# Synergising for seniors: Exploring the interplay between inter-organisational collaboration and the effective delivery of integrated care for older people in New Zealand

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**Abstract**

Healthcare systems face unparalleled socioeconomic challenges, along with the ongoing burden of managing the COVID-19 pandemic. Thus, there's a push to restructure systems for integration, leading to diverse collaborative models. New Zealand's Falls and Fracture Prevention Programme (FFPP) stands as a notable exemplar of an integrative initiative, targeting falls and fractures among older people. To date, there is limited understanding of the association between contextual factors at the organisational and inter-organisational levels and the effective delivery of integrated care. This study aimed to examine how inter-organisational collaboration, particularly within the FFPP, influences the achievement of integrated healthcare.

The study utilised a qualitative comparative case study design, whereby four districts were selected based on their size and organisational arrangement. The Context and Capability for Integrated Care (CCIC) framework was employed as a tool for capturing and comparing a total of 17 organisational and inter-organisational factors within and across the selected districts. Through a step-by-step comparative analysis, this study introduced a novel formulaic approach to measuring the importance level of organisational factors, covering outcomes and relational impacts. This analytical process shed light on the complex dynamics of inter-organisational collaboration in the implementation of the whole-system FFPP, offering insights for similar integrated care initiatives.

The study identified a 3-stage implementation process for the programme: pre-engagement and engagement, development of service delivery, and establishment of the programme as "business as usual". During the first stage, adopting a collaborative leadership style, forming a well-structured governance team, and effectively involving primary care were key organisational and inter-organisational factors. In the service development phase, the focus lies on creating cross-referral pathways and addressing infrastructure issues and building essential relationships among healthcare professionals across involved organisations to ensure effective service delivery. In the third stage which aimed at programme sustainability, quality improvement and monitoring, robust mechanisms and feedback loops played the important role.

Overall, this study highlights the importance level of organisational factors in conjunction with the lifecycle of inter-organisational collaboration. By following the three distinct stages of implementation, organisations may increase the likelihood of achieving sustainable and reliable outcomes for preventing falls and fractures among the elderly.

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Abbreviations

| | |
|---|---|
| A&W | Auckland and Waitematā |
| ACC | Accident Compensation Corporation |
| CAG | Cross-sector Alliance Group |
| CAS | complex adaptive systems |
| CCIC | Context and Capability of Integrated Care |
| CCM | Chronic Care Model |
| CCN | Canterbury Clinical Network |
| CDC | Disease Control and Prevention |
| CF | consent form |
| CM | Counties Manukau |
| CR | Critical Realism |
| DHB | District Health Board |
| ED | Emergency Department |
| F&FSLA | Falls and Fracture Service Level Alliance |
| FFPP | Falls and Fracture Prevention Programme |
| FLS | Fracture Liaison Services |
| FRAX | Fracture Risk Assessment Tool |
| FTE | full-time equivalent |
| GP | General Practitioner |
| HAS | Healthy Ageing Strategy |
| HOPWS | Health of Older People Work Stream |
| HQSC | Health Quality and Safety Commission |
| IFHC | Integrated Family Health Centers |
| IOF | International Osteoporosis Foundation |
| MOEP | Modified Otago Exercise Programme |
| NGOs | Non-governmental organisations |
| NHI | National Health Index |
| NZ | New Zealand |
| NZPHDA | New Zealand Public Health and Disability Act |

Abbreviations continues

| | |
|---|---|
| ONZ | Osteoporosis NZ |
| PHC | primary health care |
| PHO | Primary Health Organisation |
| PIS | participant information sheet |
| PRESS account | Postgraduate Research Student Support |
| RMIC | Rainbow Model of Integrated Care |
| S&B | Strength and Balance |
| SLA | Service Level Alliance |
| SLM | System Level Measures |
| UK | United Kingdom |
| USA | United States of America |
| WHO | World Health Organisation |

# Chapter One: Introduction to the thesis

Making a difference to the lives of older people

The following narrative is based on a story published on the Livestronger website (https://www.livestronger.org.nz/assets/Uploads/a-story-of-change-for-george-and-muriel.pdf). Parallel timelines are employed to explore the different paths that a couple's life can take when circumstances change, and they become reliant upon the health system for appropriate care.

Muriel, who is 82 years old, copes with a chronic respiratory condition known as COPD. To manage her condition, she engages in regular exercise and visits her general practitioner every three months for check-ups and prescription renewals. Muriel's husband, George, is a retired accountant, and their married son resides in another country. Despite her health condition, Muriel remains an enthusiastic gardener, actively participates in a walking group, and is an engaged member of Probus. For the past 45 years, they have resided in the same two-story, three-bedroom house. It was seven years ago when Muriel sustained a wrist fracture while using a spade in the garden.

**The old story:**

Muriel and George face significant challenges due to their age and health. George, who has Parkinson's disease, struggles with mobility issues, rendering him unable to climb stairs and sleep upstairs. This limitation affects their daily lives, and Muriel, who never drove, now faces difficulties attending her Probus meetings after George failed his driving test. As a result, she has to reduce her participation in activities such as the walking group to accommodate George's anxiety when she is away from home. Muriel's physical abilities have also been impacted, as heavy gardening activities now leave her short of breath, and George is no longer able to assist her. These changes have left Muriel doubting her ability to keep up with her friends in the walking group.

One day, Muriel slips and falls in the laundry, sustaining injuries to her ribs and hip. George activates his medic alert alarm, and paramedics arrive to assist. Due to her pain, shortness of breath, and inability to bear weight, Muriel is taken to the hospital. She undergoes a hip replacement and is subsequently transferred to the Older Person's Health Rehabilitation Unit, where she receives inpatient physiotherapy and occupational therapy. However, no specific interventions are provided to address her risk of future falls or fragility fractures during her hospital stay or after her return home. Meanwhile, George's health further deteriorates, resulting in his placement in the hospital section of a rest home. As Muriel is discharged from the hospital, she moves to residential care within the same complex. However, she becomes anxious about the possibility of another fall and limits her activities, including her time in the garden.

**The new story**

Muriel began her osteoporosis medication seven years ago after fracturing her wrist. Attending a strength and balance programme, she faced challenges as she needed to spend more time at home with her husband, George, who had Parkinson's disease. Fatigue and near falls in the garden prompted Muriel to mention her concerns to the practice nurse, who referred her to a local physiotherapist for an "in-home" programme. The programme addressed home hazards and was modified to accommodate George's mobility issues.

As Muriel's strength improved, she no longer worried about falling in the garden and regained confidence in household tasks. George experienced a hospital stay due to a fall, during which his falls risk was assessed, and he continued his strength and balance programme. Discharge planning involved discussions on falls prevention and rehabilitation, resulting in George receiving additional support at home.

Muriel joined a strength and balance class and resumed her activities with the Probus group and local walking club. The primary care nurse provided their great grandchildren with a book on identifying hazards, reducing the risk of falls at home. Muriel and George maintained their independence, confidently completing daily tasks in their own home.

## 1.1 Introduction

Rapid population aging in many parts of the Western world has become and remains a major concern for ensuring the effective functioning of health systems (Briggs et al., 2018). This unprecedented demographic change means longer life expectancy which is accompanied with more chronic disease and disability, which, in turn, has placed greater strain on both the healthcare system and society as a whole (Breton et al., 2017). Many countries are dealing with the challenge of redesigning their health system in order to meet multiple health and social needs at an affordable cost for this group (Asthana et al., 2020; Lewis et al., 2010; Osborn et al., 2014; Stadnick et al., 2019).

In light of these challenges, integrated care has been suggested as the core component of health reform in many parts of the world. Advocates of integrated care claim that it delivers more effective services for older people with complex health conditions, with greater continuity, at a cost equivalent to usual care, and better return on investment than more traditional ways of working (Araujo de Carvalho et al., 2017). Integrated care has gained significant popularity worldwide, leading to the implementation of

various forms in different countries. Examples of these include the Patient-Centred Medical Home (PCHM) in the United States, Primary Care Trusts in the United Kingdom National Health Service (NHS), Programme of Research to Integrate the Services for the Maintenance of Autonomy (PRISMA) in Canada, and Local Alliance Governance in New Zealand (Breton et al., 2017; Macadam, 2015; Valentijn, Ruwaard et al., 2015; Vedel et al., 2009).

In addition to various forms of integrated care programmes being implemented internationally, it is important to first understand the underlying definition of integrated care. One of the widely accepted definitions has been provided by Kodner and Spreeuwenberg (2002) as a "coherent set of methods and models on the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors" (Kodner & Spreeuwenberg, 2002). This definition emphasises the need for integration across different dimensions, such as financial and administrative structures, organisational arrangements, service delivery processes, and clinical practices. The one complex yet crucial component of integrated care is inter-organisational collaboration, which plays a vital role in delivering high-quality integrated care for older people. This requires active participation and strong collaboration among various organisations within the healthcare system as well as between health and social services.

Inter-organisational collaboration involves a dynamic interplay of diverse stakeholders, intricate coordination mechanisms, and shared decision-making processes. It can take various organisational structures, such as (but not limited to) buddying, provider alliances, accountable care organisations, and mergers, which can span a spectrum from low to high degrees of integration (Aunger et al., 2022). To enhance comprehension of the complex inter-organisational collaboration, presenting this concept through the utilisation of a conceptual framework can provide valuable insights. Leutz (1999) outlined one of the first frameworks for organisational models of integrated care, identifying three levels of integration - linkage, coordination, and full integration - based on the patient's requirements. These levels can be viewed as a spectrum, with 'linkage' at one end, involving minimal change and integration within existing fragmented systems, and 'full integration' at the other end, involving a comprehensive programme where multiple organisations share responsibilities, resources, and financing (Leutz, 1999). Furthermore, organisational integration can be categorised by different levels of intensity such as information sharing, cooperation and coordination, collaboration, consolidation, and full integration (Konrad, 1996).

The increasing significance of integrated care and its role in addressing the current health system challenges highlights the necessity for systematic evaluation of structure, process and outcomes of integrated care programmes.

## 1.2 Integrated care in the New Zealand health system

Integrated care has been a crucial aspect of healthcare policy in New Zealand (NZ) for an extended period. Numerous healthcare system reform initiatives, including the implementation of Area Health Boards and Alliance Governance, have prioritised the provision of integrated care across community, primary, and secondary healthcare services (Breton et al., 2017; Cumming, 2011). Following nearly two decades (2000 to 2022) of a stable health system that prioritized integration and population health through inter-organisational networks (Tenbensel, 2016), structural reform has been enacted through the Pae Ora (Healthy Futures) Act 2022. This reform involves the establishment of Te Whatu Ora - Health NZ, a new national health agency aimed at centralizing decision-making and planning within the health sector. Its primary goals are to enhance coordination and integration of health services, ensuring a more efficient and effective healthcare system (*Pae Ora (Healthy Futures) Act*, 2022).

NZ has witnessed successful integrated care initiatives aimed at improving health services for the general population, as well as a specific focus on older people. For instance, the Alliance Governance approach to integrated care emerged as a key feature of the public health system in order to facilitate horizontal and vertical integration at the local or district level (Lovelock et al., 2014). This initiative provides high-level governance encompassing an “alliance leadership team” comprising constituency across government health organisations, non-government health organisations, and social organisation within the district (Gauld, 2017).These local alliances were supported by the System Level Measure Framework (SLMF) which was intended to stimulate a holistic system-wide approach to health outcomes, which requires a high level of inter-organisational collaboration and process orchestration (Chalmers et al., 2017; Gauld, 2017). In addition to system level initiatives, specific integrated care initiatives have been implemented, targeting various health conditions such as dementia and diabetes.

One of the specific integrated care initiatives was introduced nationally to prevent falls and serious falls-related harm among the older population, the Falls and Fracture Prevention Programme (FFPP). The unique feature of this programme is its focus on prevention at two levels (primary and secondary).

Falls are a significant contributor to injury-related hospitalizations among adults aged 65 years and over in NZ. To address this issue, the NZ Government has taken a comprehensive approach to falls prevention. It began by implementing an evidence-based programme called "Steady As You Go" in 2012. The programme focused on providing community-based exercise classes to improve balance, strength, and mobility among older adults, along with educational sessions on fall prevention and home safety. The pilot evaluation of the programme showed positive results, leading to its nationwide implementation as the Falls Fracture Prevention Programme (FFPP) in 2016. The FFPP programme received significant funding and support from organisations such as the Accident Compensation Corporation (ACC), the Ministry of Health (MoH), and the Health Quality & Safety Commission (HQSC). The comprehensive falls prevention approach in NZ involves both primary prevention (Community Strength and Balance programme, In-Home Strength and Balance programme, and Fracture liaison

services) and secondary prevention strategies (Effective rehabilitation and medication review), aiming to reduce the risk of falls and minimize harm from falls that occur.

## 1.3 Research rationale and aim

Despite many efforts to implement integrated care initiatives, studies have shown that up to 41% of older adults among 11 developed counties reported various issues with the coordination of the delivery of health services, resulting in unmet needs, cost inefficiencies, and dissatisfaction with services (De Carvalho et al., 2017). There is also a lack of clarity regarding the effectiveness and quality of services delivered within various organisational models for older people as well as a scarcity of comprehensive insights into how and why an integrated system contributes to effectiveness (Baxter et al., 2018; Valentijn, 2016; Valentijn, Ruwaard, et al., 2015).

Initiatives for integrated care can be impacted by external macro-level factors, such as social, political, economic, and cultural environments, as well as meso-level organisational factors, and micro-level factors related to healthcare providers and patients (Ashton, 2015). To date, little is known about the association between organisational contextual factors and successful integrated care delivery. The organisational factors consist of both internal and collective inter-organisational factors that need to be combined with resources from multiple organisations to enable the delivery of integrated care (Evans et al., 2017). Blending hierarchical and collaborative styles of inter-organisational relationships is a major challenge for implementing an integrated health system (Tenbensel, 2016).

As the NZ healthcare system continues to promote greater integration of health services, there is an escalating demand to evaluate and assess the implementation and outcomes of integrated care initiatives (Miller et al., 2018). Given the complexity of integrated care initiatives, which necessitate inter-organisational collaboration, conducting comprehensive evaluations becomes vital in examining the inter-organisational and organisational contextual factors that contribute to the successful implementation of integrated care programmes and the provision of high-quality care (Auschra, 2018; Lyngsø et al., 2014).

This study aimed to investigate the relationships between inter-organisational and organisational factors, as well as the implementation and outcomes of an integrated care programme, the FFPP, in NZ. Comparative case studies were conducted to gain an understanding of why the FFPP functions/ed efficiently in specific contexts and district but not in others. The analysis of the role of inter-organisational relationships in improving care coordination is expected to lead to the development of better-coordinated, patient-centred, and cost-effective models of healthcare delivery.

## 1.4 Research questions and approach

This study was an attempt to answer the following research questions:

1. What are the organisational and inter-organisational factors that influence the successful implementation of integrated care programmes (FFPP) across different districts in NZ?

2. How do districts in NZ vary in terms of implementation of an integrated care programme (falls prevention programme)?
3. What is the variance in terms of the outcomes of an integrated care programme between various districts in NZ?
4. Are the outcomes of this programme sensitive to levels of inter-organisational integration?
5. To what extent can differences in implementing FFPP between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?
6. To what extent can differences in outcomes of the FFPP between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?

## 1.5 Research funding

I was able to conduct this research with the support of the University of Auckland Doctoral Scholarship, which was granted to me for a period of three and a half years. This scholarship allowed me to devote myself entirely to this project and complete my thesis. Moreover, any additional research expenses were covered by the University of Auckland PRESS account. Although the Ministry of Health (MoH) and the Accident Compensation Corporation (ACC) provided support for this research, no funding was received from them.

## 1.6 Reflection on my role as the researcher

As a health systems researcher with a strong interest in improving health outcomes, I was excited to be involved in this study on inter-organisational integration in NZ's health system. My journey began with a bachelor's and master's degree in health management at Tehran University of Medical Sciences, where I gained a deep understanding of health management and health research. I then pursued a PhD at the University of Auckland to further develop my expertise in this area and explore how an integrative health initiative could improve health outcomes.

My inclination towards studying the integration of health systems and inter-organisational collaboration stemmed from my prior involvement in diverse areas of health systems at local, regional, and national levels in Iran, where I gained practical experience in providing well-coordinated and efficient services to individuals in dire need. As a hospital manager, I gained first-hand experience in managing collaborations and partnerships with other hospitals and healthcare organisations. As a regional coordinator, I was responsible for coordinating a Pay for Performance programme that involved multiple hospitals and healthcare providers, which required a high level of collaboration and coordination. Finally, as a national accreditor for a Ministry of Health, I had to evaluate hospitals and healthcare organisations against national standards, which requires a thorough understanding of the different organisational structures, processes, and practices that exist within the healthcare system. This experience gave me an appreciation of the variations that exist across different organisations in terms of their performance, quality of care, and patient outcomes. By pursuing a PhD in integration and inter-organisational collaboration, I hoped to gain a deeper understanding of how healthcare organisations

can work together effectively to improve patient outcomes and address the challenges facing the healthcare system.

I also wanted my research to have practical implications for the Falls and Fracture Prevention Programme (FFPP), which was selected as an example of inter-organisational collaborations for my PhD, to improve the implementation of that programme. Although the NZ Ministry of Health introduced the national-level FFPP, it relied on organisations at the local level for implementation. Therefore, I was keen to investigate how this implementation process happened or did not happen, across different levels of the NZ health system.

## 1.7 Outline of the thesis

The thesis consists of eleven chapters, each with a specific focus (refer to Figure 1). The **first chapter** has served as an introduction, presenting the research questions, outlining the purpose of the research, and providing an overview of the overall structure of the thesis.

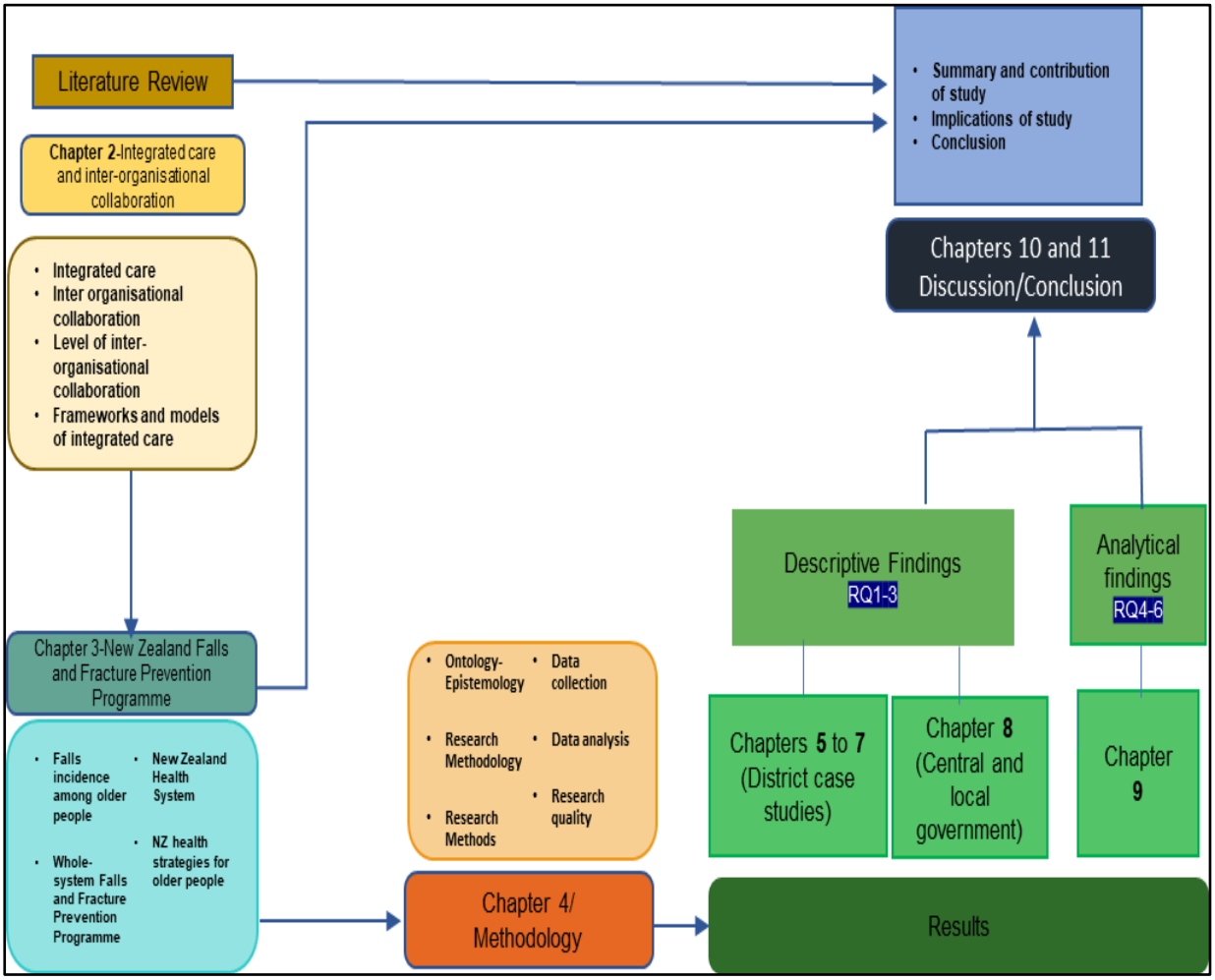



Figure 1- *Thesis design*

In Chapter **two** of the study, a comprehensive literature review is conducted to explore various aspects of integrated care. The review also delves into inter-organisational collaboration, and then the useful frameworks for integrated care are discussed in detail, including models such as Context and Capability of Integrated Care (CCIC). Finally, the criteria for selecting integrated care, with an emphasis on inter-organisational collaboration is elaborated.

Chapter **three** of this thesis focuses on the Falls and Fracture Prevention Programme (FFPP) as an example of an integrated care programme that satisfied the criteria for inter-organisational collaboration. The chapter explains how investigating this programme was necessary and how the insights gained from this investigation can be applied to other integrated care programmes.

Chapter **four** offers an extensive overview of the research strategy employed in this study, starting with the critical realism epistemology and ontology that serve as the foundation for the study design and methods. It outlines the qualitative methodology used, including multiple-case study design, case study selection, and the recruitment process. The chapter further describes participant recruitment, data collection methods, and the approach taken for data analysis.

Chapters **five to seven** of this thesis present the thematic findings derived from the research. These chapters offer a comprehensive analysis of the research findings for each case study site, beginning with the high-performing district (chapter five), followed by the low-performing district (chapter six), and then the moderately-performing district (chapter seven). Each of these chapters delves into a detailed examination of inter-organisational and organisational factors, implementation characteristics, and outcomes specific to the respective case site. The chapter concludes by summarizing the contextual factors that may have influenced the implementation and outcomes of the programme.

Chapter **eight** of the thesis delves into an examination of the approaches taken by central government organisations in the FFPP (Falls and Fracture Prevention Programme) with a particular focus on their changes over time and the interactions they have with local organisations.

Chapter **nine** of the thesis offers a detailed analytical approach to understand the significance of inter-organisational and organisational factors, and implementation characteristics. This chapter delves into the importance of factors throughout the lifecycle of inter-organisational collaboration, with an emphasis on their impact on achieving integrated care.

Chapter **ten** of the thesis offers a comprehensive discussion of the research findings and their relationship to the literature review and research questions. It examines the policy implications of the study's results and provides a conclusion to the thesis. In Chapter **eleven**, I provide some concluding comments regarding the research findings and the thesis.

# Chapter two: Integrated care and inter-organisational collaboration

## 2.1 Overview of this chapter

The objective of this chapter was to conduct a comprehensive review of the literature to establish a strong basis of existing knowledge in the field of integrated care for older adults. To achieve this goal, previous research studies that centred on integrated care programmes for older people were thoroughly searched and reviewed. However, due to the complex and situation-specific nature of integrated care research, a broader search was conducted to encompass relevant studies on the implementation of integrated care programmes worldwide. Furthermore, it was imperative to delve deeper into the literature on inter-organisational collaboration and its implementation. In this chapter I delve into the concept of integrated care, exploring its definition and core dimensions. I also examine the importance of inter-organisational collaboration in the context of integrated care. Additionally, I review the existing frameworks and discuss the implementation and evaluation of integrated care programmes. Finally, I conclude the chapter by identifying criteria for selecting an appropriate integrated care programme for this research.

### 2.1.1 Search strategy for the literature review

The literature search for this study on integrated care and evaluation of integrated care initiatives was conducted using multiple databases, including Google Scholar, Medline, and SCOPUS. Key terms used in the search included "integrated care", "seamless care", "coordinated care", "integrated delivery networks", "patient-centred care", and "continuity of care", along with terms related to older adults such as "older people", "the elderly", "advanced age", "inter-organisational collaboration", "inter-organisational partnership" and “Inter-organisational integration”. To further refine the search for the evaluation of integrated care, additional key terms such as "evaluation", "measuring", "assessment", and "implementation" were included in the search. In addition, a comprehensive review of the International Journal of Integrated Care (IJIC) - which is specifically for integrated care - was conducted to identify potentially relevant literature that may have been missed in the initial search.

## 2.2 The historical evolution of integrated care: From Ancient Greece to the present day

The idea of making changes to the way healthcare is provided has a history that dates back many centuries. The ancient Greeks, for example, understood that addressing people's mental health was just as important as treating their physical ailments. The terms integration and differentiation were first introduced in the organisational literature by Lawrence and Lorsch in1967. In more modern times, the term "integrated care" became widely used in the 1970s to describe approaches to healthcare in areas such as child and adolescent health, as well as long-term care for the older people (Goodwin, 2017b). During the late 1970s, the emergence of the primary health care (PHC) movement, which was sparked by the World Health Organisation's Alma-Ata Declaration on Primary Health Care in 1978 (WHO, 1978), played a significant role in driving towards more integrated and coordinated care provision. Since then,

strengthening primary health care has become a key aspect of health sector reforms worldwide, with substantial evidence to support its effectiveness in terms of enhancing health system capacity and facilitating universal health coverage (Goodwin, 2017b).

A crucial aspect of the PHC movement has been improving what Starfield et al. (2005) called the 'four Cs' of primary care: first contact, coordination, comprehensiveness, and continuity of care. By prioritizing these elements, the PHC movement has played a key role in promoting more integrated care delivery to individuals living in local communities. This movement has continued to the present day. After the emergence of the primary health care (PHC) movement, the focus of integrated care shifted towards promoting collaborative care and improving the coordination of services across different sectors. One example of this focus on collaborative care can be seen in the Chronic Care Model (CCM), which was developed in the late 1990s to address the growing burden of chronic diseases. The CCM emphasises the need for a coordinated, multidisciplinary approach to care that involves patients, families, and healthcare providers working together to manage chronic conditions (Bodenheimer et al., 2002). Most recently, the concept of integrated care has expanded beyond the boundaries of the health and social care systems to include a broader and more strategic approach that involves utilising community assets to address social determinants of ill health. This approach aims to promote public health, prevent illness, and improve the wellbeing of populations.

## 2.3 Definition of integrated care

Before delving into integrated care, it is crucial to comprehend the meaning of integration and its usefulness in addressing current health system pressures. The definition and comprehension of integrated care pose challenges due to its complex nature as a service innovation that necessitates the redesign of health and care services centred around the needs of people. The absence of a universally accepted definition for integrated care has created a fundamental challenge in developing cohesive strategies to support its implementation. Consequently, the concept of integrated care is perceived differently by diverse individuals and stakeholders, further complicating its understanding and implementation in practice (Goodwin, 2017).

Extensive research has been conducted on integration and coordination in various health systems, leading to using multiple terminologies to describe the concept of "integrated care". The diversity and extent of the terminology have been seen as ‘overwhelming’ (Armitage et al., 2009, p. 6). These terms include but are not limited to, “collaborative care”, “coordinated care”, “seamless care”, “case management”, “managed care”, “disease management”, “integrated delivery networks”, “patient-centred care”, “continuity of care”, “transmural care”, “intermediate care”, among others. The definition of integrated care has often been based on a “process-based” approach in health and social care, aiming to bring together the cure and care sectors under one cohesive framework. For instance, Leutz (1999) defined integration as “*the search to connect the healthcare system (acute, primary medical, and skilled) with other human service systems (e.g., long-term care, education, and vocational and housing services) in order to improve outcomes (clinical, satisfaction, and efficiency)” (p 77).* Similarly, Kodner and Spreeuwenberg (2002) defined integration as

> *"a coherent set of methods and models of the funding, administrative, organisational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors The goal of these methods and models is to enhance quality of care and quality of life, consumer satisfaction and system efficiency for people by cutting across multiple services, providers and settings" (Kodner & Spreeuwenberg, 2002).*

Likewise, Hardy et al. (1999) described integrated care as "*a coherent set of products and services, delivered by collaborating local and regional health care agencies" that secure "liaison or linkages within and between the health and social care systems" (p 88).*

All three definitions describe integration as a way to connect different healthcare systems and services with the goal of improving outcomes, but they differ in their specific emphasis and scope. Leutz (1999) defines integration as the search to connect the healthcare system with other human service systems, such as education and housing, in order to improve outcomes, including clinical, satisfaction, and efficiency. Kodner and Spreeuwenberg (2002), emphasis the need for coordination between different levels of healthcare, including funding, administrative, organisational, service delivery, and clinical levels. Finally, Hardy et al. (1999) highlight the importance of collaboration between different healthcare agencies and systems to provide integrated care that addresses both health and social needs. Overall, the three definitions share a common goal of improving healthcare outcomes through integration, but they differ in their emphasis on connecting with other human service systems, coordinating different levels of healthcare, and collaborating with different healthcare agencies and systems.

On the other hand, the definition of integrated care provided by the WHO European Regional Office places a notable emphasis on the "whole system approach", asserting that integrated care is

> *"a concept bringing together inputs, delivery, management and organisation of services related to diagnosis, treatment, care, rehabilitation and health promotion. Integration is a means to improve services in relation to access, quality, user satisfaction and efficiency"* (Gröne et al., 2001, p.7).

The WHO shares some similarities with the three definitions provided earlier, such as a focus on improving outcomes and the importance of coordination and collaboration. However, it also includes a broader scope of services, such as rehabilitation and health promotion, and emphasises the importance of management and organisation of services. While the boundaries between approaches to the concept of integrated care remain somewhat ambiguous and subject to debate, various sources highlight the ultimate goals of integrated care as ensuring patients receive comprehensive packages of care at the right time and facilitating their movement across or through systems to receive different types and levels of care.

## 2.4 The core dimensions of integrated care

The complexity of integrated care poses a significant challenge to its comprehension (Goodwin, 2017b). In order to enhance our understanding of the intricate concept of integrated care, analysts have

identified various dimensions of integration, such as type, breadth, degree, and process. These taxonomies aid in categorizing and comprehending the multifaceted nature of integrated care. Some of these dimensions include:

- **The process of integration** (i.e., the mechanisms - both technical and behavioural - required to integrate the work of people and organisations).
- **The degree or intensity of integration**: The degree of integration has been delineated using various spectrums. Leutz (1999) proposed three levels of integration: linkage, coordination, and full integration. Hudson et al. (1999) advocated for a range that encompasses autonomous organisations and functions on one end, cooperation and coordination in the middle, and fully integrated organisations and functions on the other end. Konrad (1996) identified different levels of organisational integration, including information sharing, cooperation and coordination, collaboration, consolidation, and full integration. Unlike the continuum forms of integration, Ahgren (2014) has applied a circular path of full segregation, linkage, coordination, cooperation and full integration, where full segregation implies that a sole organisation is capable of meeting all the needs of specific patient groups, equivalent to full integration.
- **The breadth of integration** (i.e., whether it is applied to an entire population, a specific group such as older adults or children, or a specific condition such as dementia or diabetes).

- **The types of integration**: the type of integration can be divided into six categories.
    - *System integration* refers to horizontal and vertical integration of a system through a set of (informal and formal) rules and policies between care providers and other stakeholders.
    - *Organisational integration* means the various kinds of relationships between healthcare institutions (i.e., contracting, strategic alliances, knowledge networks and mergers) in order to provide more comprehensive services for populations.
    - *Professional integration* indicates coordination of different professionals based on shared roles, responsibilities and accountabilities to deliver a comprehensive package of services for a defined population (Valentijn, 2016).
    - *Clinical integration* refers to the integration of hospitals' structures and systems to effectively coordinate patient care services across different people, functions, activities, and locations over a period of time (Shortell et al., n.d.).
    - *Functional integration* indicates supportive activities (information, human resources, strategic planning, financial and quality improvement) that coordinate and support accountability and decision making between a healthcare organisation and professionals to add value to the system.
    - *Normative integration* refers to developing and retaining a common climate and literature (i.e., shared mission, vision, value and culture) between organisations, professionals and individuals (Nolte & McKee, 2008; Valentijn, Vrijhoef, et al., 2015).

- **The timespan for integration**: whether it is a lifelong approach to people over time, or whether focused on specific episodes of care.
- **The level of integration**: can be categorised as macro (system-wide), meso (organisational and professional), micro (clinical), and even nano (at the point of care with the individual).
- **The forms of integrated care**:
    - *Horizontal integration* (developing multidisciplinary teams or networks to support services for specific patient groups)
    - *Vertical integration* (integrating across community, primary, hospitals and tertiary systems by using for example best-evidence pathways)
    - *Sectoral integration* (integration within one sector, such as vertical and horizontal integration for mental health services)
    - *Patient-centred integration* (engagement and empowerment of patients through health education, shared decision making and self-management)
    - *Whole-system integration* (which embraces public health to support both a population-based and person-centred approach to care) (Goodwin, 2017b).

Overall, understanding the various dimensions of integrated care is crucial to successfully implementing integrated care models. As discussed in this section, there are several dimensions to consider, including the process, degree, breadth, types, timespan, level, and forms of integration. However, achieving integration often requires collaboration among multiple organisations, making inter-organisational collaboration a key factor in successful implementation. In the next section I explore the importance of inter-organisational collaboration in integrated care and discuss strategies for fostering collaboration between organisations.

## 2.5 Integration and inter-organisational collaboration in the health sector

The promotion of inter-organisational collaboration persists as a panacea for the various issues afflicting contemporary healthcare systems and the wider public sector (Dickinson & Glasby, 2010). Inter-organisational collaboration has been defined as ‘a mutually beneficial process by which stakeholders or organisations work together towards a common goal’; inter-organisational collaboration is synonymous with the ‘joint development of structures in which decisions are made, resources shared, and mutual authority and accountability exercised’ (Elston, 2013, p.527). Compared to intra-organisational collaboration (collaboration between different departments of one organisation), inter-organisational relationships are frequently more ‘loosely coupled’ because the various organisations may not belong to a shared management hierarchy (Weick, 1979). According to management literature, the concept of inter-organisational integration presents a variety of different approaches, as suggested by institutional economic theory, which posits that integration can be achieved either through a management hierarchy or market competition. A third alternative, the network mode of integration, has been identified in organisational and management literature as a voluntary cooperation or collaboration between organisations that are not part of a common hierarchy or market. Due to the fact that most organisations in a health system are not market-oriented and many are not part of a common hierarchy,

integration in this field primarily relies on the network mode and more in collaboration style (Axelsson & Axelsson, 2006). Consequently, inter-organisational collaboration in health systems is largely dependent on cooperation and collaboration between different organisations, with elements of coordination due to shared government hierarchies. Auschra (2018) records how inter-organisational partnerships and collaboration in healthcare can manifest in various ways, such as dyadic relationships between two partner organisations or as inter-organisational networks. Such collaboration can be characterised as a cooperative relationship established through a continuous communicative process (Hardy et al., 2003) or as a relationship that is enforced through government intervention (Alderwick & Dixon, 2019).

To better understand the relationship between the various forms of inter-organisational integration, two main dimensions, vertical and horizontal integration, can be employed. Vertical integration occurs between organisations or organisational units on different hierarchical levels, while horizontal integration occurs between organisations or units that are on the same hierarchical level or have the same status. The degree of integration in these dimensions varies among the different forms of integration. For example, contracting is a form of integration with low degrees of vertical and horizontal integration, while coordination has high vertical integration but low horizontal integration. Cooperation and collaboration, on the other hand, exhibit high degrees of both vertical and horizontal integration, with collaboration relying more heavily on voluntary agreements and mutual adjustments (Axelsson & Axelsson, 2006).

The effectiveness of different forms of integration varies depending on the degree of differentiation within the field of interest. Lawrence and Lorsch, (1967) suggest that low degrees of differentiation can be managed through vertical integration, whereas higher degrees of differentiation require more horizontal integration. As public health involves various sectors of society, including private and voluntary sectors, integration in this field is primarily accomplished through collaboration. The amount of government involvement also influences the extent of coordination and vertical integration in cooperation. Overall, the continuum of inter-organisational relationships provides a useful framework for understanding the different forms of integration and their potential effectiveness in different contexts.

### 2.5.1 Inter-organisational collaboration in the health system

The literature on health systems highlights inter-organisational collaboration as both a means and an end. Collaboration is seen as a way to synergise resources and expertise from different organisations to improve the efficiency and quality of public health services, as well as a more holistic approach to public health. This approach allows organisations to explore differences and reach solutions beyond their limited visions of what is possible. Collaboration is especially needed in health systems due to the high degree of differentiation in this field (Axelsson & Axelsson, 2006). However, the extent of such collaboration depends on the involvement of organisations from different sectors and their willingness to cooperate. In this way collaboration is mainly accomplished through voluntary agreements between organisations.

Todeva and Knoke (2005) discuss 13 different forms of interorganisational relations that emerge when organisations seek new efficiencies and competitive advantages while avoiding market uncertainties and hierarchical rigidities. These include hierarchical relations, joint ventures, equity investments, cooperatives, R&D consortia, strategic cooperative agreements, cartels, franchising, licensing, subcontractor networks, industry standards groups, action sets, and market relations. However, in health system types of inter-organisational arrangements have been implemented including mergers, alliances, joint working, contracting, joint commissioning, integrated care, vanguard arrangement, accountable care organisations, community health partnerships, buddying, primary care partnerships and combined trusts (Aunger et al., 2021). Inter-organisational collaboration in public health is often organised as multidisciplinary teams, defined as a small group of people, usually from various professions, who work together across formal organisational boundaries to provide services to a specific group of patients or clients (Øvretveit, 1993). This approach embodies a cross-organisational 'matrix structure,' where diverse multidisciplinary teams facilitate seamless connections between distinct organisations, even if they operate within different societal sectors. (Axelsson & Axelsson, 2006). In this regard, inter-organisational arrangements in health systems are more presented as agreements on clinical guidelines, inter-agency meetings to exchange information and plan treatments, appointment of case managers, co-location of officials from different agencies, pooling of budgets, and linking of information systems or databases (Axelsson & Axelsson, 2006).

Various forms of multidisciplinary teams exist, depending on the level of inter-organisational collaboration (Schofield & Amodeo, 1999). When collaboration is limited, organisations might form multidisciplinary teams for specific projects aimed at diverse sets of patients or clients. On the other hand, when collaboration is more extensive, permanent multidisciplinary teams could be integrated into the organisations. Such teams could consist of fixed members, representing different professions and organisations, or they could comprise a mix of core members and associate or peripheral members (Axelsson & Axelsson, 2006; Øvretveit, 1993). The inter-organisational collaboration that achieves the highest level of success in the realm of public health involve stable multidisciplinary teams. These teams are established and maintained over an extended duration, fostering a sense of familiarity and trust among members with close collaboration, shared interests, values, and goals. Decision making is predominantly characterized by collegiality or consensus, all underpinned by a shared team culture (Van Raak et al., 1999).

### 2.5.2 Managing inter-organisational collaboration by learning from barriers and enablers

According to Lawrence and Lorsch, (1967) achieving a state of differentiation and integration that aligns with the demands of the environment is the most crucial task for an organisation's management. On an inter-organisational level, while the differentiation of organisations may be predetermined to some extent, it is imperative to achieve a state of integration to effectively navigate this differentiated state. Managing the integration of activities across various departments within an organisation can be

challenging for management but integrating activities across different organisations poses an even greater problem (Axelsson & Axelsson, 2006). Within the literature of health systems, various facilitators and obstacles to inter-organisational integration and collaboration have been explicated (Auschra, 2018; Maruthappu et al., 2015a; Threapleton et al., 2017). For instance, in a scoping review of 30 studies, researchers extracted and categorised four main implementation issues: (1) Macro-level contextual factors; (2) Meso-level system organisation factors (funding, leadership, service structure and culture); (3) Miso-level intervention organisation factors (characteristics, resources and credibility); and (4) Micro-level factors (shared values, engagement and communication) (Threapleton et al., 2017). In another study, a number of key constraints that have hindered implementation of integration programmes were identified, such as operational complexity, regulatory challenges, unclear financial attribution, and cultural inertia (Maruthappu et al., 2015).

More specifically, examining collaboration between different organisations, Auschra, (2018) has identified barriers in six different domains: (1) administration and regulation (national borders, historical developments, existing regulations); (2) funding (lack of organisational resources and external funding); (3) inter-organisational (absence of leadership and coordination, missing stakeholders, power disparities, discrepancies in collaboration objectives and design, incompatible organisational structures); (4) organisational barriers (organisational vs. collective interests, cultural distance among organisations, past collaboration history); (5) service delivery (lack of technological standards, lack of trust, lack of mutual understanding, resistance to change, different professionalization, lack of communication); and (6) clinical practices (confidentiality issues, lack of information exchange).

Despite the extensive literature on the structural impediments to inter-organisational collaboration, formal arrangements such as regulations, rules, and financial support can generally assist the participating organisations in overcoming such obstacles (van Raak et al., 2003; Hultberg et al., 2003). Therefore, the primary responsibility for collaboration management is to manage barriers associated with cultural discrepancies, values, interests, and obligations. The management of these obstacles must be executed within each multidisciplinary team and between the team and collaborating organisations, with the team leader generally assuming this responsibility. While the collaborating organisations may appoint a team leader, the leader may also be elected by the members of the team. Some teams may also choose to rotate the leader position among team members (Øvretveit, 1993).

## 2.6 Overview of frameworks and models of integrated care and inter-organisational collaboration

The development and improvement of inter-organisational collaboration constitutes a complex, multifaceted and enduring process involving diverse activities that are integrated at multiple levels over an extended period (Minkman, 2012). The process of change towards integrated care necessitates decisive action by decision makers at various levels to establish the building blocks of integrated care, while fostering effective collaboration to ensure continuity and coherence in the delivery of care (Goodwin, 2017b). However, despite recognition of the complexity of integrated care, proactive management support and action are required, and few guidelines are available to direct leaders and managers as to the various processes that are needed to implement integrated care (World Health

Organisation, 2016). In this section, I present a selection of theoretical frameworks in the field of integrated care and inter-organisational collaboration that have been proposed and reviewed to identify the most appropriate framework for the current study. After reviewing the existing literature, I found that most current frameworks primarily serve a descriptive purpose, outlining the elements, components, and processes involved in integrated care.

### 2.6.1 Leutz's framework for integration

Through comparisons of initiatives to integrate health and social services in the 1990s in the United States and the United Kingdom, Leutz found that strategies tended to focus on a small subset of the population with high and complex needs, discounting the needs of the majority of chronically ill and disabled people with low to moderate needs. Consequently, he proposed an "integration framework" that describes three levels of integration which aligned with service users' need and operational system domains and which would enable a comprehensive approach responding to the various needs of all individuals with chronic disease and/or disability (Leutz, 2005; Leutz, 1999).

Following this rationale, service users are divided into three groups: (1) patients with mild-to-moderate but stable conditions who require few routine care services and have high capacity for self-management or strong informal networks; (2) patients with moderate levels of need; and (3) those with long term, severe conditions who frequently need urgent intervention from different sectors and who have limited capacity for self-management. He argued that for the first group, relatively simple, but systematic "linkage" of different systems might be sufficient. At this level, health and social care providers need to be aware of and understand the other providers in terms of their services, financing responsibilities and eligibility criteria. Linkage would operate through the separate structures of existing health and social services systems, without significant changes on their own service provision, funding and eligibility criteria and operational rules(Goodwin et al., 2004).

The second level, focusing on coordinating care for groups with moderate levels of need, would also operate mainly through existing systems in different sectors, but would involve extra structures and processes (such as shared information, discharge planners and case managers) to coordinate care across the different sectors. At the other end of the spectrum, the final subset with long-term, severe, unstable conditions were the most likely to benefit from a high level of integration of the different service domains (Leutz, 1999). Such a "fully" integrated system would provide all services, resources, and funding within one organisation or through contractual agreements between different organisations (Goodwin et al., 2004).

### 2.6.2 Development Model for Integrated Care

The Development Model for Integrated Care (DMIC) proposed by Minkman in 2012 is one of the pioneering frameworks that laid the foundation for organisations engaged in the development and evaluation of integrated care initiatives (Minkman, 2012). The model presented in the article is intended to support managers and leaders in assessing the presence of critical elements (89 elements grouped into 9 main clusters) required for integrated care. The model also outlines a four-phase programme for change, which includes the phases of initiative and design, experimentation and execution, expansion

and monitoring, and consolidation and transformation. This model provides a structured approach for implementing integrated care initiatives and monitoring their progress over time (Minkman, 2012). Following this, Goodwin has put forward a set of nine steps for the implementation of integrated care programmes. These steps encompass various stages ranging from the planning phase that outlines the priorities for action, to matters concerning strategic planning, implementation, and evaluation. The nine steps are (a) Needs assessment; (b) Situational analysis; (c) Value case; (d) Vision and mission statement; (e) Strategic plan; (f) Ensuring mutual gain; (g) Communications strategy; (h) Implementation and institutionalization; and (i) Monitoring and evaluation (developing systems for continuous quality improvement) (Goodwin, 2017).

### 2.6.3 Rainbow Model of Integrated Care (RMIC)

The Rainbow Model of Integrated Care (RMIC) is a relatively recent conceptual framework that offers a comprehensive and nuanced approach to the multifaceted nature of integrated care. By incorporating various dimensions of integration, including type, level, and forms, the RMIC emphasises coordinated care that prioritises the needs of individuals and populations as the overarching objective of integration. At its core, the framework recognises the importance of effective connectivity between integrated care processes at the macro-level (system integration), meso-level (organisational and professional integration), and micro-level (clinical, service, and personal integration). In order to achieve such connectivity, the RMIC integrates both functional integration (e.g., communication and the use of Information and Communications Technology) and normative integration (e.g., shared cultural values), thereby facilitating dynamic relationships and effective channels of communication and data sharing between individuals and organisations. The RMIC's emphasis on communication and information exchange is particularly noteworthy, as it is considered a key driver of successful integration across all levels of the integrated care system. Overall, the Rainbow Model consists of 59 key features of integrated care, organised into six larger dimensions: system, organisational, professional, clinical, functional, and normative (Valentijn, 2016).

### 2.6.4 Comprehensive Theoretical Model

Singer and her colleagues have developed the Comprehensive Theoretical Model, the most recent framework for integration, which distinguishes five integration types (structural, functional, normative, interpersonal, and process) within and across healthcare organisations. This model views integration types as part of a logic chain in which contextual factors impact their occurrence and subsequent effects on outcomes. The framework highlights the importance of normative and interpersonal aspects in implementing integrated care and proposes relationships among all key integration types, identifying the most influential aspects for managers and policymakers to target. They also differentiate aspects of integration that can be directly manipulated by delivery system leaders and policymakers from those that are more likely to be influenced indirectly. This distinction can inform decision making among practitioners and policymakers and provide a theoretical basis for exploring how integration types relate to critical health system outcomes (Singer et al., 2020).

### 2.6.5 Context and Capability of Integrated Care (CCIC)

Existing frameworks on integrated care have highlighted contextual factors that may contribute to successful implementation. However, some scholars have pointed out a lack of attention to the "human" elements and intangible factors such as the socio-ecological climate and characteristics of those involved in implementing and delivering integrated care. Macro factors such as public policy, funding, market conditions, interorganisational infrastructure, and leadership have also been identified as important considerations for integration efforts. While identifying and applying key implementation determinants is recommended, no existing framework provides comprehensive coverage of all relevant contextual factors. The CCIC framework (figure 2) is one of the few models that includes multilevel contextual factors that determine the integration process. The CCIC framework was created based on a comprehensive review of over 100 peer-reviewed articles and interviews with healthcare professionals. The authors of the CCIC framework view the organisational contextual factors of healthcare integration as organisational capabilities. These capabilities refer to an organisation's ability to perform coordinated tasks that support integrated care delivery. The framework covers various aspects of an organisation's structural, psychological, and social contexts, including 17 capability factors within the basic structures, people and values, and key processes domains (Evans et al., 2017).

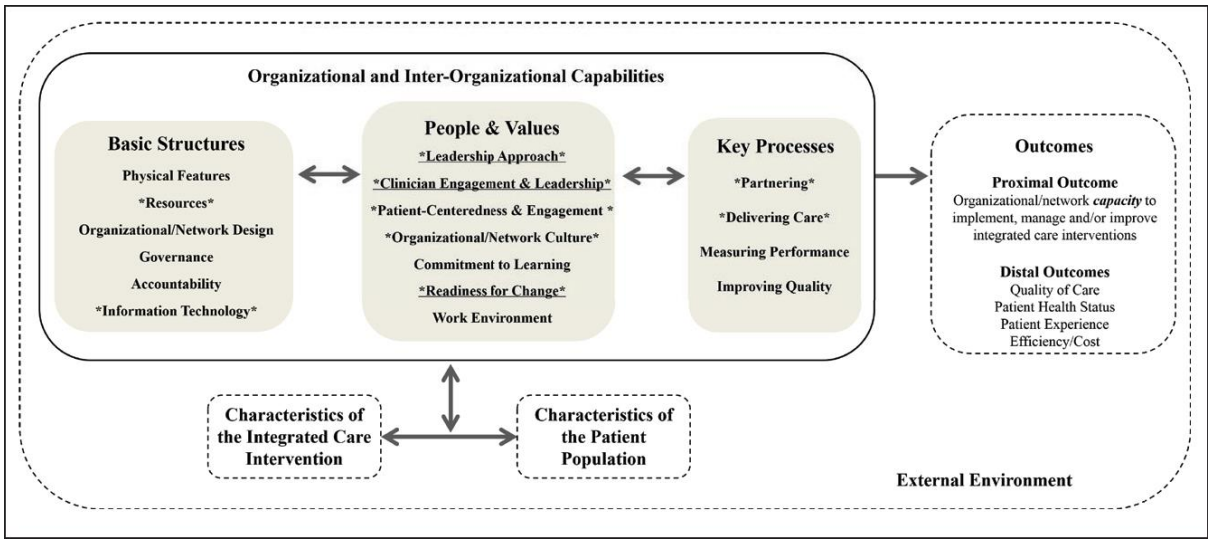



Figure 2- *Context and Capability of Integrated care framework* by (Evans et al., 2017)

### 2.6.6 Selected framework for this study

Recognizing the significance of integrated systems and programmes in tackling contemporary healthcare obstacles, it is equally crucial to comprehend the implementation of integrated care programmes and the critical organisational and inter-organisational factors. This is essential since several integrated care programmes that are grounded in sound evidence have failed to translate into practice or met the policy expectation of the outcome of the integrated care programme (Hughes et al., 2020). The problem could be influenced by our perception of the integration process and the complex systems in which integrated care is executed (Tsasis et al., 2012).

The CCIC framework shows greater alignment with organisational contextual factors for implementing integrated care, particularly for inter-organisational integration programmes, compared to other frameworks that have been used. The CCIC framework recognises the complexity of integrated care systems and the need to consider various contextual factors that can influence its implementation. The CCIC framework emphasises the importance of understanding the local context, including the political, economic, social, and cultural factors that can impact integrated care. Moreover, the CCIC framework highlights the need to develop capabilities to effectively navigate complex integrated care systems. These capabilities include leadership, organisational culture, stakeholder engagement, and the use of evidence-based practices. Thus, the CCIC framework's focus on contextual factors and capabilities is particularly relevant to complex systems in which integrated care is carried out, as it acknowledges the need for a comprehensive and flexible approach that can adapt to the complexity of the system.

## 2.7 Implementing integrated care within a complex adaptive system

The failure to treat the health system as a complex adaptive system has been identified as a factor contributing to the unsuccessful implementation of integrated care programmes(Tsasis et al., 2012). To address this issue, complexity theory can be utilised as a theoretical framework that aims to comprehend the behaviour of complex systems. Complexity theory emphasises the importance of understanding the interactions and relationships between the various components of a complex system, as well as the emergent properties that arise from these interactions. Complexity theory also emphasises the dynamic nature of complex systems, and the importance of understanding how they evolve over time. While complexity theory is a general framework for understanding complex systems, complex adaptive systems (CAS) are a specific type of complex system that exhibit certain characteristics, such as adaptability and self-organisation (Edgren & Barnard, 2012).

In healthcare, both complexity theory and complex adaptive systems are used to understand and improve healthcare delivery. Complexity theory can help understanding of the interactions between different healthcare services and providers, and how these interactions affect patient outcomes. Complex adaptive systems can help to understand how healthcare organisations can adapt to changing circumstances and improve their performance over time. In this way, healthcare systems can be seen as both a complexity system and CAS, as it seeks to integrate various healthcare services across different settings and providers to improve patient outcomes. Complex adaptive systems (CAS) are systems with indistinct boundaries that are open and are a large number of diverse and highly interactive agents, the interactions and adaptations of these agents often lead to novel and unpredictable events and behaviours, making CAS emergent and self-organising in nature (Waldrop, 1992). Based on this definition, healthcare is considered as consisting of various sub-systems that are characterised by diverse agents that interact, self-organise, and continuously adapt (Grudniewicz et al., 2018). Although CAS theory has been applied to depict healthcare organisations and guide research on health policy and services for over a decade (Chaffee & McNeill, 2007; Tan et al., 2005), its potential usefulness in the context of health systems integration has only been recognised and investigated in recent times, and there is limited empirical research in this field (Edgren, 2008; Nugus et al., 2010).

### 2.7.1 Complex adaptive systems in studying integrated care programmes

Integrated care and complex adaptive systems (CAS) are two important concepts that have gained significant attention in healthcare in recent years. Integrated care refers to the coordination of healthcare services across different providers and settings to achieve better health outcomes, while a CAS is a network of individual agents that adapt and learn from their environment to achieve goals. It is, therefore, not surprising that the CAS perspective has been utilised to investigate and interpret the integrated care field. Grudniewicz et al. (2017) has applied complexity theory to help understanding the design and implement an integrated care initiative in Canada. They have used Complexity concepts (sensemaking, self-organisation, interconnections, coevolution, and emergency) as a conceptual framework to capture the complexity compatible policy design stimulated local dynamics of flexibility, experimentation, and learning and that important mediating factors include leadership, readiness, relationship-building, role clarity, communication, and resources.

In their research, Tsasis et al. (2012) outlined various aspects of CAS that were relevant to the implementation of an integrated care programme in Canada. These included the involvement of diverse, interdependent, and semi-autonomous actors, the presence of embedded co-evolutionary systems, the emergence of non-linear and unpredictable behaviours, and the capacity for self-organisation. The researchers noted that the failure of integrated care initiatives to achieve their desired outcomes may be attributed to a mechanistic mindset prevalent in the healthcare system. They recommended that future integrated care initiatives should prioritise building capacity for self-organisation, fostering relationships, sharing information, and promoting learning.

Nurjono et al. (2018) employed CAS to examine two distinct integrated care initiatives at the national and regional level in Singapore. The researchers utilised three defining characteristics of CAS: (i) the involvement of diverse and semi-autonomous actors, (ii) the capacity for self-organisation and adherence to simple rules, and (iii) the relationship with the larger system, emergence of non-linear behaviour, and unpredictability. They emphasised that effective collaboration, based on a shared focus, responsiveness to emergent behaviours, adherence to simple rules, and the ability to self-organise and adapt in response to unexpected situations, were significant and vital components in the development of integrated care initiatives in the Singaporean context.

The understanding of integrated care as a complex adaptive system has important implications for the development and implementation of integrated care initiatives. By recognizing the complexity and adaptive nature of integrated care systems, healthcare organisations can adopt a more flexible and context-specific approach to designing and implementing integrated care programmes. This perspective also highlights the need to foster relationships, build capacity for self-organisation, share information, and promote learning, which are crucial components for achieving the desired outcomes of integrated care initiatives. By highlighting the importance of context and capability in implementation of integrated care, in next section I explore how integrated care programmes have been implemented and evaluated in different contexts, highlighting the lessons learned and identifying the key success factors for achieving the desired outcomes of integrated care initiatives. The final aim

of this section is to formulate criteria to assess integrated care programmes and initiatives that involve inter-organisational collaboration.

## 2.8 Enhancing inter-organisational collaboration in integrated care programmes

In the previous section, I explored integrated care and inter-organisational collaboration, delving into their respective concepts. Additionally, I presented existing frameworks to provide a deeper understanding of these essential concepts. In integrated care models, inter-organisational collaboration plays a vital role in addressing the patients' complex needs as it often involves a diverse mix of services delivered by multiple independent providers, each with their own specialties and expertise. Improving inter-organisational partnerships involves building relationships between stakeholders, exchanging information, and sharing resources among health and social care organisations to strengthen their connections (Auschra, 2018; Wankah et al., 2022). Numerous studies have explored enablers and barriers of integrated care programmes, with a particular focus on organisational context and inter-organisational factors (Friedman & Goes, 2001; Ham & Walsh, 2013; Hartgerink et al., 2013; Ling et al., 2012; Suter et al., 2009). For instance, Auschra (2018), in a comprehensive systematic review identified the barriers in integration of care particularly in inter-organisational settings (see Figure 3).

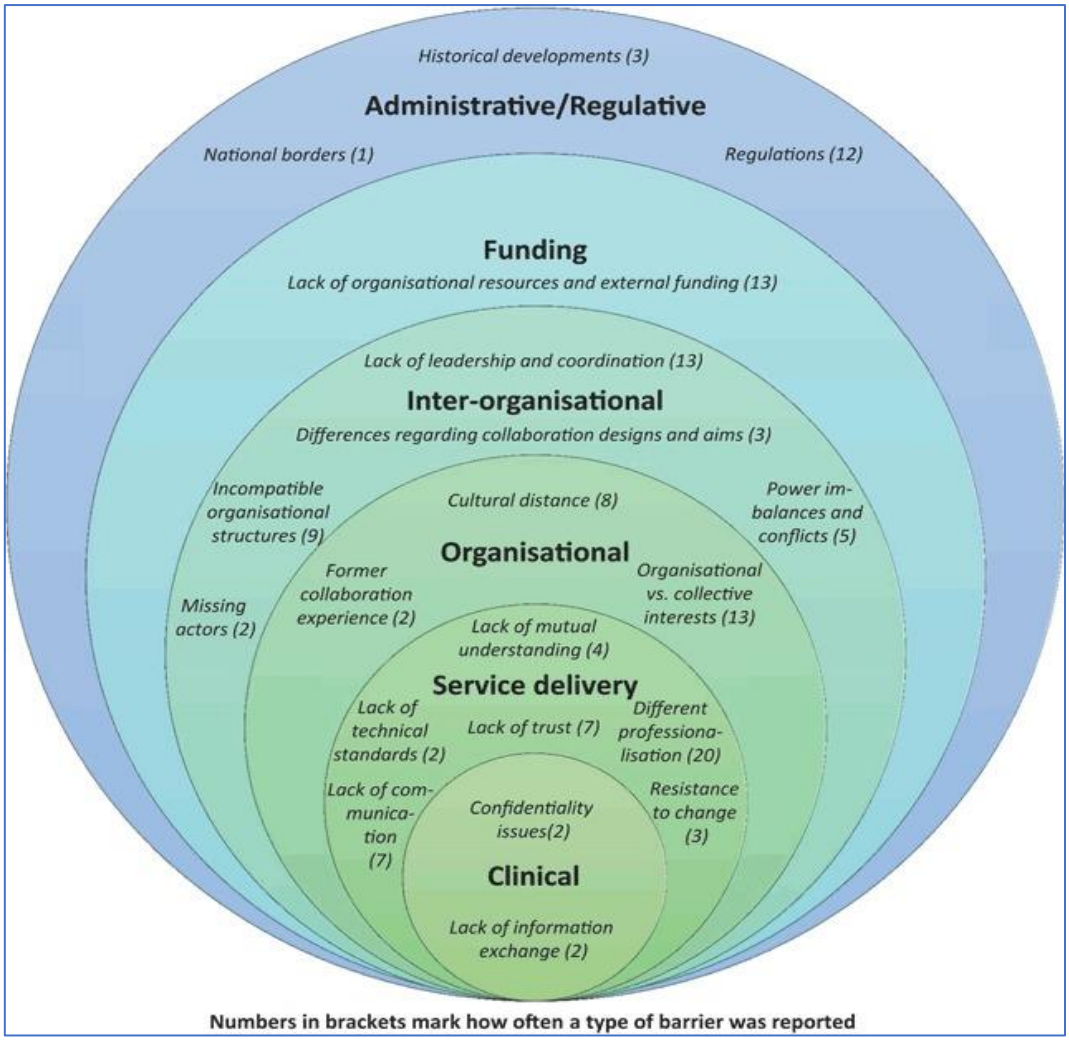



Figure 3- *Barriers to the integration of care in inter-organisational settings* (Auschra, 2018)

Within this study, barriers to inter-organisational collaboration have been categorized across various tiers of the healthcare system. For instance, at the clinical level, challenges might encompass confidentiality concerns between distinct organisations. On a macro scale, obstacles could manifest as deficiencies in organisational resources and external funding.

Transitioning from capturing static glimpses of barriers and enablers, contemporary research on inter-organisational collaboration within healthcare systems is now shifting towards a deeper comprehension of context and mechanisms within integrated care initiatives. This evolution aims to precisely uncover the reasons and methods behind the success of specific initiatives within particular contexts. For instance, Aunger et al. (2021) employed a realist review methodology to comprehensively grasp the mechanisms driving inter-organisational collaboration's functionality while optimizing the contextual factors to promote successful outcomes (see Figure 4). Similarly, in the research conducted by Moon and Ballard (2022) a comprehensive framework was employed to implement integrated healthcare, with its effectiveness evaluated through a realist evaluation methodology. The article aims to reveal the mechanisms, contextual factors, and interactions that play a role in the achievements or obstacles faced during the implementation of integrated care initiatives.

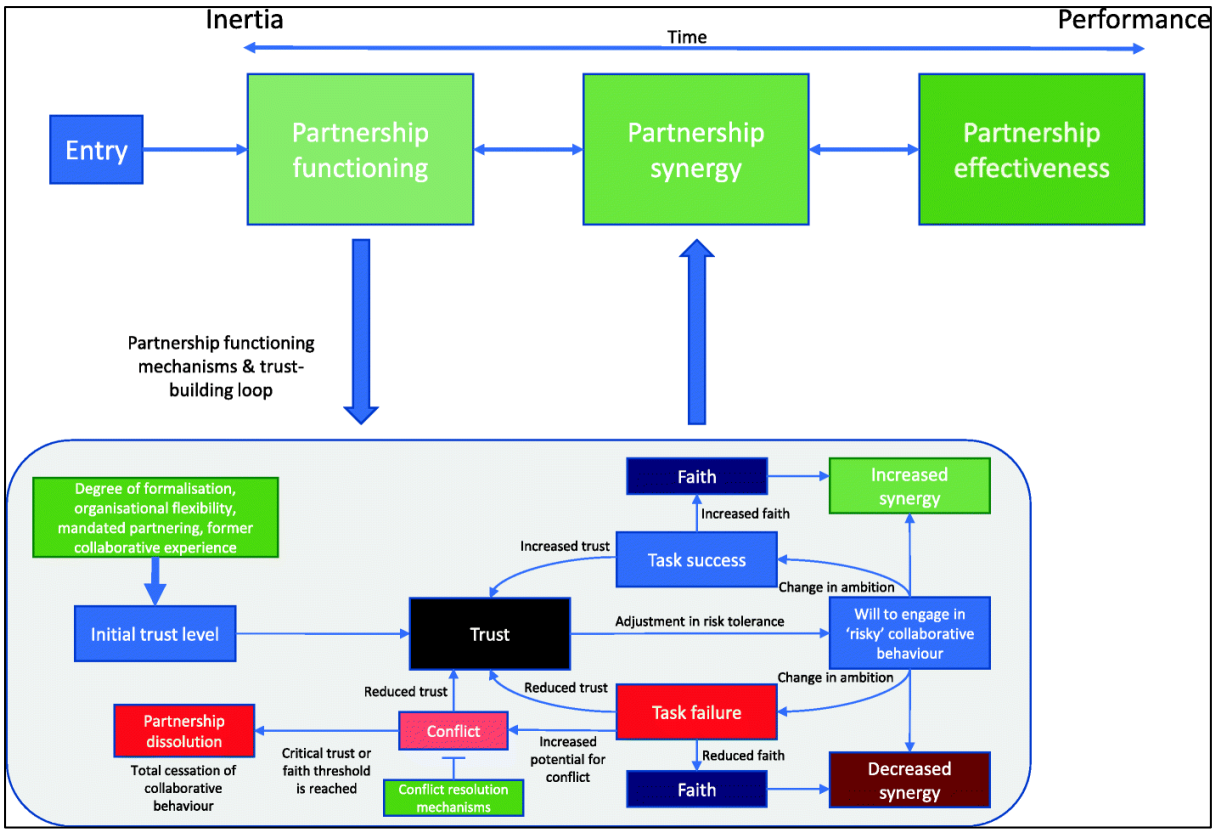



Figure 4: *Depiction of main mechanisms and outcome at play (*Aunger et al, 2021)

Despite recent studies delving into the realm of inter-organisational collaboration within integrated care frameworks in the healthcare system, prior research has predominantly centred on the integrated care model itself, the degree of care integration achieved, and overarching outcomes. The extensive exploration of these aspects has left a notable gap in the empirical examination of the dynamics that drive successful inter-organisational collaboration. This research aimed to explore the inter-organisational and organisational contextual factors influencing the implementation of integrated care initiatives involving various organisations both within and outside the health sector.

## 2.9 Identifying criteria for a selected integrated care programme for this study

Based on the analysis of evaluations of integrated care and inter-organisational concepts, I have formulated criteria to assess integrated care programmes and initiatives that involve inter-organisational integration. The criteria have been classified into two sets, with one set focusing specifically on integrated care programmes and the other set focusing on inter-organisational relationship factors.

**Integrated care programme:**

- The health issue: multifactorial and reaching outcomes required multi-component programmes.

- Target population: include all older population.
- Programme design and components: include prevention to rehabilitation services.
- Patient-centred: including risk assessment and care plan.
- Sustainability: the programme designed to be sustainable over the long term, and there are plans in place to ensure continued collaboration between organisations.

**Inter-organisational collaboration:**

- Types of inter-organisational collaboration: Strategic alliance, joint ventures, consortia, or networks (the programme has specific types of inter-organisational collaboration).
- Governance structure: Does the programme have a governance structure in place at both the national and local level to ensure effective collaboration and decision-making?
- Scope of the programme: Is the programme national or local in scope, and how does this affect the collaboration required between different organisations?
- Ownership/Management: include different types of organisations based on their ownership such as government-run organisations, privately-owned organisations, community-based organisations, or non-governmental organisations (NGOs).
- Level of care: include organisations with different levels of care such as community, primary and secondary care organisations.

The aforementioned set of criteria is utilised for reviewing integrated care programmes in NZ and identifying one that aligns with the established criteria. This approach facilitates comprehension of the intricate initiative within a complex adaptive system. The Falls and Fracture Prevention Programme (FFPP) was chosen as the subject of this research, as it fulfilled the criteria. Further information about the FFPP and how it met the criteria is outlined in Chapter three.

## 2.10 Chapter summary

A number of key findings emerged from this review of the literature that provide an important foundation of existing knowledge for this research. For decades, integrated care within and across health and social services has been proposed as a prominent solution for major deficiencies in health systems. Many scholars and researchers have attempted to define and clarify its concepts, main elements, principles, implementation processes, measurements, and evaluation. In addition, inter-organisational collaboration has shown an important role in the implementation of an integrated care programme as well as one of main enablers and barriers in the field, so this chapter also provided literature on the concepts of inter-organisational collaboration and its different forms. To facilitate understanding of the complex nature of integrated care, a number of frameworks of integrated care and its evaluation have also been presented. Using the findings from the literature review, the CCIC framework was selected to capture and compare inter-organisational factors and organisational capacities due to its comprehensive list of organisational contextual factors. Finally, two sets of criteria were identified to guide the selection of an integrated care programme within the NZ health system, resulting in the choice of the FFPP. The following chapter outlines the programme's characteristics and demonstrates how it aligns with the defined criteria.

# Chapter three: New Zealand's Fall and Fracture Prevention Programme (FFPP) as an integrated care programme

## 3.1 Overview of this chapter

In this chapter, I delve into the integrated care programmes in NZ's healthcare system. First, I provide an explanation of the FFPP, with a description of the programme components and all involved partner organisations and their general roles and functions in providing and supporting the whole-system FFPP. Then I discuss how this programme satisfies the criteria of an integrated care programme and why it is suitable for addressing the requirement of inter-organisational collaboration to effectively answer the research questions. To gain a better understanding about the contexts that this programme is implemented in, I provide an overview of the NZ healthcare system and its movement towards integration and an integrated care programme.

## 3.2 Falls incidence among older adults and the importance of a prevention programme

Older people highly value their independence, and a fall can greatly diminish their ability to take care of themselves. Globally, the annual occurrence of falls among individuals aged 65 and above surpasses 25%, leading to over 3 million visits to the emergency department (Centers for Disease Control and Prevention, 2003; Moreland et al., 2020). Injuries treated in emergency departments include minor bruises and scrapes as well as more severe injuries like traumatic brain injuries (TBI) and hip fractures (Bentler et al., 2009; Choi et al., 2019). Across the globe, falls carry a significant financial impact, with medical expenses for fatal and nonfatal falls totalling $50 billion each year (Florence et al., 2018). Within NZ, nonetheless, falling over is not a natural part of the ageing process, and many falls are preventable through preventative measures such as regular exercise, home modifications, wearing appropriate footwear, and managing medication use. Although there has been extensive research on the epidemiology of falls in older adults for the past 50 years, it is only in the last decade that coordinated efforts have been made to tackle the problem of falls in this population(McClure et al., 2005). Recently, guidelines for preventing falls in older people have been released in the UK (Barker, 2014; Feder et al., 2000), the USA (Panel on Prevention of Falls in Older Persons, 2011), and Canada (Scott et al., 2003). Several systematic reviews have explored research evidence on effective strategies to decrease falls and injurious fall rates in older adults. For instance, the conclusion of the Cochrane review has shown that fall intervention programmes and preventative measures can decrease the incidence of fall-related injuries from 6% to 33% (McClure et al., 2005)

### 3.2.1 Population-based programmes in preventing falls and fractures

The literature on falls is unclear about the definitions of terms such as countermeasure, strategy, multi-strategy (or multifaceted strategy), intervention, and prevention programmes. Nonetheless, there is agreement that the prevention of fall-related injury can be approached at various levels, and there are

different options available at each level. Christoffel and Gallagher (1999) provide the clearest definitions, where countermeasure refers to a specific proximal protective factor (e.g., increased physical activity, hip protectors), strategy refers to the means of promoting this protective factor (e.g., regulation, education, environmental change), and population-based intervention (also known as community-based intervention) is a coordinated programme in which strategies and countermeasures are implemented in whole communities. Institutional residences, such as residential aged care and rest homes, are included in this definition of community. In other words, population-based interventions aim to prevent falls among the entire population of older people rather than targeting specific individuals. The concept of population-based approaches was first introduced by Geoffrey Rose in 1985, who suggested that interventions should prioritise changing contextual conditions that lead to the distribution of risk in specific populations (Rose, 1985). In the case of falls prevention, this means focusing on changing societal, cultural, or environmental conditions that increase the risk of falling. It has been argued that population-based interventions should not be confused with programmes or policies that simply impact a large number of people but rather aim to change underlying conditions that increase the risk of falls for the entire population. These interventions can be viewed as ecological interventions that target whole communities, from small catchment populations to entire regions.

In the context of falls prevention, population-based intervention programmes identify one or more countermeasures for preventing fall-related injury and promote the widespread adoption of these countermeasures using one or more health promotion strategies. As the likelihood of falling increases with the number of risk factors, a preventive intervention targeting multiple risk factors has been recommended for use with large populations. The entire community is the focus of the intervention, rather than individual members, and multiple strategies are combined into an overall programme of activity. Thus, population-based interventions differ significantly from the environment in which falls countermeasure research studies of randomised controlled trials are generally conducted.

Population-based intervention strategies in falls prevention might include, for example:

- Government policies regarding vitamin D supplementation that could be implemented across entire states, regions, or municipalities.
- Local councils or governments providing general recommendations or maintenance programmes at the community level to reduce hazards in homes (e.g., good lighting and non-slip surfaces) and public places (e.g., care and maintenance of public walkways, railings on steps) in villages, towns, and cities.
- Public health initiatives that offer information or access to interventions, such as strength and balance exercises, to communities regardless of their risk status and without assessing individual risk (e.g., a leaflet campaign that targets an entire city, providing general information on the importance of strength and balance training, and details of accredited local training programmes).
- Implementation of public health programmes to promote fall-prevention behaviours, such as engagement in physical activity at levels recommended by the UK Chief Medical Officers. (Department Health and Social Care, 2019; McClure et al., 2010)

### 3.2.2 Measuring the success of population-based falls prevention programmes

Although community or population-based, multi-strategy falls prevention programmes have been strongly advocated, there is limited high-quality research evaluating their efficacy. The success of fall prevention initiatives at a population level relies on both high participation rates and the widespread availability of prevention strategies. However, there is limited data on population-based interventions that can accurately estimate the required participation rate to have a measurable impact on overall fracture rates. Using Australian data, Day et al. estimated that 1.9% of eligible individuals aged 70 years and older taking up Tai Chi classes prevented 5,440 falls and 109 fall-related hospitalisations in 2009 (Day et al., 2010).

The implementation of new activities for fall prevention can be a complex process that requires the acquisition of new knowledge, skills, and abilities. Providers, organisations, and the system in which these activities are delivered must be willing to learn, adapt, and change their practices (Fixsen et al., 2011). Hence, addressing the challenge of reducing falls incidence among the older population through effective interventions poses a significant endeavour for health systems.

One challenge specific to falls prevention is the need for coordination and integration across multiple settings and providers. For instance, fall-preventive exercise classes must be tailored to different target groups and may be provided by various organisations and individuals, including therapists, nurses, exercise instructors, or qualified volunteers, in different settings such as sports clubs, community centres, or nursing homes. Financing for these classes can come from different sources such as the health care system, local or state governments, communities, donations, or fees. Thus, the implementation of even a single effective activity in a community setting requires a comprehensive understanding of the context to engage all relevant institutions and individuals. Furthermore, the implementation of multiple activities necessitates a multi-strategic approach that requires a high degree of coordination among settings, providers, and systems (Ganz et al., 2008).

### 3.2.3 Implementation of population-based falls prevention across the world

While a whole-of-system approach is recommended to address multifactorial falls incidence among older populations (Clegg et al., 2013; Inouye et al., 2007), there is limited evidence on the effectiveness and implementation strategies of whole-system fall prevention programmes. However, the Australian "Stay on Your Feet" programme offers a successful example of such an intervention. This multi-strategic approach, which spanned four years, targeted fall-related risk factors, knowledge, attitudes, and behaviours among individuals aged 60 and above who reside at home (McClure et al., 2005). The implementation of population-based fall prevention programmes worldwide remains an important issue.

The USA has conducted several falls prevention programmes, one of which is the Falls Rehabilitation Programme (FRP). This Medicare service is aimed at Medicare beneficiaries aged 65 years and older who have recently had a fall and are at an increased risk of falling. It includes a comprehensive fall risk

assessment by a physician, tailored recommendations for reducing fall risks, referral to a rehabilitation therapist-led group exercise programme, and a follow-up visit to ensure the implementation of recommendations (Wu et al., 2010).

In 2011, the Centers for Disease Control and Prevention (CDC) initiated a 5-year project to fund State Departments of Health in Oregon, Colorado, and New York to implement Stepping On, a research-informed fall prevention programme, in selected communities. The goal was to engage fall prevention coalitions, healthcare organisations, and other partners in clinical and community settings to reduce falls and fall-related injuries among older adults. Stepping On was intended for older adults with moderate fall risk, such as those who have experienced a fall in the past year or are afraid of falling and the results of a study indicated that this programme holds the potential to reduce the frequency and impact of falls among older adults(Ory et al., 2015).

### 3.2.4 Implementation of population-based whole system falls prevention in NZ

Not surprisingly, falls are the leading cause of injury-related hospitalizations among adults aged 65 years and over in NZ. An evaluation for NZ's Injury Prevention Strategy in 2010 estimated the annual cost of falls (in adults living in the community as well as residential care) for treatment and rehabilitation was 18% of the total cost of injuries in the country(O'Dea & Wren, 2012). In response to this issue, the NZ Government implemented a falls prevention programme to reduce the incidence of falls and fall-related injuries. The implementation of the nationwide falls prevention programme in NZ began in 2012 with the launch of the "Steady As You Go" programme (Ministry of Health, 2020). This programme aimed to reduce the number of falls and injuries among older adults by providing a series of community-based exercise classes. These classes were designed to improve balance, strength, and mobility, and they were delivered by trained instructors in local community centres across the country. The programme also included educational sessions on fall prevention, medication management, and home safety.

The "Steady As You Go" programme was piloted in two regions in NZ and was evaluated in 2015. The evaluation found that the programme was effective in improving physical functioning and reducing falls among older adults who participated in the programme (Robinson et al., 2015). Following this successful pilot, the programme was scaled up and rolled out nationally in 2016 and the Accident Compensation Corporation (ACC), the Ministry of Health (MoH) and the Health Quality & Safety Commission (HQSC) joined forces to accelerate a reduction in the incidence and severity of falls for New Zealanders aged 65 years and over (brief description of each central organisation's role and responsibilities provided in section 3.2.4.3). As part of this partnership approach, initially, ACC committed $31.7m to a nationwide investment (increased to 40m) as a contribution to local health systems to enable the establishment and improvement of a comprehensive whole-of-system approach to falls and fragility fracture prevention and rehabilitation (Health Quality & Safety Commission, n.d.; Kane & Barry, 2016).

The NZ falls prevention programme is a multi-component programme that targets different subgroups including home and community-based strength and balance exercise programmes, home safety

assessment and modifications review and prescription of vitamin D in residential aged care and early discharge from hospital after a serious fractures caused by falls (Moyet et al., 2019).

The nationwide falls prevention programme in NZ is implemented in three stages. The first stage involves the identification of older adults who are at risk of falling. This is done through screening for falls risk factors, such as medication use, poor balance, and muscle weakness. Older adults who are identified as being at risk of falling are referred to a falls prevention programme. The second stage of the programme involves the delivery of evidence-based interventions to address the identified falls risk factors. Interventions include exercise programmes, medication reviews, home safety assessments, and treatment. The third stage of the programme involves ongoing monitoring and evaluation to ensure that the interventions are effective in reducing falls and fall-related injuries. This is done through regular follow-up assessments and feedback from older adults who have participated in the programme. A detailed presentation of the programme components is provided in the next section.

#### *3.2.4.1 Components of whole-system FFPP*

Falls prevention in NZ is a multifaceted approach that involves primary and secondary prevention strategies supported by evidence-based guidelines. Primary prevention strategies aim to reduce the risk of falls in the first place, while secondary prevention strategies aim to reduce the harm caused by falls that have already occurred. Both approaches are crucial for an effective whole-system FFPP. Figure 5 provides an overview about the components of population-based, multi-strategy falls prevention programmes in NZ.

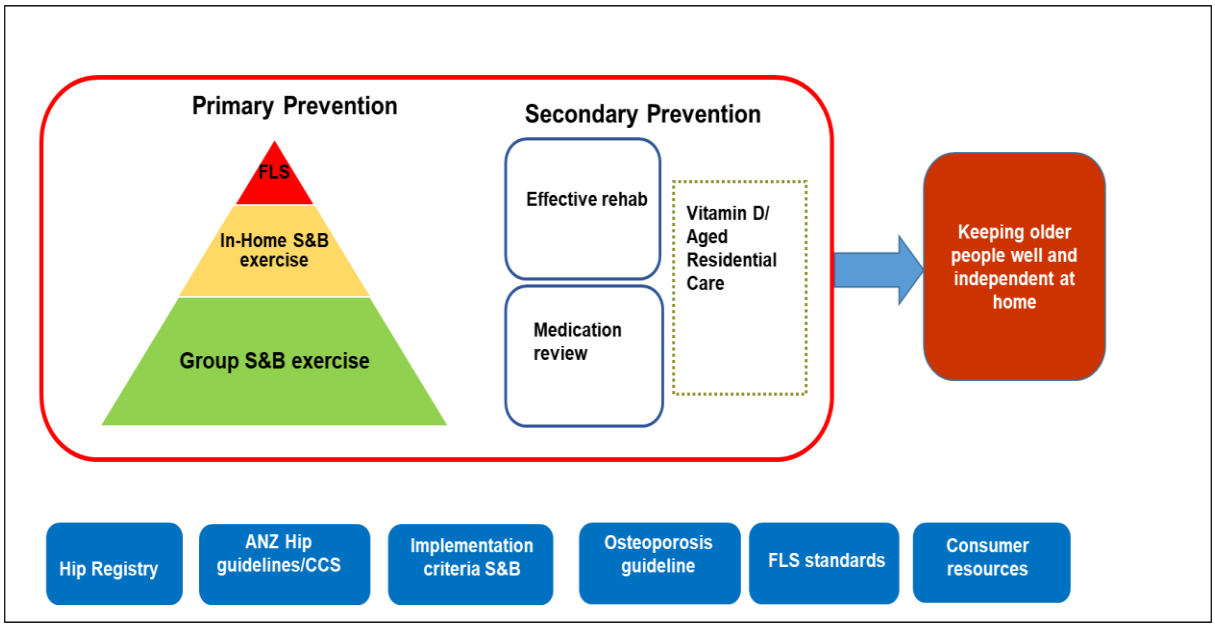



Figure 5- *Population-based Falls and Fracture Prevention Programme in New Zealand* (Health quality and safety commission, 2016)

**Primary Prevention:**

Primary prevention involves initiatives aimed at preventing falls and serious falls through a population-based approach. For older people who are at a low risk of falling (83% of population over 65 years old), **group strength and balance** (S&B) exercises have been shown to be beneficial when adequate places are available and evidence-based high-quality exercise programmes are implemented (See Figure 6).

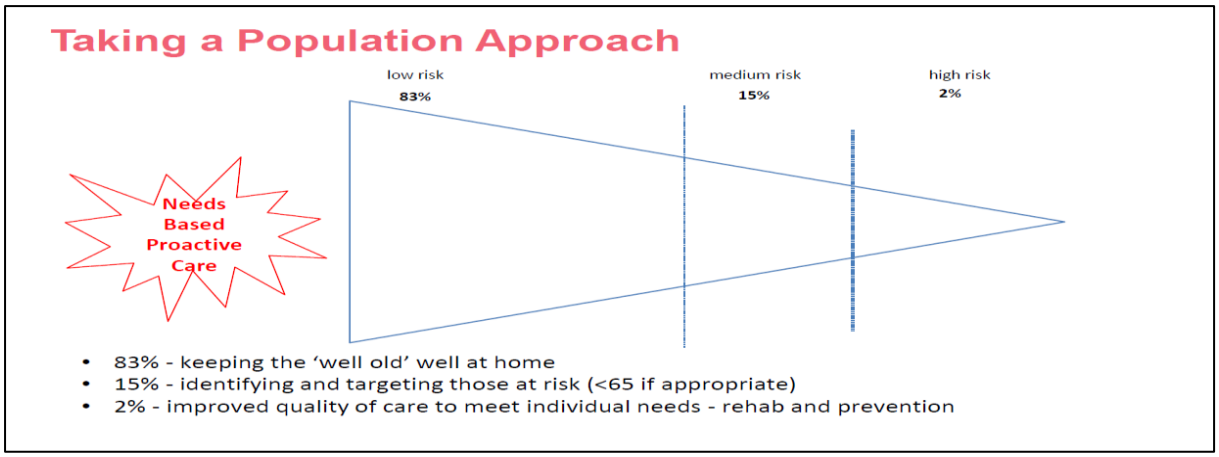



Figure 6- *Primary Prevention: Population-based approach* (Health Quality and Safety Commission, 2016)

**In-home S&B programmes** are designed for the highest risk population (aged 75 years and over) who cannot access community-based classes. Clinician-led, this programme follows the Otago Exercise Programme which has shown to be the most effective programme in reducing falls and includes six home visits over a six-month period for assessments and training sessions with a healthcare professional(Chiu et al., 2021). In-addition, a home fall risk assessment is conducted in first assessment visits to find and fix environmental hazards in the home.

**Fracture Liaison Services** (FLS) are offered to older adults who have experienced fragility fractures. This service includes bone health assessments, referral for or prescription of bone strengthening medication, such as bisphosphonates, and referral to strength and balance programmes to treat osteoporosis(Mitchell, 2013). The standards for FLS cover areas such as identifying high-risk patients, assessing fracture risk, providing timely interventions, and coordinating care between primary and secondary care providers. The standards emphasise the importance of a multidisciplinary team approach and the use of evidence-based interventions, such as bone density testing, medication management, and falls prevention programmes. The standards also stress the need for ongoing monitoring and evaluation of FLS to ensure their effectiveness in reducing the risk of future fractures (Osteoporosis NZ, 2021).

**Secondary Prevention (for those people who have already had a fall)**

The Secondary Prevention component of the national level FFPP in NZ involves two measures. Firstly, **early discharge from hospital** for patients admitted due to falls. Secondly, **medication review** aimed at mitigating the risk associated with medication. The early discharge process requires secondary care and hospitals to establish an expedited discharge plan and a home rehabilitation plan to provide support to the patient who has experienced a fracture, and medication review to reduce the likelihood of falls among such patients (Crotty et al., 2002).

Vitamin D in residential aged care: The most well-supported programme for residential aged care residents is the use of Vitamin D supplementation, as recommended by experts. As part of a broader falls prevention programme, the national-level FFPP provides a government-funded monthly supply of Vitamin D supplements for all residential aged care residents (Macdonell et al., 2016).

#### *3.2.4.2 Falls and Fracture outcome framework*

Central government organisations (ACC and HQSC) started designing and monitoring the outcomes of the implementation framework when the programme started in 2016. The outcome framework offers valuable insights into various fall-related metrics. This outcome framework encompasses five primary areas as follows:

- Fewer falls injuries: This indicator encompasses three sub-indicators: the number of ACC claims for fractures, non-fractures, and repeated claims.
- Fewer serious falls injuries: This indicator provides insights into the number of hospital admissions due to falls, divided into categories such as fractured NOF (neck of femur fracture),

other fractures, non-fractures, admissions from aged residential care, and admissions from the community.

- Improve recovery (hospital): This indicator reflects the average length of hospital stays for different types of fractures.
- Improved recovery (home): This indicator showcases the number of Bisphosphonate prescriptions, including fully covered prescriptions, new starts, and vitamin D prescriptions in aged residential care (ARC).
- Integrated care: This indicator is divided into five sub-indicators, which include the number of places offered in community S&B programmes, the number of people enrolled and attending all required sessions in community S&B, the number of people served in In-Home S&B, and the number of people served by the FLS.

This data is presented both at the national level and broken down by district health boards. Users can easily access the dashboard to monitor the progress and performance of the nation and different district health boards in their efforts to reduce falls-related harm (*Live Stronger for Longer*, 2023).

#### *3.2.4.3 Partner organisations in whole-system FFPP*

The FFPP necessitates collaboration across multiple levels and agencies, requiring partnerships between various organisations at both the local and central government levels. Such a programme cannot be implemented solely by one organisation or agency. Figure 7 shows the central and local government relationships and their main responsibility in the implementation of a whole system falls prevention programme in NZ. In this section I provide a concise overview of each organisation involved in the programme and their specific responsibilities.

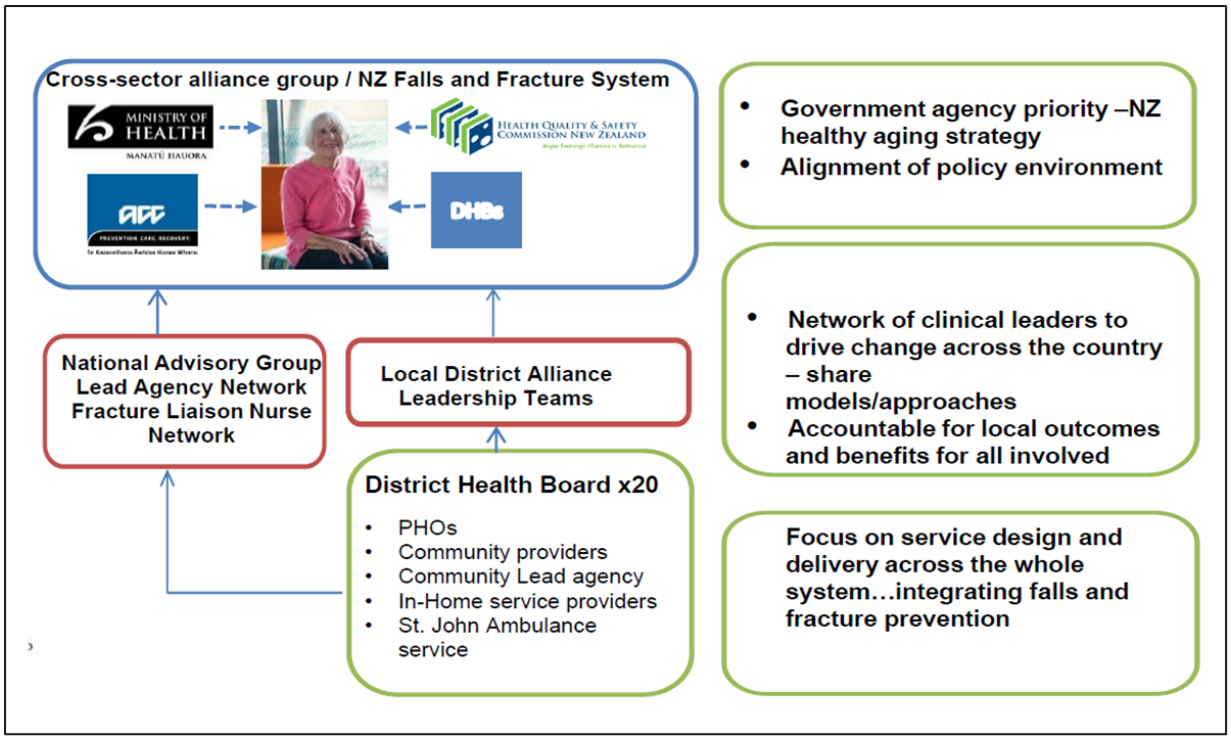



Figure 7- *New Zealand Falls and Fracture Prevention Programme's components* (Ministry of Health, 2016)

**Central Government organisations:** Three key central government organisations have participated in this programme with clearly defined responsibilities. I now introduce each of these central organisations, along with their particular focus and contribution to the programme.

**Ministry of health (MoH):** In NZ's healthcare system, the MoH takes on a leadership role and oversees the management and development of the system. The Ministry offers guidance to the Minister of Health and the government at large regarding health issues and services throughout the country. Additionally, the Ministry directly purchases a range of national health and disability services such as mental health services, public health services, and ambulance services (Ministry of Health, 2013b). Moreover, the Ministry is responsible for addressing government priorities and ensuring the health system is running efficiently from a financial standpoint. This includes providing funding and monitoring performance within the health system and supporting the planning and accountability functions of the District Health Boards (DHBs).

As part of its mandate, the Ministry of Health has been actively involved in the Whole System-Falls Prevention Programme, which aims to reduce the incidence of falls among older adults in NZ.

**Accident Compensation Corporation (ACC):** The ACC is a NZ Government agency responsible for administering the country's no-fault accident compensation scheme. In addition to providing support

and rehabilitation services for individuals who have suffered accidents or injuries, ACC also plays a key role in the Whole System-Falls Prevention Programme.

As a major stakeholder in the programme, ACC works closely with other government agencies, health providers, and community groups to promote falls prevention strategies and initiatives. According to ACC's website, "The Whole System-Falls Prevention Programme is a collaborative effort involving ACC, the Ministry of Health, district health boards, and other stakeholders to reduce the incidence and impact of falls among older adults in NZ" (ACC, n.d.). ACC's specific responsibilities in the programme include providing funding for falls prevention initiatives, promoting best practices in falls prevention, and working with health providers to integrate falls prevention into the care of older adults. ACC also plays a role in monitoring and evaluating falls prevention initiatives to ensure their effectiveness.

**Health Quality & Safety Commission:** The Health Quality & Safety Commission (HQSC) is a NZ Government agency responsible for promoting quality and safety in the country's health and disability services. As part of its mandate, HQSC has been actively involved in the Whole System-Falls Prevention Programme, which aims to reduce the incidence of falls among older adults in NZ. HQSC's specific responsibilities in the programme include providing guidance and support to health providers in the implementation of falls prevention strategies, promoting best practices in falls prevention, and monitoring and evaluating falls prevention initiatives to ensure their effectiveness.

**Osteoporosis NZ**: Osteoporosis NZ (ONZ) is a national non-profit organisation dedicated to raising awareness about osteoporosis and improving bone health in NZ. As part of the Whole System-Falls Prevention Programme, Osteoporosis NZ is responsible for promoting falls prevention strategies and initiatives among older adults who are at higher risk of osteoporosis-related fractures.

According to their website, "Osteoporosis NZ is proud to be a partner in the Whole System-Falls Prevention Programme, which is committed to reducing the incidence and impact of falls among older adults in NZ" (Osteoporosis New Zealand, n.d.).

The organisation's specific responsibilities in the programme include promoting education and awareness around the importance of bone health and falls prevention, providing resources and support for healthcare providers and community organisations, and advocating for policy changes to support falls prevention initiatives. Osteoporosis NZ also works to raise awareness about the link between falls and osteoporosis and the importance of identifying and managing osteoporosis as a falls prevention strategy.

### Local government and non-government organisations:

**DHBs: DHBs** are geographically defined entities that vary in size, demographics, and local health needs. Each DHB is governed by a board consisting of seven elected members and up to four members appointed by the Minister of Health, and is led by a chief executive (Gauld, 2006). The government provides funding to each DHB based on the population they serve, and they are responsible for planning, purchasing, and providing health services to their local populations (Ministry of Health,

2000a). This includes a broad range of services from primary health care and disability services to secondary health care provided in hospitals.

DHBs are accountable both to the government and their local populations, which can create tension as they must address both national and local health priorities identified in the NZ Health Strategy (Ministry of Health, 2000a). Each DHB has a Planning and Funding team responsible for planning and funding health services in their region and managing relationships with contracted health service providers.

**Primary Health Organisations:**

PHOs are non-government organisations that receive funding from DHBs to provide essential primary health care services to their enrolled population through general practices (Ministry of Health, 2013a). The PHOs are responsible for improving and maintaining the health of their entire enrolled population, ensuring that health services are available when needed (Ministry of Health, 2013a). The structure and size of PHOs vary, with the largest PHO covering more than 200 primary care providers and over 500,000 enrolled patients, while smaller PHOs may only cover a few primary care providers and fewer than 50,000 patients. PHOs play a key role in whole-system FFPP initiatives by facilitating access to community-based strength and balance programmes and ensuring appropriate referrals to other healthcare providers. They can also support the development and implementation of falls prevention policies and protocols in general practice settings.

**St. John:** St. John is a charitable organisation in NZ that provides ambulance services and emergency care to the public. St. John plays a crucial role in the falls prevention programme by providing immediate medical assistance to people who have fallen and suffered injuries. They are often the first point of contact for patients who require medical attention following a fall. St John ambulance staff are working with the health sector to develop falls prevention referral pathways across NZ. Ambulance officers carry out a basic falls risk assessment and can arrange the most appropriate support such as community group strength and balance classes, in-home strength and balance exercises, or onward referrals to other services.

**Community S&B service providers**: There have been some community lead agencies that are participating in delivering community group exercise programmes. There are two main community providers involved in this programme: AGE Concern and Harbor sport. They are hiring community S&B coordinators, and accrediting available community exercise classes, and monitoring their performance, and setting up group classes where there are gaps. A noteworthy point is that a wide range of organisations are involved in delivering group exercise programmes, including sports clubs, churches, and non-governmental organisations (NGOs).

**In-Home S&B service providers**: Several private local physiotherapy organisations are involved in the whole-system FFPP, mostly serving specific localities. Examples include TBI Health in Auckland and Waitematā district that offers a range of services, including physiotherapy assessment and treatment, In-Home S&B training, and education programmes.

## 3.3 How the whole-system FFPP meets the criteria for this research

After the description of the FFPP in NZ, I explain how the NZ whole-system FFPP aligns with the criteria I selected in Chapter two, which encompasses two sets of criteria: those related to integrated care programmes and those related to inter-organisational collaboration.

Criteria for selecting an integrated care programme:

- The health issue: multifactorial and reaching outcomes required multi-component programmes
- Target population: include all older population
- Programme design and components: include prevention to rehabilitation services
- Patient-centred: including risk assessment and care plan
- Sustainability: Is the programme designed to be sustainable over the long term, and are there plans in place to ensure continued collaboration between organisations?

According to the integrated care programme criteria, the whole-system FFPP meets the criteria to be known as an integrated care programme. The programme addresses a multifactorial health issue as falls are a combination of intrinsic and extrinsic factors contributing to their occurrence. Intrinsic factors include age-related changes in balance and gait, chronic health conditions such as arthritis and Parkinson's disease, and medication use. Extrinsic factors include environmental hazards such as uneven or slippery surfaces, poor lighting, and inadequate footwear (Marrero et al., 2019). Secondly, this programme requires a multi-component approach to achieve its desired outcomes to reduce incidence of falls or serious falls. Thirdly, the target population of the programme includes all older adults aged 65 years and over, which aligns with the criteria of being population specific. The programme's design includes a range of services and components, from prevention to rehabilitation services such as exercise programmes to improve physical balance to early discharge from hospital and rehabilitation at home. Finally, the programme is also patient-centred, with a focus on individual risk assessment and care plans tailored to the needs of each person.

How the FFPP is suitable for studying and answering questions about inter-organisational collaboration

In the previous chapter, to facilitate answering the research questions, I identified some criteria for the selection of a programme with specific inter-organisation collaboration:

- Types of inter-organisational collaboration: Strategic alliance, joint ventures, consortia, or networks (the programme has specific types of inter-organisational collaboration).
- Governance structure: Does the programme have a governance structure in place at both the national and local level to ensure effective collaboration and decision making?
- Scope of the programme: Is the programme national or local in scope, and how does this affect the collaboration required between different organisations?
- Ownership/Management: include different types of organisations based on their ownership such as government-run organisations, privately-owned organisations, community-based organisations, or non-governmental organisations (NGOs).

- Level of care: include organisations with different levels of care such as community, primary and secondary care organisations.

The FFPP programme meets the required criteria for inter-organisational collaboration based on the following aspects. Firstly, it encompasses an alliance-type collaboration at both national and local levels, fostering cooperation among various organisations. Secondly, it operates within a network system with governance structures at the national and local levels. This network includes diverse participants from different types of organisations, including public, private, NGOs, and community, primary, and secondary care organisations.

Following the rationale for selecting the FFPP programme for this study, I provide an overview of the health systems in NZ and the contexts in which this programme is being implemented.

## 3.4 Overview of NZ Health system

To provide a comprehensive understanding of the FFPP programme within NZ, it is necessary to first delve into the broader context of the NZ health system. This helps establish a foundation for comprehending how the integrated care programme is planned, implemented, and monitored. The healthcare system in NZ is characterised by a predominantly publicly funded, universal coverage model, with a wide range of services provided by both publicly and privately owned organisations, as well as non-governmental entities such as voluntary or third sector not-for-profit organisations (Cumming, 2022). The Ministry of Health (MoH) oversees the health system and is the lead advisor to the Minister of Health. The Minister of Health has general responsibility for the health and disability system, and it is the main advisory body to the government on policy issues (Health and Disability System Review, 2019) Other government agencies also contribute to health-related activities, including the Ministry of Social Development (through the provision of some benefits), the Ministry of Māori Development, the Ministry of Pacific Island Affairs, the Office for Disability Issues and the Accident Compensation Corporation (ACC) (Cumming et al., 2014).

Prior to July 1, 2022, the responsibility for planning and funding healthcare and certain disability services in specific geographical areas in NZ was assigned to 20 district health boards (DHBs) that were governed by boards of elected and appointed members. The MoH funded and managed the performance of the DHBs which in turn were responsible for owning and operating multiple hospital and community services, such as mental health services and district nursing. DHBs also contracted privately owned organisations to provide various primary health care (PHC) and community services, including disability support, health promotion, home care, and residential rest home care. Primary health organisations (PHOs) coordinated the PHC services and received capitation funding for their enrolled populations. Patients could choose any privately owned general practice (GP) of their preference, and the GP then decided which PHO to join (Health and Disability System Review, 2019).

In NZ, the majority of healthcare funding is derived from government sources, constituting 83.2% in 2010. Among these sources, 8.4% originates from the ACC, while the vast majority is obtained through general taxation. Private out-of-pocket payments make up 16.8% of expenditure and remaining funding comes from ACC and private health insurance (Cumming et al., 2014).

Publicly owned hospitals provide most secondary and tertiary medical care, while the small private hospital sector specialises mainly in elective surgery and long-term care. Independent medical, nursing and allied practitioners provide most primary health care (ambulatory) services. A key player in health services delivery is the 'third sector', which refers to non-profit, non-governmental organisations (NGOs), a sector which has expanded rapidly since the mid-1980s (Health and Disability System Review, 2019).

## 3.5 NZ health system reforms and integration

The NZ health system has often been criticized for its fragmented and poorly coordinated services, leading to challenges for service users. Fragmentation occurs when service users receive care from numerous professionals working across various provider organisations, leading to a lack of coordination and poor information sharing among these professionals and organisations. The issue of fragmented health service delivery in NZ can be traced back to the mid-to-late 1800s. During this time, the early governments adopted a combination of central and local government support, voluntary efforts, and private financing to meet the healthcare needs of the expanding NZ population. This approach resulted in a mixture of public, private for-profit, and private not-for-profit provision, with numerous independent providers and organisations involved in delivering healthcare services. The intention behind this diverse system was to ensure adequate service delivery to the growing population. To address this issue, NZ's health system has undergone significant changes over time. The first significant reform was initiated through the implementation of the Social Security Act in 1938 (McGuigan, 1975). This act aimed to establish a unified national health service and provide universal free care for various health services. As a result, free public hospital and maternity care were successfully introduced starting in the 1940s. However, when it came to general practitioner services, the government could only secure partial financing from the medical profession, leading to the continued requirement for service users to pay fees to access such care, which persists to the present day (Cumming, 2011). Before the 1980s, policymakers in NZ made numerous attempts to reform the country's healthcare system, with the aim of achieving greater integration of care. However, it was not until the 1980s that significant reforms started to effectively integrate essential functions and create a more favourable environment for achieving integrated care. Cumming (2011) examined the health system reforms from 1980 to 2020, which were implemented with the explicit goal of promoting increased integration and collaboration among various essential components of the healthcare system.

### 3.5.1 Area Health Boards in the 1980s: Integrating planning and funding for public health and hospital services

In the 1980s, the first significant wave of reforms aimed to integrate planning and funding functions, as well as public health and secondary care service provision at a district level. This involved the establishment of 14 Area Health Boards, each responsible for planning all health services, including primary care, within their respective districts. Although these reforms laid the foundation for a population health approach that continues today, the separation of funding and provision for primary care hindered the development of the primary care role and impeded efforts to integrate primary and secondary care services. Unfortunately, the potential benefits of integrated planning and service delivery by Area Health

Boards were not fully realized before subsequent structural changes were introduced in the health sector.

### 3.5.2 Purchaser-Provider split in the 1990s: Integration of planning and funding along with competition and integrated primary care

In the 1990s, NZ implemented reforms aimed at improving the efficiency and accessibility of its healthcare system. These reforms focused on integrating planning and funding responsibilities at the regional level, leading to the establishment of four Regional Health Authorities. The goal was to promote collaboration, allocate resources effectively, and prioritize prevention and primary care. Despite these efforts, the reforms also resulted in fragmentation and reduced incentives for collaboration among healthcare providers (Upton, 1991).

The Health Funding Authority, formed by amalgamating the Regional Health Authorities, emphasized service integration and primary care. They initiated pilot projects to test integrated care initiatives and encouraged collaboration, evidence-based practices, and aligned incentives. While some tools (such as clinical pathways and guidelines, improved information systems, shared care, etc) demonstrated improved cooperation among providers and the use of integration tools, the full impact on health outcomes and cost-effectiveness was not extensively measured (Russell et al., 2001).

Additionally, plans to develop multi-disciplinary primary care teams, known as Primary Health Service Organisations, were disrupted by further restructuring. Overall, the 1990s marked a period of significant reform in NZ's healthcare system, but challenges and subsequent changes hindered the full implementation of integrated care initiatives.

### 3.5.3 District Health Boards and Primary Health Organisations in the 2000s: Local level initiatives

In 2000, the NZ Public Health and Disability Act established District Health Boards (DHBs) to integrate the funding and provision of hospital services. The DHBs were also responsible for planning and contracting community services and, later on, primary care. However, certain services such as well-child, telephone helpline, mobile surgical, and sexual health services were transferred to the Ministry of Health to streamline service provision under a single national contract. Public health services and disability support services for those under 65 years old were also moved to the Ministry of Health to protect their funding and prevent further medicalization (Social Services Committee, 2008). Additionally, primary maternity care funding was never delegated to the DHBs and remained separate.

Another significant change in this decade was introducing the Primary Health Care Strategy (Ministry of Health, 2000), with a key emphasis on enhancing population health, addressing health disparities, and fostering better care coordination with establishing 80 Primary Health Organisations.

During the 2000s, DHBs prioritised achieving more integrated care, particularly for individuals with chronic illnesses. Local initiatives were implemented to address coordination issues within primary care and between primary and secondary services. These initiatives focused on identifying high hospital

service users, strengthening their connections with primary care, improving information systems, enhancing discharge planning, and developing care coordination tools. Evaluations revealed significant improvements in diabetes care outcomes, reductions in blood pressure and cholesterol levels, but did not show statistically significant changes in smoking rates or the use of certain medications.

Despite the numerous changes outlined earlier, there were persistent concerns by the late 2000s that little had transformed in the actual delivery of services to service users, particularly in the realm of primary care, in particular, it has been argued that NZ has not worked hard enough to improve coordination of care.

### 3.5.4 Fostering care coordination from 2008 to 2020

Cumming et al. (2021) provided an updated perspective on the progress of integrated care initiatives between 2008 and 2020, focusing on the advancements made in integration and care coordination. First, in 2007, the "Better, Sooner, More Convenient Health Care" (BSMC) set the tone for healthcare policy in NZ from 2008 to 2017. The manifesto aimed to develop person-centred care delivered closer to home and promote integration between health and social development services. Key initiatives included expanding care in general practices, establishing Integrated Family Health Centres (IFHCs) with multidisciplinary teams, and shifting some hospital care to community settings.

Operationalization of these policies began in 2009, with the implementation of nine business cases covering 60% of the population. These cases focused on closer collaboration between DHBs and PHOs, the establishment of IFHCs, and the promotion of nurse-led services and multidisciplinary teams. The reduction of PHOs became policy in 2010, leading to a significant decrease in their numbers. In 2013, each DHB was required to establish an Alliance, consisting of local PHOs and other healthcare providers, to make recommendations for system improvements. These alliances include macro-level networks in Auckland and Canterbury, involving multiple organisations in the coordination of services. At the meso-level, PHOs have formed alliances, such as in the Midlands region and the National Māori Primary Health Organisation Coalition, to improve coordination and address specific community needs. Some districts have also witnessed the amalgamation of PHOs to ensure better coordination and planning (Cumming, 2011; Ryall, 2009). Alliances also engaged in various activities, including developing service-level alliance teams and joint plans to improve System Level Measures (SLMs) within each district. The SLM framework aimed to stimulate integrated care initiatives and collaboration among providers. Tenbensel et al. (2021) identified conditions at the local level that play a crucial role in shaping successful implementation of the SLMs. Their findings reinforce the idea that integrated approaches to health system improvement at the local level necessitate collaborative, trust-based approaches, with an emphasis on iterative learning and the willingness to share data between organisations.

Additionally, the government has introduced policies and initiatives, also known as 'whānau ora,' to promote coordination between healthcare and social services sectors. These initiatives aim to foster collaboration among various sectors such as Māori development, education, justice, and housing, with the goal of holistic whānau (family) development. The focus is on establishing cohesive whānau ora

contracts and encouraging Māori providers to work together in a coordinated manner(Cumming, 2011; Whanau ora Taskforce, 2009).

Furthermore, at the district level during this timeframe, Canterbury district's integrated care model has gained recognition for its achievements, as evidenced in various publications (Charles, 2017; N. Mays & Smith, 2013; Timmins & Ham, 2013). For instance, the UK King's Fund reports shed light on specific achievements and lessons learned in Canterbury's integrated care journey. Timmins and Ham (2013) found that Canterbury's success was attributed to strong leadership, effective collaboration among healthcare providers, and a focus on patient-centred care. Charles (2017) highlighted key takeaways include the importance of system working, staff engagement, co-design, and continuous quality improvement. Technology, local investment, and innovation have played crucial roles, along with clear strategic vision, senior leadership continuity, and alliance contracting.

### 3.5.5 The most recent health system reform in NZ

Gaining an understanding of the most recent healthcare reform is valuable, particularly in the context of the FFPP programme, which has been running and implementing for several years leading up to the current reform and has continued amidst these changes. As mentioned in the previous section, DHBs were established in 2000 and were responsible for planning and funding most health and disability services for their district, including hospital and some community-based services for more than two decades. An evaluation of the 2001 health reforms found that the NZPHDA model received overall support, with its local focus, ability to involve the community in decision making, and local responsiveness identified as key strengths. However, weaknesses were also identified, including perceived dual accountabilities to local communities and central government, and the large number of DHBs covering the country's small population (Mays et al., 2007). Concerns were also raised regarding too much control and "interference" in boards' decision making by the Ministry and Minister of Health, and the failure to devolve public health funding and funding for disability support services for individuals under 65 to DHBs (Mays et al., 2007).

According to the researchers' findings, a significant number of informants expressed the view that the DHBs lacked adequate autonomy and expressed a desire for increased decentralization of decision making. However, individuals operating at the central government level held the belief that centralized decision making was essential to maintain national uniformity and ensure accountability for the funding provided by the central government (Ashton et al., 2017). Similar issues arose in relation to NZ's PHOs, including unclear roles and expectations regarding whether PHOs were purchasers or providers of primary healthcare services and the number of PHOs given the small size of the population (Barnett et al., 2009).

Ongoing concerns over the performance of the health and disability system during the 2000s resulted in a major review of the system between 2018 and 2020 (Health and Disability System Review, 2019). Following that review, the Pae Ora (Healthy Futures) Act (2022) was introduced on 1 July 2022, which reformed the structure of the health system and set new expectations and health principles for the health entities. The reforms aim to provide consistent, high-quality healthcare for everyone, with an

emphasis on primary healthcare, fairer access, and doing away with duplication and unnecessary bureaucracy. The main reform established a new organisation, Health NZ (HNZ), which manages the NZ health system, while all 20 DHBs have been disestablished. The role of PHOs in the new health system is still unclear but may be considered as management service organisations serving new localities (Cumming, 2022). The system aims to be person and whānau-centred, equitable, and sustainable, with a focus on empowering everyone to manage their own health and wellbeing.

## 3.6 NZ health strategies for older people

NZ's population is getting older. The median age of NZers increased from 35.9 years in 2006, to 37.4 years in 2018. Older adults make up an increasingly large proportion of the NZ population:

- 2006: 495,600 people aged 65+ years (12.3% of the population)
- 2013: 607,000 people aged 65+ years (14.3% of the population)
- 2018: 715,200 people aged 65+ years (15.2% of the population).

It is projected that by 2063, almost a quarter of New Zealanders (26.7%) will be above 65 years of age (Statistics New Zealand, n.d., 2018). In this regard, the NZ Ministry of Health has introduced and implemented many strategies directed at supporting the needs of NZ's aging population since 2000.

The NZ Disability Strategy (New Zealand Disability Strategy, 2016) and the Positive Ageing Strategy 2001 (Office for Senior Citizens, 2014) provide overarching strategies. These strategies are complemented by population-specific strategies such as the Health of Older people strategy 2002 and the Healthy Aging Strategy (HAS) 2016 (Vafeas et al., 2016). Additionally, there are several specific-disease strategies and plans for dementia and palliative care services. These strategies have been created with a focus on older adults and those with long-term conditions, highlighting the need for closer and more comprehensive health and social services for older adults and their families and emphasising the importance of health promotion, disease and injury prevention and timely, equitable access to health and disability support services (Breton et al., 2017). The HAS identified four priority areas:

1. Maximizing health and functional independence: This priority area focused on promoting healthy lifestyles and preventing chronic health conditions that could limit older adults' ability to function independently.
2. Supporting resilience, social connection, and participation: This priority area recognised the importance of social connections and participation in maintaining mental health and well-being for older adults. The strategy aimed to promote opportunities for older adults to participate in social and community activities.
3. Ensuring access to appropriate housing and support: This priority area aimed to ensure that older adults had access to safe, affordable, and appropriate housing options that supported their health and well-being. It also recognised the importance of providing support for older adults who wished to age in place.

4. Enabling an age-friendly society: This priority area recognised the importance of creating an age-friendly society that supports and values older adults. It aimed to promote positive attitudes towards aging and to reduce age-related discrimination (Vafeas et al., 2016).

To achieve these priority areas, the strategy outlined several specific actions, including promoting physical activity and age-friendly communities, providing health assessments and social support programmes, and improving access to affordable housing. The strategy also recognised the importance of collaboration between government agencies, non-governmental organisations, and communities to achieve its goals. The HAS recommended a population-specific approach to provide holistic and integrated care for older New Zealanders, rather than focusing on specific services (Breton et al., 2017; TAS, 2019; Vafeas et al., 2016).

The Falls and Fracture Prevention Programme addresses the first area by targeting falls, which can lead to loss of function and independence in older adults. By reducing the incidence of falls and fractures, the programme helps older adults to maintain their physical health and function for longer. Additionally, the programme promotes social participation by engaging older adults in group exercise programmes and educating the public about falls prevention. Overall, the Falls and Fracture Prevention Programme is an important component of NZ's Healthy Aging Strategy and contributes to the goal of supporting healthy aging and improving the quality of life for older adults.

## 3.7 Implications for the methodology

In this chapter, I provided an overview of the NZ health system in terms of integrated care and highlighted one of the country's most comprehensive programmes aimed at addressing the primary cause of injuries in older individuals. To investigate the implementation of the whole-system FFPP across various districts and to determine the importance of inter-organisational and organisational factors in its implementation, research must engage with programme managers and coordinators from different partner organisations in various districts, including DHBs, PHOs, and community providers. The objective is to identify areas of variation and similarity within and across districts and determine which variations and similarities, in terms of inter-organisational and organisational factors and implementation characteristics, can have a significant impact on achieving desired outcomes. The FFPP programme offers an excellent opportunity to examine inter-organisational collaboration and cooperation involving various types of organisations, including public, private, and NGOs, within the context of the NZ health system.

# Chapter Four: Research methodology and Methods

## 4.1 Overview of this chapter

The aim of this chapter is to outline the research strategy utilised in this study, which aimed to investigate the implementation of an integrated care programme in NZ and the role of organisational context and inter-organisational relationships in this process. To achieve this goal, research questions were formulated to capture similarities and variations in organisational and inter-organisational factors, implementation, and outcomes of the programme. These research questions and objectives guided the research strategy and methodology employed in this study.

The chapter commences with a discussion of the ontological and epistemological assumptions underlying the research design and how Critical Realism (CR) informed the study. Subsequently, the case study method and multiple-case study design are described, along with the reasons for selecting qualitative research and associated methods. As described in Chapter Three, the Falls and Fracture Prevention Programme (FFPP) was selected as the focus for study in this thesis because it met criteria relating to integrated care programmes and inter-organisational collaboration (as identified in Chapter Two). This chapter outlines the selection of FFPP case study districts, followed by a detailed explanation of participant recruitment, data collection, data management, and data analysis procedures.

### 4.2 Ontological and epistemological assumptions

In the simplest way, ontology is defined as “study of being” and epistemology as the “study of knowledge” or, in other words, what we can know and how we can know (Fryer, 2020, p.6). There are many ontological and epistemological assumptions with differing levels of access to reality and differing explanations for observed phenomena. The way we look at and understand the reality around us shapes our research processes, from creating questions and designing appropriate methods to answering those questions.

Over the past few decades, CR has become a popular philosophical approach for social scientific research. CR seeks to provide a middle ground between positivism and interpretivism by acknowledging the limitations of each and offering a more nuanced view of reality (Fletcher, 2017).

One of the most important principles of CR is that we cannot reduce ontology (what is real and the nature of reality) to epistemology or our knowledge and perception of reality (Fletcher, 2017). The entirety of reality is beyond the scope of human knowledge, which can only capture a fraction of it and is thus ‘incomplete and fallible’ (Danermark et al., 2002). In this regard, CR diverges from both positivism and constructivism. Positivism is a perspective that emphasises the importance of empirical observation, measurement, and the use of the scientific method to understand and explain the social world (Clark et al., 2021). Positivist researchers believe that objective knowledge can be attained through the use of quantitative research methods that involve hypothesis testing and statistical analysis. In contrast, constructivism is a perspective that recognises the subjective nature of reality and emphasises the importance of context, interpretation, and understanding the meanings that people attach to their experiences (Crotty, 1998).

Bhaskar (1998) criticised positivism for committing the "epistemic fallacy" (p. 27), which reduces ontology to epistemology and confines "reality" to what can be observed, recorded, and thought through careful observation. The central point of disagreement with constructivist perspectives is the notion that "all knowledge, and therefore all meaningful reality," is constructed through human interactions with the world and developed and transmitted within a social context(Crotty, 1998). Both approaches limit reality to human knowledge, whether that knowledge serves as a "lens or container for reality"(Fletcher, 2017).

According to critical realists, the world exists independently of our perceptions and experiences of it, but our understanding of it is necessarily partial and provisional (Bhaskar, 1998). However, we can use conceptual tools available to us at any given time in order to construct an understanding of this external reality (Danermark et al., 2002). In this regard, research tools allow us to come closer to reality. Critical realism asserts that there are underlying structures and mechanisms that generate the events and phenomena we observe, but these structures and mechanisms are not directly observable and can only be inferred through careful analysis and theorizing (M. S. Archer, 2003).

Another ontological aspect of CR is the stratification of reality into three distinct layers. The first level is ‘empirical’, which pertains to events as we experience them. While these events can be measured empirically, they are always filtered through the lens of human experience and interpretation. This is the transitive level of reality where social ideas, decisions, meanings, and actions take place, and where causal relationships can be identified. The middle level is the ‘actual’, where events occur independently of human experience, observation, or interpretation (Danermark et al., 2002). Finally, the ‘real’ domain exists where causal structures or "causal mechanisms" reside. These mechanisms have the inherent ability to generate specific events in the empirical level, emphasizing their autonomy from the events they produce(Elder-Vass, 2006).

Although Critical Realism acknowledges the partiality of any analysis of causality, it favours the language of causality to describe the world. Consequently, it contends that it can offer a tentative explanation of how events are linked to previous events, what drives processes, and the mechanisms underlying human behaviour (Gerrits & Verweij, 2015). In doing so, critical realist research emphasises discovering and explaining the mechanisms underpinning the occurrence of social events. To comprehend these mechanisms, it is necessary to acknowledge that all social structures possess causal powers and liabilities (i.e., causal relationships are not always uniform or constant, and their effects can be influenced by contextual factors). However, the social world exists in an open system, meaning that mechanisms do not operate in a constant and predictable environment (Sayer, 1992). In other words, the same causal power can produce different outcomes, according to the conditions and sometimes, different causal mechanisms can produce the same result (Sayer, 1992). According to Bhaskar’s premise of open systems, the events, processes or behaviours are not caused by a supposedly fixed set of variables but rather by a conjunction of variables at a certain point in time (Bhaskar, 1998), so this process can be explained provisionally but not predicted (Gerrits & Verweij, 2015).

Another basic principle of CR is the concept of emergence. Emergence refers to the phenomenon where complex and novel features of a system arise from the interactions between its components, rather than being reducible to those components themselves. Critical realists argue that social phenomena are often emergent, meaning that they cannot be fully explained by simply breaking them down into individual actions or events. Instead, they require an understanding of the underlying generative mechanisms that produce them. Generative mechanisms are the underlying structures, processes, or forces that generate the outcomes we observe in the social world. They are the 'cause of the causes' and can only be inferred through observation of regularities in social phenomena. In this way, critical realism recognises the importance of both structure and agency in shaping the social world but insists that social phenomena are not simply the result of individual action but are instead shaped by deeper generative mechanisms (Sayer, 1992).

One approach that particularly emphasizes the significance of context in generating specific mechanisms and outcomes is Realist Evaluation. Realist evaluation, a methodological approach pioneered by Pawson and Tilley in the 1990s, seeks to understand how and why interventions work in specific contexts (Pawson & Tilley, 1997). Realist evaluation and critical realism both emerged during the paradigmatic debates of the 1980s and 1990s, challenging conventional notions of scientific inquiry and research practices. While realist evaluation focuses on understanding intervention outcomes by uncovering underlying mechanisms and contextual factors, critical realism extends beyond scientific realism by incorporating social structures and power dynamics into its framework. Both approaches share a rejection of positivist assumptions regarding the unity of methodology across natural and social sciences, instead advocating for a nuanced understanding of the scientific study of both natural and social objects. However, they differ in their treatment of natural and social objects, with critical realism asserting qualitative differences between the two while maintaining that both can be studied scientifically (Mukumbang et al., 2023).

### 4.2.1 Complexity and Critical Realism

According to Capra and Luisi (2014), ontologies in the realm of complexity science challenge the classical Newtonian worldview, which posits that the universe consists of independently existing, discrete entities that interact with one another according to mathematical laws(Capra & Luisi, 2012). Instead, complexity science suggests that reality is characterised by wholes rather than discrete entities and events, non-linear causality instead of linear causality, uncertainty about the future instead of total predictability, and partial truths rather than final truths (Morcol, 2001). One of the fundamental principles of complexity is the recognition that the world is made up of open systems that are nested within and interconnected with other open systems (Byrne, 2005). Complexity theory's second tenet is complex causality, which refers to the interplay of generative mechanisms in particular contexts that lead to ‘unidirectional outcomes’, meaning that the outcomes are influenced by time-asymmetry (Byrne, 2005). Complexity theory also challenges linear causality but focuses on the interconnectedness and interdependence of systems. It suggests that causality is not only context-dependent but also non-linear and often exhibits feedback loops, where a change in one part of the system can have far-reaching effects throughout the system. Complexity theory highlights the importance of understanding the

complex interactions and dynamics of the system, rather than just the individual components (Capra & Luisi, 2012).

Critical Realism shares several commonalities with the ontological claims of complexity theory. Both approaches emphasise the importance of contingency, or how particular structures and contexts activate specific mechanisms, which can change over time and space. This emphasis on contingency challenges the notion of repeating patterns over time. Moreover, both complexity theory and Critical Realism reject reductionism in their understanding of social reality (Gerrits & Verweij, 2015).

### 4.2.2 Suitability of CR with complexity lens for this research

The current study aligns well with the critical realism (CR) paradigm. Firstly, CR shares similarities with complexity theory as it recognises that social events occur in open systems where the interactions between systems and their environment can shape outcomes. Secondly, CR acknowledges the limitations of human observation, recognizing that we cannot observe all the structures and mechanisms that influence events. Thirdly, CR recognises that the whole system may differ from the sum of its components, thus studying isolated components does not provide a comprehensive understanding of the system. In the context of implementing an integrated care programme within a health system, numerous healthcare and non-healthcare organisations, professionals, and formal and informal relationships exist at different levels. While it may not be possible to observe all the components, structures, and mechanisms that influence the implementation of an integrated care programme, a causal explanation of the mechanisms and contexts that can result in a successful programme can be produced within the CR framework. Moreover, complexity science provides a framework for understanding the dynamics of complex systems acknowledging the importance of understanding the complex interactions and dynamics of the system as a whole, rather than just the individual components. Hence, in my thesis, I have chosen to adopt the Critical Realism ontology and integrate relevant concepts from complexity theory.

## 4.3 Connection between theory and methodology

The parameters of research design are determined by theoretical assumptions, implying that theory and research design are inseparable (Danermark et al., 2002). In my research, Critical Realism prompts ontological questions such as “what is a good outcome for the implementation of an integrated care programme” and “which district is doing better in implementing integrated care”. To answer these questions, first, I need to ask, ‘what qualities must exist for better implementation of integrated care programmes?’ This can be translated to an exploration of the organisational contexts and underlying mechanisms responsible for implementing integrated care programmes across different districts. Second, I need to apply appropriate methods to capture variations and similarities in organisational characteristics and generative mechanisms that produce different outcomes. Choosing multiple case studies allows me to explore commonalities and differences within and between cases. Before I explain the case study methodology and the methods I employed in the current research, I describe the key steps of the CR framework to demonstrate how this philosophy guided my research.

### 4.3.1 Applying CR in integrated care research

The process of CR involves several key steps: description of the object of interest, analytical resolution, and then structural and causal analysis. The first phase of critical realist investigation is to describe the object of interest. This basic description is not the ultimate aim of critical realist research, but it helps provide a starting point for the researcher to make further abductive inferences. The objects under investigation in my research are the implementation of integrated care and how participants describe implementation processes. The question I tried to answer is “How do districts in NZ vary in terms of implementation and outcomes of an integrated care programme (falls prevention programme)?”. Identification of variations can be valuable for several reasons, first by recognizing the variations in implementation could be beneficial in identifying organisational factors and programme characteristics that may contribute to the successful implementation and better outcomes. This understanding allows for the development of an analytical approach to somehow measure the importance levels of factors in making a difference in the implementation and outcomes of the programme. Second, examining the differences in implementation and outcomes across districts can reveal valuable insights into best practices. It allows for the identification and dissemination of successful strategies and approaches that can be adopted by other districts.

Analytical resolution in CR refers to the level of detail or granularity in which a phenomenon is studied and understood. Therefore, I began with isolating the individual components of the research object and determining which components warrant further exploration. Researchers rely on identifying the patterns and themes that emerge from the analysis of data and on their own knowledge of the topic at hand. At this stage, I applied a deductive yet flexible coding process. I collated a list of codes from the Context and Capability of Integrated Care (CCIC) framework to identify organisational context and drivers. These codes were modified and supplemented with new codes during the process.

The essence of structural and causal analyses in CR is the exploration of relationships between different components of the research object and explaining the nature of the causal mechanisms responsible for the events we observe. For this, researchers need to conduct a causal analysis, which finally gets at the heart of “explaining why what happens actually does happen” (Danermark et al., 2002).

In the current research, there are countless relationships between the key components of the processes. To add to the complexity, these relationships are stratified, meaning that they occur at many levels of reality, ranging from the micro-level (e.g., relationships between programme providers), meso-level (relationships between involved organisations) to the macro-level (e.g., the relationships between national governing structures). It is impossible to discuss comprehensively the innumerable relationships in the implementation of integrated care. Therefore, I have decided to focus on exploring just those key contextual factors and relationships between components that I consider to have resulted in the outcomes. I undertook a realist approach to identify the contextual factors by analysing each case site separately as a ‘whole study’ and then analysing similar and/or opposing evidence across the three included cases. By incorporating the principles of complexity theory, a multidimensional analytical

approach has been utilised to recognise the significance of contextual factors in the successful implementation of integrated care programmes, rather than solely relying on cross-case comparisons to establish potential causal relationships.

### 4.4 Research methodology

Case study research allows the exploration and understanding of complex issues. It is a robust research strategy, particularly when a holistic and exhaustive investigation is required. Within the literature, case study research has been defined as an investigation and analysis of single or multiple cases, aimed at capturing the complexity of the phenomenon within its real-life context when there is a lack of clarity between phenomena and their context (Stake, 1995; Yin, 1984).

Case study research is inherently problem-driven and has been designed specifically to address a research question. In other words, a case study design is formed by the overall study purpose, depending on whether one is trying to describe a case (descriptive), explore a case (exploratory), or compare between cases (explanatory) (Yin, 2003). Descriptive case studies seek to describe the natural phenomena or interventions that occur within the real-life context. Exploratory case studies aim to explore any phenomenon in the data which serves as a point of interest to the researcher and are often used in a research context that is not clearly specified. Explanatory case studies are designed to examine the data closely both at a surface and deep level in order to explain the phenomena, causal relationships and to develop theory. Explanatory case studies are employed when the phenomenon is too complex for either experimental studies or survey design.

Another way of classifying case studies is to categorise them as intrinsic, instrumental, or collective. Intrinsic case studies are used to understand the particulars of a single case, rather than what it represents or some abstract concept or generic phenomenon. Instrumental case studies provide insight on an issue or refine a theory other than understanding a particular situation or case itself. Collective case studies refer to case studies that provide general understanding by using a number of cases that are studied as multiple, nested cases, parallel, or in sequential order (Stake, 1995, 2010).

According to Yin, there are two types of case studies: single-case and multiple-case studies. Single-case studies are employed when a case is critical, unique, extreme, or representative in a specific context. Conversely, multiple-case studies involve investigating more than one case to examine variations within and between cases (Yin, 2003). The choice between a single or multiple case studies is based on the research question at hand. For this study, the research questions are designed to examine the similarities and variations in the organisational and inter-organisational contexts, characteristics of an integrated care programme, and their outcomes within and across cases. Focusing on a single case to evaluate its unique and extreme characteristics may help identify significant organisational features using a descriptive approach. However, it may not be adequate to investigate potential differences in a local organisational context and performance within and across cases.

Critical realism assumes that programmes work differently in various contexts, and by selecting multiple cases, it provides the opportunity to examine these similarities and differences within and between

cases. Multiple case study research is valuable not only for illustrating variations across cases but also for identifying situations where similarities among cases lead to lessons that can be applied to other cases. The selection of multiple cases with significant similarities and differences enables researchers to describe the nature of the objects in different contexts and obtain a more comprehensive understanding of how their powers are affected by various contexts (Danermark et al., 2002; Wahyuni, 2012).

**4.5 Method**

The current study employed qualitative research methods (semi-structured interviews and document analysis) to gather and analyse data on the implementation of an integrated care programme across three case study sites. Semi-structured interviews with key stakeholders involved in the implementation of the programme were the primary source of qualitative data for this study. Interviews as a research method allow researchers to obtain empirical data about the social world through dialogues with individuals (Wahyuni, 2012). Semi-structured interviews provide a balance between the direction given by researchers and the freedom for interviewees to express unanticipated themes and concepts during the conversation (Pope et al., 2000). Overall, qualitative methods are well-suited for studying inter-organisational collaboration due to their ability to capture the complexity, context, participant perspectives, flexibility, and in-depth exploration inherent in collaborative endeavours. Semi-structured interviews with participants were conducted between March 2021 to November 2021. Further information regarding the number of participants is provided.

I also obtained publicly available documents such as official reports, annual plans, and media articles related to the FFPP for the selected districts and stored them in the district file. Additionally, I requested sharable documents and reports from ACC and DHBs to obtain more information that could aid in covering organisational factors and implementation processes that were not extensively discussed in the interviews.

### 4.5.1 Selection of integrated care initiatives for research

In the NZ health system, various integrated care initiatives have been implemented at different system levels (national and local) with varying scopes (from disease-based to population-based interventions) and delivery systems (ranging from community to tertiary services).To facilitate addressing the research questions of this thesis (identifying variations and similarities between districts in terms of organisational factors, implementation characteristics and outcome and exploring potential relationships between those factors) and gain insight into the characteristics and outcomes of integrated care initiatives, a specific programme implemented across multiple health districts was selected. In accordance with the information provided in Chapter two, section 2.9, two sets of criteria were designated for the purpose of selecting an appropriate programme to aid in addressing the research questions:

Integrated care programme:

- The health issue

- Target population
- Programme design and components
- Patient-centred
- Sustainability

Inter-organisational collaboration:

- Types of inter-organisational collaboration
- Governance structure
- Scope of the programme
- Ownership/Management
- Level of care

As mentioned in detail in Chapter three, section 3.2, the NZ whole-system FFPP meets the criteria for an integrated care programme for older people. Specifically developed for older adults which addresses both intrinsic and extrinsic factors with applying multi-component approaches, it has been called a population-based approach, patient-centred. Furthermore, it involves multi-sectoral initiatives across various agencies including the Ministry of Health, Accident Compensation Corporation (ACC), Health Quality and Safety Commission (HQSC), and DHBs. Thirdly, there are governance structures in place at both national and district levels, such as the Cross-sector Alliance Group (CAG) and the ACC Implementation Governance Group (ACCIG) at the national level, and various Alliance and Working Group-level governance frameworks at the local level with a clear outcome orientation. The programme is financed jointly by DHBs and ACC, with a national scope and a focus on partnerships between organisations has developed communication platforms in each area. Finally, the national multi-sector arrangement was introduced in 2016 and is expected to continue for a number of years (however, with disestablishment of the DHBs and emerging new health organisations, it is unclear how this programme will be financed in the restructured health system).

### 4.5.2 Selection and recruitment of case study sites

Choosing the appropriate number of cases in a multiple case study poses a significant challenge. The decision is often based on pragmatic considerations including that a greater number of cases increases the reliability of research findings on inter-organisational characteristics and outcomes, but at the cost of more resources. To ensure a rich data collection and detailed understanding of how different health organisations within a district at community, primary and secondary levels are integrated, I selected three case study sites within available resource capacity. These districts were chosen according to two dimensions: the size of the district (only large districts with large senior populations were considered) and organisational structure (districts that demonstrate variation in the organisational structure of their FFPP). By focusing on large districts, this research aimed to explore inter-organisational collaboration in contexts where the challenges and complexities associated with managing integrated care initiatives are likely to be magnified. By examining districts with diverse organisational structures of their FFPP, this research sought to capture a broad range of approaches to integrated care implementation. Different organisational structures can present distinct advantages and challenges when it comes to

inter-organisational collaboration. This approach facilitates a deeper understanding of the factors that facilitate or hinder effective collaboration among healthcare organisations.

Large urban districts with large older populations were selected to maximise the number and diversity of organisations involved and hence the complexity of managing and maintaining inter-organisational integrity and continuity of care across services spanning the community and primary, secondary, and tertiary care. In addition, regarding research time and resources constraints and the possibility of covering a limited number of cases, having a variety across large urban and small rural cases would have limited the capacity to draw conclusions. Moreover, for this particular programme, where I could only cover a limited number of cases, having a variety across large urban and small rural cases would have limited my capacity to draw conclusions.

Cases were chosen from among large urban districts to showcase the variety in the organisational structure of their FFPP. This variation was expected to help answer the research questions in two ways. First, the type of organisational arrangement indicates how specific programmes are planned, organised, and implemented. By selecting districts with different types of organisational arrangements, more variations can be found in the implementation of the FFPP across those districts. Second, selecting districts with different organisational structures enables observation of how different organisations might be involved and contribute to the operation of the same programme within a district. This facilitates assessment of differences in those interactions within and across districts.

The three districts selected as the case study sites were Auckland and Waitematā, Counties Manukau, and Canterbury. A map of NZ with the district's boundaries can be found in Figure 8. Auckland and Waitematā are both large districts in the Auckland region, 11.2% of Auckland district population are above 65 years old, and this percentage for Waitematā is 12% of its population. These two districts had shared planning and funding for the FFPP programme, It is important to highlight that, at the outset of the research, these two districts were considered as a single case due to their shared steering groups and having the same community and In-home S&B programme. However, due to disparities in outcomes and certain contextual influences, they were subsequently studied individually in Chapter 9 through a comparative analysis. Canterbury, also a large district, has a high percentage of older people (16%) and employs a clinical network structure which involves a formal collective alliance of healthcare leaders, professionals, and providers from across the Canterbury health system. It is noteworthy to highlight that a significant portion of the population resides within the city of Christchurch. Counties Manukau (CM), another large district in the Auckland region with a high percentage of older people (12%), has the highest ethnic diversity in NZ. In this district, the FFPP is directed by a specific working group with a wide range of representatives from numerous organisations.

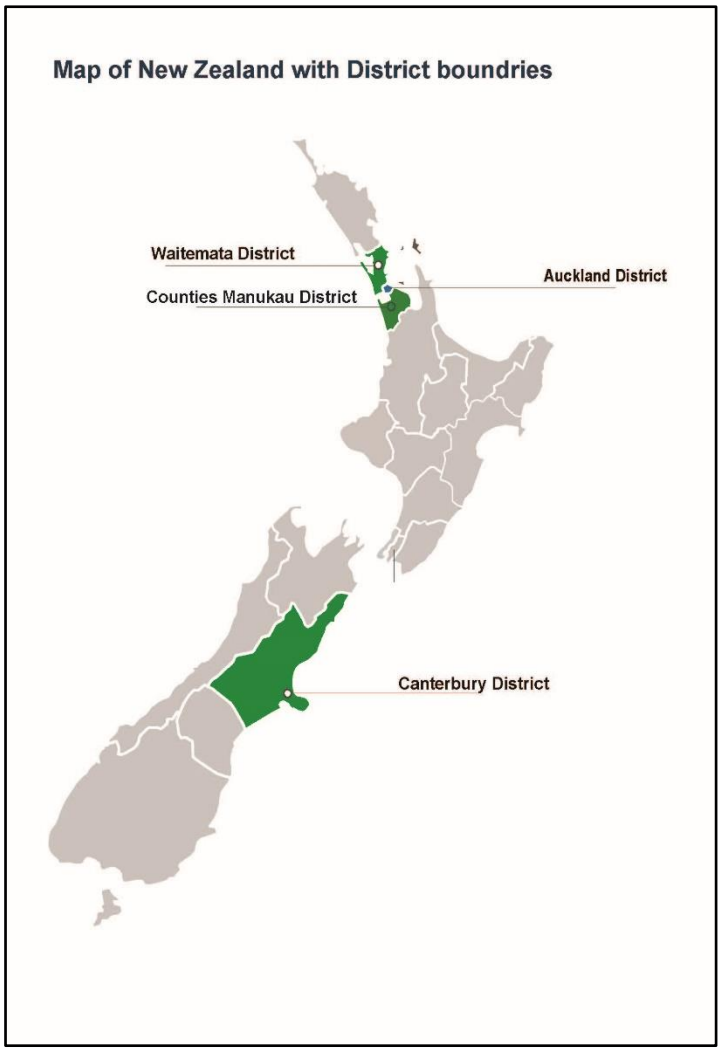



Figure 8- *Map of NZ with District Boundaries*

### 4.5.3 Identification and recruitment of participants within case study sites

Participants in this study were senior managers, middle managers, coordinators and working group members for the FFPP at the district level. The recruitment goals were to include 12–15 participants at each district and five from the national organisations (MoH, ACC and HQSC). Participants at the district level were recruited from various organisations that played a role in the development and implementation of the FFPP. These organisations included DHBs, ACC, PHOs, hospitals, lead community agencies, ambulance services, and others.

#### *4.5.3.1 Participant selection within central government organisations*

Participants were selected based on their expertise and familiarity with the FFPP, as well as their availability during the study period. A list of potential participants within the central government organisations (MoH, HQSC, and ACC) was prepared by searching on those organisations' websites

and also with consultation from experts in the field. Those who did not meet the inclusion criteria due to inadequate knowledge or experience of the FFPP, inability to provide comprehensive responses to interview questions, unavailability during the study period, or unwillingness to grant consent were excluded from the study.

#### *4.5.3.2 Participant selection within district organisations*

A list of potential participants in the selected districts was obtained by consulting with NZ experts in the field of falls and fracture prevention as well as using publicly available information. Additionally, a renowned researcher in the field facilitated the recruitment process by sending an introductory email to potential participants in the three districts. This approach aided in the successful recruitment of participants for the study. After initial interviews, some participants actively introduced relevant people who were suitable for this research. I sent invitation letters through email to participants, and follow-ups after two or three weeks from first email (Appendix 1). To detect any variations, conflicts and tension in visions, goals, and approaches, it was essential to ensure that all relevant organisations and a range of professional views were captured in the research (Glouberman & Mintzberg, 2001a, 2001b). To achieve this, a comprehensive list of relevant organisations and professionals was compiled, ensuring a balanced representation from each entity. The number of participants from each district and their affiliated organisations is presented in table 1.

Table 1- *Participant recruitment summary*

| Local-level | Number of Interviews (local level) | | | National level | Number of interviews |
|---|---|---|---|---|---|
| | Auckland & Waitematā | Counties Manukau | Canterbury | | |
| Community S&B Coordinator | 1 | 1 | 1 | ACC | 2 |
| In-Home S&B provider | 1 | 1 | 1 | MoH | 1 |
| Fracture Liaison Services | 3 | 2 | - | HQSC | 1 |
| Planning and Funding Manager | 3 | 1 | 1 | | |
| Clinical leader | - | 1 | 1 | | |
| ACC regional Injury Prevention rep | - | 1 | 1 | | |
| PHO Coordinator | 1 | 3 | 1 | | |
| St. John Pathway manager | 1 | - | 1 | | |
| **Total** | **10** | **10** | **8** | **Total** | **4** |

A participant information sheet (PIS) was given to all potential participants, as detailed in Appendix 2, to provide a clear explanation of the research's purpose and rationale. The PIS also outlined how the

information collected during the interviews would be stored, the duration of storage, and the contact information of both the researcher and the ethics committee. Participation in the research was voluntary, and written informed consent was obtained from respondents through the consent form (CF) before proceeding (For the details of CF see Appendix 3).

After obtaining consent and arranging a suitable time and location chosen by the participants, I conducted interviews that lasted between 45 and 90 minutes. To allow for flexibility in exploring and updating the existing literature on organisational context while also allowing new ideas to emerge, I chose a semi-structured interview format. The interview questions, found in Appendix 4, were categorised into three sections: implementation of FFPP, organisational and inter-organisational factors, and outcomes of FFPP. Additionally, I requested permission from participants to follow up if further clarification was required.

Once the participants provided their consent, the interviews were recorded to ensure accurate transcription. If the interview was conducted in person, a digital audio recorder was used, while digital tools were employed when using Zoom or Microsoft Teams. Participants were granted the option to stop the interview or recording at any point without providing an explanation. Additionally, participants were able to withdraw their data from the study up to two weeks following the interview without any explanation. The transcripts of the interviews were sent to the participants for their review and verification, and any changes could be made to the transcript if required. To assist with data storage and categorization, the qualitative research software tool NVivo 12 was utilised.

#### *4.5.4 Development of interview schedules*

The development of the interview schedule involved utilising the CCIC toolkit and questions repository. However, it was observed that the questions repository predominantly focused on survey-style questions, with limited sections for qualitative research. As the research aimed to answer specific research questions, a more comprehensive set of interview questions was required.

To address this, the interview schedule was divided into three sections. The first section specifically focused on inter-organisational factors and was developed based on the CCIC framework. The second section pertained to programme characteristics and was designed based on the components of the FFPP. Lastly, the third section related to the outcomes of the programme and was based on the FFPP outcome framework.

To ensure the effectiveness and inclusiveness of the interview guide, it was reviewed and confirmed by the supervisory team. Additionally, a pilot interview was conducted with an expert in the field to ensure that all important aspects were adequately covered.

## 4.6 Ethical approval for this study

Ethical approval for this research was obtained from the University of Auckland Human Participant Committee on February 25th, 2021, and it is valid for three years (UAHPEC22004). A copy of the letter for this ethics approval is included in Appendix 5. Due to the small number of districts and their unique organisational structures, it was necessary to name the included districts in the research. Anonymity of the participants cannot be guaranteed due to the nature of the research, which involves conducting interviews with them. Participants are identified in the research by their district and job category rather than their name. While it might be possible to identify participants by their district and job category, participants were fully informed about this in the PIS and the consent forms.

## 4.7 Data analysis

Data analysis is a critical process that involves the interpretation and inference of insights from raw data collected during a research study. The process of data analysis in this study is comprised of three primary stages, including data preparation for analysis, thematic analysis, and comparative analysis. The thematic analysis approach utilised in this research study followed a deductive, yet flexible approach that enabled the extraction of key themes and insights from the collected data.

Comparative analysis in this multiple case study involves comparing data across multiple cases to identify similarities and differences and identifying critical factors in the implementation of the FFPP. These three stages are discussed in detail as follows.

### 4.7.1 Data preparation for the analysis

#### *4.7.1.1 Interview transcription*

In order to ensure the protection and secure storage of the interview data, the digitally recorded audio files were downloaded and saved onto a password-protected file on the University of Auckland server. The researcher then utilised a speech-to-text transcription and translation application (Otter) to transcribe the audio files into individual documents. Transcribing interviews enables the researcher to thoroughly analyse the data, gaining a comprehensive understanding of the viewpoints and experiences of the key informants, as well as each case study site as a whole (Denzin & Lincoln, 2005).

To maintain conciseness and relevance to the pertinent themes, the researcher edited the interview transcripts by removing non-essential narratives, repetitions, and linguistic features such as filler words (e.g., "ums" and "ahs") that did not contribute to the interpretation or meaning of the data. The interviewees were also provided with the chance to review and validate their respective interview transcripts. This procedure facilitated data accuracy, and any potential errors or misunderstandings were clarified.

#### *4.7.1.2 Document analysis*

Document analysis is a research method that involves the systematic review and interpretation of existing documents, such as policies, reports, and other written materials relevant to the research topic. In this stage, document analysis was used to explore the organisational context in which the programme

was implemented. Specifically, I reviewed documents such as DHB's websites, policies, national guidelines, and programme implementation plans to identify key themes related to the FFPP implementation. This method allowed me to gain insight into the broader context in which the programme was implemented and to identify potential barriers and facilitators to its implementation. The findings from the document analysis were then triangulated with the data collected through interviews with key informants to provide a comprehensive understanding of the FFPP implementation process.

#### *4.7.1.3 Managing Data*

For this research, I utilised NVivo 12, which is a highly advanced computer software package produced by QSR International that is specifically designed for qualitative data analysis. Given the substantial volume of data collected during the study and the nature of the multiple case studies that necessitated professional grouping and cross-site comparisons, NVivo 12 was an essential tool for the classification and analysis of the data. To simplify the process, I created a separate file for each district and one file for national organisations and subsequently imported all interview transcripts and relevant documents into these files. The software enabled me to code the data into categories and themes, which facilitated the identification of similarities and differences between districts and national organisations. The use of NVivo 12 allowed for a rigorous and systematic analysis of the data and enabled me to draw reliable conclusions based on the results of the study.

### 4.7.2 Thematic analysis

#### *4.7.2.1 Preparation for data analysis*

Before commencing the process of coding data, I first listened to each audio file and read through the transcripts multiple times in order to gain an in-depth understanding of the content and context. I also prepared a summary of each interview, which helped me to gain an overarching understanding of the themes and issues discussed in each case study. This step was crucial in enabling me to identify the main topics and themes that emerged from the data, and to ensure that these were accurately represented in the coding process.

#### *4.7.2.2 Coding*

In qualitative research, coding refers to the process of assigning a label or code to different categories of data (Wahyuni, 2012). For the FFPP study, I employed a deductive yet flexible coding process (Hsieh & Shannon, 2005) that was based on existing literature and theory. To develop the codes, I drew on the Context and Capabilities of Integrated Care (CCIC) framework (Evans et al., 2017). Although the initial set of codes was drawn from the CCIC framework, some codes were modified and supplemented with new ones during the coding process (Gilgun, 2011). Saldaña (2021) warned against a rigid coding approach, pointing out that 'your preconceptions of what to expect…may distort your objective and even interpretive observations of what is "really" happening there' (p. 146).

The coding process was initiated by thoroughly listening to each audio file and reading the transcripts and documents multiple times. This aided in comprehending the content and context of the interviews

and documents. I created an initial coding matrix based on interviews with participants who had similar roles and positions across the case study sites, such as the Community Strength and Balance Coordinator. This matrix helped me to maintain consistency in the coding process both within and between the three case study sites. As I progressed through the coding process, I continually refined and added new codes to the matrix. While the coding matrix underwent significant changes during the first ten interviews, it experienced few changes thereafter. To ensure the accuracy of coding, I double-checked the codes and references, and made necessary modifications. Finally, I reviewed all individual transcripts, specifically the uncoded parts, to ensure that all important comments were included in the analysis. In addition, the process, including initial coding, the development of a coding matrix, and refinement of codes, was thoroughly discussed during fortnightly supervision meetings to enhance the validity of the analysis.

#### *4.7.2.3 Developing themes*

Themes are overarching patterns and recurring concepts that emerge from the data and help to organise and make sense of the information collected (Braun & Clarke, 2006). Identified codes were classified primarily based on CCIC frameworks which including 17 themes. Additionally, codes that were not directly associated with the CCIC framework were categorized into two main themes: "Programme Characteristics" and "Out of CCIC." This systematic classification process enabled a comprehensive analysis of the data, ensuring that all relevant aspects were captured and aligned with the research objectives.

#### *4.7.2.4 Comparative analysis*

In order to compare themes and concepts across different cases and identify similarities and differences, I utilised the crosstab function in NVivo. This function allowed me to read data through codes within a district and across districts, as well as based on specific attributes such as organisations or participant roles. Through this process, I was able to create a ranking system for each identified factor based on the patterns I identified within and among districts (a list of factors and the ranking system is presented in Appendix 6). To simplify the comparison process, I utilised a colour code based on the ranking system for each organisational and inter-organisational factor in a spreadsheet. The colour code was designed to identify the factors that showed great variation or similarity between districts, and it also helped me to compare the organisational factors' situation within each district. To identify whether identified factors had impact on the programme, three outcomes were identified (combination of outcome framework results and programme outcomes derived from qualitative data), and then two-dimensional matrices were developed to analysis the relationship between each organisational factor and outcome. A copy applied ranking system and two-dimensional matrices can be found in Appendices 7and 8. Through careful interpretation and comparison analysis of the data, a formula has been developed to measure the importance level of organisational factors FFPP and, more broadly, in integrated care. Further elaboration and in-depth insights into comparative analysis approach can be found in chapter nine. Table 2 provides a summary of the data management and analysis.

Table 2- *Summary of data management and data analysis*

| | | |
|---|---|---|
| Data preparation for analysis | 1- Interview transcription | • Interview transcribed by the researcher.<br>• Transcripts were edited by the researcher to remove non-essential narratives and linguistic features.<br>• Transcripts were sent to interviewees (… participants) who were confirmed to have transcripts. |
| | 2- Document analysis | • Finding publicly available reports and relevant documents.<br>• Requesting any other reports and documents from different organisations. |
| | 3- Managing data | • Separate files created on NVivo for each case study site and one file for national organisations.<br>• Transcripts & documents imported to each separate file on NVivo. |
| Thematic analysis | 4- preparation for data analysis | • Immersing in data – listening to interviews two times and reading transcripts three times and preparing interview summaries and notes. |
| | 5- Coding | • Coding started with interviews with the same roles and positions across different sites.<br>• Coding matrix created in the first five transcripts.<br>• Testing and developing coding matrix by coding remainder interviews.<br>• Refining codes and checking references in each code.<br>• Checking each individual transcript, particularly the parts which not coded, to make sure all-important comments included. |
| | 6- Developing themes | • Reading through codes by using crosstab function in NVivo.<br>• Identifying theme and sub-theme based on CCIC framework.<br>• Identifying themes and sub-themes out of CCIC framework |
| 7- | 8- Comparative analysis | • Creating ranking system.<br>• Applying colour coding to compare districts holistically.<br>• Identifying factors with great variation and similarity.<br>• Development of two-dimension matrices to identify the impact of factors on identified outcomes. |

## 4.8 Research quality

Qualitative research has been subject to various assessment criteria and checklists that vary in their scope and focus. These evaluation tools have been designed to ensure the quality and rigour of qualitative research and vary in their comprehensiveness, specificity, and applicability to different types of studies (N. Mays & Pope, 2000; C. K. Russell & Gregory, 2003; Shenton, 2004). None of them have been universally acknowledged as the "gold standard" in the field. As a result, I focused on a commonly used set of assessment criteria that has been applied practically to evaluate qualitative research. According to Alvesson and Sköldberg (2017), unlike positivist approaches that prioritise measures like reliability or generalizability, qualitative researchers focus on rigour based on criteria such as **trustworthiness** (which includes credibility, transferability, confirmability, and dependability). Alvesson and Sköldberg (2017) and Symon and Cassell (2012) highlight the importance of **reflexivity** in conducting qualitative research. Finally, Davies and Dodd (2002) stress the need to consider **subjectivity and potential biases** when researching and interpreting the experience of policy implementation.

### 4.8.1 Trustworthiness

Trustworthiness is a crucial aspect of ensuring that the research findings are credible and dependable, and it involves validating the accuracy of the data, analysis, and interpretation (Lincoln & Guba,1985). To ensure trustworthiness in qualitative comparative case studies, various strategies can be employed, such as employing multiple data sources and collection methods, validating findings with participants through member checks, and utilizing inter-coder reliability checks to ensure consistency in data coding and analysis. Furthermore, transparency in the research process can enhance the trustworthiness of the research, including detailed documentation of research procedures and decision making. By employing these strategies, the credibility and dependability of the research findings can be ensured (Nowell et al., 2017).

Following the guidelines proposed by Nowell et al. (2017) for ensuring trustworthiness in thematic analysis, Table 3 has been prepared to demonstrate how the criteria were met in the current study. This table outlines the steps taken to establish the credibility, dependability, transferability, and confirmability of the research findings, including the use of multiple sources of data, member checking, and inter-coder reliability checks.

Table 3- *Trustworthiness during each phase of thematic analysis*

| Phases of Thematic analysis | Means of Establishing Trustworthiness | Means used in this research |
|---|---|---|
| Phase 1: Familiarizing yourself with your data | 1) Prolong engagement with data 2) Triangulate different data collection modes 3) Document theoretical and reflective thoughts 4) Document thoughts about potential codes/themes 5) Store raw data in well-organised archives 6) Keep records of all data field notes, transcripts, and reflexive journals | 1) Prolong engagement with data 2) Triangulate different data collection modes 3) Document thoughts about potential codes/themes 4) Store raw data in well-organised archives |
| Phase 2: Generating initial codes | 1) Peer debriefing 2) Researcher triangulation 3) Reflexive journalling 4) Use of a coding framework 5) Audit trail of code generation 6) Documentation of all team meeting and peer debriefings | 1) Researcher triangulation 2) Use of a coding framework 3) Audit trail of code generation |
| Phase 3: Searching for themes | 1) Researcher triangulation 2) Diagramming to make sense of theme connections 3) Keep detailed notes about development and hierarchies of concepts and themes | 1) Diagramming to make sense of theme connections 2) Keep detailed notes about development and hierarchies of concepts and themes |
| Phase 4: Reviewing themes | 1) Researcher triangulation 2) Themes and subthemes vetted by team members 3) Test for referential adequacy by returning to raw data | 1) Themes and subthemes vetted by team members 2) Test for referential adequacy by returning to raw data |
| Phase 5: Defining and naming themes | 1) Researcher triangulation 2) Peer debriefing 3) Team consensus on themes 4) Documentation of team meetings regarding themes 5) Documentation of theme naming | As PhD research, I could not do this phase, however, my supervisory team was continuously monitoring the coding process. |
| Phase 6: Producing the report | 1) Member checking 2) Peer debriefing 3) Describing process of coding and analysis in sufficient details 4) Thick descriptions of context 5) Description of the audit trail 6) Report on reasons for theoretical, methodological, and analytical choices throughout the entire study | 1) Describing process of coding and analysis in sufficient details 2) Thick descriptions of context 3) Report on reasons for theoretical, methodological, and analytical choices throughout the entire study |

### 4.8.2 Reflexivity

Reflexivity is a crucial element of qualitative research that requires researchers to continually reflect on their assumptions, biases, and values that may influence the research process and findings. This process entails a consciousness of how the researcher's positionality and experiences may affect data collection, analysis, and interpretation. By practising reflexivity, researchers can enhance the transparency and rigour of the research process by acknowledging the subjective nature of qualitative research and considering how their perspective may impact the research findings. According to Alvesson and Sköldberg (2017), reflexivity is an ongoing and iterative process that requires the researcher to engage in critical self-reflection at every stage of the research process. This involves examining their personal values, beliefs, assumptions, and biases and reflecting on how these may have impacted the data collection, analysis, and interpretation. Reflexivity acknowledges the inherent interconnectedness and interdependence among research methods, data and the researcher (Mauthner & Doucet, 2003). These factors are inevitably influenced by the theoretical framework guiding

the research and, in turn, contribute to theoretical advancements. Regarding interconnectedness between research methods, data, and the researcher, as an international student who arrived in NZ to pursue studies in health systems, I maintain a neutral stance with regards to the performance of different districts, as I do not possess any prior beliefs or assumptions that may unduly impact my understanding and evaluation of distinct districts. Moreover, my professional experience in health service management has equipped me with the ability to compare and contrast different healthcare contexts, processes, and performance measures, which can be a strength in conducting comparative case studies. Regarding data collection process, I carefully designed the interview questions and data collection instruments to minimise the use of leading or biased questions that might influence participants' responses. Furthermore, it was important to minimise interpretive bias during data analysis and theme writing. I therefore took a systematic and rigorous approach to data analysis, ensuring to the extent possible that themes and patterns emerged directly from the data rather than being driven solely by my own preconceived notions. To further enhance impartiality in my analysis and interpretation, I frequently consulted with my supervisors and discussed my approach and conclusions with them.

## 4.9 Chapter summary

The methodology chapter of this study highlights the approach taken to conduct a qualitative comparative case study. The present study adopts a critical realist perspective with a complexity theory lens, which acknowledges that social phenomena are complex and dynamic and cannot be reduced to simple cause-and-effect relationships. The chapter provided an overview of the research questions and design, including the rationale for using a comparative case study methodology to identify local organisational context and processes and outcomes. It then discussed the selection criteria for identifying integrated care programme and the cases. The chapter outlined the data collection methods, including semi-structured interviews and document analysis, and the steps taken to optimise data quality and credibility.

The analysis process is described in detail, including the use of NVivo software to manage and analyse data, and the thematic analysis and comparative analysis. Trustworthiness and reflexivity are highlighted as key considerations throughout the research process, and various strategies were used to optimise data validity and minimise researcher bias. Overall, this chapter provides a detailed account of the methodology used to conduct a comparative case study in the healthcare sector, and the steps taken to maximise the validity and reliability of the findings.

In the following four chapters, the descriptive findings of this study are presented, including main themes across the three case study sites (Chapters five to seven) as well as those from central and local government organisations (Chapter eight). The structure of these descriptive chapters is outlined in Section 4.10.

## 4.10 Overview of four descriptive chapters

For this study, three case study sites were selected based on specific criteria outlined in section 4.5.2: (1) Canterbury, (2) Auckland and Waitematā (considered together because of joint governance arrangements), as well as (3) Counties Manukau district. Instead of using the names of individual

organisations, the term "district" was chosen to underscore the focus on inter-organisational collaboration, involving all potential partner organisations within that region, including public, private, and NGOs.

The results of 32 semi-structured interviews with managers and coordinators of the FFPP programme from partner organisations across three cases (covering four districts, Chapters five to seven) and central government and local organisations (Chapter eight) were presented across four descriptive chapters.

Chapter five to seven are descriptive findings for each of the three cases, comprising the same four main sections: (1) district demographic information, (2) FFPP programme characteristics, (2) inter-organisational and organisational characteristics and (4) FFPP programme outcomes.

The first section contains demographic information about the relevant district(s), such as the percentage of older people and population diversity. In the second section, the background of the FFPP programme and the delivery of each component of the programme in that case are described.

Case inter-organisational and organisational factors are provided in the third section. These were primarily derived from the CCIC framework, and accordingly presented in three main CCIC framework categories: (1) basic structures, (2) people and values, and (3) key processes. The basic structures category included the foundational elements that supported the programme's functioning, for instance the organisational structure, resources, and infrastructure. The people and values category explored factors like leadership, culture, and shared values among partner organisations that facilitated or hindered collaborative efforts. The key processes category explored essential operational processes such as patient screening and referral factors and partnering. It is worth noting that certain overlaps exist between the CCIC framework and the programme characteristics, particularly within the key processes category. As a result, the key process sections focused on discussing specific factors that had not already been described in the programme characteristics section.

The last section in each case chapter, FFPP programme outcomes, encompasses quantitative indicator data from falls and fracture outcome frameworks, along with themes identified in the qualitative data related to outcomes.

The case study chapters, five to seven, are presented in an order based on the overall performance of each case. Chapter five began with the examination of the high-performing district, Canterbury, followed by the investigation of the low-performing districts, Auckland and Waitematā (however, Waitematā has shown a better outcome than Auckland), and finally, the moderate-performing district, Counties Manukau.

Chapter eight, the final descriptive findings chapter, is allocated to central and local organisations with an emphasis on interactions between central and local organisations and changes in central organisations' approaches and local organisations' perceptions and reactions toward those changes. The aim of Chapter eight was to identify different responses to the central changes to highlight any potential variations in inter-organisational and organisational factors.

# Chapter five: Descriptive findings - Canterbury case

## 5.1 Introduction

I start the first descriptive chapter with district showed the high performance in FFPP implementation (Canterbury). Before explaining programme characteristics and inter-organisational and organisational contextual factors (basic structure, people and values and key processes), I provide some information about the district demographic information. After that I explain the different components of the programme outcomes including FFPP dashboard and participants view about the outcome and two specific outcomes derived from qualitative data, namely community awareness and programme maturity and sustainability.

## 5.2 District demographic information- Canterbury

The Canterbury district is one of the largest populations, totaling 578,290 individuals (Statistics NZ Projections, 2021) and the largest regions in terms of the geographic area in NZ. It has a predominantly urban population with fewer Māori and Pacific than other areas. Canterbury's ethnic mix is more European than the other chief population centres in Auckland and Wellington. Around 82% of the population is of European origin, 9% Maori, 11% Asian and 3% Pacific, the last three groups being younger and growing faster. Canterbury has been ranked as the third least deprived district among 20 districts in NZ, indicating that it is one of the least deprived regions and better than the national average (ref). Still, issues such as high recorded crime and overcrowded housing are a reality for many families living within the Canterbury region. Since 2006-2007, Canterbury has been emphasising the importance of keeping older people healthy and in their own homes and communities, given that 16% of the population in this region is over 65 years old. To achieve this, Canterbury adopted a whole-system approach, prioritizing doing more in the community using scarce resources and doing what's best for patients regardless of historical health system and funding silos.

## 5.3 Programme characteristics

Implementation characteristics encompass district historical background in the implementation of FFPP, and details of service delivery in each district.

### 5.3.1 Historical background

In the years leading up to its transformation in 2006-2007, the health system in Canterbury encountered substantial difficulties, including high hospitalization rates and lengthy waiting times for elective procedures. To address these persistent challenges, a significant contractual change was implemented in the form of the Canterbury Clinical Network (CCN). The primary objective of the CCN was to unify diverse health and social care systems, fostering collaboration and working towards shared goals centred around the health and well-being of patients. By overcoming the limitations and conflicts associated with individual and separate care systems, the CCN provided a platform for clinical leadership and exemplified the principles of alliance within the Canterbury Health System. The Canterbury Clinical Network comprised several key components, including the Alliance Leadership

Team (ALT), the Alliance Support Team (AST), the Programme Office, various workstreams, and other work groups, as well as Service Level Alliances (SLAs).

On 22 February 2011, few years after Canterbury's transformation journey, a 6.3-magnitude earthquake struck Christchurch causing widespread damage. After the earthquake, changes that were already underway were implemented more quickly, and several new initiatives, such as a falls management programme, were introduced. ACC recognised the pioneering work and outcomes achieved by the Canterbury health system over the last five years (since 2012) through taking a comprehensive 'Whole of System Approach to Falls Prevention' and developing an innovative, evidence-based community falls and fracture prevention strategy.

> *There was no falls prevention in New Zealand nationwide for people over the age of 65. Other than what we put in place in Canterbury in 2012, when we had decided that those people over the age of 75, were some of our most precious members of society, and the most at risk. And we had the strongest evidence for how you can change that, or some motivation or leadership are able to make that change. And I was fortunate enough to be in a position at a leadership table that I could make those issues more apparent to those people who could make financial decisions and strategic decisions. (Clinical leader, Canterbury DHB)*

The development of alliances was more established in the Canterbury region compared to other districts, with involvement from dozens of individuals from various parts of the health system. There was a clinically led alliance leadership team which includes representatives from Canterbury DHB and was supported by a dedicated alliance support team and a number of service-level alliances and work groups with responsibility for driving service improvements and transformation in their respective areas. In this regard, the Falls & Fractures Service Level Alliance (F&FSLA) was established in October 2017 as a time-limited (3-year) group to enhance and improve the falls and fragility fracture prevention work in Canterbury. Canterbury is the only district in NZ with a specific service-level alliance for falls and fracture prevention.

### 5.3.2 FFPP implementation and service delivery

As outlined in Chapter three, the national falls and fracture system consists of two primary categories: primary prevention (Community S&B programme, In-Home S&B programme, and Fracture Liaison service) and secondary prevention (Early supported discharge and medications review). In this study, the focus has been on the three primary prevention approaches that follow a population-based approach. In adherence to the national falls prevention framework, Canterbury, along with other districts, implemented all recommended components for preventing falls in the community and home. This section describes the main processes involved in each key component.

#### *5.3.2.1 Community-based S&B*

The Community S&B initiative in the Canterbury district was implemented by Sport Canterbury, a regional Sport Trust (non-government), which was appointed as the lead agency. In 2017, the Community S&B programme started with one community project leader and one project support whose responsibilities included advertising, accrediting, and monitoring the performance of community S&B classes. However, the programme is now overseen by only one project leader. There has been a shift in focus from accrediting existing classes and ensuring quality to addressing cultural and regional gaps and promoting the initiative.

> *Most of what I've accredited was already there and existing within the community. We have started up some classes. And particularly looking more at a lens of where the gap is, so if there is a gap regionally or a gap culturally, to start classes. (Community project lead, Canterbury DHB)*

During the interview, the participant reported that 180 Community S&B classes are held every week in the Canterbury region through 42 participant organisations such as small business providers, NGOs, churches, and some under the council or private sports clubs. Older individuals can be referred through a centralised referral system or through self-referral. Canterbury has already achieved its predetermined targets (set up by central government organisations), including the number of places offered, the number of new people attending classes, and the number of new people completing ten sessions, at the early stages of the programme due to the pre-existing long-term inter-organisational relationships. However, the focus has shifted to filling the gaps and providing classes in remote or rural areas and areas severely damaged by the earthquake.

> *It was good achieving that target early on because it means that we could focus on those communities that are missing them, those gaps that need to be filled. That's a long journey, right. Those relationships with the community who don't have anything already established for them. (Community project lead, Canterbury District)*

There has been no financial support from ACC or lead agencies for the providers of the community S&B programme, and the only support available through Sport Canterbury was free training sessions and providing discounts for first aid certification. The programme leader discovered over a period of three years that although financial benefits may have been the initial motive for community providers to participate in the programme, they were actually seeking more training and upskilling opportunities.

> *I assumed that that would be the number one reason why people would want to be accredited and what they would want was promotion. And, when I've surveyed all of providers and organisations, a couple of years ago, I redid it recently, and actually what they wanted, the number one thing that they value, and they want moving forward was just more and more training opportunities. So just keeping on upskilling them. (Community project lead, Canterbury DHB)*

According to the project leader, there were not many inter-organisational challenges reported for Community S&B in this district. However, the collection of data from various organisations across the community and reporting it to ACC and DHB in different formats and timelines were significant challenges.

> *I don't find too many challenges because we've both got the same desired outcome, wanting to serve people and the community and keep them well. Probably the only real challenge I find is with the reporting- being able to get the data processed in time. ACC and our District Health Board want to see different data. From the classes, because they all work at different levels, some it's just one person with a small business who texts their attendance data; others have their own software system already. I think when the DHB say they want the data, I don't think they understand that this is not computerised. (Community Project Lead, Canterbury DHB)*

Considering that Community S&B classes are for older people over 65 years old (over 55 years old for Maori), one criticism mentioned by a community participant was applying the same exercise to all people in this age group, while people in this age group have different mobilities and require more specified exercise in each sub-age group, and even need different marketing techniques to attract them into the community programme. Community coordinators also promote the instructor's knowledge about other parts of the programme such as how to refer to falls champions or other available services for older people; for example, if a patient ca not recall medications or is confused, they refer them to medication use review.

The community coordinator has described that they have attempted to support and empower community capacities to serve the community. In this regard, even if external funding or financial support stops, the service survives and delivers to the community.

> *It's all about community enabling. So, I think the values of that really aligned to a lot of the NGOs we're working with. But it's not about us having to be necessarily the ones in control or in charge; it's about enabling the community to be able to support themselves. So, well, I think that sort of value of Sport Regional Trust really helps with this project, because you would hope that if funding was lost … but you know, you'd hope that we've established something there. If we stepped away, and we didn't exist, these things would continue. (Community Project Lead, Canterbury DHB)*

#### *5.3.2.2 In-home S&B*

The Canterbury DHB holds the contract for the in-home S&B programme and contracts out to local falls champions (private physiotherapy organisations) to deliver the services. Local falls champions all operate slightly differently; however, all consumers have an initial assessment in their own home (through a registered nurse, physiotherapist, or qualified instructor) also an in-home assessment, and patients are referred to appropriate services (in-home and community-based classes) and other services (such as Green Prescription, occupational therapy, and Tai Chi). In addition, patients are sometimes referred to falls champions via three Home and Community Support Services. In case, after an initial assessment, it is recognised that a patient needs an In-Home S&B programme, there are follow-up visits from one of the local falls team to assist the consumer with the prescribed exercises. The programme is based on a Modified Otago Exercise Programme (MOEP) and lasts for up to 12 months. MOEP is the most appropriate programme for 70% of people referred to the Community Falls Prevention Service.

Falls champions in Canterbury play a focal point role in coordinating other health programmes for older people. Because of the nature of the In-Home S&B programme, falls champions have been able to conduct a comprehensive assessment, evaluate what the patient requires, and then collaborate with the patient's GP to manage services.

> *We have what's called a falls champion that sits on each geographical patch that's attached to a number of general practices. So, part of their role is to coordinate with general practitioners to build that social capital with general practitioners and the practice team around the care of older folks in that community because falls are an indicator of a range of other things, social isolation, poor nutrition, poor activity, and maybe a deteriorating other long-term condition. It seems critical that the falls champion has a good relationship with a general practitioner. (Clinical Lead, canterbury DHB)*

The strong connection between falls champions and GPs has been described as an important capacity to organise services for older people. Therefore, building and maintaining these relationships has been emphasised since the beginning of the programme. For instance, at an early stage of this programme, each falls champion was urged to go to General Practice and inform GPs about the services.

> *In the beginning of those early years, all these falls prevention people went to all the GPs in their area. So, I went personally to all the east Christchurch GPs and talked to them about our new service. So, we're not repeating that. But in the beginning, we did a lot of that. I think we were very careful in how we set it up. And now it's very well established… Our most important collaboration is with the GP and mostly the nurse of the GP… so, we are the ones who see that, for example, it's smelly in the home, which shows that they're not on top of cleaning the house, or they're too fragile to make themselves meals.... Then there are other organisations who can work with that, like Meals on Wheels and medication management. But we*

*don't organise that. We simply contact the nurse, and then they organise it for us. (Falls champion, Canterbury District)*

Falls champions have been utilising MOEP guidelines for running exercise sessions; however, participants mentioned that they were allowed some flexibility in using that guideline based on the patient situation, which means they do not have to stick to the same pathway for each patient.

*What I really enjoyed was that our clinical leader said straight away; 'let's not do it totally rigid, this is our guideline. Use your clinical judgment'. Sometimes you come in somebody's home, and this person has actually gone to an exercise group, and they're walking their dog three times a day, etc. In that case, you just give him a bit of advice, you don't need to go back; they don't need you. And then with other ones, you really feel like we'll have to do this six times and sometimes more (which you can do that because you save some money by going to somebody only once). (falls champion, Canterbury District)*

There is no systematic survey to analyse patients' experiences but falls champions highlighted positive feedback from patients who were involved. Providing in-Home services doesn't need high technical skills, so from the beginning, falls champions were allowed to use less qualified professionals to do follow-up exercises, which mitigated allied healthcare staff shortages and best utilisation of system capacities for this specific programme.

#### *5.3.2.3 Fracture Liaison Service*

The Fracture Liaison Service is located in the hospital and is managed by a full-time nurse who reviews records from orthopaedic outpatients. The nurse contacts the patients to offer a bone density scan and provides them with information on bone health, including osteoporosis, vitamin D, and nutrition, as well as falls prevention. Following the bone scan, the nurse sends a letter to both the patient and their GP with the results and recommendations. Patient treatment follow-up is done by verifying whether the patient has filled their prescription. However, primary care patients with fragility fractures are not currently identified, but the feasibility of identifying them is being investigated by the clinical leader.

## 5.4 Organisational and inter-organisational characteristics

Canterbury, being the second-largest district in terms of population in the country has a complex local health system with a number of organisations providing services ranging from community and primary care to tertiary care to the population within the Canterbury region, as well as providing much of the tertiary care for the whole South Island.

### 5.4.1 Basic Structure

The basic structure category comprises three parts; resources (staff, funding); governance (board/committee composition, types of sub-committees, frequency of meetings, types of decisions

made, e.g., extent of centralised planning and standardisation); and information technology (shared electronic medical records, email communication, video conferencing, data access and mining).

***5.4.1.1 Governance and Service- Level- Alliance for the FFPP***: For almost a decade in Canterbury District, a multi-disciplinary approach was implemented. Regular meetings between falls champions, GPs, and other professionals have been conducted to manage clients and ensure appropriate cross-referrals. As mentioned previously, the F&FSLA was established in October 2017 as a time-limited (3-year) group to enhance and improve falls and fragility fracture prevention work in Canterbury. Its members include primary care, community providers, Geriatricians, Sport Canterbury, an ACC regional representative, Aged Residential Care (ARC), a consumer representative, an FLS nurse specialist, a falls champion, a St John-Falls representative, a clinical lead, DHB planning & funding, and a CNN facilitator, with an independent chair. The F&FSLA was accountable to the Health of Older People Work Stream (HOPWS) and the Alliance Leader Team (ALT), which provided direction, guidance, and approval for recommendations. Since October 2020, the Falls Prevention team has been part of the Community SLA and Health of Older People Workstream, with one operational sub-group for FLS. Regardless of their classification, whether as F&FSLA, Community service SLA, or HOPWS, meetings were held regularly with active participation. Despite the diverse membership comprising representatives from various organisations, the participants expressed a positive perception of the F&FSLA steering group. They acknowledged that the falls prevention representatives within the group were listened to attentively.

> *I always feel that the falls prevention people do get heard quite well (in the F&FSLA steering group). If you prepare to say your thing, there's always a group of people who just never speak up, but if you prepare to speak up, I think I'm not frustrated, like oh my god, they never hear me or they never change anything, I can't say that. (falls champion, Canterbury District)*

***5.4.1.2 Resources*:** The system is bulk funded by the DHB with ACC also making a financial contribution. The allocation of funds to different programme components is determined based on clinical considerations and guided by quarterly results monitoring. The ACC funding is being used to coordinate the accreditation of community-based S&B classes and the Lead Agency contract and to augment the bulk or lump-sum funding contribution from the DHB. The funding from ACC has also prompted the formalisation of system governance from a virtual network to a Service Level Alliance (SLA). Otherwise, service delivery remains unchanged for the funding arrangement changes. It is worth noting that providers of Community S&B classes do not receive any funding or bonuses. Instead, individuals attending these community exercise programmes pay a small fee for each session. Therefore, there is little incentive for providers to participate in the programme, particularly for classes organised by physiotherapists.

Following the discontinuation of previous funding from ACC in 2012, the DHB has been funding the In-home S&B programme, by contracted private physiotherapy providers responsible for a geographic locality. This has been achieved through lump-sum funding. However, in Canterbury, the funding

approach for falls champions deviates from the traditional model for funding clinicians. Rather than being based on the number of patients or hours worked, they receive a proportion of full-time equivalent (FTE) staff funding. Another big national change described by all of the participants was the ACC funding withdrawal from In-Home S&B from July 2022; however, participants from the planning and funding department in Canterbury mentioned that in-home services in this region would be run as usual after this change.

> *We funded In-Home programme before ACC even came along and we work on it to fund that even without them, we see the value, and that's why we prefer to work with ACC in terms of outcome-based approach, giving us a contribution, rather than them funding a service because when they decide to pull out of it, when their priorities change, it leaves us in limbo. So, we wanted to make sure we had a sustainable funding stream that we would continue what regardless of they gave us money. (Planning and funding, Canterbury DHB)*

Human resources for FFPP in three main components include one Community S&B coordinator and a 0.5 FTE administrative staff. It is worth noting that community S&B classes are run by a wide range of organisations, (including private exercise clubs, churches, NGOs, city council). Additionally, there are six local falls champions who have hired physiotherapists, allied health professionals, and healthcare assistants, as well as an FLS nurse specialist and an FLS clinical lead. To strengthen the FLS operation, the programme leader recently hired another nurse. One notable aspect of the staffing in Canterbury is their use of the private sector to implement the In-Home S&B programme. Private falls champions have more flexibility in hiring healthcare professionals and assistants to provide services.

> *What they did very well here and was actually an idea of one of the physios in my clinic is that we need a physio or nurse to do the initial assessment and set it all up. Still, then the treatments after that are more like motivating them, which don't need a lot of medical knowledge. So, they (F&FSLA team) have allowed us to use a physio assistant to do follow-ups. (falls champion, Canterbury District)*

However, it has been mentioned by a clinical lead as a criticism that these less qualified staff members may have less confidence in assisting the frail older population.

> *We found in people who were less qualified, we're much more cautious and anxious about helping frail older folk. So, they rejected the referral. So, they rejected the referral for the person who would do the best from the programme because they didn't feel confident to help them get stronger. (Clinical lead, Canterbury DHB)*

#### *5.4.1.3 Information Technology*

Information technology comprises any electronic information systems, EMRs/EHRs, decision support systems, and In-house IT support. Following the earthquake in the Canterbury region, the implementation of Information Technology systems, such as electronic Shared Care Record View (eSCRV) and electronic referral management system (ERMs) was accelerated. The ERMs (an

electronic referral system between general practice and other parts of the system) was launched in July 2010 with the support of health pathways to ensure the appropriateness and the quality of referrals. It replaced fax requests and letters, which can only too easily be lost or mislaid. GPs can use it to request tests, outpatient referrals, community assessments and specialist advice. It is used to cover requests not just for health board services but ACC and private referrals, so it operates seamlessly across the various parts of Canterbury's health system.

> *Especially the electronic referral management system itself, has made a big difference to how easy it is to make all sorts of referrals. Once upon a time, we had to print off a long document off the pathways, and then send that somebody a fax and it was time consuming and cumbersome, and GPs were not that interested. For some obviously, that did the job, but it was a barrier. So, for all services, we've sought to make the process of referrals streamlined and simple. That's improved referral rates considerably. (Primary care Physician, Canterbury)*

Canterbury district has also attempted to simplify the e-referral system for the falls prevention programme by creating automatic referrals to the fracture liaison service.

> *I mentioned we had automatic referral to the falls champion for our fractured neck of femur. Well, we also asked the group to think about what other fractures would be good to put on the automatic referral and so a fractured humerus was the next. (falls champion, Canterbury District)*

Participants also described with the referral system, they are now able to measure referral rates to falls champions or measure specific activity; however, it is still required to reach the point to get a more comprehensive picture of health system performance.

> *We certainly measure the rate of referrals to falls champions, those sorts of things, but it is what actually goes on day to day in primary care is that very difficult to measure, largely because of coding practice, but also collaboration between data systems, we've now negotiated some very good collaborative frameworks in Canterbury between primary and secondary care and are able to collect data much more than it used to be. But you still can't really get down to what happens day to day. (Primary physician, Canterbury District)*

### 5.4.2 People and values

The people and values category includes attitudes toward collaboration, clinician's engagement in the programme, commitment to learning and common goals and values.

***5.4.2.1 Common goals and vision:*** Falls are the most common and costly cause of injury for those aged 65 and over and have a huge burden on the health system, ACC (as the responsible payer), community, and older people and their families. Almost all participants in the Canterbury district

expressed the same ultimate goals and shared visions toward preventing falls/severe falls or provision of the right services at the right time when falls occur. These shared goals and visions made different organisations realise the significance of collaboration to achieve better outcomes for the senior community.

> *So instead of ACC and the DHBs, kind of working on their own, trying to reduce the same thing, we've seen this partnership as, we've both got these goals, if we work together and combine the funding, then the outcomes will be better. (Regional injury prevention rep, ACC)*

Many participants in this district highlighted the shared objective of prevention and reducing preventable hospitalizations as a common goal. However, it is important to note that having common goals and directions did not eliminate conflicts and tensions between organisations entirely. Nonetheless, it did provide a framework for managing conflicts and resolving tensions effectively.

> *Rub between an insurance agency and District Health Board, an insurance agency trying to invest upstream as important, although it's challenging, it's quite rewarding. (Planning & funding DHB)*

> *Exciting that we could start doing this type of thing that we've moved away from being in the emergency service that we used to be known as, and we're now like trying to do health prevention as well. (Regional representative, St. John)*

Some of the organisations involved in the FFPP do not have a long-standing history of delivering services for older people. Sport Canterbury, for instance, had traditionally catered to the younger population, but the falls prevention programme encouraged them to expand their focus and offer an evidence-based and age-appropriate exercise programme for the community.

> *Within my organisation, we were traditionally very young-focused ... That's to look at, most likely to make lifelong behaviour change when someone's younger. It was quite new for our trust to actually be working with older people; that's also something they've really not done a lot of. (Community project lead, Canterbury District)*

***5.4.2.2 Commitment to learning*:** To assess the district's commitment to learning, I identified both formal and informal channels or forums facilitating continuous learning and knowledge sharing within the organisation and its network. This included efforts to enhance inter-organisational communication by exchanging best practices and experiences. In Canterbury, a variety of communication tools were employed, including those created internally by employees or through lead organisations, for both intra and inter-organisational communication. For instance, to facilitate collaboration and knowledge sharing, falls champions in the district organised monthly morning coffee meetings. During these meetings, they shared their experiences and made recommendations to involve other organisations that provide In-home services, such as Nurse Maude or Healthcare NZ. This allowed for the exchange of valuable insights and the exploration of potential partnerships within the community.

*We have the five or six organisations that do the falls prevention in Christchurch, we have enough ability to share because we have our coffee mornings, we have our meetings where we can share quite nicely. But sharing with the team that does the showering, for example, hardly ever, we just have to invite them to one of our meetings, but it's a little bit official. (falls champion, Canterbury District)*

In-home services also use email communications to connect with other home services across NZ. They criticised the shortage of national and regional falls prevention conferences or any integrated forum for engaging all providers involved in falls prevention at different levels. Community service providers also had monthly national teleconferences, which ACC set up to facilitate communications between community S&B providers. There was also a strong link between In-Home and Community S&B services by providing training sessions and presentations. Participants also mentioned regular operational and alliance-level meetings as an appropriate way to facilitate inter-organisational interactions.

***5.4.2.3 Clinicians' engagement*:** To understand the extent of clinician involvement in programme implementation and leadership, I identified any formal and informal roles held by clinicians for each component of the FFPP and at the alliance level. Specifically, I focused on physicians' roles that empowered them to endorse and drive change, as well as influence others within the programme. As part of the regional health system change, Canterbury District Health Board (DHB) has undertaken significant efforts to bring together clinicians and establish health pathways, clinical networks, and alliances. In this district, the engagement of clinicians in these alliances and the process of their formation were widely mentioned by almost all participants. The discussions revolved around how these networks involve clinicians, as well as how they effectively address the challenges that arise within the healthcare system.

Canterbury took a bottom-up approach to engage clinical staff by creating CCN to tackle system challenges. However, according to study participants from this district, they were unsatisfied with the national agencies' methods of engaging with clinical staff.

*For the change of the number of people who fall in the community, you need people who have skin in the game, those people who fall in the community, not those people who work in buildings and healthcare. People who have skin in the game so, you could take a metaphor of the more people from bureaucracy that are in a meeting, the less chance there will be an outcome. (Clinical lead, Canterbury DHB)*

According to some participants, obtaining clinical engagement outside of the governance level has been challenging. For example, in the initial stages of the programme, it was challenging to persuade St. John to report falls and make automatic referrals. In addition, an important aspect of Canterbury's approach was not solely relying on the DHB clinical capacity to manage the programme. Instead, the

strategy involved enhancing the private organisation's capacity like private physiotherapy organisations and General Practices and providing an appropriate funding system. This approach has encouraged greater involvement of private-sector clinicians and may contribute to the programme's long-term sustainability.

***5.4.2.4 Attitudes towards collaboration*:** This part describes the extent to which organisations and individuals are willing and able to implement change in the organisation and network and how they feel about the new way of working with other organisations. Almost all participants stated their organisations are very open and advocate collaboration. Participants revealed that it had become a standard way of working in Canterbury over the last 20 years, especially over the last ten years: people sitting around the table from different backgrounds trying to solve problems. Participants also expressed that all partner organisations in falls prevention areas had a strong passion for the prevention of falls in the community.

> *I've seen a lot of things coming up in a meeting with somebody says, I've been trying to do this, and I'm not making much progress, and someone else says, I know, someone will help you with that. And I think that's the real value and that collaboration that you just need one person who's got that and with that particular area, or whatever it is, then you can really maximise the profit. (Regional injury prevention rep, ACC)*

Despite the long-term inter-organisational collaboration experience, some participants declared that inter-professional collaboration had not been achieved to the point at which it is perceived as business as usual, mainly in community and home services; for example, not all individual therapists are interested in thinking broadly and collaborating with other services.

> *When you walk into the waiting room, there were all these pamphlets of all these organisations, they could see that we were doing exercise classes, we were doing more than just physiotherapy. And even in my organisation, it was really hard to get the other physios to think wider than just their physio treatment. So, I'm not optimistic about it, I think it's quite hard to get allied health to think outside of the treatment they're giving, and to properly collaborate everything else. (falls champion, Canterbury District)*

According to some participants, there are occasional discussions about resistance to change and collaboration from GPs or primary care, but they believe that such talk is inaccurate. They held the belief that the low participation from GPs and primary care was not due to resistance to collaboration or working with other organisations. Instead, they suggested that the primary reason was the time pressure that GPs face, as they are tasked with managing multiple new services and initiatives, which makes it difficult for them to keep up with the constant flow of new developments.

> *As a GP, sometimes there is a sort of speak with that hat on there is some resistance to change or further burdening primary care incredibly under the pump*

*at the moment, that we are just not keeping up with all the new things that are being asked of us plus pressure from patients and our workloads just normal. (Primary care physician, Canterbury)*

### 5.4.3 Key Processes

This section consists of two main categories: 1) delivering care-patient screening and referral pathway; and 2) partnering (primary care involvement and partnership experience).

***5.4.3.1 Delivering care-Patient screening and referral pathway*:** One of the essential aspects of the FFPP initiatives which play a critical role in the success of the initiative is to identify and screen patients who are at risk of falls and then refer them to the most appropriate programme (can be community or In-Home S&B programme, or FLS). In this regard, three simple criteria have been used in Canterbury and other districts to identify patients at risk. The screening is done in general practice (by a GP, nurse, or even administrative staff), St. John, or community pharmacy. Community Pharmacy seems more involved in this district compared to other areas and has been a member of F&FSLA and HOPWS. Another main difference compared to other cases, can be seen as continuous endeavours by programme clinical leaders to simplify the screening process to reduce pressure on primary care and increase the referrals to the different components of the programme.

*So, they (GPs) didn't want another assessment tool. They just wanted the critical elements that would make the greatest risk. If she couldn't get out of a chair without using a handset is the first thing to notice, you would know she's had a fall in the last 12 months if you're her GP because you would have claimed ACC or get a note from the ambulance or ED that she's attended. So, second part is already complete. (Clinical lead, Canterbury District)*

There have been dynamic and two-way referral directions between the three main components of the programme. For instance, falls champions receive patients from the pharmacist, GPs, St. John, Community S&B, or even self-referral, then they also can refer patients to Community S&B. Falls champions have been strongly linked to community services in their geographic areas. Still, referrals between FLS and community and falls champions and referrals from the hospital wards (e.g., orthopaedic department and ED) to FLS need to be improved.

*And the falls champions have also been quite good at referring to community classes too because occasionally, they see someone who's quite capable and should be in the community. So, they've been good at it as well. (Community project leader, Canterbury District)*

*I've covered some of that. Referrals come from primary care, and we would like to see a lot more from secondary care. That, in some ways, it does seem a little bit daft having to employ a fracture liaison nurse who makes sure that people who have fragility fractures are properly followed up. I'd love to see the orthopaedic department taking more ownership of that and emergency services and wards in*

*the hospital do making more referrals and taking a more preventive approach to care rather than just dealing with acute incidents. (Primary care physician, Canterbury)*

St. John participants have described another attempt to make the referral process easier by adding some innovations to their electronic patient report form (ePRF) system, and the ambulance officers are now able to refer older patients to falls prevention services as part of a 'Falls Prevention Pathway' throughout NZ. Each ambulance staff has a tablet which can refer the patient at the end of the visit to the right service (referral coordinator) by selecting the service they want to refer to (without any typing or manual process). A referral coordinator in the right service checks and arranges referrals to the local service providers.

Canterbury has been working on an E-referral system since 2012 to make the process of referrals streamlined and simple and include all sorts of referrals between community services, primary care and secondary care, which can improve referral rates considerably.

*I feel it is working well in that we are set up in such a way that we get a lot of referrals. And yeah, I do feel that all the falls prevention people get a chance to learn and to talk to each other that is going really well. (falls champion, Canterbury District)*

However, some participants mentioned difficulties in the referral system like receiving incomplete referrals (like missing NHI number or medication list) and mistakes in referring patients to geographically relevant falls champions because of patients' movement.

*Some, of course, are lazy in the sense of filling it all in. So, you do get referrals without an NHI number. And you do need that number, or you do get it without a medication list, and we do need those medications lists; quite often, the receptionist has to call the doctor to get the information. So, it's not always complete…or you get a client outside of your area that was originally decided by the map. So now we have to refer them to one of our colleagues, that's a little bit messy. (falls champion, Canterbury District)*

#### 5.4.3.2 Partnering

**Primary care involvement*:*** There are two urban PHOs: Pegasus Health as the largest one (encompasses over 400,000 enrolled patients, approximately 330 member GPs, 330 practice nurses and nearly 450 staff) and Christchurch PHO (with around 37,000 enrolled patients) and one rural PHO (Whaitaha Primary Health). In Canterbury, participants were satisfied with the primary care engagement; this may be due to having one larger PHO in the district and actively involving primary care in CCN and SLAs.

*We very keen to be understood that the way in which primary care works is different from other organisations on the whole. And it's always an opportunity to say this is*

*how it works in primary care. It's great to be included as a voice, and it's the heart of the health system. (primary care physician, Canterbury)*

Other participants from other districts had even recognised this difference in involving primary care in the Canterbury region. Canterbury DHB has taken a collective relationship with primary care to demonstrate how its supports compare to other districts that may follow more competitive approaches.

*I think our programme (Auckland) was criticised for not engaging primary care sufficiently. That was probably fair, in some ways, Canterbury was engaged more strongly in primary care. (Public health physician, A&W District)*

Participants also described that engaging primary care in prevention programmes like falls prevention is crucial; however, the primary care challenges such as time limitations for patient visits and overloading with various pathways should also be considered.

Another main organisation which plays an important role in feeding the programme is the St. John Ambulance Service. It is important to note that although St. John is not a primary care organisation, they play a role in identifying and screening at-risk patients in this programme from the community. As the first point of contact for some individuals in the health system, St. John helps to ensure that those who may be at risk for certain health issues are identified and referred to the appropriate care providers. St. John's role in falls prevention has been identified at the national and local levels at the early stage of the implementation.

*St. John has a quite strong interest in falls prevention. We had one of the leadership guys on the National Advisory Group, had a couple of people in our local one… and they contribute to the programme and help feed referrals into it. (Clinical lead, Canterbury District)*

St. John has a unique position of interacting with people in their homes where they can identify potential hazards and dangers. A participant from St. John noted that within this organisation, falls is the most utilised referral pathway (among all referral pathways with which this organisation is involved), and this programme is imbedded well in their usual activity. As an emergency organisation though, changing staff mindsets to take a more preventive procedure can take time.

**Partnership experiences:** The community and in-home service providers have reported that collaborating with large organisations such as DHB, ACC, and PHOs presents challenges. These challenges include difficulty in identifying the appropriate contact person, limited access to healthcare professionals, the use of professional jargon and acronyms that may be unfamiliar, and a slow process of implementing changes.

*It is very good experience being part of the team and working with people from different organisations, but sometimes it is hard to speak to health professionals, they are so busy or using professional words. (Community project lead, Canterbury District)*

> *The DHB, of course, is a very big organisation, not a flexible organisation, it's slow to change. So, if you decide that your programme needs theraband (thick elastic bands that provide a way to strengthen muscles at home) for strength training you won't suddenly get funding for theraband. (falls champion, Canterbury District)*

The challenges posed by the size of organisations are not limited to inter-organisational partnerships; they also impact the organisation's ability to implement changes. For example, Pegasus PHO, representing 500 GPs with varying opinions, practices, and patient populations, has experienced difficulties in implementing initiatives. However, it is worth noting that not all large organisations have the same level of hierarchical layers to navigate in order to obtain permission to implement changes.

> *As a primary care physician, it takes a long time to get things approved sometimes, I certainly found it easier in the DHB than ACC; I felt like I had to get more levels of approval. (Primary care physician, Canterbury)*

As some participants have pointed out, the size of organisations is not always is problematic in the implementation of a new programme. In fact, larger organisations often have greater financial resources and are better equipped to hire enough staff to support the implementation process when necessary.

The other challenges in inter-organisational partnership have been expressed by most of the participants as funding and contracting issues, particularly when the system confronts financial constraints and prevention is not a priority.

> *There is a severe lack of money, basically. And the hard thing is, of course, falls prevention is prevention, so if you are the CDHB, and you don't have enough MRIs, or enough doctors at the ED or nurses to keep people safe, you cannot be without that. So, if it goes financially bad enough, then although falls prevention is a money saver, they could still decide like, we'll just take the wages of the falls prevention people away and bring it to the nurses because we don't have enough money. (falls champion, Canterbury)*

Participants emphasised that the organisational background and reputation play a crucial role in fostering trust among different organisations. They highlighted those past experiences, such as the ACC's withdrawal from the falls prevention programme in 2012, have led to a level of distrust among partner organisations. Concerns have been raised about the possibility of similar incidents occurring in the future, further underscoring the importance of trust-building measures in collaborative efforts.

## 5.5 The FFPP outcomes

To comprehensively understand the outcomes of the FFPP programme across the three case study sites, I employed both the F&F outcomes dashboard and the outcomes derived from qualitative interviews. The assessment of FFPP performance in each case study site was based on a combination of process indicators (integrated care domain) and two main qualitative themes.

### 5.5.1 What the FFPP outcomes dashboard revealed about implementation

The HQSC and ACC falls & fractures outcome framework defines and measures outcomes that matter to older people(*Falls & Fractures Outcomes Framework*, n.d.). The framework, elaborated further in section 3.2.4.2, has been designed to assist health sector partners evaluate the benefits of services they provide to older people and drive innovation and development. As mentioned earlier, the framework includes indicators in five main domains (fewer falls inquiries, fewer serious-harm falls, improved care hospital and home integrated care). Domain one reflects ACC claims due to falls incidents, while domain two indicates hospital admission rates resulting from serious falls. Domain three is centred around the length of hospital stays due to fractures caused by falls, while domain four concentrates on the number of older individuals receiving bisphosphonates to prevent future fractures. Lastly, domain five illustrates the number of people benefiting from community, in-home, and S&B programmes and FLS. To avoid any misinterpretation, I limited the scope of the outcomes from 2012 to 2019 due to the occurrence of Covid-19 and the implementation of various quarantine plans across different districts in NZ. For instance, Canterbury had fewer quarantine measures compared to Auckland and Waitematā and Counties Manukau. Figure 9 shows the results for the Canterbury district across the five main domains, as presented on a publicly available dashboard.

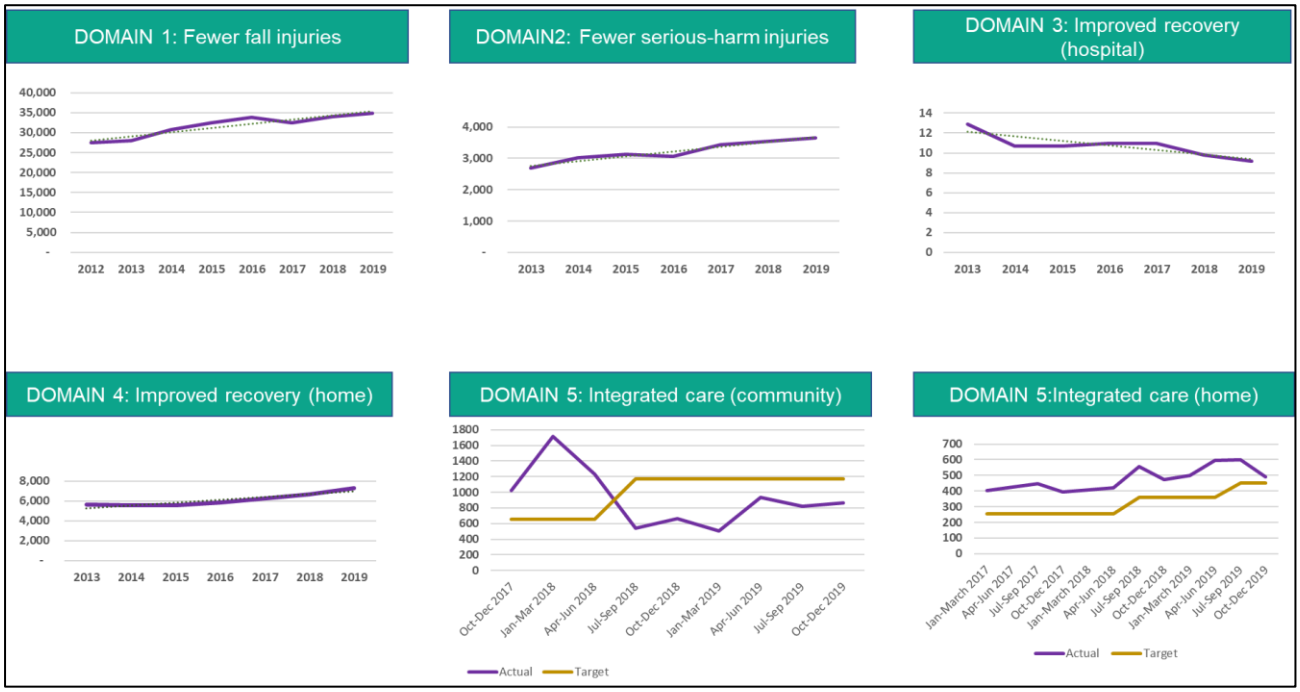



Figure 9- *Falls & Fracture outcome framework- Canterbury District (HQSC Falls and Fracture outcome dashboard)*

Despite a gradual increase in the number of falls injuries and serious harm falls over the past decade, participants in Canterbury reported that the increase was lower than expected given the increase in the size of the ageing population. Additionally, the average length of stay for injury-related admissions decreased in Canterbury (Figure 9, Domain 3); however, it was still relatively longer than the Auckland and Waitematā and Counties Manukau districts. The number of new starts on bisphosphonates (domain 4) has sharply increased since 2013, indicating that FLS has identified and

managed more at-risk patients. While the number of new attendees in community classes (domain 5, integrated care-community) was below the target, it has gradually increased since 2019 and is higher compared to the Auckland and Waitematā and Counties Manukau districts. In terms of the In-Home S&B programme (domain 5, integrated care-home), the number of new people served for a long period has exceeded the target and demonstrated a high-performing service delivery.

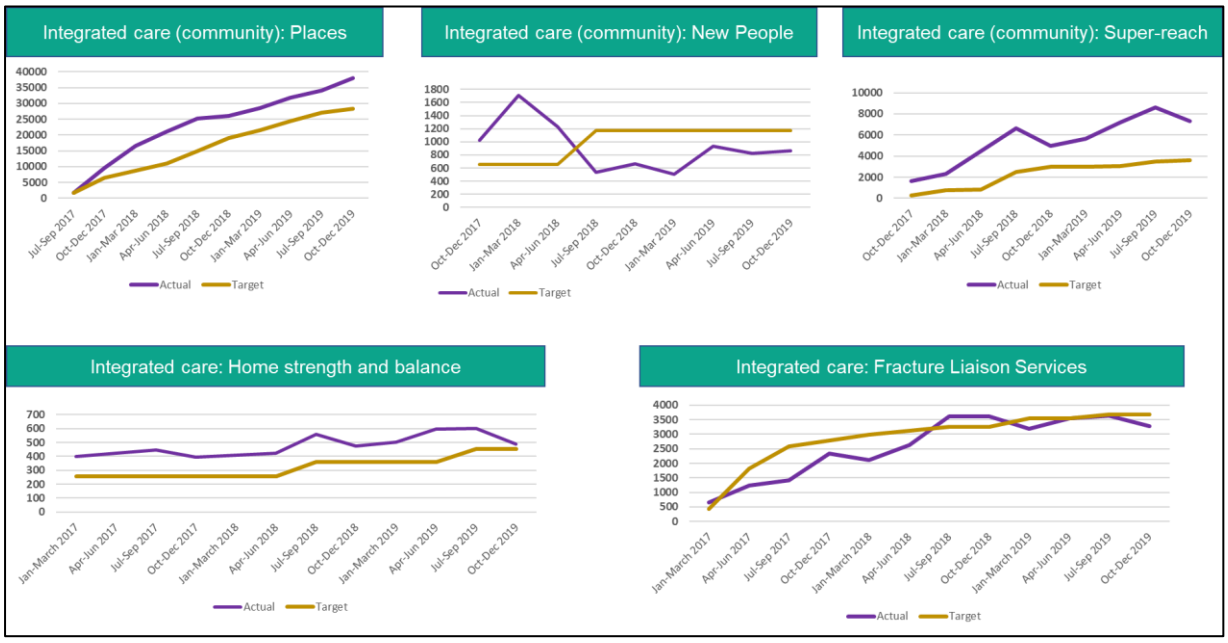



Figure 10- *Integrated care- Canterbury District (HQSC Falls and Fracture outcome dashboard)*

Figure 10 provides more detailed information on the integrated care domain (the three charts positioned above illustrate the community S&B indicators, while the chart at the bottom left represents in-home, and the chart at the bottom right pertains to FLS). The time frame chosen for this domain encompasses the period from the start of data collection in early 2017 to the end of 2019, just before Covid-19. Within this timeframe, the purple line represents the district's performance, while the yellow line indicates the target set by national organisations for each district. It is important to note that the target has evolved over time in response to the expectations and the programme's development.

Canterbury has provided the largest number of community S&B places and has seen the highest number of new participants successfully complete the sessions compared to the Auckland&Waitemata and Counties Manukau districts since the beginning of the programme. The number of places offered to older adults for community exercise has been increasing since 2017, *indicating an increase in providers or capacity. Although the number of new participants in community* classes has been below the target (which was set by central government), there has been a gradual increase since January 2019*. Interestingly, the number of people completing ten or more community S&B sessions has consistently exceeded the target for most of the period. The number of individuals seen by in-home and FLS have increased, particularly in FLS since 2018 and has been close to the target for the entire period has demonstrated notable progress and improvement. In the next section, I present themes that have been extracted from qualitative data and are relevant to the outcomes of*

*the programme in the district. Themes are participants' views about the outcomes, community awareness, and the programme's maturity and sustainability.*

### 5.5.2 Participants' views about the outcomes of this programme

I also sought participants' perspectives on the impact of the falls prevention programme in reducing falls and severe harmful falls. This inquiry aimed to capture the beliefs and opinions of participants regarding the programme's actual influence and effectiveness in addressing these issues. The participants' views regarding the impact of the falls prevention programme in reducing falls and severe falls within the Canterbury region were generally positive, which was to be expected considering their active involvement in the programme. It is worth noting that participants' views about the outcomes were somehow consistent with outcomes in the F&F outcome dashboard, and they discussed more specific indicators like hospital readmission rates and the financial benefits of the programme and explained notable achievements such as a significant decrease in hip fractures, fewer presentations to the emergency department, and reduced readmission rates.

Not all participants from involved organisations possess specific data on the programme's impact in terms of falls reduction, such as those from St. John or general practitioners (GPs), however, they expressed the belief that positive results had been attained due to the programme's longstanding implementation.

> *Now for 10 years in a row. That's over 1000 fractures avoided, over 300 people over the age of 80, they're alive, that wouldn't have been better. we can attribute one programme to the outcome of reduced hip fracture, but around a 20 to 27% reduction in hip fractures after implementation and very quickly. (Clinical leader, Canterbury DHB)*

There have also been positive statements about the number of people attending community S&B classes or In-Home S&B programmes.

> *What we've seen since the project started as the class occupancy has increased—so going from around 49% to 70 Something. So that's made it more sustainable. (Community project lead, Canterbury District)*

> *Our outcomes in preventing falls are statistically very good…, it is quite nice for the patients as well; they can see quite clearly like, "I'm improving to be able to do this, especially sit to stand", they're often astonished how quickly they go from standing up with lots of effort using two arms to I can stand up without using my arms. (Falls champion, Canterbury District)*

Participants have highlighted the financial benefits of implementing falls prevention in the Canterbury region, and it seems that the programme had some sustained economic benefits for the health system. Reduction of falls has not been the only reason for implementing that programme, as the falls

programme was considered as a link between the health system and older people and being able to wrap services around them.

> *I'm allocating around $600,000 a year to that community service to run that service and describe it in a manner that is in there has a return in terms of bed days in hospital around $10.2 million a year. So hugely economically beneficial, because there wasn't really our driver, our driver was to ensure that older folk in Canterbury had more opportunity to stay well and independent at home and they wouldn't be utilising hospital services … Falls programme is not necessarily about preventing falls, it's about improving the line of sites between a health system and older people's care in a community. So, preventing falls might look like best outcome. But it's part of a wider picture of looking after older folk and being able to wrap services around them. (Clinical leader, Canterbury DHB)*

### 5.5.3 Community Awareness of the FFPP

Canterbury has had a more sophisticated approach than the two other districts in raising community and healthcare professional awareness about the services by activating different community and in-home service providers. For instance, falls champions were actively involved in communicating with GPs in their geographical location, and community S&B coordinators had weekly presentations in the community or presentations by GPs or practice nurses.

> *In the beginning of those early years, all these falls prevention people went to all the GPs in their area. So, I went personally to all the east Christchurch GPs and talked to them about our new service. So, we're not repeating that. But in the beginning, we did a lot of that. I think we were very careful in how we set it up. And now it's very well established. (falls champion, Canterbury District)*

However, participants also declared that there is more room to improve community and healthcare professionals' awareness of this programme and that community awareness has not yet reached the desired target.

> *I still have health professionals ring me because they're confused on where to go with patients, whether they should be in-home, and they don't know how to access in-home. I say it's the same for the patients as for the health providers. It's knowing what's available and then knowing how to access it. And the community doesn't have a great awareness of what's available to them. (Community project lead, Canterbury)*

The programme's leader and primary care partners have tried different ways to make GPs aware of the available service like April Falls (an annual campaign to raise awareness about the impact of falls and to promote the latest best practice fall prevention strategies) or integrating falls screening with the implementation of flu vaccination because of the same population, but not all these efforts did work.

> *There have been awareness programmes that have gone out from the falls and fracture committee to encourage GPs to do that one of them was released called April falls, which is that when the GPs were doing the flu vaccines, they were encouraged to just observe how difficult it for people to get out of the chair and maybe put them through a short sit to stand test and time them. (Primary care physician)*

In addition, some participants declared that not the same level of awareness and service usage has been observed among different ethnicities and various age-groups.

> *The highest users for our falls prevention service are white older women, but there are a number of community groups that are centred around Maori and Pacific groups around strength and balance, and there's a real push about at the moment to develop more of those because really falls is just a long-term condition like any, like diabetes, or cardiovascular disease. (Planning and funding, DHB)*

In this district, participants involved in in-home falls prevention mentioned one of their responsibilities as visiting local GPs to provide education about the FFPP programme. According to participants, this programme is perceived as well-established due to its proper setup and proactive efforts to utilize all available resources and capacities to raise awareness. Participants expressed various innovative approaches to raise awareness among GPs, such as organising events like "April Falls" and incorporating falls prevention assessments into routine procedures like flu vaccinations. However, it was noted that not all strategies were successful, as attempting falls prevention during flu vaccinations did not yield the desired outcomes.

### 5.5.4 FFPP maturity and sustainability

The falls prevention programme has been implemented for a long time and with an organised and integrated approach in the Canterbury region. It is even mentioned that the Canterbury approach stimulated and was the striking point for a nationwide programme.

> *The meeting was affecting Hamilton (Waikato DHB) to look at was there an area of common interest where you could demonstrate working collaboratively as a central group that we could make change nationally, … , in fact, that the imperative was so strong, an exemplar in Canterbury, we were so strong that the central agency players were keen to look at an opportunity to work together to achieve something nationwide off the back of that. (Primary care physician, Canterbury)*

The programme, which includes Community S&B, in-home S&B, and FLS, was implemented before ACC's participation and financial contributions. Therefore, it is probable that the programme will continue even if ACC withdraws its funding. The participants noted that the funding of the Community S&B programme, which is overseen and not directly involved in its delivery, is a positive aspect that contributes to its sustainability. *'The oversight is funded, but not the delivery. So, when the oversight funding is removed, the delivery still keeps going. (Community project lead, Canterbury)*

## 5.6 Highlights from Canterbury District

One main highlight from the Canterbury district is its strong clinical engagement with a service level alliance for the FFPP outlining clear roles and responsibilities. Furthermore, the district's approach and mission to deliver services near patients' homes has been effectively incorporated into the FFPP. This was achieved by placing significant emphasis on the in-home services component of the FFPP and ensuring its geographical availability through the implementation of an in-home S&B programme. This strategy has fostered sustainability for nearly a decade and has cultivated enduring relationships with patients, general practices, and other in-home service providers, resulting in the provision of more integrated services for the older population in Canterbury. This district has played a pioneering role in implementing the population-based FFPP nationally, and the national-level programme has been an expansion of the successful initiatives undertaken by this district. Nearly all elements of the FFPP programme were implemented in sophisticated ways and with adherences to clinical guidelines. Moreover, a greater level of collaboration has been observed among the various components and organisations involved compared with Auckland and Waitematā and Counties Manukau districts. Furthermore, the outcomes framework in this district has shown positive results in many areas. By combining data from the outcomes framework and themes derived from interviews (programme maturity and sustainability, and community awareness), this district was identified as a high-performing district in its implementation of FFPP. Further details about the Canterbury performance are presented in chapter nine (section 9.3).

# Chapter Six - Descriptive findings - Auckland and Waitematā Districts

## 6.1 Introduction

I now move from the high performing FFPP implementation case (Canterbury) to the districts with low-moderate performance, comprising the Auckland (low) and Waitematā (moderate) districts. These districts, although separate entities, are considered together as a combined case because they share joint planning and funding for the health of older people. They also have a joint steering group for the FFPP. Additionally, community and in-home strength and balance (S&B) programmes are implemented by the same organisations across both districts. However, it is important to note that Auckland and Waitematā have separate FLS programmes, and their outcomes regarding the FFPP exhibit variations.

## 6.2 District demographic information

The Auckland metropolitan area consists of three districts: Auckland City, Waitematā, and Counties Manukau. Among them, Waitematā District is the largest with a population of 639,400 people. Approximately 14% of this district's population, which amounts to over 90,000 individuals, are 65 years of age or older. Auckland City District has a population of 509,010 people, with 12% being over the age of 65. This district is primarily urban in nature. Both Auckland and Waitematā districts have deprivation levels similar to the national average.

As mentioned in the introduction section, Auckland and Waitematā districts are considered as a combined case, referred to as A&W, due to their joint steering group for FFPP and the shared provision of Community S&B and In-Home S&B services.

## 6.3 Programme characteristics

### 6.3.1 Historical background

Prior to the national partnership agreement and the whole-of-system integrated approach in 2016, falls prevention services in this district were limited. There were a few existing programmes in place, but they lacked consistency and sustainability in their implementation. In 2016, a joint steering group was established to manage the FFPP implementation across two districts. Since the national partnership agreement and the whole system approach, the implementation of the falls prevention programme has accelerated, with a focus on engaging more of the population to make a difference in the lives of older people. After setting up the programme and building essential greater capacity, there has been an increasing focus on targeting Māori and Pacific peoples and extending new and further education for current and potential referrers.

> *I'm not quite sure what has been placed in Auckland, but certainly in Waitematā, one of the PHOs that had a strength and balance programme and then ACC had withdrawn funding for it and so that all stopped about five or six years prior to, and FLS, all the DHBs had requirements have a FLS which have been placed by the Ministry of Health, but most DHBs including Auckland and Waitematā had very*

*small services that didn't have sufficient reach. So, I think everything in there had been done to some degree in the past, but on smaller scale or not sustainably. (Planning and funding, A&WDHB)*

### 6.3.2 FFPP implementation and service delivery

#### *6.3.2.1 Community-based S&B*

The Community S&B initiative in this district is led by Sport Auckland, a charitable regional Sports Trust and operates across two DHBs. It was established in 2017 with a primary focus on training, supporting, and accrediting existing providers' classes based on nine specific criteria, rather than creating new classes from scratch.

However, the initiative has recognized the need to address gaps in the programme. For example, there was a lack of classes in certain areas or catering to specific cultural variations. As a result, efforts have been made to prioritize and address these gaps. This has involved expanding relationships with ethnic community organisations to ensure a more inclusive and diverse range of classes are available.

*I guess, the existing classes in the community, is that they already have a group of older adults that participate and that there's always space for more older adults to attend. So, they ain't at capacity; what we want to do is, rather than starting new classes in the community, to ensure that those classes that are existing are at capacity (Community S&B coordinator, Auckland and Waitematā district).*

Every week, a team of six coordinators (one leader and five coordinators) supports approximately 400 community S&B classes held across two districts. A wide range of community organisations offer falls prevention services, ranging from professional exercise clubs to NGOs providing Tai Chi. Participants reported that the number of involved organisations has increased over the three years since the programme started, indicating a growing desire among community providers to support falls prevention.

As stated by the senior community coordinator, there have been notable changes in the implementation of the FFPP since 2017. One significant change is the accreditation process for group strength and balance (S&B) classes. Previously, these classes underwent assessments every six months, which had a more formal structure. However, the new approach introduced annual assessments that are less formal in nature. This shift in accreditation reflects the programme's emphasis on continuous improvement, allowing the classes to evolve and enhance their effectiveness over time.

*We've streamlined a few of our processes around assessing providers; for instance, in our implementation plan, we set out that we would reassess classes on a six-monthly basis…we want to ensure that these classes are at a high standard and that they're still meeting the criteria. However, what we have identified over time is that our providers are delivering at a very high standard that we don't need to visit them on a six-monthly basis. (Community S&B coordinator, A&W district)*

The senior community coordinator described the FFPP approach in the Community S&B as a "brilliant way" to engage and empower the community to serve without direct financial involvement. However, they also acknowledged some difficulties in obtaining quarterly reports from providers with different sizes, structures, and services. It was also noted that without financial incentives or relationships between providers and lead agencies, it can be challenging to enforce the completion of required reports. The coordinator expressed concern that this may become even more challenging in the future, as ACC's new requirement for community providers to collect detailed information on attendees to evaluate programme effectiveness is implemented.

#### *6.3.2.2 In-home S&B*

The Community Allied Health Service, which is part of the DHB, has a contract with TBI Health, a private rehabilitation organisation, to provide In-home S&B services for people over 75 and Maori over 55 in both districts. Initially, Auckland and Waitematā DHB attempted to deliver services through locality-based community service centres, but they did not have enough physiotherapy providers. They then attempted to deliver services through a physiotherapy team within the DHB, but this was not successful due to understaffing and the fact that falls prevention was not a priority for the team. Consequently, Auckland and Waitematā DHB decided to contract with private companies instead. TBI Health was contracted as a private partner organisation to provide in-home S&B services in one district, and later added the other district. Therefore, it can be said that the implementation of in-home services has been similar across both districts.

> *We took over the Auckland DHB region from the Auckland DHB team, and around October 2019, when both contracts came up for renewal, one of them we've been there for about four years and the other one about two years but overseeing basically exactly the same contract requirements, how we're inputting, how we're providing the service is basically the same across both (Auckland and Waitematā district). (In-home S&B manager, TBI Health)*

The In-Home S&B providers assess each patient using specific criteria and conduct a standard physiotherapy assessment of their strength and balance, along with pre- and post-assessments to measure outcomes. The programme follows the Otago Exercise Programme and includes six in-home visits for each patient, with a four-point measurement taken during the first and last visits to determine progress and whether the patient should continue or be referred to another programme. While home risk assessments are part of their services, the providers have limited time during the initial assessment visit and perform this part of the assessment briefly.

> *This is what you have to do in every home; there was a house safe checklist that we included in a booklet. We printed the booklet for every single patient we saw in the community, in the front of that booklet we have, how safe is your home, and went through corners of the way, your mats and …. But again, there wasn't enough time within the contract to do a full-house assessment. It was really just what you*

*could mention to them during that initial one follow-up assessment. (In-Home S&B manager, TBI Health)*

In-home service providers receive referrals from various sources, including community providers, primary care, GPs, St. John, and self-referrals. However, participants in the in-home service expressed concerns about the insufficient number of referrals received from GPs. They also noted that the process of obtaining a referral from GPs can be time-consuming for patients. As a result, many patients opt for self-referral. To address the issue of increasing self-referrals, TBI health has streamlined their process to ensure that all eligible and at-risk patients have access to their services. In response to the low number of referrals from primary care, the DHB has taken steps to address the issue. They have specifically requested in-home service providers to proactively promote their programme and establish effective communication channels with GPs.

*So, it's kind of referring the patient themselves to the programme, self-referred normally. If they (patients) want to self-refer, they might make contact with us and say they want to be on the programme, and we would then initially still triage that as such, or at least make sure they're appropriate. …. So, they are self-referring, but we're officially doing the referral for them if we deem it appropriate. But we do that as common because friends of those involved in the programme find out about it and they want to be actively involved. It's a bit of a slow process for them to go back to the GP. (In-Home S&B manager, TBI Health)*

Auckland and Waitematā DHBs funded the in-home service in the region until September 2022, but the continuation of the programme after that time remains uncertain. At the time of the interview, the in-home key informants mentioned that there was a 3-months waiting list with applying a triage system to pick up at-higher-risk patients. Despite receiving 200 patients every month, which is higher than the contract, TBI health is expected to face longer waiting times and reduced volume due to the withdrawal of funding from ACC and the reliance solely on DHB funding. This highlights the high demand for the in-home S&B service in the region.

#### *6.3.2.3 Fracture Liaison Service*

Both districts have implemented FLS programmes, but with differences in their approach and results. To begin with, I discuss the similarities in the implementation of the FLS in both districts. Subsequently, I provide specific information about each FLS programme separately. Both FLS programmes operate through the hospital system and endocrinology, with the objective of identifying additional patients with fragility fractures. Currently, both programmes emphasize identifying younger patients, as patients over 75 years old with fragility fractures are believed to have osteoporosis.

**Fracture Liaison Service in Waitematā district**

The Waitematā DHB Fracture Liaison Service (FLS) was established in late 2012 after a period of careful planning by a coalition of multi-department representatives. The aim of developing the FLS was to prevent fractures in those at the highest risk of future fractures by capturing fragility fractures

presented to the hospitals and implementing appropriate assessment and treatment for osteoporosis. The project was initially geriatrician-led, with guiding support from Osteoporosis NZ. Regular multidisciplinary meetings were held with relevant representatives from various subspecialties (Older People's Health, Endocrinology, Orthopaedics and Emergency Medicine), and they successfully secured DHB funding in 2013 for ongoing FLS in the district. In 2013, FLS providers started capturing fragility fracture (a pathological fracture that results from minimal trauma (e.g., a fall from a standing height or no identifiable trauma at all) cases, some from inpatient wards but mainly from the Orthopaedic fracture clinic. One hundred and sixty cases were captured in the first year, with the majority being fractures of the wrist and humerus and some vertebrae, hip, and ankle fractures.

> *I took over in 2013; our main hunting ground was actually the orthopedic fracture clinic at North Shore hospital. So, that was where more than half of our cases would come from. So our fracture liaison nurse would actually manually go through fracture clinic patient lists, and basically, because we are looking for patients over the age of 50, who suffered a fragility fracture, osteoporosis-related fracture, so our nurse would sort of take people out if they were younger than 50, or if they suffered a fracture as a result of a big trauma… and then would sort of identify patients who basically suffered a fracture from a low impact trauma. (Clinical lead, FLS, Waitematā district)*

There was a change of team at the end of 2013, and the protocol was fine-tuned for the implementation of more systematic and streamlined case detection, assessment and treatment.

> *So, during those years, it was our process of sort of increasing our reach in terms of identifying where the patients with fractures were being missed, and we wanted to sort of improve our capture rate. So that's when ACC-produced fracture lists, ... our nurses then started sort of sifting through those patients ... So, the vertebral fractures often wouldn't present as back pain to the hospital. Still, they would often be incidentally discovered on radiology …, So that would be our Waitematā DHB radiology for things like chest x-rays, MRI and CT scans that included the thoracic or lumbar spine region. So, any of those images, if the report contains certain keywords like compression, fracture, or depression, we were automatically given those patients' details. (Clinical lead, FLS, Waitematā district)*

Since achieving the "Bronze" status from the International Osteoporosis Foundation (IOF) in 2013, the Waitematā district has demonstrated a strong commitment, dedicated clinical leadership, and sufficient capacity to enhance the delivery of their FLS. Through nearly a decade of continued development and expansion, they have funded additional nurse specialists, increased patient capture through clinical coding, and extended their reach across various wards, resulting in their latest evaluation from IOF awarding them a gold medal for their robust FLS system.

> *We got the bronze on the basis of how 2014 worked. In 2017-2018, I knew that our service wasn't quite up to scratch for gold, but we were good enough for probably silver. So, I actually thought about putting in an application for silver but didn't go because it's a lot of paperwork. Our nurse mentioned a couple of years ago that we should be going for it. I believed that we had enough FTEs to get there. We were weak on falls assessment, vertebral fracture capture rates, and follow-ups. We identified those gaps and made some implementation changes since 2019.* (Clinical lead, FLS, Waitematā district)

The FLS process in this district is first to identify patients with a fragility fracture and then contact via phone, and those eligible patients go through selected laboratory investigations and refer them to do a bone density scan (those aged between 50 and 75 years) to aid treatment decisions. After completion of the assessment, each individual's case is discussed by the FLS team, and a brief clinical letter is addressed to the patient's GP. Complex cases, especially those with recurrent or multiple fragility fractures, are arranged to be seen in the endocrinology outpatient clinic.

> *There are deficiencies, but we are fairly confident that we are capturing at least 85, maybe 90% of what we should be capturing, and I don't know whether anyone else has mentioned this, but there is no such thing as perfect FLS, that there is no such thing, there will always be missed cases or, sub-optimal management and things. (Clinical lead, FLS, Waitematā district)*

Since 2012 when FLS started in Waitematā, there has been a continual collaboration with Osteoporosis NZ and IOF to publish a clinical standard and best practice framework which streamlined the process for all FLS providers across NZ. The clinical leader has highlighted this collaboration in Waitematā as beneficial for delivering standardised services.

> *When I first started, there was no sense of direction. I didn't know what needed to be done or how to improve things. I had to rely on international literature. But now, we have the New Zealand fracture liaison services standard and the recently published second edition of that paper. The International Osteoporosis Foundation has the best practice framework (BPF), which has become more prescriptive and refined over the years. Their criteria for adjudicating gold, silver, or bronze provide clear direction on which way to move. (Clinical lead, FLS, Waitematā district)*

While FLS in Waitematā has operated at a high standard, some inter-organisational challenges were also expressed by participants regarding working with a private company for the bone density scan. FLS nurses expressed the high quality of the scan and the results but were also concerned about the challenges, such as long delays and communication issues. Another criticism raised by FLS team in Waitematā was the unavailability of bone scans in the hospital, resulting in lengthy FLS processes for patients and placing unnecessary strain on FLS nurses.

> *We have to refer patients. So, when they are in a hospital, they can't have it. They have to go home, wait for a month, and then we have to follow up; actually, it is quite time-consuming to do it that way, rather than having a bone scan at the hospital, and when they (patients) are in the hospital, scan test takes only 15 minutes, is so easy. But we cannot do that, so as a lot of workload to actually having to follow up with patients later on and then try to get them to go there. (FLS nurse, Waitemata DHB)*

FLS key informants also mentioned that implementing a fully integrated FLS system needs active engagement with community and In-Home S&B programmes and with GPs for the patient's care plan; however, because of the limited workforce and time pressure, these parts are not conducted appropriately. FLS nurses have also expressed the limited community providers' capacity to record patients' attendance as an inter-organisational challenge where they need reports regarding how many referees started the classes.

**Fracture Liaison Service in Auckland district**

Before the national partnership agreement in 2016, there was funding for a part-time nurse in Auckland hospital. Initially, the Auckland FLS was under the geriatrician service, but it was later transferred to the endocrinology department. At one point, the FLS had two nurses, but they eventually left the job, and currently, there is only a part-time FLS nurse remaining.

The nurse primarily reviews referrals from hospital wards and the emergency department (ED) and utilises the FRAX measure (Fracture Risk Assessment Tool score is used to determine a person's 10-year risk of major osteoporotic fracture). Based on the assessment, the nurse determines if the patient requires bisphosphonates or a bone density scan. In some cases, bisphosphonates may be initiated for patients while they are still in the hospital. To streamline the process, the district has optimised it to ensure that patients can receive the necessary scan and treatment on the same day. The service also collaborates with other relevant community services, such as providers of bone density scans and S&B programmes. Additionally, the referral and communication process includes recommendations to GPs.

> *We treat most of, the majority of our patients, we treat with intravenous medications, and we will treat them at the same time. So, they'll have everything done at the same time. So, we're very interactive with our patients; I don't just send letters or send them to someone else. We actually run a clinic twice a week, and the doctors run three band clinics a week. (FLS nurse, Auckland DHB)*

Patients in Auckland DHB can be scanned for osteoporosis beyond the age limit set by ACC as long as other risk factors are present, whereas ACC only funds scanning for people under 75 years old. Unlike ACC, which only funds scanning for individuals under 75 years old, this region allows for broader eligibility. There are also variations in treatment types and follow-up timeframes within the region. According to the Osteoporosis guideline(*Clinical Standards for FLS*, 2021), follow-up appointments are recommended at four and twelve months after treatment. However, in cases where

intravenous infusion is administered, regular follow-ups may not be necessary. FLS nurses have expressed concerns that ACC's FLS programme target setting does not take this into consideration.

> *It was very patchy, so there was a lot of change in staff, and there was some uncertainty as we know which doctor is leading the service and funding and all that kind of jazz. I know Auckland DHB had a very challenging time. But in terms of how they operate and why they couldn't sort of obtain silver or gold level of service back then, it's hard to say. But I think the key difference between Auckland and us is having like a dedicated clinician and also very supportive management. (Clinical lead, FLS, Waitematā district)*

FLS nurses in this district have reported concerns about missing patients in the community, as GPs have not been proactively referring patients. They (FLS nurses) stated that GPs may be less motivated to conduct screenings and refer patients to the appropriate services, particularly when there is no urgent need or financial incentive, such as in cases of osteoporosis.

> *Some of them (PHOs)are more proactive than others, and a few that I can think of around here are pretty good. But some just it's not in the forefront of the mind. Because it's not something that's necessarily going to kill you, so, we basically do all the work… sometimes will be a case of the patient wanting to speak to the GP, and when you go back and look at their records, it's never happened, so there is a bit of a disconnect. (FLS nurse, Auckland DHB)*

FLS nurses expressed criticism of the ACC's decision to withdraw funding from the FFPP. They emphasized that falls and fractures would remain a significant issue in NZ, given the rising life expectancy and changing lifestyles. Therefore, they believed that the ACC or Ministry of Health should establish a sustainable funding mechanism to support this preventive programme.

> *It shouldn't be a cap on the funding, the Ministry of Health have to take it over, or ACC should permit funding, because it's not going to go away, and people are going to end up breaking the longest. It's not going to stop. There isn't a cure for osteoporosis. And I doubt there will be you can just lower your risk of breaks, and that is the best we can do, I don't see why ACC is putting caps on it. (FLS nurse, Auckland DHB)*

## 6.4 Organisational and inter-organisational characteristics

### 6.4.1 Basic Structure

#### *6.4.1.1 Governance and Service-Level Alliance*:

A key distinction between this district and others is the joint planning and funding for the Health of Older People between the two DHBs. This collaboration enables the coordination of programmes focused on the Health of Older People, including the FFPP, under a unified governance group spanning across both districts.

*Because our planning and funding team is joined, we have merged the planning and funding team across Auckland and Waitematā. So, they're still two separate DHBs. I am the manager of the Health of Older People funding for both DHBs. So that's why we were going through it together. (Funding and development manager, A&WDHB)*

The shared Falls Leadership Group started in 2016 (before the formal national agreement) with attendants from both DHBs to run and facilitate the implementation of the programme and expand the limited capacity of the existing community programme. This steering group comprised senior DHB managers, clinical members, DHB managers (DHB Planning and Funding, the Hospital Provider Arm as well as Community and Long-Term Care), ACC, PHO and GPs and consumer representatives. After the formal agreement with ACC in 2017, operational arms such as in-home S&B, the lead agency for the community S&B service, were also added to the steering group.

*So, when we initially joined the steering group, there were a couple of the Primary Health Organisations, there was a gerontologist, we had AUT (a university in Auckland), and we had St. John's. They were a couple of consumers, a couple of older adults that were represented, and probably about three different representatives from the DHB, so, it was quite a good mix. Now that we have things up and running, it's now just the two DHB representatives. And ACC was involved in really great and then myself. So, community strength and balance, In-Home service and FLS. So that's what it is currently. (Community S&B coordinator, A&W district)*

Over time, the governance group transitioned from a steering group to a more operational level, focusing on specific targets. A number of participants highlighted the lack of clear roles for each member at the programme's outset as a reason for resizing the steering group. At the time of interview in 2021-2, the operational group was relatively small, and even FLS coordinators from both districts had recently been included in operational meetings. Recognizing the existing gaps and the absence of crucial partner organisations, there is a review underway to restructure the operational group and ensure the inclusion of all essential partners.

*Our quarterly meetings are quite operational at the moment, and I think this will change come 1 July 2021, as there are going to be additional requirements needing to be met for the FLS service with regards to meeting the ACC contract. It was identified we did not have any PHO representatives within the group – this has now been rectified. We will also be looking at inviting a gerontologist to join the group and will continue to review this as and when necessary. Only the ADHB endocrinologist attends the quarterly operational meeting; however, the WDHB endocrinologist is very engaged with the programme. (Programme manager, A&WDHB)*

In summary, the district governance team has observed a lack of participation from all six active PHOs, St. John, pharmacy, programme clinical leader, and customer representative. As this steering team operates the programme in two districts, involving relevant participants from both areas has strengthened the implementation by creating clear roadmaps and allocating distinct roles and responsibilities.

#### *6.4.1.2 Resources*:

Funding: The programme is funded by the DHB with ACC's financial contribution. Funding allocations are clinically driven, based on quarterly results monitoring. The ACC funding is being used to coordinate the accreditation of community-based S&B classes through contracting the Lead Agency and to the provision of an In-Home S&B service based on a fixed payment and the provision of the FLS.

> *There's a fixed amount budget, essentially. And there's a per-patient amount, and we have to enrol that certain amount within that. So, if we go under, I guess we'd have to pay the DHBs back. Or if we go over, there's no additional funding if we go over. So, we have to stick to a bit of a tight schedule on that. (In-Home S&B manager, TBI Health)*

Several participants in the discussion described community service funding as a successful model that effectively enhanced community capacity. They were pleasantly surprised by the positive outcomes and high participation rates. However, some participants expressed concerns about the joint funding model employed for the entire programme. They criticized this approach for causing uncertainty, increased staff turnover, and an excessive amount of paperwork and bureaucracy. Despite these criticisms, the overall sentiment remained that community service funding had been beneficial in empowering the community.

> *For the group funding, I was surprised at how well they did actually because I thought that in their model where they were just found a lead provider, they wouldn't provide any money for the patient to the free. I was sceptical, but I was pretty pleasantly surprised that they got such large uptake. (Planning and funding, A&WDHB)*

The participants expressed significant concern about ACC's withdrawal from the programme, affecting all aspects of the initiative. While community classes may be less impacted by this withdrawal, there are concerns about the accreditation and monitoring component, which could potentially compromise the service quality. In the case of the In-Home S&B component, where ACC funding was withdrawn from mid-2021, a significant reduction in service delivery is expected. This situation has led providers to narrow down the criteria and focus on serving only the highest-risk patients. Although FLS funding will continue until 2024 based on accreditation results of IOF, there are concerns regarding the future of the service even in districts like Waitematā, which have achieved gold medals.

> *I definitely think this model is far better in terms of the classes; it's not going to impact the classes. There might be a couple that it might impact a little more, but*

*it's not going to impact the classes to continue because they are self-funded or funded through various ways. So, however, I guess the thing is that if we stopped being a part of the service, then people don't know where to go to find these classes. And I think that is a real challenge… so we know that we've got a really good standard of classes across the board. But I guess it could fall back, and anybody could be delivering a class to an older adult, and it could be extremely unsafe. (Community S&B coordinator, A&W district)*

Human resources: In terms of human resources, the FFPP relies on five Community S&B coordinators and one private physiotherapy organisation that has employed seven physiotherapists to cover both districts. Regarding the FLS, there are differences between the two districts. Waitematā has two full-time specialist nurses and plans to hire an additional nurse to enhance the robustness of the FLS operations and maintain the gold standard. On the other hand, Auckland has only one part-time specialist nurse, indicating a shortage of staff for the FLS in the district. However, efforts to facilitate service delivery and streamline processes have helped mitigate this staff shortage.

*We have a team of five, including myself, so, we did have a team of six. But that has how Harbor Sport, I guess, did a little review and established that we didn't quite need that resource. In purely for the fact, I mean, we've been, I guess, being overachieving, we've got a place target. (Community S&B coordinator, A&W district)*

To address the challenge faced by Waitematā DHB in hiring physiotherapists, the utilisation of private sector capacity across both districts has proven to be a valuable solution. By partnering with a specialized private organisation, there has been increased flexibility in hiring healthcare professionals and utilizing healthcare assistants to deliver services. Additionally, small-scale services like FLS, which heavily rely on specialist nurses, often encounter difficulties in recruitment and staff replacement. This has particularly been a challenge in the Auckland district.

*I can probably talk more about the in-home one that was to be delivered by physiotherapists. That was specifically stated by the technical advisory group of what should be done by physiotherapists or trainers, …, and that was very difficult, particularly for DHB providers, because they just couldn't get the staff. The private providers seem to have managed that better, and they had to switch from using physios and nurses purely. The FLS tend to be small services that are highly dependent on a few skilled people. And if they leave, it can be a struggle to find someone to replace them. (Planning and funding, A&WDHB)*

#### *6.4.1.3 Information Technology*

In 2012, the metropolitan region of Auckland, encompassing Auckland, Waitematā, and Counties Manukau, implemented an e-Referral system known as CareConnect Referrals. This system allowed for the electronic transmission of referrals to public hospitals, significantly enhancing the quality of patient care. Subsequently, in 2018, the DHB Elective eReferrals technology (DEeR) was launched,

enabling electronic referrals within the DHB as well as referrals to other DHBs within the region. This technology has played a crucial role in facilitating the seamless transfer of information between primary and secondary care. However, it should be noted that not all community service providers have yet been integrated into the e-referrals system.

> So, for all the three DHBs in Metro Auckland, ADHB, WDHB, and CMDHB, have e-referrals, or web referrals, The TBI Health, and Harbor sports, they also accept email, and they'll accept self-referrals. (Portfolio manager, PHO)

FLS services in both districts primarily receive referrals from hospital inpatient and outpatient wards. Nevertheless, there have been initiatives to identify all patients admitted to the hospital with low trauma fractures and automatically refer them to FLS services, particularly in Waitematā. The e-referrals are received by community coordinators through a system called Citrix. However, some challenges regarding referrals have been reported, such as receiving incomplete referrals from certain organisations.

> *In the Auckland in Waitematā DHB areas, we receive the data through a system called Citrix, and that's where we've got a portal that we go to receive those referrals. For instance, if we don't have sufficient information, we will then go back to the referrer and aim to collect that information. As I mentioned before, with St. John's, that has been a little bit of a challenge with receiving all the relevant data we need… For secondary care, I can now refer through electronic referrals. However, initially we couldn't, …, we developed a referral tool or a webform on our website, so the fracture liaison nurses could go in the end, put the information of the patient in the ER and then it would come through to us electronically. (Community S&B coordinator, A&W district)*

Initially, the In-Home S&B programme relied on manual and fax-based referral processes. However, by the time of the interview, they had transitioned to an electronic system for receiving referrals from GPs and the hospital system. Nonetheless, referrals from organisations like St. John still rely on paper referral forms. The in-home service provider highlighted the challenges encountered in establishing an E-referral system between a private physiotherapy organisation and other partner organisations due to various IT systems and privacy requirements. However, once implemented, the process became more streamlined. While significant progress has been made in improving procedures, the complete implementation of the E-referral system has not yet been accomplished.

> *Originally, it used to be via, mainly via paperwork via fax because that was the structure of how it was being sent, and now it's moved to more of an E-referrals base, and not only from GPs, but from the hospital environment as well. So predominantly, our referrals come via e-referrals; they go directly to an inbox that we've got set up with the DHB. Our administrators review those referrals and if they're appropriate, based on the initial criteria, and then from there, send to us …*

*So, the referrals come from other organisations via a paper referral form like St. John's and other community health. (In-Home S&B manager, TBI Health)*

### 6.4.2 People and values

***6.4.2.1 Common goals and vision:*** In this district, all participants shared a common objective of implementing the FFPP to reduce fall incidents, albeit with varying motivations. Notably, differences in reasoning emerged between the two main partner organisations, ACC and DHBs, particularly concerning demonstrating programme outcomes and deciding its continuation. Some criticism was directed towards how other organisations perceived ACC solely as a funding source, despite ACC's intention of providing an opportunity for partners to invest and benefit from the programme.

In addition, tensions also arose between DHBs and PHOs regarding their respective roles, while some participants observed distinctions between PHOs and GPs, with PHOs being more attentive to participants' GP needs rather than the patient's needs. While organisational differences were acknowledged by some, others regarded the experience of collaborating with diverse organisations, each with its own culture, philosophy, and goals, as positive.

*ACC need to show a reduction in claims which is quite a difficult thing to do. So, I think that's something we've struggled with what shows that you've got a good programme for assets, implementing what is already an evidence-based programme with good fidelity, but as I said, the ACC did to show a reduction in claims. (Funding and development manager, A&WDHB)*

*In terms of values, I don't think there's a problem with values, I think, that values are fairly commonly shared. I think there was a problem with PHOs, and that PHOs were set up to be organisations that serve their enrolled community. But for a PHO would be successful, people don't join a PHO; GPs join PHOs. So, the reality is that for PHOs to be successful, they had to be very cognizant of the needs of GPs. (Planning and funding, A&WDHB)*

***6.4.2.2 Commitment to learning*:** Both Auckland and Waitematā districts utilised a variety of communication tools, either intra or inter-organisational, created either by national or lead organisations. National platforms created by ACC, such as monthly conferences for community coordinators and a virtual network for FLS, are also being used in these districts. In addition, local networking activities have been organised to facilitate communication and experience sharing. For instance, Harbor Sport Trust has set up networking lunches to connect Community S&B service providers and create a sense of belonging within a bigger network for providers who typically work independently. However, many participants in this district, as well as other districts, criticised the lack of national and regional falls prevention conferences or integrated forums that engage all providers involved in falls prevention at different levels, particularly regarding in-home services or FLS.

*We want to be able to offer benefits, so to the providers are a part of this network. So we started doing our networking lunches, where we had a guest speaker*

*(University academics)... One instructor that is it's their own business, they don't have any affiliation with any organisation and that sort of thing. So, when they join our programme, they feel like they're part of something bigger, so they can also network with like-minded people. (Community S&B coordinator, A&W district)*

*We have our own meetings, so because we're not doing it anywhere else, I don't think we've actively shared too much across the group … there was an email group that was set up to share information and ask questions and ideas and I'm a little bit more removed from that now, so I'm not sure if that's still the case. (In-Home S&B manager, TBI Health)*

***6.4.2.3 Clinicians' engagement:*** In my observations within the Auckland and Waitematā district, I noticed that clinicians are involved in certain aspects of the programme. However, compared to other districts, there is a noticeable absence of clinical leadership for the entire programme. In Waitematā, the FLS programme benefits from a strong clinical leader who guides the programme effectively, which may have contributed to its success in this district. Conversely, concerns were raised about the lack of robust clinical leadership in the Auckland FLS programme.

*This was something that was a surprise to be expected from the size of the programme, as I had so the level of myself, probably had a lot of time for the size of the programme that had strong support from management's hierarchy, CEOs level sort of got involved in the management, and it also had strong support from clinical leadership through the geriatricians and clinical leaders, so I think there was strong support, in terms of the provider on the provision, probably not so strong, because they had other priorities and falls was a low priority then. And that is the reason that was not a successful relationship. (Planning and funding, A&WDHB)*

***6.4.2.4 Attitudes towards collaboration:***

The majority of participants displayed a positive and supportive attitude towards collaboration, recognizing it as an integral aspect of their organisational responsibilities in actively seeking and engaging with other organisations. However, a few participants observed that collaboration may sometimes impede the process and suggested establishing a balance between collaborative and contractual relationships. Despite this, most participants reported a positive experience with their partnerships with other organisations.

*I think the DHB values collaboration. But there's so many people you have to contact, and we have many other issues and a tiny funding team. There's a collaborative relationship, but there's also contractual relationship, and we have to balance the two. And when you're working with the PHOs, the relationship between*

*DHBs and PHOs is very difficult, because it was never clearly laid down what is the role of the DHB and what is the role of PHOs, and they're constantly fighting around roles. (Planning and funding, A&WDHB)*

### 6.4.3 Key Processes

***6.4.3.1 Delivering care- Patient screening and referral pathway*:** One crucial element of the FFPP initiatives is the identification and screening of patients at risk of falls, followed by appropriate referral to the most suitable programme, such as the community or In-Home S&B programme, or FLS. In this district, similar to other districts, three simple criteria have been employed to identify at-risk patients. General Practices and St. John serve as the primary sources for screening, while self-referrals are accepted by community and S&B services. It is noteworthy that since the programme's launch, the number of referrals from GPs to Community and In-Home S&B services has increased, as reported by participants. However, FLS programs in both Auckland and Waitematā are still experiencing low referral rates, with relatively few referrals received from GPs or other services.

*We do have a community or primary care to fracture liaison referral channel, we do have a way of doing it; and I have occasionally received that through electronic services, but it's not a very strong kind of referral route at all. So, what happens is a general practitioner has a community fragility fracture which we, for whatever reason, haven't captured; for example, a 55 or 60-year-old patient had a broken wrist, and the X-rays done in the community, that's why we haven't captured. (Clinical lead, FLS, Waitematā district)*

FLS participants have expressed their dissatisfaction with the lack of complete integration among the different components of the programme, leading to the absence of follow-up loops between them. Different referrers have expressed varied requests, with some desiring to know the outcome of the referral. For example, FLS coordinators require the referral's outcome to fulfil one of their Key Performance Indicators for accreditation. Currently, there is a need for systems that can accommodate and meet the diverse requirements of different referrers.

*So, from our perspective, one of the problems is that there has been very little feedback from the falls prevention programme that we refer to; we just don't get any feedback. Of the patients that we refer, we have no idea, like, who actually gets seen and you know how they are intervened, etc., so that's one of the reasons I mean if we keep referring and hear nothing back, we don't have any data of what happens to them. I suppose that discourages us from making a referral. (Clinical lead, FLS, Waitematā district)*

In addition, inter-referrals between the three main components of the programme are being carried out, but not to the extent expected.

> *We will still receive referrals from primary care that the person may not be able to leave home, they may be too frail, for instance, and so that's where we will then refer them to the in-home service. So, that works the other way, not quite as much as the other way. We seem to get more referrals going to in-home, than the in-home being sending to us. (Community S&B coordinator, A&W district)*

#### 6.4.3.2 Partnering

**Primary care involvement:** There are seven PHOs operating in the Auckland and Waitematā districts to provide essential primary health care services to their registered populations, including Alliance Health Plus Trust, Auckland PHO, East Health Trust, National Hauora Coalition, ProCare Health (PHO) Limited, Total Healthcare PHO, and Comprehensive Care. Since the launch of the FFPP, primary care, particularly PHOs, have actively participated and made significant progress in implementing the programme and referring patients to community and In-Home S&B services. However, the level of involvement and contribution from PHOs varies due to differences in size and structure. While some PHOs are actively engaged, others are still working towards ensuring active participation from all their registered GPs. One factor contributing to the limited contribution from primary care in this district is the presence of multiple PHOs with varying structures, making it challenging to establish a consistent system. The level of engagement of primary care at the governance level was also discussed, as it can influence their level of participation. PHOs that have engaged as a key partner tend to have a higher level of contribution. However, it was observed that primary care's involvement as a key partner has not been strong in this particular district since the beginning.

> *A particular challenge was receiving, getting referrals from general practice, and I think that was probably a failure of the model and the way we started the programme, we tried to engage widely and said the primary care was engaged, but they're not engaged as one of the main partners, in terms of governance and setting up the model, and, for instance, Christchurch engage general practice as the key partner, we didn't do that. There are many reasons well; one of the primary reasons for not doing that was because Canterbury had one dominant PHO, Auckland DHB had five at the time, and one PHO was quite dominant as well, which is ProCare. (Planning and funding, A&WDHB)*

**Partnership experiences:** The majority of participants shared positive feedback on their experiences with collaboration and partnership in the FFPP in the Auckland and Waitematā district. However, some significant challenges have been identified. Firstly, participants highlighted the initial difficulties in partnering, as they involved changing organisational approaches, priorities, and extending the scope. For example, engaging St. John, a new player in the prevention field, proved challenging, requiring the

simplification of criteria and the application of different methods to engage frontline crews. Secondly, the size of partner organisations was mentioned as a challenge, as larger organisations tend to have more complex structures and higher staff turnover, making it difficult to connect with the right people. Since most of the partner organisations were large ones with multiple providers and services, participants described the process of finding and connecting with the appropriate individuals as "chaotic and confusing." Collaborating with a private organisation for the diagnostic bone scan in FLS in Waitematā presented additional challenges, as efficient communication channels and appropriate reporting lines were not effectively established.

> *We actually have a lot of issues to deal with then a lot of services out there because we have to deal with a private contractor, and we have to actually work with them all the time. Like when they have some issues with their own things and then we get affected to the service quite has been an ongoing issue that we have had to work with our contractor for the last few years. Whereas Auckland is easier because it just gets the patients through and gets the result. (FLS, WDHB)*

Participants in the FFPP in the Auckland and Waitematā district feel that the FLS service is somewhat disconnected from the overall falls prevention programme and needs to be better integrated and connected to other components. Additionally, the desired inter-professional relationships between the FLS and hospital professionals such as surgeons and radiologists, as a team, have not yet been fully realised.

> *I think there's less the fracture liaison service sits a bit more independently, we do refer to the strength and balanced programmes, but it would be good to increase that, but often when they're seeing someone, they've actually got a fracture. So, it's, it's difficult. But I think it is good to work as part of a system. (Planning and development manager, A&WDHB)*

## 6.5 FFPP outcomes

This section presents the outcomes for Auckland and Waitematā districts, highlighting observed variations. Figures 11 and 12 depict the five main domains in the F&F outcome framework for Waitematā and Auckland districts, respectively. Domain one reflects ACC claims for falls incidents, while domain two indicates hospital admission rates due to serious falls. Domain three focuses on hospital stay lengths for fractures, domain four on the number of older individuals receiving bisphosphonates, and domain five on the beneficiaries of community, In-Home S&B programs, or FLS.

### 6.5.1 What the FFPP outcomes dashboard revealed about implementation

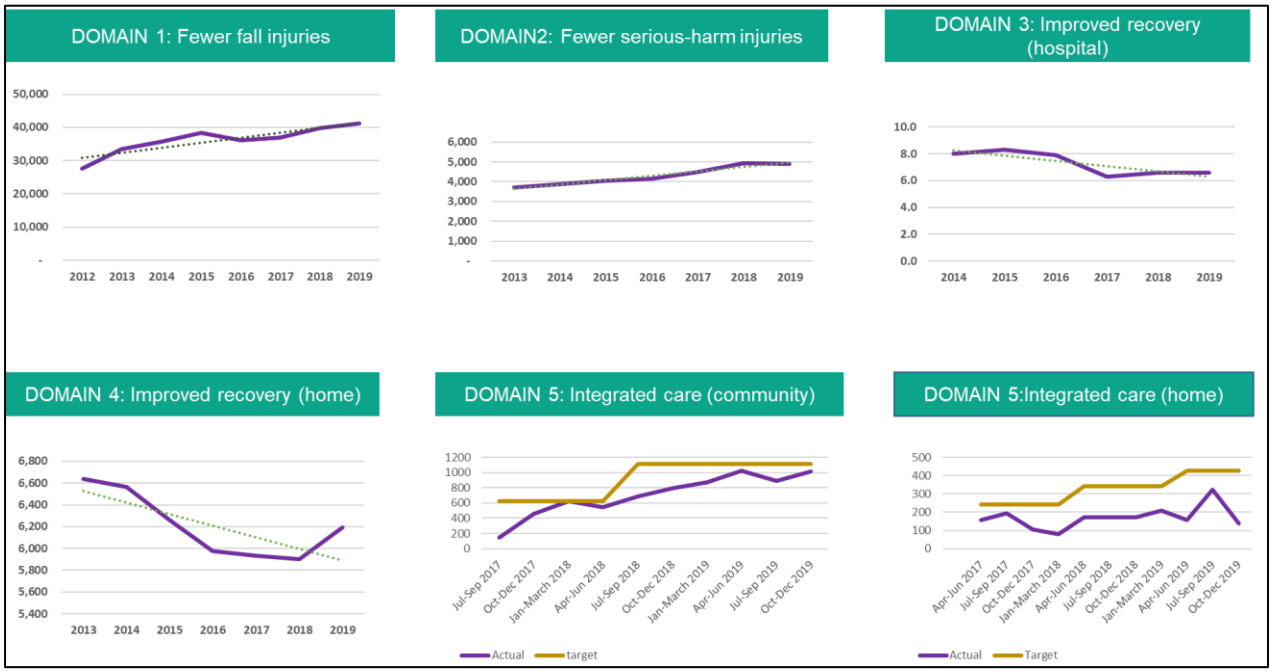



Figure 11- *Waitematā District performance in Falls and Fracture Programme (HQSC Falls and Fracture outcome dashboard)*

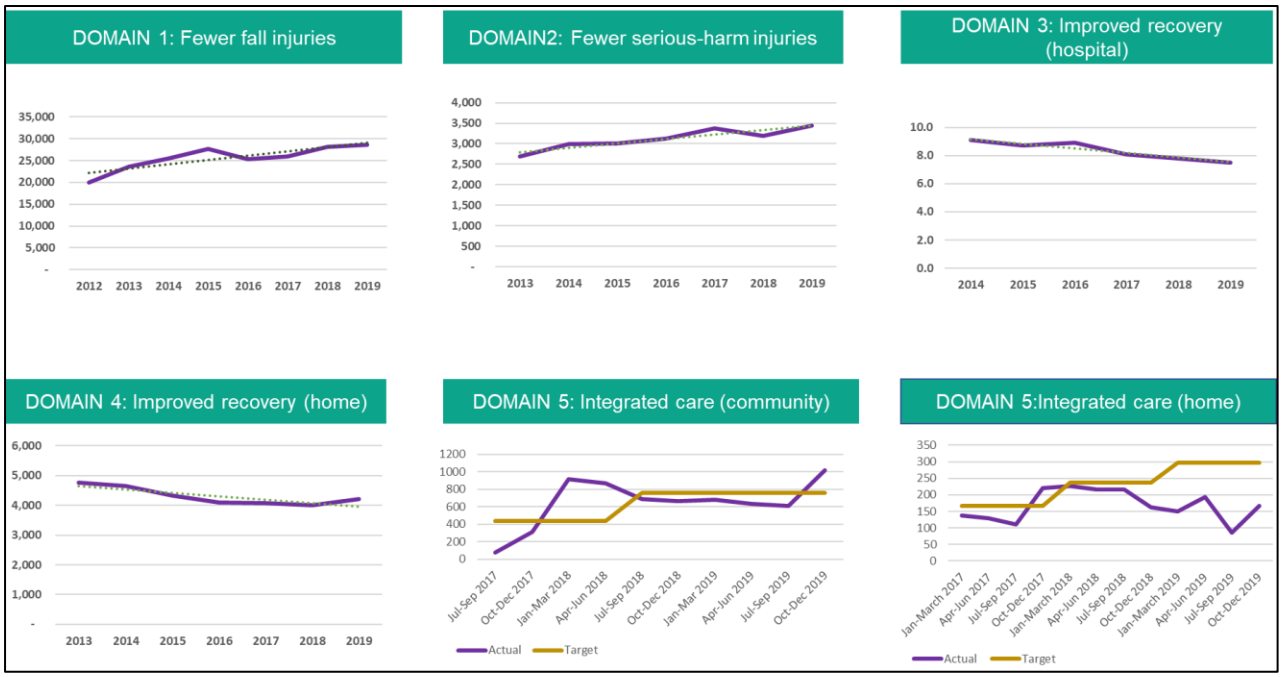



Figure 12- *Auckland district performance in Falls and Fracture Programme (HQSC Falls and Fracture outcome dashboard)*

The number of falls injuries and serious-harm falls has gradually increased over the ten years (domains one and two) but based on participants' views, when compared to the ageing population rate, the increasing trends were lower. Both districts have seen a decrease in the length of hospitalisation following a fracture (domain three). The administration of bisphosphonates has shown a gradual decrease in both districts, with a greater degree in Auckland (domain four). In Auckland, the number of new people in Community S&B classes had a sharp rise at the beginning of the programme, then remained stable for almost two years before rising again for the rest of the period (domain five - community). It's worth noting that the achieved number was above the target (which was set by central government organisations) for half of the period. In Waitematā, the number of new people in community classes steadily grew over time, but it had not reached the desired target for most of the period. The number of in-home services delivered has improved in Auckland (domain five-home), but it fluctuated in 2019. In Waitematā, this indicator had been far from the desired target, but it showed good progress in 2019. The number of people served by the In-Home S&B programme had steady growth over time but was still under the district's target.

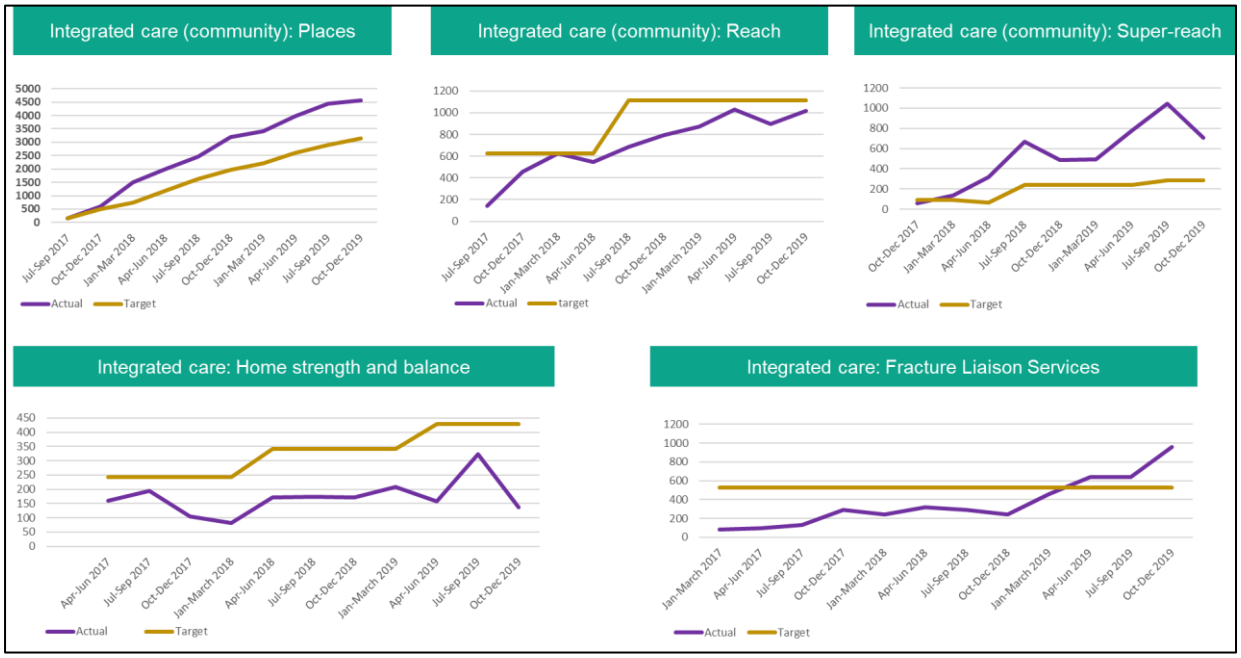



Figure 13- *Integrated care - Waitematā district (HQSC Falls and Fracture outcome dashboard)*

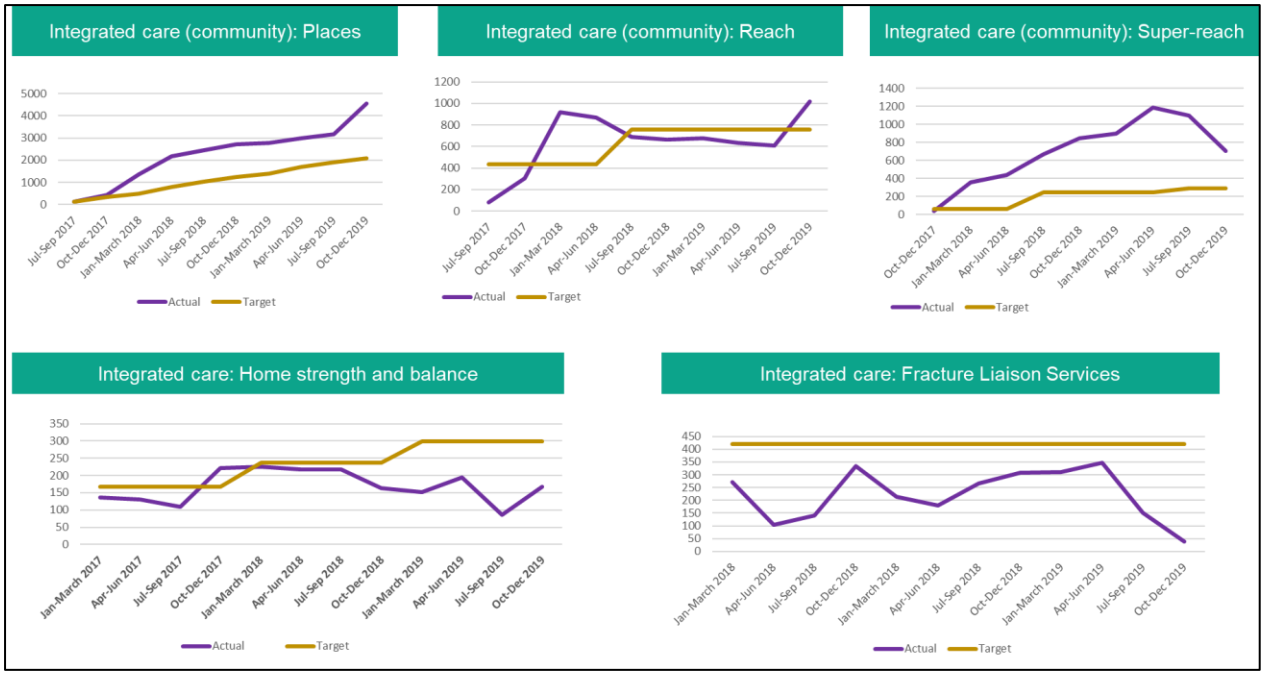



Figure 14- *Integrated care - Auckland district (HQSC Falls and Fracture outcome dashboard)*

Figures 13 and 14 present more information on the integrated care domain, including the Community and In-Home S&B programme and FLS (the three charts positioned above illustrate the community's strength and balance, while the chart at the bottom left represents in-home data, and the chart at the bottom right pertains to FLS) in Waitematā and Auckland, respectively. Both districts have shown a significant increase in the number of places offered to older people for community exercise since 2017, with the number rising from almost 100 to over 4500, indicating that more providers have joined the programme or have increased their capacity (integrated care-community-places). In Auckland, the number of new people attending Community S&B classes sharply rose at the beginning and remained stable for almost two years before increasing for the rest of the period (integrated care-community reach). Conversely, in Waitematā, the number of new attendees in community classes grew steadily over time but mostly did not reach the desired target. Looking at the number of people who completed the classes (integrated care-community super reach), both districts exceeded the target for the entire period. In Waitematā, the number of people seen by FLS slightly increased until 2018 and then sharply rose for the rest of the period (integrated care-FLS). On the other hand, FLS performance in the Auckland district fluctuated over time but remained below the desired target for the whole period.

### 6.5.2 Participant views about the outcomes of the programme:

Participants did not provide a clear opinion regarding the impact of the programme, citing the absence of a noticeable reduction in falls or serious harm falls incidents. Some participants believed that as a prevention programme, it would take at least five years to see concrete outcomes.

> *It just takes a really long time. And I don't I believe that, especially with reducing falls for older adults. Even I don't think three years is sufficient, in my opinion, it's*

> *not sufficient to be able to actually say that if there was a reduction in falls, that it could be related to this particular (programme), you know, the relationships, for instance, that's this is working really effectively. (Community S&B coordinator, A&W district)*

Participants had varying opinions on the outcome framework of the programme. While some saw benefits in using it to monitor implementation, others felt that the indicators were too broad to assess specific components effectively.

> *I think the outcome framework is very useful for monitoring the progress of the programme. I think the more process indicators they have in their programme, in terms of what they delivered was probably realistic, was probably more useful. When he called that outcome, so it was really measuring the implementation of the programme. But there was also a degree of unrealism or lack of realism. For instance, they said we needed to deliver many falls and fracture programmes this year. We had funded over the amount that was in the first year, but we didn't have funding to keep increasing. (Planning and funding, A&WDHB)*

Additionally, some identified gaps in the outcome framework, such as the absence of indicators showing referral flow between different parts of the programme, including primary care, community, and secondary care (FLS). The inclusion of such indicators may provide valuable insights into the implementation of the programme by highlighting areas with potential gaps or areas that require improvement.

> *I guess for us it would be the flow of referrals, like if we've got the fracture liaison service, referring to the strength and balance programmes and if you've got that in-home strength and balance people referring people to community strength and balance when that they become able to do that. So, I think, it would be the flow of referrals and the secondary services are used, you know, passing people to the services and that, so that would be, I think, an indicator when you see referrals flowing as they should to all parts of the system. (Funding and development manager, A&WDHB)*

The community service indicators only monitor the availability of classes and the number of places offered in each district, but not the number of participants. Therefore, the outcome framework has its limitations in evaluating the true impact of the classes on reducing fall incidents among those involved. Participants in the community expressed their concerns about the new changes that ACC will make to track people attending the classes by recording patient detail information, as it is difficult to persuade community providers to collect and report this information without financial incentives. There were criticisms regarding unrealistic expectations or targets set for providers. For instance, in-home providers expressed dissatisfaction with the contractual requirement that 80% of patients should complete all six

visits, considering the challenges posed by the Covid-19 situation. Additionally, inflexibility in the FLS key performance indicators has been another point of complaint. Key informants in the FLS programme in the Auckland district explained that the requirement to perform follow-ups for patients receiving intravenous infusion may not be necessary, but they are obligated to do so solely for the sake of meeting the KPI.

### 6.5.3 Community Awareness:

Community awareness in the Auckland and Waitematā district has been raised gradually since 2017, like other districts, as more new people join the programme or more community providers are interested in joining the programme. Still, it sounds like the number of new participants in the community and the people served by in-home programmes has yet to create noticeable differences in reducing falls claims. Community and in-home key informants also noted a lack of awareness in the community about self-referral, particularly among Maori and Pacifica. Primary care awareness and involvement have not been satisfactory and require more consistent and proactive approaches that cater to multiple PHOs. Recently, efforts have been made to activate community and in-home services to communicate and engage primary care in the programme.

> *The initiative is recognised. So, definitely, it's gone from a programme that was starting up that no one knew about, and now people are looking for these classes. And we've also got exercise providers that see a need and will come to us and say, we really want to start out the class, and how can you support me and different things like that. (Community S&B coordinator, A&W district)*

> *It is evident there isn't enough awareness in the community for self-referral, and (it) is something we are trying to address. Particularly Maori and Pacific peoples, who don't perhaps visit their GP regularly, are not aware of the strength and balance programme. Another challenge is ensuring primary care clinicians make screening for falls part of their business as usual. (Programme manager, A&WDHB)*

### 6.5.4 FFPP maturity and sustainability

The FFPP has been in operation for several years in the Auckland and Waitematā district yet concerns about the programme's continuity persist due to funding uncertainty, particularly regarding In-Home S&B programmes. The Community S&B programme is expected to continue until 2024, but funding for in-home services may not be at the same level as before and may only be supported by the DHB. The Waitematā district has received a gold certification from IOF for FLS, and funding has been secured until 2024, however, the continuity of the service in the Auckland district is unclear, as it was not accredited by IOF at the time of the interviews. Participants expressed concern that if the centre partner organisation ceased financial support, the programme would regress, and while the DHB would continue some programmes, it may not be to the same extent.

> *So, for the fracture liaison service, ACC has been doing a whole lot of workshops. So that's they're looking at how to make fracture liaison services best practice in*

*terms of gaining sort of accreditation from the international osteoporosis foundation. So that's happening. So, people are very motivated in that space. In terms of the in-home strength and balance programme, we have to reduce volumes because of reduced funding. So, we may have to review the criteria so that people with the highest priority receive that service. (Programme manager, A&WDHB)*

## 6.6 Highlights from Auckland and Waitematā districts

One notable highlight of this case is its unique structure of a joint steering group, which offers the potential for collaboration between two large districts. The programme design initially demonstrated some level of advancement, but the lack of strong leadership and clinical engagement in the later stages of the programme impeded the progress of these districts.

One specific observation highlighting the significance of clinical leadership in service design and quality is the FLS with divergent outcomes across two districts. Waitematā, with its strong and long-term clinical leadership and engagement, was recognized with a gold medal from the IOF. On the other hand, the implementation of FLS in Auckland experienced fluctuations due to inadequate human resources and a lack of strong leadership. Furthermore, it has been noted that engaging with private diagnostic organisations in Waitematā posed challenges compared to Auckland, which has its own bone density scanner. However, despite this complexity, Waitematā managed to meet all the required KPIs and achieve the highest level of accreditation from the IOF.

Furthermore, the presence of multiple PHOs across both districts has added complexity to the consistent involvement of primary care in the FFPP within this case. The lack of primary care engagement in the steering group and governance level could be one of the reasons for not proactively involving primary care in screening and referring high-risk patients to relevant components of the programme.

By combining outcome indicators results both from FFPP outcome framework (process indicators) and with qualitative data (programme maturity and sustainability and community awareness), the classification identified Waitematā district as moderate-performing, while Auckland was categorised as low-performing. Further details about the Auckland and Waitematā performance are presented in chapter nine (section 9.3).

# Chapter Seven - Descriptive findings - Counties Manukau District

## 7.1 Introduction

Continuing the examination of high and low performing cases in the FFPP, this chapter focuses on the third case study site, Counties Manukau district, with moderate levels in implementation.

## 7.2 District demographic information

The Counties Manukau district is the third largest district by population and one of the fastest growing in NZ and serves a projected 2020/21 population of 601,490. Counties Manukau has more than double the Pacific population of the other DHBs in the Northern Region, significantly more Maori and Asian populations similar to across the metro Auckland DHBs. It has a younger population (12% over 65 years old) and has proportionally more people living in the most deprived and fewer in the less deprived sections of the population (overall deprivation level rank: 8/20).

## 7.3 Programme characteristics

### 7.3.1 Historical background

In 2012, in the context of a long-established interest in delivering better-designed care around the local community's needs, Counties Manukau District Health Board (CMDHB) grouped twelve interventions into a major change programme to deliver more care outside of the local hospital. An earlier initiative involving case management of patients who were high users of the hospital was extended to primary care to increase the management of patients in the community. Under the title of the 'At Risk Individuals' model of care, payments were provided to General Practices to increase patient contact time and connect more with other services via a new information management system. At the same time, four geographical localities were created and given responsibility for local planning, design, and delivery. These new local networks (which became known as the Localities Initiative) were expected to make the delivery of the "At Risk Individuals model of care" easier and motivate practice improvements by giving greater control over local budgets (Middleton et al., 2014). It was hoped that a reduction in hospital bed days would be achieved, allowing savings to be invested in primary care.

Although falls prevention for older individuals at risk was not a primary focus of the 12 initiatives, some elements and intentions of the integration initiatives such as collaborative teams work were found in the implementation of the FFPP. It should be noted that efforts to prevent falls had begun in Counties Manukau district prior to the formal establishment of the national FFPP, which aimed to reduce harm from falls and improve health services for older adults at the national level between 2012-2016.

When examining the specific elements of the FFPP in the Counties Manukau district, the fracture liaison services programme was implemented around 2015, predating the cross-sector partnership programme initiated by the central government in 2017. Despite not receiving any funding from the centre, CMDHB managed the funding for the programme. Regarding the community falls prevention programme, it was discovered that there was no structured community prevention programme in place. Although home

healthcare services did offer some ad-hoc in-home exercise programmes upon referral, it lacked a holistic approach.

### 7.3.2 FFPP implementation and service delivery

#### *7.3.2.1 Community-based S&B*

In Counties, the community programme is coordinated by Age Concern (lead agency across Counties Manukau), because of their networking ability and their well-established office to coordinate and grow access to classes offered in this region. In this district, various types of Community S&B classes were offered to be suited to older people's mobility and ability, such as

- Level 1 - Limited Mobility
- Level 2 - Reasonable Mobility
- Level 3 - Full Mobility

At the time of the interviews, it was revealed that there were 90 Community S&B classes conducted on a weekly basis throughout the Counties Manukau district. However, in order to effectively serve the entire population and achieve the set targets, the quantity had to be elevated to 180. The responsibility of accreditation, monitoring, marketing, and facilitating new classes in the community lies with a single Community S&B coordinator in Age Concern. Initially, some remote areas had no classes, and the programme focused on establishing classes where there was a demand and persistent issue. Despite this progress, a challenge in attracting community providers to the programme was reported by participants due to a historical mistrust among community providers and the ACC-driven programme, as funding was previously withdrawn from the Tia Chi programme by ACC.

> *A lot of community groups complained about ACC initiatives and how they're so great, and then they pulled the funding out, there was an ACC funded sort of balance strength and balance initiative through Tai Chi. I've heard about that, and it got cancelled, and people were gutted … there was a bit of mistrust when I started, like asking me, how long is this gonna last? So, I had to sort of rebuilding that trust. Community S&B coordinator, Age Concern)*

Identifying volunteer community providers, especially Maori and Pacific providers, and motivating them to participate in this district posed a challenge as there is a shortage of gyms and trainers catering to the elderly. Additionally, concerns were raised about the standard of classes, as not all community classes are conducted by qualified fitness professionals or physiotherapists.

> *The community strength and balance classes are not always run by fitness professionals or physios, sometimes run by volunteers, peer leaders, for example, with Steady As You Go groups (SAYGO), Tai Chi instructors, yoga instructors who are not exercise professionals. So, I did have a bit of a problem with that. (Community S&B coordinator, Age Concern)*

The sustainability of the community initiative was discussed, with participants stating that the programme is expected to continue for a few years. It was explained that there is currently a community S&B programme contract in place that is valid until June 2022 and will be assessed and potentially extended until 2024. Compared to other districts, the involvement of older people in community classes was lower in the Counties Manukau district based on weekly available places and number of attendees. This was attributed by the community coordinator to the more diverse ethnic mix, which led to language barriers and made it difficult to engage more people. To address this issue, it may require different types of community exercise classes. Furthermore, transportation was identified as a significant challenge in the S&B programme, particularly for individuals at levels 1 and 2 who are unable to use public transport or drive. This issue was partially addressed by some people providing transport for groups living in the same area, but it was not always consistent.

> *It gets tricky when you have amputees and language difficulties, which is really common in Counties. People with dementia or learning difficulties not understanding instructions… one of the biggest problems we have with getting people to strength and balance classes is transport. So, they can't use public transport if they're level one or two mobility. So, because of their age, a lot of them might not be able to drive or, kind of for taxis, those sorts of things. (Community S&B coordinator, Age Concern)*

#### *7.3.2.2 In-home S&B*

CMDHB hired three physiotherapists to conduct in-home strength and balance across the district. In-Home S&B programmes are fed by referrals from GPs or community service, and sometimes patients are admitted at the hospital. The process for In-Home S&B in Counties Manukau is similar to other districts and is based on the Otago Exercise Programme, which includes six visits (initial assessment, four follow-ups, and a final assessment), followed by referral to community services. One of the PHOs has also hired a physiotherapist to conduct in-home services. Although ACC ended funding for the In-Home S&B programme in July 2021, CMDHB agreed to fund the service for a further 12 months. However, the withdrawal of funding for in-home services has increased the waiting time for people at risk of falls. At the time of the interview, patients had to wait for 3-5 months for in-home services, and a triage system was put in place to prioritise those at high risk of falling.

#### *7.3.2.3 Fracture Liaison Service*

The FLS in the Counties Manukau district is located in secondary care and focuses on individuals over the age of 50 who have experienced a fragility fracture, such as a low-impact bone break resulting from a fall from standing height. A coordinator oversees the service, identifying patients with fragility fractures and coordinating investigations, referrals to falls clinics, and necessary follow-up care. The service gets referrals from five hospital departments, including the Emergency Department, Radiology, Fracture Clinic, and Orthogeriatric Department. However, it is not very actively integrated with primary care. The coordinator also follows up with patients by phone for up to six months to ensure that any necessary treatments are initiated and continuing as appropriate. It is worth noting that the FLS has been in place

in the district since 2001 but not in the same standardised delivery service format as the current programme.

> *We've had orthogeriatric services at Middlemore for the past 20 years. We started that when I took this role on, we started that as part of the inpatient service and the falls in osteoporosis clinic right up front. So, in some ways, you could say that, although we didn't have a coordinator, we actually were running a fracture liaison service, right from 21 years ago because all the patients that presented to orthopaedics, who were 65 and older, were captured by our orthogeriatric service, both inpatient as an outpatient as far as an osteoporosis clinic. (Geriatrician, CMDHB)*

Counties Manukau district received a silver medal in 2019 for its FLS operation. Recently in 2021, ACC commenced workshops to standardise the FLS process across NZ; and Counties Manukau's FLS processes have been used as a benchmark for other DHBs.

> *We have been pathbreakers in many ways, and we do have a lot of DHBs coming up to us to learn our ways. And in fact, the Auckland DHB is coming up on the 10th of May because they are hoping to set up this system like us. So, they're bringing the whole team to come and see. (Geriatrician, CMDHB)*

Another variation declared by FLS participants was that the hospital has had its own bone density scan for measuring bone density for 20 years. This eased the inter-organisational challenges in the provision of the FLS. In-addition, CMDHB has not received funding for FLS since Jul 2021, and DHB fully funds this programme. Counties Manukau has an active FLS clinical leader with an FLS specialist nurse, who conducts training sessions for surgeons and extensive education sessions for GPs and primary care practices. It seems that there has not been a direct relationship between FLS and GPs constantly, but they have attempted to ensure that all their services are known to the General Practices.

> *Counties has done extremely well in establishing FLS service in such an advanced form. In my knowledge, the only other people who have got a very well-established service is probably Christchurch. Waitematā has done very well lately. (Geriatrician, CMDHB)*

It also mentioned that equity has been an issue and is mainly discussed as a priority for Counties Manukau because of the demographic profile of this region. To address this issue, FLS participants described how they actively attempted to engage more Maori and Pacific people in the programme.

> *I remember vividly that, there is not much evidence for Maori and Pacific islanders, for fracture prevention. But because the equity aspect of it, they were very keen for the Maori and Pacific islanders and us to be included. So, we actually came around that issue by making sure that selecting the population who they have had fractures, so we went to the ACC to get a list of all the patients, Maori and Pacific islanders*

*who have had a fracture, and then enrolling those patients in the programme over the age of 65. So, we did that. (Clinical lead, Counties Manukau district)*

Although numerous endeavours were made to include all patients with fragility fractures, it was observed by participants of the FLS that some patients were missed, particularly those with minor fractures like vertebral compression fractures who were not admitted to the hospital. The clinical leader and nurse involved in the FLS emphasised that capturing these patients necessitated increased involvement from general practices. To specifically engage primary care, participants from this region proposed that ACC could establish FLS training for nurses in each general practice, appointing them as mini FLS coordinators. This approach would ensure the capture and treatment of a greater number of patients before serious fall injuries occur.

*We proposed to ACC that they should actually establish FLS kind of training for nurses in each of the primary care centres so that their nurses can act like a mini FLS coordinator for the public for the group of patients that they are well familiar. And our vision is that the hospital FLS coordinator will become a super educator and will become a supporter for all the primary care services, but that's yet to happen. (Geriatrician, CMDHB)*

## 7.4 Organisational and inter-organisational characteristics

### 7.4.1 Basic Structure

#### *7.4.1.1 Governance and Service- Level Alliance*:

During the initial stages of FFPP implementation in Counties Manukau, a small implementation group was established. Additional components were gradually integrated over time, leading to the formation of the current Counties Manukau falls and fracture steering group. The group comprises a diverse range of members, including five representatives from PHOs, Age Concern, a geriatrician serving as the clinical leader, an ACC cross-agency partner, an FLS nurse specialist, an in-home representative, St. John, DHB planning and funding, and Osteoporosis NZ. One of the advantages of the Counties Manukau steering group is that all five PHOs have been engaged at the governance level since the initial stages of the programme implementation. The group convenes monthly, making it one of the most well-structured and consistent teams involved in implementing the FFPP.

*I think Counties Manukau was probably the only one we were attending all of the meetings, and I think they were the one that that tried to expand the number of referrals that we're getting based on. (St. John rep, Counties Manukau district)*

The local governance level lacked critical participants, including consumer representatives, FLS coordinators (although a recent addition of an FLS nurse to the group), and representatives from community pharmacists and the ARC. Given that the Counties Manukau district has the most diverse ethnicity profile, it is highly essential to have consumer voices of different ethnicities. While five consumers had been invited to share their stories about fractures at the early stages, active consumer

membership in the steering group had not occurred. However, some participants noted that engaging Osteoporosis NZ into the steering group has been a way to incorporate patient voices.

> *One of the things we wanted to do was to make sure the consumer takes ownership as well. So, we've been engaging with the Osteoporosis NZ, who's part of our implementation committee, so we invited them to our committee in making sure that, they will be empowering patients. (Clinical lead, Counties Manukau district)*

Some participants emphasised the absence of pharmacy involvement despite its vital role in supporting the programme. Community pharmacists are in a prime position to influence falls prevention initiatives. One participant suggested that the low engagement of pharmacists in prevention strategies such as falls prevention may be attributed to inadequate remuneration, insufficient communication, and training opportunities.

> *We tried to involve the community pharmacies in here to look at whether they would be interested in referring patients because the pharmacists have got a good relationship with their consumers, and they know the patients very well. We actually tried that and I think once again, it came back to the funding issue, part of it. So, one of the things they asked was, if you're going to be asking us to do the referral, then you need to provide money. (Clinical lead, Counties Manukau district)*

During the discussions, several participants expressed their concerns about the size of the working group. They stated that connecting with all members can be time-consuming and that the uneven attendance and participation of some members during meetings can cause delays in decision making. In terms of improving the quality of monthly meetings, some participants suggested that an analyst be appointed to examine all inter-connected components and provide feedback, which could enhance the effectiveness of the working group.

> *I think there's work that needs to be done in in connecting everyone in the group. I remember attending that meeting. And everyone just says their part about what they do and, this is what we do. It'd be nice if we can have like a someone who analyses all the things that we do and connect them. For example, how we can improve everyone's activity. (Portfolio manager, PHO)*

***7.4.1.2 Resources:*** The FFPP in Counties Manukau has been funded through ACC and CMDHB. Unlike other districts, the FLS programme in Counties Manukau was previously funded by DHB until July 2021, after which it was funded through ACC's new funding system for FLS. This funding has helped to reinforce the programme and enabled the recruitment of an additional nurse.

> *At the moment, our fracture liaison services are purely funded within the DHB. So, we don't receive any external funding from ACC, not at the moment. We're currently in discussions with them, because they've just put out some KPIs in regard to what*

*we require to be doing and some of those were able to meet within our current FTE, for some of those, we will need additional FTE to be able to accommodate those. (Service Manager, CMDHB)*

The lead agency and Community S&B coordinator are funded through ACC as well as In-Home S&B. However, in-home service has been excluded from ACC funding since July 2021. Participants noted that the DHB would continue to fund the in-home service for another year, but the programme's future beyond that has not yet been guaranteed.

Some participants highlighted the distinct dynamics between different districts in Auckland, specifically Auckland and Waitematā compared to Counties. While Auckland and Waitematā work closely together and share responsibilities, Counties operates separately. One notable difference mentioned is the falls prevention contract that Counties has, which provides funding to promote and refer individuals to falls prevention programmes. In contrast, Auckland and Waitematā DHBs do not currently have a similar setup, although they are exploring the possibility of implementing such a programme if it proves successful.

*So, Auckland and Waitematā, they're always together, they always do things together as one, well, Counties is separate, the main obvious differences, for Counties we have this falls prevention contract where we (GPs) are funded to make people and refer them for falls prevention programmes. Well, in ADHB and WDHB, we don't have that set up yet, but they are looking into it and might implement the same programme for that DHBs if they see that it's successful, but for ProCare, It's definitely a successful programme. (Portfolio manager, PHO)*

Many participants have identified the uncertain funding system as the primary challenge in implementing the programme, leading to workforce transitions and longer waiting lists. Furthermore, the community provider has noted that the amount of funding is not commensurate with the volume and diversity of tasks required to be performed in the community.

*We know that this programme is effective, the falls prevention exercise programme is effective, there is good guidance at the international level, at the local level…. So, one of the concerns I have is that it becomes the stop-start thing, like ACC did funding the OEP programme until about 2008 stopped, and then we've got this programme going now. And I think if we don't have any commitment from the central agencies to provide funding for this programme, we will go back to the same old situation of stopping. (Clinical lead, Counties Manukau district)*

The shortage of staff has been identified as a major challenge in providing community S&B and FLS services in the Counties Manukau district. Each service is managed by just one coordinator, which is inadequate for the enrolled population. As a result, the FLS service has a waiting time of seven months, and the Community S&B falls short of the target for providing enough places. To address this issue,

three physiotherapists were employed for In-home S&B, along with healthcare assistants, to ensure that patients are able to complete their exercises. In this district, staff turnover has been identified as a significant challenge, which is not related to the nature of the job itself, but rather to the features of the FFPP implementation. These features include short-term contracts and unclear plans regarding the programme's continuation, which contribute to the high turnover rate.

> *I'm so busy… I don't have a lot of time. So that's whereas I know, my counterpart down is for Canterbury, she does monthly training, she's always going out and doing talks. And so that's something I'd like to, but unfortunately, I've been given a directive by ACC and the DHB to increase classes. That is massive, I can't be going into the community doing training. (Community S&B coordinator, Age Concern)*

> *I can see clearly that the FLS nurses have had a turnover, whether that's due to the role itself. I don't think so because they have been evaluated nurses that have stayed long term; they seem to enjoy that work. It's more about job security and so I think if we can solve the job security issue, and that's to do with the notice period of when the contract ends and getting DHB board decisions and ACC board decisions early and then that would help with that continuity issue. (ACC rep, Counties Manukau district)*

#### *7.4.1.3 Information Technology*

In 2012, across the Auckland Metro region, an e-Referral system (CareConnect Referrals) was introduced to enable referrals to be sent electronically to the public hospitals, improving the quality of care for patients. At the final stage of the referral project, DHB Elective eReferrals technology (DEeR) went live at the three Auckland Metro DHBs in 2018. The technology means that internal referrals can now be made electronically and referrals to other DHBs in the region. This system has helped link information transfer between primary and secondary care, but not all other community service providers are yet connected to the e-referrals system.

> "So, for all the three DHBs in Metro Auckland, ADHB, WDHB, CMDHB have e-referrals, e-referrals or web referrals, The TBI Health, and Harbor Sports, they also accept email, and they'll accept self-referrals*".* (Portfolio manager, ProCare)

FLS services primarily rely on internal referrals through hospital inpatients and outpatients' wards and departments. However, there have been initiatives to proactively identify individuals admitted to the hospital with low trauma fractures and ensure their automatic referral to FLS services. Turning to the In-Home S&B programme, referrals have been automatically received through the e-referrals system as in-home services run by DHB. Participants also stated that heterogeneous IT platforms have made it difficult for the referral system. Lack of information exchange, which was sometimes caused by confidentiality concerns, can hinder joint working across organisations.

> *We're a separate entity, we come up against the challenge of security when passing on these referrals. So currently, we don't have a secure system, we're working on getting my practice so that we can do e-referrals. (St. John rep, Counties Manukau district)*

Numerous attempts have been made to implement an integrated IT system, such as the Regional Collaborative Community Care System (RCCC) tender for the Northern Region DHBs (DHBs in the north island of NZ). The aim is to enhance collaboration and information exchange between community, primary, and secondary care. However, the system has yet to be fully operationalized. One of the planned services in RCCC related to the falls prevention programme was Health of Older People (including Needs Assessment services) and community-based rehabilitation (Counties Manukau Health, 2021).

### 7.4.2 People and values

***7.4.2.1 Common goals and vision:*** Almost all participants in this district had the same goal and shared views about implementing the FFPP to reduce falls incidents and particularly serious harm falls and keeping older people safe and healthy at home; however, they may have different reasonings.

> *So what ACC is interested in is reduction in cost. So, we measure that through the costs of fractures, for fragility fractures, hip fractures, in risk fractures, all of that end, all those costs. The DHB measured in terms of bed days the patient stays in hospital, how many people are coming through? Yeah, so this depends on who's paying for what. (ACC rep, Counties Manukau district)*

Several participants have expressed conflicts and tensions regarding who is responsible for running this programme, with some believing that it is solely managed by ACC. In the context of the FFPP, if some participants believe that ACC is solely responsible for the programme's implementation, they may not fully engage with or take ownership of the programme's goals and activities, which can impede progress towards achieving the desired outcomes.

St. John, an organisation that provides an ambulance service in all Auckland regions, expressed that there has been a consistent approach with all partner organisations in this programme, not just in CM, but across Auckland regions. In terms of intra-organisational goals, it is mentioned that prevention has not yet become a priority for St. John NZ because of the nature of their services (emergency treatment and transport)

> *We find variations between DHBs for basically everything. But to be honest with falls prevention, it's been consistent. It feels like it's been a very well-established programme and this year, there's more consistency than probably anything else we deal with, which is refreshing… We've tried to work with each DHB to, each provider of the programme to streamline our process as much as possible because this sort of work for an emergency service is not a priority. (St. John Rep, Counties Manukau district)*

#### 7.4.2.2 Commitment to learning across all the organisations

Participants in the Counties Manukau district reported that there are national monthly conferences for Community S&B coordinators and FLS workshops that are organised by ACC and Osteoporosis NZ. However, they also noted that there are not enough local mechanisms for sharing knowledge and experience. One responded with a specific initiative called Better Collaborative that aims to promote communication between practices and offers large Continuing Medical Education (CME) and Continuing Nursing Education (CNE) sessions, but there is no formal mechanism for connecting different PHOs more collaboratively. In addition, there is no formal inter-organisational mechanism for sharing experience for an equivalent role in St. John or in-home services and managerial and financial roles related to falls prevention. Many participants emphasised the Falls and Fracture Steering group as an effective way to promote communication between different organisations.

> *They started the Better Together Collaboratives initiatives to improve falls prevention by gather practices and talk about barriers and the way to solve the barriers - and provide reports to the practices to inform them about their performance. (ProCare, Counties Manukau district)*

Training sessions have been regularly held for hospital surgeons and orthopaedic departments on FLS, and some impromptu sessions have been conducted for GPs and primary care. Developing protocols and pathways through HealthPoint and Regional Health Pathways has been identified as a helpful approach for sharing current and agreed-upon information. However, establishing guidelines for falls prevention has been identified as a challenging undertaking.

***7.4.2.3 Clinicians' engagement:*** The Counties Manukau district has two primary clinical champions: a primary care medical champion and a secondary care clinical champion. Clinicians direct both champions with strong leadership roles at the governance levels. All PHOs in this district had a representative in the steering group, which has been one of the main differences between this district and A&WDHB. In addition, the national role of the Counties Manukau senior clinician in shaping and setting up the national-wide programme has been helpful in encouraging clinicians to engage in the implementation of the programme. It also mentioned that Counties Manukau had one of the most consistent clinical leadership structures, which strongly supported the programme's implementation.

> *Various members of the team are clinicians, so we've got (name of new clinical leader) now. So, he represents the geriatricians, we've got a clinical nurse who heads it. We've got allied staff. So, I think there are a lot of clinicians engaged in it. (Geriatrician, CMDHB)*

### 7.4.3 Key Processes

***7.4.3.1 Delivering care- Patient screening and referral pathway:*** Since the beginning of 2017, the approach to falls screening in this district has been population-based, rather than opportunistic screening based on patient preference. As part of this approach, the programme leader in this district engaged primary care early on and provided a small amount of funding for a proactive screening

programme. General practices were asked to compile a list of all patients over the age of 75 and have receptionists proactively ask them the three falls screening questions organised by the HQSC. Referrals for falls were directed to a central coordinating office situated in Community Central, which would then arrange appointments for either the Community or in-home exercise programme.

> *So, we actually took a different approach to the other DHBs, because we strongly believed that it needs to be a population-based screening approach. And we also believed that if we really want to have an effect, for this intervention, we need to have large numbers of patients who need to be referred to the programme. So that is the reason we decided to go for this population-based programme. So, we involved all the six PHOs in this organisation here. And we had a contract with the PHO, in giving a certain amount of money for them to do this programme. (Clinical lead, CMDHB)*

Referrals from GPs and St. John were directed to Community Central which provides a centralised coordination and clinical triage function for all acute and non-acute care. Initially, St. John faced difficulties in establishing a referral system, but they expanded the age range to include all individuals aged 65 and over. Referrals are handled manually by the referral coordinator (in St. John) who arranges them to be directed to Community Central. There were concerns raised about the security of the e-referral system used for transferring referrals between organisations.

> *We're a separate entity, we come up against the challenge of security when passing on these referrals. So currently, we don't have a secure system, we're working on getting my practice so that we can do e-referrals. But because we don't currently have that, like it's a bit of a clunky system, because we can electronically send it straight to the service. But it means they have to unencrypt the referral and a lot of the DHBs particularly at the moment, their firewalls are changing, we're getting a lot of pushbacks in terms of that process. And so that's why we changed the process to being more of a manual process. (St. John Rep, Counties Manukau district)*

Some participants criticised the screening questions for being one-dimensional, as they only focus on musculoskeletal factors and fail to provide a comprehensive understanding of the reasons behind a person's falls. This approach may have overlooked other factors such as medication review, footwear, vision, and hearing loss, which could have contributed to the falls. As a result, some patients who screened and attended the programme may have become physically stronger, but still experience falls as the underlying issues have not been adequately addressed. Participants also suggested that simplifying the referral system could increase referrals from GPs and St. John in this district, as both organisations are overwhelmed by the number of patients and services. One PHO has started providing feedback and reports to practices to encourage them to conduct more screenings and improve the number of referrals to the programme.

*So, one of the recent changes that we've done is, when we have provided the report to their practices, they see how they perform because usually, in the past, we never used to record their falls screening activity. But now when the report became available, and they see how they perform, so that prompts them to, okay, we can do better than that, then we can reach all our older people and screen them for falls. (Portfolio manager, PHO)*

Furthermore, several PHO participants suggested that PHOs could play a more central role in the referral process. Additionally, some expressed concerns about the lack of follow-up for patients referred to other services from GPs.

*I would have liked probably all the referrals to come into the PHO And we were resourced somehow to them distributed. And we can refer on to community Central, because clinics have a stronger link with the PHO than they do with community. Central (GP, PHO)*

#### 7.4.3.2 Partnering

**Primary care involvement*:*** There are five PHOs in the Counties Manukau district to ensure the provision of essential primary health care services for all the enrolled population: including East Health Trust, ProCare Networks Limited, National Hauora Coalition, Alliance Health Plus Trust, and Total Healthcare Charitable. As previously noted, primary care, particularly PHOs, have been involved in the FFPP in the Counties Manukau region from the beginning. This early engagement has contributed to significant progress in implementing the programme and referring patients to Community Central. However, communication with primary care and FLS is yet to reach the desired point, '*Some GPs are very involved in FLS, but not all, and continuity is lost, as we find sometimes, we've requested them to start treatment they haven't' (FLS coordinator, CMDHB)*.

The participation of GPs in this programme can be attributed to whether the PHO applies a consistent approach to engaging all enrolled general practices. However, participants also mentioned this task as challenging, as there are many practices to engage*. 'It is not easy to go around to 350 GP clinics in Auckland and try and get into that, then we've got another type of role (East Health PHO).*

For increasing primary care engagement in the FLS, some participants recommended having FLS training sessions for nurses in each general practice to become mini FLS coordinators. In that way, missing patients with a fragility fracture can be captured and treated at right time.

*We proposed to ACC that they should actually establish FLS kind of training for nurses in each of the primary care centres so that their nurses can act like a mini FLS coordinator. (Geriatrician, CMDHB)*

The other thing that has been implemented in the Counties Manukau district, has seen engagement with the secondary care sector to make sure that the patients who are higher risk need are being referred to the falls intervention programmes through engaging with the allied health in the hospital and

nurse specialists checking the emergency department patients on a regular basis. St. John has also formed an active partnership with the FFPP. The DHB provided training sessions for patient screening and designed referral mechanisms between St. John and Community Central to facilitate their engagement.

> *We also engaged with the St. John's service as well, you know, giving education about, asking the right questions about these patients, and organised referral mechanism from St. John's to the Community Central as well. (Clinical lead, Counties Manukau district)*

**Partnership experiences:**

Almost all participants reported positive experiences about the collaboration and partnership in the FFPP in the Counties Manukau region, but participants also declared some noticeable challenges. Initially, it was noted that forging partnerships proved to be challenging since it necessitated a shift in organisational approaches and priorities, or an expansion of their scope. Participants reported that engaging with organisations such as St. John, for whom prevention is a relatively new field, posed a challenge. This prompted the need to simplify the criteria in various ways. As with other districts, this district faced challenges due to the size of the organisation and the presence of multiple PHOs. One participant from this district stated that larger organisations such as DHBs benefit from having a multicultural workforce, which can facilitate connections and interactions with other organisations. *"Our DHB is quite multicultural, diverse and in that way, it's easier because we come from all different nationalities, backgrounds, everything, so it's much easier to interact with other organisations" (FLS coordinator, CMDHB).*

Participants from different partner organisations have reported that re-establishing trust has been difficult due to negative past collaboration experiences. Additionally, challenges with contracts between ACC and DHB, such as bureaucratic processes and lengthy contract approval times, as well as between PHOs and DHBs, particularly in situations with multiple DHBs and PHOs, have been expressed as concerns.

> *The contract negotiations between ACC, because ACC is the funder for the programme, and the amount of bureaucracy and the time it takes in order to get the contract signed. That's always challenging, and I'm not talking from the clinician side of it, this is from the manager, whom I work with, and I think that gets toing and froing and making sure that it goes through the ACC bureaucracy for that to be signed off, that is a bit of a challenge. (Clinical lead, Counties Manukau district)*

## 7.5 Implementation outcome

### 7.5.1 What the Falls & Fracture outcomes dashboard tells us about the implementation

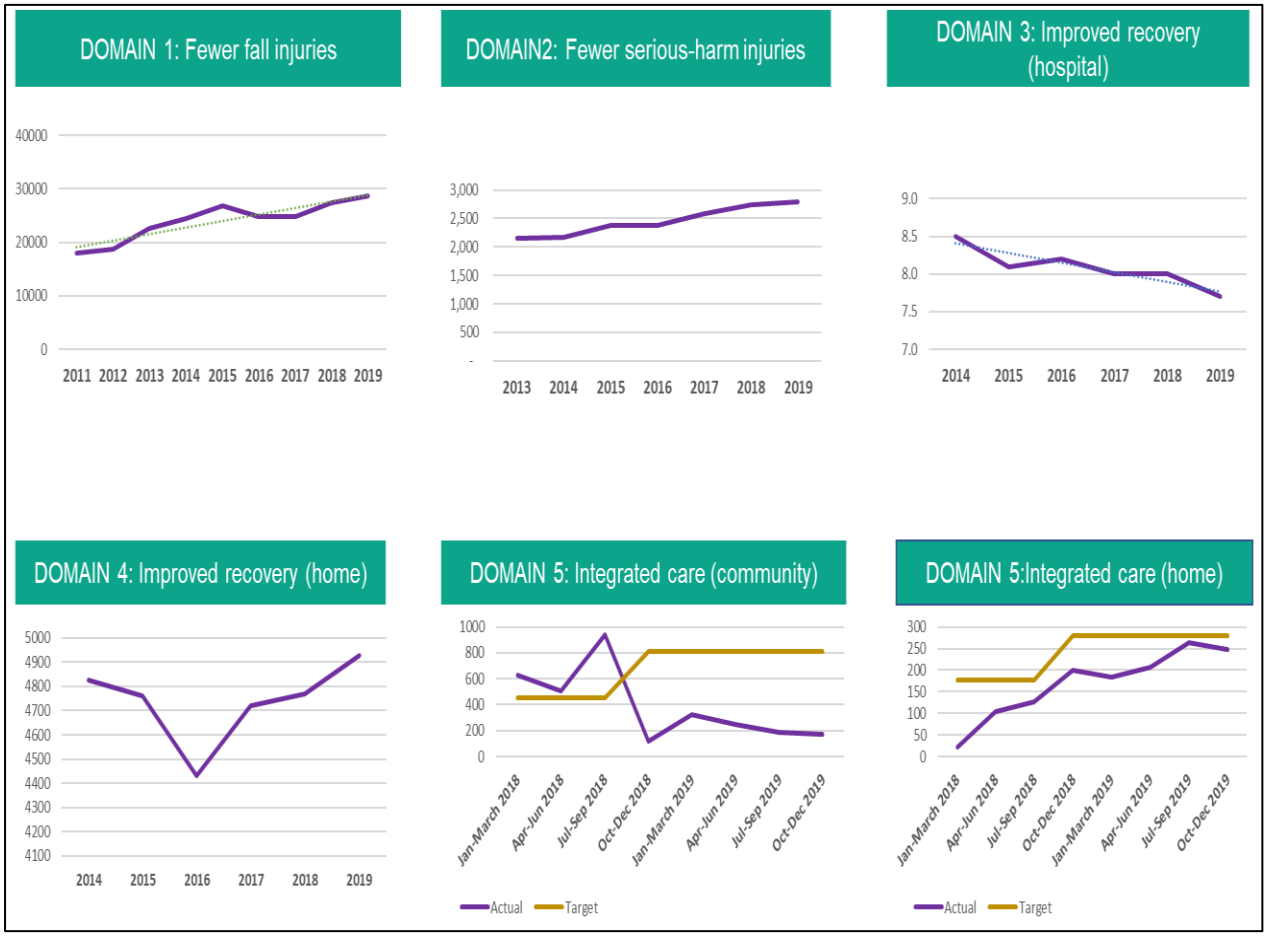



Figure 15- *Counties Manukau Health performance in Falls and Fracture Programme (HQSC Falls and Fracture outcome dashboard)*

Figure 15 provides detail information about the Counties Manukau district performance in five domains. Short reminder: domain one pertains to ACC claims resulting from falls incidents, while domain two focuses on hospital admission rates due to serious falls, domain three shows the duration of hospital stays resulting from fall-related fractures. Moving on to domain four, it centres on the number of older individuals receiving bisphosphonates, and finally, domain five sheds light on the number of individuals benefiting from community, In-Home S&B programmes. Over the period of ten years, there has been a gradual increase in falls injuries and serious-harm falls (see domains one and two). However, according to the perspectives of the participants, the rate of increase in these trends was relatively lower when compared to the rate of increasing population aging. Domain 3 shows length of stay at hospital following a fracture. While there has been a decrease in the average length of stay, the length of hospital stay for injury-related admissions in this district remains persistently high. The rate of bisphosphonates fluctuated between 2015 and 2017 (domain four), but there has been a gradual increase since then.

The number of new participants in the Community S&B classes experienced a sharp rise at the beginning of the programme, but it dropped for almost the rest of the period, which was below the target (domain five-community). In contrast, the number of new people served by the In-Home S&B programme showed steady growth over time but still fell short of the district's target (domain five-home).


Figure 16- *Integrated care - Counties Manukau Health (HQSC Falls and Fracture outcome dashboard)*

Figure 16 provides further information on the integrated care domain (the three charts positioned above illustrate the community's strength and balance, while the chart at the bottom left represents In-home data, and the chart at the bottom right pertains to FLS). The number of places offered to older people for community exercise has slightly climbed since 2018, demonstrating that more providers have joined the programme or increased their capacity. However, as previously mentioned, the number of new attendees at community classes has fallen well below the target and has remained low since the last quarter of 2018. Although the number of new attendants in Counties Manukau still falls short of the target, the number of people who complete the programme has fared better and has met the target in some respects. The number of individuals seen by FLS has increased slightly since 2018 and has remained above the target for the entire period.

**7.5.2 Participant views about the outcomes of this programme:** Participants had mixed opinions about the impacts of the programme. While some mentioned positive consequences such as promoting social connections among older people and identifying at-risk individuals at an early stage, others felt that the number of participants in the community and in-home programmes was not sufficient to make noticeable impacts. Additionally, some participants noted the lack of formal reports and publications about the programme's results.

### 7.5.3 Community Awareness

Although the district has exerted significant efforts to raise community awareness about the programme, the number of older people in the Community S&B programme and number of patients served by in-home programmes has yet to create a noticeable difference. The community coordinator has continuously marketed the programme in venues such as libraries and churches, but the presence of only one coordinator for the entire district is insufficient compared to other districts. Primary care awareness and involvement have been reported as satisfactory, but there is still room for improvement. On a positive note, the FLS programme has been well understood and implemented among hospital wards and departments, as well as GPs and primary care, through regular training sessions.

> *I think if GPs, more onboard in identifying because they know their patients, they see them more often, with I'm only following up at a certain time. So, if they can get on board and they can identify these patients and do the referral, it'll be good to get them in and start giving them an exercise plan. (FLS coordinator, CMDHB)*

### 7.5.4 FFPP maturity and sustainability

Despite being implemented in the Counties Manukau district for almost a decade, there are concerns regarding the continuity of the FFPP due to funding uncertainty, particularly regarding the Community and In-Home S&B programmes. The funding mechanism for this programme has caused some tensions between partner organisations, as the ACC participants claim that their role was to establish and support service providers to implement the programme. According to ACC participants, after a few years, the service providers would have fewer patients with fractures, and the resulting savings could be reinvested into the prevention components of the programme. However, participants from the DHB criticised this approach, as it does not align with the financial practices of the DHB and the healthcare system. The prioritisation of prevention programmes within health system, specifically for the health of older people, is dependent on various health challenges. If the central government organisation withdraws financial support, it could hinder the programme's progress, leading the DHB to continue only some components of the programme, but not to the same extent as before.

> *In the DHB land, it doesn't really sort of work that way, all the money goes into the pot. And I think the DHB has got other priorities. And I think the older people are always at the bottom and the ministry has got certain expectations about the elective joint, numbers and all those things. So, I think, although the programme was set that, it was only for three years and the DHBs need to take it on. It never happens*

*in practice, and I think there will be a certain reliance on the centre, from the cross sector at the centre, ACC, Ministry and the HQSC for ongoing funding of this programme. (Clinical lead, Counties Manukau district)*

One participant expressed the challenge of receiving funding on a yearly basis, which often leads to shorter employment contracts for staff. This creates uncertainty as they rely on the hope of contract extensions to continue providing services. To address this uncertainty, CMDHB initially funded the fracture liaison service to ensure its continuity and mitigate the potential impacts of the funding and contracting style of ACC.

*I think the way ACC things works, then they say, we're gonna give you money for the next year, it's likely to be longer to get on, okay, so now we can only employ that person under a year contract. And then you run, in hope and cross your fingers that you're going to extend that so that you can extend any contract. But that just creates a little bit of uncertainty, I think that's why we initially funded that fracture liaison service. (Service manager, CMDHB)*

## 7.6 Highlights from the Counties Manukau district

The Counties Manukau district was classified as a moderate-performing district positioning between Canterbury and A&W districts. This can be attributed to several key factors. While Counties Manukau shares some positive aspects with Canterbury, such as a well-organised governance and steering group, and active participation of all six PHOs, it also faces unique challenges that set it apart from the other two cases.

One of the distinguishing features in Counties Manukau is its reliance on physiotherapists hired by CMDHB for the In-Home Strength and Balance (S&B) programme. This approach, though designed to provide targeted care, has resulted in longer waiting times for at-risk patients, potentially impacting the efficiency and accessibility of the programme.

In addition, combining the outcomes framework results and qualitative outcomes including programme maturity and sustainability and community awareness resulted in mixed findings. This combined analysis further supports the classification of this district as a moderate-performing district in the study. Further details about the Counties Manukau performance are presented in chapter nine (section 9.3).

# Chapter Eight: Descriptive findings- Central and local organisations

## 8.1 Overview of chapter

In the previous three chapters, each case study site was examined in detail in order to identify local organisational factors, programme characteristics, and outcomes. This chapter focuses on national organisations given their crucial role in designing, funding, and monitoring the FFPP programme, as well as the themes related to their interaction with local organisations identified in the preceding chapters.

The first section of this chapter explores how national organisations perceive the collaboration with other entities involved in the FFPP (national and local) and highlights any challenges or areas of improvement. The second part delves into the perceptions of local organisations regarding their collaboration with central organisations in the implementation of the FFPP. It examines the views of local organisations on the level of support and cooperation received from central entities and analyzes any issues or successes identified in their interactions. Lastly, the chapter examines how the focus of central organisations has evolved since the beginning of the programme and how local organisations have responded to these changes. It provides insights into any shifts in priorities or strategies at the central level and evaluates the corresponding reactions from local organisations.

## 8.2 National organisations' approach and impacts on the implementation of the Programme

**8.2.1 National organisations' roles and responsibilities:** In 2016, the ACC, the MoH and the HQSC joined forces to accelerate a reduction in the incidence and severity of falls for NZers aged 65 years and over. As part of this partnership approach, ACC committed initially $31.7m to a nationwide investment as a contribution to local health systems to establish and improve a comprehensive whole-of-system approach to falls and fragility fracture prevention and rehabilitation. It has been mentioned that until 2021, ACC increased the investment to $40m. This represents a 'new way of working' for ACC and its health sector partners. The ACC's initial investment provided funding contributions to support local health system partners to deliver the FLS, In-Home S&B programmes, and community-based group S&B.

> *Our role, as has been primarily as a funder of live stronger for longer (FFPP), we are investing in live stronger for longer. So, to date, we've invested about 40 million into falls and fractures prevention. So, it's, the whole path, the whole system, rather than just falls. And at the moment, our role is to support health providers. And yeah, it's really making a part contribution to the work that they're doing, appreciating that a lot of them were already doing the work before we came along. So, it's not that we had new investment that created programmes. (Injury prevention leader, ACC)*

The MoH aimed to enhance clinical leadership within the healthcare system through aligned clinical and financial accountability, as well as by supporting decision making led by clinicians. This was the overarching objective behind their efforts to form alliances. Their approach to supporting this is through the promotion of integrated resource management.

> *This was an ACC lead hold of the government's initiative to reduce falls people and reduce ACC costs. So, it was ACC initiated, we were brought in as the health deliverer, or the ministry overseeing the health sector to help with the liaison between different health boards and implementation. (Health ageing operational manager, MoH)*

HQSC, in the beginning, had core roles in supporting clinical leadership and in monitoring, catalysing change, and reporting on health quality and safety at the systems level. This research found that the outstanding contribution of HQSC in falls prevention in the inpatient setting provided a strong platform for extension into the community setting. They have also played a key role in developing and administering the falls and fracture outcome framework and dashboard of indicators. The role of HSQC has now been more focused on the F&F outcome framework and gathering data from all partner organisations and facilitating the cross-agency working process.

There have also been some criticisms regarding the central organisation collaboration and their fragmented role in the implementation of the programme, which may result in the unsustainability of the programme. Some participants pointed out that the funding agency's involvement and commitment to the initiative can be influenced by political factors, leadership strategies, and their own strategic priorities. This is a phenomenon not exclusive to ACC but is known to occur with their organisation as well. As executive teams change within the funding agency, the focus and priorities of the initiative may shift accordingly.

> *One of the reasons these large-scale population change initiatives come and go is they are often held by central agencies, often by one more than the others, and one is the funder, and the other joined because they have a common interest. In this case, ACC was the funder, and clearly, the Ministry of Health and HQSC had a common interest but didn't provide cash. So, when the funder comes and goes, based on politics, their own leadership strategy and their own strategic imperative about what their focus will be, ACC is renowned for this as well, that the focus will change depending on who the executive team are. (Clinical leader, Canterbury district)*

### 8.2.2 Central government organisations' challenges in partnership

In this part, I discuss any specific challenges participants recognised when they were working with other central counterparts. Not surprisingly, one of the challenges described by ACC participants was finding and connecting the right people for the FFPP due to the size and various departments of MoH. In addition, ACC participants recognized that collaboration can sometimes slow down progress,

particularly when faced with deadlines. However, they firmly believe that collaboration is the right approach and something they are actively striving to integrate into their work.

> *We need to be collaborating with health. It has been hard for grab who at Ministry of Health have the right people to work with. But I mean, I think there is an appetite for it, where it gets challenging as that we have deadlines and collaboration can slow things down. But it's the right thing to do, but it's kind of still getting inside. I think we will collaborate but then when you have a deadline coming, then it can become very much back to our spot and just getting things through. (injury prevention leader, ACC)*

The challenges of partnership within the programme extend beyond central organisations alone. It encompasses the difficulty central organisations face in engaging local organisations to facilitate the programme at the local level. ACC participants acknowledged the complexity of engaging different groups within the DHBs such as planning and funding personnel, clinical staff, and those directly involved in fracture liaison work.

> *Within the DHBs, it's very hard. We have to kind of get multiple layers of the organisations, understanding the value of falls and fractures prevention. I mean, ultimately, if we get it right, it is going to reduce the demand on the hospital system by having fewer older people taking up beds, particularly with like a hip fracture. But we sort of deal with planning and funding people, but then you have clinical people, and then you've got the people that are actually doing the fracture liaison work. So, there's, I think the pressure is finding the right people to make sure they understand the value of it. (injury prevention leader, ACC)*

**8.2.3 Governance:** The governance and operating structure have changed over time. The initial national governance structure comprised a Cross-sector Alliance Group (CAG) and an internal ACC Implementation Governance group (ACCIG). The CAG's role has evolved from 'programme strategic oversight of vision and outcomes, set direction on strategic debates, governance framework, funding, and ultimate point of escalation' to a system-level oversight. In the current national governance, there is no CAG or cross-sector alliance committee.

> *We also set established, for the first two or three years, a high-level governance group that involves second-tier managers and ACC and the ministry to get the higher-level sign-off that was required. And I think we may have written that some teams of reference for that group to make sure what it was doing or what the programme was doing was well described and signed up to by Health and ACC. (Health ageing operational manager, MoH)*

Relatedly, there were also views that the three partner agencies were not really working together and actively participating in this forum. There were suggestions that it would be timely to review and refresh

the operation of this group and consider ways to facilitate greater cross-agency collaboration. Furthermore, the concept of a whole system approach has yet to be completely followed as many participants declared that there is a competition between national partner organisations regarding ownership of this programme, as some participants mentioned this programme as purely an ACC programme. On the other hand, ACC participants apparently criticised that the role of the MoH has been waning over time, and they were asking for more active participation of the MoH because of its essential technical role.

> *Well, at the national level, I guess, the review of the programme when it started in 2016, it was always going to be a partnership with the MoH, HQSC and ACC with the purpose of taking a national all-population approach to reducing falls and fractures of people largely over the age of 65. In speaking freely, I guess, in my review that I did in 2020, I found that effectively we were the sole funder, HQSC did some dashboard work, and MoH was supportive but largely not involved in any funding and or any day-to-day operation of the programme. So, it's effectively become an ACC programme in many respects. (ACC investment manager)*

On the other hand, MoH participants declared that maintaining the governance focus because of specific conditions of health systems with many competing priories and increasing demands has been difficult.

## 8.3 Local organisations' perceptions about central government collaboration and contribution

Local districts had different views about the central organisations' approaches and collaboration in the FFPP while the participants from one Canterbury district expressed a criticism regarding the sustainability of this programme at the national level due to the nature of the partnership and collaboration model. Participants from this district pointed out the lack of reliability and responsibility of central organisations.

> *We designed the programme, so they weren't funded by ACC. The oversight is funded (by ACC), but not the delivery. So that means when the oversight funding is removed, the delivery still keeps going. (We did this) because the central agencies aren't reliable, responsible, or sustainable, or have a long-term view. So, the wrong organisations to be delivering anything. If you want sustainability. (Clinical lead, Canterbury district)*

On the other hand, participants from the Counties Manukau district had positive views regarding the collaboration of national-level organisations in designing a falls and fracture prevention dashboard. This could be attributed to the fact that the clinical leader in this district has been an engaged member of the national-level advisory team.

> *We relied on the centre to give the right tools for us, and I think certainly the live stronger for longer website had all the tools. We took pains to organise a very good*

*website, which also included the outcome measures, we involved with the HQSC, we have the dashboard, presented right at the beginning so that people can see how our DHB is performing against other DHBs. And we were very careful on selecting the six indicators, what we need to publish in the dashboard as well. So, I think, it was a really good inter collaboration between the centre, the local DHB, and also the partners we work with in the DHB, as well. (Clinical lead, Counties Manukau district)*

## 8.4 Key changes in the national organisations' approaches in the FFPP

### 8.4.1 Shifts in funding of the programme

One of the main changes over time has occurred in ACC's approach to funding and the contracting of this programme from the low touch-high trust approach at the beginning to a high touch-high trust one from 2021 onwards. ACC's initial approach gave local partner organisations more flexibility to provide services based on the area of priority or needs, so some might be invested more in in-home services, while others might invest in the community group programme of FLS. Currently, ACC with the participation of Osteoporosis NZ, have set up a training workshop for each district regarding a standard FLS programme and its KPIs to give time and technical knowledge to overview their FLS. If a district can attain a gold certification from IOF, ACC has committed to ringfencing funding for the FLS by 2024. This approach can be called a performance-based contract, and the funding duration is based on the awarded certification. But ACC has not stopped supporting DHBs to get FLS certification, they contracted Osteoporosis NZ to do coaching and to help the DHBs get to where they need to be. In spite of this strict contracting change, ACC has given districts the flexibility to operate based on the district context, such as some districts may apply different approaches to engage their community.

Another main change has been altering the focus from in-home service to FLS. ACC has extended the target age group to cover patients over 50 years old in FLS to increase the chance of screening and identifying more at-risk people with underlying bone issues and starting treatment at an early stage, as well as creating greater consistencies across different districts in terms of implementation of the Community S&B programme and FLS.

*Because there were two funding streams, and that one was for fracture liaison service, which the majority did nothing with. Yeah, so a lot of money went there and not a lot of results from FLS at all; what they did seem to have an in-home strength and balance programme. And I wanted out of that, primarily, because it wasn't an all-of-population systemic, it wasn't scalable, and I had a sense that it was highly variable in terms of the qualification of the people going and getting support at in-home. (ACC investment manager)*

While local organisations criticised the funding of this programme and raised concerns about the sustainability of the programme, an ACC participant claimed that the impact of programme after four years of the implementations has not been noticeable enough to persuade the ACC board to continue the investment.

> *This is a very challenging phase, because the first four years from 2016 to 2020, didn't have sufficient value to show for a significant investment. Right. So here, I am going to the board saying, well, the last four years is nothing much to show. What I want is quite a lot more money and will do better. (ACC investment manager)*

### 8.4.2 Shifts in the focus area of the programme

Since the beginning of the programme, the focus of the programme at the central level has shifted to enhancing the Community S&B programme and establishing best practice FLS and supporting the Hip Fracture and Fragility Fracture Liaison Service Registry to support the delivery of best practice fracture liaison services in NZ. On the ACC website, it is stated that the support for the In-Home Strength and Balance programme will continue until July 2021. However, it is acknowledged that the impact of the in-home section has not been clearly demonstrated. Interestingly, local organisations and participants have expressed different perspectives on this matter. The withdrawal of funding from the In-Home S&B programme has led to some level of uncertainty and variations among local districts in terms of their ability to sustain and fund the programme at the local level.

### 8.4.3 Utilising a digital service in the FFPP

ACC has implemented additional programmes to complement the FFPP. Firstly, they have provided funding for a digital Strength and Balance (S&B) programme called Nymbl. This programme aims to enhance community engagement in exercise programmes, especially during periods of Covid-19 lockdowns. Additionally, ACC has initiated the development of a fragility fracture registry. This registry serves as a valuable source of information on individuals who are at risk of serious fall injuries.

> *ACC will continue to quantify and qualify the clinical and non-clinical benefits of digital strength and balance solutions. This is likely to include issuing a Request for Information (RFI) to identify organisations and/or solutions that may add value to the LSFL programme and subject to evaluation findings, encouraging increased participation in the Nymbl solution currently being piloted.* (ACC, 2020)

In 2022, ACC launched a new initiative through the Live Stronger for Longer website. This initiative introduces self-assessment options to help identify more individuals who are at risk of falls. The aim is to provide a user-friendly tool that enables people to assess their own risk factors and take appropriate measures to prevent falls and injuries.

> *We started identifying and communicating directly with clients over the age of 65 who could be at risk of a fall. We're contacting these clients via text messages, emails, or letters and depending on their level of risk, recommending that they take*

*part in strength and balance activities, directing them to our website, or complete a STEADI self-assessment. If a STEADI self-assessment is completed, they'll receive a recommendation depending on their score. It will either be suggested that they take part in strength and balance activities or have a conversation with their healthcare provider about their risk of a fall.* (ACC, 2022)

## 8.5 Health system reforms and its potential change to the FFPP

As previously discussed, the NZ health system is undergoing a reform aimed at centralizing decision making and providing unified healthcare services nationwide. The exact impact of these reforms remains uncertain. However, the participants in this research study shared their perspectives and concerns regarding the implementation of the FFPP as well as the broader implications of the reform. From central counterpart organisations, ACC, as a primary funding partner organisation, expressed concerns about the reform. They raised uncertainties regarding the implementation of the FLS programme, which could be susceptible to changes resulting from the health system reform and the disestablishment of DHBs.

> *ACC is funding it for three years, we need to make sure that any reformed health system has an FLS, Is that sustainable within. Because it takes out so much demand for so little costs. (Investment manager, ACC)*

Many participants from local organisations had not a significant concern about how the current health system reform, which aimed to shift towards a more centralized governance structure, on the implementation of the FFPP. Additionally, some participants showed support for this reform as it aimed to provide unified services across all districts in NZ, addressing the existing variations in the provision and delivery of health services. However, some participants also criticized the MoH reforms and approach mentioning that places power back in the hands of the ministries, who may have the financial resources but may not bring about meaningful change. Instead of taking power away from local communities, better support should be provided for good leadership at the local level. They believe that pushing decision making further out to the communities would be more beneficial, as opposed to consolidating power at the centre.

> *what we've had just been discussing, and that's government and ministries can provide a lot of money, and nothing changes. So, they're saying, well, DHBs don't work them, because they're not spending the money on the communities. Well, some of that's true. But I won't help by taking it away from, the help to me needs to be by providing better support for good leadership and local communities. (Clinical leader, Canterbury district)*

## 8.6 Chapter Summary

The chapter sheds light on the critical importance of central government organisations in the FFPP but also reveals complexities and challenges in their collaboration and support. The findings prompt considerations about the programme's long-term viability and raise questions about the effectiveness of certain approaches and changes introduced by central entities. The roles and responsibilities of national organisations come under scrutiny, with questions raised about the adequacy of their funding and commitment. Participants expressed a lack of active collaboration among partner agencies and uncertainty about the programme's long-term viability.

Shifts in funding focus, particularly the move towards FLS from In-Home services, provoked differing reactions. While some viewed this as a positive step towards standardization and effectiveness, others worried about the impact on local districts' ability to sustain the programme and the apparent neglect of in-home services. Health system reforms became a contentious topic, with varied opinions among participants. ACC expressed concern about the reform's potential effects on FLS implementation and sustainability. Conversely, local organisations showed varying degrees of support, with some appreciating the aim of unified services while others criticized the move towards centralization, advocating for empowering local communities.

Districts with well-established and sustainable FFPP programs expressed more critical views regarding the role and responsibility of central organisations and their collaborative approach in the FFPP program. These districts seemed to rely more on their own local capacities and resources.

# Chapter Nine: Comparative analysis and findings

## 9.1 Overview of this chapter

This chapter undertakes an analysis across four cases (Canterbury, Auckland and Waitematā and Counties Manukau), building upon the descriptive findings of this research that examined inter-organisational factors at both local and central levels in the implementation of the FFPP. It is important to highlight that in this chapter, I have chosen to analyse Auckland and Waitematā districts separately due to their distinct outcomes and specific features in programme characteristics and organisational factors, so in this chapter I analyse four cases instead of three cases. This separation provides a deeper understanding of how the FFPP implementation and outcomes can be influenced by contextual factors, despite the presence of shared planning and steering groups across both districts. In the initial segment of this chapter (Sections 9.2 to 9.5), the focus is directed towards the process of comparative analysis to find the way to answer research questions. This encompasses:

- Synthesis of descriptive findings
    - Areas of similarity and variations in inter-organisational and organisational factors as well as in programme characteristics.
- Programme outcomes and variation across case study sites.
- Inter-connections between organisational factors, implementation characteristics and outcomes.
- The power of organisational factors influencing implementation and outcomes of the FFPP.

Through the synthesis of gathered information, the subsequent sections in this chapter are devoted to addressing these research questions.

- Are the outcomes of this programme sensitive to levels of inter-organisational collaboration?
- To what extent can differences in implementing FFPP between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?
- To what extent can differences in outcomes of the FFPP between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?

This part is divided into four sections as below.

- Main organisational factors in inter-organisational collaboration
- Linking important organisational factors to CCIC framework
- Causal loop diagram
- Critical inter-organisational factors in the different phases of the implementation of the FFPP

## 9.2 Synthesis of descriptive findings

After identifying patterns and describing each case study site, this chapter undertake an analysis of the relationship and impact of a range of factors, most of which are identified in the CCIC, but some are specific to the FFPP. Most of the identified factors were graded along a spectrum, ranging from low (grade 1) to high (grade 4 or 5). In this context, "low" denotes that the factor's presence or magnitude is minimal, while "high" indicates a substantial presence or significant magnitude of the factor. An example of this scoring system is presented in Table 4, while the complete scoring system can be found in Appendix 6. This measure enabled me to categorize each factor across the four districts, facilitating the identification of areas of similarity and variation. Additionally, it enhanced the ability to compare the districts and their respective factors.

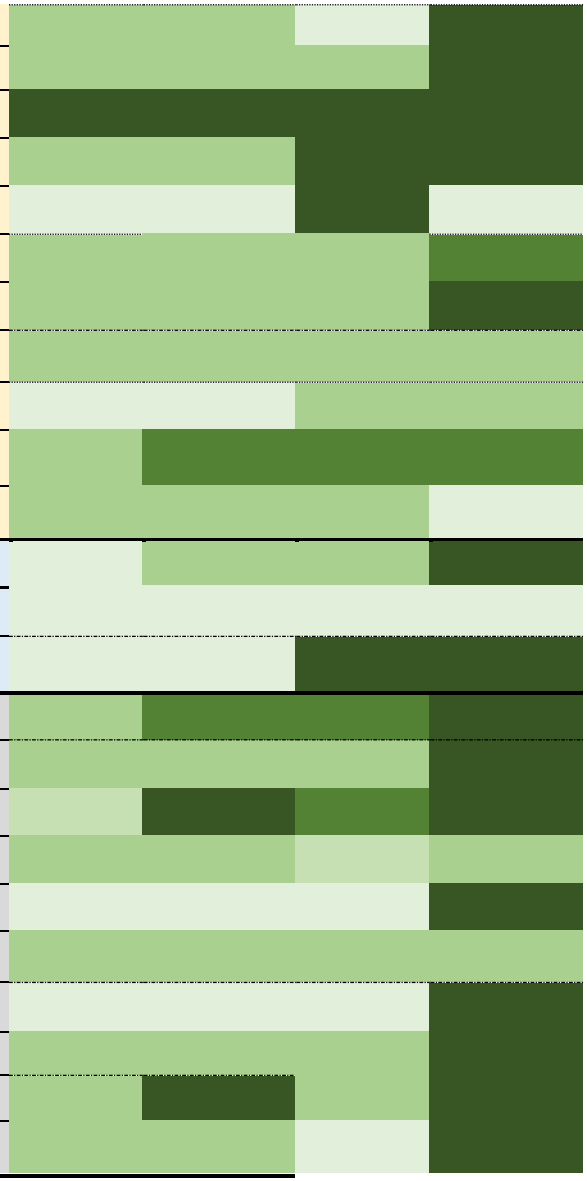
Table 4: *An example of the scoring system for organisational factors*

| Main Category | Organisational factors | Scoring system |
|---|---|---|
| Basic structure | Resources | The degree of DHB reliance on ACC funding to continue the implementation of this programme.<br>1. Highly dependent on ACC funding.<br>2. Somehow dependent on ACC funding for all components.<br>3. Somehow dependent on ACC funding in one or two components.<br>4. Highly independent on ACC funding and programme running as a business as usual |
| | Information technology | Whether the patient referral system between community and in-home services and primary care and secondary care works well and organisations are well-linked<br>1. Manual referral system between different organisations<br>2. The E-referral system between hospitals and GPs but not between GPs and community and in-home services<br>3. E-referral between the hospital, GPs, and in-home service but not for community providers and St. John<br>4. E-referral between the hospital, GPs, and in-home and community service but not for St. John<br>5. Full E-referral system which connects all relevant organisations |
| People and Value | Clinician engagement | To what extent senior clinicians are involved in managing the operation of the specific programme<br>1. There is no senior clinical leader for the whole programme and every single component.<br>2. There is a clinical leader for the whole programme but not for each component.<br>3. There is no clinical leader for the whole programme, but some components have clinical leaders.<br>4. There are strong clinical leaders at the district level for the whole and each component. |
| Key processes | Care and service delivery | Perception of respondents about the programme's capacity to involve different ethnicities.<br>1. There is a big gap between different ethnicities who are attending in community S&B programme.<br>2. There is a gap but not significant between different ethnicities who are attending in community S&B programme.<br>3. There is a gap, but there is a clear attempt to provide services for different ethnicities in the region.<br>4. There is no gap, and all ethnicities attend the Community S&B programme equally. |

Following the application of measurements for each case study site, a colour-coded system was employed, ranging from light green to dark green (see table 5). The lighter shades of green represent a lower grade, while the darker shades indicate a higher grade. By using this colour-coded representation, it became easier to visually discern and compare the levels or variations of the factors across the different case study sites, providing a comprehensive visual understanding of the similarities and differences within and between the sites. As evident from Table 5, Auckland is predominantly shaded light green across various inter-organisational and organisational factors, while Counties Manukau and Waitemata exhibit a mixture of light and dark green. In contrast, Canterbury is predominantly shaded dark green for many factors.

Table 5- *Colour coding applied for each factor across study sites*

| key them | Factors (organisational- programme- outcome) | Auckland | Waitemata | Counties Manukau | Canterbury |
|---|---|---|---|---|---|
| **Basic structure** | Funding- Reliance on external funding | | | | |
| | Funding- Contracting between organisations | | | | |
| | Human resources-Having sufficient staff | | | | |
| | Human resources-Using wider range of health professionals | | | | |
| | Human Resources- Inter-professional connections | | | | |
| | IT-Sophisticated E-Referral system | | | | |
| | Governance- Well-structured governance team | | | | |
| | Governance- Right-mixed working group | | | | |
| | Governance- Clarity of organisation's roles and responsibilities | | | | |
| **People and values** | Attitude toward collaboration | | | | |
| | Primary care engagement | | | | |
| | Clinical engagement at governance level | | | | |
| | Clinical engagement at operation level | | | | |
| | Having formal platform for sharing knowledge | | | | |
| | Having informal platform for sharing knowledge | | | | |
| | Shared values and vision | | | | |
| | Conflict management | | | | |
| **Key processes** | FLS-Adherence to clinical guidelines | | | | |
| | FLS- Clinician's engagement and leadership | | | | |
| | FLS-Easy access to bone scan | | | | |
| | Community S&B- Community training programmes | | | | |
| | Community S&B- Using community capacity in service delivery | | | | |
| | Community S&B 3-Engaging ethnicities | | | | |

| | | |
|---|---|---|
| | In-Home- Using private organisation capacity in service delivery |  |
| | In-Home- Referrals between In-Home and other part of the programme | |
| | In-Home 2- Adherence to clinical guideline | |
| | Partnership- Primary care engagement in governance level | |
| | Partnership- Established funding for engaging primary care | |
| | Partnership- Perception on primary care engagement and referrals | |
| | Partnership-Perception on referrals between programme components | |
| | Measuring & monitoring- Perception on outcome framework capacity | |
| | Measuring & monitoring- Internal or external feedback and monitoring mechanism | |
| | Measuring & monitoring- Using outcome framework capacity | |
| | Measuring & monitoring- Outcome framework capacity in showing inter-org collaboration | |
| **Programme characteristics** | Historical background- Having previous programme before national partnerships | |
| | Historical background- Previous partnership experiences | |
| | Approach to prevention- Have a systematic and population-based approach | |
| **Programme outcomes** | Programme maturity- Level of maturity of the FFPP | |
| | Programme results- Participants' views about the FFPP outcomes | |
| | Programme results- FLS accreditation status | |
| | Programme results- Community attendance level | |
| | Programme results- Attendance level in In-Home programme | |
| | Programme results- Perception on replication | |
| | Awareness- Perception about community awareness | |
| | Awareness- Perception about professionals' awareness | |
| | Sustainability- Continuation of programme after ACC funding | |
| | Sustainability- Utilisation of community and private sector capacity | |

### 9.2.1 Similarity and variations in inter-organisational and organisational factors, and programme characteristics

Based on the measure and colour coding system, four categories of variation and similarity were identified: great variation, weak variation (different but not significant), similar high, and similar low. When a factor exhibits great variation between districts, it implies that there are significant differences in the grades of that factor across the districts. This variation can be observed as a range that spans from low to high grades or from light to dark green such as in key processes - parameter 1-3a (In-Home S&B, utilisation of private organisations). When there is a weak variation between districts, it indicates that the districts display differences in the levels or grades of a particular factor, but these differences are not significant. For example, the factor may be measured as a low grade in some districts and a moderate grade in others like in basic structure parameter 2a (Information technology - using e-referral system). Out of the 43 organisational and inter-organisational factors and programme characteristics, 22 factors had large variations between districts. Meanwhile, 11 factors exhibited a small variation, 11 factors were similar across four districts of them, five factors and subfactors were similar at a low-level condition (for example with grade 1 or light green colour), and six were at a high-level condition (with grade 4 or 5 or dark green colour). Table 6 summarises organisational and implementation factors across these four categories. As evident from this table, substantial variations between districts are prominent, particularly in basic structure and key processes. However, regarding people and values, although districts exhibit similarities in their attitude towards collaboration, they differ in terms of clinical engagement and commitment to learning. The identification of areas of variation and similarity raised the question of which variations and similarities in organisational factors and in programme characteristics are important in shaping the implementation and outcomes of the programme. To address this question, I directed my attention towards measuring the significance level of these factors in driving changes in the implementation and outcomes.

Table 6- *Areas of variations and similarities in organisational factors across districts*

| | **Variations between districts** | | **Similar factors between districts** | |
|---|---|---|---|---|
| | **Large variation between districts** | **Small variation between districts** | **Similar high** | **Similar low** |
| **Basic structure** | **Staff**- having sufficient staff | **Funding**- reliance on ACC funding | | Staff-Inter-professional connections |
| | **Staff**- innovations in service delivery more efficiently | **Funding**- using community and private sector capacity | | |
| | **IT-** Quality of referrals between organisations | **IT**- E-referral between community-primary and secondary care. | | |
| | **Governance and accountability**- well-structured working group | | | |
| | **Governance and accountability**- partnerships of all partner organisations | | | |
| | **Governance and accountability**- frequent working group meetings | | | |
| | **Governance and accountability**- clarity of partner organisations responsibility | | | |
| **People and Value** | **Clinical engagement**- clinical engagement in working groups | **Commitment to learning**- formal platform for sharing knowledge and experiences | **Attitude towards collaboration** | **Attitude towards collaboration**- primary care engagement |
| | **Clinical engagement**- clinical leadership of each component of programme | **Commitment to learning**- informal platform for sharing knowledge and experiences | **Common vision and values**- share same objectives and values/managing conflicts | |
| **Key processes** | **Care delivery**-FLS-specialist engagement | **Care delivery**-Community S&B-involving different ethnicities | **Care delivery**-FLS-adherence to clinical guideline | **Partnership**- St. John engagement |
| | **Care delivery**-FLS-Easy access to Bone scan | **Measuring outcome**- using full capacity of outcome dashboard | **Care delivery**-Community S&B-adherence to clinical guideline | **Measuring outcomes**- Perception on outcome framework capacity |
| | **Care Delivery**-Community S&B-providing community training and awareness | **Measuring outcome**- outcome framework capacity in showing inter-organisational relationships | **Care delivery**-In-Home S&B-adherence to clinical guideline | |
| | **Care Delivery**-Community S&B-using community capacity in service delivery | **Measuring outcome**- existing internal feedback and monitoring mechanism | **Partnership**- Partnership experiences | |

| | | | | |
|---|---|---|---|---|
| | **Care delivery**-In-Home S&B-using private organisation capacity in service delivery | **Measuring outcome**- existing external feedback and monitoring mechanism | | |
| | **Care delivery**-In-Home S&B-good flow between In-Home and other parts of the programme | **Partnerships-** enough referrals from primary care | | |
| | **Care delivery**-In-Home S&B-good flow between In-Home and other parts of the programme | | | |
| | **Partnerships**- primary care engagement | | | |
| | **Partnerships**- primary care engagement in working group and governance level | | | |
| | **Partnerships**- primary care funding for the partnership | | | |
| | **Partnerships**- enough referrals between partner organisations | | | |
| **Programme characteristics** | Having previous programme before national partnerships | | | Previous partnership experience |
| | approach to the prevention | | | |

## 9.3 Programme outcomes and variations across case study sites

To determine the factors that can drive changes in the implementation and outcomes of the FFPP, I conducted a comparison among all districts using a set of outcome variables. I selected and categorized these outcomes into three main categories:

- Outcome 1, which encompasses process indicators
- Outcome 2, which focuses on programme maturity and sustainability
- Outcome 3, which centres around community awareness

Some of the outcome indicators were derived from the Falls and Fractures Outcome Framework (process indicators) which is described in section (3.2.4. 2). Additionally, other two outcomes were identified based on the research data and their significance in the implementation and overall success of the FFPP. Process indicators included the attendance rates in community and In-Home S&B classes (from FF outcome framework), as well as the accreditation results for the FLS programme, which served as a comprehensive evaluation conducted by IOP. Programme maturity indicated the level of integration of the programme within organisational activities, while sustainability reflected the extent to which the FFPP was maintained after external funding ended. Community awareness measured participants' perception of community and healthcare professional awareness, as well as the utilisation of organisational capacity to raise awareness. Similar to the organisational factors and programme characteristics, the outcome levels were also categorized on a scale from 1 to 4. A rating of 1 represents a low outcome level, while a rating of 4 indicates a high outcome level. Table 7 contains more detailed information on the three implementation outcome categories.

Based on these factors, the districts were classified into high, moderate, and low performance categories in the FFPP. A rating of 1-2 represented low performance, 2-3 indicated moderate performance, and 3-4 denoted high performance. For each outcome, the average score was calculated, and the average score across the three outcomes was used as a reference point for determining the district's overall classification. The findings of this research showed that Canterbury district gained the highest implementation score, followed by Counties Manukau and Waitematā, and finally Auckland with the lowest score. Upon closer examination, variations have been identified across all outcomes to varying degrees. For instance, in terms of the maturity and sustainability of the programme, while Auckland, Waitemata, and Counties Manukau exhibited moderate levels, Canterbury demonstrated the highest outcome. Regarding process indicators, Auckland displayed low performance, while Waitemata and Counties Manukau showed moderate performance, and Canterbury exhibited high performance. In terms of community awareness, both Auckland and Waitemata presented low levels, Counties Manukau showed moderate levels, and Canterbury displayed high levels of performance.

Table 7- *Implementation outcomes and variations across districts*

| | | Auckland | Waitematā | CM | Canterbury |
|---|---|---|---|---|---|
| **Maturity and Sustainability** | The level of maturity of the falls prevention programme | 2 | 3 | 3 | 4 |
| | Continuation of the programme if ACC stops funding | 2 | 3 | 2 | 4 |
| | Level of the community and private sector enforcement | 2 | 2 | 1 | 4 |
| Average score for outcome 1 | | **2** | **2.6** | **2** | **4** |
| **Process indicators** | Perception of the impact of the programme in reducing falls and fractures | 2 | 2 | 2 | 4 |
| | FLS accreditation result | 1 | 4 | 3 | 4 |
| | Number of older people completing 10 sessions community S&B | 2 | 2 | 1 | 2 |
| | Number of older people attended in-home S&B | 1 | 1 | 1 | 4 |
| | Replication of the FFPP model to other integrated care programme | 2 | 2 | 3 | 2 |
| Average score for outcome 2 | | **1.6** | **2.2** | **2** | **3.2** |
| **Community Awareness** | Community awareness | 1 | 1 | 2 | 4 |
| | Healthcare Professional awareness | 2 | 2 | 3 | 4 |
| | Optimal usage of organisational capacity in raising awareness | 1 | 1 | 2 | 2 |
| Average score for outcome 3 | | **1.3** | **1.3** | **2.3** | **3.3** |
| **Average score for all three outcomes** | | **1.6** | **2.1** | **2.1** | **3.2** |

## 9.4 Inter-connections between organisational factors, implementation characteristics and outcomes

The findings of this study have shown that there are differences between case study sites in terms of inter-organisational and organisational factors, programme characteristics and outcomes of the programme. After identifying variations and similarities in the organisational factors, I applied a complex system lens to explore the interconnections, non-linearity, and emergent properties of the programme. In order to assess the effectiveness of inter-organisational collaboration within the FFPP, I conducted an evaluation of each factor, taking into account their mutual complementarity and stimulation. It is important to note that individual factors alone do not guarantee successful collaboration. In addition to the impact of individual factors on the outcomes of the programme, the interactions and relationships between these factors play a crucial role in the implementation process and, consequently, in determining the programme's outcomes.

For this analysis, I categorised all potential relations and interactions between organisational factors into two groups: 1) the influence of a given factor on other factors and 2) the influence of other factors on the given factor. However, it is important to note that not all relationships have the same level of impact. Therefore, each factor was assigned a grade on a scale from (-2) indicating a very strong

negative impact to (2) indicating a very strong positive impact. Table 8 presents a sample of identified links between factors and their respective impact levels, (the full table can be found in Appendix 8). For instance, this table highlights collaborative leadership as a factor that significantly influences other factors, particularly partnering elements like primary care engagement or private sector engagement, often with a strong effect.

Table 8- *Factors' relationships and importance*

| Key theme | Key factors | Link to other factors (impact) | Other factors link to this factor (impact) |
|---|---|---|---|
| Basic structure | Having sufficient staff | • Using innovative service delivery (1)<br>• Service delivery (2)<br>• Community awareness (2) | • Funding arrangement (1)<br>• Leadership commitment (2)<br>• Clinical leadership/engagement (2)<br>• Having former falls prevention programme (2)<br>• using wider range of health professional (1) |
| | Inter-professional connections | • Shared goal and vision (mutual) (2)<br>• Commitment to learning (1)<br>• Partnership experience (1)<br>• Attitude towards collaboration (2) | • Staff turnover (-1)<br>• Attitude toward collaboration (1)<br>• Clinical leadership/engagement (1)<br>• Size of organisation (-1)<br>• Number of involved organisations (-1) |
| | Reliance on external funding | • Sustainability and continuation (-1)<br>• Service delivery-reduced volume (-1)<br>• waiting time (-1) | • Prevention as a priority in district (-1)<br>• Former falls prevention programme (1) |
| | Contracting between organisations | • Staff turnover (2)<br>• Service delivery (service delays) (1)<br>• Funding arrangement (1) | • District size (-2)<br>• Number of organisations (-2) |
| People and values | Collaborative leadership | • Right-mixed working group (2)<br>• Having sufficient staff (1)<br>• Private organisation engagement (2)<br>• Sophisticated E-Referral system (1)<br>• Well-structured governance team (1)<br>• Conflict management (2)<br>• Primary care engagement (2)<br>• Attitude toward collaboration (1)<br>•Approach to prevention (1) | • Former collaboration experience (2) |
| | Clinical engagement and leadership | • Service delivery (2)<br>• Sustainability and programme continuation (2)<br>• Having sufficient staff (1)<br>• Private sector involvement (1)<br>• Adherence to clinical guidelines (2) | • Leadership commitment (2)<br>• Approach to prevention (1)<br>• Pre-existing falls prevention programme (1)<br>• Well-structured governance team (2)<br>• Former collaboration experience (1) |
| | Commitment to learning and sharing knowledge | • Attitude toward collaboration (mutual) (1)<br>• Service delivery (0) | • Structured governance group (1)<br>• Attitude toward collaboration (1)<br>• Right-mixed working group (1)<br>• Inter-professional connection (1)<br>• Sophisticated E-Referral system (1)<br>• Monitoring and feedback loop (1) |
| Key processes | Community training and awareness session | • Primary care engagement (1)<br>• Service delivery (2)<br>• Community awareness (2) | • Sufficient staff (1)<br>• Attitude towards collaboration (0)<br>• Private sector involvement (2) |
| | Private organisation engagement in service delivery | • Service delivery (2)<br>• Programme sustainability/continuation (2)<br>• Community training/awareness session (1)<br>• Using a wider range of healthcare professionals (1) | • Leadership commitment (2)<br>• Former collaboration experience (2)<br>• Attitude toward collaboration (1)<br>• Pre-existing falls prevention programme (1)<br>• Clinical engagement/leadership (1)<br>• Well-structured governance team (1) |
| | Primary care engagement | • Service delivery (2)<br>• Referrals from primary care (2)<br>• Right mix of governance team (2)<br>• Sustainability and continuation of the programme (2) | • Leadership approach (2)<br>• Well-structured governance team (2)<br>• Approach to prevention (2)<br>• Clinical engagement/leadership (1)<br>• Attitude towards collaboration (1)<br>• Private sector involvement (0) |
| | Monitoring and feedback loop | •Service delivery (2)<br>•Partnership experience (1)<br>•Commitment to learning (1) | • Leadership approach (1)<br>• Structured governance group (1) |
| Programme characteristics | Pre-existing falls prevention programme | • Attitude toward collaboration (2)<br>• Clinical engagement and leadership (1)<br>• Private sector involvement (1)<br>• Reliance to external funding (1) | • Falls prevention as a district priority (2)<br>• Approach to prevention (1)<br>• Leadership commitment (2) |

## 9.5 The power of organisational factors influencing implementation and outcomes of the FFPP

The next stage of analysis comprised evaluating the importance of each factor on the implementation and outcomes of the FFPP. To accomplish this, I developed a formula that combines the impact of factors on outcomes with the strength of the relationships between a given factor and other factors. This approach is inspired by the work of Kożuch and Sienkiewicz-Małyjurek, (2016) who utilized a formulaic approach to measure the importance level of inter-organisational factors in the public sector. Applying a formula in measuring the importance level of factors had some specific benefits. Notably, it allowed for a comprehensive assessment of factors by considering both their individual impact on outcomes and their interconnectedness with other factors. Additionally, the approach is explicit, providing a clear and transparent methodology for determining the importance of each factor. As a result, a more holistic understanding of these factors' role in shaping the FFPP's implementation and outcomes is achieved. The provided formula is as follows:

**Importance level of factor = (0.2×I_o1) + (0.2 ×I_o2) + (0.1 ×I_o3) + (0.15× A_if) + (0.15× A_iof) + (0.2× N_si)**

The formula has two parts, the first measuring the impact of factors on outcomes.

**Impact of factors on outcomes = (0.2×I_o1) + (0.2 ×I_o2) + (0.1 ×I_o3)**

Where:

- I_o1= Impacts of the factor on outcome 1 (process indicators)
- I_o2 = Impact of the factor on outcome 2 (maturity and sustainability of the programme)
- I_o3 = Impact of the factor on outcome 3 (level of community awareness)

Examining the first part of the formula in depth, the impact of the factor on outcomes which accounts for approximately half of the importance level, shows to what extent a given factor can contribute to achieving desired outcomes (Outcome 1= process indicators, Outcome 2=maturity and sustainability of the programme, and outcome 3= level of community awareness). The decision to assign a higher weight to outcomes 1 and 2 compared to outcome 3 was a deliberate choice made to emphasise the greater importance and impact of outcomes 1 and 2 in evaluating the success of the FFPP. The rationale behind this decision was based on the understanding that outcomes 1 and 2 directly relate to the programme's primary objectives and core indicators of success.

To measure the impact of factors on each determined outcome, a factor-outcome matrix (indicating each factor variation between high and low outcome districts) was used. The level of impact of each factor on outcomes was classified into three levels: Low (0), Moderate (1), and High (2).

- A low impact indicates that there is no significant difference in the factor between districts with low and high outcomes.
- A moderate impact suggests a mixed level of the factor between districts with low and high outcomes.

- A high impact signifies a clear difference in the factor between districts with low and high outcomes.

In Table 9, three different examples of matrices are presented, each reflecting a varying level of influence that factors hold on corresponding outcomes while the complete matrices can be found in Appendix 9. I utilised three colours in this two-dimensional matrix, green indicates high-performing districts with high-level organisational factors, yellow signifies districts with moderate levels of both factors and outcomes, while orange denotes districts with low-level factors and outcomes. Example 1 shows high impact where Canterbury with high performance in outcome 1 (process indicators) had sufficient staff, and Waitematā and Counties Manukau with moderate performance had no severe staff shortage, but Auckland with low performance had insufficient human resources. Therefore, this factor did appear to have a strong influence on this outcome (high impact). In the second example, a scenario of moderate impact is presented. Canterbury, performing exceptionally well in outcome 2, initiated its programme before the national one. However, the three other districts with moderate performance varied in their accounts of historical backgrounds.

The third example illustrates a situation of low impact. All four districts, despite their differing performance levels in outcome 3 (community awareness), shared a common status regarding the existence of formal platforms for sharing experiences.

Table 9- *Example of matrices (High, moderate, and low impact)*

| **Example of high impact** (staff and process indicators) | | | |
|---|---|---|---|
| Human resources | High performance | Moderate performance | Low performance |
| Sufficient staff available | Canterbury | | |
| Not a severe shortage | | Counties Manukau Waitematā | |
| Insufficient staff | | | Auckland |
| **Example of moderate impact** (programme characteristics & maturity and sustainability of the programme) | | | |
| **Historical background** | High performance | Moderate performance | Low performance |
| Main components started before 2017 | Canterbury | | |
| Some components started before 2017 | | Counties Manukau-Waitematā | |
| No programme before 2017 | | Auckland | |
| **Example of low impact** (Commitment to learning and level of community awareness) | | | |
| Having formal platforms for sharing experiences | High performance | Moderate performance | Low performance |
| Well-organised formal platforms | | | |
| Some occasionally events | Canterbury | Counties Manukau | Auckland-Waitematā |
| No formal platform for sharing experience | | | |

Applying the first part of formula (page 149), table 10 shows the importance level of each factor on the determined outcomes.

Table 10- *Impact of factors on the FFPP outcomes*

| Organisational and inter-organisational factors | Impact of factor on (outcome 1: Process indicators) | | Impact of impact outcome 2: Maturity and sustainability) | | Impact of impact outcome 3: Community awareness) | | Impact of factor impact on outcomes |
|---|---|---|---|---|---|---|---|
| | I_O1 | result | I-O2 | result | I_O3 | result | |
| Well-structured governance team | 2 | 0.4 | 2 | 0.4 | 2 | 0.2 | 1 |
| Primary care engagement | 2 | 0.4 | 2 | 0.4 | 2 | 0.2 | 1 |
| Private organisation engagement in service delivery | 2 | 0.4 | 2 | 0.4 | 2 | 0.2 | 1 |
| Collaborative leadership | 2 | 0.4 | 2 | 0.4 | 1 | 0.1 | 0.9 |
| Right-mixed working group | 2 | 0.4 | 2 | 0.4 | 1 | 0.1 | 0.9 |
| Clinical engagement/leadership | 2 | 0.4 | 2 | 0.4 | 1 | 0.1 | 0.9 |
| Pre-existing falls prevention programme | 2 | 0.4 | 2 | 0.4 | 1 | 0.1 | 0.9 |
| Approach to prevention | 1 | 0.2 | 2 | 0.4 | 2 | 0.2 | 0.8 |
| Having sufficient staff | 1 | 0.2 | 2 | 0.4 | 2 | 0.2 | 0.8 |
| Community training/ awareness session | 1 | 0.2 | 2 | 0.4 | 2 | 0.2 | 0.8 |
| Community providers engagement | 1 | 0.2 | 2 | 0.4 | 1 | 0.1 | 0.7 |
| Sufficient internal /external feedback mechanism | 2 | 0.4 | 1 | 0.2 | 1 | 0.1 | 0.7 |
| Shared values and vision | 1 | 0.2 | 2 | 0.4 | 1 | 0.1 | 0.7 |
| Commitment to learning/sharing knowledge | 1 | 0.2 | 2 | 0.4 | 1 | 0.1 | 0.7 |
| Using a wider range of healthcare professional | 2 | 0.4 | 1 | 0.2 | 0 | 0 | 0.6 |
| Inter-professional connections | 1 | 0.2 | 1 | 0.2 | 2 | 0.2 | 0.6 |
| Effective conflict management | 1 | 0.2 | 2 | 0.4 | 0 | 0 | 0.6 |
| Adherence to clinical guidelines (community and in-home) | 1 | 0.2 | 2 | 0.4 | 0 | 0 | 0.6 |
| Reliance on external funding | 2 | 0.4 | 1 | 0.2 | 0 | 0 | 0.6 |
| Contracting between organisations | 2 | 0.4 | 1 | 0.2 | 0 | 0 | 0.6 |
| Former collaboration experience | 1 | 0.2 | 1 | 0.2 | 1 | 0.1 | 0.5 |
| Number of referrals from different organisations | 1 | 0.2 | 1 | 0.2 | 1 | 0.1 | 0.5 |
| Attitude toward collaboration and openness to collaboration | 1 | 0.2 | 1 | 0.2 | 1 | 0.1 | 0.5 |
| Sophisticated E-Referral system | 0 | 0 | 2 | 0.4 | 0 | 0 | 0.4 |
| Partnership experience | 1 | 0.2 | 1 | 0.2 | 0 | 0 | 0.4 |

Moving to the second part of the formula involves assessing the interrelationships between factors, accounting for approximately half of the formula weights distribution. This second part comprises three main aspects:

- **Effect of a given factor on other factors:** This aspect investigates how a specific factor influences the other related factors.
- **Effect of other factors on a given factor:** Similarly, I examined how other factors influence the factor under consideration.
- **Number of very strong interactions of a given factor:** the number of highly significant connections between a particular factor and other factors.

I proceeded to calculate the arithmetic mean of the grades obtained from assessing these reciprocal effects. However, it was evident that relying solely on the arithmetic mean might not provide a complete and accurate picture of the inter-factor relationships. To address this limitation, I added the number of highly significant connections between a particular factor and other factors. These "very strong links" carry substantial weight in determining the strength of the association. The second part of formula is defined as follows:

**Impact of factors on other factors = (0.15× A_if) + (0.15× A_iof) + (0.2× N_si)**

Where:

- A_if = Arithmetic mean of the evaluation of the impact of a given factor on other factors
- A_iof = Arithmetic mean of the evaluation of the impact of other factors on a given factor
- N_si = Number of very strong interactions of a given factor with other factors.

The assigned weights to the evaluation of impact on other factors (A_if) and the evaluation of impact by other factors (A_iof) (both 0.15) reflect a deliberate consideration of their significance in comprehending the interrelatedness and influence among factors. The rationale behind these weight assignments is to capture the reciprocal nature of these relationships. The evaluation of impact on other factors (A_if) quantifies how a given factor affects other factors, while the evaluation of impact by other factors (A_iof) measures how other factors influence a given factor. These interdependent relationships play a crucial role in understanding the intricate dynamics that contribute to the overall effectiveness of the FFPP implementation. By assigning equal weights to both aspects, the formula aims to ensure a balanced assessment of the bidirectional interactions among factors, thereby promoting a comprehensive evaluation of their interplay. This approach mitigates the potential circularity by emphasizing the significance of understanding both sides of the cause-and-effect relationships between factors.

The weight assigned to the number of very strong interactions (N_si) (0.2) indicates its significance in capturing the intensity and complexity of relationships between factors. This weight was allocated to acknowledge that factors with a higher number of strong interactions may have a greater overall impact

on the FFPP outcomes. It is worth noting that the application of the formula results in a range of values for the number of very strong interactions, spanning from (1) to (4). This characteristic amplifies the relational impact, giving it greater prominence over the significance of individual factors in impacting outcomes. This approach is in alignment with the research's objectives, which emphasize the importance of collaboration. The resulting formula was then applied to identify factors, as shown in Table 11.

Table 11- *Relational impact of identified factors*

| Organisational and inter-organisational factors | Impact of a given factor on other factors (weight:0.15) | | Impact of other factors on a given factor(weight:0.15) | | Number of very strong interactions of a given factor(weight:0.2) | | **Power of interactions** |
|---|---|---|---|---|---|---|---|
| | A_IF | result | A_IOF | result | N_SI | result | |
| Collaborative leadership | 1.5 | 0.22 | 2 | 0.30 | 4 | 0.8 | 1.32 |
| Well-structured governance team | 1.2 | 0.17 | 1.3 | 0.20 | 4 | 0.8 | 1.17 |
| Primary care engagement | 2 | 0.30 | 1.3 | 0.20 | 3 | 0.6 | 1.10 |
| Private organisation engagement in service delivery | 1.5 | 0.23 | 1.3 | 0.20 | 3 | 0.6 | 1.02 |
| Former collaboration experience | 1.6 | 0.24 | 1 | 0.15 | 3 | 0.6 | 0.99 |
| Approach to prevention | 1.3 | 0.19 | 2 | 0.30 | 2 | 0.4 | 0.89 |
| Having sufficient staff | 1.6 | 0.24 | 1.6 | 0.24 | 2 | 0.4 | 0.88 |
| Right-mixed working group | 1.4 | 0.21 | 1.75 | 0.26 | 2 | 0.4 | 0.87 |
| Clinical engagement/leadership | 1.6 | 0.24 | 1.4 | 0.21 | 2 | 0.4 | 0.85 |
| Using a wider range of healthcare professionals | 2 | 0.30 | 1 | 0.15 | 2 | 0.4 | 0.85 |
| Community training/ awareness session | 1.7 | 0.25 | 1 | 0.15 | 2 | 0.4 | 0.80 |
| Community providers engagement | 1.3 | 0.20 | 2 | 0.30 | 1 | 0.2 | 0.70 |
| Inter-professional connections | 1.5 | 0.23 | 0.2 | 0.03 | 2 | 0.4 | 0.66 |
| Number of referrals from different organisations | 1.5 | 0.23 | 1.5 | 0.23 | 1 | 0.2 | 0.65 |
| Sophisticated E-Referral system | 1.3 | 0.20 | 1.5 | 0.23 | 1 | 0.2 | 0.62 |
| Pre-existing falls prevention programme | 1.25 | 0.19 | 1.3 | 0.20 | 1 | 0.2 | 0.58 |
| Attitude toward collaboration and openness to collaboration | 1.2 | 0.17 | 1.3 | 0.20 | 1 | 0.2 | 0.57 |
| Sufficient internal /external feedback mechanism | 1.3 | 0.20 | 1 | 0.15 | 1 | 0.2 | 0.55 |
| Partnership experience | 1.5 | 0.23 | 0.6 | 0.09 | 1 | 0.2 | 0.52 |
| Shared values and vision | 0.7 | 0.10 | 1.4 | 0.21 | 0 | 0 | 0.31 |
| Effective conflict management | 1 | 0.15 | 1 | 0.15 | 0 | 0 | 0.30 |
| Adherence to clinical guidelines (community and in-home) | 1 | 0.15 | 1 | 0.15 | 0 | 0 | 0.30 |
| Commitment to learning/sharing knowledge | 0.5 | 0.08 | 1 | 0.15 | 0 | 0 | 0.23 |
| Reliance on external funding | 1 | 0.15 | 0 | 0.00 | 0 | 0 | 0.15 |
| Contracting between organisations | 1.3 | 0.20 | -2 | -0.30 | 1 | 0.2 | 0.10 |

Combining two parts of the formula provides a comprehensive measure to understand the importance of factors on both outcomes and implementation of the FFPP. Table 12 shows the result of applying the whole formula.

Table 12- *The power of organisational and inter-organisational factors in FFPP implementation*

| Organisational and inter-organisational factors | **Impact of factor impact on outcomes** | **Power of interactions** | **Total power of factor impact** |
|---|---|---|---|
| Collaborative leadership | 0.9 | 1.32 | 2.22 |
| Well-structured governance team | 1 | 1.17 | 2.17 |
| Primary care engagement | 1 | 1.10 | 2.10 |
| Private organisation engagement in service delivery | 1 | 1.02 | 2.02 |
| Right-mixed working group | 0.9 | 0.87 | 1.77 |
| Clinical engagement/leadership | 0.9 | 0.85 | 1.75 |
| Approach to prevention | 0.8 | 0.89 | 1.69 |
| Having sufficient staff | 0.8 | 0.88 | 1.68 |
| Community training/ awareness session | 0.8 | 080 | 1.60 |
| Former collaboration experience | 0.5 | 0.99 | 1.49 |
| Pre-existing falls prevention programme | 0.9 | 0.58 | 1.48 |
| Using a wider range of healthcare professionals | 0.6 | 0.85 | 1.45 |
| Community providers engagement | 0.7 | 0.70 | 1.40 |
| Inter-professional connections | 0.6 | 0.66 | 1.26 |
| Sufficient internal /external feedback mechanism | 0.7 | 0.55 | 1.25 |
| Number of referrals from different organisations | 0.5 | 0.65 | 1.15 |
| Attitude toward collaboration and openness to collaboration | 0.5 | 0.57 | 1.07 |
| Sophisticated E-Referral system | 0.4 | 0.62 | 1.02 |
| Shared values and vision | 0.7 | 0.31 | 1.01 |
| Commitment to learning/sharing knowledge | 0.7 | 0.23 | 0.93 |
| Partnership experience | 0.4 | 0.52 | 0.92 |
| Effective conflict management | 0.6 | 0.30 | 0.90 |
| Adherence to clinical guidelines (community and in-home) | 0.6 | 0.30 | 0.90 |
| Reliance on external funding | 0.6 | 0.15 | 0.75 |
| Contracting between organisations | 0.6 | 0.10 | 0.70 |

By employing this formula, the investigation addresses the questions into the extent to which programme outcomes and implementation can be linked to specific organisational factors and inter-organisational collaboration. In the following sections, I discuss the factors I found critical and game changers in the context of FFPP based on overall scores from Table 12.

## 9.6 Main organisational factors in inter-organisational collaboration

The subsequent sections are built upon the foundation of the formula-derived results, focusing on comprehending the pivotal factors and aiming to address the research questions. As mentioned in the previous section, by applying the formula, I have identified the most significant factors that influence the implementation of the FFPP in NZ according to (a) their impact on outcomes and (b) the strength of relationship with other factors. The analysis reveals that the factor with the greatest impact on inter-organisational collaboration in the FFPP is the collaborative leadership approach. It determines the necessity of collaboration and shapes the relations between each organisation. The leadership role in the integrated care programme is facilitating group interaction to accomplish desired goals as well as inspiring involved professionals by communicating a vision or mission. Notably, there are substantial differences in the leadership approach and commitment to the falls prevention programme across the three districts. Canterbury district, in particular, exhibited a stronger performance in this regard. These differences contribute to variations in the desired outcomes of the programme, particularly in terms of the maturity and sustainability of the programme. The impact of the collaborative leadership on outcomes is not only significant but also exemplified by its influence on other factors. Senior leaders can foster interest and commitment to change and collaboration and support staff in working differently. Several examples emerged in the interviews where senior leaders played a pivotal role in designing the operating system and creating shared visions, values, or its role in other organisational or programme characteristics.

> *So certainly, people believe in their programme, as certainly Counties at a higher level, and I think that's because a strong leader was involved in the whole system, you know, designing a system right from the beginning and also very passionate about preventing falls. They believe this is a population-based approach that just approaches primary prevention as what's needed. (ACC Rep, Auckland and Waitematā district)*

> *We've had a leadership approach where many clinicians have been brought together to work together to solve problems. People like myself and about 80 others started a group about 10 to 12 years ago. We developed health pathways, clinical networks, and alliances approach to healthcare and preventative change. (Clinical leader, Canterbury district)*

The second most important factor was having a well-structured governance team of the FFPP with the contribution of all individual organisations. There were great differences between districts in terms of the structure of the governance team. In Canterbury, the district set up a specific service level alliance for falls prevention with clear guidelines and direction for three years, and after setting up appropriately, the team merged into two bigger relevant workstreams (community service and health for older people) to ensure the continuous implementation of the falls programme. On the other hand, the Auckland and Waitematā district had a joint steering group between two large districts but still needed to be structured appropriately and with a strong leadership approach. These differences relatively impact the shape of

the programme and specifically in the way partner organisations were engaged. In addition, having a well-structured local governance team significantly impacts the programme's outcomes, especially by creating changes in integrated care indicators such as the number of patients served in the community and in-home services.

A well-structured governance team, similar to the leadership approach, is linked to many other factors and may make particularly a great influence on the partnership experience of key partners and involved organisations. Furthermore, the role of the structured team, specifically at the beginning of the programme's implementation, emerged in several interviews, demonstrating that a well-structured governance team with clear roles and responsibilities ensures that the falls prevention programme is effectively managed and coordinated between involved organisations.

> *Initially, the service level alliance, a separate one was to make sure we had all of those elements working really well and had a set work plan. It had set targets and objectives to meet and meet all of those. So now it becomes more business as usual and fits under another workstream (health for older people) where we keep an eye on it, but it's not an individual bit of work. (Planning & funding manager, Canterbury DHB)*

Primary care engagement was the third most important organisational factor that played a crucial role in inter-organisational collaboration. Primary care engagement as a key factor is one of the main characteristics of the partnering process, which also is particularly relevant to the characteristics of the falls prevention programme. Primary care engagement greatly contributes to achieving desired outcomes of the programme with more referrals and feeding different components of the programme, as well as programme sustainability and continuation. In addition, some factors also greatly influence the type of primary care engagement (competitive or collaborative), such as leadership approach, clinical engagement at the governance level, and approach to prevention.

> *Clinicians in community ownership of the programme, and most clinicians in Canterbury, understand the programme, believe it and have a lot of trust in their system that supports that. It also meant that clinicians in Canterbury have given quite a lot of credit to the DHB system for putting that in place. And that's very useful for building a cohesive approach to a whole lot of healthcare and the things that haven't worked so well. So, you know, it is hard thing to be critical of some elements, because they tend to be staff changing, funding changing, but probably the best thing is that it won't be dismantled now. I'll continue to make sure the quality elements have improved, but it doesn't need me anymore, and doesn't need a lot of input. Self-generating processes seem to be supportive to a number of other activities for older people in the Canterbury. (Clinical Leader, Canterbury district)*

The number of PHOs may increase the complexity of contracting and the type of engagement in primary care, which may negatively influence the inter-organisational collaboration experience. A number of participants also identified the districts' differences in primary care engagement.

> *The greater challenge was receiving and getting referrals from general practice. And I think that was probably a failure of the model and the way we started the programme, we tried to engage widely and said the primary care was engaged, but they're engaged as one of many partners in terms of governance and setting up the model, for instance, Canterbury engaged general practice as the key partner, we didn't do that…one of the primary reasons for not doing that was because Canterbury had one dominant PHO, Auckland DHB had five at the time.(Public health physician, A&WDHB)*

## 9.7 Exploring the Significance of CCIC Factors by Type

The CCIC Framework shows how organisational context and capabilities influence the implementation and outcomes of integrated care interventions. Contextual factors and organisational capabilities are organised into three categories: basic structures, people and values, and key processes (Evans et al., 2017). In this section, I have used this framework but matched the importance level of factors in each main category (see table 12). The ranking in Table 13 was derived from the scores presented in Table 11, which were subsequently categorized according to the CCIC framework. The factors were evaluated based on their respective scores, and then grouped into categories within the framework. Further elaboration has been provided for each category as follows:

Table 13- *Significance of organisational and inter-organisational factors in CCIC framework*

| **Imp level** | **Basic structure** | **People and Value** | **Key processes** | **Programme characteristics** | **Out of framework** |
|---|---|---|---|---|---|
| 1 | Well-structured governance team | Collaborative leadership | Primary care engagement | Approach to Prevention | Former collaboration experience |
| 2 | Right-mixed working group | Clinical engagement and leadership | Private organisation engagement in service delivery | Community training and awareness | |
| 3 | Having sufficient staff | Inter-professional connections | Community provider's engagement in the programme | Pre-existing falls prevention programme | |
| 4 | Using a wider range of healthcare professional | Attitude toward collaboration | Sufficient internal and external feedback mechanism | | |
| 5 | Sophisticated E-Referral system | Shared values and vision | Number of referrals from different organisations | | |
| 6 | Reliance on external funding | Commitment to learning and sharing knowledge | Partnership experience | | |
| 7 | Contracting between organisations | Effective conflict management | Adherence to clinical guidelines (community and in-home) | | |

### 9.7.1 Basic structure

The findings of this research have shown that, among the basic structure required for integrated care, the well-structured governance team, fostering collaboration among partners, holds the highest importance. It serves as the central hub for strategic decision making and coordinated efforts, driving the programme's success. Allocating sufficient staff and optimising human resources ranks next in significance. Adequate staffing ensures efficient service delivery and enhances patient care quality. An effective e-referral system offers streamlined communication and coordination, enhancing inter-organisational relationships. It supports efficient patient transfers and information sharing. However, none of the case study sites has achieved a fully mature e-referral system between community, primary and secondary services. In this research, financial resources were not identified as a primary factor influencing the implementation of the FFPP.

While other factors, such as the reliance on external funding and inter-organisational contracting, are also integral to the FFPP's implementation, their relative ranking reflects their supporting nature. These factors placed lower ranks due to their indirect impact on programme operations compared to the direct influence of the governance team's structure and resource allocation.

Furthermore, the absence of financial resources as a primary factor in the research's findings is noteworthy. Despite its significance, financial resources were not identified as a driving factor influencing FFPP implementation. This is attributed to the similarity in financial support across the examined districts, which eliminates it as a differentiating factor. Instead, the study delves into the nuanced interplay between districts and external funding support from ACC to discern their reliance and associated challenges.

Moreover, the research revealed the challenges posed by inter-organisational contracting between service providers and funders. This exploration illuminates the potential negative consequences of such challenges on other factors integral to the implementation process.

> *So, when the contract is coming towards the end of the expiration date, the staff get nervous, and then they look for other jobs because there's no certainty from either ACC or the DHB. So, from that, DHBs would prefer that ACC funded naturally. I can understand that, and therefore, they won't commit to keeping the staff on. (ACC Rep, Auckland district)*

### 9.7.2 People and value

Within the CCIC framework, the people and value category consists of seven factors, including leadership approach, clinical leadership and engagement, patient centred and engagement, commitment to learning, organisational culture, work environment, and readiness to change. This research found that the leadership approach (collaborative) and clinical leadership and engagement have been by far the two most important factors in implementing falls prevention. The third most important factor has been inter-professional connections which can facilitate professional conversations and create a more positive collaboration experience. All involved organisations have had a supportive and positive attitude toward collaboration; however, in some cases, negative collaboration experience in the past (with national government organisations) and the stop-and-go position of falls prevention over 20 years have made some participants pessimistic about the current national programme. These negative experiences were mainly expressed by participants from the Counties Manukau and Auckland and Waitematā districts. There has been consistency between districts regarding their vision and goals. All involved organisations had expressed their goal of collaboration to prevent older people from falling and support their independent lives at home. However, the impact of this factor in improving outcomes was not found to be significant, but still, it has been a feature linked to many other factors, and it has been a facilitator in conflict management and a trigger of positive partnership experience. Commitment to learning and sharing knowledge and experience played an essential role in making connections between providers within or across organisations or within or across districts; however, its role in improving outcomes wasn't considerable. For instance, In the Auckland and Waitematā district, both formal and informal sessions were conducted to enhance the connection between Community S&B

providers. Despite these efforts, the outcomes of attracting older participants to engage in the classes and successfully complete all ten sessions fell short of the intended target.

### 9.7.3 Key processes

The partnering process has proven to be one of the most crucial aspects in implementing FFPP. It involves the active participation of primary care, community providers, and private organisations, which significantly contribute to the success of the programme. The combination of proactively engaging all PHOs at the governance level, giving private organisations a focal point role and empowering community providers may create positive outcomes and a more sustainable programme. Proactively engaging key partners in prevention programmes like FFPP and giving them power and ownership of the programme at the governance level can enhance the implementation of this programme because they directly affect service delivery, and therefore this may ultimately result in greater community engagement at the population level. As an example, the Canterbury district, exhibited proactive engagement with primary care from the beginning at the governance level. This involved initiatives such as collaborating with local in-home service providers to involve GPs and facilitating risk assessments for them. The process of monitoring performance and establishing feedback loops, both internally and externally, plays a crucial role in promoting continuous quality improvement and enhancing the maturity of a programme, particularly when it involves multiple components and organisations. Nevertheless, despite the collection of quarterly reports from various organisations, there is still ample room for improvement in this area across all four districts. In addition, all four districts had similar patient flow for the community and in-home services based on clinical guidelines, which guarantee service quality across different districts.

### 9.7.4 Non-CCIC framework characteristics

In addition to CCIC framework characteristics, participants identified former collaboration experience in falls prevention or other relevant integrated care programmes as an important factor, with a power of impact of 1.49, that either facilitated or hindered new initiatives or collaborations. My analysis suggests that this factor has a relatively high influence on programme outcomes. However, its most significant impact has been on other factors, such as attitudes towards collaboration.

### 9.7.5 Programme characteristics

Programme or intervention characteristics have not been explored in detail in the CCIC framework, but findings of this study showed that the population-based approach to prevention had the most profound impact, followed by community training and awareness sessions, and then the presence of a pre-existing falls prevention programme. The approach to prevention (power of impact= 1.69) has been identified by participants of this research as a population-based or opportunistic approach to prevention. Population-based screening is where a screening test is offered systematically to all individuals in the defined target group within a framework of agreed policy, protocols, quality management, monitoring, evaluation, and review. Population-based screening is an organised, integrated process where all activities along the screening pathway are planned, coordinated, monitored, and evaluated through a

quality improvement framework. All of these activities must be resourced adequately to ensure benefits are maximised. Opportunistic screening is where a test is offered to an individual with or without symptoms of the disease or condition when they present to a health care practitioner for reasons unrelated to that disease. I found that districts with a more holistic approach to prevention and screening (Canterbury and CM) have engaged primary care, St. John, and Community Pharmacy from the beginning in 2016. In addition, those districts have utilised the FFPP as an opportunity (serving older people at their homes) to apply a more holistic approach to the health of older people and organise other social and health services for those older people.

Community training and awareness sessions (power of impact= 1.60), along with awareness sessions for healthcare professionals about the FFPP programme, has been another factor which directly affected the service delivery and reaching desired targets for each component of the programme. There was a difference between districts regarding how much they provided community awareness sessions or other activities to attract older people to participate in the FFPP programme. This factor also has a powerful relational impact with another factor (shown in table 8) which makes it an important characteristic in implementing the programme. A pre-existing falls prevention programme (power of impact = 1.48) indicates whether the district had a previous programme before the national level FFPP programme. Having a pre-existing programme has an impact on the programme outcomes, particularly on programme maturity and sustainability, and a relatively powerful impact on other factors such as attitude toward collaboration.

## 9.8 Causal loop diagram

The purpose of causal maps is to visually represent the complex interplay of factors that contribute to a particular outcome or phenomenon. They show the relationships between various factors and how they interact with each other to produce the observed outcomes (see Figure 17). Causal maps are commonly used in fields such as systems thinking, programme evaluation, and social network analysis to understand and explain complex systems or processes (Ackermann & Alexander, 2016). In the current research, I used a causal diagram to show the complex interplay of factors that affect the FFPP. The relationships between organisational contextual features and sub-features are illustrated based on key findings. Arrows depict the potential direction of the relationship (e.g., leadership influences evaluation and feedback). To enhance clarity, distinct colours have been assigned to six categories (green for basic structures, red for people and value, blue for key processes, purple for programme characteristics, orange for factors beyond the CCIC framework, and yellow for the programme outcomes). Furthermore, varying text sizes underscore the significance of each factor in FFPP implementation, as determined by the applied formula. The causal loop diagram illustrates the key drivers and demonstrates how these drivers influence other factors and potential outcomes. It is evident that there are no linear relationship between factors and outcomes. Furthermore, the diagram indicates that implementing a multifactorial FFPP necessitates high-level inter-organisational collaboration and a balanced combination of organisational and inter-organisational factors.

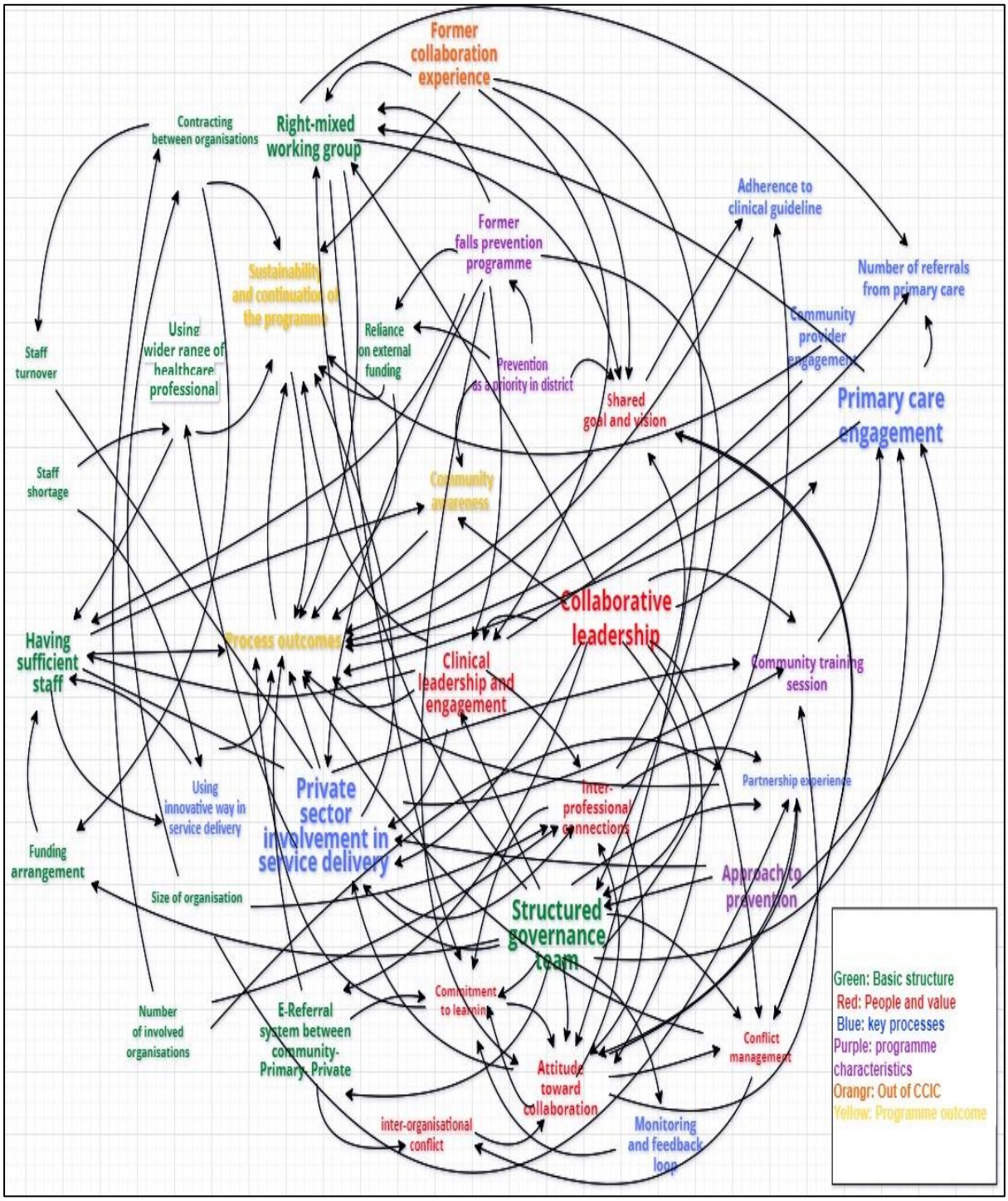



Figure 17- *Causal diagram of organisational and inter-organisational factors interactions in the FFPP*

## 9.9 Critical Inter-organisational factors in the different phases of the implementation of the FFPP

The FFPP, officially launched in 2016, was initially contracted for a three-year period until 2020. However, an extension was granted until 2024 by ACC, subject to specific conditions. Throughout the course of the implementation, an in-depth analysis of research data and shifts in district attention revealed the existence of three distinct stages that have played a crucial shaping role. These stages are 1) the pre-engagement and engagement phase, 2) the development of service delivery, and 3) the establishment of the programme as a usual business. By recognizing these three stages, I gained invaluable insights into the progressive evolution of the FFPP and the critical factors influencing its success at different junctures. I examined the factors frequently mentioned by participants at various stages of the programme and their roles in facilitating collaboration. However, it's important to note that this was a subjective process, and further study may be necessary to determine the placement of inter-organisational and organisational factors. Each stage represents a significant milestone, offering a deeper understanding of the implementation processes, challenges, and outcomes encountered along the way. It enables me to pinpoint key factors and strategies that were instrumental in facilitating a successful transition from one stage to another.

Furthermore, through meticulous analysis, I have identified the specific factors that hold importance in each stage of the FFPP implementation. These important factors, outlined in Table 14, serve as signposts for understanding the unique requirements and priorities within each stage. It's important to highlight that the placement of key factors at various stages of programme implementation does not diminish their significance in other stages. Rather, it signifies that their role may be more prominent during that particular stage. By recognizing the significance of these factors and their alignment with the corresponding implementation stages, I was able to discern patterns, challenges, and areas of focus that are vital for achieving successful outcomes in integrated care interventions.

Table 14- *Importance of factors in lifecycle of inter-organisational collaboration*

| CCIC Framework | **Pre-engagement and engagement** | **Development of service delivery** | **Establishment of the programme as a usual business** |
|---|---|---|---|
| Basic structure | • Well-structured governance group<br>• Right-mixed working group<br>• Having sufficient staff | • Sophisticated E-Referral system | |
| People and value | • Leadership approach<br>• Attitude toward collaboration and openness to collaboration<br>• Shared values and vision | • Clinical engagement and leadership<br>• Inter-professional connections<br>• Effective conflict management | • Commitment to learning and sharing knowledge |
| Key processes | • Primary care engagement<br>• Private organisation engagement in service delivery<br>• Community provider's engagement in the programme | • Sufficient internal and external feedback mechanism<br>• Adherence to clinical guidelines (community and in-home) | • Sufficient internal and external feedback mechanism |
| Programme characteristics | • Approach to Prevention | • Community training and awareness session | Pre-existing falls prevention programme |

In the initial stage, referred to as the pre-engagement and engagement phase, local partner organisations are introduced to the national-level programme and planning partnerships approached. They establish contracts with relevant organisations, set up the local programme, and create a steering group. In districts with existing fall prevention programmes, this phase began prior to 2016. A crucial factor during this stage is strong collaborative leadership that guides and motivates the system and inter-organisational network towards the desired outcomes. A whole-of-system approach that emphasises inter-organisational relationships and supports a well-structured governance team with clearly defined roles and responsibilities is essential at this stage. Recognizing the role of partnerships and identifying key partner organisations, such as primary care and community service providers, can greatly impact the next phase of implementation. However, before that, having an appropriate prevention approach, such as a population-based and systematic approach, may affect the partnering process at both the governance and operation levels. Additionally, involving the private sector

prominently in the prevention programme, given the limitations of the public sector, is identified as a significant factor in the FFPP. It's noteworthy that many of the highest-scoring factors are situated in the first column. This suggests that the foundational elements must be established before progress can be made. Consequently, factors in the subsequent stages may have lower scores due to variations in their implementation across cases. This observation aligns well with the notion that the presence of essential prerequisites greatly influences subsequent implementation success.

The second stage involves the development of service delivery, and districts like CM, Auckland, and Waitematā exemplify the progress made in this phase. During this stage, the focus shifts towards establishing delivery frameworks, creating cross-referral pathways, setting outcome targets, identifying infrastructure shortages, and resolving inter-organisational conflicts. Clinical engagement and leadership are integral components during this stage, which can promote effective service delivery. Building effective relationships between healthcare professionals and all other involved professions, such as community service workers and exercise coordinators, can foster a positive working climate and a sense of unity towards the goal of helping older people stay safe and independent in the community. Developing services in the community, in-home, or hospital setting and the need for mutual communication among all three components of the programme can lead to conflicts. Hence, effective conflict management between providers in frontline or inter-organisational conflicts is crucial for providing continuous and integrated service delivery.

The third stage involves the establishment of the programme as a sustained usual service, which refers to the phase where the district focuses on quality improvement, monitoring, and sharing inter-organisational experiences and knowledge. Canterbury district, for example, effectively focused on quality improvement, monitoring, and the sharing of inter-organisational experiences and knowledge. At this stage, it may be optional to have monthly steering group meetings or very strict rules and guidelines. However, designing a proper internal and external monitoring and reporting system can help maintain the programme's relevance and effectiveness. This monitoring and feedback system can facilitate inter-organisational conversations and create opportunities for improvement. Monitoring mechanisms can be established between different components of the programme, such as creating feedback loops between the community, in-home, and FLS about the referred patients and their outcomes. External monitoring feedback can also be provided from DHBs to PHOs regarding their screenings and referrals or from national organisations about the overall performance of the districts.

## 9.10 Chapter summary

In this chapter, the focus shifted from descriptive findings to a more analytical approach in addressing the research questions of the study (mainly which organisational factors are important and critical in the FFPP implementation and reaching desired outcomes). The chapter organised the analytical process and findings into five sections, exploring areas of similarity and variation in inter-organisational and organisational factors, implementation outcomes and variation across case study sites, inter-connections between factors and outcomes, and the power of organisational factors influencing implementation and outcomes. This process led to making a formula to measure the importance level of organisational factors. The second part of this chapter focused on important inter-organisational and

organisational factors in the FFPP, aligning factors based on CCIC framework and critical organisational factors in different phases of the implementation. The findings of this research identified three key factors that influence the implementation of the FFPP in NZ: collaborative leadership, well-structured governance teams, and primary care engagement. The chapter highlighted the significance of these factors in shaping programme outcomes and offered insights into the variations observed across different districts.

# Chapter Ten: Discussion

## 10.1 Introduction to the chapter

The present study aimed to investigate how contextual factors and organisational capabilities can impact programme implementation and, consequently, programme outcomes. To this end, the study outlined three initial research questions designed to explore the similarities and differences in contextual factors, implementation characteristics, and programme outcomes:

- How do districts in NZ vary in terms of organisational and inter-organisational context in relation to the FFPP?
- How do districts in NZ differ in their implementation of the FFPP?
- What is the extent of variation in outcomes of the FFPP observed among the different districts in New Zealand?

Subsequently, an additional set of three research questions was proposed to investigate the relative importance of identified factors and potential relationships between those factors.

- Are the outcomes of this programme sensitive to levels of inter-organisational integration?
- To what extent can differences in the implementation of an integrated care programme between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?
- To what extent can differences in outcomes of an integrated care programme between NZ health districts be attributed to characteristics of the organisational environment and inter-organisational collaboration?

In order to address these research questions, this study examined inter-organisational collaboration in a comparative case study of the FFPP, a national population-based programme. Multiple partner organisations, both at the district as well as national levels, have collaborated to prevent falls and mitigate resulting harm and fractures among older individuals. The ultimate goal of this programme was to promote the health and safety of older people residing in their homes.

This chapter provides an overview of the study findings in relation to the research questions and existing literature. A summary of the main themes and findings of the study is presented, highlighting the contributions of the study to the field of inter-organisational collaboration and the FFPP. Methodological and theoretical contributions arising from the study are also described. The implications of the study's findings for policy and practice in the field of inter-organisational collaboration and FFPP are assessed and areas for future research to address remaining gaps in knowledge and build on the findings of the present study are identified.

## 10.2 The main research findings

In this section, I present the key findings drawing on the results chapters (Chapters 5 to 9) of my study. Through careful analysis of the data, I identified and compared several organisational factors across four cases in NZ (Canterbury, Auckland and Waitematā, and Counties Manukau) in Chapters five to seven, and central and local government organisation's interactions were presented in Chapter eight. The comparative analysis findings were discussed in Chapter nine, which investigated the potential relationships between organisational factors, implementation characteristics and programme outcomes. Key findings of the research are:

- Considerable variation exists between districts in terms of inter-organisational, organisational and implementation factors, and outcomes of the FFPP despite the FFPP being a single national-level programme. A total of 43 organisational factors and implementation characteristics were identified and delineated. The analysis revealed that among these factors, 20 demonstrated strong variations between districts in terms of the effectiveness of FFPP implementation, with Auckland displaying lower performance, Waitematā and Counties Manukau exhibiting moderate, and Canterbury showcasing higher performance.

- To determine the extent to which different factors contributed to the success of inter-organisational collaboration in the FFPP, a formulaic approach was introduced to quantify the importance of each factor based on its impact on programme outcomes and relational impact. The analysis revealed that three factors were crucial to the success of the programme: collaborative leadership approach, a well-structured governance team, and primary care engagement.

- This study identified three distinct phases in the multi-stage process of implementing the FFPP: pre-engagement and engagement, development of service delivery, and establishment of the programme as "business as usual." During the first phase, it was imperative to establish relationships with local partners, adopt a collaborative leadership approach, identify key partners, and engage the private sector. The second phase focused on developing service delivery, creating cross-referral pathways, setting outcome targets, and addressing infrastructure issues. Clinical leadership and effective conflict management were also crucial in this stage. The third and final phase aimed to ensure programme sustainability through quality improvement and performance monitoring. Districts that achieved greater success implemented strong monitoring mechanisms and established feedback loops connecting the community, in-home, and Fracture Liaison Service settings.

- The present study confirms the usefulness of the CCIC framework, as numerous contextual factors both within and between organisations were identified as significant in facilitating inter-organisational integration and the effectiveness of the FFPP. It is noteworthy, however, that the

programme characteristics and former collaboration experiences (additional to CCIC framework) also emerged as critical considerations in the successful implementation of the programme.

The findings of this empirical research are succinctly represented in a visual format, as depicted in Figure 18. This figure demonstrates the manner in which the CCIC framework has been refined by the inclusion of supplementary factors and the adoption of a life-cycle perspective towards the implementation of an integrated care programme.

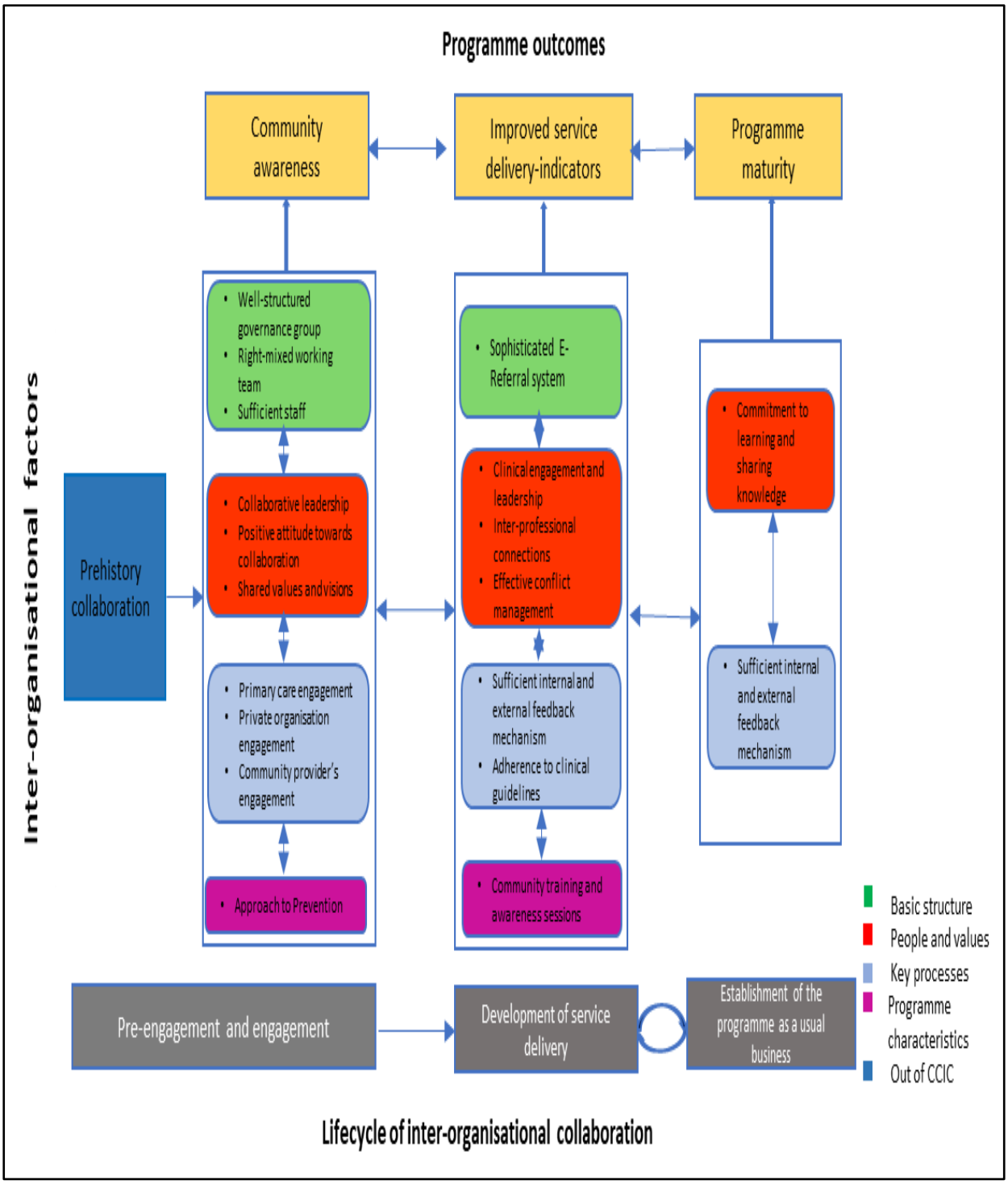



Figure 18- Inter-organisational factors throughout lifecycle of collaboration

This figure illustrates the important organisational factors at each stage of the programme implementation and the potential outcomes associated with each stage. In the following sections, I explain, in more detail, the relationship between inter-organisational collaboration and organisational factors, programme characteristics and outcomes, to demonstrate how these factors varied depending on the level of inter-organisational collaboration.

## 10.3 Inter-organisational collaboration and organisational factors

The process of working with others is never simple and becomes even more complex when collaboration is required across organisations, especially when those organisations hold different or competing objectives. The success of such partnerships is likely to depend on the quality and level of collaborative foundations between the partner organisations. The case study sites, despite the top-down nature of programme implementation from central government, demonstrated different levels of inter-organisational collaboration, which I categorised into three levels (high, moderate and low) based on the mechanism used to implement and organise the FFPP. High-level collaboration was indicated by clear partner roles and responsibilities, clear accountability and transparency and active participation of all key partners. Collaboration at a moderate level, on the other hand, was distinguished by the proactive involvement of nearly all key partners, in frequent meetings but without explicit recognition of partner roles and responsibilities towards shared objectives. Collaboration at a lower level, conversely, was typified by temporary governance arrangements and a dearth of participation from essential partners.

The findings of this research have revealed that some organisational factors such as an effective and collaborative leadership approach, well-structured governance team and primary care engagement were critical factors in the successful implementation of this population-based preventive integrated care programme. These factors also acted as essential determinants for the degree of collaboration among partner organisations. Leadership roles have been highlighted as being important to the effective implementation of inter-organisational collaboration in a number of studies (Andersson et al., 2011; Huxham & Vangen, 2013; Johnson et al., 2003; Ling et al., 2012). For example, in a study conducted by Auschra (2018), a lack of leadership was identified as a hinderance which may cause uncertainties and hamper further development of inter-organisational collaboration.

Specifically examining collaborative leadership, Huxham and Vangen (2013) identified four key dimensions of collaborative leadership: strategic direction, stakeholder involvement, cultural transformation, and relational dynamics. They argue that effective collaborative leaders need to be able to balance these dimensions and adapt their approach to the specific context of the collaboration. Another study, by Klijn and Koppenjan (2015), examined the role of leadership in collaborative governance, which involves the joint management of public issues by multiple organisations and stakeholders. They argue that effective collaborative leaders need to be able to create a shared understanding of the problem, build trust and commitment among stakeholders, and facilitate joint decision making and action. These studies highlight the significance of the relational impact of collaborative leadership on various factors, with less emphasis on its impact on outcomes. While endorsing the significance of the relational factors of collaborative leadership, my research offers a lifecycle approach that recognises how its relational impact may differ in various stages of programme implementation. For instance, in the pre-engagement and engagement stages, the impact of collaborative leadership may be more focused on structural factors, whereas in the mature and well-established stages of a programme, its impact may be more significant in conflict management and monitoring processes.

The variation in the structure of governance teams across the three cases has emerged as a salient factor that is linked to the degree of collaboration, and which exerts a significant influence on the outcomes and relational effects of the collaboration. In instances of high-level collaboration, there were observed structures, rules, and procedures that facilitated the coordination and management of the collaboration. Conversely, in districts with low levels of collaboration, the structure of governance teams and their role in directing and monitoring inter-organisational relationships were weak. The literature on inter-organisational collaboration has highlighted the importance of well-structured governance systems (Lasker et al., 2001; Robinson & Cottrell, 2005; Sullivan & Skelcher, 2002). For example, Gannon-Leary et al. (2009) highlights the importance of governance in promoting effective collaboration and partnership. The authors argue that a well-structured governance system is necessary to ensure transparency, accountability, and coordination among different stakeholders in the collaboration. In another study, by Provan and Kenis (2008), five key dimensions of collaborative governance are identified (both in formal and informal governance networks): shared purpose and goals, clear roles and responsibilities, decision-making processes, communication and information sharing, and monitoring and evaluation. They argue that effective governance requires a balance between these dimensions, as well as the ability to adapt to changing circumstances and resolve conflicts and disagreements. The present research highlights the pivotal role of governance, not only in its influence on other organisational factors within the context but also in its capacity to impact on desired outcomes within the programme.

The findings of this study imply that partnership factors and processes have been crucial elements within the context of inter-organisational collaboration. However, there are some specific areas in partnering which are inherently relevant to the FFPP such as primary care engagement. The role of primary care in the FFPP has been critical in identifying high at-risk patients and referring them to an appropriate programme. To achieve this, it is imperative that all practices within a PHO are engaged and employ a systematic approach. The degree to which this occurred was contingent upon the extent of PHO involvement at the governance level as a key partner, as well as the mechanisms employed by PHOs to streamline the implementation process and monitoring system to encourage GPs or other relevant healthcare professionals. The role of primary care engagement in inter-organisational collaboration in falls prevention has been explored in several studies. For example, a study by Clemson et al. (2017) examined the implementation of a falls prevention programme in Australia that involved collaboration between primary care providers, community organisations, and local health services. The study found that engagement and support from primary care providers was essential to the success of the programme. Primary care plays a crucial role in the effectiveness of falls prevention programmes, however, the approaches and strategies used by falls prevention managers such as engaging all active PHOs at the governance level, and fostering a sense of ownership, whereby these PHOs perceive the programme as intrinsic to their operations, emerge as equally critical factors shaping the success of the programme.

Mackenzie and McIntyre (2019) explored the barriers in engaging primary care with falls prevention programmes in the UK. The study found that primary care providers were an important stakeholder

group, but that their engagement in falls prevention programmes was often limited by competing priorities and a lack of resources and support. The study recommended that falls prevention programmes should engage primary care providers through education and training, as well as providing incentives and support for participation. Advocating this, my research findings go beyond that and underscore the significance of primary care's involvement as a key partner at both the governance and operational levels for the success of the programme.

## 10.4 Inter-organisational collaboration and programme characteristics

Some programme characteristics, features of the programme that influence its implementation and adoption, were also critical for the success of falls prevention programmes. Studies investigating the implementation of falls prevention programmes often overlook the intrinsic factors that impact their effectiveness and do not adequately address appropriate implementation strategies (Curran et al., 2012). Three programme characteristics emerged from this research: a ‘population-based prevention approach’, ‘community awareness and training sessions’, and ‘pre-existing falls prevention programme’. Although there were differences in the programme characteristics of the FFPP and the degree of collaboration across the three cases, these variations were not as prominent as the discrepancies observed in organisational factors.

The findings of this research indicate that districts with high-level inter-organisational collaboration had a population-based approach to their FFPP, higher intensity of community training and awareness of the programme and a long history in falls prevention activities. An intriguing question arises: which of these factors emerges first? Is it the population-based approach that catalyses enhanced collaboration, or does effective collaboration foster the adoption of a population-based approach? Alternatively, could both elements evolve simultaneously, each reinforcing the other's development? Delving into these complex dynamics presents an exploration that requires further investigation. In districts with moderate inter-organisational collaboration, while there was a population-based approach to prevention, community training and awareness had not yet reached the point of creating tangible change. Low level inter-organisational collaboration did not adopt a systematic or population-based approach to prevention, and there was a brief history of falls prevention.

To my knowledge, investigation of falls prevention programmes and their association with inter-organisational collaboration remains relatively scarce. Notably, Robitaille and Gauvin (2008) advocate a comprehensive population-based approach to falls prevention, including multifactorial risk assessment and management, community-based interventions, and system-wide healthcare initiatives. They emphasise the need for collaboration between different sectors and stakeholders to develop and implement effective falls prevention strategies. Additionally, Skelton and Todd (2005) propose several strategies for effective falls prevention interventions, including increasing public awareness, implementing community-based interventions, improving healthcare systems, and conducting ongoing research and evaluation, however, none of these studies specifically evaluated the role of these factors in the actual implementation of the falls prevention programme.

## 10.5 Inter-organisational collaboration and programme outcomes

The FFPP includes an outcome framework for monitoring the performance of districts across the country. The combination of outcome indicators and the maturity of the programme and community awareness were utilised to provide a more comprehensive interrogation of programme results. This study indicated that districts exhibiting a high degree of inter-organisational collaboration demonstrated a declining trend in the incidence of falls (or at the very least, a decrease in the expected rate of increase, due to an aging population), as well as greater levels of implementation maturity and expanded community engagement and education. In the context of inter-organisational collaboration at moderate and low levels, a varied range of outcomes was observed. It is worth noting that in multifactorial population-based programmes like the FFPP, reaching optimal health outcomes requires a significant amount of time and effort. Collaborative processes can be slow and difficult to manage, with the risk of stalling due to inertia (Roussos & Fawcett, 2000; Science et al., 2001). In addition, the effectiveness of collaborative partnerships remains uncertain due to the challenge of measuring and evaluating them (Vangen & Huxham, 2003). Despite these challenges, collaboration continues to be recognised as having great importance among funding agencies, foundations, and other stakeholders (Pope et al., 2007). While many evaluation studies of fall prevention initiatives have been undertaken to evaluate the effectiveness of community or In-Home S&B programmes in the reduction of falls incidence among other initiatives (Aminzadeh & Edwards, 1998; Hanson & Salmoni, 2011), there is a paucity of evaluation research regarding multifactorial interventions for falls prevention at the district or national level (Vernon & Ross, 2008). However, this research addresses this critical gap and provides valuable insights into the essential role of inter-organisational collaboration as a precondition for the successful implementation and progress of multi-factorial falls prevention programmes. In the next section, I focus on the CCIC framework, and its applicability in examining organisational factors within the NZ context.

## 10.6 CCIC Framework in NZ and internationally

The use of the CCIC framework in the examination of integrated care programmes in NZ is unprecedented to my knowledge. The CCIC Framework worked well in this comparative case study, its domains resonating with participant real-life experience of key factors influencing the implementation and outcomes of integrative FFPP across cases. This study identified several key contextual factors and organisational capabilities that affected the programme's success in the NZ context, including effective collaborative leadership, a well-structured governance team, and primary care engagement. The CCIC framework has been used in several studies in different countries to assist in capturing key contextual factors in the implementation of integrated care.

Wodchis (2022) discusses the Health System Performance Network's (HSPN) efforts to support the development of Ontario Health Teams (OHTs) in Canada by using the CCIC framework, with his research showing positive results in ‘commitment to improvement’, ‘team climate’, ‘readiness for change’, and ‘administration and management’. Challenges faced were financial and capital resources, non-financial resources, and clinical-functional integration. Health administration data revealed variation in indicators for potentially avoidable emergency department visits, unnecessary acute care hospital

days, continuity of primary care, and premature mortality. In contrast, when Asthana et al. (2020) applied the CCIC framework to investigate factors influencing the implementation and outcomes of a complex integrated care change programme in one locality in the UK, they found that success in the UK was attributable to physical features (such as structure and geography) and effective clinical leadership, which was supported by risk-taking cultures and strengths-based, person-centred outcomes. The expression of preparedness for change was also linked to these factors.

This study found that while the CCIC framework was useful in capturing contextual and organisational aspects, other factors were also identified as important, specifically those related to programme features and former collaboration experiences, which fell outside the purview of the CCIC framework. Addressing this gap and in order to gain a more comprehensive understanding of implementation, Moon and Ballard, (2022) combined the CCIC framework with the Consolidated Framework of Implementation Research (CFIR), which is widely used in implementation research. The CFIR encompasses factors which are not covered specifically in the CCIC framework such as outer setting (including sociocultural context, patient needs and resources, peer pressure, and external policy) and innovation characteristics (perception of fit, evidence strength and quality, adaptability, complexity). The resulting framework, called the Integrated Healthcare Development and Implementation framework with six main domains, was applied to an integrated care programme in the USA and found to be useful in capturing key domains relevant to implementation. The research findings of my research support the combinations to address the gaps and to get a more holistic picture of underlying contextual factors in the implementation of the integrated care programme.

## 10.7 Inter-organisational collaboration at the central government level

The comprehensive falls prevention programme in NZ is a collaborative effort involving multiple agencies at both the national and district level (Campbell & Robertson, 2010). As with inter-organisational collaboration at the district level, inter-organisational collaboration at the national level has undergone changes of governance structure, participation levels, accountability, and responsibilities. An initial significant discovery of this study was that inter-organisational collaboration at the national (central government) level had not advanced to the same degree as collaboration at the district level. At the national level, rather than employing a genuine collaborative approach, a single central government organisation was observed to adopt a dominant position, assuming responsibility and engaging with local organisations. It would be valuable for future research to further explore why this was the case, and what factors might be contributing to the differences in collaboration between levels. The next section delves into greater detail regarding the recurring theme that emerged during data analysis, which was a shift in relations between central government and local organisations since implementation of the falls prevention programme.

## 10.8 Interactions between central and local organisations in the context of the FFPP

Despite the focus of this study on inter-organisational collaboration at the district level, inter-organisational collaboration at the central level, interactions of local health organisation and central

government, and changes in central organisation approaches over time emerged as an important outer context that influenced the shape and reactions of local health organisations.

### 10.8.1 From flexibility to accountability: shift towards a performance-based contracting system

Scholars have argued that complex adaptive systems necessitate flexible service delivery systems (Grudniewicz et al., 2018). However, from the viewpoint of the central government funder, the implementation of a flexible funding system and delegation of accountability to local districts for the provision of multifactorial programmes did not achieve the desired targets in the first three years of implementation. Participants from the provider's side argued that failure to achieve the desired targets could be attributed to several factors, such as unrealistic goals or an impractical timeline for meeting the targets. Nevertheless, a shift towards a performance-based contracting system was implemented to encourage district-wide delivery of more cohesive services. While determining the impact of the change in funding approach for the programme was outside of the scope of this research, some participants of this study expressed concerns about how changes in funding systems and approaches could impact the sustainability and continuity of the programme. The analysis of case studies in the SELFIE project showed that sustainability of integrated care programmes benefited from a good balance between flexibility and standardisation of processes, especially when a wide range of professionals and sub-programmes were involved (Horton et al., 2018; Looman et al., 2021)

During the first three years of implementing the FFPP, this study found a significant level of flexibility at the district level, resulting in some variation in the programme's implementation across different districts. It is worth noting that certain districts proactively established mechanisms to align the implementation of the programme with the specific needs of their local population. These districts demonstrated a commitment to accountability by effectively monitoring inputs, processes, and outcomes, thereby ensuring the programme's effectiveness and responsiveness to their unique circumstances. In contrast, some districts displayed less active engagement and failed to establish a robust accountability system. This lack of accountability hindered the effective implementation of the programme and limited its potential impact on the targeted beneficiaries in those districts. Therefore, a performance-based approach to funding was adopted by ACC with the aim of achieving a more consistent and unified service at the local level. Based on this change, the focus shifted towards establishing clear performance indicators and benchmarks that districts had to meet in order to receive funding or other resources (for Community S&B programmes and FLS). This approach encouraged districts to adhere to standardised guidelines and procedures. This, in turn, facilitated an objective evaluation of district performance, which aided in identifying areas of improvement and sharing best practices among districts. The question of whether such standardisation could effectively enhance outcomes in districts with lower performance levels is indeed thought-provoking. It raises the possibility that while standardised procedures may contribute to improvements, they might be most effective when built upon a strong foundation of collaborative groundwork. Investigating this question in future research could provide valuable insights into the interplay between standardisation and collaborative foundations in achieving desired outcomes.

### 10.8.2 Evolving outcomes framework and local inter-organisational collaboration

Within the context of integrated care, it has been argued that the absence of an efficient monitoring and evaluation system constitutes a major obstacle (Reynolds & Sutherland, 2013). In certain circumstances, comprehensive accountability systems that cover inputs, processes, and outcomes, and utilise a variety of data collection methods might be useful in the successful implementation of inter-organisational collaboration (Andersson & Wikström, 2014; Bryson et al., 2006). At the national level, one of the innovations for monitoring district-level performance in the FFPP was the introduction of a national outcome framework. This framework was developed to help health sector partners evaluate the benefits of services provided to older people and promote service innovation and development. The ACC and HQSC collaboratively designed this framework, and it is widely considered by participants as an effective national-level collaboration.

Nevertheless, findings of this research showed the extent of variation in the utilisation of the outcome dashboard across districts, which can be attributed to variation in the sophistication of district information systems. Some districts have developed their own outcome dashboard to monitor outcomes, while others have had to rely on the national level outcomes framework dashboard. There is contention regarding the efficacy of the initial programme outcome framework, which emphasised building community capacity. With the programme's advancement, it became necessary to refine the outcome framework to incorporate additional parameters, such as monitoring attendance at Community S&B programmes and assessing their impact on reducing falls across a broader population. It is worth mentioning that the central government, primarily ACC, has acknowledged this concern and is actively working towards revising the national outcome framework for falls prevention. The aim is to enhance the understanding and implementation of a comprehensive whole-system, leading to clearer outcomes.

Recognizing the significance of performance measurement in understanding and improving programme outcomes within multi-organisational contexts, there remains a significant challenge in determining the most effective means of measuring programme outcomes. It is argued that insufficient knowledge exists regarding indicators that can aid in demonstrating the impact of inter-organisational collaboration activities on patient outcomes (Donnelly et al., 2019; Thannhauser et al., 2010), as well as the appropriateness of these indicators (Ashcroft, 2014). The study participants held varying opinions about whether the outcomes' framework adequately represented inter-organisational collaboration. While some participants found it to be valuable for monitoring performance and identifying opportunities for growth, others believed that it did not directly reflect such collaboration. The absence of specific indicators for measuring inter-organisational collaboration at the national level may have contributed to this difference. However, achieving targets in indicators that require interactions between organisations, such as the process indicator, the number of community S&B places, can be viewed as a proxy for the quality of inter-organisational relationships. Certain indicators, such as the quantity of inter-referrals among programme components (referral between communities, in-home and FLS providers) or referrals from primary care to diverse components, as well as the creation of feedback loops, may provide more accurate representations of inter-organisational discourse and cooperation. Performance ranking may encourage organisational involvement in inter-organisational programmes. This study

found that one PHO located within the Counties Manukau district utilised the reporting and ranking of GP performance as a motivational tool to encourage increased patient screening and referrals. Overall, this research highlights the gap in programme performance measurement and indicates that more comprehensive indicators should be developed to illustrate the nature of inter-organisational relationships. Furthermore, it's noteworthy to acknowledge that the CCIC framework includes 'measuring performance' as a key capability/factor (Evans et al., 2017). This underscores the importance of incorporating robust performance measurement mechanisms within inter-organisational collaboration initiatives like the FFPP.

### 10.8.3 Discontinuation of funding for In-Home S&B by ACC and its impacts on districts: reactions and responses

It is widely recognised that innovative payment models are necessary to encourage integration of care rather than fragmentation in healthcare, especially regarding funding for integrated care (Leijten et al., 2018; Struckmann et al., 2017). According to Stokes et al. (2018) typology, payment models that encompass a wide range of patients (preferably all patients in a geographic area), care from multiple sectors (primary, secondary, social care), multiple suppliers within each sector, and a long-term perspective, are more likely to facilitate integration. Moreover, payment models that combine budgets, involve shared savings or loss agreements, and constitute a substantial portion of providers' revenue are more likely to encourage the integration of care. Payment models that measure and incentivise quality also have the potential to promote integration. The FFPP funding model involves a combination of a recommended funding model and pooling resources from two main government organisations, although it does not provide funding specifically for delivering all types of services within the programme (community exercise providers, for example, received no funding). This model has been viewed positively and is seen as empowering providers in the community. However, the external funder's decision on whether to continue or discontinue funding has created uncertainties throughout the FFPP.

The ACC withdrew funding for the In-Home Strength and Balance (S&B) programme in July 2021, citing its limited impact at the population level due to its restricted patient coverage. However, the complex design of the programme by districts, particularly in relation to its placement and interplay with other programme components, led districts to consider funding the programme themselves. In the Canterbury district, the focus of implementing population-based falls prevention centred around the In-Home S&B service. Service delivery was not dependent on ACC funding, and it is likely to be sustained in the long run by the district. Although the other three cases (Auckland, Waitematā and CM) continued to provide funding, it was only guaranteed for a period of one year. Advocates suggest that financial stability and long-term contracts provide programme security and continuity, which helps avoid the annual hassle of budget negotiations that were deemed both time-consuming and exhausting by some participating organisations (Looman et al., 2021). Despite the challenges identified by participants, the district's response to the external funder's decision was linked to the level of collaboration and programme maturity in that district. It is worth noting that ACC always intended the programme to eventually become self-sustaining at the district level.

The variations in district responses to the In-Home S&B programme can be attributed to two potential explanations. Firstly, there may be conflicts between central government funders, such as ACC, and DHBs as coordinators regarding the evaluation of programme outcomes. While central funders may prioritise return on investment, local organisations may focus on health benefits, leading to divergent approaches in evaluating programme outcomes. This may influence district decisions based on the manner in which outcomes are measured. Secondly, it is important to examine how the In-Home S&B programme contributes to the overall falls and fracture prevention programme outcomes or how it can be integrated into other relevant programmes for elderly populations, such as those targeting dementia. In districts with mature and high-level collaboration, the in-home service has been a central focus of the FFPP, providing an opportunity to coordinate other related services for older people by leveraging private sector capacities. As a result, the programme's value and outcomes may extend beyond simply measuring the number of services delivered.

## 10.9 NZ Health System reform and implementation of the FFPP

NZ's health system underwent significant reform in July 2022, with the establishment of a new national health agency, Health NZ, responsible for planning and commissioning healthcare services for all regions but also creating 70 localities by 2024 (*Pae Ora (Healthy Futures) Act*, 2022). Several participants in the interviews expressed uncertainty about the impact of this structural reform on the FFPP. However, they also stated that the programme was already well-established nationally and had the involvement of external funders, so the reform was unlikely to bring about any changes to the programme.

Disestablishing DHBs has been one of the main changes and a topic of debate in NZ's health system reform as DHBs were responsible for planning, funding, and delivering health services in their regions. However, it is argued that fragmentation across DHBs has led to significant variation in the quality and availability of healthcare services, creating a ‘postcode lottery’ for people depending on their geographical location(Manning, 2022). This research has shown variations between districts in the implementation of the FFPP and delivery of services and therefore supports the health reforms (2022) which seek to centralise planning and funding and reduce administrative cost. However, given the significance of community and local organisational involvement in decision making that addresses the specific needs of the population, it is essential for the effective implementation of the locality approach to regulate centralised decision making and ensure it aligns with the requirements of the local population (Tenbensel, 2022).

On the other hand, it is also argued that Canterbury district has implemented successful integrated care approaches in response to the 2011 earthquake. This involved a highly integrated primary care and hospital system, along with guidelines that empowered community-based providers to make rapid and cost-effective decisions whenever possible. The findings of this study support the effectiveness of this approach in the context of the FFPP, as it demonstrated that the Canterbury district had a well-established programme with a greater degree of integration among community, primary, and secondary services. It is suggested that adopting the approach of the Canterbury district, which delegated decision making and service delivery to the community and is internationally recognised as a successful example

of an integrated system, may be a preferable option. However, it is worth noting that adopting this approach might be more challenging in districts with multiple PHOs.

## 10.10 Methodological Contribution

This research makes a significant methodological contribution by applying a multiple case study design to examine inter-organisational collaboration in the context of falls prevention. The analysis and identification of potential relationships between a plethora of studied factors, including inter-organisational and organisational, programme characteristics and outcome, has proved a challenging endeavour. The analytical approach in this research started by identifying areas of both variation and similarity, while acknowledging that not all such variation is salient and not all similarity is trivial. To facilitate measurement of the variations and similarity, a ranking system was created for each identified factor with supporting a colour-coded system to visualise variation within and across districts. Two-dimensional matrices were used to facilitate comparisons among factors and outcomes. The formulaic approach employed in this research is a significant advancement as it quantifies the importance of each factor by considering its impact on the identified outcomes and its relational influence on other factors. This method provides a comprehensive assessment, offering deeper insights into how specific factors contribute to shaping the implementation and overall outcomes of the FFPP. Moreover, the use of a formulaic approach adds a level of replicability to the analysis. Other researchers or stakeholders can apply the same formula to assess the importance of factors in different contexts or evaluate changes over time. Further, formula components and weightings are able to be modified as appropriate.

Additionally, it should be noted that this study utilised the CCIC toolkit exclusively in a qualitative capacity. While the CCIC toolkit encompasses a document analysis guide, two surveys targeting leaders and providers, and a semi-structured interview guide(Evans et al., 2017), the section pertinent to the qualitative aspect of the study is confined to the ranking of the three most and least important organisational factors. To address this limitation, the interview questions and guide employed in this study comprised three main sections: organisational factors, programme characteristics, and outcomes. Consequently, these interview questions and guides can serve as a valuable supplement to the existing CCIC toolkit, rendering it applicable to other qualitative studies in the realm of inter-organisational collaboration.

Moreover, this study has shown that multiple case study analysis is a valuable tool for studying inter-organisational collaboration because it allows researchers to gain a more comprehensive understanding of this complex phenomenon by examining multiple cases and identifying similarities and differences across them (Harrison et al., 2017). The methodology employed in this study facilitated an investigation that addresses long-standing questions about why and how inter-organisational collaborations may work in some sites and not in others. Moreover, this research helps to answer why and how one national-level falls prevention programme may be implemented differently across various sites highlighting the role of contextual factors. This study contributed methodologically by identifying specific inclusion criteria for selecting an integrated care programme to enable the investigation of inter-

organisational collaborations across diverse districts. The approach employed in this study holds potential for application in other comparative studies within the field of inter-organisational integration and collaboration.

## 10.11 Theoretical Contribution

The present study has contributed by augmenting the CCIC framework, which was initially designed to guide the implementation of integrated care programmes with an emphasis on underlying contexts and capabilities. The study's augmentations were informed by the findings that shed new light on the factors that impact the successful implementation of integrated care programmes. This study identified additional programme-related factors that could not be covered by the CCIC framework, thereby providing a more comprehensive understanding of the complexity of implementing integrated care programmes. Additionally, the study found that collaboration experience is a capability that can influence the success of the current collaboration as well as impact other contextual factors. This factor (former collaboration experience) has been identified in the realist review by Aunger et al. (2021) as a context that triggers the initial trust which can facilitate achieving shared goals when entering a collaboration. This finding highlights the importance of building on past collaboration experiences to inform future collaborations and emphasises the need for ongoing evaluation and adaptation of integrated care programmes. This framework can be a valuable tool for researchers examining the evaluation of integrated care, especially in prevention programmes, covering organisational factors, programme characteristics and outcomes.

The present study also contributes to the understanding of the role of contextual organisational factors in the different stages of inter-organisational collaboration in the implementation of integrated care. In the management literature, life cycle approaches have conventionally been prevalent in describing various forms of transformational processes over time, such as those pertaining to products, industries, or technology adoption (Moore, 1999; Rogers, 1983). However, there exists a dearth of literature regarding the different developmental phases of inter-organisational collaboration, as observed through a life-cycle perspective. The study identified three stages in the implementation of falls prevention programmes: "pre-engagement and engagement," "development of service delivery," and "programme maturity." Each stage was found to have a unique set of contextual factors that affected the success of the integrated care programme. The findings of the study offer a categorization of important contextual factors across the life cycle of inter-organisational collaboration and provide insights into the complex dynamics that shape the success of integrated care initiatives. These contributions have implications for the development of effective and context-sensitive interventions in integrated care and highlight the need for further research to explore the role of contextual factors in the different stages of inter-organisational collaboration. By identifying the importance of different contextual factors at different stages of the inter-organisational collaboration life cycle, this study adds to the existing knowledge base on integrated care and has important implications for policy and practice in healthcare systems.

## 10.12 Implications of the study

### 10.12.1 Inter-organisational collaboration

Inter-organisational collaborations, aimed at achieving shared objectives, have proven both challenging and rewarding. This research highlights the crucial role of such collaborations in delivering integrated care services for older adults, especially within the context of the FFPP. The findings of this study showed which organisational factors can facilitate inter-organisational collaborations during the lifecycle of programme implementations. The primary implication for the inter-organisational field lies in recognizing that inter-organisational collaboration is a complex and long-term process. Establishing enduring commitments, fostering trust, and maintaining motivation among diverse organisations can be facilitated through collaborative leadership. This leadership approach enables all partners to actively participate, while well-designed governance teams create the necessary capacities for open and effective communication. By addressing potential conflicts, particularly during the early stages of implementation, inter-organisational collaboration can be more effectively implemented and sustained. These factors can also be considered important in the way central and local organisations collaborate and can facilitate implementation of national level initiatives. Furthermore, this research sheds light on the significance of prior inter-organisational collaboration experiences. It reveals that negative past experiences can pose considerable challenges, particularly when there have been adversarial interactions between central government organisations and community providers.

In addition, this research extends beyond examining collaboration solely at the regional level and delves into the dynamics between central and local government organisations. It highlights the intricate relationship between national-level collaboration and its impact on local organisations' work and programme implementation. This study showed the inter-organisational collaboration at the national level between central organisations (ACC, MoH, and HQSC) has not been optimised, and there should be increased joint responsibility between funding organisations and central providers to advance the programme and promote inter-organisational collaboration at the district level. The switch in the approach of central organisations has led to certain conflicts and differences in service delivery. However, transitioning from a "low-touch, high-trust" to a "high-touch, high-trust" model has also spurred a more performance-based relationship between central and local organisations, potentially leading to the achievement of a more structured programme.

### 10.12.2 Falls and Fractures Prevention Programme

The research findings revealed that the FFPP has been successfully implemented in all four districts, albeit with variations in its execution and focal points. The organisation of the programme at the district level strongly correlated with the level of involvement and engagement of clinical staff and key partner organisations in the initiative. The findings provide support for the central organisation's approach of involving community S&B providers by empowering and supporting them, rather than providing direct funding.

Notably, the current study revealed the critical characteristics of the FFPP that can impact the delivery and monitoring of the programme: a population-based approach to prevention and a long-standing history of implementing falls prevention interventions. These factors may also be relevant for other health initiatives. Furthermore, prioritizing falls prevention at the regional level has been found to be instrumental in generating capacities over time to enable implementation of a population-based falls prevention programme. To ensure the success of different components of the programme, an appropriate screening and referral system is crucial. Moreover, establishing dynamic feedback loops between partner organisations can facilitate collaboration and smooth implementation of the programme, leading to meaningful impact at the population level.

Moreover, the combination of primary care engagement as a key partner, empowering private organisations as a focal point to engage with the wider community, and utilising community providers' capacities has been identified as a critical feature of a successful falls prevention programme. In essence, the integration of multiple partners, leveraging the capacities of the private and community sectors, and prioritizing falls prevention has proven to be an effective approach to implementing a successful falls prevention programme in NZ.

### 10.12.3 Research

This research contributes to the understanding of integrative falls prevention programmes and the crucial roles played by organisational and inter-organisational factors. By examining the impact of these factors on programme outcomes and implementation, this study offers valuable insights that can extend beyond falls prevention initiatives to other integrative programmes in both the health sector and other sectors. As a result, this research enhances the existing body of knowledge in this field and opens up new avenues for future research and development in inter-organisational collaborations and integrative health initiatives.

In this research, a novel formulaic approach was developed to quantitatively assess the significance of contextual factors in the implementation and outcomes of integrated care programmes. The use of two-dimensional factor-outcome matrices and the identification of relational impacts from the research data added rigour to this approach. Nevertheless, incorporating the viewpoints of experts in the field to validate the formula and its components could have further strengthened the credibility and robustness of this methodology.

This study highlights the importance of organisational contextual factors at different stages of inter-organisational collaboration implementation. However, longitudinal research designs (which involve collecting data from the same participants over an extended period of time) to test the lifecycle of inter-organisational collaboration, were not feasible for this study due to factors such as time, cost, and access to the case organisations. Thus, further research could aim to investigate and compare contextual factors in integrative care longitudinally to explore the role of contextual factors within the lifecycle of inter-organisational collaboration.

It is worth noting that the majority of interviews conducted in this study were with managers and coordinators from each partner, as they were familiar with the organisation-wide programme. However,

obtaining attitudes and opinions from frontline providers and patients could provide a more comprehensive understanding of the experience of working with different organisations or receiving services when patients engage with different organisations.

Furthermore, given that this study was conducted during a period of significant health system reforms in NZ, as well as alterations to programme implementation, such as the cessation of funding for In-Home S&B, future research may investigate the impact of these changes on the programme.

# Chapter Eleven- Conclusion

The successful implementation of integrated care programmes is influenced by a combination of inter-organisational and organisational factors, especially when diverse entities from both the health sector and external sectors collaborate. These factors can lead to variations in the programme's implementation and overall outcomes. Three key factors, observed across all three case study sites, significantly contributed to variations in programme implementation and outcomes, including a collaborative leadership approach, a well-structured governance team, and primary care engagement. Not only did these factors significantly influence various outcomes in the FFPP, but they also demonstrated substantial relational impacts, exerting strong influence on other factors.

Through a step-by-step comparative analysis derived from qualitative data, this study has introduced a novel formulaic approach to measure the importance level of organisational factors, encompassing both outcomes and relational impacts. This analytical process has shed light on the complex dynamics of inter-organisational collaboration in the implementation of the whole-system falls prevention programme, providing valuable insights for designing and implementing similar integrated care initiatives.

The research findings demonstrate that the implementation of the integrated care programme was a multi-stage process, and three distinct phases emerged during the analysis: 1) pre-engagement and engagement, 2) development of service delivery, and 3) establishment of the programme as “business as usual”. The integration of key factors throughout the life cycle of inter-organisational collaboration has paved the way for a successful implementation of integrated care, where collaboration among diverse stakeholders is essential. During pre-engagement and engagement, it was crucial to establish relationships between the national-level programme and local partners, and to adopt a collaborative leadership approach with a whole-of-system approach that supported a well-structured governance team. Identifying key partners like primary care and community service providers, having a population-based prevention approach, and engaging the private sector were also significant factors during this stage.

The second stage focused on the development of service delivery, including framing the delivery process, creating cross-referral pathways, setting outcome targets, and addressing infrastructure issues. Clinical engagement and effective conflict management played a vital role in supporting effective service delivery. Building relationships between healthcare professionals and all involved parties created a positive working environment and a sense of unity in achieving the goal of helping older people remain safe while living independently in the community.

The third stage focused on ensuring programme sustainability through quality improvement and performance monitoring. Robust monitoring mechanisms were established to foster inter-organisational discourse and opportunities for refinement. This phase necessitated the establishment of feedback loops between the community, in-home, and Fracture Liaison Service settings.

Overall, this study highlights the importance of organisational and inter-organisational factors in conjunction with the lifecycle of inter-organisational collaboration. By following the three distinct stages

of implementation, organisations can optimise sustainable and reliable outcomes for programmes that prevent falls and fractures among the elderly, and potentially also for other integrated care programmes.

# Appendices

Appendix 1- Participant invitation letter


MEDICAL AND HEALTH SCIENCES
SCHOOL OF POPULATION HEALTH

Date

Name of Addressee
Position
Organisation

Health System Section
**The University of Auckland**
Building 507,
Level 3, 28 Park Ave, Grafton,
Auckland, New Zealand
**T**+64 9 123 4567
**Email:** mpir546@aucklanduni.ac.nz
Private Bag 92019
Auckland 1023, New Zealand

**Email to potential participants**

**Kia ora,**

It is my pleasure to invite you to participate in this qualitative research concerning the relationship between inter-organisational collaboration and health service integration for the elderly in New Zealand, I am Maryam Pirouzi , PhD student in Health Systems with the School of Population Health, University of Auckland. This research project fulfils part of this doctoral degree and approved by the University of Auckland Human Participants Ethics Committee on **25/02/2021** for **three years** with reference number **UAHPEC22004**.

The research aims to investigate the role of organisational and inter-organisational factors in implementation of the Falls and Fractures Prevention programme (FFP), which has been chosen as an example of an integrated care initiative. I am focusing on three large districts and organisations which involved in providing FFP. I am seeking to interview healthcare professionals in these organisations who have responsibility in the development and or implementation of the FFP.

[Name of in charge of falls prevention programme at Ministry of Health] gave me your contact details as someone who has expert knowledge and experience about the FFP (in specified district' [name of organisation].

I've attached a participant information sheet and please do not hesitate to contact me if you would like more information on this project.

I would really appreciate any help or advice that you might have on people that I should talk to about falls and fracture prevention programme.

**Thanks for your time,**

**Maryam Pirouzi**

**PhD Candidate**

**University of Auckland**

Appendix 2- Participant information sheet


MEDICAL AND HEALTH SCIENCES
SCHOOL OF POPULATION HEALTH

# PARTICIPANT INFORMATION SHEET

Health System Section
**The University of Auckland**
Building 507,
Level 3, 28 Park Ave, Grafton, Auckland, New Zealand
**T**+64 9 123 4567
**Email:** ghazal.pirouzi@auckland.ac.nz Private Bag 92019

Auckland 1023 New Zealand

**Project title: The relationship between inter-organisational collaboration and health service integration for the elderly in New Zealand.**

Supervisor: Associate Professor Tim Tenbensel

Co-supervisor: Dr Vanessa Selak

Student researcher: Maryam Pirouzi

## Project description and invitation

You are invited to take part in this qualitative research, which aims to identify the role of organisational and inter-organisational relationships in implementation of Falls and Fracture Prevention programme (FFP) in New Zealand. The Falls and Fracture Prevention programme has been selected as the specific integrated care programme in this research because this programme is designed specifically for older people and includes multi-agency collaboration between the Ministry of Health, Health Quality and Safety Commission, Accident Compensation Corporation and District Health Boards. In addition, this programme encompasses numerous activities across community, primary and secondary care which necessitates different organisations to provide services for the elderly. Therefore, this programme provides specific opportunities to understand the organisational and inter-organisational characteristics roles in the implementation of the integrated care programme.

Taking part in this research may have impact on implementation and outcomes by providing more a coordinated and consistent model of care across the country for this specific programme and may also be relevant to other programmes that could benefit from improved inter-organisational integration.

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NEW ZEALAND

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## Research Introduction

I am Maryam Pirouzi, a full time Doctor of Philosophy student in the School of Population Health (SOPH), University of Auckland. Prior to commencing my doctoral study in November 2019, I completed nearly 12 years of practice as a quality improvement officer, hospital manager, surveyor at accreditation programme, and health economy experts, at different sectors of Iran's Health System. My conduct of this research stream and degree is funded for 3 years by the University of Auckland Health Research Doctoral Scholarship.

## Research Project Procedures

Voluntary participation in this research project is sought from potential participants who are involved in the development and or implementation of the Falls and Fracture Prevention programme at the national level and at three case study sites.

- Approximately 12-15 participants will be recruited from your district, based on the criteria noted above and suggestions from Ministry of Health (MoH) and Health Quality and Safety Commission (HQSC), to participate in face to face or online interviews with myself, from early 2021 to December 2022.
- Interviews will be conducted in a place or by virtual meeting and at a time of convenience deemed appropriate by the individual participant.
- Interviews may therefore be conducted either inside or outside of your workplace or work time, and where interviews are outside of your workplace you will be reimbursed for the reasonable cost of travel to and from that outside venue.
- Informed consent will be obtained from participants prior to the conduct of interviews (see the consent document).
- Interviews of approximately 45-60 minutes duration will follow a semi-structured format (see the interview schedule) and will be digitally voice recorded (DVR) and later transcribed to written form. Participants will be able to stop the interview and/or the recording at any point without explanation.
- Participants will be able to withdraw from the study at any time and withdraw their data up to 2 weeks after the interview, without any explanation.
- Interviews will be transcribed by myself with aiding some software.

- Participants will be given the opportunity to have a copy of digital recordings and the transcripts to check their interview transcripts prior to analysis.

## Anonymity/Confidentiality/Right to withdraw

The name of health district will be written in the reports; but the researchers will not use participants' names, and they will use their area and job title and therefore participants may be identifiable in the research. You have the right to participate voluntarily, to give informed consent, and to withdraw from the study at any time without explanation. Participants also have the right to withdraw their interview or document data at any time up 2 weeks after the interview.

## Data storage/retention/destruction/future use

DVRs, transcribed interview documents and collected documents will be securely stored in a locked cabinet on SOPH premises throughout the conduct of the study. Electronic data will be stored in a secure file on the University of Auckland server. Completed CFs will also be securely stored but will be separated from other research data. Access to the data in any form will be limited to the researcher, and research supervisors for the purposes of the study. After six years, data (hard copy or electronic) will be destroyed (through the University of Auckland's confidential document destruction service for hard copy, and by deletion of the file from the University of Auckland's server for electronic copy).

## District and Participant Report Back

At the completion of the study stream a summary of research findings will be provided to each participant. Other forms of research findings dissemination and feedback into the health sector are anticipated including DHB and national forum and conferences.

Please feel free to contact the researcher if you have any questions about this study.

**Contact Details:** Maryam Pirouzi, PhD candidate University of Auckland Telephone: +64 2041561612 Email: ghazal.pirouzi@auckland.ac.nz

## Contact Details

Tim Tenbensel, PhD Supervisor University of Auckland Telephone: +64 9 9239001 Email: t.tenbensel@auckland.ac.nz

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**UAHPEC Chair contact details:**

For any queries regarding ethical concerns you may contact the Chair, The University of Auckland Human Participants Ethics Committee, Office of Research Strategy and Integrity, The University of Auckland, Private Bag 92019, Auckland 1142. Telephone 09 373-7599 ext. 83711. Email: humanethics@auckland.ac.nz

**Ethics approval:**

This research approved by the **University of Auckland Human Participants Ethics**
Committee on **25/02/2021** For **three years** with reference number **22004**.

Appendix 3- Consent form

MEDICAL AND HEALTH SCIENCES
SCHOOL OF POPULATION HEALTH

Health System Section
**The University of Auckland**
Building 507,
Level 3, 28 Park Ave, Grafton,
Auckland, New Zealand
**T**+64 9 123 4567
**Email:** mpir546@aucklanduni.ac.nz
Private Bag 92019
Auckland 1023, New Zealand

# CONSENT FORM

**THIS FORM WILL BE HELD FOR A PERIOD OF 6 YEARS**

**Project title: The relationship between inter-organisational collaboration and health service integration for the elderly in New Zealand.**

**Supervisor**: Associate Professor Tim Tenbensel- **Co-supervisor**: Dr Vanessa Selak-**Student researcher**: Maryam Pirouzi

- I have read the Information Sheet and understand the nature of the research and why I have been selected. I have had the opportunity to discuss this study and I am happy with the answers I have been given.
- I understand that taking part is voluntary (my choice), and my choice to participate or not will not affect my employment, and that I am free to withdraw my participation at any time and to withdraw my data traceable to me up to 2 weeks after the interview, and this will in no way affect my employment.
- I understand that I will be asked to introduce potential participants who are working in the falls and fracture programme at the selected district and I give assurance their participations will not affect their employment.
- I understand that my participation in this study is confidential but according to organisation's name and professional categories which will be used; my identity might be identifiable in the reports on this study.
- I have had time to consider whether to take part in the study. I know who to contact if I have any questions about the study in general.

| | YES | NO |
|---|---|---|
| I consent to my interview being audiotaped | ☐ | ☐ |
| I would like to have a copy of digital recording of interview | ☐ | ☐ |
| I would like to view a copy of the interview transcript | ☐ | ☐ |
| I understand that the interview transcript will be stored at a secure location within the School of Population Health | ☐ | ☐ |
| I wish to receive a copy of the results | ☐ | ☐ |
| I would like the researcher to discuss the outcomes of the study with me | ☐ | ☐ |

**Name:** _____

**Signature:** _____ **Date:** _____

This research approved by the University of Auckland Human Participants Ethics Committee on **25/02/2021** for **three years** with reference number **UAHPEC22004**.

Appendix 4- Interview questions (local organisation)

# Interview Questions

## Part 1: Falls and fracture programme

1) **To begin, please tell me your discipline and role, in relation to the falls and fracture prevention programme. And how long have you worked as a part of Falls prevention programme**

**2) Could you briefly describe the falls and fracture programme in your district?**

Prompts:

- What does local model of care look like in your area and how are these aligned with the national framework?
-
- How long has this initiative or network been in place? Were there any pre-existing services before the falls and fracture programme?

- Who are your partner organisations at the district level and out of the district and what are their responsibilities? Do you think this partnership provided better service delivery for older people?

- Tell me about the process of patient screening and assessment for falls risk in your district?

- How the referral pathway works in your district (between community, primary and secondary system)

- To what extent is there greater integration and collaboration (at the local and regional levels)? And In which activity in falls and fracture programme, there is more integration between different providers?

- What internal or across-network challenges has your organisation faced in integrating care?

- What does your organisation do to integrate different organisation together?

**3) How do you feel your organisation fits in with your partner organisations?**

Prompts:

- Is there anything about your organisation that makes it harder to partner with other organisations?

- Is there anything about your organisation that makes it easier to partner with other organisations?

- How well do the partners in your integrated care initiative work together?

## Part 2: Contextual Factors using the Context for Integrated Care Framework

**1) Resources and capacity: financial and non-financial- information technology**

- How this new model of funding works in your organisation? What have been the consequences of this partnership?

- Are the necessary systems in place to enable new ways of working?

- How does cross sector data sharing with different organisations occur within your district?

**2) Leadership style, governance, and accountability**

- Tell me about how you implement change in your organisation and how do you motivate your staff

- Who is represented/ are these right mixes of representation/ are they providing the right degree of oversight and direction/ how do you involve patients in this specific programme?

- How often are meeting of working group held?

**3) Organisational culture- readiness for change-work environment-commitment to learning- team work**

- What is your organisation attitude toward collaboration (resistant/ wary/open/ an advocate)?

- To what extend do you think organisations in your network have a common value and vision and goals/ strong sense of belonging to the new way of working

- Tell me about interprofessional teamwork at your network for falls and fracture programme

- Tell me about how your organisation learns from its past learning or from other external experts or other organisations experience and how shares experience with other districts

**4) Delivery of care- clinical engagement- patient -centeredness**

- What role does evidence (care pathway) play in how care is delivered/who can refer and how are people referred into services?

- Tell me about clinician engagement in governance and operation level

- To what extent do providers and patient engage in collaborative decision making

**5) Quality improvement and performance measurements**

- In there any plan in your district to improve the performance and quality of services of falls and fracture programme

## Part 3: Outcome

- What benefits and outcomes (including shared outcomes) are being achieved, and how do these compare to those expected in the business case?

- What's working well, and not so well, and why?

- Can the new ways of working be replicated in other areas (such as investment into other populations, contexts, geographic areas, and conditions)? If so, how might this be achieved?

- To what extent do you think the outcomes framework and indicators represent a good relationship between different organisation?

Appendix 5- Ethics approval

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**UNIVERSITY OF AUCKLAND HUMAN PARTICIPANTS ETHICS COMMITTEE (UAHPEC)**

25/02/2021

Dr Tim Tenbensel

**Re: Application for Ethics Approval (Our Ref. UAHPEC22004): Approved with Comment**

The Committee considered the application for ethics approval for your study entitled "**The relationship between inter-organisational collaboration and health service integration for the elderly in New Zealand**". We are pleased to inform you that ethics approval has been granted with the following comment(s) or required minor changes:

1. PIS MoH / HQSC
Please review the following statement and correct the grammatical error (before distribution):
MoH and HQSC have given an assurance that refusal or agreement to participate will have no affect participants' employment.

The expiry date for this approval is **25/02/2024**.

**Completion of the project**: In order that up-to-date records are maintained, you must notify the Committee once your project is completed and submit a final report.

**Amendments to the approved project:** Should you need to make any changes to the approved project, please follow the steps below:

- Send a request to the UAHPEC Administrators to unlock the application form (using the Notification tab in the Ethics RM form).
- Make all changes to the relevant sections of the application form and attach revised documents (as appropriate).
- Change the Application Type to "Amendment request" in Section 13 ("Submission and Sign off").
- Add a summary of the changes requested in the text box.
- Submit the amendment request (PI/Supervisors only to submit the form).

If the project changes significantly, you are required to submit a new application.

**Funded projects:** If you received funding for this project, please provide this approval letter to your local Faculty Research Project Coordinator (RPC) or Research Project Manager (RPM) so that the approval can be notified via a Service Request to the Research Operations Centre (ROC) for activation of the grant.

The Chair and the members of UAHPEC would be happy to discuss general matters relating to ethics approvals. If you wish to do so, please contact the UAHPEC Ethics Administrators at humanethics@auckland.ac.nz in the first instance.

**Additional information:**

- Do not forget to fill in the 'approval wording' on the PISs, CFs and/or advertisements, using the date of this approval and the reference number, before you use the documents or send them out to your participants.

All communications with the UAHPEC regarding this application should indicate this reference number: **UAHPEC22004**.

UAHPEC Administrators

University of Auckland Human Participants Ethics Committee

c.c. Senior Lecturer Vanessa Selak, Mrs Maryam Pirouzi

Appendix 6- ranking system

| Main category | Sub category | Key themes | Description of measurement |
|---|---|---|---|
| **Basic structure** | **Resources** | Funding: | The degree to DHB reliance on ACC funding to continue the implementation of this programme.<br>1. Highly dependent on ACC funding.<br>2. Somehow dependent on ACC funding for all components.<br>3. Somehow dependent on ACC funding in one or two components.<br>4. Highly independent on ACC funding and programme running as a business as usual |
| | | | The degree of utilisation of community and private sector capacity.<br>1. Low utilisation of community and private sector.<br>2. Somehow utilisation of community and private sector.<br>3. High utilisation of community and private sector. |
| | | | Perception of respondents about inter-organisational contract's challenges<br>1. A high challenge in contracting between ACC and DHB and other organisations (PHO, In-home, Community).<br>2. A high challenge in contracting between DHB and ACC or between DHB and other organisations (PHO, In-home, Community).<br>3. Few challenges reported. |
| | | Staffing | The degree to which district has a sufficient number of staff for a specific component or whole programme.<br>1. Severe staff shortage in provision and operation.<br>2. Insufficient staff compared to population size.<br>3. Insufficient staff but used private section capacity.<br>4. Sufficient staff at the operation and management level. |
| | | | Innovations for providing more sustainable services (service dependent and using a wide range of available workforce, more efficient service delivery)<br>1. There is no action to cover the staff shortage.<br>2. The district has used health assistants to mitigate staff shortages.<br>3. The district has used efficient delivery service to mitigate staff shortage. |
| | | | Perception of interviewees about inter-professional connections between different organisations.<br>1. Difficult to find the right person to connect. |

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| | | 2. It is not difficult to find the right person in other organisations to connect with, but there is time pressure and professional language issues.<br>3. Easy to find, connect, and work collectively. |
| | **Information Technology** | Whether the patient referral system between community and home services and primary care and secondary care works well and organisations are well-linked<br>1. Manual referral system between different organisations<br>2. The E-referral system between hospitals and GPs but not between GPs and community and In-home services<br>3. E-referral between the hospital, GPs, and In-home service but not for community providers and St. John<br>4. E-referral between the hospital, GPs, and In-home and community service but not for St. John<br>5. Full E-referral system which connects all relevant organisations |
| | | Whether a good quality data set available at the district level?<br>1. Most of the time, patient information are incomplete and need to contact referees.<br>2. Sometimes patient information is incomplete and need to contact referees.<br>3. Most of the time, patient information is complete and no need to contact referees. |
| | **Governance and Accountability** | The extent to which a well-structured working group and sup-groups exist.<br>1. No steering groups.<br>2. Just one small operation group without strong chair.<br>3. A small steering group with a strong leader or clinical leader.<br>4. A large steering group with representatives from all essential organisations. |
| | | The extent to which all essential organisations are involved in the working group.<br>1. Many missing organisations.<br>2. Somehow all organisations involved<br>3. Almost all required organisations involved. |
| | | Whether working group meetings are held frequently<br>1. The meeting is not held regularly, just when an issue occurs meeting is set up<br>2. Meetings are held quarterly, and some members attend actively<br>3. Meetings are held quarterly, and the majority of members actively attend and participate<br>4. Meetings are held monthly, and the majority of members attend and actively participate. |

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| | | Perception of interviewees about the clarity of organisational responsibility in the falls prevention programme<br>1. Not clear organisational roles and responsibility and task agreements<br>2. Somehow it is clear the role and responsibility of different organisations, but still, there are many conflicts<br>3. There is a clear organisational role and responsibility and a clear way to manage the inter-organisational conflicts |
| **People and Values** | Attitude towards collaboration | The extent to which partner organisations are open to collaborations and have collaborative behaviours<br>1. Resistant to collaboration<br>2. Wary of collaboration<br>3. Open to collaboration<br>4. An advocate of collaboration |
| | | The perception of interviewees about primary care engagement in the falls prevention<br>1. Low primary care engagement in falls prevention<br>2. Primary care engaged but falls is not still a business as usual<br>3. Primary care engaged actively and falls prevention embedded in practice other activities |
| | Clinician engagement | To what extent clinicians from different organisations are involved in governance level and working group<br>1. Little extent clinicians participate in governance and operation level<br>2. Great extent clinicians participate in governance and operation level |
| | | To what extent senior clinicians are involved in managing the operation of the specific programme<br>1. There is no senior clinical leader for whole programme and each single component<br>2. There is clinical leader for whole programme but not for each component<br>3. There is no clinical leader for whole programme, but some components have clinical leaders<br>4. There are strong clinical leaders at the district level for whole and each component |

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| | commitment to learning | | Whether there are formal platforms for sharing experience, negative and positive stories between different organisations and local and national level (regular working group, formal meetings, conference)<br>1. No formal platform for sharing experience between organisations.<br>2. Some events and monthly conferences for specific positions across districts.<br>3. Some components of the programme have a strong platform to facilitate communication but not for the whole programme.<br>4. Comprehensive communication platforms and tools within and across organisations |
| | | | Whether there are informal platforms for sharing experiences, negative and positive stories between different organisations and local and national level (lunch meetings, email groups, …)<br>1. No informal platform for sharing experience between organisations.<br>2. Some events and informal gatherings are held for specific positions within the district<br>3. Different organisations actively set up informal platforms and events to facilitate communications. |
| | Common values and visions | | To what extent do partner organisations share the same objectives, values, and visions (local level and national level)<br>1. No shared values and strong conflicts between organisation's approaches.<br>2. Have the same goals, but different values.<br>3. Have same goals and values but different approaches.<br>4. Have the same goals, values, and approaches. |
| | | | Perception of interviewees of mechanisms for managing and resolving inter-organisational conflict and tensions<br>1. No effective ways to manage conflicts and tensions.<br>2. Conflict is managed by clear communication and conversations. |
| **Key Processes** | **Care and service delivery** | **Fracture Liaison Service** | To what extent the FLS is implemented based on Osteoporosis guideline<br>1. District has not followed the Osteoporosis guideline or any other guidelines.<br>2. Some degree district used and followed the osteoporosis guideline or other guidelines.<br>3. District followed the Osteoporosis guideline or other guidelines and modified it. |
| | | | To what extent do specialists lead and engage in FLS services<br>1. Specialists not involved and led FLS actively<br>2. Specialists are involved but do not actively manage the FLS<br>3. Specialist involved and actively manage whole FLS processes |

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| | Whether the district has easy access to a bone density scanner<br>1. The district does not have its own scanner and uses private organisation, which makes it more complicated.<br>2. The district does not have its own scanner but uses the university scanner, which somehow is straightforward.<br>3. The district has its own scanner, which makes the process more convenient. |
| **Community Strength and Balance programme** | To what extent the coordinators are providing community training and awareness programme?<br>1. Coordinators have no time to provide community awareness training and marketing.<br>2. Coordinators' time spent just marketing and encouraging community providers.<br>3. Coordinators have engaged in marketing and community awareness training. |
| | To what extent community capacity and capability has been used in the community S&B programme<br>1. Number of places offered is under the national target.<br>2. Number of places offered hit the national target.<br>3. Number of places offered is higher than the national target. |
| | Perception of respondents about the programme capacity to involve different ethnicities.<br>1. There is a big gap between different ethnicities who are attending in community S&B programme.<br>2. There is a gap but not significant between different ethnicities who are attending in community S&B programme.<br>3. There is a gap, but there is a clear attempt to provide services for different ethnicity in the region.<br>4. There is no gap, and all ethnicities attending the community S&B programme equally. |
| | To what extent the community services are implemented based on Otago exercise guideline<br>1. District has not followed the Otago exercise guideline or any other guideline.<br>2. Some degree districts used and followed the Otago exercise guideline or other guidelines.<br>3. District followed the Otago exercise guideline or other guidelines and modified it. |
| **In-Home strength and balance** | To what extent have the private organisation’s capacities been used to provide in-home services?<br>1. In-home services are provided by DHB or the hospital.<br>2. In-home services are provided by one private organisation. |

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| | | | 3. In-home services are provided by regional private organisations. |
| | | | To what extent In-home services have been embedded with other services<br>1. In-home services are not linked with other services.<br>2. There is some sort of linkage and good referral number from other organisations.<br>3. In-home service is a focal point and well-linked with other programmes and organisations. |
| | | | To what extent community S&B are implemented based on evidence and clinical guidelines?<br>1. District has not followed scientific evidence and clinical guidelines.<br>2. Some degree districts used and followed the scientific evidence and clinical guidelines.<br>3. District followed the scientific evidence and clinical guidelines and modified it. |
| | Partnering | Primary care involvement | Understanding and perception of interviewees about the engagement of PHOs and GPs in falls prevention programme.<br>1. PHOs and GPs are not involved, and the number of referrals is quite a few.<br>2. Somehow PHOs and GPs are involved, and the number of referrals is good, but it could be better.<br>3. PHOs and GPs are actively involved and with a high number of referrals. |
| | | | Understanding and perception of interviewees about the engagement of St. John in the falls prevention programme.<br>1. St. John is not involved, and the number of referrals is quite few<br>2. Somehow St. John involved, and the number of referrals is good, but it could be better.<br>3. St. John is actively involved and with a high number of referrals. |
| | | | To what extent GPs, PHOs have been involved in the governance group<br>1. There are no members from PHOs and GPs and St. John in the working group.<br>2. There are few members from PHOs and GPs and St. John in the working group.<br>3. All PHOs and St. John have a representative in the working group. |
| | | | Whether there is a funding strategy to involve primary care?<br>1. No funding for GPs and St. John to do screening.<br>2. Little funding for PHOs to participate in screening.<br>3. PHOs and St. John are funded through DHB. |
| | | Inter-organisational relationships | Perception of interviewees about partnering experience with other organisations.<br>1. Participants have a negative experience of working with other organisations. |

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| | | | 2. A somehow positive experience of working with other organisations.<br>3. A positive experience of working of other organisations. |
| | | Patient screening and referral pathway | Perception of the respondents on the number of referrals from primary care<br>1. There are few referrals from primary care.<br>2. There are not enough referrals, but it is increasing .<br>3. There are enough and constantly increasing referrals from primary care. |
| | | | Perceptions of the respondents about the sufficiency of referrals between different components of the falls prevention programme<br>1. Insufficient referrals between community and In-home services.<br>2. Insufficient referrals from community and In-home services to FLS service.<br>3. Insufficient referrals from FLS to community and In-home services.<br>4. Sufficient and great number of referrals between different components of falls prevention programme. |
| | Measuring and monitoring performance | Indicators' capacity in measuring falls prevention programme | Perception of interviewees about the outcome framework capacity to measure important aspects of falls prevention programme (missing indicators, broad indicators<br>1. The outcome framework just captures basic aspects and capacity which are available.<br>2. There are some important aspects which missed.<br>3. All important aspects are captured and measured through outcome framework. |
| | | Feedback loop | Whether there were clear internal or external feedback and monitoring mechanism or not (feedback from project managers to the community, in-home service and FLS-feedback from ACC to the community, in-home service and FLS.<br>1. There is no formal feedback from central organisations.<br>2. There is some feedback from project managers but not from referees to acknowledge referrers.<br>3. There is regular feedback from central organisations and between referees and referrers. |
| | | | To what extent did the district use the capacity of the dashboard to improve the service.<br>1. Participants did not know about the dashboard and its benefits.<br>2. Some participants knew about it but never used it.<br>3. Some participants knew about the dashboard and used it.<br>4. Many participants knew about the dashboard and used it regularly. |

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| | | Outcome framework and inter-organisational relationships | To what extent do participants believe the outcome framework represents inter-organisational collaboration?<br>1. Many participants believe the current outcome framework does not represent how different organisations work.<br>2. Some of participants believe some indicators results show how well different organisations work together but still there are some missing important indicators.<br>3. Many participants believe the current outcome framework and indicators results show how different organisation work together |
| **FFPP Implementation characteristic** | **Historical background** | | Whether the district has initiated the programme before national-level collaboration<br>1. The district had no programme before 2017.<br>2. Community and In-home programme started in 2017, but FLS started before 2017.<br>3. Main components started before 2017. |
| | | | To what extent did previous partnership experience influence the implementation of the current programme.<br>1. The previous experience made it more difficult to build trust.<br>2. Previous experience did not affect the current implementation of falls prevention.<br>3. The previous experience empowered the implementation of current falls prevention. |
| | **Approaches to the prevention** | | To what extent does the district have a systematic and population-based approach to identify and screen eligible population?<br>1. The district has a more opportunistic approach in screening and investigating patients.<br>2. The district has a systematic and population-based approach in patient screening and investigating patients. |
| **Implementation Success or Programme success** | **Programme maturity** | | The level of maturity of the falls prevention programme<br>1. The programme is in the early stages and still working on building trust between organisations.<br>2. The programme is at the middle stage, working groups work well, partner organisations are involved in planning, and there is a good connection between organisations.<br>3. The programme is run as a business as usual, very well-structured working group and a great connection between organisations. |
| | **Programme results** | | Perception of respondents about the impact of the programme in reducing falls and fractures<br>1. It is too early to see the programme's impact on falls reduction.<br>2. There is no reduction of falls in the community but There is a slight reduction in falls incidence in the community. |

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| | | 3. There is a significant reduction after the implementation of this programme. |
| | | Whether a well-structured FLS exists (patient screening, investigation, treatment, and long-term follow-ups)<br>1. The district has no rate.<br>2. The district has been awarded bronze star rated.<br>3. The district has been awarded silver star rated.<br>4. The district has been awarded gold star rated. |
| | | To what extent community and older people are aware and attending the community S&B programme.<br>1. Number of new people attending the classes and also the number of people who completed 10 sessions are lower than the national target.<br>2. Number of new people attending the classes is lower than the target, but the number of people who completed 10 sessions is higher than the target or vice versa.<br>3. Number of new people attending the classes and also the number of people who completed 10 sessions just hit the national target.<br>4. Number of new people attending the classes and also the number of people who completed 10 sessions are higher than the national target. |
| | | How many eligible older people have been served in In-Home S&B programme<br>1. Number of older people who used in-home S&B classes is lower than the national target.<br>2. Number of older people who used in-home S&B classes hit the national target.<br>3. Number of older people who used in-home S&B services is higher than the national target. |
| | | The extent to which participants think this model of working can be used for other health conditions<br>1. Participants believe this model of working is very challenging and it is not working well<br>2. Some participants suggested this way of working to other health conditions but with some modifications.<br>3. Many participants believe it is a great way of working and suggested this model to other health conditions |
| | **Awareness** | Perceptions of the interviewees about older people's awareness about this programme (community awareness, healthcare professionals awareness)<br>1. There is not great awareness among older people about the falls prevention programme.<br>2. There is great awareness among older people about the falls prevention programme. |
| | | Whether organisational capacity has been used effectively to raise awareness among older people |

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| | | 1. There is no clear plan to utilise each partner organisation's capacity to introduce this programme.<br>2. Somehow some organisations use their capacity to introduce and encourage the programme.<br>3. Almost all partner organisations actively use their capacity to introduce this programme. |
| | | To what extent community and older people are aware and attend community S&B programme<br>1. There is a big gap between the number of places and the number of new people who are attending community classes, and the number is way below the target.<br>2. There is a slight gap between the number of places and number of new people attending community S&B, and the number slightly below the target.<br>3. No big gap between number of places and new people who attending the community classes, and number hit the target or is above the target. |
| | Programme sustainability | To what extent it is likely this programme continues in district if ACC stops funding |
| | | 1. The continuation of programme guaranteed till 2024.<br>2. The continuation of programme guaranteed till 2022. |

Appendix 7- Applied ranking system across districts.

| key category | Parameter | Auckland | Waitemata | Counties Manukau | Canterbury |
|---|---|---|---|---|---|
| Basic structure | Funding1 | 2 | 3 | 3 | 3 |
| | Funding2 | 2 | 2 | 2 | 3 |
| | Staff1 | 2 | 3 | 2 | 4 |
| | Staff2 | 4 | 2 | 2 | 4 |
| | Staff3 | 1 | 1 | 1 | 1 |
| | Information Technology 1 | 2 | 2 | 3 | 3 |
| | Information Technology 2 | 2 | 2 | 4 | 4 |
| | Governance and accountability1 | 2 | 2 | 4 | 4 |
| | Governance and accountability2 | 1 | 1 | 4 | 4 |
| | Governance and accountability3 | 2 | 2 | 4 | 4 |
| | Governance and accountability4 | 2 | 2 | 4 | 4 |
| People and values | Attitude 1 | 4 | 4 | 4 | 4 |
| | Attitude 2 | 2 | 2 | 2 | 2 |
| | Clinical engagement 1 | 1 | 1 | 4 | 4 |
| | Clinical engagement 2 | 2 | 3 | 4 | 4 |
| | Commitment to learning 1 | 2 | 2 | 3 | 3 |
| | Commitment to learning 2 | 2 | 2 | 1 | 2 |
| | Value and visions 1 | 3 | 3 | 3 | 3 |
| | Value and visions 2 | 4 | 4 | 4 | 4 |
| Key processes | FLS 1 | 4 | 4 | 4 | 4 |
| | FLS 2 | 2 | 4 | 4 | 4 |
| | FLS 3 | 2 | 1 | 4 | 4 |
| | Community S&B 1 | 4 | 4 | 2 | 4 |
| | C0mmunity S&B 2 | 4 | 4 | 1 | 4 |
| | Community S&B 3 | 2 | 2 | 3 | 3 |
| | Community S&B 4 | 4 | 4 | 4 | 4 |
| | In-Home 1 | 2 | 2 | 1 | 4 |
| | In-Home 2 | 2 | 2 | 2 | 4 |
| | In-Home 2 | 4 | 4 | 4 | 4 |
| | Partnership 1 | 2 | 2 | 4 | 4 |
| | Partnership 2 | 2 | 2 | 2 | 2 |
| | Partnership 3 | 2 | 2 | 4 | 4 |
| | Partnership 4 | 1 | 1 | 4 | 1 |
| | Partnership 5 | 4 | 4 | 4 | 4 |
| | Partnership 6 | 2 | 2 | 2 | 3 |
| | Partnership 7 | 2 | 2 | 2 | 4 |
| | Measering and monitoring 1 | 2 | 2 | 2 | 2 |
| | Measering and monitoring 2 | 1 | 1 | 2 | 2 |
| | Measering and monitoring 3 | 2 | 3 | 3 | 3 |
| | Measering and monitoring 4 | 2 | 2 | 2 | 1 |
| Fall and Fracture implementation charactersitic | Historical background 1 | 1 | 2 | 2 | 4 |
| | Historical background 2 | 1 | 1 | 1 | 1 |
| | Approach to prevention 1 | 1 | 1 | 4 | 4 |
| Implementation | Programme maturity | 2 | 3 | 2 | 4 |
| | Programme results 1 | 2 | 2 | 2 | 4 |
| | Programme results 2 | 1 | 4 | 3 | 4 |
| | Programme results 3 | 2 | 2 | 1 | 2 |
| | Programme results 4 | 1 | 1 | 1 | 4 |

Appendix 8

| | Key factors | Link to other factors (impact) | Other factors link to this factor (impact) |
|---|---|---|---|
| | Having sufficient staff | • Using innovative service delivery (1)<br>• Service delivery (2)<br>• Community awareness (2) | • Funding arrangement (1)<br>• Leadership commitment (2)<br>• Clinical leadership/engagement (2)<br>• Having former falls prevention programme (2)<br>• using wider range of health professional (1) |
| | Using wider range of health professional | • Sustainability/continuation of the programme (2)<br>• Having sufficient staff (2) | • Private sector involvement (1)<br>• Staff shortage (1) |
| | Sophisticated E-Referral system | • Better service delivery (2)<br>• Commitment to learning (1)<br>• Reduced inter-orga challenge (1) | • Leadership commitment (1)<br>• Structured governance team (2) |
| | Inter-professional connections | • Shared goal and vision (mutual) (2)<br>• Commitment to learning (1)<br>• Partnership experience (1)<br>• Attitude towards collaboration (2) | • Staff turnover (-1)<br>• Attitude toward collaboration (1)<br>• Clinical leadership/engagement (1)<br>• Size of organisation (-1)<br>• Number of involved organisations (-1) |
| | Reliance on external funding | • Sustainability and continuation (-1)<br>• Service delivery-reduced volume (-1)<br>• waiting time (-1) | • Prevention as a priority in district (-1)<br>• Former falls prevention programme (1) |
| | Contracting between organisations | • Staff turnover (2)<br>• Service delivery (service delays) (1)<br>• Funding arrangement (1) | • District size (-2)<br>• Number of organisations (-2) |
| | Leadership commitment | • Right-mixed working group (2)<br>• Having sufficient staff (1)<br>• Private organisation engagement (2)<br>• Sophisticated E-Referral system (1)<br>• Well-structured governance team (1)<br>• Conflict management (2)<br>• Primary care engagement (2)<br>• Attitude toward collaboration (1)<br>•Approach to prevention (1) | • Former collaboration experience (2) |
| | Right-mixed working group | • Organisational engagement (2)<br>• Service delivery (1)<br>• Higher referral from primary care (1)<br>• Shared vision and value (2)<br>• Commitment to learning (1) | • Leadership commitment (2)<br>• Former collaboration experience (2)<br>• Pre-existing falls prevention programme (1)<br>• Well-structured governance team (2) |
| | Well-structured governance team | • Conflict management mechanism (1)<br>• Service delivery (2)<br>• Right-mixed working group (2)<br>•Commitment to learning (0)<br>• Primary care engagement (2)<br>• Attitude towards collaboration (1)<br>• Private sector involvement (1)<br>• Funding arrangement (1)<br>• Partnership experience (2)<br>• Sophisticated E-Referral system (1)<br>• Clinical engagement and leadership (1) | • Leadership commitment (1)<br>• Approach to prevention (2)<br>• Pre-existing falls prevention programme (1) |
| | Attitude toward collaboration and openness to collaboration | • Partnership experience (1)<br>• Commitment to learning (1)<br>• Inter-professional connection (2)<br>• Community training session (1)<br>• Conflict management mechanism (1)<br>• Private sector involvement (1) | • Former collaboration experience (2)<br>• Pre-existing falls prevention programme (2)<br>• Commitment to learning (1)<br>• Structured governance team (0)<br>• Partnership experience (2)<br>• Inter-professional connection (1) |
| | Clinical engagement and leadership | • Service delivery (2)<br>• Sustainability and programme continuation (2)<br>• Having sufficient staff (1)<br>• Private sector involvement (1)<br>• Adherence to clinical guidelines (2) | • Leadership commitment (2)<br>• Approach to prevention (1)<br>• Pre-existing falls prevention programme (1)<br>• Well-structured governance team (2)<br>• Former collaboration experience (1) |

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|---|---|---|---|
| | Commitment to learning and sharing knowledge | • Attitude toward collaboration (mutual) (1)<br>• Service delivery (0) | • Structured governance group (1)<br>• Attitude toward collaboration (1)<br>• Right-mixed working group (1)<br>• Inter-professional connection (1)<br>• Sophisticated E-Referral system (1)<br>• Monitoring and feedback loop (1) |
| | Shared values and vision | • Conflict management (1)<br>• Service delivery (1)<br>• Adherence to clinical guidelines (0) | • Prevention as a priority for organisations (1)<br>• Conflict management (1)<br>• Inter-professional connection (2)<br>• Right-mixed working group (2)<br>• Former collaboration experience (1) |
| | Conflict management | • Service delivery (1)<br>• Shared vision and values (1) | • Leadership approach (2)<br>• Shared vision and values (1)<br>• Well-structured governance team (1)<br>• Attitude toward collaboration (0) |
| | Community training and awareness session | • Primary care engagement (1)<br>• Service delivery (2)<br>• Community awareness (2) | • Sufficient staff (1)<br>• Attitude towards collaboration (0)<br>• Private sector involvement (2) |
| | Community provider's engagement | • Community engagement (2)<br>• Service delivery (1)<br>• Programme sustainability/continuation (1) | • Sufficient staff (2) |
| | Adherence to clinical guidelines (community and in-home) | • Service delivery (1) | • Commitment to learning (1)<br>• Clinical engagement/leadership (2)<br>• Leadership commitment (1)<br>• Structured governance group (0) |
| | Private organisation engagement in service delivery | • Service delivery (2)<br>• Programme sustainability/continuation (2)<br>• Community training/awareness session (1)<br>• Using a wider range of healthcare professionals (1) | • Leadership commitment (2)<br>• Former collaboration experience (2)<br>• Attitude toward collaboration (1)<br>• Pre-existing falls prevention programme (1)<br>• Clinical engagement/leadership (1)<br>• Well-structured governance team (1) |
| | Primary care engagement | • Service delivery (2)<br>• Referrals from primary care (2)<br>• Right mix of governance team (2)<br>• Sustainability and continuation of the programme (2) | • Leadership approach (2)<br>• Well-structured governance team (2)<br>• Approach to prevention (2)<br>• Clinical engagement/leadership (1)<br>• Attitude towards collaboration (1)<br>• Private sector involvement (0) |
| | Partnership experience | • Attitude towards collaboration (2)<br>• Service delivery (1) | • Structured governance team (1)<br>• Inter-professional connection (1)<br>• Number of involved organisations (1)<br>• Size of organisations (-1)<br>• Attitude towards collaboration (1) |
| | Former collaboration experience | • Right-mix working group (2)<br>• Attitude toward collaboration (2)<br>• Shared goal and vision (1)<br>• Clinical engagement and leadership (1)<br>• Sustainability and continuation (2) | • Leadership commitment (1)<br>• Stop and go situation of the programme (1)<br>• Negative collaboration experience (-1) |
| | Number of referrals from different organisations | • Service delivery (2)<br>• Sustainability and continuation (1) | • Primary care engagement (2)<br>• Clinical leadership (1)<br>• Right-mix working group (1)<br>• Approach to prevention (2) |
| | Monitoring and feedback loop | •Service delivery (2)<br>•Partnership experience (1)<br>•Commitment to learning (1) | • Leadership approach (1)<br>• Structured governance group (1) |
| | Pre-existing falls prevention programme | • Attitude toward collaboration (2)<br>• Clinical engagement and leadership (1)<br>• Private sector involvement (1)<br>• Reliance to external funding (1) | • Falls prevention as a district priority (2)<br>• Approach to prevention (1)<br>• Leadership commitment (2) |
| | Approach to Prevention | • Primary care engagement (2)<br>• Service delivery (2)<br>• Referrals from primary care (1)<br>• Structured governance group (0) | • Leadership commitment (2)<br>• Clinical engagement and leadership (2) |

Appendix 9

**Outcome 2 (performance measure)**

**Process performance (FLS accreditation levels, in-home and community reach)**

High performance (gold FLS medal- high number of in-home and community reach) Canterbury - Waitemata

Moderate (silver FLS medal- slightly increased number of in-home attendance and community reach) Auckland and Counties Manukau

Low performance (bronze or no FLS medal- decreasing level of in-home and community attendance)

| | High performance | Moderate performance | Low performance |
|---|---|---|---|
| **Staff 1** | | | |
| Sufficient staff available | C | | |
| Not as an issue | | CM | |
| Insufficient staff | | A | |
| **Staff 2** | | | |
| Using wide range of healthcare professional | C | | |
| Not as issue | | | |
| Not using wide range of health care professional | W | CM-A | |
| **IT- Sophisticated referral system** | | | |
| High | C | CM | |
| Middle | | | |
| Low | W | A | |
| **Governance and accountability** | | | |
| High | C | | |
| Middle | | CM | |
| Low | W | A | |
| **Care delivery-FLS clinical engagement** | | | |
| High | C-W | | |
| Middle | | A-CM | |
| Low | | | |
| **FLS3-Easy access to bone scan** | | | |
| High | C | | |
| Middle | | CM-A | |
| Low | W | | |
| **Community training and awareness programme** | | | |
| High | C-W | A | |
| Middle | | CM | |
| Low | | | |
| **Care Delivery-Community S&B-using community capacity in service delivery** | | | |
| High | C-W | A | |
| Middle | | CM | |
| Low | | | |
| **Care delivery-In-Home S&B-using private organisation capacity in service delivery** | | | |
| High | C | | |
| Middle | W | A | |
| Low | | CM | |

| | | | |
|---|---|---|---|
| **Care delivery-In-Home S&B-good flow between In-Home and other part of the programme** | | | |
| High | C | | |
| Middle | W | A-CM | |
| Low | | | |
| **Partnerships- primary care engagement** | | | |
| High | | | |
| Middle | C | CM | |
| Low | W | A | |
| **Partnerships- primary care engagement in working group and governance level** | | | |
| High | C | CM | |
| Middle | | | |
| Low | W | A | |
| **Partnerships- primary care funding for the partnership** | | | |
| High | | CM | |
| Middle | | | |
| Low | C-W | A | |
| **Partnership-- enough referrals between partner organisations** | | | |
| High | C | | |
| Middle | W | CM-A | |
| Low | | | |
| **Clinical engagement- clinical engagement in working groups** | | | |
| High | C | CM | |
| Middle | W | A | |
| Low | | | |
| **Clinical engagement- clinical leadership of each component of programme** | | | |
| High | C | CM | |
| Middle | W | | |
| Low | | A | |
| **Having previous programme before national partnerships** | | | |
| High | A | | |
| Middle | W | CM | |
| Low | | A | |
| **approach to the prevention** | | | |
| High | C | CM | |
| Middle | | | |
| Low | W | A | |
| **Funding- reliance on ACC funding** | | | |
| High | | | |
| Middle | C-W | CM | |
| Low | | A | |
| **Funding- challenges in inter-organisational contract** | | | |
| High | | | |
| Middle | C | | |
| Low | W | CM-A | |
| **IT- having E-referral between community- primary and secondary care.** | | | |
| High | | | |
| Middle | C | CM | |
| Low | W | A | |
| **Commitment to learning- formal platform for sharing knowledge and experiences** | | | |
| High | | | |

| | | | |
|---|---|---|---|
| Middle | C | CM | |
| Low | W | A | |
| **Commitment to learning- informal platform for sharing knowledge and experiences** | | | |
| High | | | |
| Middle | C-W | A | |
| Low | | CM | |
| **Care delivery-Community S&B-involving different ethnicities** | | | |
| High | C | CM | |
| Middle | | | |
| Low | W | A | |
| **Measuring and monitoring outcome- using full capacity of outcome dashboard** | | | |
| High | | | |
| Middle | | | |
| Low | | | |
| **Measuring and monitoring outcome**- outcome framework capacity in showing inter-organisational relationships | | | |
| High | | | |
| Middle | C | CM | |
| Low | W | A | |
| **Measuring and monitoring outcome- existing internal or external feedback and monitoring mechanism** | | | |
| High | C-W | CM | |
| Middle | | A | |
| Low | | | |
| **Partnerships- enough referrals from primary care** | | | |
| High | C | | |
| Middle | W | CM-A | |
| Low | | | |

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