able to get up and get on the commode which she helped me the Sunday night and the Monday to get on the commode which was in my room. But getting off my bed that was not easy."* Female, aged 70-79

	P6: "*My son brought the bed down."* Female, aged 70-79
	P7: *"As I say without the wife either I can't thank her enough either because she is still doing her part for me, and she's alright."* Male, aged 70-79
Ongoing care	P3: *"I should be seeing the GP on Friday to see what he is going to prescribe and what they are going to do for me"* Female, aged 70-79
	P2: *"I've got appointments at the hospital. How do you go about if you can't get there?"* Female, aged 70-79
	P3: "So because I have been in hospital I've had two set of physios dealing with, and when I say to one well I've got physio from the hospital there was like no interest, they are doing their job. So I ended up with two raised toilet seats, one is down there in the garage and the one that the hospital fitted is up there" Female, aged 70-79
	P5: "*No, been no social workers come out to the home."* Male, aged 60-69

Table 5: Patient and carer theme 2 - Service impact on patient needs and health

Sub-themes	Illustrative quotations
Regaining independence	C1: *"I think they have done what they were supposed to do, get mum back to looking after herself which is what we want."* Daughter, aged 60-69
	P1: *"You see they don't do anything for you, they sit there and watch you do it. Well a lot of people don't like that, now I'm thinking oh so if I don't make the effort I can't get back on my feet" Female, aged over 90*
	P4: *"have been going to the chemist, not much, a bit at a time, I've bought stuff from the chemist. It's about half a mile round trip, with one crutch, and I have been going for walks every single day now, round the block, and I am practising without the crutch as well, so bit by bit I am getting there." Male, aged 60-69*
	P6: *"So no other than the crutches, I don't need the crutches anymore, so it hadn't enable me to socialise no, but obviously just being more independent and everything, but within the home*." Female, aged 70-79
Perspective of service impact	P10: *"it's not so good for me to just lie down all the time because I am supposed to up and move around. Only sometimes I sit in the chair there, and sometimes I sit by the bed." Female, aged 80-89*
	P3: *"I can go to the back now, but that's about all I can do, and I'm glad to be able to stand and I'm moving."* Female, aged 70-79
	P4: *"A lot of it is down to me, it's very demanding once you come out of hospital, you have got to keep up with the exercises."* Male, aged 60-69

	P4: *"The nurses were great, I got the medication when I wanted it, because I couldn't eat properly in hospital they gave me some drip feeds of the protein, and things like that. But all the medication I had in there was spot on. So I can't fault that." Male, aged 60-69*
	P9: "I have been singing their praises to everybody that's asked me" Male, aged 70-79
	C3: *"She seems to be worried about the food and not eating, but she's got the Fortisips, I says drink the Fortisips, you don't feel hungry" Daughter, age undisclosed*
	Interviewer: *"You don't think the service could be improved?"* P2: *"No" Female, aged 70-79*
	P6: *"I think they had to supply all this stuff before I got home because they couldn't do a full assessment unless you see someone in their own home. So that's not me improving, it helped me there was all the stuff there. No I don't think there's anything I would change." Female, aged 70-79*
	P8: *"the only contact we had was with the nurse that came in, and I can't praise her enough, she was really good, really helpful, answered questions and sorted them out, minor needs that I would go… I felt a little bit embarrassed asking her about some of them, but it wasn't any trouble to… so I was fairly pleased with that." Male, aged 60-69*

Table 6: Patient and carer Theme 3 - Information exchange

Sub-themes	Illustrative quotations
Communication about discharge service	P2: *"Well really they didn't tell me a lot." Female, aged 70-79*
	P4: *"I certainly was yes, beforehand I was informed yeah, well informed." Male, aged 60-69*
	P7: *"No they just said somebody will come down to the house, and see what they can do for you." Male, aged 70-79*
	P9: *"To be honest I was quite happy. Probably some people might have needed more information but having lived a long and varied life I pick up a lot of information, because I go from our church I go visiting people in hospital and in home and all that sort of thing so you pick up a lot of information from what they have done." Male, aged 70-79*
Communication about patients' needs	P3: "*I was there for the day and it was when I was practically due to come home, I was given a cup of tea. Did we know what was going on? Didn't really know what was going on because the lady who was attending to me which I feel she was a trainee doctor she didn't know what to do either, and I felt as if she was speaking to me and then running back to get somebody who was in approvals yes and no as to what to do."* Female, aged 70-79
	P5: *"she seemed very pushy, and it seemed as though she couldn't wait to get me out of there on two occasions, I was discharged twice"* Male, aged 60-69
	P6: *"Getting out of hospital was quite a chore. There was the hospital transport that was very oversubscribed, I think it always is, and they said at lunchtime that I would go out. Apparently there was seven discharged from our ward alone, and then the poor sister spends all her years nursing training spent the whole afternoon trying to*

	negotiate with hospital transport, and then she gave up and said, "I'm going to get you a taxi," but she had to get that approved by finance eventually. So I got home at about half past eight in the evening." Female, aged 70-79
	C1: *"I think you were a bit out of it for the first couple of days. She was in a lot of pain." Daughter, aged 60-69*
	P3: *"I was just in severe pain and could not move, getting worse, wet myself, couldn't do anything for myself. Nobody explained I'll give you some painkillers to ease this pain or whatever, nobody says anything to me about it, I don't know what the causes are. They gave me the painkillers and because you're in pain I'm on these paracetamol from then until now*." Female, aged 70-79
	P8: "The only minor criticism I've had is that I was extremely uncomfortable in the ambulance coming back, but to my mind in my opinion it wasn't really the right ambulance, it was more of a people carrier, and it just got tiny seats so extremely uncomfortable, and I was struggling to stay upright on with the seatbelts and everything, but it was fairly painful I was glad to get home" Male, aged 60-69

APPENDIX 15: TRIANGULATION TABLES FOR CASE STUDY

Table 1: Summary of the PRISM 'Programme' elements in the SIHDS

PRISM domains and sub domains	**PRISM elements in the SIHDS case study as a whole**		**PRISM elements that discharge services in development should consider**
	Facilitators	**Barriers**	
Programme			
Organisational perspective			
Strength of the evidence base	In stakeholder interviews staff reported that the service was reducing readmissions and length of hospital stay locally; interviews with patients and carers found that the SIHDS provided patients with	Staff reported there was not always complete data available regarding all quantitative outcome measures	Data collection and analysis should be built into services, with enough time allocated to collect the data. This would allow evidence to be regularly reviewed, reported and used to sustain services.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	therapy, equipment and personal care at discharge SIHDS staff reported seeing data on reduced readmissions at the hospital and this data had been used to sustain and expand the service locally		
Coordination across departments and specialties	The SIHDS team solved some initial coordination issues and promoted an organisational structure to establish joint working, shared paperwork and joint patient	As with other health services things did not always run as expected and sometimes there were issues encountered such as:	It is important to establish and promote joint working, shared paperwork and patient pathways to aid coordination and reduce duplication. However, once developed it is also important to regularly review process maps

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	pathway across hospital, social and community care	• Extra work for SIHDS staff (e.g. patients being referred too early and requiring extra follow up) • Occasionally duplication (e.g. with community therapy due to primary care referrals for SIHDS patients) • Onward referrals or signposting were sometimes complicated (e.g. depending on where patients lived they had different services/support available)	(especially after process/pathway changes in any of the key partners). Continued regular communication is imperative across the patient pathway to identify where further improvements could be made.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
		• Partner processes changed (e.g. the enablement service no longer received referrals directly from SIHDS which meant that patients were not identified as SIHDS so enablement services no longer prioritised them) • The completion/quality of shared paperwork (e.g. the quality of care plan or risk assessments sent to community therapy teams with referrals)	

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
Usability and adaptability	The service has adapted to reflect local needs and policy to: expand the number of staff involved to include nurses; therapist roles have been expanded to allow them to act as 'trusted assessors' to complete social work assessments; the service works more closely with the admission prevention service; and referral criteria to the service has expanded.	SIHDS hospital therapists did not always feel they had the skills to act as 'trusted assessors' despite social care staff giving additional support to them.	As services expand and adapt, they need to ensure that new and existing staff have adequate training opportunities, skills and support for any additional aspects to their role.
Patient perspective			

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
Seamlessness of transition between program elements	Provided continuity of care to support patients at discharge (e.g. assessments on ward; setting up care and equipment for patients at home; home visits and support), as well as onward referrals/signposting if patients had ongoing health needs e.g. to community, social care or to their GP Patients spoke about being satisfied with their care and also	A patient's continuity of care can be impacted by waiting lists and service capacity (for example the 2-3 week wait for community care) and some patients did not feel that there were adequate referrals or signposting for example for nutritional problems. Patients reported a lack of information or incorrect information causing them frustrations or lack of preparedness around their time of discharge (e.g. not being told they	Seamless transition is not always possible, whether this be due to service capacity, medication or transport it is important for good communication about the SIHDS service itself to patients, as well as the needs and what they should expect at home. Communication could be improved in general especially as there was limited reporting of staff and patients working together to set goals and care plans.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	ongoing support from primary care services, particularly for prescriptions	were being discharged until the last minute). As well as causing problems regarding arranging transport home and knowing what sort of pain to expect at home.	
Service and access	The service had built good relationships with some hospital wards, who referred into SIHDS	Not all patients potentially eligible for the SIHDS received referrals and SIHDS staff have worked with colleagues on hospital wards to increase the number of eligible patients who get offered the SIHDS pathway, but there are also limits on service capacity.	Ensure there is an awareness of the service (and referral criteria) through all potential referral routes so that the service is accessible to all eligible patients.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	Barriers	
		Sometimes it was not clear if some patients were eligible for the SIHDS or needed a full package of care from Social Services.	
Patient centeredness	The service assessed patients on the ward and at home to ensure they received patient centred care and the service had a positive impact on patient outcomes in terms of patient safety at home, regaining independence and giving	Some patients spoke about relying heavily on informal care or family for support with shopping, cleaning, self-care and cooking.	It is important to ensure that care is coordinated and tailored to the needs of the individual patients, provision of equipment aids was also important to patients.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	patients confidence. Patients felt that seeing staff close to discharge was extremely important as well as any equipment aids provided.	Patients spoke about the impact of being in hospital on their health outcomes and despite having the SIHDS service, some patients still struggled with caring for themselves at home.	

Table 2: Summary of the PRISM 'External Environment' elements in the SIHDS

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
External Environment			
Regulatory environment/Payor satisfaction	Responding to NICE guidance on co-ordinating, planning and supporting older patients at discharge	Local priorities may change or services may get absorbed or moved to other organisations/services	Services should be set up to respond to local needs and priorities, services should evolve as and when needs change
Community resources	SIHDS team fill a gap in the community therapy capabilities by seeing patients immediately after discharge from hospital (normally the community trust has a 2-3 week wait for therapy after referral).	Community teams lose some staffing capacity by providing SIHDS with staff on rotation. Awareness of the SIHDS service in the wider health community, such as in primary care, could be improved.	Discharge services should have strong links to community services to ensure there is an understanding of what they provide and that there is no overlap or duplication with services provided in the community. Awareness of SIHDS could also be improved through promoting the service.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	Use of community staff resources within the team improves service through joint working.		

Table 3 Summary of PRISM 'Implementation and Sustainability Infrastructure' elements in the SIHDS

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
Implementation and Sustainability Infrastructure			
Performance data	Outcome data were collected from patients. Managers reviewed hospital readmission data.	Data such as quality of life measures, were not always collected from patients, due to the limited time therapists had when meeting patients and the appearance of complex needs during appointments taking priority.	Ensure staff have protected time to complete evaluation measures and understand the importance of data collection for service improvement and sustainability
Dedicated team	Dedicated SIHDS team and named SIHDS leads in social care as well as a community health service physiotherapist embedded in the	Even though SIHDS has a dedicated team, it sometimes took SIHDS staff and hospital ward staff months to understand how the	It is important that service staff understand the service when it starts and that any new staff are fully inducted and trained, otherwise this could hinder aspects of service implementation for

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	SIHDS team. SIHDS leads have expanded the service to include nurses who can monitor and assist with medical needs.	SIHDS service worked and the relevant referral criteria.	example if staff don't understand the referral criteria, eligible patients may not be offered the service. It could be beneficial to review and update any changes to the service map/processes to make it easier for new staff and colleagues to understand the service and links in the system.
Adaptable protocols and procedures	The service has adapted to respond to the needs of the local area and has developed links with the hospital admission prevention service (who they also accept referrals from to prevent unnecessary admissions). SIHDS	There were challenges raised from working in the community, such as the organisation required on a daily basis to ensure that all patients scheduled to be seen in their homes were seen. This was	It is important that service capacity is considered in terms of staff being able to see patients in the community and that procedures are adapted to take this into account. Furthermore, it is important to view the services as part of a wider system and adapt service

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	hospital staff have also adapted procedures to ensure that visits can be planed so that SIHDS staff are seeing patients in similar geographical areas.	particularly challenging in urban areas with traffic congestion.	structures to form links with other relevant services e.g. admission avoidance.
Facilitation of sharing of best practices/Adopter training and support	The service has increased the knowledge of staff through peer support and the training (and sharing of competencies) across the therapy and nursing professions in the team.	Training and peer support may need to be expanded to include social work and community working competencies/support. There were some challenges associated with multi-disciplinary team working for example the	Training and support need to be regularly reviewed to ensure it is responding to staff requirements in an evolving service, for example therapists taking on social care assessment roles. Staff capacity and availability should be regularly reviewed.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	This gave staff key skills in different areas and provided more holistic patient care.	availability of staff at the same time.	
Plan for sustainability	Work to improve staff efficiency by getting remote access to records in the community was reported as being underway. Understanding perspectives from staff and allowing staff ideas to be identified and reviewed in the case study including: expanding to a	Staff did not have remote access and a lot of work and time goes into writing hand notes, which takes up appointment time and impacts capacity. No clear plan was highlighted focusing on service sustainability.	To have a sustainable and flexible service that responds to needs it is important to consider efficiency effectiveness and collaboration with other services; therefore processes should be reviewed and services evaluated to see if they can be streamlined. For example giving SIHDS staff remote access to records (and access to partner records) would improve their efficiency by saving a substantial amount of administrative

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	seven day service; seeing more patients; access to partner organisation patients records; improving communication between professionals and patients, as well as across all levels of staff in all partner departments and services; developing links with primary care and ambulance services. The service was expanding to also focus on prevention of hospital		time making notes before and after appointments. Reviews with key stakeholders need to be planned to identify where improvements could be made. It is also important to consider prevention, and the collaborative work with hospital admission prevention services is beneficial as they can support people to keep them out of hospital. Further expansion of prevention could include working more closely with primary care and ambulance services.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	admissions by working with the admission prevention service.		

Table 4 Summary of PRISM 'Recipients' elements in the SIHDS

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
Recipients			
Organisational characteristics			
Management support and communication	Strong team management for each of the individual services.	Communication between the high-level service managers across separate organisations could be improved.	It is important that discharge services have the support from high-level managers across health, community and social care. Furthermore, it is important that these managers communicate with each other regarding discharge services to ensure continued oversight (awareness of future changes), planning and service engagement.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
Systems and training	A small number of SIHDS hospital staff had some access to social care systems records.	There is limited access for health, social and community care staff to access patients' medical records on each other's systems.	Having governance agreements in place to allow staff involved in discharge to access patients records in partner systems could reduce administration and save service staff time.
Expectation of sustainability	Service partners all recognised the importance of the service and identified common benefits across hospital, community and social care services, which aid sustainability. There was an expectation of continuation of the service.	Some elements of the service were not sustained or may be harder to sustain for example no longer having direct referrals from SIHDS to enablement services, preventing them from prioritising SIHDS patients. Other elements may be harder to sustain over time if relevant training is not provided for example SIHDS hospital staff	Ensure that benefits are fed back to commissioners and that any training needs or service changes are regularly identified and reviewed.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
		completing social work assessments as ‘trusted assessors’.	
Shared goals and cooperation	All service partners highlighted benefits of the SIHDS service and cooperation.	However, there were barriers where there were disagreements or elements of cooperation were lost through structure changes	It is important that all partners are engaged, have input and agree on the benefits of discharge service, cooperation and service goals.
Patient characteristics			
Demographics	Referral criteria has changed over time but patients were normally over 60 years of age.	Case study is in an urban area, so a service in a more rural area may have to make different considerations.	It is important that characteristics of the local hospital population are understood so that services can adapt as necessary. For example, for hospitals where English is not always spoken

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	The SIHDS service organised staff to utilise bilingual members of the team and had access to hospital interpreters if needed.	Staff sometimes used a patient's family members to translate, although this works ok it is unclear if patients could be negatively impacted by having to communicate through family.	by the local population, specific team members or the use of translators can help communicate effectively with patients who do not speak English.
Disease burden	The service helped support patients with different medical and rehabilitative needs, what the service provided (and length of service) depended on a patient's requirements for	The service did not take patients that were not considered to have 'rehabilitation potential', which was dependant on staff understanding of this and consequently was not consistent across the whole service.	It is important that when services are tailored to patients' needs, that assessments are undertaken (to an agreed standard) as well as having open communication with patients so needs are accurately identified and issues such as suffering pain when at home are explained.

PRISM domains and sub domains	PRISM elements in the SIHDS case study as a whole		PRISM elements that discharge services in development should consider
	Facilitators	**Barriers**	
	example some patients had nursing care to change dressings or some patients had carers come to help if they had mobility problems.	Some patients felt they would have benefitted from aspects of the service they were not offered for example some were not offered carers as they lived with someone who could potentially help. Other patients felt that expected pain levels at home were not communicated or managed well.	

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