

Title	Patients' and carers' experience and perceptions of the pilot Integrated Care Programme for Older Persons in Cork City (ICPOP): a qualitative evaluation
Authors	Shinkwin, Claire
Publication date	2020-07-23
Original Citation	Shinkwin, C. 2020. Patients' and carers' experience and perceptions of the pilot Integrated Care Programme for Older Persons in Cork City (ICPOP): a qualitative evaluation. MRes Thesis, University College Cork.
Type of publication	Masters thesis (Research)
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Download date	2026-09-12 15:57:34
Item downloaded from	https://hdl.handle.net/10468/11887

Ollscoil na hÉireann, Corcaigh
National University of Ireland, Cork



**Patients' and Carers' Experience and Perceptions of the Pilot
Integrated Care Programme for Older Persons in Cork City
(ICPOP): A Qualitative Evaluation**

Thesis presented by
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for the degree of
Masters by Research

University College Cork

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2020

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Declaration

This is to certify that the work I am submitting is my own and has not been submitted for another degree, either at University College Cork or elsewhere. All external references and sources are clearly acknowledged and identified within the contents. I have read and understood the regulations of University College Cork concerning plagiarism.

Signed: Claire Shinkwin

Date: 23/07/2020

List of Abbreviations

AA: Admission Avoidance

ADL: Activities of Daily Living

BGS: British Geriatric Society

BI: Barthel Index

CG: Control Group

CINAHL: Cumulative Index of Nursing and Allied Health Literature

CSI: Carer Strain Index

CSO: Central Statistics Office

D: Day

DC: Discharge

EPOC: Effective Practice and Organisation of Care

EQ-5D: EuroQol 5D

ESD: Early Supported Discharge

F/U: Follow-up

FIM: Functional Independence Measure

GHQ: General Health Questionnaire

GP: General Practitioner

HPO: Healthcare Pricing Office

HSE: Health Service Executive

IADL: Instrumental Activities of Daily Living

ICPOP: Integrated Care Programme for Older Persons

ICT: Integrated Care Team

IG: Intervention Group

M: Month

MDT: Multidisciplinary team

MMSE: Mini Mental State Examination

MRC: Medical Research Council

MSQ: Mental Status Questionnaire

MTS: Mental Test Score

NEADL: Nottingham Extended Activities of Daily Living

NHS: National Health Service

Non-RCT: Non-Randomised Controlled Trial

NR: Not reported

OARS: Older Americans Resources and Services Assessment

OPD: Outpatient department

OT: Occupational therapist

PC: Primary care

PGCMs: Philadelphia Geriatric Centre Morale scale

PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PT: Physiotherapist

RA: Rehabilitation assistant

RCT: Randomised Controlled Trial

SD: Standard deviation

SF-36: 36-item Short Form Survey

UK: United Kingdom

WHO: World Health Organisation

Wk(s): Week(s)

Yrs: Years

Abstract

Introduction: The older adult population is increasing dramatically. Older adults experience prolonged hospital admissions and are at a higher risk of experiencing hospital-associated decline, with frail older adults being even more vulnerable. This increases their risk of mortality, readmission, and care-dependency.

The Integrated Care Programme for Older Persons (ICPOP) was introduced in Ireland in response to these demanding demographic changes, with an aim of improving quality of life for older adults by supporting them to live well in their homes. The framework for the ICPop places an emphasis on the importance of evaluating the structural, process and patient outcomes in order to achieve the service objectives. This thesis addresses patient outcomes, with an overall aim of exploring patients' and carers' experiences and perceptions of the ICPop in Cork city. The participants' feedback will be used to further refine the service.

Method: In order to approach this research question, it was necessary for the researcher to gain a more in-depth knowledge on the characteristics of similar models of care worldwide, and their effectiveness compared to usual inpatient care. Therefore, this project was divided into two phases.

Phase 1 consisted of a systematic review. The main objective of this review was to determine whether hospital at home is an effective model of care for acutely unwell older adults, compared to usual inpatient care. A secondary aim was to further explore the optimal parameters (i.e. frequency, intensity, duration, and type of care provided) in the delivery of care, to improve patient outcomes. The findings of this review were also used to inform the interview schedule which was used in Phase 2.

In Phase 2, the researcher addressed the main research question using qualitative research methods. Semi-structured interviews were carried out with patients and carers in their own homes. The interview guide was developed with guidance from the themes, as listed by Proctor et al (2011), exploring implementation, service, and client outcomes. Data was analysed using thematic analysis. The resulting

categories were then organised using the constructs of the conceptual framework for implementation outcomes.

Results: In phase 1, a total of 917 studies were screened. Among these, 23 studies were identified as highly relevant, with 16 studies ultimately fulfilling the inclusion and exclusion criteria and being included for review. The systematic review was limited by a lack of newly published randomised controlled trials and a high risk of bias across many studies. In the context of these limitations, there was evidence to support hospital at home in the areas of patient and carer satisfaction and carer burden, compared to usual inpatient care. It was not possible to determine optimal parameters in the delivery of care due to the under-reporting of interventions across many of the studies.

The qualitative study revealed service users' overwhelming satisfaction with the ICPOP. Key elements contributing to this included the accelerated discharge from hospital and home-based rehabilitation, caring personnel, the positive, therapeutic relationships developed with staff, reassurance for patients and carers and the patient's functional recovery. Some uncertainties regarding the duration of care, end of care and rehabilitative element of the service were also highlighted.

Conclusion: This study has made an important contribution to the topic of hospital at home models of care for the older adult. This study demonstrated that the patients' and carers' satisfaction with this service is largely due to receiving care in the home environment, the social aspect of care, reassurance for both the patient and carer, and the patients' functional recovery. The importance of continuity of care and social relationships was also highlighted. Further high quality RCTs are necessary in order to determine the effectiveness of hospital at home care compared to usual inpatient care for the older adult, with accurate reporting of interventions in order to explore the optimal characteristics for the delivery of this model of care to improve patient outcomes.

Chapter 1: Introduction and Rationale

1.1 Background

There is no worldwide agreement on what age defines an older adult. However, in developed countries, the chronological age of 65 years and over is accepted as the definition of an older person (WHO, 2012). This definition was used throughout this study. Life expectancy worldwide has been increasing steadily over the past century, with Ireland demonstrating the 8th highest life expectancy in the European Union (CSO, 2017). The subgroup of adults aged 65 and older has grown faster than the rest of the population in the past decade, demonstrating a 19.1% increase to 637,567, from 2011 to 2016 (CSO, 2017). By the year 2036, it is projected that this age group will experience an increase in excess of 65% across all regions (CSO, 2019).

However, even though the population is living longer, it does not mean that they are living healthier. Sixty-five percent of this population have two or more chronic conditions, and this figure is set to continue to rise (Smyth et al., 2017). Older adults account for one quarter of all emergency department visits, with one in two patients requiring admission, compared to one in five of the population under the age of 65 (Smyth et al., 2017). This age group occupy over 50% of hospital beds and experience an average length of stay of 14 days (HPO, 2018). Frail older adults are at an even higher risk of healthcare service use (Keeble et al., 2019; Roe et al., 2017).

1.2 Frailty

With the increase in the older adult population sees an increase in the prevalence of frailty, with an incidence of 24% among community-dwelling older adults in Ireland (Roe et al., 2016). Frailty is a debilitating condition associated with adverse health outcomes such as recurrent falls, functional disability and changes to cognition and mental state (Roe et al., 2016). Frailty develops as a consequence of an age-related decline in multiple physiological systems, in particular, the musculoskeletal, endocrine and immunological systems (Leng, Chen and Mao,

2014). This decline invokes a loss of homeostatic reserve, resulting in increasing vulnerability to a minor stressor, for example a urinary tract infection, and disproportionate changes in health and functional status, with little chance of returning to premorbid level of independence (Clegg et al., 2013).

No general international consensus has yet been established on how to define and measure frailty. One of the more common definitions of frailty was developed by Fried et al (2001), whereby frailty syndrome is recognised when an older adult presents with three or more of the following characteristics: slow walking speed, unintentional weight loss, muscle weakness, low activity levels and fatigue. The onset of frailty predicts higher rates of functional decline, falls, hospitalisation and mortality over a 3-year period, compared to the non-frail population (Fried et al., 2004). It is important to identify these individuals in an attempt to alter the trajectory of these avoidable adverse outcomes.

However, frailty is not inevitable, and it can be prevented or reversed (Xue, 2011). Frailty is becoming a key concept in service planning. The World Health Organisation (2016) recommend proactive case-finding of frail older adults through comprehensive geriatric assessment, and re-orientating them to appropriate integrated care pathways in the hope of preventing or delaying disability. Various interventions have been recommended in the management of the physical features of frailty, including an exercise programme that addresses sarcopenia, optimising protein intake, improving vitamin D insufficiency and trialling drug interventions to improve muscle mass and function (BGS, 2014).

1.2 Hospitalisation in older adults

As mentioned above, older adults account for a large percentage of hospital care. Unsuccessful discharges are increasingly more common among this age group, with 12.6% being readmitted within 30 days of discharge, and high rates of delayed discharges, 48% of whom are awaiting community support (Gruneir et al., 2018; Smyth et al., 2017).

Evidence suggests that the hospital is not the most appropriate environment for the older adult to recover. The hospital environment exposes the older inpatient to multiple stressors such as sleep deprivation, limited physical activity, poor nutrition, medical interventions which may affect their physical and cognitive state and mentally challenging situations (Krumholz, 2013). This places the individual at a higher risk of experiencing adverse health outcomes post-discharge, unrelated to the original cause of admission (Krumholz, 2013).

It has been reported that 35% of older adults lose their functional independence following a period of hospitalisation (Covinsky et al., 2003). Of this population, more than two-thirds fail to recover to baseline function within a year (Boyd et al., 2008). This functional decline is likely to be accelerated by the lack of activity during hospitalisation. According to a study carried out by Brown et al (2009), older inpatients spend up to 83% of the day lying in bed, and as little as 55 minutes in sitting or standing. Prolonged bed rest can have detrimental effects on the older adult, including a loss of lower limb muscle strength and aerobic capacity, with a subsequent reduction in physical activity levels (Kortebein et al., 2008). This functional decline places the older adult at an increased risk of readmission and mortality (Boyd et al., 2008; DePalma et al., 2012).

Hospital-acquired delirium is another common complication associated with hospitalisation in older adults (Young and Inouye, 2007). According to a study carried out in Cork University Hospital, delirium was present in over 50% of patients on the geriatric ward, compared to less than two percent of community-dwelling older adults (Fong, Tulebaev and Inouye, 2009; Ryan et al., 2013). Only 40% of individuals have a complete resolution of symptoms and between 32 and 40 percent still experience symptoms one-year post-discharge (Siddiqi, House and Holmes, 2006). Delirium is associated with increased risk of institutionalisation within one year of onset and higher rates of mortality, compared to those without (Eeles et al., 2010).

A period of hospitalisation can have detrimental effects on the older adult, beyond the initial reason for admission. Frail older adults are even more vulnerable after a period of hospitalisation and are twice as likely to die within 2 years of discharge,

regardless of the length of stay, when compared to the non-frail population (Keeble et al., 2019).

1.4 Changing Policies

The changing population demographics, as well as the adverse outcomes associated with frailty and hospitalisation, raises the question of what can be done to promote successful ageing of this population, while managing the growing demand for healthcare services. Policies worldwide have had to focus on the reform of the management of the acutely unwell older adult, developing strategic frameworks in order to meet these demanding demographic changes.

Integrated care pathways have been implemented across Europe in an effort to promote population health and wellbeing (Goodwin, 2016). An integrated care pathway is a structured, multidisciplinary approach to patient care, allowing a patient with a specific condition to progress seamlessly through their clinical experience, with the patients' outcomes and experiences at the core of service reform (Darker, 2013). It is a complex approach involving the interaction between public health, social care and medical care, which seeks to overcome fragmentation of care, and is best suited to those with complex or long-term care needs (Goodwin, 2016).

In 2004, PROCARE was established as part of the European Union Fifth Framework Project, in an attempt to develop a European understanding of integrated care (Leichsenring, 2004). Given the diversity across countries, it became clear that a shared vision of the development of integrated care services would be unlikely. Despite this, the project revealed various strategies towards achieving and implementing integrated care, for example, the use of case and care management, strategies to improve fragmentation between hospital and community care services and the importance of a multidisciplinary approach in assessment and planning (Leichsenring, 2004).

Many different forms of integrated care pathways exist, which can vary with regards the type, level, process, breadth, and intensity of integration (Goodwin, 2016). This review focused on the interaction between the acute hospital

environment and the community setting. Despite the worldwide implementation of this form of integrated care pathway, there exists a lack of understanding of its effectiveness in certain areas among the older adult population, due to the lack of recently published, high-quality trials. The most recent Cochrane review which explored early discharge hospital at home interventions for medically unwell older adults found possible improvements in patient satisfaction and risk of long-term care admission, with no difference in readmissions, health outcomes or cost (Gonçalves-Bradley et al., 2017). However, there was an emphasis placed on the need for further high-quality randomised controlled trials on this topic.

1.4.1 In Ireland

Healthcare in Ireland has also undergone a service redesign in more recent years, in order to address the various challenges faced by the Irish health system. The Health Service Executive's (HSE) Clinical Strategy and Programmes Division have seen the development of 33 National Clinical Programmes (NCP) across Ireland, with the goal of standardising various models of care and improving specific areas of care within the health service. Integrated Care is among these NCP's and is the HSE's most significant programme at present. In Ireland, Integrated Care Programmes have been introduced for older adults, children and for the prevention and management of chronic diseases and the management of patient flow.

The Integrated Care Programme for Older Persons (ICPOP) was introduced into Ireland's healthcare system in 2016. The aim of the ICPOP is to provide a seamless service between acute and primary health care services, in an effort to maintain care at home and minimise hospitalisation. As integrated care is a complex task, a framework approach has been adopted as opposed to a nation-wide accepted model of care, allowing systems to build on efforts that have been made over the years (ICPOP Steering Group, 2017). It has been implemented in nine sites nationwide. Elements of these integrated care pathways include, for example, ambulatory care, specialist inpatient wards for older people, supports for older people in long term care and domiciliary follow-up (Harnett, 2018). According to a local data sample, the implementation of the ICPOP has been successful in reducing

length of stay by 34%, readmission rates by 24% as well as a saving of 1082 annual bed days (Harnett, 2018).

The publication of the Slaintecare report in 2017 has provided further opportunity for the growth and implementation of the ICPOP (Houses of the Oireachtas, 2017). Slaintecare is a ten-year programme to transform Ireland's health and social care service with a vision of achieving universal health care by improving patient and clinician experience, improving patient outcomes, and lowering the cost. One of the strategic action plans in achieving Slaintecare vision for healthcare, is accelerating the implementation of the existing ICPOP to provide appropriate care in the community, with the support of the Integration Fund (DoH, 2018).

1.4.2 The Integrated Care Programme for Older Persons in Cork city

The focus of the ICPOP in Cork city is to shift care away from the hospital environment, through the provision of acute care in the patient's home. The Integrated Care Team (ICT) are based in St Finbarr's Hospital, a hospital situated in Cork, Ireland, that provides both inpatient and community-based services for older adults. The team includes a geriatrician, clinical nurse specialists, an occupational therapist, physiotherapists, a case manager, and a care assistant. The team provide two weeks of rehabilitation for the acute medically unwell older adult in their home.

At present, the team provide both an early supported discharge pathway whereby the patients' length of stay in hospital can be reduced, and an admission avoidance pathway whereby patients can return home directly from the emergency department. Both pathways provide rapid access to supports from the ICT once their needs can be safely looked after at home. In the future, patients will have direct access to this service through their general practitioner or nursing home, thus avoiding any contact with the hospital environment.

A 10-step framework was established to guide the implementation and dissemination of ICPOP nationwide, allowing health systems to build on existing efforts. This framework places emphasis on the importance of continuous monitoring of the service, including the evaluation of the structural and process

measures, as well as the involvement of service users through the evaluation of patient recorded experience and outcome measures. This service is patient-centred in its planning and implementation, the service user's feedback is fundamental in the continuous development of the service. This was the primary motivator for this thesis.

1.5 Structure and aims of this thesis

This project was divided into two phases. Phase 1 is presented in chapter two and consists of a systematic review exploring the effectiveness of hospital at home schemes for the older adult population. The aim of the first phase was to allow the researcher to gain an insight into the current practices and structures of hospital at home programmes worldwide, and to understand whether they make a difference compared to usual inpatient care. The findings of this review also contributed to informing the interview guide which would be used in Phase 2.

Phase 2 of this project focused on the ICPOP in Cork, Ireland, and is outlined in Chapter 3. The framework for the ICPOP has, at its core, a focus on evaluation of the structure, process, and patient outcomes. The importance of the patient's perspectives has been highlighted as a key building block in the development of this service in order to ensure models of best practice. Therefore, the aim of Phase 2 was to evaluate the patients' and carers' experience and perceptions of the ICPOP in Cork city, with the hope of using the feedback to further inform this new model of care for the management of the acutely unwell older inpatient.

Chapter 2: The Effectiveness of Early Supported Discharge Versus Acute Hospital Care for Older Adults: A Systematic Review

2.1 Background to Systematic Review

This research project came about as Irish policies highlighted the need for a qualitative evaluation of the ICPOP, as part of the further development of the service. However, in order to explore this, a greater knowledge of the effectiveness of hospital at home schemes was necessary.

The most recent Cochrane review on this topic was published in 2017 and explored the impact of early discharge hospital at home for patients recovering from a stroke and elective surgery and older patients with a mix of medical conditions (Gonçalves-Bradley et al., 2017). This review found possible improvements in patient satisfaction and risk of long-term care admission with little or no difference to patient health outcomes, hospital readmission or cost, for older patients with a mix of medical conditions. From this study, it was still unclear as to what were the key ingredients in the successful implementation this method of care for the acutely unwell older adult.

During the initial scoping phase, other important and more recent non-randomised trials on this topic were identified. Therefore, it was decided to carry out a systematic review including all study types, in the hope of further exploring the potential benefits compared to usual hospital care, as well as the optimal parameters in the delivery of this intervention.

Many variations of hospital at home schemes have been implemented worldwide, for example, preventative care, transitional care, and supported discharge. For the purpose of this review, it was decided to focus on patients who had made physical contact with the hospital environment through either hospital admission or the emergency department and are requiring acute care, as this most resembles the current pathways of referral for the ICPOP in Cork city.

The purpose of this review was to allow the researcher to gain a more in-depth knowledge of how hospital-at-home models of care are currently being implemented worldwide, with the hope of exploring the potential benefits compared to usual inpatient care, as well as the optimal parameters in the delivery of care. This review also helped to inform the interview guide, which was used in the Phase 2 of this study.

2.2 Summary

Objective: The primary aim of this study was to explore the effectiveness of hospital-at-home schemes for acutely unwell older adults, compared to usual hospital care. A secondary objective was to explore the optimal parameters in the delivery of care i.e., frequency, intensity, duration and type of care provided, to improve patient outcomes.

Data sources: Seven electronic databases were searched from the dates of their inception until November 2018. A grey literature search was also performed, as well as a manual search for eligible studies in relevant journals. Finally, the reference and citation lists of all eligible studies were reviewed.

Trials: Included studies were randomized and non-randomized controlled trials and pre-post studies, investigating the effectiveness of hospital-at-home schemes for older patients requiring acute care for a medical condition or mix of conditions.

Results: In total, 16 studies met the inclusion criteria: eight randomised controlled trials, three survey questionnaires from participants in a prospective non-RCT, three studies exploring cost-effectiveness and two quasi-experimental longitudinal studies. Meta-analysis was not possible given the heterogeneity of research designs, interventions, and outcome measures. Including the non-RCTs and excluding the cost effectiveness studies, three studies had a low risk of bias, two had an unclear risk and eight had a high risk of bias. In context of the methodological limitations, this review found that hospital-at-home schemes may improve patient and carer satisfaction and may reduce or have no negative impact on carer burden. Findings for the cost effectiveness of this intervention were inconsistent. There were no differences in adverse outcomes, suggesting that it is as safe as usual inpatient care.

Conclusion: The current literature on hospital at home schemes for this population is based on outdated studies, with many demonstrating a high risk of bias. This model of care appears to be a safe alternative for older adults requiring acute care, with potential advantage in the areas of patient and carer satisfaction and carer burden. Further high quality RCTs are needed in order to confirm the effectiveness

of hospital-at-home models of care for this population, and to determine the most effective method of delivery to improve patient outcomes.

2.3 Introduction

Older adults often experience unnecessary prolonged hospital admissions. Individuals over the age of 65 years account for one quarter of all emergency department visits and occupy over 50% of hospital beds (HPO, 2018; Smyth et al., 2017). It is commonly known that the hospital environment may not be the most suitable place of care for the older adult. Hospital admissions can expose the older inpatient to multiple stressors such as sleep deprivation, poor nutrition, mentally challenging situations, medical treatment which can alter their physical and cognitive status and deconditioning due to high levels of inactivity (Krumholz, 2013).

These stressors contribute to hospital-associated disability, with 30% of older adults being discharged with a new functional dependence, thus decreasing their ability to continue to live independently (Covinsky et al., 2003). Frail older adults are at an even higher risk of experiencing these negative outcomes and have a poorer chance of ever returning to their pre-morbid level of independence (Clegg et al., 2013; Gill et al., 2010). Given the prevalence of hospital-associated stressors as mentioned above, it is reasonable to assume that a period of hospitalisation can accelerate the incidence of frailty for the older adult, thus putting them at a higher risk of mortality and re-admission to hospital (Keeble et al., 2019).

Ireland's older adult population has experienced an increase of 35% over the past ten years and is set to continue to grow (DoH, 2019). From both the patient's and health system's perspectives, the traditional hospital-centric model of care is no longer sustainable. The World Health Organisation (2017) have recommended that healthcare should be delivered in the older persons home or community. Health services worldwide have further recognised the need to facilitate the provision of care in the patients' homes, through the establishment of hospital-at-home schemes.

Hospital-at-home programmes have been implemented worldwide in response to the changing population needs and demographics. Hospital-at-home is a service that provides active treatment of a condition by healthcare professionals in the patient's home, that would otherwise require acute hospital admission, which aims to reduce the burden on the acute sector (Gonçalves-Bradley et al., 2017). This model of care has been implemented for various patient populations, for example, stroke, chronic obstructive pulmonary disease, patients following elective surgery and those with a mix of medical conditions (Gonçalves-Bradley et al., 2017). For older adults in particular, the provision community-based healthcare aims to maintain functional ability and intrinsic capacity, with a view of supporting ageing in place (WHO, 2017).

Despite the worldwide adoption of hospital-at-home services for the older adult population, there seems to be uncertainty regarding its effectiveness in certain areas, due to limited high-quality research being published in recent years, which was highlighted by Gonçalves-Bradley et al (2017). The most recent Cochrane review which explored the effectiveness of hospital at home for various populations found a possible improvement in patient satisfaction and risk of long-term care admission, with little or no difference in clinical or health outcomes, for older adults with a mix of medical conditions (Gonçalves-Bradley et al., 2017).

Due to the limited research published on the effectiveness of this model of care, as highlighted by Gonçalves-Bradley et al (2017), the study design was expanded to include non-randomised controlled trials, in the hope of getting a better overview of what is currently known, as well as updated information regarding the characteristics of this intervention. Therefore, the aim of this systematic review is to explore the effectiveness of hospital-at-home schemes for older persons.

2.3.1 Review Question

The aim of this review was to determine the effectiveness of hospital-at-home versus acute care on quality of life, health outcomes, carer burden and healthcare utilisation in older medical patients. A secondary objective was to further explore the parameters of hospital-at-home care (i.e. frequency, intensity, duration, and

type of care) for best patient outcomes. See table 2.1 for further detail on the population, intervention, comparators, and outcomes for review in this study.

Table 2.1 Population, intervention, comparison, and outcomes for review

Population	Acute medical inpatients aged ≥ 65 years with ongoing medical, nursing care or rehabilitation needs that can be managed outside of the acute setting, for discharge home with support
Intervention	Domiciliary-based intervention aiming to accelerate discharge from hospital to home with support. The delivery of care can be multi-/trans-/inter-disciplinary involving nursing care, occupational, speech and language and physiotherapy, dietetics, social worker, and the general practitioner
Comparison	Usual inpatient care in the hospital setting
Outcome	Outcomes for review included, but were not restricted to: - Physical/ functional outcomes - Quality of life - Frailty - Survival rates - Length of stay - Re-admission rates - Long term care admission - Carer burden - Falls - Use of social services - Cost effectiveness

2.4 Methods

2.4.1 Study Design

The current systematic review is reported in compliance with the Preferred Reporting Items for Systematic Review and Meta-Analysis checklist (Appendix 1) (Moher et al., 2015). The study protocol was registered with the International Prospective Register of Systematic Reviews on 26 March 2018 (Registration number: CRD42019122309).

2.4.2 Search Strategy

One researcher (CS) conducted a search of the following electronic databases during the month of November 2018: Academic Search Complete, Cochrane Controlled Register of Trials (CENTRAL), Cumulative Index to Nursing and Allied Health Literature (CINAHL), Embase, Medline, PsychInfo and Scopus. All databases

were searched from the year of inception until 2019. The search strategy comprised of search terms relating to “older persons”, “hospital at home” and “effectiveness”. In order to ensure a rigorous search strategy, the review author carried out a preliminary literature search to identify existing terms that are used throughout the literature when referring to hospital at home. This resulted in many variations, all of which were inputted into the search strategy in order to minimise selection bias. Each set of keywords was independently searched and subsequently combined using appropriate Boolean terms. Full details of the search performed are outlined in Appendix 2 and, for reference, an example of the full electronic database search string for the CINAHL database is included In Appendix 3.

An additional electronic grey literature search was also conducted using Open Grey and Google Scholars. When conducting the database search using Open Grey, the full electronic database search string was inputted into the search engine, and the resulting articles were screened with no limiting factors applied. As it was not possible to include all search terms when performing the search using Google Scholar, three keywords were selected from each search term to represent the entire search strategy. Similarly, no limiting factors were applied, articles were sorted by relevancy and the first 100 titles were screened. Contact was made with one author in order to gain access to a published article.

The database search was supplemented by a manual search of the following journals: Age and Ageing, BMC Geriatrics, Journal of the American Geriatric Society. The terms ‘home’ and ‘hospital’ were inputted into the search engine and resulting articles were sorted by relevance. The first 100 articles were screened. The reference lists and forward citations on all relevant studies were also searched to identify potentially eligible studies.

2.4.3 Eligibility Screening

The resulting articles from each individual database were exported to a reference management software package (EndNote X8), and duplicates were removed. One review author (CS) independently screened titles and abstracts of the citations retrieved from the literature search for inclusion or exclusion. The articles which

were identified as potentially relevant were selected for further analysis, and two review authors (CS, RMcC) read the full text of the articles and agreed on eligibility based on the inclusion and exclusion criteria, as outlined below. A consensus method was used to resolve any discrepancies, or if necessary, by referral to a third review author (JMcV).

2.4.4 Eligibility Criteria

2.4.4.1 Study Design

This study focused on quantitative research only. Given the lack of recent RCTs as highlighted in the preliminary literature search, the decision was made to include all controlled studies, including randomised and non-randomised trials. Studies that did not include a control group were excluded from this review. Studies published in the English language with full texts available were included.

2.4.4.2 Participants

To be included in this study, participants had to be over the age of 65 years and presenting with an acute medical condition or mix of conditions. If it was not explicitly stated that this was the age range of individuals included in the trial, the study would be included if the mean age of the studied population was 65 years or over. Participants had to have had physical contact with the hospital environment through either presentation to the emergency department or hospital admission, prior to commencing the intervention. Studies involving patients who avoided any physical contact with the hospital prior to entering the programme, for example, those recruited directly from the community or their general practitioner were excluded. Trials examining older people in residential care were not included in this study.

2.4.4.3 Intervention

Interventions of which the primary aim was to accelerate discharge with the provision of care in the patient's own home were included. Studies including interventions provided in a day hospital or step-down unit were excluded. Participants should be requiring acute care and/ or rehabilitation and would have to remain in the hospital if this service were not available. Therefore, studies involving

older persons receiving transitional care from hospital to home, long-term care, preventative care or routine follow-up care post discharge were excluded. The delivery of care could be multi-/trans-/inter-disciplinary and could involve nursing care, occupational therapy, physiotherapy, speech and language therapy, dietetics, social work, or the patient's general practitioner.

Studies examining specific neurological or orthopaedic rehabilitation teams, or respiratory or mental health interventions were excluded from this review, as their care pathways differ considerably. This approach is supported by a recent systematic review by Gonçalves-Bradley et al (2017). However, common conditions that could be managed by general rehabilitation teams, for example minor fractures, pneumonia, or Parkinson's Disease, were included for review.

2.4.4.4 Comparator

Eligible control groups included patients undergoing any form of standard, inpatient hospital care.

2.4.4.5 Outcomes

The outcomes of interest included, but were not restricted to, physical, functional and cognitive status, falls, frailty, quality of life, patient and carer satisfaction, survival and re-admission rates, discharge destination, use of social services, carer burden and cost effectiveness.

2.4.5 Data Extraction

Data extraction was completed independently by one reviewer (CS) and subsequently reviewed by two review authors (RMCC, JMcV), to ensure no relevant data was omitted. The data was entered into a standard data extraction form. Data including author, study design, population characteristics (age, gender, nature of illness), intervention characteristics (multidisciplinary team involved, type of intervention provided i.e. rehabilitative care or medical management, intervention content, mean duration of intervention, length of follow-up), control group and outcome measures at all follow-up points were extracted.

2.4.6 Risk of Bias in Individual Studies

The risk of bias of the articles selected for inclusion was assessed by two independent review authors (CS, RMCC) using a variation of the Effective Practice, Organisation of Care (EPOC) suggested risk of bias criteria, which was also used in the most recent Cochrane Review on this subject (EPOC, 2017; Gonçalves-Bradley et al., 2017). The following domains were assessed and labelled as high, unclear or low risk of bias, as set out in previously defined criteria (EPOC, 2017): random sequence generation, allocation concealment, baseline outcome measurements, baseline characteristics, blinding of objective and subjective outcome measurements, incomplete outcome data and selective reporting. Only randomised controlled trials were assessed using this criterion. Any discrepancies were resolved by discussion amongst reviewers to reach a consensus, and if necessary, a third review author (JMcV) was consulted.

The overall quality of the study was given a judgement of high or low risk of bias, or unclear, using the following criteria as outlined in the Cochrane Handbook for Systematic Reviews of Interventions: the study was given a judgement of low risk of bias if it scored low risk of bias in all domains, some concerns if it scored some concerns in at least one domain and high risk of bias if it scored high risk of bias in at least one domain, or it scored some concerns for multiple domains (Higgins et al., 2019). Non-randomised controlled trials were graded as high risk of bias from the outset from not being randomised.

2.4.7 Data Analysis

Due to the heterogenous nature of the interventions and outcome measures, a meta-analysis was deemed inappropriate. Therefore, a narrative synthesis was performed whereby a textual rather than statistical approach was used to explore the differences and similarities between the studies, and to investigate relationships within the data and strength of the evidence.

2.5 Results

2.5.1 Study Selection

Figure 2.1 outlines the results of the search strategy using a PRISMA flow diagram. The search strategy identified more than 3,000 articles. Following the title and abstract screening process, twenty-three studies were identified as highly relevant. A total of sixteen papers fulfilled the inclusion and exclusion criteria, involving 2,366 participants, from the years 1995 to 2018. Among these sixteen papers, there were nine published trials: three of these trials had one additional publication (Caplan et al., 1999; Caplan et al., 2005; Cunliffe et al., 2004; Miller et al., 2005; Shepperd et al., 1998; Shepperd et al., 1998), two had two additional publications (Leff et al., 2006; Leff et al., 2008; Leff et al., 2009; Coast et al., 1998; Gunnell et al., 2000; Richards et al., 1998), and the remaining four trials had no additional publications identified in the search (Donald et al., 1995; Harris et al., 2005; Más et al., 2017, Más et al., 2018).

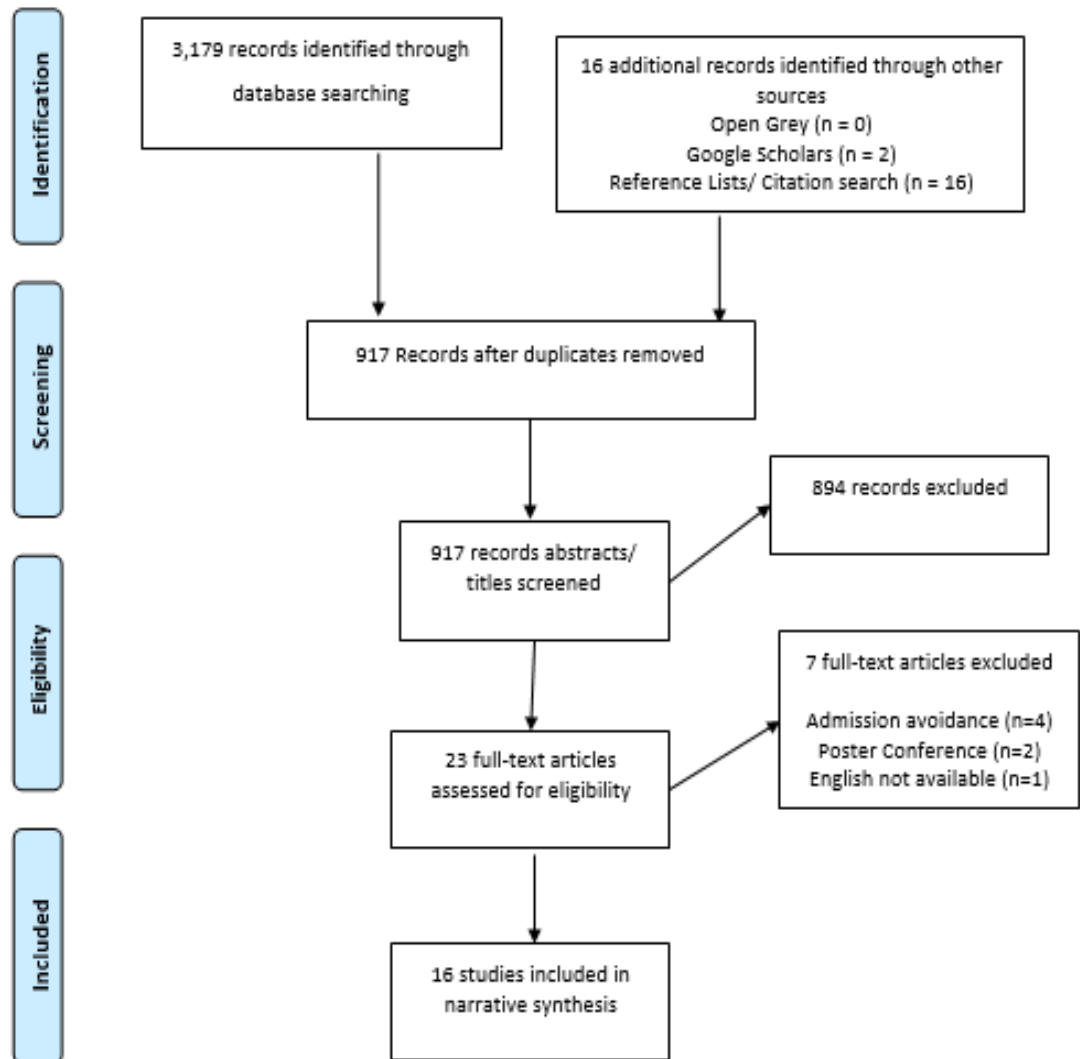


Figure 2.1 PRISMA flow diagram of included studies

2.5.2 Description of Studies

Of the 16 papers, there were eight randomised controlled trials (Caplan et al., 1999; Caplan et al., 2005; Cunliffe et al., 2004; Donald et al., 1995; Gunnell et al., 2000; Harris et al., 2005; Richards et al., 1998; Shepperd et al., 1998), three economic evaluations (Coast et al., 1998; Cunliffe et al., 2005; Shepperd et al., 1998), three survey questionnaires of participants in a prospective, non-randomised controlled trial (Leff et al., 2006; Leff et al., 2008; Leff et al., 2009) and two quasi-experimental longitudinal studies (Mas et al., 2017; Mas et al., 2018). Eight trials were carried out in the United Kingdom (Coast et al., 1998; Cunliffe et al., 2004; Donald et al., 1995; Gunnell et al., 2000; Miller et al., 2005; Shepperd et al., 1998; Shepperd et al., 1998; Richards et al., 1998), two in Spain (Mas et al., 2017; Mas et al., 2018), two trials in Australia (Caplan et al., 1999 ; Caplan et al., 2005), three in the United States of America (Leff et al., 2006; Leff et al., 2008; Leff et al., 2009) and one in New Zealand (Harris et al., 2005). The main characteristics and results of the included studies can be seen in Table 2.2.

Table 2.2 Study design, characteristics, and outcomes of the included studies

Study	Intervention group	Intervention Type MDT Control Group	Mean Duration Max Duration Intensity	Outcome measures Follow-Up	Main findings
Caplan et al (1999) RCT; Australia IG: n = 51 CG: n = 49	Median (range) age = 73 (17-11), 69% > 65 years Medical patients AA pathway 25% NH residents	<u>IG</u> : Medical treatment described only; study nurse, GP, hospital doctor, PT, OT <u>CG</u> : usual inpatient care and routine discharge	Mean = 10.1d NR 1 visit per day by study nurse. Nil else reported.	Geriatric complications, patient, carer and GP satisfaction, adverse events, mortality F/U = After DC, 1m, 6m	<u>After DC</u> : Significantly lower incidences of confusion, all bowel and urinary complications and constipation for IG compared to CG. Patient and carer satisfaction significantly higher for IG compared to CG. No significant findings for adverse events, mortality, or GP satisfaction
Caplan et al (2005) RCT; Australia IG: n = 51 CG: n = 49	Same as Caplan et al (1999)	Same as Caplan et al (1999)	Same as Caplan et al (1999)	BI, IADL index, MSQ F/U = admission, DC	<u>At DC</u> : Significant improvements in IADL index and MSQ for IG and MSQ only for CG. Significantly better improvements in IADL index for IG compared to CG
Cunliffe et al (2004) RCT; UK IG: n = 185 CG: n = 185	Median age (IQR) = 80 (73-85) years Medical and surgical patients ESD pathway	<u>IG</u> : Functional rehabilitation, provision of aids/ appliances, provision of assistance and care; 2 x OT, 2 x PT, 3 x nurses, community care officer, 7 x RA, secretarial support, GP <u>CG</u> : usual inpatient care and routine discharge	Mean = 12d 4wks ≤4 visits/d, 7d/wk Mean visits = 22	BI, NEADL, EQ-5D, patient and carer GHQ, residential status, survival F/U = 3m, 12m	<u>At 3m</u> : Significant improvements in BI, kitchen and domestic function scores (NEADL) and patient and carer GHQ for IG compared to CG <u>At 12m</u> : Significant between group differences persisted in domestic function (NEADL) and patient GHQ scores in favour of IG No significant findings for residential status or survival
Miller et al (2005) Economic evaluation; UK IG: n = 185 CG: n = 185	Same as Cunliffe et al (2004)	Same as Cunliffe et al (2004)	Same as Cunliffe et al (2004)	IG: Cost for intervention, initial acute admission, readmission, hospital/ OPD visits, nursing/ residential home, GP, community	<u>12m</u> : Significantly lower cost for IG compared to CG

				services and health and social services CG: hospital admission, readmission F/U = 12m	
Donald et al (1995) RCT; UK IG: n = 30 CG: n = 30	Mean (SD) age = 81.6 (5.4) years Medical patients ESD pathway	<u>IG</u> : Rehabilitation, carer support, onward referral at end of scheme; nurse manager/ co-ordinator, PT, OT, 3 x RA <u>CG</u> : Usual inpatient care and routine discharge	Mean = 20.6d 6 wks Avg 8.8h PT, 8.5h OT, 49 RA visits, 3 nurse co-ordinator visits overall	BI, MTS, categorisation of mobility (0-8) and continence (0-4), PGCMs, description of dependency in 6 ADLs, readmission, residential home, mortality F/U = 4, 12 and 26wks	No significant findings at 4, 12 or 26wks for any outcome measures
Harris et al (2005) RCT; New Zealand IG: n = 143 CG: n = 142	Mean age = 80 yrs Orthopaedic, medical, respiratory, neurological, cardiac patients and patient with falls and injuries, rehabilitation and other problems AA (23%) and ESD (73%) pathways	<u>IG</u> : Daily nursing review and adjustment of individual care plan, intensive home support with up to 24-hr live-in home carer, rehabilitation; nurse, geriatrician, PT, OT, social worker <u>CG</u> : Usual inpatient care and routine discharge	Mean = 11.4d NR NR	FIM, MMSE, OARS Assessment, self-reported recovery, SF-36, readmission, adverse events, patient and relative satisfaction, CSI, cost F/U = 10d, 30d, 90d	<u>30d</u> : Significantly higher total cost per patient for IG compared to CG <u>90d</u> : Significantly higher patient and relative satisfaction and lower CSI for IG compared to CG No significant findings for FIM, MMSE, OARS Assessment, self-reported recovery, SF-36, readmission or adverse events and 10,30 or 90d
Leff et al (2006) non-RCT; USA IG: n = 63 patients, 64 family respondents CG: n = 46 patients, 39 family respondents	Age mean (SD) = 76.6 (6.7) Medical patients AA pathway	<u>IG</u> : Provision of nursing care, medical equipment, pharmacy support, O2 therapy and skilled therapies from home help agency; nursing, physician, partner Medicare-certified home help agency <u>CG</u> : Usual inpatient care and routine discharge	Mean (SD) = 2.8 (2.1)d NR Initial nursing supervision (mean 16.9hrs) followed by at least daily nursing and physician visits. Nil else reported.	Patient and family member satisfaction survey exploring admission, discharge, relationship with staff, pain control and overall satisfaction F/U: 2wks post-admission	<u>2wks</u> : Significantly higher patient and family member satisfaction for 5/9 and 6/8 domains respectively, for IG compared to CG.

Leff et al (2008) non-RCT; USA IG: n = 64 CG: n = 40 patient-family member dyads	Mean (SD) age = 77.1 (6.5) yrs Medical patients AA pathway	Same as Leff et al (2006)	Same as Leff et al (2006)	15-question survey for family members based on stress experienced during care provided F/U = 2wks post-admission	<u>2wks</u> : Significantly lower mean and median number of stressful events experienced by family members for IG compared to CG
Leff et al (2009) non-RCT; USA IG: n = 72 CG: n = 47	Mean (SD) age = 77 (6.9) yrs Medical patients AA pathway	Same as Leff et al (2006)	Same as Leff et al (2006)	Functional status measured by patient's level of independence in 5 ADLs and 7 IADLs F/U: 2wks post-admission	<u>2wks</u> : Significantly greater improvements in IADLs for IG compared to CG Greater odds for experiencing improvement in outcomes versus decline or static for IG
Mas et al (2017) Quasi- experimental longitudinal study Spain IG: n = 224 CG: n = 605	Mean (95%CI) age = 83.8 (82.9 – 84.6) years Medical and orthopaedic patients AA (26.6%) and ESD (73.4%) pathways	<u>IG</u> : Individualised care plan centred on managing acute changes in geriatric syndromes and on functional improvement; geriatrician, consultant physical and rehabilitation specialist, 4 x PT, OT <u>CG</u> : Usual inpatient care and routine discharge	Median (IQR) = 46.6 (43.9-49.2)d NR NR	Health crisis resolution (DC to PC at end of care), functional resolution (functional gain ≥35% of functional loss), favourable crisis resolution (health + functional), BI at discharge, length of stay, rehabilitation efficiency, discharge destination F/U: DC	<u>DC</u> : IG showed better results for favourable crisis resolution. Significantly shorter length of stay for IG
Mas et al (2018) Quasi- experimental longitudinal study Spain IG: n = 57 CG: n = 114	Mean (SD) age = 84.3 (7.6) Medical patients with chronic conditions AA pathway	<u>IG</u> : Individualised home visits; physician, nurse, physical therapist, OT, social worker <u>CG</u> : inpatient intermediate- care geriatric unit in post- acute care setting	Mean (SD) = 9.6d (3.9d) Physician visits daily/ every second day, nursing visits 1-2 times/day	Recovery from acute illness, readmission to acute hospital, discharge destination, length of stay, relative functional gain (functional gain/ functional loss), mortality F/U: DC, 30d post DC	<u>DC</u> : Significantly longer length of stay for IG. Significantly better results for relative functional gain for IG compared to CG No significant findings for recovery from acute illness, discharge destination, readmission or mortality
Richards et al (1998)	Median (IQR) age = 79 (72- 84)	<u>IG</u> : Not described; district nurse co-ordinator, registered nurse, PT, OT,	Mean = 12.8d NR NR	BI, Folstein MMSE, EQ-5D, COOP-WONCA, patient	<u>1m</u> : Significantly greater patient satisfaction in 1/11 items of

Pragmatic RCT; UK IG: n = 160 CG: n = 81	Medical, surgical, orthopaedic, care of the elderly patients ESD pathway	support workers, OT technician CG: usual inpatient care and routine discharge		satisfaction questionnaire, mortality F/U = 1m, 3m	questionnaire ("discussions with staff") for IG compared to CG No significant findings for BI, COOP- WONCA, EQ-5D or mortality
Coast et al (1998) Economic evaluation; UK IG: n = 160 CG: n = 81	Same as Richards et al (1998)	Same as Richards et al (1998)	Same as Richards et al (1998)	Costs to NHS, social services and patients F/U = 3m	At 3m: Initial inpatient, readmission and total costs to NHS and to patients lower for group IG compared to CG
Gunnell et al (2000) RCT; UK IG: n = 93 carers CG: n = 40 carers	Same as Coast et al (1998)	Same as Coast et al (1998)	Same as Coast et al (1998)	12-item CSI, COOP-WONCA, EQ-5D, carer satisfaction questionnaire F/U = 1m, 3m	At 1m: Significantly higher burden for 1 items of CSI (emotional adjustments) for IG compared to CG. Significantly greater satisfaction for 2/7 items of the questionnaire ("discussion with staff" and "information received about patient treatment") for IG compared to CG. At 3m: Significant difference in pain item of COOP-WONCA for IG compared to CG. Significant difference in CSI did not persist.
Shepperd et al (1998); RCT UK IG: n = 50 CG: n = 46	Mean (SD) age = 77 (11.6) yrs Medical inpatients ESD pathway	IG: Observation, medical management, nursing care, rehabilitation; nursing, PT, OT, SLT pathology CG: Usual inpatient care and routine discharge	Mean (SD) = 9.04 (7.79)d NR NR	Dartmouth COOP-charts, BI, CSI, preferred place of care, mortality, readmission F/U = 1m, 3m	No significant findings for any outcome measures More patients in IG reported that they had received their preferred form of care

Shepperd et al (1998) Economic evaluation; UK IG: n = 50 CG: n = 46	Same as Shepperd et al (1998)	Same as Shepperd et al (1998)	Same as Shepperd et al (1998)	Cost of intervention to health service, GPs and patients and their families F/U = 12m	<u>12m</u> : Significantly higher costs for GP services for IG compared to CG
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AA Admission Avoidance; ADL Activities of Daily Living; BI Barthel Index; CG Control Group; CSI Carer Strain Index; D Day; DC Discharge; ESD Early Supported Discharge; EQ-5D EuroQol 5D; FIM Functional Independence Measure; F/U Follow-up; GHQ General Health Questionnaire; GP General Practitioner; IADL Instrumental Activities of Daily Living; IG Intervention Group; M Month; MDT Multidisciplinary team; MMSE Mini Mental State Examination; MSQ Mental Status Questionnaire; MTS Mental Test Score; NEADL Nottingham Extended Activities of Daily Living; NHS National Health Service; NR Not reported; OARS Older Americans Resources and Services Assessment; OPD Outpatient Department; OT Occupational therapist; PC Primary care; PGCMs Philadelphia Geriatric Centre Morale scale; PT Physiotherapist; RA Rehabilitation assistant; RCT Randomised Controlled Trial; SD Standard deviation; SF-36 36-item Short Form Survey; UK United Kingdom; Wk(s) Week(s); Yrs Years.

2.5.2.1 Study Population

The average age of participants across all studies was between 73 and 85 years. While all studies targeted the older adult population, two studies included younger patients, with one study including 31%, and another 3.9% of patients under the age of 65 years (Caplan et al., 1999; Caplan et al., 2004; Harris et al., 2005). Of the nine trials, three recruited elderly patients with medical conditions only (Caplan et al., 1999; Leff et al., 2006; Mas et al., 2018; Shepperd et al., 1998) and the remaining studies included patients with a mix of conditions including medical, surgical, orthopaedic, neurological and miscellaneous conditions (Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Mas et al., 2017; Richards et al., 1998). One study examined variety of patient populations, including patients recovering from joint replacement surgeries and hysterectomies, elderly medical patients and patients with chronic obstructive airway disease (Shepperd et al., 1998). For the purpose of this study, only the data from elderly medical patients was included for analysis.

One study included patients living in nursing homes (Caplan et al., 1999), with 23.5% of the intervention group residing in a nursing home. The remaining studies focused on community-dwelling older adults only. Patients were recruited via admission avoidance (AA) schemes, i.e. discharged directly from the emergency department (Caplan et al., 1999; Harris et al., 2005; Leff et al., 2006; Mas et al., 2018; Shepperd et al., 1998) and through early supported discharge schemes (ESD), i.e. discharged home early following a period of hospitalisation (Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Richards et al., 1998; Shepperd et al., 1998). One admission avoidance pathway included patients from both the emergency department (56.1%) and day hospital (43.9%) (Mas et al., 2018). Two studies included patients from both admission avoidance and early supported discharge pathways, however the results were not separated in either case: Mas et al (2017) recruited 56.6% of patients through ESD and 43.4% through AA, and Harris et al (2005) recruited 73% through ESD and 27% through AA pathways.

2.5.2.2 Intervention

The mean length of intervention over the nine separate trials was 15 days, ranging from 2.8 days to 46.6 days. The mean length of intervention lasted under 2 weeks for seven out of the nine trials, with the majority of interventions lasting between nine and thirteen days, and one outlier of 2.8 days (Mas et al., 2017). The mean duration for the remaining two trials was 20.6 days (Donald et al., 1995) and 46.6 days (Mas et al., 2017). The maximum possible intervention duration was reported in only two trials, at four and six weeks (Cunliffe et al., 2004; Donald et al., 1995).

The multidisciplinary team was outlined in all nine trials, with nurses, physiotherapists and occupational therapists being the most commonly reported team members. Hospital at home interventions described providing nursing care in all nine trials (Caplan et al., 1999; Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Leff et al., 2006; Mas et al., 2017; Mas et al., 2018; Richards et al., 1998; Shepperd et al., 1998), with nurse managers or co-ordinators in two trials (Donald et al., 1995; Richards et al., 1998). Both physiotherapists and occupational therapists were part of the multidisciplinary team in seven out of the nine trials (Caplan et al., 1999; Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Mas et al., 2017; Richards et al., 1998; Shepperd et al., 1998) as well as a physical therapist in one trial (Mas et al., 2018) and an occupational therapy technician in another (Richards et al., 1998). Consultants, physicians and geriatricians were employed in five of the hospital at home schemes (Caplan et al., 1999, Harris et al., 2005; Leff et al., 2006; Mas et al., 2017; Mas et al., 2018), as well as a consultant physical and rehabilitative specialist (Mas et al., 2017). Speech and language therapists and pathologists were additional members in one trial (Shepperd et al., 1998) and community care officer and secretarial support in another (Cunliffe et al., 2004). In one trial, care and rehabilitation was provided by a partner Medicare-certified home health agency, including the provision of medical equipment, oxygen therapy, pharmacy support and other skilled therapies (Leff et al., 2006).

The specific components of the intervention provided were often under-reported, or vague. Medical care appeared to be the focus of the intervention for two trials (Caplan et al., 1999; Mas et al., 2018), and rehabilitation for another two trials

(Cunliffe et al., 2004; Donald et al., 1995). Both medical care and rehabilitation were reported in five trials (Harris et al., 2005; Leff et al., 2006; Mas et al., 2017; Richards et al., 1998; Shepperd et al., 1998).

2.5.2.3 Control

A control group was included in all trials. For one trial, the control group received intermediate care in a post-acute care setting (Mas et al., 2018). The control groups in the remaining trials received usual inpatient hospital care and routine discharge.

2.5.2.4 Outcome Measures

In total, there were 14 well recognised, validated outcome measures used across the 16 studies. Frequently measured events included mortality, readmission, residential status at discharge and geriatric complications. Other measurements were locally designed, including surveys and questionnaires, categorisation scales, observation, self-reporting, and an adaptation of the Barthel Index. Three economic evaluations were also performed, with one RCT also including a cost analysis.

2.5.3 Methodological Quality

The methodological quality of the randomised controlled trials was assessed using the EPOC criteria (Table 2.3). There were five additional non-RCTs, which were judged as a high risk of bias from the outset due to the lack of random allocation. Including the non-RCTs and excluding the cost effectiveness studies, eight trials were assessed as low risk of bias, three as high risk and two as unclear. The items less frequently satisfied were blinding of the subjective outcome assessment and incomplete outcome data. Further details on the assessment of the methodological quality of the included studies is detailed in Appendix 4.

Table 2.3 Methodological quality of RCT's using EPOC criteria*

Study	Random sequence generation	Allocation concealment	Baseline outcomes	Baseline characteristics	Incomplete outcomes	Blinding (objective)	Blinding (subjective)	Contamination	Selective reporting	Other bias	Overall judgement
Caplan et al 1999	Low	Low	Low	Low	Low (primary) High (secondary)	High	Unclear	Low	Low	Low	High
Caplan et al., 2005	Low	Low	Low	High	Unclear	N/A	High	Low	Low	Low	High
Cunliffe et al., 2004	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low
Donald et al., 1995	Unclear	Low	Low	Low	Low	Low	High	Low	High	Low	High
Gunnell et al., 2000	N/A	N/A	N/A	Low	Low	N/A	Low	Low	Low	Low	Low
Harris et al., 2005	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low	Low

Richards et al., 1998	Unclear	Low	Low	Low	Low	Low	Low	Low	Low	Low	Unclear
Shepperd et al., 1998	Low	Low	Low	Low	Low	Low	Unclear	Low	Low	Low	Unclear

Studies with a low risk of bias are designated with 'Low', studies with unclear risk of bias are designated with 'Unclear' and studies with a high risk of bias are designated as 'High'. If a study presents with a low risk of bias for all domains, it is judged as low risk, if it presents with an unclear risk of bias for one or more domains, it is judged as unclear, and if it presents with a high risk of bias in one or more areas, or with unclear risk of bias in multiple domains, it is judged as high

*Only RCTs were assessed for methodological quality. The non-RCTs were determined as high risk of bias from the outset due to lack of random allocation. The economic evaluations were not assessed.

2.5.4 Study Results

2.5.4.1 Drop out

An attrition rate of 20% or greater is indicative of concern for the probability of bias (Dumville, Torgerson and Hewitt, 2006). The three economic evaluation papers did not report attrition and were therefore excluded. Of the remaining thirteen papers, five exceeded the 20% attrition rate in the intervention group (from 21% to 28%), and six for the control group (from 22% to 70%) (Cunliffe et al., 2004; Donald et al., 1995; Gunnell et al., 2000; Leff et al., 2006; Leff et al., 2008; Leff et al., 2009). Reasons for drop-out included mortality, readmission, incomplete questionnaires, withdrawal of consent and interview burden. One trial did not give explicit detail on the number of participants assessed at follow-up (Caplan et al., 2005).

2.5.4.2 Adverse Events

The incidence of adverse events was reported in seven articles, including two with a low risk of bias, two with an unclear risk and three with a high risk of bias (Caplan et al., 1999; Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Mas et al., 2018; Richards et al., 1998; Shepperd et al., 1998). All of these trials measured mortality rates (Caplan et al., 1999; Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Mas et al., 2018; Richards et al., 1998; Shepperd et al., 1998), four trials assessed readmission to hospital (Donald et al., 1995; Harris et al., 2005; Mas et al., 2018; Shepperd et al., 1998), three assessed the incidence of geriatric complications (Caplan et al., 1999; Donald et al., 1995; Harris et al., 2005) and three assessed residential status post discharge (Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005). One study found a significantly lower incidence of confusion, urinary and bowel complications, and constipation for the hospital-at-home group ($P=0.0005$; 0.01 ; 0.0003 ; 0.013 respectively). However, this study had a high risk of bias. No significant differences were found for any of the other measures.

2.5.4.3 Length of Intervention

Two studies with a high risk of bias compared the duration of the hospital at home intervention with the duration of the patient's hospital admission (Mas et al., 2017; Mas et al., 2018). Findings were conflicting with one trial reporting a significantly

shorter duration for the intervention group ($P < 0.001$) (Mas et al., 2017) and the other reporting that it was significantly longer ($P < 0.01$) (Mas et al., 2018).

2.5.4.4 Recovery from Acute Illness

Three studies measured the patient's recovery from their acute illness (Harris et al., 2005; Mas et al., 2017; Mas et al., 2018), including one trial with a low risk of bias and two trials with a high risk of bias. This was measured through self-reported recovery, whether the patient was discharged to primary care services at the end of the intervention and a combination of self-reported recovery and functional resolution. One of the studies with a high risk of bias found that the intervention group was associated with favourable crisis resolution, a combined measurement of both the recovery from the acute illness and patient's functional recovery, when results were adjusted using the propensity score method ($OR = 1.54$ (1.06-1.22)) (Mas et al., 2017). No other significant differences were found.

2.5.4.5 Functional Status

Nine trials evaluated the patient's functional status (Caplan et al., 2005; Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Leff et al., 2009; Mas et al., 2017; Mas et al., 2018; Richards et al., 1998; Shepperd et al., 1998). Two of these trials had low risk of bias, two had an unclear risk and five had a high risk of bias. The Barthel Index (BI) was the most commonly reported outcome measure, featuring in five trials (Caplan et al., 2005; Cunliffe et al., 2004; Donald et al., 1995; Richards et al., 1998; Shepperd et al., 1998). The remaining measures used were the Older Americans Resources and Services assessment, Functional Independent Measure, IADL Index and the Nottingham Extended Activities of Daily Living score (NEADL). Non-validated measures included categorisation systems for mobility and activities of daily living, which were self-reported or observed and relative functional gain using an adaptation of the BI, with each measure featuring only once across the trials.

One study with a low risk of bias found significantly better improvements in the BI at the 3-month follow-up for the intervention group (95% CI = 0.04 to 1.9), however, this was not sustained at the 12-month follow-up (Cunliffe et al., 2004).

This trial also reported significant improvements among the intervention group in the kitchen (mean difference = 1.2, 95%CI = 0.2 to 2.3) and domestic (mean difference = 1.1, 95%CI = 0.2 to 2.0) sub-sections of the NEADL at the three-month follow-up. Statistically significant improvements persisted in the domestic subsection only at the 12-month follow-up (mean difference 1.4, 95%CI = 0.4 to 2.4).

Three trials, all with a high risk of bias, reported significant between-group differences in the IADL index at discharge, in IADL dependency at the two-week follow-up and in observed functional resolution at the 30-day follow-up, all in favour of the intervention group ($P=0.037$; $P=0.007$; $P=0.01$ respectively) (Caplan et al. 2005; Leff et al., 2009; Mas et al., 2018).

2.5.4.6 Cognitive status

Cognitive status was evaluated in one trial with a low risk of bias, one trials with an unclear risk of bias and two trials with a high risk of bias using the MMSE, MTS and MSQ (Caplan et al., 2005; Donald et al., 1995; Harris et al., 2005; Richards et al., 1998). Significant within-group improvements were found in one trial with a high risk of bias for both the IG and the CG at discharge using the MSQ ($P=0.004$; 0.031 respectively), however, no significant between-group differences were found (Caplan et al., 2005).

2.5.4.7 Patient Satisfaction

Patient satisfaction was reported in five trials (Caplan et al., 1999; Harris et al., 2005; Leff et al., 2006; Richards et al., 1998; Shepperd et al., 1998), including one trial with a low risk of bias, two trials with an unclear risk and two trials with a high risk of bias. All studies demonstrated significantly greater levels of patient satisfaction for the intervention group. However, for one of these studies which used a satisfaction questionnaire, significant findings were only demonstrated in one out of 11 questions ("discussions with staff") ($P=0.024$) (Richards et al., 1998). One non-RCT also used a satisfaction questionnaire and found significantly higher satisfaction in five out of the nine domains that were explored, including satisfaction with their physician, other staff involved, comfort and convenience, the

admission process and overall satisfaction ($P=0.007$; 0.042; 0.0003; 0.0003; 0.034 respectively) (Leff et al., 2006). The measures used to assess patient satisfaction in the remaining studies were more general, including patients reported preferred place of care and a Likert scale allowing the patients to rate their overall experience of the service (Caplan et al., 1999; Harris et al., 2005; Shepperd et al., 1998).

2.5.4.8 Quality of Life

Patient's quality of life was measured in five trials, using the EuroQol-5D (EQ-5D), General Health Questionnaire (GHQ), Philadelphia Geriatric Morale Score, COOP-WONCA charts and the SF-36 (Cunliffe et al., 2004; Donald et al., 1995; Harris et al., 2005; Richards et al., 1998; Shepperd et al., 1998). One trial with a low risk of bias demonstrated significant improvements for the intervention group in the GHQ at both the three-month (mean difference = -2.4, 95%CI = -4.1 to -0.7) and 12-month follow-up points (mean difference = -1.9, 95%CI = -3.5 to -0.4) (Cunliffe et al., 2004). There were no published minimal clinically important difference values for the GHQ for the older adult population found by the researcher, however, given that the tool range is zero to 36, this would be considered a small change, though significant.

2.5.4.9 Carer Outcomes

Carer outcomes were assessed in five trials, including carer burden, quality of life and satisfaction (Gunnell et al., 2000; Harris et al., 2005; Leff et al., 2006; Leff et al., 2008; Shepperd et al., 1998). The Carer Strain Index (CSI) was used to measure carer burden in three trials. Inconsistent findings were demonstrated with the CSI, whereby one trial with a low risk of bias reported significantly higher levels of stress for one item of the CSI for the IG at the one-month follow-up, and another trial with a low risk of bias reported significantly lower CSI scores for the IG ($P=0.02$; 0.02 respectively) (Gunnell et al., 2000; Harris et al., 2005). One non-RCT assessed carer burden using a questionnaire evaluating stressful situations experienced during the episode of care and demonstrated a lower incidence of stressful events for carers in the intervention group at the two-week follow-up (mean SD 1.7 +/- 1.8 vs 4.3 +/- 3.1, $P = <0.001$; median 1 vs 4, $P = <0.001$) (Leff et al., 2008).

Two papers assessed quality of life using the GHQ, COOP-WONCA charts and the EQ-5D (Cunliffe et al., 2004; Gunnell et al., 2000). One trial with a low risk of bias

found significant improvements in the GHQ at the three-month follow-up (mean difference = -2.0, 95%CI = -3.8 to -0.1), however, this did not persist at the 12-month follow-up (Cunliffe et al., 2004).

Carer satisfaction was measured in two trials with a low risk of bias and two trials with a high risk (Caplan et al., 1999; Harris et al., 2005; Gunnell et al., 2000; Leff et al., 2006). The two trials with a low risk of bias used questionnaires, and demonstrated better results for the hospital at home group for the overall rating of the service, with less carers feeling under pressure, and more stating that they would recommend this service ($P=0.004$; 0.009 ; 0.03 respectively) (Harris et al., 2005); and greater levels of satisfaction for “discussions with staff” and information received about the patients treatment ($P=0.007$; 0.010 respectively) (Gunnell et al., 2000). The non-RCT also used a questionnaire and found greater levels of satisfaction in six out of eight domains that were assessed, including satisfaction with the physician, nurses, other staff involved, comfort and convenience, discharge and overall satisfaction ($P<0.0001$; 0.013 ; 0.022 ; 0.0002 ; 0.0003 ; 0.0002 respectively) (Leff et al., 2006). The remaining trial found greater levels of satisfaction using a Likert scale of the carers rating of the overall service ($P=0.0001$) (Caplan et al., 1999).

2.5.4.10 Cost Effectiveness

Cost-effectiveness was assessed on four occasions; there were three separate papers whereby the sole focus of the paper was the economic evaluation (Coast et al., 1998; Miller et al., 2005; Shepperd et al., 1998), and the fourth economic evaluation was included among many other outcomes within another paper (Harris et al., 2005). Conflicting results were reported across the four trials that compared the cost effectiveness of hospital at home with usual inpatient care. Two trials demonstrated lower costs for the intervention group for the overall cost with a saving of £1,727 per case ($P=0.05$) (Miller et al., 2005), and total costs for the patient, the National Health Service and social services (Coast et al., 1998). In contrast, one trial found that the mean cost per patient was almost twice as much for the patients in the hospital at home group ($P = <0.0001$) (Harris et al., 2005), and another found no significant differences in total costs to the health service but

reported significantly higher cost of General Practitioner services for patients in the IG ($P = <0.01$) (Shepperd et al., 1998).

2.5.4.11 Optimal Parameters in the Delivery of Care

Due to poor reporting of interventions and heterogeneity in terms of patient characteristics, types of interventions and outcome measures used, it was not possible to determine any consistent patterns with regards the intervention frequency, intensity, duration and type of care provided across the studies that demonstrated better outcomes for the intervention group.

2.6 Discussion

This review aimed to summarise the effectiveness of hospital at home models of care for older adults requiring acute care, compared to usual inpatient care. To achieve this objective, and to add to existing systematic reviews on this topic, the search was not limited to RCTs for two reasons. Firstly, during the preliminary literature search, it was discovered that no new RCTs have been published since the most recent Cochrane review on this topic (Gonçalves-Bradley et al., 2017).

Therefore, the inclusion of non-RCTs may be useful to get an informed overview of what is currently known, in an effort to inform future research. Secondly, these trials can provide updated information on characteristics of more current interventions.

The results of this review found evidence to support the effectiveness of this model of care, with better results in patient satisfaction, carer satisfaction and carer burden, compared to usual inpatient care. The effectiveness of hospital-at-home models of care on recovery, functional status, quality of life and cost effectiveness remains inconclusive. There were no differences detected in adverse events, including mortality, readmission, and discharge to long term care, suggesting that selected patients can be as safely treated at home as they would in the acute hospital setting, if they are discharged home with the support from a visiting multidisciplinary team. Given the unclear to high risk of bias across more than half of the included studies, and the lack of new RCTs, results should be interpreted with caution. Another objective of this review was to determine the optimal

parameters in the delivery of hospital-at-home schemes, including the frequency, intensity, duration and type of care provided, however, due to the heterogeneity across the trials and the poor reporting of interventions, it was not possible to fulfil this.

Patient satisfaction appeared to be the most promising result emerging from this review, with significantly greater levels of satisfaction for the hospital at home group compared to usual inpatient care in all studies that explored it. Similar findings were demonstrated in previous systematic reviews exploring hospital at home for various populations, including patients recovering from a stroke, elective surgery and those with chronic obstructive pulmonary disease (Gonçalves-Bradley et al., 2017; Shepperd et al., 2009). However, from these studies it is not clear as to what elements of care led to these results given the measures used. It will be important to explore this in more detail in future trials among patients, caregivers and care providers as this will determine the sustainability and acceptability of this complex model of care.

The most recent systematic review on this topic was a Cochrane review carried out in 2017, which concluded that hospital at home care may increase the risk of readmission, increase patient satisfaction, reduce length of stay and makes no difference to mortality for older adults with a mix of medical conditions (Gonçalves-Bradley et al., 2017). This current review included eleven additional papers: four of these were additional trials carried out from studies already included in the Cochrane review (Coast et al., 1998; Gunnell et al., 2000; Miller et al., 2005; Shepperd et al., 1998), two older RCTs (Caplan et al., 1999; Caplan et al., 2005), and five non-RCTs (Leff et al., 2006; Leff et al., 2008; Leff et al., 2009; Mas et al., 2017; Mas et al., 2018). Despite the limitations of these additional papers, this review added to the findings of the previous systematic review, specifically in the areas of patient's quality of life, carer satisfaction and carer burden.

One of the main findings from this systematic review was the lack of recently published RCTs on this topic. Despite the global adoption of this model of care among the older adult population, and recommendations from previous Cochrane reviews, there have been no newly published RCTs on this topic in 15 years

(Shepperd et al., 2014; Gonçalves-Bradley et al., 2017). The most recent studies have been quasi-experimental longitudinal studies (Mas et al., 2017; Mas et al., 2018). The Medical Research Council have highlighted the importance of considering randomisation in the evaluation of the effectiveness of a complex intervention, as it is the most robust method of eliminating selection bias, which may affect the integrity of the results (Craig et al., 2008). Furthermore, much of the existing evidence is limited by methodological quality. Given the potential benefits of this model of care for the older adult, there is a need for more well-designed studies in order to confirm its efficacy and to provide recommendations for future practice.

It was found that hospital at home interventions varied across the studies in patient characteristics, duration of care and members of the multidisciplinary team. Given the heterogeneity across the studies, as well as the poor reporting of interventions, particularly the type of care provided, the intensity of contact and the maximum duration of care, it was not possible to determine which features of hospital at home may have been more effective than others. This is a common limitation of complex interventions (Dumbrowski et al., 2007). The TiDier guidelines should be followed in the reporting of complex interventions in future trials to allow authors to draw more definitive conclusions and recommendations, and to allow their replication (Hoffmann et al., 2014).

Outcome measures varied across studies which limited the ability to pool the results for meta-analysis. The most commonly reported, validated outcome measure in this study was the Barthel Index, which featured five times across the nine studies that explored functional status. However, significant differences were only detected in one trial at one time-point (Cunliffe et al., 2004). Given the functional decline associated with hospitalisation and ageing, it is undoubtedly an important measure to explore when evaluating hospital at home schemes (Covinsky et al., 2003). However, there remains uncertainty regarding the most appropriate outcome measure to assess functional outcomes for older adults transitioning from hospital to home (Liebzeit, King and Bratzke, 2018). The most common outcome measures for this population include the BI, the Katz ADL index, the Lawton and

Brody IADL index and the ADL summary scale, however, their psychometric properties are uncertain, and they demonstrate limited ability to detect change (Liebzeit, King and Bratzke, 2018).

2.6.1 Strengths and Limitations

This review adopted a rigorous approach in line with the PRISMA checklist. An extensive literature search was carried out prior to commencing this review, in order to identify all relevant terms associated with hospital-at-home to be included in the search string. This resulted in a fully comprehensive search strategy, including a systematic search of multiple databases, grey literature, a search of the reference and citation lists of relevant articles, as well as a manual search of appropriate academic journals. Additionally, it was ensured that study processes were completed or reviewed by at least two study authors. Two review authors read all relevant full texts and agreed on eligibility, and two review authors carried out the risk of bias assessment independently. When necessary, a third review author was consulted to resolve any discrepancies. Regular consensus meetings were held between the three review authors to review the data extraction phase.

However, as with the majority of studies, there were limitations to the review. Due to the lack of recently published literature, no limitations were placed on the search with regards the year of publication, which may increase the heterogeneity across the trials. Overall, the review was also limited by the methodological quality of existing literature and poor reporting of interventions, which indicates that further research is needed in order to consolidate the effectiveness of hospital at home schemes for this population. Finally, this review focused on statistical significance and did not assess for clinical appropriateness. It is known that statistical significance does not always signify clinical significance, and this may be important to consider this in future research (Page, 2014).

2.6.2 Future Recommendations

Important gaps for future research were found in this study based on methodological quality of existing literature and the lack of published RCTs in the past 15 years. To this end, this highlights the need for future RCTs to evaluate this programme, using TiDier guidelines to describe the intervention. This may allow for

meta-analysis in further reviews. It will be important to focus on patient, carer and care provider satisfaction in detail, as well as full economic analyses, as this will determine the sustainability of this service.

Hospital at home schemes have been adopted worldwide and appear to be a promising alternative for the older adult population, providing a unique opportunity to deliver comprehensive care in the familiarity of the patient's own home. However, more up-to-date literature of higher methodological and reporting standards is necessary in order to explore this and to make confident recommendations on best practice in the delivery of care.

2.7 Conclusion

The literature to date on hospital at home for the acutely unwell older adult is limited and is based on dated studies with many demonstrating a high risk of bias. In the context of these limitations, there is some evidence to suggest increased levels of patient and carer satisfaction, with no evidence of additional carer burden, compared to hospitalised older patients with an acute medical condition, or mix of conditions. Hospital at home can be delivered as safely as usual inpatient care with no difference in adverse events such as mortality, readmission or discharge to long term care.

No new RCTs have been published on this topic in 15 years and, overall, interventions were poorly reported in existing studies making it difficult to determine optimal parameters for the best practice in the delivery of care. To this end, we can conclude that more high-quality RCTs, that follow the TiDier guidelines in the reporting of interventions, are needed to make confident conclusions regarding the effectiveness of hospital at home for acutely unwell older adults, and to determine optimal parameters for delivery of care.

Chapter 3: Patients' and Carers' Experience and Perceptions of the Pilot Integrated Care Programme for Older Persons in Cork City (ICPOP): A Qualitative Evaluation

3.1 Background to the Qualitative Evaluation

The first step in answering the overall research question was to understand the different methods of delivery of hospital at home models worldwide, and to explore their effectiveness compared to usual inpatient care.

Phase 1 revealed some similarities between the characteristics of hospital at home models of care worldwide, and the ICPop. For example, for many of the studies, the episode of care lasted up to two weeks, and the most common members of the multidisciplinary team included the nurse, physiotherapist, and occupational therapist. However, it was not possible to compare the type of care that was provided with that of the ICPop due to poor reporting of interventions.

The results of the systematic review were limited by dated RCTs and high risk of bias. However, there was some evidence to suggest greater patient and carer satisfaction, with no apparent impact on carer burden. These findings contributed to informing the interview schedule.

3.2 Summary

Objective: Using implementation research, this study aimed to explore patients' and carers' experiences and perceptions of the ICPOP in Cork, Ireland.

Setting and Intervention: The ICPOP offer a home-based rehabilitation and care programme through early supported discharge or admission avoidance pathways for up to two weeks. This service is aimed towards acutely unwell older adults who would otherwise require hospital admission.

Participants: A total of twelve older medical patients who had received the ICPOP service were interviewed, as well as eight carers of patients who had received this service.

Method: A qualitative study design was used. Semi-structured interviews were carried out with patients and carers in their own homes. The development of the interview questions was guided by the concepts of the framework for implementation outcomes. Data was analysed using thematic analysis. The resulting categories were then organised using the framework for implementation outcomes.

Results: Data from fourteen interviews was included for analysis. Overall, service users were overwhelmingly satisfied with the care provided by the ICT. The ICPOP was perceived as acceptable and appropriate by patients and carers, and participants spoke positively on the safety, timeliness, effectiveness and patient-centredness of the care provided. Key elements in the successful implementation of the service included the home-based form of rehabilitation, kind and caring personnel, the positive, therapeutic relationships developed, rapid response from the team, reassurance for patients and carers and the patient's functional recovery. Some uncertainties regarding the duration of care, end of care and rehabilitative element of the service were also highlighted.

Conclusion: The conceptual framework for implementation outcomes assisted in categorising the facilitators and challenges experienced during implementation of this programme. Patients and carers were overwhelmingly satisfied with the care

provided by the ICT. Reasons included the more person-centred style of care, the importance of the home environment and the positive relationships formed between the team and service users. A greater understanding of the intervention duration and transfer of care to community services is required to ensure clarity at the end of ICPOP care for patients and carers.

3.3 Introduction

Ireland's acute healthcare system is undergoing a reform of the management of the acutely unwell older adult in response to the dramatic shift in population demographics, moving away from the traditional hospital-centric models towards community-based rehabilitation. Currently, 12.5% of the population of Ireland is aged 65 and over and is estimated to grow by 21% by the year 2022 (Smyth et al., 2017). This growing population is putting an increasing burden on the acute sector, with older adults accounting for one quarter of all emergency department visits, and one in two patients requiring hospital admission, compared to one in five patients under the age of 65 (Smyth et al., 2017).

It is widely known that a period of hospitalisation can expose the older inpatient to multiple stressors such as fasting, limited physical activity, poor sleep and altered nutrition. These contribute to hospital-acquired disabilities which can increase their risk of long-term care admission or prolonged length of stay (Krumholz, 2013).

The World Health Organisation (2017) have recommended that healthcare should be delivered in the older persons home or community. Irish policies have recognised the need for service redesign, with the establishment of the ICPOP in 2017. The aim of the ICPOP is to provide a seamless service between acute and primary healthcare in an effort to maintain care at home and minimise hospitalisation. Hospital-at-home models have been implemented and accepted in many countries worldwide and there is evidence to support the effectiveness of these schemes, mainly through the use of quantitative research methods. The most recent Cochrane review exploring hospital at home for older adults with medical conditions found some evidence of higher patient satisfaction and possible

reduction in length of stay and risk of admission into long term care (Gonçalves-Bradley et al., 2017).

However, research addressing patient reported experience measures of hospital-at-home models remains relatively unexplored. There are two studies known to the researcher which have included the qualitative research methods when evaluating hospital-at-home scheme for older adults, as part of mixed-method study designs. According to these studies, patients valued coming home early, and visits were perceived positively, with an emphasis on personal care and communication (Cunliffe et al., 2004; Wilson et al., 2002). Little information was provided in these studies on patients' perceptions of specific elements of care and rehabilitation, intervention duration or after-care provided.

The Medical Research Council in the United Kingdom has published guidelines on the development and evaluation of complex interventions and have highlighted the importance of involving service users in all stages of the development of a complex intervention, through the use of qualitative research methods (MRC, 2006). The ICPOP is patient-centred in its planning and implementation; their feedback is pivotal to the refining of the service. There has been no local evaluation of the ICPOP completed and Irish policies have also highlighted the importance of evaluating patient reported experience in the development of this service (ICPOP Steering Group, 2017). Therefore, the aim of this study is to gain insight into the patient's and carer's experiences and perceptions of the service processes and their outcomes. The participants' feedback will be used to further refine the programme.

3.3.1 The Integrated Care Programme for Older Persons

Cork, Ireland, is one of the designated pioneer sites for an Integrated Care Pathway for acutely unwell older persons, with the pilot programme commencing in 2017. The ICT are based in St. Finbarr's Hospital in Cork, and comprises of a full-time clinical nurse specialist, physiotherapist, occupational therapist, care assistant and a case manager. The team operate from 9am to 4.30pm, Monday to Friday, and work in conjunction with a consultant geriatrician. The team provide two weeks of nursing care and rehabilitation for acutely unwell older adults in their home.

Patients using this service are discharged from two large teaching hospitals, both based in Cork, Ireland, and must reside within a five-kilometre radius of both hospitals. Frail, acutely unwell medical patients, over 75 years, requiring acute nursing care, physiotherapy and occupational therapy, or those at a falls risk, are suitable for the service. The team are currently providing an early discharge pathway for patients to reduce their length of stay in hospital, as well as an admission avoidance scheme whereby patients are allowed home from the emergency department, if their needs can be looked after at home. In the future, general practitioners and nursing homes will have the direct access to the service, thus avoiding physical contact with the hospital environment where possible.

3.3.2 Implementation Research

This topic was approached from a perspective informed by implementation research, more specifically, a conceptual framework for implementation outcomes, as reported by Proctor et al. (2011) (Figure 3.1). The use of implementation research has been recommended in the evaluation of hospital-at-home services in the most recent Cochrane review focusing on the effectiveness of hospital-at-home schemes for various populations (Gonçalves-Bradley et al., 2017). Implementation research focuses on identifying various strategies to enhance the uptake of a healthcare service into clinical usage, with an overall aim of improving the quality, delivery and effectiveness of a service (Bauer et al., 2015). As this is a pilot service, it was important to consider implementation outcomes as they have a direct influence on service and client outcomes ie. If the service is not implemented well, then the client and service outcomes may suffer as a result (Proctor et al., 2011).

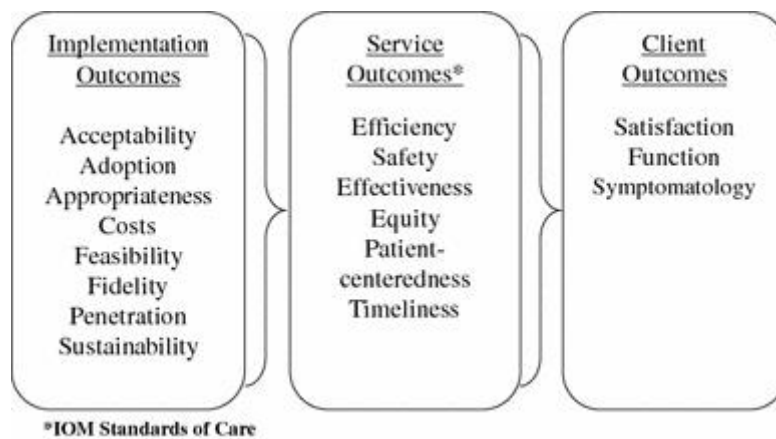


Figure 3.1 Types of outcomes in implementation research (Proctor et al., 2011)

3.4 Methods

3.4.1 Study Design

Qualitative research methods were used to fulfil the aims of this study as it allows the researcher to understand more about a phenomenon through the exploration of human experiences and perceptions (Green and Thorogood, 2009). Qualitative research methods are critical in implementation research in order to gain an in-depth insight what is happening and why, and to explore the reasons for success or failure, which is integral in the continuous development of a service (Hamilton and Finley, 2019).

Ethical approval was granted by the Clinical Research Ethics Committee of the Cork Teaching Hospitals prior to study commencement (Appendix 5). The analysis and reporting of this review were completed in accordance with the Consolidated Criteria for Reporting Qualitative Research (Appendix 6) (Tong et al., 2007).

3.4.2 Research Instrument

Individual semi-structured interviews were selected as the method of data collection for this study. Interviews are among the most common methods of data collection when addressing implementation outcomes (Hamilton and Finley, 2019). Semi-structured interviews are advantageous as they allow flexibility to explore emerging themes (Green and Thorogood, 2009).

Separate interview schedules were developed for the patient and carer (Appendix 7 and Appendix 8). The interview schedules were developed by the researcher with guidance from the co-investigators. The topic guide was initially informed using the results from the previously conducted systematic review. A literature search was carried out to identify potential interview guides that had been tested on a similar intervention and population, in order to inform the interview questions. Two relevant studies were identified (Cunliffe et al., 2004; Wilson et al., 2002). No sample interview guides were included in either paper, however, the results sections were read in detail to identify potential topics for discussion. The questions were then compared against the conceptual framework for implementation outcomes as reported by Proctor et al (2011), in order to ensure that any relevant outcomes had been explored in the interview guide. The use of these outcomes was helpful in this situation, as implementation outcomes aid in exploring reasons for the success or failure of an intervention (Proctor et al., 2011).

The first draft of this interview schedule was reviewed by members of the ICT to ensure that all information was correct and that no areas of interest had been omitted. Several pilot interviews were then carried out with clinical staff, all of whom have experience working with older adults in a clinical setting, for feedback on interview skills, duration, and wording of questions.

3.4.3 Participant Selection

Purposive sampling was used to recruit all participants in this study. This allows the researcher to ensure representativeness and diversity of the study population (Green and Thorogood, 2009; Palinkas et al., 2015). The aim was to include patients who lived alone and those with carers in the home; with differing levels of physical and cognitive ability; those who achieved or did not achieve the goals set with the team and patients with varying levels of engagement with the team, as determined by the team members themselves. A sampling grid was used to ensure an even representation of the variables of interest (Appendix 9).

The gatekeepers, in this case the members of the ICT, identified and approached suitable patients directly by telephone and informed them about the study.

Interested participants were contacted by the primary researcher (CS) to schedule the interview. For patients who have carers who were present and involved during the episode of care provided by the ICT, the carer was selected for interview also. Patients were suitable for inclusion only if their care had been completed no more than 3 months prior to the interview taking place. Most patients who were approached by the researcher agreed to participate. Reasons for patients not participating are outlined in the results section.

3.4.4 Sample Size

The sampling size for interviews was determined using the strategy of 'sampling to saturation'. This means that the researcher will continue to sample until no new themes are generated (Green and Thorogood, 2009). It has been recommended that, typically, between five and ten interviews will suffice when carrying out implementation research (Hamilton and Finley, 2019). However, a total of 14 interviews were required until the point of theoretical saturation was reached, as discussed and agreed by the researcher and co-investigators.

3.4.5 Data Collection

Interviews took place during April and May 2019. All interviews were conducted by the primary researcher (CS), a female with a degree of Bachelor of Science in Physiotherapy, who was working in older persons rehabilitation, separate to the ICPOP, at the time of the interviews. The interviewer had previously completed modules in research methodology but had no formal experience of conducting interviews.

Participants had no relationship with the researcher prior to the interview. The interviewer was introduced as a 'research student' to minimise potential bias given the involvement of physiotherapy in this programme. All interviews took place in the participants' own home, and only the researcher and the individual(s) being interviewed were present during each interview. When both the patient and carer were being interviewed, they had the choice to do so separately or as a dyad. Prior to the interview, the patient and/ or carer was allocated time to review the

participant information sheet and written informed consent was obtained (Appendix 10, 11, 12 and 13).

The interviews were audio-taped by two high-quality recorders. Interviews lasted between 20 and 55 minutes, however, no time limit was set for the interviews. The recording was only paused if the participant was disrupted, for example, by a telephone call, if they became upset, or if they requested that the recording be stopped. The interview was guided by the interview schedules as outlined above. The researcher began with broad questions and then proceeded to narrow down the information to clarify details or further explore emerging themes. This strategy is known as the “funnel approach” and has been recommended when performing semi-structured interviews in implementation research (Palinkas et al., 2015).

Following the completion of each interview, the researcher either reflected on, or listened to the interview recording, and took field notes on the main topics of the conversation. If any new findings about participant’s experience and perception of service emerged that was not included in the original interview schedule, the interview guide could be subtly adapted or added to, to allow the interview to explore these topics in the remaining interviews.

3.4.6 Data Management

All data collected was managed in accordance with the European Union General Data Protection Regulation (GDPR) and the Health Service Executive Data Protection Policy to eliminate GDPR issues (Ryan, 2018; Voigt and Bussche, 2017). Participants were anonymised and all audio-recordings and transcriptions were additionally password protected on a computer, which was only accessible by the research team. The coded list of participants was stored in a locked cabinet in a data storage room in University College Cork and shredded on completion of the study.

Recordings were fully anonymised before sending to the third party for transcription. The audio-recordings were destroyed once transcriptions were received. In accordance with the University College Cork Code of Research Conduct, transcriptions will be electronically stored for ten years and will then be destroyed.

3.4.7 Data Analysis

Data analysis was carried out using thematic analysis following the framework of Braun and Clarke (2006). This method allows researchers to identify, analyse and report patterns within the data set (Braun and Clarke, 2006). This 6-phase framework is as follows:

- 1) Familiarisation with the data
- 2) Generating initial code
- 3) Searching for themes
- 4) Reviewing themes
- 5) Defining and naming themes
- 6) Produce the report

The interviews were transcribed verbatim into separate Microsoft Word documents by an external and independent source in the months following the final interview. The primary researcher listened back to the audio-recordings and added notes describing patient emotion and tone of voice. The files were read and re-read by three members of the research team to allow immersion into the data.

The first stage of the data analysis involved an inductive approach, where data-driven codes were generated. All researchers were involved in this stage to ensure maintenance of rigor of the study; CS completed all 14 interviews, RMcC coded the first seven interviews and JMcV coded the final seven. The coding was conducted on the Microsoft Word document of each separate interview by selecting and labelling sections of data within each interview.

The next stage also involved an inductive analysis, whereby the codes were categorised and grouped into sub-themes emerging from the data. The primary researcher collated all relevant codes into potential sub-themes, comprising of common content and direct quotes that demonstrate each sub-theme. Even though the interview questions may have driven certain themes to arise, e.g. the organisation of visits or the patient's preference of hospital or home, the actual sub-themes were identified inductively so that they were strongly connected to the

data and were not driven by any pre-existing theories or coding frameworks (Braun and Clarke, 2006). A consensus meeting was held during this phase between three researchers to discuss these findings.

Another consensus meeting was then held whereby the researchers began to identify the main themes. As the outcomes for implementation research assisted in the development of the interview guide, and a connection was found between the emergent sub-themes and some of these outcomes, it appeared fitting at this stage to organise these sub-themes deductively, using these outcomes in the reporting of the results. The sub-themes were examined and organised under the relevant implementation, service, and patient outcomes, as listed by Proctor et al (2011). As the initial stages of the thematic analysis followed an inductive approach and were not driven by the outcomes for implementation research, not all headings were used in the organisation of sub-themes, and when appropriate, separate headings could be formed that may better describe the group of sub-themes.

3.4.8 Maintenance of Rigour

The credibility, dependability, transferability, and confirmability of this study was enhanced using a number of recommended strategies (Forero et al., 2018; Graneheim and Lundman, 2004; Korstjens and Moser, 2017; Shenton, 2004; Thomas and Magilvy, 2011).

During the preparation phase, the content of the interview guide was constructed with guidance of pre-existing literature, as well as the use of the themes listed by Proctor et al (2011) exploring implementation, service and client outcomes. The interview schedule was developed by the interviewer (CS) and members of the research team (RMCC and JMVC), with additional input from the ICT. This approach enhanced credibility by limiting bias or influences of any one researcher. It also promoted dependability as it allowed all team members to familiarise themselves with the overall aim of the study. The use of purposive sampling also contributed to the credibility and transferability of the study by forming a nominated sample and ensuring the inclusion of a variety of patient and carer experiences, thus increasing the possibility of shedding light on the research question.

Several strategies were applied during the data collection phase. Firstly, in order to enhance dependability, weekly consensus meetings were held between the interviewer and co-investigators to discuss the interviews that had taken place and to identify any new insights into the service that may have emerged. Through open discussion, the interview guide could be subtly adapted in order to continue to explore any emerging themes.

In order to enhance the credibility of the study, and trustworthiness of the results, the interviewer was introduced as a research student from clinical therapies, with no involvement with the ICT. The use of open questions and encouraging participants to speak freely during the interviews also promoted credibility and confirmability. Interviews were audio-taped by two separate recorders and field notes were taken by the interviewer immediately after each interview had taken place.

Credibility, confirmability and dependability were improved during the data analysis phase by employing investigator triangulation, whereby three independent researchers were involved in the coding of the data. Consensus meetings were held between the three researchers throughout this phase, mainly to discuss emerging sub-themes and finally, to confirm the organisation of sub-themes. Any discrepancies in the analysis of the data were discussed until a unanimous decision was reached. An external researcher also reviewed the final themes. As this was a local evaluation of the service, the transferability of the findings may be limited.

3.5 Results

3.5.1 Participants

A total of 20 patients/ carers/ patient carer dyads were approached to take part in the interview process. Three declined as they felt that they were no longer suitable to take part or did not want to, one patient was unable to participate as he was on holidays, one patient had since passed away and one patient had agreed to participate but was not at home when the interviewer visited at the scheduled time.

Over a two-month period, fourteen interviews were completed, including twelve patients and eight carers; six patients were interviewed individually, six patient and carer dyads and two carers individually. Of the carers interviewed, two were spouses of the patients and the remaining were the patient's children. In one case, both parents of the carer who was individually interviewed went through the ICPOP service, and she spoke on her experience of the care provided for both parents. All interviews took place in the patient's home. Most patients and carers were female (66% and 88% respectively). Six patients were recruited through the admission avoidance pathway and nine patients from the early discharge pathway. Due to special circumstances, the ICT spent four weeks with one patient, however, for the remaining 13 patients, the duration of care lasted a maximum of two weeks. The average interview duration was 33 minutes.

3.5.2 Findings

The emergent sub-themes were organised using the constructs of the conceptual framework of implementation, service, and client outcomes, as reported by Proctor et al (2011). The sub-themes were found to fit under the following seven headings: satisfaction, acceptability, appropriateness, safety, effectiveness, patient-centredness, timeliness. One other separate heading ("Transition out of the service") was also created, as it was felt that this better described a group of similar sub-themes.

3.5.2.1 Satisfaction

Overwhelming satisfaction with the ICPOP was a consistent finding. Throughout the interviews, the care provided by the ICT was referred to as *"outstanding"*, *"brilliant"* and a *"second to none service"*. General praise for both the staff and the service was strongly emphasised by all participants. Patients *"looked forward to them coming"* and reported that they *"couldn't be happier"* with the service that was provided: *"the best part of it was the whole lot because everyone was looked after me"* (Interview 14; Patient).

All carers that were interviewed were equally satisfied with the service, stating that the team *"went above and beyond"* for the patient and that they would *"highly*

recommend them to anyone”: “If I was to mark them out of 100, I'd give them 110” (Interview 13; Carer); “when we’re back in a similar situation again, I'd be praying that we’d get the same type of therapy the next time” (Interview 8; Carer)

Even though some participants highlighted areas in the service that may need improvement, this did not negatively impact their overall experience of the service.

[3.5.2.2 Acceptability](#)

Implementation research suggests that the acceptability of a service is the idea that an intervention is palatable and satisfactory for the service user (Proctor et al., 2011).

[3.5.2.2.1 Preference of home as an environment for recovery and rehabilitation](#)

The acceptability of this service was strongly portrayed through both the patients’ and carers’ preference of receiving the acute care in the home environment as opposed the hospital setting. The home setting was frequently described as one of the most valuable elements of the service. Patients were *“delighted”* to go home and emphasised the importance of being in their own environment: *“There’s nothing like it, in your own home, in your own bed” (Interview 1; Patient); “I like to be able to do my own thing when I want to” (Interview 6; Patient).*

Both patients and carers found the home atmosphere to be more relaxing, private and personal. Carers also spoke about the importance of minimising hospitalisation for older adults: *“I think it’s better for the elderly to go back into their own home 100% it’s way better. They just want to be back in their own environment” (Interview 11; Carer); “I think if she was in hospital once more, she would have lost it for good” (Interview 3; Carer).*

In contrast, while patients were satisfied with the care that they received in the hospital, the environment was often described as impersonal, disruptive and lonely: *“She couldn’t go to the bathroom on her own. But she had no call button” (Interview 2; Carer); “He was lonely, then us going away, he just wanted to be at home” (Interview 11; Carer); “If you're in a hospital sure there's hundreds of other people there in the corridors and in the rooms. There's no privacy whereas here it's the*

privacy of our own home” (Interview 13; Carer). Patients also found the rehabilitation to be more meaningful when carried out in the home environment, as opposed to the hospital: “I didn’t feel I gained anything much by trying to walk or anything when I was in hospital” (Interview 9; Patient).

Difficulty speaking to medical professionals due to time constraints while in hospital was highlighted, whereas, this was not an issue during the episode care provided by the ICT: *“you were trying to catch a doctor in the hospital so you could be there for hours, whereas you knew they [the ICT] were coming you would have questions to ask” (Interview 2; Carer).* Patients and carers also expressed the view that the hospital environment *“is the last place to get better sometimes”*, and that it can hinder the patient’s recovery due to unnecessary weight loss and spending excess time in bed: *“I was in bed for a fortnight that the legs seized up” (Interview 12; Patient).*

3.5.2.2.2 No evidence additional patient or carer burden

The intensity of the therapy was reported to be appropriate and did not place additional burden on the patient, which enhanced the acceptability of the service. Patients reported that, even though the team would be making daily visits to the patient, it was *“not a bit stressful”* and did not interfere with their daily events as they rarely left the house while recovering from their illness.

One carer stated that the patient found it stressful to be ready every morning, however, she reported that the timing of the visits was adjusted in order to suit the patient. Nevertheless, there was a general consensus among carers that they could not make plans due to the intensity of care over the two-week period, but this did not seem to affect their perception of the service: *“For two weeks, you’re willing to adjust to it and it’s not something I would complain about.” (Interview 3; Carer).*

Most carers reported that the fear and pressure related to discharge home was helped by the team's support and shared responsibility of care. Some carers reported that they would have had difficulty knowing how to approach the care of their loved one following an acute illness: *“I’m not sure I was capable of knowing what to do” (Interview 3; Carer),* but having the support of the team alleviated this

fear: *“they were here while she started to walk first as well, to make sure she was doing it correctly or...in case anything did happen”* (Interview 7; Carer).

The acceptability of the service was further illustrated through the carers appreciation that they did not have to be present during the episodes of care: *“it was effortless because it was not a situation where they said, somebody has to be there”* (Interview 11; Carer). Receiving the care in the home environment also reduced travel burden, especially for older carers who may no longer be driving: *“When someone took the blood tests and you hadn’t to go over the doctor, I mean they took them here, they said there’s no need to go over”* (Interview 4; Carer).

3.5.2.2.3 Confusion with team members

Some patients and carers recounted that *“it got very confusing with all the different names and the different people coming”*, and the team members were frequently referred to as *“all nurses”*. Some suggestions were made by participants in an effort to reduce this. One patient and carer dyad suggested making a diary account of each visit so that the patient could better familiarise themselves with the team members and their specific roles: *“everyone should have it down on a list, piece of paper who did what, who did his toes, who did look at your hand, who went around to see what you wanted”* (Interview 4; Carer). Another carer suggested providing patients with *“a sheet that you can just put it in front of the fridge, just in case anything was needed”*, including each team member’s names, positions and contact details.

3.5.2.2.4 Difficulty contacting the team

Some patients and carers found it difficult to contact the team outside of the scheduled visits. One patient and one carer were unable to get through to the team by telephone when they needed to. Others also reported that even though they had been provided with a contact details for the team initially, they were unaware of where to locate the telephone number, had they needed to contact them.

3.5.2.3 Appropriateness

Appropriateness can be described as the perceived fit or suitability of the ICPOP for the patient or carer (Proctor et al., 2011), which was primarily explored by

questioning the patient on their experience with the care and rehabilitation that they received.

Generally, patients and carers were satisfied with appropriateness of this service and felt that they *“definitely needed the support”*. They were pleased with the relevance of the intervention itself, reporting that the ICT *“covered all things that was necessary”* and *“helped [the patient] in every way”*. Many patients were also empowered to continue with their own rehabilitation and recovery independently: *“They gave her the tools to make herself stronger and at the end of the day it’s up to mum to do the physio and using the equipment that she got”* (Interview 2; Carer).

3.5.2.3.1 Satisfaction with rehabilitation

All patients and carers commented on the benefit of the equipment and comprehensive care provided by the occupational therapist and were pleased with the timely delivery and installation of the equipment. There was a consensus among patients that the equipment provided by the occupational therapist made a *“great difference”* to their daily life, reporting that *“it’s easier to get around”* thanks to the equipment provided.

Carers reported that the home assessment was thorough, and they valued the safety advice and recommendations from the occupational therapist. In some cases, an overlap of services was noted by patients and carers, whereby equipment was provided by the public health nurse prior to discharge from the hospital, which could also have been arranged by the team’s occupational therapist.

Those who engaged in rehabilitation with the physiotherapist and healthcare assistant found it to be relevant and effective. Rehabilitative interventions described by patients and carers included exercise regimes, gait and balance re-education and transfer practice. Patients were satisfied with the provision of the exercise programme and frequent repetition with the healthcare assistant.

Patients and carers valued the physiotherapist’s ability to assess the patient’s needs and provide individually tailored therapy, reinforced by the healthcare assistant, that could be incorporated into the patient’s daily life: *“even just the skills to stand up and so you don’t fall back on the seat and what way to carefully use the walking*

stick going up and down the steps, teaching her how to do that and getting in and out of the bed with the rail” (Interview 2; Carer); *“they got her back outside and the physio would walk her from the house to my brother’s house because that’s where she used to go at night-time”* (Interview 13; Carer). This demonstrates the patients and carers perceived relevance of the intervention provided by the team.

3.5.2.3.2 Areas where rehabilitation was lacking

Nevertheless, some clients’ experience with rehabilitation did not reflect what is stated above. Two separate patients who had both sustained upper limb fractures reported that they felt they had received minimal physiotherapy intervention, even though they felt that they *“could do with physiotherapy”* and highlighted the need for *“a bit more walking”*. Two other participants stated that, on reflection, the exercises provided were *“a bit too simple”* for them and felt that the rehabilitation could have been more *“specific”*, with a greater focus on walking. One carer and one patient also highlighted the need for exercise progression and a stronger reinforcement of the exercise programme by the team.

3.5.2.4 Safety

3.5.2.4.1 Reassurance

Patients and carers reported having *“confidence”* in the team and felt that they *“knew what they were doing”* and what the patient needed. Carers valued the expertise of the staff, reporting that they had *“complete and utter back up”*, which seemed to give them a sense of security in the team’s responsibility for the patient’s well-being: *“that helped a lot to have people who knew, who could assess, who decided that she was okay to be at home and what she needed at home”* (Interview 3; Carer). Some carers expressed the view that the *“second opinion of a nurse”* in particular, provided them with added reassurance: *“she knows her stuff and she knows how to do things and, you know, you feel that she will see what needs doing and you can relax with her”* (Interview 3; Carer).

3.5.2.4.2 Carers trusted the team

It was clear that the service users trusted the ICT personnel. Some carers reported that they felt safe leaving the house during the episodes of care: *“I was able to go*

off out for a couple of hours on my own and I'd know that she was being looked after and that. I wasn't afraid" (Interview 13; Carer). This short period of respite for carers was much appreciated.

3.5.2.4.3 Discharged from hospital too early

On the other hand, two carers raised some concerns regarding the patient's early discharge from hospital, reporting that the patient was too unwell to leave the hospital at the time of discharge, and reported they would *"choose hospital for a few days longer"*. Another patient also felt that he would have liked more time in hospital, however, this was based on a preconceived idea of the length of stay for his reason for admission.

3.5.2.5 Effectiveness

Patients and carers were satisfied with the effectiveness of the intervention, highlighting how it re-enabled patients allowing them to adapt to their home environment whilst increasing their independence, and empowered and informed carers.

3.5.2.5.1 Recovery

All but one patient reported that the ICPOP had a beneficial impact on their physical recovery and wellbeing. The main physical outcomes identified by participants was increased muscle strength, and improvements in mobility, balance and independence: *"I felt a lot more independent. I was able to go around (Interview 12; Patient); "Within that two-week period mum was physically a lot stronger" Interview 8; Carer)*. These improvements were meaningful for patients, allowing them to return to activities that were important to them: *"Well I never thought I'd be able to get around like I never thought that I'd be able to walk to my husband's grave" (Interview 13; Patient)*. Many patients also noticed an improvement in their confidence throughout the two-week intervention period. Only one patient felt that she *"didn't gain much"* from the intervention, stating that she is *"very bad all the time and [is] still bad now"*.

Carers were also very satisfied with the extent of recovery. The fact that the patient regained their ability to walk independently by end of the two-week intervention was stated as the most valuable part of the experience for some carers. One carer feared for his ability to continue to care for his mother, had she not made such a recovery: *"I was thinking myself that she's going to end up in a wheelchair or a home or whatever and I wouldn't be able maintain it, but they got her bouncing back to herself again"* (Interview 13; Carer).

Carers reflected on improvements in specific functional activities that the patient had not been capable of on discharge home from hospital; *"But even the other day she got in for a shower on her own, she couldn't do that. Only to the kitchen before she couldn't even get a glass of water when she came out. But now she can go in and get a cup of tea and make her breakfast"* (Interview 2; Carer); *"She was literally bed bound, couldn't even sit up and they had her back walking after two weeks"* (Interview 13; Carer); *"At the beginning, she wasn't really able to walk to the bathroom. Now, she walks there and back with help, so that's good"* (Interview 3; Carer). Furthermore, one carer felt that the patients would not have made the recovery that they did, had it not been for the care provided by the ICT: *"I don't know would she have made that much of a recovery without them"* (Interview 2; Carer).

Furthermore, some patients reported that the intervention with both the physiotherapist and healthcare assistant had changed their perception of exercise and stated that they are still carrying out the exercises independently: *"it's left a lasting impression that I need to do exercises. And while they are simple enough and they don't cause any stress, I can see the point in them"* (Interview 10; Patient).

3.5.2.5.2 Empowering carers

Carers also discussed the benefit of the advice and education that they received from the team throughout the intervention, for example, information regarding the patient's exercise programme, the provision of medication and the safety advice received: *"I can be watching what she's doing and make sure she is doing it right"* (Interview 2; Carer). This seemed to empower carers and enhance their confidence

in the care of their loved one: *"I mean I'm not an expert, I don't know what she needs, and it helped me"* (Interview 3; Carer).

3.5.2.6 Timeliness

3.5.2.6.1 Rapid Response

Service users spoke positively about the seamless transition between hospital and home, reporting that the service *"kicked in straight away"* following discharge from the hospital setting: *"She was no sooner out of the hospital and they were there at the door ready to start again"* (Interview 13; Carer). One carer reported being surprised by this, as they had expected that the team's initial visit would take much longer given their preconceived idea of waiting lists in Ireland's health service.

3.5.2.6.2 Organising visits

Patients and carers were satisfied with the team's level of organisation in scheduling the home visits. It was described as *"effortless"*, and participants praised their punctuality: *"they said they'd come back at 10, they were here at 10"* (Interview 14; Patient). Many reflected on the benefit of the telephone call prior to the visit as a reminder. One carer reported her satisfaction with the flexibility and responsiveness of the team when re-arranging their visiting hours to suit the patient: *"She is not a morning person, but they did adjust that. They realised a little bit later in the day is probably better for her"* (Interview 3; Carer). However, one carer reported that the timing was often vague, which she found to be disruptive at times.

It was also reported on a couple of occasions that follow-up visits may not have been followed through. However, one carer did excuse the ICT for this, acknowledging that *"they are very busy"* and *"the amount of people that they have to deal with"*.

3.5.2.7 Transition from the service

3.5.2.7.1 Abrupt ending

Some patients and carers found that the two-week cut off from the ICPOP service was *"abrupt"* and that they were *"just getting used to them"* by the time it ended: *"I think it's a very abrupt, sudden break. You've kind of established a relationship*

and then they're gone" (Interview 3; Carer). Some of these participants also mentioned that they would have liked more time with the team, however, this was often due to reasons such as loneliness or continuity of care, as opposed to the patient not being medically or physically well enough at the end of care: *"I only wanted them to stay another week, that was for my own selfish reasons" (Interview 10; Patient); "Unless ever there's the facility to have it for longer" (Interview 8; Carer).*

3.5.2.7.2 Poor communication regarding the end of care

A few respondents indicated that the communication regarding the end of the service was either absent or delayed. Some reported waiting for a telephone call or visit from the team towards the end of the second week, unaware that the service was finished: *"I mean we couldn't have gone anywhere for the next week or two because we didn't know when or if there was someone going to knock at the door" (Interview 4; Carer).*

3.5.2.7.3 Satisfaction with transition from the ICPOP

Many participants reported that the two-week intervention period was sufficient, and that they *"got loads done in the two weeks"*. Interviewees also spoke positively about the ICT's involvement in the transition out of the ICPOP service and the aftercare provided, for example, the arrangement of additional formal support services and onward referral to community services. One patient described the organisation of home-help by the team to be a *"dream come true"* and acknowledged that he would have had great difficulty arranging same if it were not for the team.

Carers mentioned that they felt well supported and as though they were *"never struck off"*, while also highlighting the importance and appreciation of follow-up phone calls: *"There was plenty of opportunities for us to ask for more or to voice and then there was one or two follow up calls afterwards."* (Interview 8; Carer).

3.5.2.7.4 Ongoing rehabilitation issues

Some areas of rehabilitation that were still outstanding by the end of the two-week period were highlighted by patients and carers, for example, ongoing balance issues and fear mobilising outdoors: *"I haven't the courage to go out even now" (Interview 5; Patient); "she does trip a little bit so I don't think she's ready yet" (Interview 3;*

Carer). However, for some patients in the ICPOP there was evidence of onward referral for further rehabilitation.

3.5.2.8 Patient-Centredness

3.5.2.8.1 Companionship

The importance of the social connections developed between the patients, carers and the ICT members emerged as one of the most significant and prominent findings from the interviews. This was an area that was not included in the original interview schedule, however it emerged strongly in the first interview, and was subsequently added as a topic to discuss throughout the remaining interviews.

Companionship was reportedly one of the most valuable elements of the service for many patients, and the majority of patients put a strong emphasis on this aspect of care throughout the interviews: *“sure they were so nice, the girls like we used to have a laugh and everything, they were part of the family, you know that kind of way?” (Interview 1; Patient)*. Patients thoroughly enjoyed conversing and socialising with the ICT, and it was commonly reported that participants looked forward to the visits: *“when we used to see the car pulling up or the phone call, we used to be delighted to see them coming in like” (Interview 13; Carer)*.

Many patients also reported that they missed the team calling when the service finished. One patient reported that even though he was satisfied with his recovery, he would have liked more time with the team, mainly for the social aspect of care: *“I was sad to see them go, not that...I don’t know that they could do anymore for me, but I thought another week or two might have been more suitable. I don’t know whether I just didn’t want them to go” (Interview 10; Patient)*.

Carers were very appreciative of the team’s caring approach. They described the personnel as *“respectful”* and felt that they *“meant well and they wanted to be [there]”*. Many reflected on the importance of the social interaction for the patient, which they found to be very important: *“they gave mum and dad time. They were very good to them and they talked to them. And that means an awful lot to them”*

(Interview 11; Carer); *“Really gave mum the time and understanding they were very...respectful and aware of her”* (Interview 2; Carer).

One carer also spoke highly of the emotional support that he had received from the team. He reported that he felt *“comfortable”* talking to the ICT regarding the impact that his mother’s illness had on him, and that they provided him with *“coping mechanisms”* which helped him throughout that difficult time: *“I just felt fantastic that I was able to get it out of me”* (Interview 13; Carer).

Patients and carers felt that the social interaction with the ICT played an important role in the patient’s recovery: *“the wit and the different things, they helped me so much”* (Interview 8; Patient). One carer indicated that this interaction helped to *“reintroduce [the patient] into reality”* following a prolonged hospitalisation. The team were portrayed as encouraging and provided patients with a source of motivation to continue in their recovery: *“they’d come in then and boost you up”* (Interview 7; Patient).

3.5.2.8.2 Decision-Making and Goal Setting

Decision-making and goal setting were also explored during the interviews. With regards the patient’s perceived involvement in the decisions that were made, it was clear that they felt involved in this process, and consent was always obtained: *“we spoke, whatever they were going to do for me, we sat down and spoke about it, it was a decision that we all made together”* (Interview 10; Patient), without feeling pressurised: *“They weren’t domineering. They would ask and suggest, they’d never tell me”* (Interview 6; Patient).

When asked about goal setting, it was usually not elaborated on, or seemed to be an area that patients were unsure about. Some patients were unaware of any goals that may have been set. One carer described vaguely that they informed the team of the patient’s pre-morbid status, without acknowledging any specific goals that had been set with the team: *“I suppose we had told them what she was capable of before she got sick. So, kind of knowing that she wanted to get back to that level or near enough to it”* (Interview 2; Carer). However, it did appear to play an important role in guiding one patient’s rehabilitation programme and providing motivation to

continue rehabilitation: *“My goal was to get up to the son every night because I love going up like” (Interview 13; Patient)*. Aside from this, it did not emerge as an explicit element of the service that affected their experience or perceptions of the service.

3.6 Discussion

The aim of this study was to explore the patients’ and carers’ experiences and perceptions of the ICPOP in Cork, Ireland. The findings of this study revealed participants overwhelming satisfaction with the service provided, with all participants stating that they would avail of this service again. This opinion was influenced by the following themes: acceptability, appropriateness, effectiveness, safety, timeliness, transition out of the service and patient-centredness. Accelerated discharge from the hospital, in-home visits and the social aspect of care were identified as key facilitators in the successful implementation of the ICPOP. Challenges regarding the end of the service and patients’ perceptions of the rehabilitative element of the programme were also highlighted.

One of the most prominent findings throughout this study was the general satisfaction and preference among patients and carers with receiving the rehabilitation in their own home, as opposed to the hospital setting. This is consistent with research studying older adults, stroke patients and respiratory patients and their experience with receiving acute care via hospital-at-home schemes (Cobley et al., 2013; Cunliffe et al., 2004; Utens et al., 2013; Wilson et al., 2002).

Receiving care in the home environment allowed patients to gradually and naturally regain independence in activities of daily living and re-achieve meaningful participation in their daily lives whilst enjoying the comforts and familiarity of their own home. Patients felt that they could relax during this potentially unsettling time, and the home setting was often perceived as having a crucial role in the patient’s recovery, which was contrary to the various accounts of their experience in the hospital environment. It is common for older adults to experience stress, anxiety and uncertainty during the transition phase from hospital to home following a

period of hospitalisation, which could affect their ability to regain their independence in the home environment (Hestevik et al., 2019). Therefore, receiving the acute care in the home environment could be beneficial in reducing these feelings and subsequently, improving patient outcomes.

Previous interview studies exploring older adults' experiences with hospital-at-home schemes have highlighted patients' concerns with being left alone during the night (Lemelin et al., 2007; Wilson et al., 2002). This was not expressed as an issue for patients in this programme, and patients felt safe throughout the episode of care. This may be due to the fact that the ICT identified patients who they felt may have required additional support and recommended a short period of respite, or that a family member should stay with the patient. Nevertheless, it may be something to consider given the potential vulnerability of this population.

No evidence of added carer burden was highlighted throughout the data, despite the fact that carers had to be more actively involved during the acute episode of care. Nevertheless, the patient's acute illness or event had a considerable impact on some carers. One carer highlighted difficulties and uncertainties adapting to the role as a carer. Another carer also recalled experiencing stress and fear while his mother was unwell and reported that he received emotional support from the team, which was greatly appreciated. This highlights that in some cases, carers may also require, and benefit from, additional emotional support.

The relationship between the service users and team members also played a key role in the successful implementation of the ICPOP. This is in line with existing literature exploring early supported discharge and hospital-at-home schemes (Osborne and Neville, 2019; Utens et al., 2013; Wilson et al., 2002). The social aspect of care, which is often lacking in the busy hospital environment, was perceived as the most valuable element of the service by many patients and carers. The team members were described in an overwhelmingly positive manner and their caring approach was noted by all participants. The regular visits by the same personnel enabled the patient to develop positive therapeutic relationships, and they valued the team's professionalism and expertise, which facilitated their recovery.

Social needs are important basic needs for older adults, and when unfulfilled, can lead to ill-health, loneliness and social isolation (Bruggencate, Luijkx and Sturm, 2017). It has been found that social support alone for frail older adults can result in improvements in frailty markers and nutritional status (Luger et al., 2016). Some patients in this study, both those living alone and with a spouse or carer in the home, reported missing the team when the care had ended and struggled with the lack of relationship continuity, after the close connections made with the team members. This highlights the need to promote continuous development of their social needs through active involvement in clubs, leisure activities, volunteer work and social meetings (Bruggencate, Luijkx and Sturm, 2017). At the end of care, the patients are provided with an information booklet outlining local social activities. Older adults quite often want this to be provided with this information (Hand et al., 2014), so it is important that this is discussed with patients and their carers in an attempt to reduce the sense of loneliness at the end of care, and to encourage the older adult to continue to fulfil their social needs.

Patients and carers appeared to value this programme as they viewed it as a recuperative intervention. However, there were mixed findings with regards the participants perception of the rehabilitative element of the service. Various barriers and facilitators were identified throughout the data. Those who participated and spoke positively about the rehabilitation seemed to demonstrate great self-motivation and self-efficacy, which is consistent with existing literature the exploring older adults' perceptions of what influences their exercise behaviours (Broderick et al., 2015; Perkins et al., 2008). Some of these patients took ownership in the management of their own physical recovery and continued to perform their exercise programme independently, which was further motivated by their knowledge of the importance of exercise in their daily routine. The importance of education and an adequate understanding of the benefits of exercise in the provision of exercise therapy has been identified as a motivator for community-dwelling older adults (Bethancourt et al., 2014). Carers also benefited from the education that they received throughout the episode of care, as it empowered them to continue rehabilitation with the patient beyond the team's visits.

This study also found that social support was a key aspect in promoting the uptake of the rehabilitative intervention. The presence and support of a carer was important in promoting adherence, especially for those who lacked self-motivation, or those with cognitive impairments. The positive relationship established with the team members also played a crucial role in the patient's uptake of rehabilitation by creating an atmosphere of enjoyment, trust and encouragement. These findings reflect previous literature (Miller and Brown, 2017; Hancox et al., 2019).

Goal setting was also identified as a motivator for one patient. Goal setting as a feature of home-healthcare for older person's has been found to help establish a tailored treatment plan and improve quality of life for patients (Parsons et al., 2011). However, the area of goal setting was only elaborated on by a few patients in this study. When this topic was approached, many patients were unsure of goals that may have been set or felt that they did not need to set goals. This is similar to a recent study of older adults, which found that while some benefited from setting goals in their recovery, others found it irrelevant and too ambitious (Ploeg et al., 2019). Furthermore, patients who lacked purpose for doing exercise, or felt that the exercises prescribed were not meaningful, were less likely to adhere. These patients were also unable to elaborate on the topic of goal setting or were unable to identify any goals. It may have been important to focus on goal setting here to help to develop a structured rehabilitation process and provide motivation for the patient.

The lack of goal setting highlighted by patients in this study may be due to the fact that it can be a difficult process, particularly among the older population (Schulman-Green et al., 2006). It is common for older adults to set unrealistic goals, or not set goals at all as they may feel that they have no expectations or may not know what to expect (van Seben, Smorenburg and Buurman, 2018). The use of a goal-setting instrument can be beneficial. The Goal Attainment Scale is commonly used in the geriatric setting and has demonstrated high concurrent, content and predictive validity and inter-rater reliability as well as excellent responsiveness (van Seben et al., 2017). It is a useful tool to facilitate the generation of patient-centred goals and, when implemented correctly, may enhance goal attainment (Toto et al., 2015).

Another barrier to engaging in the exercise programme was exercise intensity. This has previously been identified as a barrier to participation in older adults (O'Hare et al., 2017). Patients who did not feel challenged by the exercise programme were less likely to perform it or speak positively about it. For example, one patient felt that if she could physically perform the movement involved in the individual exercise, that she did not need to continue with that exercise. This may indicate the need for further education for the patient which, as mentioned above, plays an important role in exercise adherence for this population (Bethancourt et al., 2014). Goal setting could also play an important role here in order to tailor the rehabilitation programme to become more relevant for the patient and challenge their individual abilities. Finally, physical barriers, such as upper limb fractures also prevented patients from participating in rehabilitation.

While the majority of patients felt well supported at the end of the ICPOP care, some found the ending to be quite abrupt and not continuous enough. This was also evident in a previous qualitative review exploring stroke patients and early supported discharge, with a six-week duration of care (Cobley et al., 2013). One carer found it difficult to adapt to the sudden end of care, following the intense two weeks of almost daily visits. Some felt that an extended duration of the service would have been more appropriate, however, in most cases this was for the reason of relationship continuity, as highlighted above. In some cases, these findings were contraindicatory as, even though patients or carers may have expressed that the two-week intervention was short, or the ending was abrupt, they felt that they would not have been able to manage another week. A potential way to deal with this may be to extend the duration of care, but gradually decrease the frequency of visits toward the final week. However, this may not be realistic in all cases given patient's differing needs and limited resources.

With regards the patient's recovery, it is clear that this service is successful in overcoming the acute illness or event. However, there were some outstanding areas of rehabilitation highlighted by patients and carers beyond the initial acute illness, for example, ongoing balance deficits and fear of falling. Given the two-week intervention period, it may not have been possible to address these.

Following the ICPOP, if necessary, patients are referred to community services for ongoing rehabilitation. However, that was not the case for some patients who mentioned these ongoing issues.

The continuity of care becomes increasingly important for patients as they age, develop co-morbidities and become more socially vulnerable. This is reflected in previous literature whereby nurses providing hospital at home care for older adults became concerned regarding the sense of abandonment that patients may feel at the end of a care programme (Lemelin et al., 2007). Greater primary care continuity is associated with a lower risk of inpatient admissions and emergency department visits for this population (Bayliss et al., 2015).

3.6.1 Study Limitations

As with the majority of studies, the design of the current study is subject to limitations. Firstly, a sample size of fourteen interviews may be considered small. However, in qualitative research there is no widely accepted sample size, and it tends to be a more intensive study design with a focus on depth rather than breadth (Braun and Clarke, 2006). Additionally, older adults in this situation are often affected by fatigue, so once sample saturation was reached and agreed upon by three researchers, it was considered unethical to interview more participants than necessary.

The use of random sampling may have enhanced the overall credibility of the study results (Shenton, 2004). However, it was decided in this case that the use of purposive sampling, applied by members of the ICT, would be more appropriate in order to ensure representativeness of the population. Nevertheless, this method of sampling is open to selection bias (Palinkas et al., 2013). In an attempt to minimise this, a sampling grid was developed by researchers not involved in the ICT, to ensure representativeness of the sample and was deemed well represented by the research team at the end of the data collection phase.

It was also recognised that video recordings would have enhanced the credibility of the study to allow a more in-depth analysis of participants reactions. This was

discussed among the researchers and a consensus was reached not to do so, as it may seem too invasive for the participants in their own homes.

Additionally, service users may be reluctant to provide negative feedback on a new service, which may have led to inaccurate descriptions, also affecting the overall credibility of the results. This was recognised prior to commencement of the interviews and participants were assured of the confidential nature of their interviews, and the independent status of the interviewer from the ICPOP service. Although this possibility cannot be ruled out, participants appeared to provide a realistic account of the ICPOP, highlighting both positive aspects of the service, as well as the challenges.

The fact that the primary researcher and the research team were qualified physiotherapists may also limit the credibility of the findings, as there is a risk that there may be a bias towards rehabilitation during data collection and data analysis (Darawsheh, 2014). However, the researcher was aware of these potential subjective influences throughout the research process and made a conscious effort to employ reflexivity and to adopt a more neutral stance. In future studies, it may be advisable to include various members of the multidisciplinary team, in order to enhance confidence and credibility of the findings.

The data analysis involved a mixture of inductive and deductive analysis. The analysis was primarily inductive, searching for codes and sub-themes amongst the data, without using any pre-set coding or framework. However, in the final stage a deductive approach was introduced, as the conceptual framework for implementation outcomes was reintroduced to organise the sub-themes. This was performed in a less stringent manner whereby not all concepts were used, and different headings were determined inductively when they were found to better describe the theme.

The researcher recognises the advantages and disadvantages with using a combined inductive-deductive approach for analysing data in qualitative research, as a purely inductive approach is known to provide a more rich, detailed description of the overall data (Nowell et al., 2017). However, in this case the framework was

brought in as a method of organising the inductively developed sub-themes, as the researcher felt as though they would be useful in describing and grouping various sub-themes. As the majority of the analysis was purely inductive, the researcher felt as though the results were strongly linked to the data itself. The use of the headings in this case was also helpful as it allowed the researcher to recognise areas of the implementation of the service which contributed to its success as well as those which may have led to some challenges.

3.6.2 Future Recommendations

It is clear from this study that the ICPOP is undoubtedly a promising and satisfactory alternative to usual inpatient care for this population. The importance of emphasising patient education regarding their rehabilitative programme, as well as patient-centred goal setting was highlighted, especially for those patients who may struggle to engage in the rehabilitative element of the service.

Care continuity is important for this age group and this was highlighted during this study. This emphasises the importance of appropriate primary care follow-up, or follow-up telephone calls. It may also be interesting to explore the possibility of extending the duration of care, but reducing the intensity towards the end of care, when appropriate, in order to avoid the feeling of an abrupt ending, which some patients struggled with.

Future research should focus on quantitative evaluation of patient's health outcomes, in order to confirm its effectiveness. The service providers should also be involved in the process, through quantitative and/ or qualitative evaluation.

Research looking at cost effectiveness will also be important in order to determine the feasibility of this service.

3.7 Conclusion

This study is the first known to the researcher which focuses on older medical patients' experience and perceptions of a hospital-at-home programme during the post-acute episode of care through qualitative research methods alone. The conceptual framework for implementation outcomes assisted in categorising the facilitators and challenges experienced during implementation of this programme.

Overall, both patients and carers reported overwhelmingly positive experiences of the ICPOP. The programme was perceived as acceptable and appropriate and participants also spoke positively on the safety, timeliness, effectiveness and patient-centredness of the care provided.

The accelerated discharge from hospital, in-home rehabilitation, caring and kind personnel, social aspect of care, sense of reassurance and the speed of response were identified as key facilitators in the successful implementation of the service. The relationship between patients and carers and those implementing the service was critical in determining their experience of the service and value of the programme. Restorative goal setting and patient-specific education on the benefits of exercise may enhance the uptake of the rehabilitative element of the service, and ensure rehabilitation is perceived as meaningful to participants, for those who struggle to engage. A greater understanding of the intervention duration and transfer of care to community services is required to ensure clarity at the end of ICPOP care for patients and carers.

Chapter 4: Discussion and Conclusion of Findings

4.1 Motivation and Background

Over the years, the older adult population has experienced a dramatic increase and is set to continue to rise, with their medical needs becoming increasingly more complex. The negative effects associated with hospitalisation for the frail, older adult is well established. Healthcare systems have had to shift from a fragmented, hospital-centric approach to care, to a more holistic and integrated approach, with a goal of maintaining the older adults functional and cognitive independence, thus allowing them to age in place. The overarching aim of this thesis was to explore patients' and carers' experiences and perceptions of the ICPOP in Cork city, with the hope of using this feedback to further refine the service.

The ICPOP is structured by a 10-step framework, with an aim of achieving co-ordinated, person-centred care nationwide, while building on existing efforts. The importance of regular monitoring and evaluation of the ICPOP service is emphasised as an integral part of this framework through the evaluation of service, process and outcome metrics (ICPOP Steering Group, 2017). This review focused on the evaluation of outcome metrics, specifically, patient reported experience measures. Furthermore, the MRC have also highlighted the importance of the involvement of the service users in the development of a complex intervention, through qualitative research (MRC, 2006)

However, in order to explore this successfully, it felt necessary for the researcher to expand their knowledge on the current practices and characteristics of hospital at home models of care worldwide, prior to approaching the qualitative review. The researcher also recognised that this review would be useful in informing the interview guide which would be used in Phase 2 of the project. This was the motivator for carrying out the systematic review.

This chapter will discuss the findings obtained from Phase 1 and Phase 2, to create an overall summary of the evidence. The limitations of this thesis are highlighted, as well as recommendations for future clinical and research practice.

4.2 Summary of findings

4.2.1 Phase 1

Phase 1 consisted of a systematic review. There are many different forms of hospital at home schemes that exist worldwide, however, for the purpose of this review it was decided to focus on patients who had made physical contact with the hospital environment through the emergency department or admission. The primary objective of this study was to determine the effectiveness of hospital at home schemes for acutely unwell older adults, compared to usual inpatient care. A secondary aim was to further explore the optimal parameters in the delivery of hospital at home care. Due to the lack of recently published RCTs as highlighted during the preliminary literature search, it was decided to include all relevant comparator studies in this review.

A total of 3,179 studies were identified and 3,156 were excluded, resulting in 23 studies to be reviewed for eligibility. Of these, 16 were included for narrative synthesis, including eight RCTs, three survey questionnaire studies of participants from a prospective non-RCT, three economic evaluations and two quasi-experimental longitudinal studies. Due to the heterogeneity in terms of the study designs, characteristics of participants, structure of interventions and types of outcome measures used, it was not possible to conduct a meta-analysis. Overall, the findings demonstrated that hospital at home models of care can be delivered as safely as usual inpatient care, with no differences in mortality rates, hospital readmission or discharge destination. There was also some evidence to support greater patient and carer satisfaction and the possibility of reducing or having no impact on carer burden. Results for cost effectiveness of this intervention were inconsistent. However, the findings of this study were limited by a high risk of bias across many studies, as well as a lack of newly published RCTs, with the most recently published RCT 15 years ago.

Due to the poor reporting of interventions across many of the studies, especially with regards the frequency and intensity of care, and the type of care provided, it was not possible to determine the optimal parameters in the delivery of care, for

better patient outcomes. There were some similarities demonstrated between characteristics of existing hospital at home schemes and the ICPOP, including the involvement of nursing care, physiotherapy and occupational therapy in all interventions, and the majority of interventions were finished within a two-week period.

4.2.2 Phase 2

The aim of the qualitative study was to explore patients' and carers' experiences and perceptions of ICPOP, with the hope of using their feedback to further refine the service. Semi-structured interviews were carried out in the patients' homes, with twelve patients and eight carers. The interview questions were structured using the implementation outcomes as reported by Proctor et al (2011). These implementation outcomes were also used to organise the emerging sub-themes.

This study revealed patients' and carers' overwhelming satisfaction with the service provided by the ICT. The idea of home as a place for healing was very apparent across all interviews, with both patients and carers placing a strong emphasis on their value of the accelerated discharge from hospital, and the concept of receiving the acute episode of care in their own home. The kind and caring personnel, as well as the positive therapeutic relationships developed between service users and service providers emerged as one of the key elements in the successful implementation of this service. Patients enjoyed their time with the ICT, which was often the opposite of their experience in the hospital setting.

Patients and carers were satisfied with the patients' functional restoration throughout the two-week period. However, a few patients struggled to engage in rehabilitative element of the service for various such as a lack of understanding and feeling as though the exercise programme was not meaningful for them. There were also some uncertainties regarding the end of care. Some felt as though they would have preferred more time with the ICT, often for the reason of relationship continuity, and some highlighted ongoing needs which were often unrelated to the initial acute illness, for example a fear of going outside, or balance deficits.

4.3 Limitations

This section provides a brief overview of the strengths and limitations of this thesis, which have been described in more detail in chapters two and three.

The systematic review sets the scene of the thesis, and its strength is supported by comprehensive and exhaustive search strategies, the involvement of more than one researcher in various study processes and clear reporting of results. Due to the heterogeneity of the study designs, the characteristics of the study populations and interventions and the outcome measures used, it was not possible to conduct a meta-analysis, however, this would have increased the overall reliability and strength of the results. Furthermore, no new RCTs have been published in the past 15 years, which highlights the lack of updated, high-quality research on this topic.

The qualitative study only provides a snapshot of integrated care for older adults in Ireland, confined to Cork city. Due to the heterogeneity of integrated care service nationwide, and globally, this limited somewhat the transferability of the findings.

Finally, the use of the concepts of the framework for implementation outcomes, as listed by Proctor et al (2011), assisted in developing the interview schedule and facilitated a more organised and logical approach to data analysis. The introduction of this deductive approach in the final stage of the data analysis may be seen as a limitation, as it may increase the risk of prematurely excluding alternative methods of data organisation, which may be deemed as more appropriate (de Casterlé et al., 2012). However, in this case the data was analysed inductively before re-introducing the concepts as listed by Proctor et al (2011) to structure the sub-themes, and alternative headings could be used if they were found to better describe the data. The researcher felt this was fitting as these concepts were also used when structuring the interview schedule, and they assisted organising the sub-themes and clearly outlining what areas may potentially enable or hinder the successful implementation of this service.

4.4 Clinical Implications

This thesis showed that hospital at home care is undoubtedly a promising alternative to usual inpatient care. The findings demonstrate that it can be delivered as safely as usual inpatient care, with potential added benefits for some health outcomes and satisfaction. With regards to the ICPOP in particular, it is clear that it is a much-appreciated service and is successful in overcoming the patient's acute illness and regaining functional independence. However, due to the complex needs of the older adult population, some patients struggled with the end of care and highlighted ongoing needs beyond that of the acute illness, for example, fear of falling and balance deficits, as well as loneliness. In order to prevent care-dependency, older adults need to maintain their functional and mental capacity. This highlights the importance of placing a greater emphasis on care continuity versus cure, with a focus on personal goal setting and self-management, as part of the development of this service.

4.6 Implications for future research

This study provides important information that could direct future research. Firstly, despite the acknowledged importance of moving healthcare from the acute setting to the older patients' home, and the implementation of hospital at home schemes worldwide, there appears to be limited consensus as to how best administer this complex intervention. Much of the existing literature is limited by a high risk of bias and poor reporting of interventions, and there have been no newly published RCTs on this topic in 15 years. This highlights the need for further high-quality RCTs, with accurate reporting of interventions following the TIDieR guidelines (Hoffmann et al., 2014). This will allow for a more informative systematic review, giving the review author an opportunity to provide recommendations for best practice in the delivery of hospital at home schemes for this population.

With regards the qualitative study, it is clear that the ICPOP is an acceptable, appropriate and highly satisfactory intervention for this population, in place of usual hospital care. However, in order to confirm its effectiveness and to continue to refine this service, it will be necessary to carry out further qualitative evaluation

involving service providers, as well as quantitative and economic evaluation. This has also been recommended by the MRC and HSE (Craig et al., 2008; ICPOP Steering Group, 2017; MRC, 2006).

4.7 Conclusion

In conclusion, this thesis presents a comprehensive and detailed body of research exploring the role of integrated care, specifically hospital at home, for acutely unwell older adults. Evidence from the international literature together with the qualitative work suggests that hospital at home services offer a promising and safe approach in the management of the acutely unwell older adult, with better patient and carer satisfaction, while avoiding the functional and cognitive decline associated with hospitalisation. Due to the overwhelmingly positive response to the ICPOP, it is certainly worth further investigation through quantitative and economic evaluation, as well as further qualitative research involving service providers, to confirm its effectiveness and to continue to refine the service.

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Appendix

Appendix 1: PRISMA Checklist

Section/topic	#	Checklist item	Reported in section
TITLE			
Title	1	Identify the report as a systematic review, meta-analysis, or both.	18
ABSTRACT			
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	20-21
INTRODUCTION			
Rationale	3	Describe the rationale for the review in the context of what is already known.	21-22
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	22-23
METHODS			
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	23
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale.	24-26
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	23-24
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	107-112

Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	24-25
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	26-27
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	26-27
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	27
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means).	N/A
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I^2) for each meta-analysis.	N/A
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies).	N/A
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified.	N/A
RESULTS			
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram.	28-29
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	31-35
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome level assessment (see item 12).	38-40; 113-120
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group (b) effect estimates and confidence intervals, ideally with a forest plot.	(a) 41-46 (b) N/A
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency.	N/A
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15).	N/A

Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	N/A
DISCUSSION			
Summary of evidence	24	Summarise the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., healthcare providers, users, and policy makers).	46-49
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review-level (e.g., incomplete retrieval of identified research, reporting bias).	49
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research.	50
FUNDING			
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review.	N/A

Appendix 2: Final Search String

Older adults

"older adults" OR "older people" OR older OR elderly OR elder OR elders OR "aged 65 and over" OR "aged 80 and over" OR frail OR geriatric OR frailty OR frailer OR senior OR seniors

Hospital at home

"Hospital at home" OR "hospital in the home" OR "early supported discharge" OR "hospital at home versus hospital care" OR "home hospitalisation" OR "integrated care" OR "domiciliary care" OR "home-based rehabilitation" OR "home health care" OR "multidisciplinary home care" OR "intermediate health care" OR "home based versus hospital based" OR "in-home care" OR "medical home care" OR "hospital outreach" OR "home hospital" OR "geriatric care at home" OR "early discharge" OR "early home supported discharge" OR "frailty intervention" OR "admission avoidance" OR "frailty day hospital" OR "primary care" OR "care at home" OR "hospital to home" OR "home care" OR "care transition" OR "hospital admission avoidance" OR "transitional care" OR "bridging intervention" OR "hospital avoidance" OR "post discharge care" OR "post discharge care at home" OR "early discharge care" OR "follow-up support" OR "assisted discharge" OR "frailty pathway" OR "care integration" OR "care coordination" OR "home health" OR "home health integrated care" OR "integrated services"

Effectiveness

"clinical efficacy" OR "clinical outcomes" OR effectiveness OR effect OR efficacy OR benefits OR risks OR evaluation OR evaluating OR findings OR examine OR examining OR evidence OR result OR results OR improve* OR optim* OR reduc*

Appendix 3: Sample Search String



CINAHL

Tuesday, November 20, 2018 8:10:15 AM

#	Query	Limiters/Expanders	Last Run Via	Results
S1	"older adults" OR "older people" OR older OR elderly OR elder OR elders OR "aged 65 and over" OR "aged 80 and over" OR frail OR geriatric OR frailty OR frailer OR senior OR seniors	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	434,852
S2	"Hospital at home" OR "hospital in the home" OR "early supported discharge" OR "hospital at home versus hospital care" OR "home hospitalization" OR "integrated care" OR "domiciliary care" OR "home-based rehabilitation" OR "home health care" OR "multidisciplinary home care" OR "intermediate health care" OR "home based versus hospital based" OR "in-home care" OR "medical home care" OR "hospital outreach" OR "home hospital" OR "geriatric care at home" OR "early discharge" OR "early home supported	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	103,153

	discharge" OR "frailty intervention" OR "admission avoidance" OR "frailty day hospital" OR "primary care" OR "care at home" OR "hospital to home" OR "home care" OR "care transition" OR "hospital admission avoidance" OR "transitional care" OR "bridging intervention" OR "hospital avoidance" OR "post discharge care" OR "post discharge care at home" OR "early discharge care" OR "follow-up support" OR "assisted discharge" OR "frailty pathway" OR "care integration" OR "care coordination" OR "home health" OR "home health integrated care" OR "integrated services"			
S3	"clinical efficacy" OR "clinical outcomes" OR effectiveness OR effect OR efficacy OR benefits OR risks OR evaluation OR evaluating OR findings OR examine OR examining OR evidence OR result OR results OR improv* OR optim* OR reduc*	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	2,965,249

S4	("clinical efficacy" OR "clinical outcomes" OR effectiveness OR effect OR efficacy OR benefits OR risks OR evaluation OR evaluating OR findings OR examine OR examining OR evidence OR result OR results OR improv* OR optim* OR reduc*) AND (S1 AND S2 AND S3)	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	13,929
S5	AB "older adults" OR "older people" OR older OR elderly OR elder OR elders OR "aged 65 and over" OR "aged 80 and over" OR frail OR geriatric OR frailty OR frailer OR senior OR seniors	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	182,913
S6	AB "Hospital at home" OR "hospital in the home" OR "early supported discharge" OR "hospital at home versus hospital care" OR "home hospitalization" OR "integrated care" OR "domiciliary care" OR "home-based rehabilitation" OR "home health care" OR "multidisciplinary home care" OR "intermediate health care" OR "home based versus hospital based" OR "in-home	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	59,809

care" OR "medical
home care" OR
"hospital outreach"
OR "home hospital"
OR "geriatric care at
home" OR "early
discharge" OR "early
home supported
discharge" OR "frailty
intervention" OR
"admission avoidance"
OR "frailty day
hospital" OR "primary
care" OR "care at
home" OR "hospital to
home" OR "home
care" OR "care
transition" OR
"hospital admission
avoidance" OR
"transitional care" OR
"bridging intervention"
OR "hospital
avoidance" OR "post
discharge care" OR
"post discharge care
at home" OR "early
discharge care" OR
"follow-up support"
OR "assisted
discharge" OR "frailty
pathway" OR "care
integration" OR "care
coordination" OR
"home health" OR
"home health
integrated care" OR
"integrated services"

S7	AB "clinical efficacy" OR "clinical outcomes" OR effectiveness OR effect OR efficacy OR	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search	1,998,111
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"integrated care" OR
 "domiciliary care" OR
 "home-based
 rehabilitation" OR
 "home health care"
 OR "multidisciplinary
 home care" OR
 "intermediate health
 care" OR "home
 based versus hospital
 based" OR "in-home
 care" OR "medical
 home care" OR
 "hospital outreach"
 OR "home hospital"
 OR "geriatric care at
 home" OR "early
 discharge" OR "early
 home supported
 discharge" OR "frailty
 intervention" OR
 "admission avoidance"
 OR "frailty day
 hospital" OR "primary
 care" OR "care at
 home" OR "hospital to
 home" OR "home
 care" OR "care
 transition" OR
 "hospital admission
 avoidance" OR
 "transitional care" OR
 "bridging intervention"
 OR "hospital
 avoidance" OR "post
 discharge care" OR
 "post discharge care
 at home" OR "early
 discharge care" OR
 "follow-up support"
 OR "assisted
 discharge" OR "frailty
 pathway" OR "care
 integration" OR "care

	benefits OR risks OR evaluation OR evaluating OR findings OR examine OR examining OR evidence OR result OR results OR improv* OR optim* OR reduc*		Database - CINAHL Plus with Full Text	
S8	(AB "clinical efficacy" OR "clinical outcomes" OR effectiveness OR effect OR efficacy OR benefits OR risks OR evaluation OR evaluating OR findings OR examine OR examining OR evidence OR result OR results OR improv* OR optim* OR reduc*) AND (S5 AND S6 AND S7)	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	7,654
S9	T1 "older adults" OR "older people" OR older OR elderly OR elder OR elders OR "aged 65 and over" OR "aged 80 and over" OR frail OR geriatric OR frailty OR frailer OR senior OR seniors	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	126,127
S10	T1 "Hospital at home" OR "hospital in the home" OR "early supported discharge" OR "hospital at home versus hospital care" OR "home hospitalization" OR	Search modes - Boolean/Phrase	Interface - EBSCOhost Research Databases Search Screen - Advanced Search Database - CINAHL Plus with Full Text	41,653

Appendix 4: Risk of Bias for Included Studies

Caplan et al., 1999

Criteria	Judgement	Description
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers coded into sealed envelopes
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Baseline outcome measurements (selection bias)	Low risk	Events
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk (primary) High risk (secondary)	Response rate for satisfaction survey lower for control group
Blinding (performance bias and detection bias) Objective measures of outcome	High risk	Unblinded reviewers recording adverse events
Blinding (performance bias and detection bias) Subjective	Unclear risk	Not reported whether assessor phoning patients blinded to allocation
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes in methods reported in results

Caplan 2005

Criteria	Judgement	Description
Random sequence generation (selection bias)	Low risk	Computer-generated random numbers coded into sealed envelopes
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Baseline outcome measurements (selection bias)	Low risk	Assessed prior to intervention and similar
Baseline characteristics (selection bias)	High risk	CG spent longer in ED ($p = 0.003$)
Incomplete outcome data (attrition bias)	Unclear risk	Not reported
Blinding (performance bias and detection bias) Objective measures of outcome	N/A	N/A
Blinding (performance bias and detection bias) Subjective	High risk	Follow-up assessment unblinded
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes in methods reported in results

Cunliffe et al., 2004

Criteria	Judgement	Description
Random sequence generation (selection bias)	Low risk	Computer generated balanced randomisation within strata
Allocation concealment (selection bias)	Low risk	Telephone NR
Baseline outcome measurements (selection bias)	Low risk	Assessed prior to intervention and similar
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All participants accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	Low risk	Objective data for survival, residential status and cost
Blinding (performance bias and detection bias) Subjective	Low risk	Assessment completed independently by patients and incomplete data followed up by researcher masked to allocation
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes in methods reported in results

Donald et al., 1995

Criteria	Judgement	Description
Random sequence generation (selection bias)	Unclear risk	Method of randomisation not reported
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Baseline outcome measurements (selection bias)	Low risk	Assessed prior to intervention and similar
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All participants accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	Low risk	Objective data for mortality, LOS, readmission and service use
Blinding (performance bias and detection bias) Subjective	High risk	Unblinded assessor
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	High risk	Data for mental test score not mentioned in results

Gunnell et al., 2000

Criteria	Judgement	Description
Random sequence generation (selection bias)	N/A	N/A
Allocation concealment (selection bias)	N/A	N/A
Baseline outcome measurements (selection bias)	N/A	N/A
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All participants accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	N/A	No objective data recorded
Blinding (performance bias and detection bias) Subjective	Low risk	Carers completed assessments independently
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes in methods reported in results

Harris et al., 2005

Criteria	Judgement	Description
Random sequence generation (selection bias)	Low risk	Computer-generated randomization service
Allocation concealment (selection bias)	Low risk	Independent of all parties
Baseline outcome measurements (selection bias)	Low risk	Assessed prior to intervention and similar
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All participants accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	Low risk	Objective data for mortality, admission to institution, readmission, LOS, cost
Blinding (performance bias and detection bias) Subjective	Low risk	Unblinded assessor, assessor not involved in provision of care
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes reported in methods reported in results

Richards et al., 1998

Criteria	Judgement	Description
Random sequence generation (selection bias)	Unclear risk	Block stratified randomisation in blocks of six
Allocation concealment (selection bias)	Low risk	Sealed envelopes produced independently of research staff
Baseline outcome measurements (selection bias)	Low risk	Prior to intervention and similar
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All participants accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	Low risk	Objective data for mortality, readmission, LOS
Blinding (performance bias and detection bias) Subjective	Low risk	Unblinded assessor, assessor not involved in provision of care
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All OCM in methods reported in results

Shepperd et al., 1998

Criteria	Judgement	Description
Random sequence generation (selection bias)	Low risk	Non-stratified computer-generated
Allocation concealment (selection bias)	Low risk	Sealed envelopes
Baseline outcome measurements (selection bias)	Low risk	Prior to intervention and similar
Baseline characteristics (selection bias)	Low risk	Reported for IG and CG and similar
Incomplete outcome data (attrition bias)	Low risk	All patients accounted for
Blinding (performance bias and detection bias) Objective measures of outcome	Low risk	Objective data for mortality and readmission
Blinding (performance bias and detection bias) Subjective	Unclear risk	Patients completed outcome measures but the assessor administering measures was unblinded
Protection against contamination (performance bias)	Low risk	Unlikely that CG received the intervention
Selective reporting (reporting bias)	Low risk	All outcomes in methods reported in results

Appendix 5: Research Ethics Committee Letter of Approval

COISTE EITICE UM THAIGHDE CLINICIÚIL
Clinical Research Ethics Committee of the Cork Teaching Hospitals

Tel: +353-21-4901901
Email: crec@ucc.ie

University College Cork
Lancaster Hall
6 Little Hanover Street
Cork
Ireland

CREC Review Reference Number: ECM 4 (nn) 04/12/18 & ECM 3 (sss) 12/03/19

Date: 19th March 2019

Dr Ruth McCullagh
Lecturer in Physiotherapy
Physiotherapy @ Nano Nagle Place
School of Therapies
University College Cork

Study Title: Patients' and carers' experience and perceptions of the pilot integrated care programme for older persons in Cork City (ICPOP): a qualitative evaluation.

Dear Dr McCullagh

The Chairman approved the following:

- Cover Letter dated 28th February 2019 (received 6th March 2019)
- Participant Information Sheet for Older Person Version 2 dated 1st March 2019
- Consent Form for Older Person Version 2 dated 1st March 2019
- Participant Information Sheet for Carer of an Older Person Version 1 dated 1st March 2019
- Consent Form for Carer of an Older Person Version 1 dated 1st March 2019.

Full approval is now granted to begin this study.

Yours sincerely



Professor Michael G Molloy
Chairman
Clinical Research Ethics Committee
of the Cork Teaching Hospitals

The Clinical Research Ethics Committee of the Cork Teaching Hospitals, UCC, is a recognised Ethics Committee under Regulation 7 of the European Communities (Clinical Trials on Medicinal Products for Human Use) Regulations 2004, and is authorised by the Department of Health and Children to carry out the ethical review of clinical trials of investigational medicinal products. The Committee is fully compliant with the Regulations as they relate to Ethics Committees and the conditions and principles of Good Clinical Practice.

Appendix 6: COREQ Checklist

Topic	Description	Response
Domain 1: Research team and reflexivity		
<i>Personal characteristics</i>		
1. Interviewer	Which author/s conducted the interview or focus group?	Section 3.4.5
2. Credentials	What were the researcher's credentials?	Section 3.4.5
3. Occupation	What was their occupation at the time of the study?	Section 3.4.5
4. Gender	Was the researcher male or female?	Section 3.4.5
5. Experience	What experience or training did the researcher have?	Section 3.4.5
<i>Relationship with Participants</i>		
6. Relationship established	Was a relationship established prior to study commencement?	Section 3.4.5
7. Participant knowledge of the interviewer	What did the participants know about the researcher? e.g. personal goals, reasons for doing the research	Section 3.4.5
8. Interviewer characteristics	What characteristics were reported about the interviewer/facilitator?	Section 3.4.5
Domain 2: Study design		
<i>Theoretical framework</i>		
9. Methodological orientation and Theory	What methodological orientation was stated to underpin the study?	Section 3.4.7
<i>Participant selection</i>		
10. Sampling	How were participants selected?	Section 3.4.3
11. Method of approach	How were participants approached?	Section 3.4.3
12. Sample size	How many participants were in the study?	Section 3.5.1
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Section 3.5.1
<i>Setting</i>		
14. Setting of data collection	Where was the data collected?	Section 3.4.5
15. Presence of non-participants	Was anyone else present besides the participants and researchers?	Section 3.4.5
16. Description of sample	What are the important characteristics of the sample?	Not addressed
<i>Data Collection</i>		

17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilot tested?	Section 3.4.2
18. Repeat interviews	Were repeat inter views carried out? If yes, how many?	N/A
19. Audio/ visual recording	Did the research use audio or visual recording to collect the data?	Section 3.4.5
20. Field notes	Were field notes made during and/or after the interview or focus group?	Section 3.4.5
21. Duration	What was the duration of the inter views or focus group?	Section 3.4.5
22. Data saturation	Was data saturation discussed?	Section 3.4.4
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	N/A
Domain 3: analysis and findings		
<i>Data analysis</i>		
24. Number of data coders	How many data coders coded the data?	Section 3.4.7
25. Description of the coding tree	Did authors provide a description of the coding tree?	Section 3.4.7
26. Derivation of themes	Were themes identified in advance or derived from the data?	Section 3.4.7
27. Software	What software, if applicable, was used to manage the data?	N/A
28. Participant checking	Did participants provide feedback on the findings?	N/A
<i>Reporting</i>		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings?	Section 3.5.2
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Section 3.6
31. Clarity of major themes	Were major themes clearly presented in the findings?	Section 3.5.2
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Section 3.5.2 Section 3.6

Appendix 7: Patient Interview Schedule

General Questions	Prompting Questions
Can you tell us why you were seen by the Integrated Care Team?	i. What daily tasks did you find most difficult? ii. How long did you spend in hospital before being discharged home? Were you given the choice to stay in hospital?
Did you understand the role of the Integrated Care Team?	i. What did you think the team were going to do?
Can you tell us a little about the first visit by the Integrated Care Team?	i. Did you have to wait long for the first visit? ii. What happened during the first visit? iii. Did they explain why they were visiting you? iv. Is there anything more that could have been done during the first visit?
Were the visits by the team organised well? Can you explain why?	i. Did it interfere with your daily events? ii. Do you think that anything could be done differently to improve this?
Can you tell me about the team's visits and what they did?	i. Did you know what you were aiming to achieve with each team member? ii. Do you feel that each member was familiar with your situation? iii. What did you think of the treatment sessions? Were you happy with the treatment? iv. We know it takes a long time to recover from an illness. When the team finished visiting you, how far were you from full recovery? Prompt. v. Do you think the two-week period is long enough?

	vi. Do you feel that the team addressed all of your concerns? vii. Do you feel that this service made a difference to you? If so, in what way? viii. Do you feel that anything could have been done differently? ix. What element(s) did you find most valuable?
I would like to talk about the team services.	i. <u>Rehab Assistant</u> What work did you do with her? Did you find this helpful? Do you feel that you had enough time with her? Do you have any suggestions? ii. <u>Nursing</u> What work did you do with her? Did you find this helpful? Do you feel that you had enough time with her? Do you have any suggestions? iii. <u>Physiotherapy</u> What work did you do with her? Did you find this helpful? Do you feel that you had enough time with her? Would you have liked more exercises/ rehab? Were you happy doing your exercises alone or did you need help? Do you have any suggestions? iv. <u>Occupational Therapy</u> What work did you do with her? Did you find this helpful? Do you feel that you had enough time with her?

	Did you find the equipment made a difference? Do you have any suggestions?
Do you feel that you were involved in the decision-making during this time?	i. Do you think that the team focused on your main issues? ii. Do you think that the team considered your availability and ability sufficiently when planning the treatments? iii. Were you aware of the goals that you were aiming to achieve? iv. Were you involved in making your goals or were they made for you? v. Were you happy with the goals that were made? Were they easy to understand? Do you feel that any of your goals were too easy or too challenging? vi. Do you feel that you achieved your goals? Did you stick to the original plan or did something have to change?
Were you able to contact the team if you needed to? If so, can you tell me what happened?	i. Were you happy with their support?
What happened when this service finished?	i. Do you feel that you were given enough support when it finished? ii. Were you referred to another service? If so can you tell me about this new service? Do you know why you were referred to them?
Overall, were you satisfied with the service provided by the Integrated Care Team? Why?	i. Do you feel you made the right decision choosing to be discharged home with the team's support as opposed to staying in hospital?

	ii. How would you feel if this service was offered to you if you were in hospital again? iii. Overall, how would you compare the service delivered by the team with usual hospital care? What were the differences? Which to you feel would work better for you? iv. Do you have any suggestions that might improve this service?
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Appendix 8: Carer Interview Schedule

General Questions	Prompting Questions
Can you tell us why 'patient name' was seen by the Integrated Care Team?	
Did you understand the role of the Integrated Care Team?	i. What did you think the team were going to do? ii. Did you have any queries/ concerns regarding this care pathway prior to their visit?
Can you tell us a little about the first visit by the Integrated Care Team?	v. How long did you have to wait before the first visit? vi. Were your queries/ concerns addressed during this visit? vii. What happened during the first visit? viii. Did they explain why they were visiting? ix. Is there anything more that could have been done during the first visit?
Were the visits by the team organized well? Can you explain why?	iii. Did it interfere with your daily events/ care schedule with 'patient name'? iv. Do you think that anything could be done differently to improve this?
Can you tell me about the team's visits and what they did?	x. Were you aware of the role of each team member? xi. Were you involved in the treatment sessions? If so, what did you think of them? xii. Do you think the two-week period is long enough? xiii. Do you feel that the team answered any concerns/ queries you may have had regarding the patient's care during the two-week period? xiv. Do you feel that this service made a difference to you and your patient? If so, in what way? (added to/ improved stress levels) xv. Do you feel that anything could have been done differently? xvi. What element(s) did you find most valuable?
I would like to talk about the team services.	i. Did you find any particular service to be most valuable? Can you explain this. ii. Did you find that their input, or the input of a specific team service, had a positive effect, if any, on your workload?
Do you feel that you were involved in the decision-making during this time?	vii. Do you think that the team considered your availability sufficiently when planning the treatments? viii. Were you aware of the goals that your patient was aiming to achieve? ix. Were you involved in setting these goals?

Were you able to contact the team if you needed to? If so, can you tell me what happened?	ii. Were you happy with their support?
What happened when this service finished?	iii. Do you feel that you were both given enough support when it finished?
Overall, were you satisfied with the service provided by the Integrated Care Team? Why?	v. Overall, do you feel that this service made a difference? If so, can you explain this. vi. How would you feel if this service was offered to 'patient name' if he/she was in hospital again? vii. Do you have any suggestions that might improve this service?

Appendix 9: Sampling Grid

Living with carer	Living with family	Living alone but has family/ home help calling	Living alone, no support
IIII	II	IIIIIIII	
Functionally independent	Requires supervision for mobility/ ADLs	Requires assistance for mobility/ ADLs	Functionally dependent
II	IIIIIIII	IIII	I
Good memory attention	Small lapses in memory inattention	Considerable lapses in memory inattention	Poor cognitive ability - needs carer
IIIIII	IIIIIIII	I	I
Achieved goals set with team	Achieved over 50% of goals	Achieved 25% of goals	Did not achieve any goals
IIIIIIII	IIII	II	
Good engagement with team	Mostly engaged with the team	Intermittently engaged with the team	Completely disengaged with the team
IIIIIIII	IIII	III	

Appendix 10: Participant Information Sheet for the Patient



Participant Information Sheet **For permission to be interviewed about your experience of** ***Integrated Care Programme for Older Persons, Cork***

We are asking your permission to interview you about your experience of the Integrated Care Programme for Older Persons (ICPOP) service. This information will allow us to examine how well the service is working and how it could work better. Please take your time to read this consent form and ask any questions.

If you agree, we would like to interview you about your experience of the Integrated Care Programme for Older Persons. The interview will be audiotaped and will last for about a half hour. Your name will not be recorded. The information will remain anonymous. Instead, each interview will be given a number. The team will not have access to this information. The final report may include some anonymised important statements.

The following details will be discussed:

- Whether the team have made a difference
- What you thought the team would be like.
- Your experience of the home visits.
- If the team were well organized.
- The quality of the service.
- How much you were involved in making decisions.
- How you have been since they have finished their visits.
- Suggestions for change.

The information will be kept confidential.

1. Only the researcher and her supervisors at University College Cork (UCC) will have access to the information.
1. No identifiable information will be stored.
2. The data will be stored on a computer on a password protected file.
3. The data will not be given to any other party.

Your decision to allow the interview is completely voluntary. While there may be no benefit to you, it will help us to examine how well the service is working and how it could work better. If you change your mind after agreeing to this,



the interview will be fully removed. You will not be penalized in any way if you refuse to participate, or change your mind and ask that your information be removed.

If you have any questions about this interview, please contact:
Dr Ruth McCullagh, Lecturer, Physiotherapy, School of Clinical Therapies,
University College Cork.



Study Title: Patients' and Carers' experience and perceptions of the pilot integrated care programme for older persons in Cork City (ICPOP): a qualitative evaluation

Participant Information Sheet for the Carer of an Older Person
For permission to be interviewed about your experience of
Integrated Care Programme for Older Persons, Cork

We are asking your permission to interview you about your experience of the Integrated Care Programme for Older Persons (ICPOP) service. This information will allow us to examine how well the service is working and how it could work better. Please take your time to read this consent form and ask any questions.

If you agree, we would like to interview you about your experience of using the Integrated Care Programme as the carer of an older person. The interview will be audiotaped and will last for about a half hour. Your name will not be recorded. The information will remain anonymous. Instead, each interview will be given a number. The ICPPOP team will not have access to this information. The final report may include some anonymised important statements.

The following details will be discussed:

- Whether the team have made a difference.
- What you thought the team would be like.
- Your experience of the home visits.
- If the team were well organized.
- The quality of the service.
- How much you were involved in making decisions.
- How well things have been since they finished their visits.
- Suggestions for change.

The information will be kept confidential.

1. Only the researcher and supervisors at University College Cork (UCC) will have access to the information.
1. No identifiable information will be stored.
2. The data will be stored on a computer on a password protected file.
3. The data will not be given to any other party.

Your decision to allow the interview is completely voluntary. While there may be no benefit to you, it will help us to examine how well the service is working and how it could work better.

You can change your mind after agreeing to this, or stop the interview at any stage. If you do not want to discuss specific topics, you can refuse to do so. You will not be penalized in any way if you refuse to participate, or change your mind and ask that your information be removed.

If you have any questions about this interview, please contact:
Dr Ruth McCullagh, Lecturer, Physiotherapy, School of Clinical Therapies,
University College Cork. Tel : (021) 4904902.

Appendix 12: Participant Consent Form for the Patient



Participant Consent Form **For permission to be interviewed about your experience of the** ***Integrated Care Programme for Older Persons, Cork***

Name _____
Address _____
DOB _____
Date _____

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent

I have read the information sheet. I have asked questions and discussed what is involved. I understand that I will be interviewed in my own home, the interview will be taped and the information will be analysed for research. By signing this consent form, I have not waived any of my legal rights.

Participant's signature _____ Date _____

Participant's printed name: _____

For participants who are incapable of giving consent, consent should be obtained from an authorized third party

Signature of authorized third party _____ Date _____

Printed name: _____

Appendix 13: Participant Consent Form for the Carer



Study Title: Patients' and Carers' experience and perceptions of the pilot integrated care programme for older persons in Cork City (ICPOP): a qualitative evaluation

Participant Consent Form for the Carer of an Older Person
For permission to be interviewed about your experience of the
Integrated Care Programme for Older Persons, Cork

Name _____
Address _____
DOB _____
Date _____

Do not sign this consent form unless you have had a chance to ask questions and have received satisfactory answers to all of your questions.

Statement of Consent

I have read the information sheet. I have asked questions and discussed what is involved. I understand that I will be interviewed in my own home, the interview will be taped and the information will be analysed for research. By signing this consent form, I have not waived any of my legal rights.

Participant's signature _____ Date _____

Participant's printed name: _____