# SUSTAINABILITY OF A COMMUNITY-BASED FALLS PREVENTION PROGRAM: A GROUNDED THEORY

By

**Meryl Patricia Lovarini**

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# Declaration

I, Meryl Lovarini, hereby declare that the work described in this thesis is my own. I am the principal researcher of all work contained in this thesis, including research work conducted in association with my PhD supervisors. This thesis does not contain written or published materials prepared by others except where acknowledged within the text and has not been submitted to any other university or institution as a part or whole requirement for any higher degree.

Name: Meryl Lovarini

Signed:

Date:  10 January 2012

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# Abstract

Research has shown that a range of interventions are effective for preventing falls among older people living in the community. Yet the translation of these interventions into practice remains a challenge and it has been unclear how interventions and programs once implemented can be sustained over time. In this thesis, two studies are presented investigating the sustainability of community-based falls prevention programs.

First, a systematic review of the literature was conducted to determine the extent and nature of research published on this topic. Fifteen disparate and methodologically diverse publications were included in the review. It was found that no theories have been empirically developed to explain or guide how sustainability can be achieved. A range of factors may influence whether programs continue or not, but it was unclear from the review which factors or combination of factors were the most important for program sustainability. While programs may be more likely to continue over time when supported by multi-strategic interventions, it was not clear which types of interventions were the most effective for enhancing the likelihood of program sustainability. These findings suggested that the influences on program sustainability were not well understood and as such it remained unclear how community-based falls prevention programs could be sustained over time.

The second and main study in this thesis, aimed to explore the factors influencing the sustainability of a community falls prevention program and to develop an understanding and explanation for how such programs can be sustained by organisations over time. To address these aims a qualitative study was conducted using a grounded theory methodology. The study was conducted in Western Sydney, New South Wales, Australia. Forty-two interviews were conducted with 34 participants from 15 organisations implementing or supporting the Stepping On falls prevention program. Observations were recorded in 69 field-notes. Data were collected from February 2007 to November 2009 and analysed systematically according to recognised processes for constructing grounded theory.

Participating organisations were from diverse service sectors including community health, welfare and local government. Based on a detailed analysis of the factors influencing program sustainability, a theory explaining how program

sustainability can be achieved was developed. Program sustainability can be achieved in diverse and changing contexts providing three conditions are met. The program must provide benefits and value, committed and skilled people must be available and ongoing support that matches the needs of the organisation must be received. While the nature of the program benefits, the type of people involved and the kind of support required varies with each organisation and may vary over time due to changing circumstances affecting the organisation, all three conditions must be met to ensure that organisations have sufficient motivation and capacity to sustain the program.

Organisations use a range of context-specific strategies to create, manage and control the conditions necessary for program sustainability. Working in partnership with others is a key strategy used by organisations to sustain the program. A network linking organisations with program partners, supporters, funders and experts may assist organisations in meeting the conditions necessary for achieving program sustainability, thus enhancing the motivation and capacity of organisations to sustain the program.

These findings advance our understanding of how community-based falls prevention programs can be sustained over time. The complementary nature of the theory developed in this study with the broad-based perspectives offered by complexity theory offers a promising approach for optimising and achieving program sustainability.

This study has resulted in a comprehensively developed and practical theory that can be applied in diverse and complex settings. The theory can now be used to guide practice, assist policy-makers and inform future research.

# Chapter One
# Introduction

## 1.1    Research Background

For older people living in the community, a fall can have severe consequences. There is strong evidence that falls can be prevented. However, the use of effective falls prevention interventions and programs in practice remains limited. Despite acknowledgement that the translation of findings from falls prevention research into practice is important for improving health outcomes, achieving sustainable community-based falls prevention programs is a challenge.

In this thesis I investigated the sustainability of falls prevention programs for older people living in the community. Two research studies are presented. In the first, I describe a systematic review of the published literature on the sustainability of community-based falls prevention programs.  In the second, the main study, I describe a qualitative research study investigating the sustainability of a community-based falls prevention program, the Stepping On program. My aim was to develop an understanding of how such programs can be sustained over time.

## 1.2    Research Need

Approximately 30% of adults aged sixty-five years and over and living in the community fall each year (World Health Organisation, 2007). For older people, falls can result in death, hospitalisation injury and restriction of activity (Lord, Sherrington, Menz, & Close, 2007, pp. 16-17). A fear of falling can lead to avoidance of everyday activities (Bertera & Bertera, 2008).  The rate of falls has changed little over time (Gribbin, Hubbard, Smith, Gladman, & Lewis, 2009; Hill et al., 2002). With projected increases in the population of older people, and without effective programs in place, falls will continue to be a serious health issue for a growing number of older people (McKay & Anderson, 2010).

Despite evidence that falls can be prevented (Gillespie et al., 2009), there has been less of an emphasis on the use of effective falls prevention interventions and programs in practice (Oliver, 2007). The focus of research therefore, must now shift to understanding how falls prevention interventions shown to be effective in research can

become effective programs in practice (Stevens, Baldwin, Ballesteros, Noonan, & Sleet, 2010).

Some studies have investigated issues surrounding the translation of falls prevention research into practice. Studies have focused on: program uptake by health professionals (Chou, Tinetti, King, Irwin, & Fortinsky, 2006); program participation by older people (Bunn, Dickinson, Barnett-Page, McInnes, & Horton, 2008); the process of program implementation (Banez et al., 2008) and strategies to promote program implementation (Murphy, Tinetti, & Allore, 2008). Despite a growing understanding of the factors influencing the adoption and implementation of falls prevention programs, factors influencing program sustainability are less understood (Clemson, Finch, Hill, & Lewin, 2010; Stevens et al., 2010).

Falls prevention programs can require significant investments in time, money and resources. However, a study conducted in the United States (US) found that falls prevention programs funded initially from research grants or as demonstration projects did not continue as regular programs (RAND Corporation, 2003). Yet, sustainable programs should be the goal to ensure that the health benefits of the program continue and that human and financial resources are not wasted (Johnson, Hays, Centre, & Daley, 2004).

Although some studies have investigated the factors affecting sustainability of health care programs in general, it is currently unknown which factors or combination of factors in which circumstances maximize the likelihood of program sustainability. Thus, there is a need to understand the factors influencing the sustainability of community-based falls prevention programs and how organisations can sustain their programs over time.

## 1.3    Research Aims and Questions

In the systematic review, my aim was to review the published literature on the sustainability of community-based falls prevention programs. The review was guided by three research questions:

1. What theories, model or frameworks have been developed for the sustainability of community-based falls prevention programs?
2. What factors affect the sustainability of community-based falls prevention programs?

3. What interventions are effective for promoting enhancing or achieving the sustainability of community-based falls prevention programs?

In the qualitative study, my aims were to explore the factors affecting sustainability of Stepping On, a community-based falls prevention program and to develop an understanding and explanation for how such programs can be sustained over time. In this study, I addressed two broad research questions:
1. What factors influence program sustainability?
2. How can program sustainability be achieved?

## 1.4    Scope of the Research

The research described in this thesis focused on falls prevention programs conducted for older people living in the community. Consequently, I did not explore the sustainability of falls prevention programs conducted in other settings such as hospitals or aged care facilities.

In this research, I focused solely on issues relevant to the sustainability of community-based falls prevention programs by organisations. As such, I did not investigate the sustainability of program effects for older people, the ability of older people to sustain fall prevention practices that may have been recommended during such programs or the perspectives of older people on program sustainability.

## 1.5    Research Significance

This research has resulted in two key outcomes. First, the findings from the systematic review provide a comprehensive summary of current research on the sustainability of community-based falls prevention programs. Second, the findings from the qualitative study provide for the first time, a theory for program sustainability that has been rigorously and comprehensively developed directly from the experiences of those engaged in falls prevention activities. As such, the theory will be of use to organisations, policy-makers and researchers.

## 1.6    Terms and Definitions

Here, I define key terms used within this thesis. A more detailed examination of these and related terms are provided in later chapters.

*Older People*

There is currently no consistently used definition for the term older people. While there is some variation across studies in how the term is defined, most studies usually refer to older people as adults aged 65 years and older (Lord et al., 2007, p. 5).

*Fall*

A fall is defined as "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level" (Australian Commission on Safety and Quality in Health Care, 2009, p. 4). In falls prevention research, a fall is defined as "an unexpected event where the participants come to rest on the ground, floor or lower level" (Lamb, Jorstad-Stein, Hauer, & Becker, 2005). This definition has been recommended as the standard for reporting of falls in research studies (McKay & Anderson, 2010).

*Community-Based Falls Prevention Program*

The term community-based falls prevention program, refers to programs that are conducted for older people who live at home or in similar residences such as independent living units in retirement villages with the aim of reducing the risk or rate of falls (Gillespie et al., 2009). Programs may consist of single, multiple or multi-factorial interventions (Australian Commission on Safety and Quality in Health Care, 2009, p. 5; Gillespie et al., 2009).

*Knowledge Translation*

Knowledge translation refers to the scientific study of how knowledge is accessed and used in health care (Straus, Graham, & Mazmanian, 2006). Knowledge translation is defined as "a dynamic and iterative process that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the health care system" (Straus, Tetroe, & Graham, 2009).

*Organisational Context*

Organisational context refers to the environment or setting in which the program is delivered (Rycroft-Malone, 2010) and encompasses the internal and external factors affecting the organisation.

*Program Adoption*

Program adoption refers to the decision of an organisation to use a new program (Rabin, Brownson, Haire-Joshu, Kreuter, & Weaver, 2008; Rogers, 2003, p. 417).

*Program Implementation*

Program implementation is the process of putting the program into use within a setting (Rabin et al., 2008; Rogers, 2003, p. 417).

*Program Sustainability*

Multiple definitions for program sustainability have been described in the literature and there is currently no consensus on a standard definition (Pluye, Potvin, & Denis, 2004a; St Leger, 2005). In general, sustainability refers to the phenomenon of program continuation (Shediac-Rizkallah & Bone, 1998). In this thesis, program sustainability refers to the continuation of health care programs by organisations over time.

*The Stepping On Program*

Stepping On is a community-based falls prevention program that has been shown in a randomized controlled trial to reduce falls, improve self-efficacy and increase the use of protective behaviours (Clemson et al., 2004). The program focuses on the risk factors for falls, emphasises exercise and utilizes a variety of techniques to enable individual behaviour change. The program is conducted in a small group format and comprises seven weekly sessions, a home visit for each participant and a booster group session at three months.  Stepping On is the focus of the main study in this thesis as the program is recognised both within Australia and internationally as an effective intervention for preventing falls (Australian Commission on Safety and Quality in Health Care, 2009; National Center for Injury Prevention and Control, 2008a).

*Grounded Theory*

Grounded theory is a qualitative research methodology that enables the generation of theory to explain phenomena. Using an inductive approach, the theory is 'grounded' in the data provided by the research participants, all of whom have experienced the phenomenon under investigation (Cresswell, 2007, p. 63).

## 1.7    Thesis Overview

This thesis contains twelve chapters. In this chapter I have outlined the need for, scope and significance of the research and described the research aims and questions.

In Chapters Two and Three I review the literature relevant to the prevention of falls among older people living in the community. In Chapter Two, the prevalence and impact of falls are outlined, current policies and activities to prevent falls in Australia and internationally are reported and the interventions known to be effective for preventing falls are described. In Chapter Three I show that the use of falls prevention programs shown to be effective in research is limited in practice and discuss the reasons for why this may be so. From there, I introduce the concept of knowledge translation and the importance of the knowledge translation process for the adoption, implementation and sustainability of community-based falls prevention programs. Finally, in this chapter I highlight the importance of program sustainability in health care and review the research that has been conducted on this topic. In Chapter Four I present the first research study in this thesis: a systematic review of the published literature on the sustainability of community-based falls prevention programs.

The main research study, a qualitative inquiry into program sustainability, is presented in Chapters Five to Eleven. In Chapter Five I outline the study rationale and introduce Stepping On, the community-based falls prevention program featured in the study. In Chapter Six, I justify the selection of a grounded theory methodology and explain the processes for participant recruitment, data collection, data analysis and theory construction. The strategies used to enhance study rigour and quality are also described. The characteristics of the participating organisations and study participants are presented in Chapter Seven.

The findings from the qualitative study are presented in Chapters Eight through Eleven. An overview of the grounded theory explaining how program sustainability can be achieved is presented in Chapter Eight. In Chapter Nine I outline the program sustainability outcomes for each participating organisation and review the impact of organisational characteristics on program sustainability. The key elements comprising the grounded theory are explained in Chapter Ten. I then draw the study findings together in Chapter Eleven and illustrate the theory using two case studies.

In the final chapter, Chapter Twelve, I examine the study findings in relation to the falls prevention and program sustainability literature, interpret the findings in

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relation to the perspectives offered by complexity theory and provide recommendations for how the findings can be used to guide practice, policy and research.

# Chapter Two
# Falls and Older People Living in the Community

## 2.1    Introduction

For older people who fall, the consequences can be severe. Falls can result in physical injury, reduced quality of life and psychological sequelae. In this chapter I review the literature relevant to the prevention of falls among older people living in the community and show that while falls can have adverse impacts, there is strong evidence that falls in this population group can be prevented.

## 2.2    Definitions used in Falls Prevention Research

There is no standard definition for the term older people. Most falls prevention research studies however, usually refer to older people as adults aged sixty-five years and older (Lord et al., 2007, p. 5).

Variations in how a fall is defined have been reported (Zecevic, Salmoni, Speechley, & Vandervoort, 2006). To promote consistency in definition,  a fall has been defined as "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level" (Australian Commission on Safety and Quality in Health Care, 2009, p. 4). In falls prevention research, a fall is defined as "an unexpected event where the participants come to rest on the ground, floor or lower level" (Lamb et al., 2005). This definition has been recommended as the standard for reporting of falls in research studies (McKay & Anderson, 2010).

Community-based falls prevention programs are programs conducted for older people who live at home or in similar residences such as independent living units in retirement villages (Gillespie et al., 2009). These programs aim to reduce the risk of falls, the rate of falls or both and may consist of single, multiple or multi-factorial interventions (Australian Commission on Safety and Quality in Health Care, 2009, p. 5; Gillespie et al., 2009).

## 2.3   Prevalence of Falls

According to the World Health Organisation (WHO) between 28 to 35% of community-dwelling older adults aged 65 years and over fall each year (2007). Rates as high as 40% have been reported (Rubenstein, 2006). Variations in these estimates may be due to the use of different research methodologies across epidemiological studies, differences in the selected study populations and variations in how falls are defined, categorised and measured (Masud & Morris, 2001). Under-reporting of falls has also been suggested as a reason for these discrepancies in prevalence rates, as the majority of non-injurious falls are not reported to health services (Allen, 2004; McKay & Anderson, 2010; Roe et al., 2009). Despite differences in estimates, it is generally acknowledged that approximately 30% of older people aged 65 years and over who live in the community fall each year (Finlayson & Peterson, 2010; McKay & Anderson, 2010; Rubenstein & Josephson, 2006).

The population of older adults is growing. Worldwide the number of adults aged 60 years and over is growing faster than any other age group (World Health Organisation, 2007). Hence, it has been predicted that as the number of older adults increase and without effective interventions, the number of older adults who fall will also increase (McKay & Anderson, 2010; Sleet, Moffett, & Stevens, 2008; Stevens, Mack, Paulozzi, & Ballesteros, 2008; Stevens, Ryan, & Kresnow, 2006; World Health Organisation, 2007).

The prevalence of falls may be influenced by certain socio-demographic factors. For example, it is known that the rate of falls increases as age increases (Gribbin et al., 2009; Lord et al., 2007, pp. 8-9). Prevalence rates of 40% have been reported for people aged 85 years and over (von Heideken Wagert, Gustafson, Kallin, Jensen, & Lundin-Olsson, 2009) and up to 48% for people aged 89 years and over (Formiga, Ferrer, Duaso, Olmedo, & Pujol, 2008). Given that the rate of falls are higher for people aged 85 years and older, the number of people who fall will increase as more people move into this age segment.

The rate of falls also varies with cultural background. Fall rates are generally higher in predominantly White population groups compared to non-White populations such as older Hawaiian, Japanese, Black, Hispanic and Asian/Pacific Islander adults (Lord et al., 2007, p. 9). Data from one study investigating falls among older Koreans reported a falls rate of approximately 15% (Shin, Kang, Hwang, & Jung, 2009). Despite

70% of the world's older population live in developing countries, data on falls rates for these countries are lacking (World Health Organisation, 2007).

The influence of socio-economic status (SES) on the prevalence of falls is unclear due to contradictory findings from a limited number of studies (Bloch et al., 2010; Todd, Ballinger, & Whitehead, 2010). In their review, Todd, Ballinger and Whitehead (2010) found there was considerable variation among studies in how SES was measured and reported, and as such, concluded that there was limited evidence overall of an association between socio-economic factors and falls and that more research on this topic was warranted.

The rate of falls has not changed over time. Gribben and colleagues (2009) reviewed the incidence of falls among older people attending primary care clinics in the United Kingdom (UK) and found that that the incidence of recorded falls for the period 2003 to 2006 remained constant. Thus, a combination of unchanging fall rates and increasing numbers of older people suggests that a substantial number of older people are expected to fall in the future.

### 2.3.1  *Prevalence of Falls in Australia*

The prevalence of falls in Australia, the country in which this research was conducted, mirrors the prevalence reported internationally. Approximately 30% of older people living in the community in Australia fall each year (Bradley & Pointer, 2009; Hill et al., 2002). This equates to a substantial number of people, given that in Australia in 2006, approximately 2.7 million people were aged 65 years and over, 94% of whom lived in the community (Australian Institute of Health and Welfare, 2007, p.11).

The number and proportion of older people in Australia is increasing as a result of low fertility levels and increased life expectancy (Australian Institute of Health and Welfare, 2007, p.5). It has been estimated that for the period 2006 to 2036 the number of older people will double from 2.7 to 6.3 million, representing a change from 13% to 24% of the total Australian population (Australian Institute of Health and Welfare, 2007, p.5). The number of Australians aged 85 years and over has doubled over the past two decades and is projected to increase more rapidly than any other age group (Australian Institute of Health and Welfare, 2007, p.6). Given that the prevalence of falls increase with advancing age, it is reasonable therefore, to expect that the numbers of Australians aged 85 years and over who fall, will grow over time.

The rate of falls in older people in Australia also varies according to cultural background. Thirty-five percent of older people in Australia were born overseas, with 39% from an English-speaking background and 61% from non-English speaking backgrounds (Australian Institute of Health and Welfare, 2007, p. 4). From 2011 to 2026 the number of older people from a culturally and linguistically diverse (CALD) background is expected to grow by 44% (Gibson, Braun, Benham, & Mason, 2001, p. 13). Thus by 2026, over one in four of all Australians aged 80 years and over will be from a CALD background, equating to approximately 1 million people (Bradley & Harrison, 2007, p. 2; Gibson et al., 2001, p. 13).

Rates of fall-related hospitalisations are lower for older people with CALD backgrounds compared to those for the older people born in Australia (Bradley & Harrison, 2007, p. 7). Despite these lower rates, given the increasing number s of older people from CALD backgrounds, the number of older people from CALD communities who fall is expected to rise in the future. Since increasing age is associated with increased rates of falling, the ageing of Australia's population from CALD backgrounds must be taken into account in falls prevention strategies (Bradley & Harrison, 2007, p. 31). The influence of socio-economic factors on falls in Australia has been investigated in one study, in which the authors found that a lower educational status and income levels were associated with a higher risk of falls (Gill, Taylor, & Pengelly, 2005).

Evidence from Australian studies suggest that the prevalence of falls remains unchanged (Hill et al., 2002) and that the rate of falls related hospitalisations is increasing (Bradley & Pointer, 2009, p. 39). Thus, with projected increases in the population of older people in Australia, falls may pose a serious health concern for an even greater number of older people.

In summary, approximately 30% of adults aged 65 years and over who live in the community fall each year. The rate of falls increases with advancing age and the rate of falling has changed little over time. Given the expected rapid growth in the numbers of older people over the next few decades, falls have the potential to be a serious issue for a substantial number of older people.

## 2.4    Impact and Consequences of Falls

The consequences of falls can be serious. Falls are associated with a variety of negative consequences for older people, their families and the health system.

### 2.4.1 Mortality

Falls account for 40% of all injury-related deaths and 1% of all deaths in people aged 65 years and over (Lord et al., 2007, p. 15; World Health Organisation, 2007, p. 2). One study from the UK found that death rates from falls were higher in fallers compared to non-fallers and higher in recurrent fallers (Gribbin et al., 2009). Similar findings have been recorded in a study of older people from Norway (Sylliaas, Idland, Sandvik, Forsen, & Bergland, 2009). Mortality data from the US indicates that the rate of fatal falls for people aged 65 years and over increased for the period 1993-2003 (Stevens et al. 2006). In a separate study Stevens and colleagues reported that over 15,000 older people in the US died as a result of a falls in 2005 (Stevens et al., 2008).

In Australia, more than 1000 older people die as a result of a fall in a calendar year (Bradley & Harrison, 2007, p. 1). Hill and colleagues aimed to establish trends in falls-related mortality in two states in Australia (2002). They found that mortality rates for the 10-year period 1988 to 1997 had declined in one state but remained unchanged in the other. The authors also reported that in both states falls-related mortality rates were substantially higher for those aged 85 years and over.

### 2.4.2 Hospitalisations and Attendance at Emergency Departments

Falls are the leading cause of injury-related hospitalisations and emergency department attendances in people aged 65 years and over (Lord et al., 2007, p. 15; Sartini et al., 2009). Scuffham, Chaplin and Legood (2003) analysed UK hospitalisation data and showed that in 1999, over 600,000 people aged 60 years and over attended an accident and emergency department with a fall-related injury and over 200,000 people were admitted to hospital. The authors also demonstrated that the rate of falls-related hospital admissions and emergency department attendances substantially increased with increasing age, with highest rates recorded for people aged 75 years and over. Rubenstein (2006) reported that around 50% of older people admitted to hospital due to a fall, would still be alive 12 months later. Stevens (2006) found that in 2003, 1.8 million older people were treated in emergency departments as a result of a fall.

Falls-related hospitalisation rates are increasing. Hartholt and colleagues (2010) examined trends in fall-related hospital admissions in the Netherlands for the period 1981 to 2008 and found that there had been a 137% increase in admissions during this

period. In addition, the authors found that the number of days in hospital associated with these admissions fell by 20%. The authors concluded that these reduced admission lengths were a direct result of an increased demand for hospital beds caused by the increase in falls-related injuries.

Of the 30% of older Australians living in the community who fall each year, 20% will require hospitalisation due to an injury related to the fall (Bradley & Harrison, 2007, p. 1). Over 66,000 older Australians were hospitalised with a fall-related injury during the period 2005 to 2006, representing a 10% rise in hospital admissions compared to the preceding period of 2003-2004 (Bradley & Pointer, 2009, p. 3; Clemson et al., 2010).

As with the rate of falls, the rate of falls-related hospitalisations is higher in Australian born older people, compared to those born in other countries (Bradley & Harrison, 2007, p. 7). For example, from 2000 to 2003, Bradley & Harrison estimated that fall-related hospitalisations were 2,498.1 per 100,000 population for Australian born older people, compared to older people born in New Zealand (NZ), UK, Ireland, US, Canada and South Africa (2070.3 per 100,000) and those born from all other countries (1788.6 per 100,000).

Being admitted to hospital with a fall-related injury is not without additional risks. For example, it has been shown that older people who fall in the hospital setting are at a higher risk of falling at home following discharge (Davenport et al., 2009). In addition, attending an accident and emergency department as a result of a fall is no guarantee that the cause of the fall will be addressed, as it has been shown that interventions in emergency departments tend to focus solely on treatment of the fall-related injury rather than on prevention of future falls (Kalula, de Villiers, Ross, & Ferreira, 2006; Miller et al., 2009).

### 2.4.3    Fall-Related Injuries

Precise numbers of how many older people are injured as a result of falling are not known. Lord, Sherrington, Menz and Close (2007, p. 15) have estimated that for older people who fall, 22% to 60% will sustain an injury.  Of these, 15% will sustain a serious injury, 6% will have a fracture and 1.5% will have a hip fracture. The World Health Organisation (2007) have estimated that the number of injuries caused by falls

affecting older people will increase by 100% by the year 2030, unless preventative measures are taken.

In Australia, in 2006, fall-related injury rates were estimated at 2,415 per 100,000 population; an increase from 2,295 per 100,000 in 2003 (Bradley & Pointer, 2009, p. 3). Bradley and Pointer reported that a third of all fall-related injuries were related to the hip and thigh and that fall-related injury rates increased with advancing age.

### 2.4.4   Visits for Medical Treatment

While older people may be admitted to hospital or seek treatment at the emergency department for a fall-related injury, many also seek medical treatment from their general practitioners. For example, in the UK, it has been estimated that over 475,000 fall events are recorded in general practice each year (Gribbin et al., 2009). Hill and colleagues reported in their Australian study that 10% of falls resulted in an injury requiring medical treatment (Hill et al., 2002). One study conducted in the US found that in the three-month period prior to being surveyed, 5.8 million older people (15.9% of those surveyed) reported falling at least once (Stevens et al., 2008). In the same study, of those who fell, 31.3% reported that they sustained a fall-related injury necessitating a visit to the doctor or which resulted in activity restriction for at least one day.

### 2.4.5   Activity Restriction

Falls, both injurious and non-injurious, result in a restriction of activity. Studies have shown that fallers are more likely to report difficulties with activities of daily living, a decline in social activities and reduced activity levels (Lord et al., 2007, p. 17). Interviews conducted with older people about their recent fall experiences indicated that falls can result in a decline in health status, activities of daily living and quality of life (Roe et al., 2009). As well, it has been suggested that as activity levels decline, physical de-conditioning and weakness increase, thus compounding the risk of further falls (Rubenstein, 2006).

### 2.4.6   Fear of Falling

Declines in activity and loss of confidence can also result from a fear of falling. Fear of falling is common among older people, with prevalence rates estimated at up to 92% in those who have fallen and 65% in those who have not (Lord et al., 2007, pp. 17-18). A fear of falling can lead to avoidance of everyday activities (Yardley & Smith, 2002). Bertera et al. (2008) analysed survey responses from 3474 older people aged 65 years and over to investigate the relationship between fear of falling and nine every-day activities necessary for independent community living. The authors found that fear of falling was the most important predictor of activity avoidance and that the impact of fear of falling on activity avoidance increased with the number of falls experienced.

It has been found however, that perceptions of falls risk varies among older people (Gill et al., 2005).  For example in a recent study, Delbaere and colleagues (2010) measured both the actual and perceived risk of falling in 500 older people aged between 70 to 90 years, to investigate how disparities between the two may affect future falls risk. The authors found that actual and perceived fall risk were both independent predictors of future falls, that many older people either under-estimated or over-estimated their risk of falls and that high levels of perceived risk were likely to result in future falls. As a result, the authors recommended that both actual and perceived fall risk should be assessed when conducting fall risk assessments and that interventions should then be tailored accordingly to that risk profile.

While a fear of falling is a significant issue, interviews conducted with older people revealed concomitant fall-related fears such as a fear of physical injury, loss of mobility, loss of independence, institutionalisation and becoming a burden to others (Lee, Mackenzie, & James, 2008; Tischler & Hobson, 2005). Negative psychological consequences for primary caregivers of those who fall, have also been reported (Faes et al., 2010).

### 2.4.7   Risk of Entry into Residential Care

Falls are associated with a higher risk of nursing home admission. Over a three year period, Tinetti and Williams (1997) tracked 1103 people aged over 71 years and living in the community to determine if falls impacted on the risk of admission to a nursing home. The authors found a significant positive association between falling and nursing home admission. When compared to older people who do not fall and adjusting for

other risk factors, the relative risk (RR) of admission to nursing home was higher in older people who had fallen once without serious injury (RR of 3.1), had fallen two or more times without serious injury (RR of 5.5) and who had fallen at least once and experienced a serious injury as a result (RR of 10.2). As well, it has been reported that high levels of physical and psychological stress experienced by informal unpaid caregivers, usually family and friends, can also lead to entry of older fallers into residential aged care (Katz & Shah, 2010).

### 2.4.8   Financial Costs

Aside from the physical, psychological and social costs associated with falls, there are considerable financial costs. For example, money spent on the treatment of falls-related hip fractures alone in the UK, has been estimated to be approximately £1.7 million per year (McKay & Anderson, 2010).

Davis et al. (2010a) conducted a systematic review of international studies to estimate the economic burden of falls among older people aged 60 years and over and living in the community. Cost data associated with hospital care (inpatient and outpatient), emergency or ambulance care, medications, personal (out-of-pocket expenses) and non-injurious falls were extracted from each study where available, by the review authors. Seventeen studies conducted in the US, the UK, Europe and Australia were included in the review. Quality assessment of each study was conducted and cost data were converted for each study into US dollars at 2008 prices. Despite differences in research methodologies used in the included studies, the results of the review indicated that the mean cost of falls ranged from US $3,476 per faller, to US$10,749 per injurious fall and US$26,483 per fall requiring hospitalisation. Higher mean cost estimates have been reported in a separate review conducted by Heinrich, Rapp, Rissmann, Becker and Konig (2010).

In Australia, acute care hospital costs for fall-related injuries for the period 2003 -2004 was approximately $566 million and up to 1 billion dollars for costs overall (Bradley & Pointer, 2009, p. 1). Given that approximately 30% of people aged 65 years and over fall each year, these figures represent a substantial financial cost that is set to increase as the older population increases in number.

## 2.5 Policies, Plans and Activities to Prevent Falls

Given the many and substantial adverse consequences of falls among older people, a range of actions have been undertaken by governments and organisations to address this serious and growing problem.

### *2.5.1 Actions by Governments*

Policies and plans to address the issue of falls in older people have been developed by some governments. For example, in New Zealand (NZ), the National Falls Prevention Strategy was developed to reduce the incidence and severity of fall-related injuries and to guide co-ordinated activities of government, health agencies, service providers and non-government and community organisations (Accident Compensation Corporation, 2005). From this strategy, two falls prevention programs, the Otago Exercise Program and Tai Chi programs were initially funded at a nationwide level by the NZ government from 2007 (Campbell & Robertson, 2010), although funding for the Otago Exercise Program has since ceased (Accident Compensation Corporation, 2009).

In Canada, a skill development program, the Canadian Falls Prevention Curriculum (CPFC) has been developed and made available electronically and via training workshops with funding provided by the Canadian government (Scott, Wagar, Sum, Metcalfe, & Wagar, 2010). In the US, the National Center for Injury Prevention and Control is funded to address falls prevention among older people. Taking a public health approach, the Center aims to define, describe and track falls, identify the causes of falls, develop and test falls prevention interventions and translate, disseminate and implement effective falls prevention interventions into practice (Noonan, Stevens, & Baldwin, 2011).

In Australia, at a federal level, the prevention of injuries has been identified as a national health priority (Pointer, Harrison, & Bradley, 2003), with the prevention of falls and fall-related injuries among older people as a key focus area within this policy initiative (National Public Health Partnership, 2005). Policies, plans and activities aimed at preventing falls have been developed at state and local levels within Australia (Clemson et al., 2010). Despite these activities however, actions at the level of government have generally remained at strategic levels with less emphasis on broad and longer term infrastructure investments (Clemson et al., 2010). The need for co-

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ordinated implementation strategies to supplement falls prevention policies and action plans has also been acknowledged by others (Watson & Mitchell, 2011).

### 2.5.2  Actions by Organisations

Various falls prevention societies, coalitions and networks have been developed, all with the aim of reducing the growing number of falls and fall-related injuries. Examples at an international level include the Australian and New Zealand Falls Prevention Society, created in 2006 (http://www.anzfallsprevention.org/) and the Falls Free Coalition in the US, formed in 2004 (http://www.healthyagingprograms.org/content.asp?sectionid=113 ). Despite operating since 2003, formal funding for the Prevention of Falls Network Europe (ProFaNE) (Skelton & Todd, 2007), was withdrawn in early 2011. The network is currently continuing as an unfunded website, in which members are asked for a small fee to support its continuation (http://www.profane.eu.org/). More localised falls prevention networks and centres have also been developed to meet the needs of specific geographical areas. Examples include the New South Wales (NSW) Falls Prevention Network in Australia (http://fallsnetwork.powmri.edu.au/) and the Fall Prevention Centre of Excellence in California in the US (http://www.stopfalls.org/ ). Key activities of these organisations and networks include information sharing between members, conferences to disseminate research findings, implementation of research studies and the development of fall-related resources.

## 2.6  Interventions for Preventing Falls

Many studies have investigated the effectiveness of interventions to prevent falls among community dwelling older people. Systematic reviews have been conducted with the aim of synthesising and evaluating this large body of research. Findings from these reviews show that a variety of interventions are effective for preventing falls.

### 2.6.1  Systematic Reviews of Interventions to Prevent Falls

Gillespie and colleagues (2009) conducted a rigorous and comprehensive systematic review of randomised controlled trials (RCTs) evaluating the effectiveness of interventions to prevent falls among community-dwelling older people. The review included 111 trials, published up to May 2008 including a total of 55,303 participants.

Falls prevention interventions were categorised as either a single, multiple or multi-factorial intervention. Single interventions were defined as one intervention delivered to all participants. A multiple intervention was defined as consisting of a fixed combination of interventions delivered to all participants. A multi-factorial intervention was defined as an intervention where participants received different combinations of interventions based on an individual assessment.

The authors assessed the effect of these interventions on two key outcomes, the rate of falls and the risk of falling. The rate of falls was based on the number of falls reported for each group in the included trials and then expressed as a rate ratio (RaR). The risk of falling was based on the number of fallers reported for each group, in the included trials and then expressed as a risk ratio (RR).

Key results of the review are summarised in Table 2.1. The findings of the review indicated that multi-component exercise and tai chi programs were effective in reducing both the rate of falls and the risk of falling. Other single interventions effective for preventing falls included medication management in specific groups of older people, home environmental modification for older people at high risk of falling and some surgical procedures targeting specific conditions. Some multiple interventions, such as the Stepping On program, were effective in preventing falls, especially those interventions including an exercise component. However, interventions contained in this category were heterogeneous making multiple comparisons difficult. Multi-factorial interventions were effective in reducing the rate of falls but not the risk of falling. The authors of the review concluded that exercise interventions were effective for reducing both the rate and risk of falling but that more research was required to confirm the context in which other interventions, such as multi-factorial interventions were effective.

Table 2.1 Interventions Shown to be Effective for Preventing Falls
Summarised from Gillespie et al. (2009)

| Intervention Category | Intervention Type | Number of Trials | Number of Participants | Rate of Falls (RaR) 95% Confidence Interval | Risk of Falling (RR) 95% Confidence Interval |
|---|---|---|---|---|---|
| **Single Intervention** | *Exercise* | | | | |
| | Multiple-component group exercise | 14 (RaR), 17 (RR) | 2364 (RaR), 2492 (RR) | 0.78 (0.71 to 0.86) | 0.83 (0.72 to 0.97) |
| | Individually prescribed multiple-component home-based exercise | 4 (RaR), 3 (RR) | 666 (RaR), 566 (RR) | 0.66 (0.53 to 0.82) | 0.77 (0.61 to 0.97) |
| | Tai Chi | 4 (RaR), 4 (RR) | 1294 (RaR), 1278 (RR) | 0.63 (0.52 to 0.78) | 0.65 (0.51 to 0.82) |
| | *Medication* | | | | |
| | Vitamin D supplementation in people with low vitamin D levels | 2 (RaR), 3 (RR) | 260 (RaR), 562 (RR) | 0.57 (0.37 to 0.89) | 0.65 (0.46 to 0.91) |
| | Withdrawal of psychotropic medication | 1 (RaR) | 93 (RaR) | 0.34 (0.16 to 0.73) | No significant effect |
| | Prescribing modification program for primary care physicians | 1 (RR) | 659 (RR) | Not reported | 0.61 (0.41 to 0.91) |
| | *Environment* | | | | |
| | Home safety for people at high falls risk | 2 (RaR), 2 (RR) | 491 (RaR), 451 (RR) | 0.56 (0.42 to 0.76) | 0.78 (0.64 to 0.95) |
| | Home safety interventions for people with severe visual impairment | 1 (RaR, RR) | 391 (RaR, RR) | 0.59 (0.42 to 0.82) | 0.76 (0.62 to 0.95) |
| | *Footwear* | | | | |
| | Anti-slip shoe device used in icy conditions | 1 (RaR) | 109 (RaR) | 0.42 (0.22 to 0.78) | Not reported |
| | *Surgery* | | | | |
| | Pacemakers in people with carotid sinus hypersensitivity | 1 (RaR) | 171 (RaR) | 0.42 (0.23 to 0.75) | Not reported |
| | First eye cataract surgery | 1 (RaR) | 306 (RaR) | 0.66 (0.45 to 0.95) | No significant effect |

| Intervention Category | Intervention Type | Number of Trials | Number of Participants | Rate of Falls (RaR) 95% Confidence Interval | Risk of Falling (RR) 95% Confidence Interval |
|---|---|---|---|---|---|
| **Multiple Intervention** | Exercise, education, home safety (Stepping On Program) | 1 (RaR) | 285 (RaR) | 0.69 (0.50 to 0.96) | Not reported |
| | Exercise, home safety | 1 (RR) | 272 (RR) | Not reported | 0.76 (0.60 to 0.97) |
| | Exercise, vision assessment | 1 (RR) | 273 (RR) | Not reported | 0.73 (0.59 to 0.91) |
| | Exercise, vision assessment, home safety | 1 (RR) | 272 (RR) | Not reported | 0.67 (0.51 to 0.88) |
| | Education, access to geriatric clinic | 1 (RR) | 815 (RR) | Not reported | 0.77 (0.63 to 0.94) |
| **Multi-factorial Intervention** | Individual assessment followed by a multi-factorial intervention | 15 (RaR) | 8141 (RaR) | 0.75 (0.65 to 0.86) | No significant effect |

The effectiveness of multi-factorial interventions for preventing falls has been questioned following the results from some RCTs showing a lack of effect (Ciaschini et al., 2009; de Vries et al., 2010; Gates, Fisher, Cooke, Carter, & Lamb, 2008; Salminen, Vahlberg, Salonoja, Aarnio, & Kivelä, 2009) and a lack of effect when such programs were compared directly to exercise programs alone (Campbell & Robertson, 2007; Petridou, Manti, Ntinapogias, Negri, & Szczerbinska, 2009).

However, Mahoney (2010) has argued that close attention needs to be paid to the features of multi-factorial interventions that have been shown to be effective. Key features to consider include: the content of the intervention (that is, the components considered integral to its success); the process in which it was delivered (the way and means in which the intervention content is delivered to maximise uptake by the individual) and the choice of target group (that is, is the intervention targeted at the most appropriate group?). Hawe, Shiell, Riley and Gold (2004) have also argued that the context in which the intervention is implemented may influence the effectiveness of the intervention and as such, recommend that an evaluation of contextual factors should be included within intervention studies.

Better evaluation and reporting of the characteristics of both the intervention and the context in which it is delivered, may help to explain why some interventions were successful, why the results in trials with negative findings were obtained and enable the most optimal combination of these factors to be determined (Lamb et al., 2011; Michie, Fixsen, Grimshaw, & Eccles, 2009). The use of these types of evaluative approaches have been reported in some falls prevention studies (Bleijlevens et al., 2008; Hendriks et al., 2005; Logghe et al., 2010; Reelick, Faes, Esselink, Kessels, & Olde Rikkert, 2011).

Despite these considerations, the range of single, multiple and multi-factorial interventions shown to be effective in the Cochrane review by Gillespie and colleagues, have been recommended for practice in recently published evidence-based clinical guidelines (American Geriatrics Society & British Geriatrics Society, 2010; Australian Commission on Safety and Quality in Health Care, 2009).

Other rigorous systematic reviews have been conducted evaluating specific interventions for preventing falls in community dwelling older people. Clemson and colleagues (2008c) conducted a systematic review and meta-analysis of RCTs

investigating the effectiveness of home interventions to prevent falls. Six RCTs involving 3298 participants were included in the analysis. The results indicated that comprehensive, properly focussed home interventions were effective in reducing the risk of falls by 21%, corresponding to a relative risk (RR) of 0.79 [95%CI = 0.65 to 0.97]. The effect was stronger for those at a higher risk of falls. In this higher risk group, the risk of falling was reduced by 39% (RR = 0.61 [95%CI = 0.47 to 0.79]). Assessments and interventions that address the interactions between older people and their home environment have also been recommended by others (Pynoos, Steinman, & Nguyen, 2010).

The effectiveness of exercise in preventing falls was investigated in a systematic review and meta-analysis conducted by Sherrington et al. (2008). Forty-seven RCTs involving 9603 participants were included. The authors found that exercise reduced the rate of falling by 17% (RR = 0.83 [95%CI = 0.75 to 0.91]). Stronger effects were found for exercise programs where there were higher amounts of exercise during the trial period, when challenging balance exercises were included and which did not involve a walking program. These exercise programs resulted in a 42% reduction in the rate of falls (RR = 0.58, 95%CI = 0.48 to 0.69). Similar findings have been reported in a recent update of this meta-analysis accompanied by best practice recommendations (Sherrington, Tiedemann, Fairhall, Close, & Lord, 2011).

The effectiveness of Vitamin D for the prevention of falls has been confirmed in a recent systematic review and meta-analysis (Kalyani et al., 2010). The results of ten RCTs included in the analysis and involving 2,932 participants, showed that vitamin D therapy reduced the risk of falls by 14% (RR=0.86, [95% CI = 0.79 to 0.93]).

Studies of falls prevention interventions using broader population-based approaches have also been systematically reviewed. McClure et al. (2005) conducted a systematic review of studies evaluating co-ordinated, community-wide, multi-strategic interventions aimed at reducing fall-related injuries. Six controlled trials were included in the review. Meta-analysis was not possible due to the heterogeneity of the included studies. The results of the review indicated that population-based interventions may result in a relative reduction in fall –related injuries, from 6% up to 33%. Despite these positive effects, however, many of the included studies had methodological limitations and none were RCTs. Although more recent studies evaluating population approaches

to falls prevention have been published (McClure et al., 2010), high quality RCTs are still needed to demonstrate the effectiveness of this approach.

### *2.6.2 Cost-Effectiveness of Falls Prevention Interventions*

The cost effectiveness of falls prevention interventions has been investigated in some studies. In their systematic review, Gillespie et al. (2009) examined eight studies reporting the cost-effectiveness of falls prevention interventions. The authors concluded that cost-effectiveness was established for some interventions including; a home safety assessment and modification program for those with severe vision loss and those recently in hospital; 16 weeks of Tai Chi classes; one multi-factorial program targeted to individual risk factors; the Otago Exercise Program; gradual withdrawal of psychotropic medication and first eye cataract surgery. Despite these conclusions, comparisons across studies were difficult due to the varied methodologies used in each study.

In the same review, the potential for cost savings were demonstrated in three of the included studies. The Otago Exercise Program resulted in savings in the cost of fall-related hospital admissions. A home safety program delivered to those who had previously experienced a fall also resulted in some cost savings. Cost savings in the number of medical treatments prevented were reported for one study investigating a multi-factorial intervention for people with more than 4 of 8 targeted risk factors.

Frick, Kung, Parrish and Narret (2010) analysed the cost-effectiveness of seven categories of interventions shown to be effective in preventing falls in an earlier version of the Cochrane review conducted by Gillespie et al., and published in 2003. The seven interventions included in the analysis were: 1) individualised multi-factorial approaches for older people in general (four trials); 2) individualised multi-factorial approaches for older people at high risk of falling (five trials); 3) home modifications for older people at high risk of falling (three trials); 4) vitamin D supplementation (three trials); 5) management of medication affecting the central nervous system (one trial); 6) muscle strength and balance training (three trials) and 7) Tai Chi (one trial). Costs were estimated for each intervention and compared to standard care. From their analysis, the authors concluded that two interventions, medical management of psychotropic drugs and group-based tai chi were the least costly and most effective options. However, this conclusion was based on data from two trials only. For those interventions evaluated in

a larger number of trials, vitamin D supplementation and home modifications were considered to be the least-expensive and most effective options. These conclusions however, were based on intervention studies published only up until 2003.

Day et al. (2009) conducted epidemiological modelling of seven interventions known to be effective for preventing falls among older people in the community, to determine the potential impact, costs and benefits of these interventions at the population level. The authors determined that home hazard assessment and modification delivered by occupational therapists to older people with a recent history of falls represented the best falls prevention investment. Other interventions were considered a good investment but only under certain circumstances. For example, Tai Chi programs may represent good value, but only if there is substantial initial investment, there is high population uptake or if the cost per participant can be lowered in the community setting. The authors concluded however, that the cost-effectiveness of many of the interventions included in their analysis could vary according to the processes used to implement the intervention. Cost effectiveness may rest therefore, on efforts to improve the population uptake of the intervention or to decrease the cost of the intervention per participant.

Davis and colleagues (2010b) conducted a systematic review of the published literature to determine which falls prevention interventions offered the best value for money. The results of the review indicated that three interventions offered cost savings: 1) individually customised multi-factorial programs for those with four or more of the eight targeted risk factors, 2) the Otago Exercise program for people aged 80 years and over when delivered in the home, and 3) a home safety program for those with a previous fall. The cost-effectiveness of preventive home visits targeting medical, functional, psycho-social and environmental factors to prevent falls remains unclear (Corrieri, Heider, Riedel-Heller, Matschinger, & Konig, 2011).

The cost-effectiveness of the Stepping On program was evaluated in a recent review. Church, Goodall, Norman & Hass (2011) conducted a systematic review and meta-analysis to compare the cost-effectiveness of falls prevention interventions for adults aged 65 years and over and living in the community. The findings of the review indicated that the most cost-effective strategy for preventing falls was Tai Chi. Stepping On was found to be similar in cost-effectiveness to group-based exercise programs.

Given the variation in results across studies and in how cost-effectiveness is defined and measured, some guidelines for conducting and reporting economic evaluations of falls prevention strategies have been developed (Davis, Robertson, Comans, & Scuffham, 2010). Thus, while some falls interventions appear cost-effective more research is needed to verify the circumstances under which cost-effectiveness can be optimised.

## 2.7    Chapter Summary

Falls are a major health issue for older adults living in the community, resulting in negative impacts for them, their families and the health system. Policies and plans to address this growing issue have been developed by some governments and organisations. There is now a range of interventions shown to be effective for preventing falls, including the Stepping On program, the intervention featured in the main study in this thesis. In the next chapter I will show that despite these developments, the translation of falls prevention research into practice remains a challenge.

# Chapter Three
# Translating Research into Practice

## 3.1  Introduction

A variety of interventions are effective for preventing falls among older people living in the community. Yet, the translation of these interventions into practice remains a challenge.  A process of knowledge translation has been recommended to facilitate the use of research findings in practice and to ensure that effective interventions and programs once implemented, are then sustained. In this chapter I review the literature on the translation of falls prevention research into practice, the process of knowledge translation and the sustainability of programs in health care.

## 3.2  Limited Use of Falls Prevention Interventions in Practice

Despite evidence that falls can be prevented, the use of effective programs in practice appears limited (Oliver, 2007; Tinetti, 2001). The findings from a variety of studies illustrate this point. For example, Campbell and Robertson (2006) reported that less than a quarter of people with a fall-related fracture received interventions to prevent further fractures. A study conducted by Kalula, de Villiers, Ross and Ferreira (2006) found that of those older people presenting to the emergency department as a result of a fall, treatment focussed solely on the injuries sustained with little consideration of falls risk factors and the prevention of future falls. Similar findings were reported in a study by Miller et al. (2009). Salter et al. (2006) found that older people presenting to an emergency department following a fall did not receive care in accordance with recognised falls prevention clinical guidelines and that their risk of future falls worsened in the following six months. Another study showed that few older people were asked by their medical practitioner about falls and were rarely offered interventions to prevent falls (Wenger et al., 2003).

Clearly then, having evidence of intervention effectiveness is insufficient for interventions to be used in practice (Straus et al., 2006). The focus of research therefore must now shift to understanding how falls prevention interventions shown to be effective in research can become effective programs in practice (Close, 2005; Hendriks et al., 2008; Robitaille & Gauvin, 2008; Stevens et al., 2010; Stevens et al., 2008; Stevens et al., 2006; Tinetti, 2008).

Challenges in using interventions in practice have been reported. Possible barriers include a lack of training and resources (Stevens et al., 2010), fragmentation of falls prevention services (Ganz, Alkema, & Wu, 2008), uncertainty about program feasibility, sustainability and cost-effectiveness (Rubenstein & Josephson, 2006) as well as professional time constraints and competing demands (Tinetti & Kumar, 2010). Campbell and Robertson (2006) suggested that health professionals as well as older people may not recognise the potential benefits of falls prevention programs and that there was generally a lack of studies indicating the most effective methods for delivering programs in the community. To address these challenges it has been suggested that a process of research evidence translation is needed (Scott, 2007).

## 3.3    Translating Research Findings into Practice

The challenges associated with translating research evidence into practice are not exclusive to falls prevention (Mallonnee, Fowler, & Instre, 2006; Wilson, Lavis, Travers, & Rourke, 2010). For example, it has been estimated that between 30 to 40% of people do not receive medical treatments that are based on evidence from high quality randomised controlled trials (RCTs) (Grol & Wensing, 2004). As well, few health promotion interventions shown to be successful in well controlled research studies are consistently implemented in practice (Glasgow, Lichtenstein, & Marcus, 2003).

As with falls prevention, many barriers in using research evidence in practice have been reported. For example, some authors suggest that studies evaluating the efficacy of interventions rarely address factors affecting implementation in the "real world" and that limited resources and skills of health professionals all play a role (Bick & Graham, 2010, p. 11). The "haphazard" dissemination of research findings by researchers may also be a factor (Wilson, Petticrew, Calnan, & Nazareth, 2010), and the growing volume of published research evidence may leave clinicians feeling overwhelmed (Straus et al., 2009). To address these barriers and to close these research-practice gaps a process of knowledge translation has been proposed (Davis et al., 2003).

### 3.3.1    What is Knowledge Translation?

Knowledge translation refers to the scientific study of how knowledge is accessed and used in health care (Straus et al., 2006). Other terms for knowledge translation include

implementation science, research utilisation, research dissemination and diffusion, research use and knowledge transfer and uptake (Graham et al., 2006). Knowledge translation has been formally defined as a "dynamic and iterative process, that includes the synthesis, dissemination, exchange and ethically sound application of knowledge to improve health, provide more effective health services and products and strengthen the health care system" (Straus et al., 2009).

There is currently no international agreement on terms and definitions to describe the process of knowledge translation (McKibbon et al., 2010; Thompson, Estabrooks, & Degner, 2006). Attempts have been made however, to better define the terms used in knowledge translation research (Rabin et al., 2008).

Knowledge translation encompasses processes for program adoption, implementation and sustainability, where program adoption refers to the decision of an organisation to use a new program (Rabin et al., 2008; Rogers, 2003, p. 417), program implementation is the process of putting the program into use within a setting (Rabin et al., 2008; Rogers, 2003, p. 417) and program sustainability refers to the phenomenon of program continuation over time (Shediac-Rizkallah & Bone, 1998).

There has been a growing focus on understanding the process of knowledge translation because despite the emphasis on evidence-based health care, the transfer of research findings into practice remains "unpredictable, slow and haphazard" (Eccles et al., 2009).

### 3.3.2   *Theories, Models and Frameworks for Knowledge Translation*
Knowledge translation focuses on the factors and change processes related to the diffusion, dissemination, adoption, implementation and sustainability of evidence-based interventions (Rabin et al., 2008). To assist in the understanding of knowledge translation, various theories, models and frameworks have been developed.

Over 60 theories, models and frameworks related to knowledge translation have been identified (Graham et al., 2006). Some focus on factors at the individual professional level, others at the level of the organisation (Grol, Wensing, Hulscher, & Eccles, 2005; Rycroft-Malone & Bucknall, 2010b). Other models take a more holistic or "ecological" perspective (Bowen & Zwi, 2005; Richard et al., 2008). To integrate the similarities and differences across the many existing knowledge translation theories, models and frameworks, some broad overarching frameworks for knowledge translation

have been proposed (Damschroder et al., 2009; Feldstein & Glasgow, 2008). Few models and frameworks have been evaluated empirically (Rycroft-Malone & Bucknall, 2010a, pp. 232-234).

Some theories and models have been developed based on the interacting factors known to influence the knowledge translation process. Examples include the Conceptual Model for the Spread and Sustainability of Innovations in Service Delivery and Organisations (Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2005) and the Diffusion of Innovations (Rogers, 2003).

Other models explain how the knowledge translation process can be planned for and executed. One example is the Knowledge-to-Action Framework developed in Canada by Grahame, Tetroe and the Knowledge Translation (KT) Theories Research Group (2007). This framework has been endorsed by the Canadian Institutes of Health Research and is available online at

http://ktclearinghouse.ca/knowledgebase/knowledgetoaction. Graham and colleagues developed the framework based on commonalities across 30 planned action theories. The framework shows that once knowledge has been created, organisations (described as "social systems") enter an action cycle consisting of the following seven phases which may or may not overlap:

1.  Identification of health needs and the identification, review and selection of knowledge;
2.  Adaptation of the knowledge to the local context;
3.  Identification of barriers and facilitators to knowledge use;
4.  Selection, tailoring and implementation of the knowledge;
5.  Monitoring the use of the knowledge in practice;
6.  Evaluation of the impact of knowledge use;
7.  Sustaining the use of knowledge in practice.

It has been suggested that the use of such models and theories may enhance the implementation of evidence in practice (Estabrooks, Thompson, Lovely, & Hofmeyer, 2006; Grol, Bosch, Hulscher, Eccles, & Wensing, 2007; The Improved Clinical Effectiveness through Behavioural Research Group, 2006). However, it remains unclear exactly how and to what extent the use of these models influence these processes (Bhattacharyya, Reeves, Garfinkel, & Zwarenstein, 2006; Davies, Walker, &

Grimshaw, 2010b; Helfrich et al., 2010; Michie et al., 2005; Rycroft-Malone & Bucknall, 2010c).

### 3.3.3   Factors Influencing Knowledge Translation

The factors influencing knowledge translation have been the focus of some research. Early research focussed on factors influencing the diffusion (spread) and adoption (uptake) of innovations (new ideas) by individuals and organisations (Rogers, 2003). Grol and Grimshaw (2003) reported the many barriers to the use of evidence in practice at the level of the health care system, organisation, team, health professional and patient. Examples of barriers included financial disincentives, lack of time, lack of health professional knowledge and confidence as well as patient expectations.

Greenhalgh and colleagues (2005) conducted a comprehensive and rigorous review of the literature to determine how innovations (defined as new behaviours, routines and ways of working) are diffused, spread and then sustained in health services.  To identify relevant theoretical and empirical studies from diverse research traditions, the authors searched 15 electronic databases using broad search strategies supplemented by hand searching of relevant journals and books. Experts in the field were also consulted. Included studies were evaluated for robustness of methods, the strength of the findings and the validity of conclusions. Evidence from the included studies was categorised as strong, moderate or limited and according to whether the evidence came directly from studies conducted in health settings or indirectly from other fields. The findings of the review indicated that the diffusion, dissemination and implementation of innovations is complex and is influenced by many interacting factors related to the nature of the innovation, the motivations and concerns of those involved, the processes used by teams, department and organisations, the types of communication structures available, the structure and culture of the organisation and external influences such as collaborative partnerships between organisations, the wider operating environment and the political climate. Similar factors have been reported by others (Durlak & DuPre, 2008).

### 3.3.4   Interventions to Facilitate Knowledge Translation

In 2001, the Cochrane Effective Practice and Organisation of Care Group (EPOC) was established with the aim of "preparing and maintaining systematic reviews of

professional, financial, organisational and regulatory interventions that are designed to improve professional practice and the delivery of effective health care service" (Mowatt, Grimshaw, Davis, & Mazmanian, 2001). Systematic reviews of interventions to improve knowledge translation are included within the scope of the EPOC group (Grimshaw, Santesso, Cumpston, Mayhew, & McGowan, 2006) and current reviews can be accessed at http://epoc.cochrane.org/.

Interventions shown to have a positive effect on health professional practice include interactive educational meetings, educational outreach visits, the use of reminders and a process of audit and feedback (McCluskey, 2010). At an organisational level, the revision of professional roles, the use of computer based systems and having an integrated, multidisciplinary approach to service provision have been associated with improvements in patient care (Wensing, Wollersheim, & Grol, 2006). Tailored interventions that address barriers to change can be effective in improving professional practice (Baker et al., 2009). Resources, such as the KT Clearinghouse (http://ktclearinghouse.ca) and the RE-AIM Framework (http://cancercontrol.cancer.gov/IS/reaim/index.html) have been developed to assist, practitioners, organisations and health professionals in translating knowledge into practice.

Despite a range of promising interventions the effect on professional practice is likely to be small (McCluskey, 2010) and no single strategy or combination of strategies can as yet be recommended (Hakkennes & Dodd, 2008; Menon, Korner-Bitensky, Kastner, McKibbon, & Straus, 2009). Although the number of studies evaluating strategies to improve knowledge translation is growing, well-designed intervention trials are still needed (Evensen, Sanson-Fisher, D'Este, & Fitzgerald, 2010).

In summary, a process of knowledge translation has been proposed as a method for effectively translating research findings into practice. Various models for knowledge translation have been proposed, a variety of interacting factors influence the process of knowledge translation and some strategies may be effective for translating evidence from research studies into practice.

## 3.4 Knowledge Translation and Falls Prevention

The importance of knowledge translation and falls prevention has been recognised. At an international level, the World Health Organisation (WHO), (2007) have recommend a Falls Prevention Model that supports healthy active ageing within a cohesive, multi-sectorial approach. The model emphasises awareness-raising of the importance of falls prevention in conjunction with the implementation of realistic and effective interventions. In Canada, a five-step model based on a public health approach is used to guide falls prevention program design, implementation and evaluation (Scott et al., 2010). Other models such as The Innovative Care for Chronic Conditions (ICC) model have been suggested as a framework to enhance the co-ordination, delivery and implementation of falls prevention services and programs (Ganz et al., 2008). The public health model, used in the US, by the National Center for Injury Prevention and Control (NCIPC) emphasises the translation and dissemination of falls prevention interventions to ensure widespread adoption (Stevens et al., 2010).

### 3.4.1 Research on Knowledge Translation and Falls Prevention

Each of the models described above, emphasise the importance of knowledge translation, yet clinicians and policy makers are often challenged by the step of translating knowledge from falls prevention research into effective policies and practices (Scott et al., 2010).

Studies investigating the translation of falls prevention research into practice have been conducted. Studies have focussed on: falls prevention knowledge, uptake and adherence by older people (Ballinger & Clemson, 2006; Bunn et al., 2008; de Groot & Fagerström, 2011; Dickinson et al., 2011; McInnes & Askie, 2004; Nyman & Ballinger, 2008; Stineman et al., 2011); program adoption and implementation by health professionals (Butt, 2005; Jones, Ghosh, Horn, Smith, & Vogt, 2011; Mackenzie, 2009; Sze, Lam, Chan, & Leung, 2005; Wenger et al., 2009) and the process of program implementation (Brown, 2004; Gardner, Robertson, McGee, & Campbell, 2002; Maddock, Gal, McIntyre, Fisher, & Liu, 2005; Painter & Elliot, 2004).

Some studies have evaluated whether interventions shown to be effective in randomised controlled trials can then be successfully translated into clinical practice. One example is the Connecticut Collaboration for Fall Prevention (CCFP) study (Murphy et al., 2008). In this controlled trial, 2 matched geographical regions in

Connecticut (US) were compared to evaluate whether a practice-change intervention aimed primarily at health practitioners could reduce fall-related injuries and the fall-related use of medical services by people aged 70 years and older (Tinetti et al., 2008).

In the intervention region a variety of promotional activities and resources were used to raise awareness of falls prevention among older people. Multiple practice-change interventions were used including outreach visits to educate and support practitioners, the provision of resources, the use of opinion leaders and the establishment of local working groups to provide tailored support. Data were collected over a two-year period.

The results of the study showed a decline in both the rate of serious fall-related injuries and the use of fall-related medical services between the intervention and control groups by 9 and 11% respectively. These effects were maintained for a further 12 months beyond the end of the formal evaluation period. The authors concluded that "dissemination of evidence to clinicians about fall prevention when coupled with practice-change interventions results in the adoption of effective strategies to prevent falls and may reduce the number of falls and injuries".

Other findings from this study were an increase in self-reported changes in practice by physical therapists (Brown, Gottschalk, Van Ness, Fortinsky, & Tinetti, 2005) and the self-reported use of recommended falls prevention assessment and management practices by 80% of surveyed home health care agency staff (Fortinsky et al., 2008). A range of factors influencing program adoption by health professionals were also reported (Baker et al., 2005; Chou et al., 2006).

The results of the CCFP study showed that it is possible for organisations to translate evidence-based falls prevention interventions into practice. Other studies have reached similar conclusions (Filiatrault et al., 2007; Weerdesteyn, Smulders, Rijken, & Duysens, 2009). However, not all studies investigating the adoption and implementation of falls prevention have shown positive outcomes (Elley et al., 2008; Hendriks et al., 2008; McClure et al., 2010), suggesting that a greater understanding of effective strategies is needed. Other strategies to enhance the translation of findings from falls prevention research have been suggested including better design of the implementation process (Ganz, Yano, Saliba, & Shekelle, 2009; McClure et al., 2010; Tinetti, 2008; Tinetti & Kumar, 2010), greater support and funding by governments

(Clemson et al., 2010; McClure et al., 2010) and increased collaboration between researchers and practitioners (Sabir et al., 2006).

While falls prevention programs must first be adopted and then implemented, they must also be sustained (Campbell & Robertson, 2010; Clemson et al., 2010; Frick et al., 2010; Rubenstein & Josephson, 2006). Despite some understanding of the factors influencing the adoption and implementation of community-based falls prevention programs, factors influencing program sustainability are less understood (Stevens et al., 2010).

## 3.5    Sustainability of Health Care Programs

Health care programs may be implemented but not sustained. Understanding the factors influencing program sustainability will assist organisations in determining what is required to keep their programs going over time. As a prelude to the systematic review presented in Chapter Four, I review here, the broader literature on how program sustainability is defined, conceptualised and measured. The factors influencing program sustainability are described and strategies for achieving program sustainability are examined.

### 3.5.1    Terminology and Definitions

The term sustainability may refer to the continuation of a program or the continuation of the program effects (Higgins & Green, 2009). In this section, I focus solely on terms and definitions relevant to the continuation of programs by organisations over time.

Multiple terms and phrases have been used to define the concept of program sustainability (see Table 3.1). The terms most commonly used in the literature include program: sustainability, continuation, Institutionalisation/institutionalization, maintenance, routinisation/routinization, incorporation, embedding/imbedding, durability and integration. While the terms sustainability and institutionalisation have been reported as the most dominant terms used to describe the continuation of health innovations (Johnson et al., 2004), there is currently no consensus on a standard term for program sustainability (Hanh, Hill, Kay, & Quy, 2009; Pluye et al., 2004a; St Leger, 2005).

Table 3.1 Terms and Phrases for the Concept of Program Sustainability

| Terms & Phrases for Program Sustainability | Source |
|---|---|
| **Sustainability** | Altman, 2009; Bloom, 2007; Damschroder et al., 2009; Eccles et al., 2009; Feldstein & Glasgow, 2008; Ganz et al., 2009; Greenhalgh, Robert, Macfarlane, Bate, & Kyriakidou, 2004; Gruen et al., 2008; Hanh et al., 2009; Hanson et al., 2009; Johnson et al., 2004; Nilsen, Timpka, Nordenfelt, & Lindqvist, 2005; Pluye et al., 2004a; Rabin et al., 2008; Savaya, Elsworth, & Rogers, 2009; Scheirer, 2005; Shediac-Rizkallah & Bone, 1998; St Leger, 2005; Straus et al., 2009; Virani, Lemieux-Charles, Davis, & Berta, 2009 |
| **Continuation** | Altman, 2009; Gruen et al., 2008; Hanh et al., 2009; Johnson et al., 2004; Rabin et al., 2008; Savaya et al., 2009; Scheirer, 2005; Shediac-Rizkallah & Bone, 1998 |
| **Institutionalisation** **Institutionalization** | Goodman, McLeroy, Steckler, & Hoyle, 1993; Greenhalgh et al., 2004; Gruen et al., 2008; Hanson et al., 2009; Johnson et al., 2004; Pluye et al., 2004a; Rabin et al., 2008; Scheirer, 2005; Virani et al., 2009 |
| **Maintenance** | Dzewaltowski et al., 2004; Feldstein & Glasgow, 2008; Glasgow et al., 2003; Gruen et al., 2008; Hanson et al., 2009; Johnson et al., 2004; Kilbourne, Neumann, Pincus, Bauer, & Stall, 2007; Li et al., 2008; Pluye et al., 2004a; Rabin et al., 2008; Scheirer, 2005) |
| **Routinisation** **Routinization** **Routine practice** | Greenhalgh, Macfarlane, & Maskrey, 2010; Grol & Grimshaw, 2003; Hanson et al., 2009; Johnson et al., 2004; Pluye, Potvin, Denis, & Pelletier, 2004b; Rabin et al., 2008 |
| **Incorporation** | Greenhalgh et al., 2010; Hanson et al., 2009; Johnson et al., 2004; Pluye et al., 2004a; Rabin et al., 2008 |
| **Embedding** **Imbedding** | Goodman et al., 1993; Greenhalgh et al., 2010; May & Finch, 2009; Pluye et al., 2004a |
| **Durability** | Goodman et al., 1993; Gruen et al., 2008; Johnson et al., 2004; Pluye et al., 2004a; Rabin et al., 2008; Scheirer, 2005 |
| **Integration** | Pluye et al., 2004a; Rabin et al., 2008; Savaya et al., 2009 |
| **Resilience** | Gruen et al., 2008 |
| **Viability** | Gruen et al., 2008; Pluye et al., 2004a |
| **Stability** | Gruen et al., 2008; Johnson et al., 2004; Rabin et al., 2008 |
| **Persistence** | Gruen et al., 2008; Pluye et al., 2004a; Rabin et al., 2008 |
| **Appropriation, colonisation, longevity, nesting, permanence, perpetuation, survival** | Pluye et al., 2004a |
| **Confirmation** | Johnson et al., 2004 |

| | |
|---|---|
| **Routine implementation** | Ganz et al., 2008) |
| **Continuous implementation** | Sze et al., 2005 |
| **Sustained implementation** | Eccles et al., 2009 |
| **Level of use** | Johnson et al., 2004 |
| **Sustained use** | Johnson et al., 2004; Rabin et al., 2008 |
| **Local ownership** | Rabin et al., 2008 |
| **Community building** | Rabin et al., 2008 |

Program sustainability has also been defined in different ways (see Table 3.2). Definitions used by researchers to describe program sustainability may depend on factors such as the nature and purpose of the program, the people involved and the context or setting within which the program operates. For example, Hanson and colleagues (2009) showed that stakeholders involved in the same program defined program sustainability differently. Some stakeholders defined program sustainability as the "continuation of the entire program over time", others as the "lasting impact of particular initiatives". Johnson et al. (2004) reported that the term program sustainability is used primarily in relation to program continuation in community settings, whereas the term program institutionalisation is used to describe program continuation in organisational settings. Program sustainability may also refer to the ongoing benefits of a program for the individual, the ability of coalitions and partnerships to maintain program capacity and continued community support for the health issues addressed by the program (Scheirer, Hartling, & Hagerman, 2008). Swerissen and Crisp (2004) suggested that program sustainability may be considered at the individual, organisational, community and institutional level. Thus, definitions for program sustainability may vary according to the particular setting.

To further provide complexity, some terms for program sustainability have been inconsistently defined by researchers by referring to different outcomes such as a program's capacity to maintain health benefits or its incorporation into routine practice which may or may not be defined by a temporal context. For example, Rabin et al. (2008) described program maintenance as an operational indicator of program sustainability, defined as "the ability of the recipient setting or community to continuously deliver the health benefits achieved when the intervention was first

implemented". In contrast, Dzewaltowski et al. (2004) defined program maintenance at the organisational level as "the extent to which a program or policy becomes institutionalised or part of the routine organisational practices and policies", and at the individual level as "the long term effects of a program on outcomes after six or more months after the most recent intervention contact".

It's been argued that when defining program sustainability, conceptual distinctions need to be drawn between the phases of program implementation and sustainability. For example, Damschroder and colleagues (2009) stated that the phase of implementation exists between an organisation's decision to adopt an intervention and the routine use (sustainability) of that intervention. Goodman, McLeroy, Steckler & Hoyle (1993) stated that programs may be implemented but not institutionalised (that is be sustained and become durable). The authors argued that these phases are distinct and that success in one phase does not assure success at the next. As such, Goodman and colleagues believed that it was useful to separate the concepts of program implementation and institutionalisation (sustainability), so that each phase could be studied and measured more appropriately. Better description and documentation of the phases of program adoption, implementation and maintenance (sustainability) has also been advocated by Glasgow et al. (2003).

Others have argued, however, that the phases of program adoption, implementation and sustainability consist of concomitant processes that may be affected by overlapping factors (Pluye et al., 2004a). Greenhalgh et al. (2005, p. 26) take a pragmatic view, suggesting that it is useful to draw some distinctions between concepts such as implementation and sustainability to facilitate the study and communication of these processes. It may be therefore, that the phase of program sustainability can be considered separate but linked to the phases of program adoption and implementation (Graham et al., 2006).

Given these differences in terminology, definitions and conceptual distinctions, achieving consensus on a standard taxonomy for program sustainability and other knowledge translation terms may be difficult and even unlikely to achieve (Greenhalgh et al., 2005, p. 26). Despite the definitional complexities and ambiguities, the term program sustainability generally refers to the continuation of a health program over time. That is, an ability to continue effective programs at a level that provides control for a particular health problem (Edwards et al., 2007; Mancini & Marek, 2004).

Table 3.2 Definitions for Program Sustainability

| Definitions for Program Sustainability | Source |
|---|---|
| When new ways of working become the norm. | Maher, Gustafson, & Evans, 2007 |
| The degree to which an innovation continues to be used after initial efforts to secure adoption is completed. | Rogers, 2003, p. 429 |
| The capacity to collaborate, to make developmental progress in realizing partnership objectives, and to secure a stable financial base. | Edwards et al., 2007 |
| Continuation of the program and /or its becoming an integral part of the organisation. | Savaya et al., 2009 |
| Continuation of programs when the financial, organisational and technical support of external donors/organisations has ceased. | Hanh et al., 2009 |
| Maintenance of health benefits.<br>Continuation of health programs.<br>Institutionalisation of programs within organisational systems.<br>Community capacity.<br>The ability of a project to function effectively, for the foreseeable future, with high treatment coverage, integrated into available health care services, with strong community ownership using resources mobilised by the community and government. | From Gruen et al. (2008) |
| The integration and long term viability of a new program into an existing organisation.<br>Transfer of program responsibility from an external agency to the incorporating agency.<br>Conversion of institutional capacity into performance required for continued effectiveness.<br>The extent to which a new program becomes integrated or embedded into an organisation's normal operations.<br>The long term ability of an organisational system to mobilise and allocate sufficient and appropriate resources for public health activities.<br>Dynamic continuation of a program.<br>When a practice or policy becomes routine and part of an organisation's everyday culture and norms.<br>Health practices that are sustained after the limited period of external resources.<br>A program that endures beyond inception.<br>A program's continuous response to community issues<br>Programs that are routinised within organisations<br>The maintenance of a level of activity so that the program will provide continuous management of a health problem.<br>The continuation of a program.<br>The ability to provide ongoing access to appropriate quality care in a manner that is both cost-efficient and health-effective. | From Hanson et al.(2009) |
| The continuous implementation of the program in the community. | Sze et al., 2005 |
| The process of ensuring an adaptive prevention system and a sustainable innovation that can be integrated into ongoing operations to benefit diverse stakeholders | Johnson et al., 2004 |

| Definitions for Program Sustainability | Source |
|---|---|
| The process through which new working methods, performance enhancements, and continuous improvements are maintained for a period appropriate to a given context. The opposite of sustainability where change is not maintained is decay. | Fitzgerald & Buchanan, 2007, p. 231 |
| Continuing to deliver beneficial services and outcomes to clients Maintaining the program and/or its activities in an identifiable form Maintaining the capacity of a community to deliver program activities after an initial program created a community coalition or similar structure | Scheirer, 2005 |
| Continued use of the core elements of the intervention and persistence of improved performance | Bowman, Sobo, Asch, Gifford, & Initiative, 2008 |

In summary, a variety of terms and definitions have been used to describe the concept of program sustainability. However, until some agreement on terminology is reached, researchers will need to provide clear definitions for the terms used within their research studies. As outlined in Chapter 1 in this thesis, I have used the term program sustainability, defined as the continuation of a health care program by organisations over time. This definition encompasses many of the definitions proposed by others and provides a simple and clear description of the phenomenon of program sustainability at the level of the organisation.

### 3.5.2   The Importance of Program Sustainability

The implementation of health care programs can require significant investments in time, money resources and people. Yet it has been estimated that up to 70% of all organisational change initiatives fail to survive (Maher et al., 2007). In the UK, it has been reported that of all health improvement projects implemented within the National Health Service (NHS), one third of services reverted to previous ways of working one year after the project ended, one third maintained the improvement within their core area of service only and one third maintained and extended the improvement beyond their core area of service (NHS Institute for Innovation and Improvement, 2010).

One review investigating the sustainability of health programs in the US and Canada found that the percentage of sites sustaining program activities after cessation of initial program funding was between 27 and 86% (Scheirer, 2005). Despite differences in the methods used across studies to measure program sustainability, others have estimated that approximately 40% of new health programs are not sustained

beyond the first few years after initial program funding is terminated (Savaya et al., 2009). Furthermore, programs may be sustained, but often in a reduced capacity (Tibbits, Bumbarger, Kyler, & Perkins, 2010).

A failure to sustain programs can result in wasted resources and disillusionment in those involved with the program (Edwards et al., 2007; Maher et al., 2007; Pluye et al., 2004a; Savaya et al., 2009). As well, programs must be sustained for the desired health effects to be maintained at the individual level and realised at the population level (Davies, Tremblay, & Edwards, 2010a, p. 167; Pluye et al., 2004a). Some have suggested that there is a moral obligation to sustain health programs, particularly in communities with the greatest health needs (Mancini & Marek, 2004).

Practitioners often develop programs that meet a clinical need but for many programs, the emphasis has been on program development and less on how the program would be continued over time (Robinson, Herz, & Brennan, 2009). Evidence-based programs and innovations however are only valuable if they continue to be used (Davies & Edwards, 2009, p. 167). It is imperative then to ensure that changes or improvements in practice are sustained and that "erosion" and "decay" of programs can be avoided (Buchanan & Fitzgerald, 2007).

There are times, however when program sustainability may not be feasible, necessary or desirable (St Leger, 2005). A more effective, less costly program may become available, the organisational focus may change or the condition targeted by a program may cease to exist (Savaya et al., 2009; Shediac-Rizkallah & Bone, 1998). In these circumstances, it is reasonable that programs are not sustained.

It has also been noted that there may be some ambiguity associated with program sustainability. The longer a program is sustained, the less likely an organisation may be to adopt new innovations (Greenhalgh et al., 2005, p. 30). Nevertheless, program sustainability should be the goal when the program reflects current evidence, is effective and continues to address an important health need (Johnson et al., 2004). Program sustainability will ensure that the health benefits of the program continue and that human and financial resources are not wasted.

### 3.5.3 *The Nature of Program Sustainability*

Understanding the nature of program sustainability can be a challenge, since program sustainability may be influenced by many interacting factors (Hanson et al., 2005).

Program sustainability involves change; changes in practice and organisational routines (Pluye et al., 2004b). But for organisations, the health care environment is becoming increasing complex and program sustainability may involve a messy, stop-start process that can be both difficult to research and achieve in practice (Davies et al., 2010a, pp. 167-168; Greenhalgh et al., 2005, p. 14; Plsek & Greenhalgh, 2001).

The introduction of a new health program may not follow a linear process and may consist of a number of overlapping phases such as program initiation, development, adoption, implementation, sustainability, discontinuation or dissemination (Scheirer, 2005). Program sustainability, therefore may be affected by multiple interacting factors at different times depending on the context (Davies & Edwards, 2009, pp. 169-170). As such, program sustainability has been described as a dynamic process that must adjust to the changing needs and circumstances of the organisation and the communities they serve (Shediac-Rizkallah & Bone, 1998).

Since organisations are affected by changing conditions, the emphasis must be on the use of effective programs that can remain robust and sustainable under dynamic and changing circumstances (Altman, 2009; Bowman et al., 2008). There is a need therefore, to understand the conditions under which programs are most likely to continue, thus enabling a shift from passive approaches to more active attempts to enhance program sustainability (Shediac-Rizkallah & Bone, 1998).

### 3.5.4   *Theories, Models and Frameworks for Program Sustainability*

Despite the importance of program sustainability, only one third of knowledge translation models acknowledge the need to sustain the use of evidence once that evidence has been implemented in practice (Davies et al., 2010a, p. 169; Graham et al., 2007). Where program sustainability is acknowledged, there is usually insufficient detail to guide how program sustainability may be achieved (Graham & Tetroe, 2010; Kilbourne et al., 2007).

To better understand the nature of program sustainability and associated factors, a variety of theories, models and frameworks for program sustainability have been reported in the literature (Bray, Cummings, Wolf, Massing, & Reaves, 2009; Buchanan & Fitzgerald, 2007, p. 38; Edwards et al., 2007; Gruen et al., 2008; Johnson et al., 2004; Maher et al., 2007; Mancini & Marek, 2004; May & Finch, 2009; May et al., 2009;

Olsen, 1998; Shediac-Rizkallah & Bone, 1998). Key features of these models and frameworks are summarised in Table 3.3.

Most models have been developed from a combination of a literature review and professional consensus, with few developed directly from the reported experiences of program stakeholders. Most models are based on a synthesis of the factors thought to influence program sustainability. One model emphasising the interaction of influencing factors on program sustainability was developed from a review of 84 empirical studies (Gruen et al., 2008). Other models have highlighted the importance of context (Buchanan & Fitzgerald, 2007, p. 38).

Only one substantial theory, the Normalisation Process Theory (NPT) has been developed to understand how new practices can be sustained in everyday practice (May & Finch, 2009). Developed and refined from 1998 to 2008, the NPT posits that practices become routinely embedded or "normalised" in social contexts as result of people working individually or collectively and that the embedding of practices is reliant on how people understand, engage with, enact and evaluate the practice.

Some models aim to provide a practical guide to increase the likelihood of program sustainability (Maher et al., 2007). None of the models have been formally tested however the Normalisation Process Theory has been applied in a variety of studies and settings including the use of decision support systems in clinical practice, telemedicine, mental health and chronic disease management (http://www.normalizationprocess.org/bibliography.aspx). The model developed by Shediac-Rizkallah & Bone (1998) has been used as an evaluation tool in reviews of studies of program sustainability (Evashwick & Ory, 2003; Scheirer, 2005). Supporting websites have been developed for the Normalisation Process Theory (http://www.normalizationprocess.org/) and the National Health Service Sustainability Model (http://www.institute.nhs.uk/sustainability_model/general/welcome_to_sustainability.html).

Table 3.3 Theories, Models and Frameworks for Program Sustainability

| First Author (year published) | Name | Study Description | Focus | Factors Influencing Program Sustainability |
|---|---|---|---|---|
| **Shediac-Rizkallah (1998)** | Framework for Conceptualising Program Sustainability | Literature review, author experience | Community-based health programs | *Program design and implementation factors*: meeting stakeholder needs, program effectiveness, duration, financing, training requirements<br><br>*Factors within the organisational setting*: maturity of the organisation, integration of the proposed program with existing services, presence of program champions and leadership<br><br>*Factors in the broader community environment*: the socioeconomic and political environment, level of community participation |
| **Johnson (2004)** | Sustainability Planning Model | Systematic review, consultation with health professionals | Substance abuse prevention programs | *The capacity of a system to sustain the program*: type of structure and formal linkages, the presence of champions for the innovation, effective leadership, resources, administrative policies and procedures and expertise<br><br>*The potential of the program to be sustainable*: the presence of program attributes such as alignment of the program with needs, positive relationships between key implementers, successful implementation, effectiveness in the target prevention system and program ownership by relevant stakeholders |
| **Mancini (2004)** | Model of Community-Based Program Sustainability | Interviews and surveys with key personnel | Community-based programs for at risk children | *Seven elements necessary for program sustainability*: 1) leadership competence, 2) effective collaboration; 3) understanding the community; 4) demonstrating program results; 5) strategic funding; 6) staff involvement and 7) program responsivity. |
| **Maher (2007)** | National Health Service (NHS) Sustainability Model | Literature review and consultation with relevant stakeholders | Health care programs | *Ten factors necessary for program sustainability:*<br><br>*Process:* 1) The change must provide benefits beyond helping patients; 2) The benefits must be immediate, supported and believed by stakeholders; 3) The process can be adapted and continually improved; 4) There is a system in place to identify and monitor progress and to communicate results |

| First Author (year published) | Name | Study Description | Focus | Factors Influencing Program Sustainability |
|---|---|---|---|---|
| | | | | *Staff:* 1) There is staff involvement from the beginning and staff are adequately trained to sustain change; 2) Staff feel empowered as part of the change process and believe the improvement will be sustained; 3) Senior leaders are engaged in the process and take responsibility for efforts to sustain the change; 4) Clinical leaders are engaged and take responsibility for efforts to sustain the change<br><br>*Organisation:* 1) The change must fit with the strategic aims and culture of the organisation; 2) There must be an infrastructure for sustainability (eg. Staff, facilities, equipment, policies and procedures). |
| May (2009a, 2009b) | Normalisation Process Theory (NPT) | Generalisations from qualitative research, multidisciplinary collaborations | Health care programs | *The NPT focuses on the actions necessary for embedding and integrating new practices in health care and proposes that:*<br><br>Practices become routinely embedded as a result of people working individually and collectively to implement them;<br>The implementation, embedding and integration of a practice is affected by how people:<br>  1) Make sense of the practice (described by the authors as Coherence)<br>  2) Engage with the practice (Cognitive Participation)<br>  3) Enact the practice (Collective Action)<br>  4) Appraise the effects of the practice (Reflexive Monitoring).<br>The integration of a practice requires continual attention and effort by people over time. |
| Gruen (2008) | Unifying Model of Health Program Sustainability | Systematic Review of empirical studies, author consensus | Health care programs | Program sustainability occurs within a context characterised by the interaction of socio-cultural, political, geographical, health-system and resource factors and when there is alignment between the:<br>  1) Program and the health concerns of the population;<br>  2) Program and the key program drivers (stakeholders such as funders, managers, policy makers and community leaders);<br>  3) Health concerns of the population and the key program drivers. |

| First Author (year published) | Name | Study Description | Focus | Factors Influencing Program Sustainability |
|---|---|---|---|---|
| Edwards (2007) | Sustainability Framework | Literature review, professional experience | Health care safety and quality programs | *Five elements necessary for program sustainability:*<br>1) Identity: identifying what will be sustained<br>2) Infrastructure: people required, technical and financial resources<br>3) Incentives: the value of the program<br>4) Incremental opportunities for participation: at varying levels, types, roles and locations<br>5) Integration: of program goals with organisational goals, policies and procedures |
| Bray (2009) | Sustainability Pyramid | Investigator observations, interviews to test model | Quality improvement programs in primary care | *Five actions necessary for program sustainability in order from most important (1) to least important (5):*<br>1) Ensure meeting times for teams to review data reports<br>2) Gain senior leadership support of infrastructure and staff resources<br>3) Develop grants and maximise billing<br>4) Seek publicity<br>5) Form strategic partnerships |
| Buchanan (2007) | A Provisional Model for the Process of Sustainability in Context | Review of literature from health and non-health sectors | Health care programs in general | *Program sustainability is influenced by the presence or absence of factors related to the:*<br>External context: organisational, cultural, political, financial<br>Internal context: individual, managerial, leadership<br>Process: scale and type of change, methods, timing |
| Olsen (1998) | Conceptual Framework for Sustainability of Health Care Services | Professional consensus | Health care programs in developing countries | *Program sustainability rests on 3 major factors related to:*<br>1) Context: political, socioeconomic, geographical, environmental factors related to health and health services<br>2) Activity: the types of health services offered based on perceived need and resources available<br>3) Organisational capacity: capability of an organisation to carry out the required tasks |

### 3.5.5 Factors Related to Program Sustainability

As indicated in Table 3.3, program sustainability may be influenced by many diverse factors related to the nature of the program, the setting and the broader operating environment and the people and processes involved. Drawing from the limited research available at the time, Greenhalgh and colleagues (2005, pp. 14-15) concluded in their review that innovations may be sustained and become routine within organisations where there is: adaptive and flexible organisational structures, management support, motivation, capacity and competence of individual practitioners, access to high quality training, dedicated and ongoing funding, effective communication within organisations, effective networks with other organisations, the availability of accurate and timely evaluation data and an ability to adapt the innovation to the local context.

In developing their model for program sustainability, Buchanan and Fitzgerald (2007) argued that program sustainability was dependent on the presence or absence of a number of factors related to the: intended change in practice, individual, management, leadership, organisation, finances, culture, policy, process, context and program timing. The authors acknowledged however, that little is known about the importance of each factor or how these factors interact. They suggested that the importance of one factor relative to another may depend on the context and concluded that program sustainability may rely on "a particular combination of contextual, change substance and organisational factors".

The identification of factors most important for program sustainability has been the focus of some studies. For example, Nilsen, Timpka, Nordenfelt & Lindqvist (2005) interviewed co-ordinators of ten injury prevention programs in Sweden to gain an understanding of the conditions under which such programs could be sustained. Program coordinators were asked about how seven key elements of sustainability (pre-determined by the authors) influenced program sustainability. The main findings according to the seven elements were:

1. *Financial resources*: Organisations need sufficient resources, or must limit their activities according to available funds. Programs are highly sensitive to the economic climate.

2. *Human resources*: Collaborations between organisations across sectors were crucial as were the presence of program champions. Programs must not be

reliant however, on certain individuals, and strategies must be in place to shield against the sudden departure of key personnel.

3. *Relational resources*: Local ownership of the program is gained through collaborative relationships with others, but this may be a slow and gradual process. Having technical support for the program is of benefit.

4. *Structural resources*: Injury surveillance and the formation of program goals appear to have limited influence on program sustainability.

5. *Activities*: The delivery of program activities must be varied to retain the interest of the community.

6. *Effects*: Programs were sustained but with no objective evidence of effectiveness. A program's reputation was seen as most important for program sustainability.

7. *Context*: Adapting the program to the local context and having some program flexibility contributed to program sustainability.

The authors concluded that each factor contributed to program sustainability and that no one factor by itself was sufficient. However, one limitation of the study by Nilsen et al. (2005) was that the factors influencing sustainability selected by the authors were classified according to a predetermined list. Other factors outside this list may also exert some influence. For example, one study showed that psychotherapists were more likely to sustain certain therapies in their practice providing they could effectively conduct the therapy, they and their clients enjoyed the therapy and the therapy resulted in client improvements (Cook, Schnurr, Biyanova, & Coyne, 2009). Nevertheless, other studies have confirmed that multiple factors influence program sustainability (Gruen et al., 2008; Jones, 2007; Sibthorpe, Glasgow, & Wells, 2005).

Scheirer (2005) conducted a systematic review of empirical studies to identify the most important factors contributing to program sustainability. Relevant studies published from 1990 to 2003 were identified from searches of electronic databases, the reference lists of included studies and from the author's personal collection. Included studies were limited to those programs conducted in the US and Canada and continuing after initial program funding had ended. Nineteen studies were included in the review. No formal quality assessments of the included studies were conducted by the author.

The included studies investigated diverse health-related programs conducted in a variety of settings. The time since initial funding ceased ranged from zero to 20 years.

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Only ten studies provided an operational definition for program sustainability. Most of the studies used exploratory methods such as open-ended telephone interviews to collect data on the factors related to program sustainability. Nine key factors contributing to program sustainability were identified from the included studies:

1. Having a program that could be modified to suit the local context (12 studies).
2. Using volunteers to reduce the cost of program delivery (five studies).
3. Having program evaluation data (four studies).
4. The presence of program champions who advocates for the program and have access to upper management and influence over the day-to-day program operations (13 studies).
5. Having a strong and existing organisational capacity (four studies).
6. Having a good fit between the program and the mission and or tasks of the organisation (12 studies).
7. Perceived program benefits by staff, other key stakeholders and/or clients (12 studies).
8. Receiving a variety of support from other organisations (12 studies).
9. Receiving funding from a variety of sources (9 studies).

Other less frequently reported contributing factors included: receiving technical assistance from program developers or funders (three studies), early planning for program sustainability (two studies), continuous discussions with staff regarding program implementation and sustainability (one study), having a paid program co-ordinator (one study) and using multiple strategies for obtaining program funds (one study). Factors negatively influencing program sustainability included: staff turnover, changes in medical practice ownership and a low level of implementation in the early stages.

Based on the frequency of the contributing factors, Scheirer determined that five factors appeared the most important for program sustainability:

1. The program must be modifiable over time.
2. There must be program champions who can effectively advocate for the program.
3. There must be substantial fit between the program and the organisation.
4. There must be perceived program benefits to staff and/or clients.
5. There must be support available from other organisations

Although continued funding was not included in the top five most important factors, Scheirer acknowledged that having access to alternate funding sources once initial program funding had ceased, was expressed as a concern in almost half the studies. Despite this, many organisations were able to secure ongoing program funding from multiple sources in the formof additional external grants, from the organisation's own budget or via reimbursement from medical insurance schemes. Finding adequate, sustainable funding sources was a continuing challenge for organisations but one that some were able to overcome. Schierer noted too, that few studies were underpinned by a conceptual model for sustainability or tested for any statistical associations between identified factors and program sustainability. With these limitations in mind, Scheirer tentatively concluded that "project sustainability is possible under the right conditions generated by the convergence of internal and external supporting factors".

It has been suggested that for program sustainability to occur, organisations must be able to modify or adapt the program to suit the local setting (Greenhalgh et al., 2005; Scheirer, 2005). Others have argued that programs should be implemented as intended by program developers, since programs implemented with "high fidelity" have been associated with better outcomes (Carroll et al., 2007). Studies have shown that programs do undergo change as they are implemented (Cohen et al., 2008; Swain, Whitley, McHugo & Drake, 2010).  For example, Cohen and colleagues (2008) found that health promotion interventions changed as they were integrated into primary care practice. Program changes were made to suit the circumstances of the practice, patients or staff.

The evaluation of program implementation fidelity has been recognised as an important issue in the literature (Carroll et al., 2007; Hasson, 2010; Keith, Hopp, Subramanian, Witala & Lowery, 2010). Recent research indicates that program fidelity can be maintained when programs are transferred from program developers to community practitioners (Forgatch & DeGarmo, 2011).  However, the extent to which programs, either in their original or modified format, are sustained over time by organisations is an area that remains under-researched.

In summary, many factors affect program sustainability and may have a positive or negative influence. The influence of each factor may depend on the context in which the program operates. Despite a growing understanding of these factors and their

interaction, it is currently unknown what combinations of factors in which circumstances will maximise the likelihood of program sustainability.

### 3.5.6   *Measuring Program Sustainability*

Measurement of program sustainability is an important consideration given the expectation that translated research findings will result in improved health outcomes (Graham, Bick, Tetroe, Straus, & Harrison, 2010).  Measurement enables organisations to plan and monitor program sustainability and make decisions regarding ongoing program investment (Harrison, 2010). To do this however, organisations need to determine what constitutes a successfully sustained program (Bowman et al., 2008).

At its simplest level, program sustainability can be measured in terms of the continuation of program activities over time (Faulk, Coker, & Farley, 2001). But Scheirer (2005) found in her review, that program sustainability was measured in various ways. Program sustainability too may take many forms. Programs may be continued with similar activities and target groups, with similar activities and new target groups, with similar activities in a different location and community and with new activities with the same target group (Savaya et al., 2009).

Hence, it has been argued that researchers must clearly define the type (construct) of sustainability being measured and then select the most appropriate outcome measure and data collection method, matched to that construct (Graham et al., 2010; Scheirer et al., 2008). For example, Pluye, Potvin, Denis and Pelletier (2004b) assessed the degree of program sustainability as absent, precarious, weak or complete according to whether a program had been sufficiently incorporated into an organisation's routines. Other measures of program sustainability include the Level of Institutionalisation Scale developed by Goodman, McLeroy, Steckler and Hoyle (1993).

Broad indicators of sustainability have been reported in the literature such as:

- The extent to which a program or policy becomes institutionalised or part of the routine organisational practices and policies (Dzewaltowski et al., 2004).
- The sustained beneficial outcomes for clients, the continuation of program activities and continued support from the community (Shediac-Rizkallah & Bone, 1998).
- Program fit, fidelity, dose and targeting (Bowman et al., 2008).

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- The maintenance of a program's initial health benefits and the institutionalisation (integration) of the intervention within the culture of the setting or community through changes in policies, practice and capacity building (Rabin et al., 2008).

More specific measures of sustainability have been suggested including the number of services sustaining the program, the amount of program-related activities continuing and the types of changes in clinical practice (Gruen et al., 2008). The selection of indicators and measures of program sustainability, will however, be influenced by the reporting requirements and priorities of program stakeholders (Davies et al., 2010a, p. 177; Sibbald, Singer, Upshur, & Martin, 2009).

Given the importance of context, it has been argued that measures to quantify program sustainability should be appropriate for the specific context, relevant, feasible to implement and credible; providing clear information and enabling comparability of outcomes between programs (Davies et al., 2010a, p. 178). The development of a formal evaluation of program sustainability therefore, has been recommended (Bowman et al., 2008).

There is no commonly accepted time point for when a program is considered sustained (Scheirer, 2005). In situations where programs have been initially funded from external sources, through a research project for example, it has been suggested that assessment of sustainability should be completed at least three to five years after project cessation (Edwards et al., 2007; Hanh et al., 2009). Others argue that measurement of program sustainability should occur regularly, ideally until the health need has been met or the intervention is no longer useful (Bowman et al., 2008).

There is currently no consensus for how program sustainability should be measured. However, standardising ways of measuring outcomes in knowledge translation studies generally has been recommended to enhance comparability of study outcomes (Godfrey, Harrison, & Graham, 2010, p. 199).

### 3.5.7    *Strategies to Enhance Program Sustainability*

Although program sustainability is desired, little is known about how it may be achieved (St Leger, 2005). None of the current systematic reviews within the Cochrane EPOC group have evaluated the effectiveness of interventions for achieving program sustainability. Strategies to enhance the likelihood of program sustainability have been

reported in the literature, but none as yet have been formally evaluated in randomised controlled trials.

### 3.5.7.1 *Planning, Managing and Monitoring Program Sustainability*

Planning may enhance the prospect of program sustainability (Shediac-Rizkallah & Bone, 1998). The need for planning has been highlighted in a study by August, Bloomquist, Lee, Realmuto & Hektor August (2006). The aim of the study was to determine if the positive effects of an early intervention program delivered by a community agency could be sustained when responsibility for the program was transferred from the program developers to the agency. The results indicated that while the agency was able to implement all program components, program attendance rates were substantially lower and only one positive outcome was replicated. The authors postulated that the lack of sustainability in positive outcomes may have been due to a variety of factors such as poor collaboration between program partners and staff turnover. Planning for sustainability, therefore, was recommended by the study authors as a method to anticipate and mitigate the effect of any potential barriers to program sustainability.

It has been recommended that planning should be conducted as early as possible, ideally at the time of program development (Pluye et al., 2004a; Pluye, Potvin, Denis, Pelletier, & Mannoni, 2005). Planning should take into consideration the factors known to influence program sustainability, but be responsive to issues arising from the program implementation process and as new research evidence emerges (Davies & Edwards, 2009, pp. 168-170). Planning and building an "infrastructure for sustainability" has been recommended (Bradley et al., 2004; Feldstein & Glasgow, 2008), while the use of checklists may facilitate the planning process (Edwards et al., 2007). However, there is little evidence that this type of planning occurs in practice. While planning for program implementation may take place, there has been less emphasis on understanding and planning for program sustainability.

Given that program sustainability is an active process occurring in an environment of change, a "vigilant diagnostic approach" has been suggested to evaluate, monitor and address the context-specific conditions that may support or threaten program sustainability and to assess if program sustainability should still be the goal (Buchanan & Fitzgerald, 2007, p. 39). It's about actively "maintaining the

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narrative, keeping the storyline going, preventing sub-plots and diversions from taking over" (Buchanan, Fitzgerald, & Ketley, 2007, p. 255). Although the use of a program sustainability plans have been reported, it remains unclear whether planning results in the continuation of programs over time (Davies et al., 2010a, p. 181).

### 3.5.7.2  *Targeting Factors Influencing Program Sustainability*

Given the many factors influencing program sustainability, interventions targeting these factors may enhance the likelihood of program sustainability. Early involvement of staff, adequate resourcing, detailed project management, appropriate training, timely support and the ability to adapt the program to local needs have all been suggested as useful strategies (Greenhalgh et al., 2010). In their article, Robinson, Herz and Brennan (2009) described the core elements of a sustainable program and suggested a combination of strategies to increase the potential for program sustainability.

Based on her review of the factors influencing program sustainability, Sheirer (2005) recommended that organisations should:

- Choose programs that relate to the organisation's, mission and culture to encourage support from senior management and enable program related tasks to better fit within the workloads of staff;
- Modify the program to suit the local context but without destroying the core components contributing to the effectiveness of the program;
- Identify and support a local program champion;
- Emphasise the various benefits of the program for the organisation, staff, clients and other stakeholders (especially program funders);
- Aim to routinise the program into the core operations of the organisation rather than continuing the program as a 'stand-alone' intervention;
- Assess their organisational capacity to sustain the program;
- Plan for sustainability.

There may of course, depending on the context, be factors that are more amenable to change than others (Edwards et al., 2007). What is important is that all factors that have the potential to affect program sustainability are considered and addressed where possible to do so.

Other studies have highlighted the importance of securing local, sustainable program funding (Sadof, Boschert, Brandt, & Motyl, 2006; Stevens & Peikes, 2006;

Tibbits et al., 2010), having sufficient organisational capacity (Cassidy, Leviton, & Hunter, 2006) and working collaboratively to enhance program sustainability (Nordqvist, Timpka, & Lindqvist, 2009).

As previously shown, various models for program sustainability have been developed based on the factors known to influence program sustainability. These models and frameworks may be used by organisations as planning tools to guide the development of context-relevant strategies (Bray et al., 2009; Edwards et al., 2007; Johnson et al., 2004; Mancini & Marek, 2004). For example, the NHS Sustainability Model developed by Maher et al. (2007) was designed as an interactive model, so that organisations can rate and score their progress against each factor and then adjust their strategies and actions accordingly. Other resources to assist organisations in enhancing program sustainability have also been developed (Clinical Excellence Commission, 2008).

The effect of combined interventions targeting the factors affecting program sustainability has been investigated in some studies. For example, using a before and after study design, Goetz and colleagues (2009) evaluated the effect of a combination of interventions on the sustainability of HIV testing procedures in clinics in Nevada and California in the US. The combined interventions provided over one year, (the intervention year), included electronic clinical reminders, an audit-feedback system, re-organisation of work practices and service provider education. After one year (the sustainability year), responsibility for the educational component was transferred to the clinical teams participating in the study. The combined interventions resulted in an overall increase in monthly HIV testing rates from 2% at baseline to 6% in the implementation year, dropping to 4% during the sustainability year. The educational activities were much reduced during the sustainability year, possibly indicating the importance of sustained support for organisations.  Thus, while the use of combined interventions showed promise, the effects appeared modest.  As such, it remains unclear if interventions (single or in combination) targeting factors known to influence program sustainability result in sustained programs.

### 3.5.7.3   *Embedding the Program*

It has been suggested that program sustainability may be achieved by embedding the program into organisational policies, practices and routines (Dzewaltowski et al., 2004;

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Grol & Wensing, 2004; Pluye et al., 2004a; Swerrisen & Crisp, 2004). It has also been argued, that the integration of programs within organisational practices may be further enhanced when combined with standards imposed from outside the organisation, such as state-level rules and regulations (Pluye et al., 2004a). Pluye, Potvin, Denis & Pelletier (2004b) proposed that a sustained program becomes part of an organisation's routines, characterised by:

- Memory (staff experience and knowledge, electronic and paper-based records).
- Adaptation (program adaptation according to context).
- Values (the collective beliefs, values and rituals of the organisation).
- Rules (conformity to the rules governing decision-making and action).

It is unknown however, if strategies aimed at routinising program activities within organisations according to these characteristics leads to program sustainability.

### 3.5.7.4   Managing Barriers to Program Sustainability

A variety of barriers have been reported that may affect the sustainability of health care programs (Grol & Wensing, 2004; Po'e, Gesell, Caples, Escarfuller, & Barkin, 2010). Identifying and addressing potential barriers to program sustainability has been suggested as a way to enhance program sustainability (Buchanan et al., 2007, p. 259; Graham et al., 2010). The "barriers management" approach however, is not without its critics and a shift in focus from organisational "deficits" to one of organisational "potential" has been recommended (Davies et al., 2010a, p. 174).

### 3.5.7.5   Networks, Partnerships and Collaborations for Program Sustainability

The use of networks, partnerships and collaborations to enhance program sustainability has been investigated in some studies. For example, in a study by Pomietto et al. (2009) partnerships were initially developed between a children's hospital and a variety of primary care providers with the aim of improving evidence-based paediatric obesity care. The primary care practices were encouraged to partner with local community-based organisations to develop context specific programs, gain support, enhance program capacity and to advocate for change at a policy level. These activities resulted in the development of local programs, many of which were then replicated by different service providers in different geographical areas.

The value of a network for achieving sustainability of community-based physical activity programs for older people from multicultural backgrounds living in low-income areas, was evaluated in a study by Cheadle, Egger, LoGerfo, Schwartz and Harris (2010). In the study, the Southeast Senior Physical Activity Network (SESPAN) was developed by the University of Washington, implemented in Seattle and staffed by a part-time organiser whose role was to establish partnerships between local community organisations and institutions. A key aim of the network was to build a coalition of organisations that could sustain the SESPAN activities beyond the five-year time span of the project.

The results of the study indicated that the network assisted in the creation of 21 new programs and one new community health coalition. Of 12 walking groups created, seven were ongoing but were reliant on continued funding from a government department. Six fitness classes continued, funded from independent sources. Continuation of the community health coalition was dependent on continued funding from the local health department.

The authors noted that central to the success of the network was the availability of some resources that could be used to support the implementation of local programs, and that sometimes small amounts of funding could make a substantial difference as to whether programs proceeded or not. The authors also stressed the critical role played by the network organiser in the creation of new programs and the importance of identifying and supporting program champions at all levels within the implementing organisations.

The Healthy Learners Asthma Initiative (HLAI) was developed from a collaboration between school communities and community health care organisations in Minneapolis in the US (Splett, Erickson, Belseth, & Jensen, 2006). The aim of the collaborative was to improve asthma care in school children by building sustainable school-based programs that were underpinned by evidence-based asthma management guidelines. The HLAI consisted of a centralised Asthma Team including an Asthma Coordinator and Resource Nurses who provided training and support to school-based nurses and assistants as well as health clinic-based staff. The initiative commenced in 1999.

Data collected from 83 participating schools over a four-year period from 2001 to 2005 indicated that many of the practices and procedures recommended by the HLAI

were sustained during this time including the regular identification of at-risk students, the implementation and review of asthma management plans and routine education of students, families, teachers and staff. The authors concluded that asthma management practices and procedures had become institutionalised within schools, in large part due to the mentoring and support offered by the asthma resource nurse.

Another form of network known as communities of practice (CoP) was investigated in a recent review (Li et al., 2009). Communities of practice have been defined as "groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 2006). To identify relevant articles matching their eligibility criteria, Li and colleagues searched eight electronic databases, hand searched key journals and examined the reference lists of studies included in the review. Methods for study selection, data extraction and data analysis were rigorous and clearly reported. Thirty-one studies were included with 18 from the business sector and 13 from healthcare. Most were qualitative studies describing how CoP groups were developed, how they functioned and the challenges in sustaining them.

The authors found that in the health sector, communities of practice generally referred to a group of health professionals working together but that the membership, structure and function of the groups described in the literature varied considerably. Communities of practice in both sectors, however were characterised by an emphasis on:

- Social interaction which may be formal or informal, face-to-face or using communication technologies.
- Knowledge-sharing.
- Knowledge-creation to develop new ways of performing duties, completing tasks or solving problems.
- Identity building to enhance the profession or to be identified as 'experts'.

While, the importance of the group facilitator, and their need for support, was highlighted, the authors found that the functioning of the group may be positively or negatively affected by those members holding the most "power". It was unclear which CoP group structure best suited which type of organisation and the authors were unable to identify any studies evaluating the effectiveness of communities of practice. Hence,

they concluded that the effectiveness of communities of practice on the integration of research into practice remains unclear.

Once established, the sustainability of partnerships must also be considered. For example, Lindamer et al. (2009) found that building partnerships between research organisations and community organisations, however necessary, was time consuming, at times challenging, and required adjustments in attitudes, resourcing and practice by partnership stakeholders. Thus, despite the potential of networks, partnerships and collaboratives to enhance program sustainability, a greater understanding of the nature of networks, how they operate in practice and how they influence program sustainability is needed (Gollop & Saint Lamont, 2007).

### 3.5.7.6  *Other Interventions*

Other interventions reported in the literature that may enhance program sustainability include: building infrastructures for ongoing program delivery ("capacity-building") (Hawe, Noort, King, & Jordens, 1997),  information dissemination (Delclos et al., 1999), the use of knowledge brokers (Russell et al., 2010) and outreach support (Hogg, Lemelin, Moroz, Solo, & Russell, 2008).

In summary, a variety of interventions have been suggested in the literature to enhance the likelihood of program sustainability. However, until the results of rigorously conducted trials become available, no evidence-based recommendations for the most effective interventions can be made.

### 3.5.8    **Summary of Research on Program Sustainability in Health Care**

The importance of sustainability in health care has been acknowledged and there is an emerging body of research investigating issues surrounding program sustainability. Currently there is no consensus for standard terms and definitions for program sustainability, or how sustainability should be measured. Some theories, models and frameworks for program sustainability have been developed primarily based on syntheses of factors thought to influence program sustainability. No models have yet been formally tested, although some have been utilised in a variety of research studies. Many factors can affect program sustainability. The influence of each factor and their interaction may depend on the context in which the program is delivered. While some

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interventions have been recommended to enhance the likelihood of program sustainability, more research is needed to determine their effectiveness.

### 3.6 Sustainability of Community-Based Falls Prevention Programs: Unpublished Reports

As highlighted earlier in this chapter, the importance of sustainable falls prevention programs has been acknowledged. Yet one US study found that falls prevention programs funded initially from research grants or as demonstration projects did not continue as regular programs (RAND Corporation, 2003, p. 65). Understanding the factors affecting program sustainability has been the focus of some projects conducted in Australia and internationally. These projects have produced reports but the results have not been published.

Cassell & Day (2002) interviewed key stakeholders implementing the Foothold on Safety program in Victoria, Australia, about the facilitators and barriers to program sustainability. Facilitators included having a committed project leader and advisory committee, planning for sustainability from the start, actively seeking program sponsorship and support, having a good fit between the program and the organisations involved, seeing the program benefits, developing strong community partnerships with organisations committed to falls prevention and the presence of good evidence underpinning the program. Barriers to program sustainability included a lack of dedicated program funding, resources spread too thinly, a lack of ongoing commitment from program partners, loss of key personnel and competing organisational priorities. Similar factors have been reported in Canada, where strong community partnerships, strong leadership and additional financial support were all associated with program sustainability (Public Health Agency of Canada, 2005; Scott et al., 2010).

Researchers at the National Ageing Research Institute (NARI) in Australia collected information regarding program sustainability from key people involved with community-based falls prevention programs (National Ageing Research Institute, 2001). Of the 131 programs included in the review, 73 programs were considered by those involved to be sustainable. Factors associated with program sustainability included: having permanent program funding, having permanent staff, incorporation of program duties into job descriptions, ensuring that the program becomes a core activity for the organisation, having infrastructure and capacity, having access to program

resources, needing to report program outcomes and having a capacity to respond to these outcomes. Respondents reported that a combination of two or more factors were necessary for program sustainability, rather than program sustainability relying on a single factor. Interestingly, the incorporation of program duties into job descriptions was reported more frequently as an enabler of program sustainability than the allocation of specific program funds, suggesting that job re-design may be more likely to result in program sustainability than a reliance on additional program funding alone. The authors of the report recommended strategies such as in-service education sessions and train-the-trainer models to enhance the likelihood of program sustainability.

Some resources have been developed to assist organisations in sustaining their falls prevention programs. For example, in Australia, Queensland Health developed the Stay on your Feet Resources and Toolkit which includes a list of recommended strategies for improving program sustainability (http://www.health.qld.gov.au/stayonyourfeet/references.asp#11). The National Centers for Injury Prevention and Control in the US have developed a checklist and template for creating a sustainability plan which focuses on key tasks such as building collaborations with new and existing partners, seeking program advocates and identifying ongoing and diversified funding from a variety of sources (National Center for Injury Prevention and Control, 2008b, pp. 94-95).

In sum, projects investigating the sustainability of falls prevention programs reports suggest that a number of factors may be associated with sustainability of community-based falls prevention programs and some resources have been developed to assist organisations in their program planning.


## 3.7   Chapter Summary

The translation of findings from falls prevention research into practice remains a challenge. A process of knowledge translation has been proposed as a method to facilitate the use of research finding in practice. Program sustainability is an important component of the knowledge translation process and research is emerging on how the sustainability of health care programs can be defined, measured, understood and evaluated. In the next chapter I present a systematic review of the published literature investigating the sustainability of community-based falls prevention programs.

# Chapter Four

# Sustainability of Community-Based Falls Prevention Programs: A Systematic Review

## 4.1 Introduction

The focus of this chapter is on the sustainability of community-based falls prevention programs. In Chapters Two and Three, I reviewed the literature on falls prevention, the translation of research evidence into practice and program sustainability in health care.

To summarise, it is known that approximately 30% of adults aged sixty-five years and over and living in the community fall each year. The rate of falls increases with advancing age and the rate of falling has changed little over time. The impact and consequences of falls for older people can be severe. Falls can result in death, hospitalisation, injury, activity restriction and have a psychological impact. A range of interventions and programs have been shown to be effective for preventing falls but the translation of these effective programs into practice remains limited. Even when programs are implemented they may not be sustained, leading to wasted investments in time, money, resources and people.

Research on the sustainability of programs in health care indicates that many factors may have a positive or negative influence on program sustainability, depending upon the context in which the program operates. It is currently unknown however, which particular factors or combinations of factors in which circumstances will maximise the likelihood of program sustainability.

The importance of sustainable falls prevention programs has been acknowledged (Clemson et al., 2010). Some projects investigating the sustainability of community-based falls prevention programs have been conducted. Results from these projects indicate that fall prevention programs funded initially from research grants or as demonstration projects either did not continue as regular programs or were inconsistently sustained across organisations. Some projects have reported a number of factors facilitating program sustainability. These factors include having a committed project leader, planning for sustainability, actively seeking program sponsorship and support, ensuring a good "fit" between the program and the organisation, seeing the program benefits, working in partnerships with other organisations and incorporating

the program into job descriptions. Barriers to program sustainability included a lack of dedicated program funding and resources, changes in staff and competing organisational priorities.

While some research projects have produced reports, the results have not been published in the peer-reviewed literature. Stevens and colleagues have argued that studies investigating the sustainability falls prevention program are needed (2010). However, it is unclear what research has been conducted to date on this topic, in particular in relation to the sustainability of community-based falls prevention programs.

In this chapter I present a systematic review of the published evidence on the sustainability of community-based falls prevention programs. This systematic review was conducted by myself [ML] and two other reviewers from The University of Sydney, Associate Professors Lindy Clemson [LC] and Catherine Dean [CD][1].

## 4.2 Objectives

We systematically reviewed the published literature to:

1) Identify any theories, models or frameworks that have been developed for the sustainability of community-based falls prevention programs;

2) Determine which factors affect the sustainability of community-based falls prevention programs and

3) Ascertain if any interventions are effective for promoting, enhancing or achieving sustainability of community-based falls prevention programs.

## 4.3 Methods

A protocol was developed to guide the review process (See Appendix 1). The procedures used in this review were based on those recommended in the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement (Liberati et al., 2009), the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2009) and the Guide to Systematic Reviews produced by the Centre for Reviews and Dissemination (Centre for Reviews and Dissemination, 2009).

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[1] The contribution of Professor Mark Mathews during the early design phase of this review is acknowledged.

### 4.3.1 Eligibility Criteria

The following are the specific inclusion criteria developed for this review.

#### 4.3.1.1 Types of Publications

Publications were only included if they were from the peer-reviewed, scientific literature. Given our diverse review objectives, we set no restrictions on the type of study design. No limits on language, publication date or publication status were imposed, other than those limits inherent within the design of each database searched.

#### 4.3.1.2 Types of Interventions

Any publications referring to interventions or programs which aimed to reduce the risk of falls, rate of falls or the effect of or exposure to any risk factor for falling were included.

#### 4.3.1.3 Types of Participants

Publications referring to older men and women aged sixty-five years and over and living in the community were included. In accordance with other systematic reviews, we included publications if the participants were described as elderly, seniors or older adults, if 50% and over of the total number of participants were aged sixty-five years and over and were living either at home or in similar residences such as independent living units in retirement villages (Gillespie et al., 2009). Publications referring to hospitals or formal residential aged care settings (such as hostels and nursing homes) were excluded.

#### 4.3.1.4 Types of Outcomes/Factors

Any publication investigating the sustainability of falls prevention programs or interventions relevant to the three review objectives were included. Multiple definitions for program sustainability have been described in the literature (Davies & Edwards, 2009, p. 167; Gruen et al., 2008). In this review, we defined program sustainability as the continuation of the program over time. Publications referring to the sustainability of the effect of the program on the participants, rather than the sustainability of the program itself, were excluded.

### 4.3.2 Search Strategy

Publications were identified by searching electronic databases, scanning the reference lists of the included studies and from the personal collections of the reviewers. The Medline, Embase, Cochrane Database of Systematic Reviews, Cochrane Central Register of Controlled Trials, PubMed, Cinahl, OTseeker, PEDro, AMED and Ageline databases were searched at the end of June 2010. We added all known publications from our personal collections up to and including December 2010. We did not search the "grey literature" as our aim was to only identify and include publications from the peer-reviewed scientific literature. Search strategies were developed in consultation with a health services librarian and an information specialist experienced in developing search strategies for systematic reviews. The search strategy was tailored to match the design of each database. To determine the most optimal combination of search terms, four pilot searches were conducted in Medline. Results of the pilot searches are in the review protocol in Appendix 1.

We included multiple terms and phrases previously used in the literature for the concept of program sustainability. Search terms for specific study designs were not included in the search strategy, as we were interested in identifying any publication type or study design. All searches were conducted by one reviewer [ML]. The final search strategy used in the Medline database is shown in Box 4.1

### 4.3.3 Selection of Publications

At the conclusion of the database searches, duplicate publications were identified and removed. We screened all remaining publications for relevance and then assessed each relevant publication against the eligibility criteria.

### 4.3.3.1 Screening

The title and abstract of all publications identified from the searches were screened for relevance to each of the three review objectives. Each reviewer screened a proportion of the retrieved publications and rated the relevance of each publication as 'Yes', 'No' or 'Maybe'. Those publications rated 'Yes' or 'Maybe' were then assessed for eligibility.

Box 4.1 Final Medline Search Strategy

1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Aged/
7. "Aged, 80 and over"/
8. Frail Elderly/
9. (senior$1 or elderly or older).tw
10. 6 or 7 or 8 or 9
11. Sustain$.tw
12. Continu$.tw
13. Integrat$.tw
14. Routini?ation.tw
15. Incorporat$.tw
16. Embed$.tw
17. Maint$.tw
18. Institutionali?ation.tw
19. Stabil$.tw
20. Durab$.tw
21. "sustained use".tw
22. "level of use".tw
23. "local ownership".tw
24. "community building".tw
25. "quality improvement".tw
26. "complex intervention".tw
27. "routine implementation".tw
28. "continuous implementation".tw
29. "sustained implementation".tw
30. "ongoing implementation".tw
31. "implementation science".tw
32. "sustainability science".tw
33. or/11-32
34. 5 and 10 and 33

### 4.3.3.2 *Eligibility Assessment*

The full-text article for all relevant publications identified from the screening process were obtained and each article was independently assessed by two reviewers. An eligibility assessment form was developed, in which reviewers recorded whether each publication satisfied the eligibility criteria and reasons for publication exclusion. Any uncertainties or discrepancies were resolved by consensus.

### 4.3.4 *Data Extraction*

We determined the relevance of each publication to each of the review objectives and extracted the following data: the country, publication type and the aspect of

sustainability addressed in the publication. In determining the publication type we used the description provided in the publication. Where the publication type was not provided by the authors, we assigned our own description based on the research methods described within the publication. For empirical studies we extracted additional data: the study aim, setting, population, intervention, research methods and main study findings.

All data were extracted and summarised in evidence tables. One reviewer [ML] extracted the data which was checked for accuracy by a second reviewer [CD]. Given the heterogeneity of the included publications it was not possible or appropriate to calculate summary measures across studies or conduct a meta-analysis.

### 4.3.5   *Assessment of Study Quality*

We conducted assessments of study quality for the empirical studies only. Assessments were limited to those study designs for which quality assessment was appropriate such as systematic reviews, randomised controlled trials, qualitative studies, economic evaluations, cohort studies, case control studies, single case experimental studies, survey studies and mixed method/complex intervention designs.  To assess study quality we used criteria specific to each study design, based on a previous systematic review of publications of multiple study designs by (Greenhalgh et al., 2005). The criteria used in this review are described in Appendix 2. One reviewer [ML] conducted the quality assessments which were verified by a second reviewer [CD].

### 4.4   Results

A total of 7114 publications were identified from the database searches, reduced to 4171 after removal of duplicates. Ten additional publications were identified from our personal literature collections and from the reference lists of the included studies. All 4181 publications were screened, in which 4054 publications were then discarded as they did not meet the eligibility criteria.

One reviewer (ML) initially examined the remaining 127 publications. Nine publications were immediately excluded because they were government reports (n=3), dissertations (n=2), magazine articles (n=2) or were previous versions of the same systematic review (n=2).   The full text article of the remaining 118 publications was independently assessed for eligibility by two reviewers.
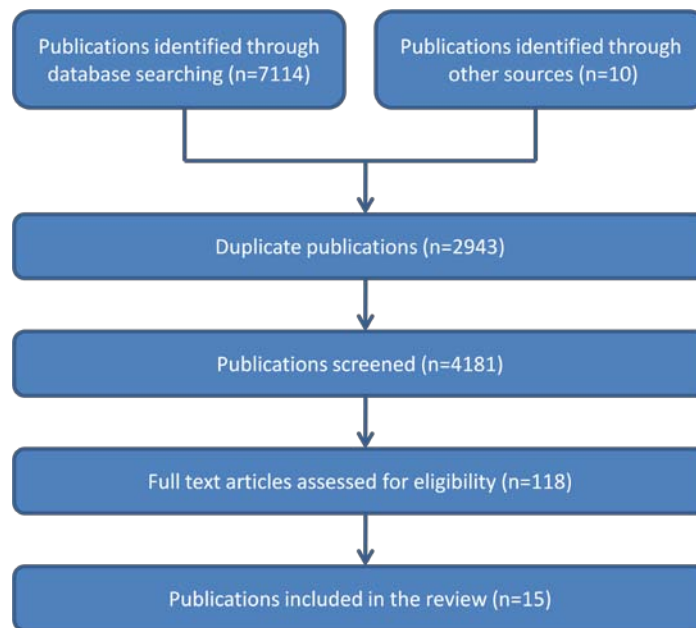
Figure 4.1 Publication Selection Flow Diagram

From the assessment process a further 103 publications were excluded because they were primarily unrelated to program sustainability (n=75), falls prevention was not the focus of the publication (n=20) or they were not relevant to the community setting (n=7).  One publication from Japan was excluded because the English translation was unavailable.  Publications excluded from the review are listed in Appendix 3. Fifteen publications were included in the review. A flow diagram outlining the publication selection process is presented in Figure 4.1.

We included four publications that were not specific to the community setting, but were clearly relevant to older people living in the community. For most publications we were unable to determine if 50% or more of the participants were aged 65 years and over. Hence we included publications if they referred to older people, older adults, the elderly or seniors. For many of the included publications, program sustainability was not the primary focus but was referred to in some way.  When extracting the data, we focussed only on the parts of the publication relevant to program sustainability. The included publications were from Australia (n=7), the United States (n=6), Canada (n=1) and the United Kingdom (n=1), published from 1998 to 2010, with most published after 2002.

Three publications described conceptual frameworks and models relevant to program sustainability, with five publications reporting factors affecting program

sustainability. Nine publications described, referred to or evaluated interventions aimed at program sustainability. Eleven of the included publications were empirical studies whilst four were descriptive in nature. The empirical studies included survey studies (n=4), project evaluations (n=2), study protocols or designs (n=2), one dissemination study (complex intervention study), one qualitative study and one single group study using a pre-test/post-test design. We conducted quality assessments for six of the empirical studies including the four survey studies, the dissemination study and the qualitative study.

### 4.4.1 Theories, Models or Frameworks for Program Sustainability

Three publications described models or frameworks relevant to the sustainability of community-based falls prevention programs (Farkas, Jette, Tennstedt, Haley, & Quinn, 2003; Ganz et al., 2008; Rose, Alkema, Choi, Nishita, & Pynoos, 2007). Characteristics of the three publications are presented in Table 4.1.

Farkas and colleagues (2003) described the Knowledge Dissemination and Utilization Framework, which focused on how knowledge from research findings can gain greater exposure, how the knowledge may be more positively received by stakeholders, how expertise in the use of knowledge may be improved and how the knowledge may be embedded. Strategies for improving knowledge exposure, experience, expertise and embedding by researchers, administrators and consumers are suggested by the authors. The authors apply the framework to "A Matter of Balance" a community-based fall prevention program which had been shown in a randomised controlled trial to reduce fear of falling, enhance personal ability to manage falls risks and increase activity levels. The authors reported the strategies they used to improve program expertise and embedding with the aim of sustained program implementation.

Ganz et al. (2008) described how the principles of the Innovative Care for Chronic Conditions (ICCC) framework developed by the World Health Organisation may be applied to better co-ordinate, facilitate, implement and sustain falls prevention and management programs. The ICCC framework links activities between consumers, community service providers and healthcare professionals within a positive policy environment. The authors provide examples of how the principles of the framework can be applied to specific falls prevention programs and to the integration of falls prevention initiatives in general.

Table 4.1 Characteristics of Publications Describing Models and Frameworks for
Program Sustainability

| Publication | Country | Publication Type | Aspect of Program Sustainability |
|---|---|---|---|
| **Farkas et al. (2003)** | United States | Description and application of a conceptual framework | The Knowledge Dissemination and Utilization Framework is described and applied to the 'Matter of Balance' falls prevention program to demonstrate how the use of the framework may promote embedding of the program by organisations and consumers |
| **Ganz et al. (2008)** | United States | Description and application of a conceptual framework | How the principles of the World Health Organisation Innovative Care for Chronic Conditions (ICCC) framework may be applied for co-ordinating and sustaining falls prevention initiatives. Examples of falls prevention programs consistent with the principles of the ICCC framework are presented |
| **Rose et al. (2007)** | United States | Description of a policy, research and service delivery model for fall prevention | The Fall Prevention Center of Excellence, a consortium of federal, state and private organisations, is described. The Center aims to build a comprehensive and sustainable falls prevention system in California |

Rose et al. (2007) described the Fall Prevention Center for Excellence, a policy, research and service delivery model aiming to build an infrastructure to ensure an integrated and sustainable falls prevention system throughout California. The Center also aims to create, test and evaluate falls prevention programs that are sustainable.

### 4.4.2 *Factors Affecting Program Sustainability*

Five publications reported on factors associated with program sustainability (Bagnall, Monk, Gimson, Saul, & Farmiloe, 1998; Baker, Gottschalk, & Bianco, 2007; Gilsenan, Hill, & Kerse, 1999; Hanson et al., 2009; Peel, Travers, Bell, & Smith, 2010). The characteristics of the five studies are presented in Table 4.2. One publication described the development of a database containing information on falls prevention programs within Australia (Gilsenan et al., 1999). Each program included in the database was rated against factors thought by the authors to contribute to program sustainability such as: having permanent program funding, staff and space, regarding the program as a core activity of the organisation and a capacity to conduct and respond to program evaluations.

Table 4.2 Characteristics of Publications on Factors Affecting Program Sustainability

| Publication Details | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **Bagnall (1998)** <br><br> Location **Queensland, Australia** <br><br> Publication Type **Project Evaluation** | Factors considered central for program sustainability | To evaluate the Gentle Exercise Project which was part of the multi-strategy Stepping Out Falls Prevention Project for Older People | Council and YMCA venues in Townsville, exercise classes aimed at people aged over 50 years | The use of strategies to maximise program sustainability including: using already trained instructors and existing equipment, using inexpensive promotional materials, free venues, participant fee of $2 per class. <br><br> Exercise classes commenced in September 1996 and were conducted twice weekly | After 10 weeks, focus groups were conducted with 24 exercise class participants to assess satisfaction with the classes. Instructors completed an evaluation questionnaire (number of instructors not reported) <br><br> At 12 months, 30 exercise class participants completed an evaluation questionnaire | Four factors considered by the authors as central for maintaining sustainability: <br><br> 1. Stakeholder identification of program need and involvement in program development <br><br> 2. Willingness of Council and YMCA to conduct exercise classes as part of their core business <br><br> 3. Minimising costs to establish the classes <br><br> 4. Adopting a 'user-pays' approach from program outset |
| First author & year **Baker (2007)** <br><br> Location **Connecticut, United States** <br><br> Publication Type **Dissemination study (Complex intervention** | Challenges in embedding and integrating a falls risk-management program | To implement evidence-based fall-prevention programming into seniors centres | Seniors centres in Connecticut (n=9) | Step-by Step, a multi-strategic intervention conducted over 3 years to assist organisations in embedding and integrating a falls prevention intervention. <br><br> Step-by-Step aimed to enhance knowledge and behaviours of centre staff and members and | Challenges were extracted from monthly work-group meeting minutes. | Challenges included: tailoring the intervention to the senior centre context, unclear delineation of authority and responsibility for the falls intervention, limited physical resources within the centres, engaging senior centre members in the falls intervention, ensuring culturally appropriate materials and modifying existing practices. |

| Publication Details | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| study) | | | | promote relationships between the centres and local clinicians | | |
| First author & year **Gilsenan (1999)** Location **Victoria, Australia** Publication Type **Description of a falls prevention database** | Interventions listed in the database were rated against factors thought to contribute to program sustainability. | N/A | N/A | N/A | N/A | N/A |
| First author & year **Hanson (2009)** Location **Ontario, Canada** Publication Type **Qualitative study** | Definitions used for program sustainability | To document what was meant by the term 'sustainability' by stakeholders involved with a falls prevention program | Two urban and one rural site in Ontario, stakeholders from diverse professional backgrounds (n=40) | Community-based falls prevention demonstration project, one delivered through the private sector, two through the public health system | Semi-structured interviews were used to collect data, interview data were coded and developed into definitional categories for program sustainability | There was substantial diversity in the definitions used for program sustainability within and between the three sites. The authors concluded that there is a need for a common understanding of what is meant by program sustainability. |

| Publication Details | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **Peel (2010)** Location **Queensland, Australia** Publication Type **Pilot project evaluation** | Factors affecting project sustainability | To build capacity to deliver integrated and sustainable evidence-based falls prevention activities across the community, health and residential care sectors | Community, acute and residential care settings in Queensland | A workforce enhancement strategy consisting of the appointment of 6 Falls Safety Officers (FSOs) who then identified key stakeholders, facilitated planning days, workshops, the development of action plans and falls working groups | After one year, data were collected regarding the number of integrated action plans developed and working groups in operation. Interviews were conducted with stakeholders to determine program capacity and any factors influencing project sustainability | Thirty-three action plans were in development but none had been implemented. Forty-one working groups were established or supported in which ten had cross continuum membership Factors affecting project sustainability were continued funding for a dedicated, permanent project 'driver' and ongoing education delivered in a flexible manner and format |

Four publications were empirical studies investigating different factors associated with program sustainability. One qualitative study investigated how stakeholders involved with three community-based falls prevention programs in Ontario, Canada, defined program sustainability and found that stakeholder definitions varied widely both within and across the three programs (Hanson et al., 2009).

One study was a project evaluation of a falls prevention exercise program conducted in Townsville, Australia, involving a partnership between a community health service and local service providers over a one year period (Bagnall et al., 1998). Based on their program experiences the authors felt that four factors were critical for program sustainability: 1) stakeholder involvement in program identification and development; 2) the program becomes "core business" of the local service provider; 3) having minimal program start-up costs and 4) adopting a 'user-pays' approach at program outset.

In another project evaluation study, six Falls Safety Officers were appointed in Queensland, Australia, for one year to enhance the capacity of organisations in the community, primary health care, acute health care, residential aged care and the rehabilitation sectors to deliver co-ordinated falls prevention activities (Peel et al., 2010). Findings from interviews conducted with project stakeholders indicated that sustainability of activities initiated during the project was more likely in the long-term if there was continued funding for a staff member to 'drive' the activities and if ongoing staff education delivered in flexible formats and times was made available.

One study conducted in Connecticut in the US, described as a dissemination study, reported the challenges in embedding and integrating a falls risk-management program within seniors centres (Baker et al., 2007). A variety of challenges were reported by the authors relating to the delineation of responsibility for the program, the adequacy of program resources and materials, participation of older people in the program and the modification of existing practices within the centres.

Study quality was assessed for two of the four empirical studies (See Table 4.3). The qualitative study conducted by Hanson et al. (2009) met nine of the eleven assessment criteria. The dissemination study by Baker et al. (2007) met eleven of the sixteen assessment criteria.

Table 4.3 Assessment of Study Quality

| Publication | Quality Criterion* | Criterion Met Yes/No/Unclear |
|---|---|---|
| **Publications on Factors Affecting Program Sustainability** | | |
| First author & year<br>**Hanson (2009)**<br><br>Publication Type<br>**Qualitative study** | 1. Clear research question<br>2. Appropriate study design<br>3. Context sufficiently described<br>4. Adequate sampling<br>5. Systematic data collection<br>6. Rigorous data analysis<br>7. Main results clearly described<br>8. Conclusions clearly drawn<br>9. Evidence of reflexivity<br>10. Ethical considerations provided<br>11. Relevance of findings | Yes<br>Unclear<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Unclear<br>Yes<br>Yes<br>**Criteria met = 9** |
| **Publications on Factors and Interventions for Program Sustainability** | | |
| First author & year<br>**Baker (2007)**<br><br>Publication Type<br>**Dissemination study (Complex intervention study)** | 1. Clear research question<br>2. Appropriate study design<br>3. Source of funding stated<br>4. Source of the innovation<br>5. Nature of innovation described<br>6. Context sufficiently described<br>7. User system described<br>8. Dissemination mechanism described<br>9. Implementation process described<br>10. Adequate sampling<br>11. Systematic data collection<br>12. Rigorous data analysis<br>13. Main results clearly described<br>14. Conclusions clearly drawn<br>15. Evidence of reflexivity<br>16. Ethic considerations provided | Yes<br>Unclear<br>No<br>Unclear<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Yes<br>Unclear<br>Unclear<br>No<br>**Criteria met = 11** |
| **Publications on Interventions for Program Sustainability** | | |
| First author & year<br>**Barnett (2004)**<br><br>Publication type<br>**Survey study** | 1. Clear research question<br>2. Appropriate research design<br>3. Adequate sampling<br>4. Adequate participant understanding<br>5. Validity & reliability of survey tool<br>6. Relevant survey questions<br>7. Appropriate use of questions<br>8. Survey piloted<br>9. Adequate reporting of response rates<br>10. Appropriate data analysis | Yes<br>Yes<br>Unclear<br>Unclear<br>No<br>Unclear<br>Unclear<br>No<br>Yes<br>Yes |

| Publication | Quality Criterion* | Criterion Met Yes/No/Unclear |
|---|---|---|
| | 11. Measures to ensure data accuracy | Unclear |
| | 12. Relevant results reported | Yes |
| | 13. Analyses driven by the research hypothesis | Yes **Criteria met = 6** |
| First author & year **Barnett (2003)** Publication type **Survey study** | 1. Clear research question | Yes |
| | 2. Appropriate research design | Yes |
| | 3. Adequate sampling | Unclear |
| | 4. Adequate participant understanding | Unclear |
| | 5. Validity & reliability of survey tool | No |
| | 6. Relevant survey questions | Unclear |
| | 7. Appropriate use of questions | Yes |
| | 8. Survey piloted | Yes |
| | 9. Adequate reporting of response rates | Yes |
| | 10. Appropriate data analysis | Yes |
| | 11. Measures to ensure data accuracy | Unclear |
| | 12. Relevant results reported | Yes |
| | 13. Analyses driven by the research hypothesis | Yes **Criteria met = 8** |
| First author & year **Hughes (2002)** Publication type **Survey study** | 1. Clear research question | Yes |
| | 2. Appropriate research design | Yes |
| | 3. Adequate sampling | Yes |
| | 4. Adequate participant understanding | Unclear |
| | 5. Validity & reliability of survey tool | Yes |
| | 6. Relevant survey questions | Unclear |
| | 7. Appropriate use of questions | Yes |
| | 8. Survey piloted | Yes |
| | 9. Adequate reporting of response rates | Yes |
| | 10. Appropriate data analysis | Yes |
| | 11. Measures to ensure data accuracy | Unclear |
| | 12. Relevant results reported | Yes |
| | 13. Analyses driven by the research hypothesis | Yes **Criteria met = 10** |
| First author & year **van Beurden (2003)** Publication type **Survey study** | 1. Clear research question | Yes |
| | 2. Appropriate research design | Yes |
| | 3. Adequate sampling | Unclear |
| | 4. Adequate participant understanding | Unclear |
| | 5. Validity & reliability of survey tool | Yes |
| | 6. Relevant survey questions | Unclear |
| | 7. Appropriate use of questions | Unclear |
| | 8. Survey piloted | Yes |
| | 9. Adequate reporting of response rates | Yes |
| | 10. Appropriate data analysis | Yes |
| | 11. Measures to ensure data accuracy | Unclear |
| | 12. Relevant results reported | Yes |
| | 13. Analyses driven by the research hypothesis | Yes **Criteria met = 8** |

*See Appendix 2 for a detailed explanation of each quality criterion

### 4.4.3 *Interventions for Promoting, Enhancing or Achieving Program Sustainability*

Nine publications, all empirical studies, described, evaluated or referred to interventions for program sustainability (Bagnall et al., 1998; Baker et al., 2007; Barnett et al., 2004; Barnett et al., 2003; Day et al., 2010; Ganz et al., 2009; Hughes, 2002; Li et al., 2008; van Beurden, Barnett, Molyneaux, & Eakin, 2003). The characteristics of the nine publications are presented in Table 4.4. Four publications described or evaluated specific interventions aimed at maximising the likelihood of program sustainability. Five publications solely evaluated whether programs were sustained over time.

### 4.4.3.1 *Studies Evaluating Interventions to Maximise the Likelihood of Program Sustainability*

Two publications described specific interventions aimed at maximising program sustainability. Day et al. (2010) described in their study protocol, the development of a training program and guidelines for program sustainability, with the aim of assisting community agencies based in Victoria, Australia, to identify, plan, implement and sustain falls prevention interventions. The results of this study are not yet available. Ganz et al. (2009) described the design, development and implementation of a theory-driven quality improvement program aimed at developing a sustainable local falls prevention program within a healthcare system serving veterans in Los Angeles in the US. The authors reported that the falls prevention program activities were continuing beyond the initial six-month study and that program evaluation beyond this time frame was planned.

Two publications evaluated multi-strategic interventions for improving the likelihood of program sustainability. In their project evaluation study, Bagnall et al. (1998) used a variety of early planning strategies to enhance the sustainability of a falls prevention exercise program by local community-based service providers. Strategies included using already trained instructors, existing equipment, free venues and charging a modest participant class fee. The authors reported that the exercise classes were sustained at eighteen months after commencement. In their dissemination study, Baker et al. (2007) used a multi-strategic intervention to assist nine seniors' centres in sustaining a falls risk management program. The strategies included a training program, formation of work groups to develop methods, identify barriers and develop solutions and the development of collaborative relationships between the researchers, the seniors'

centres and local health providers. The authors reported that after eighteen months, seven of the nine centres were sustaining the program in full (n=5) or in a modified format (n=2). Quality assessment was conducted for the dissemination study by Baker et al. (2007), which, as described in Section 4.4.2 met eleven of the sixteen assessment criteria (See Table 4.2)

### 4.4.3.2 Studies Evaluating Program Sustainability Only

Five publications evaluated whether falls prevention programs were sustained over time. However, in contrast to the four publications just described, none of the falls prevention programs reported in these five publications were connected to specific interventions aimed at maximising the likelihood of program sustainability.

Three survey studies evaluated sustainability of the Stay on Your Feet (SOYF) falls prevention program by program stakeholders, five years after the program was conducted in the northern rivers area of New South Wales, Australia (Barnett et al., 2004; Barnett et al., 2003; van Beurden et al., 2003). Results from these three studies indicated that some SOYF related activities were sustained by community health professionals, that there was limited use of SOYF related activities by community pharmacists and that none of the falls prevention practices of general practitioners, councils or access committees were related to the SOYF program. Strategies for sustaining SOYF activities by community health professionals included making the activity part of the usual work role and ensuring the activity was compatible with other projects, prioritised and adequately resourced (Barnett et al., 2004).

As part of a larger survey, one study reported the strategies used by thirteen primary health care organisations in London in the UK, currently engaged in falls prevention activities (Hughes, 2002). Ten of the thirteen organisations had initiated their activities within the previous three years. The creation of falls prevention working parties, appointment of falls prevention co-ordinators, training programs and program evaluations were the most commonly reported strategies. A single group, pre-test/post-test study conducted by Li et al. (2008) evaluated the maintenance of a Tai Chi falls prevention program conducted in six seniors' centres in Oregon in the US. At the conclusion of the twelve-week program, five centres continued to offer the program.

Table 4.4 Characteristics of Publications on Interventions for Program Sustainability

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **Bagnall (1998)** Location **Queensland, Australia** Publication type **Project evaluation** | The use of early planning activities to promote program sustainability | To evaluate the Gentle Exercise Project which was part of the multi-strategy Stepping Out Falls Prevention Project for Older People | Council and YMCA venues in Townsville, exercise classes aimed at people aged over 50 years | The use of strategies to maximise program sustainability including: using already trained instructors and existing equipment, using inexpensive promotional materials, free venues, participant fee of $2AUS per class. Some funding to establish the exercise classes was provided through the Stepping Out Project. Exercise classes commenced in September 1996 and were conducted twice weekly | After 10 weeks, focus groups were conducted with 24 exercise class participants to assess satisfaction with the classes. Instructors completed an evaluation questionnaire (number of instructors not reported). At 12 months, 30 exercise class participants completed an evaluation questionnaire. | At 10 weeks, all participants provided positive comments about the program. Instructor feedback was 'generally positive'. At 12 months approximately 30% of participants had introduced a friend to the classes, over 75% lived close to the venue and all found the classes affordable. Dissemination of the classes to another venue commenced in early 1997. Classes were being sustained 18 months later with no ongoing financial assistance from the Stepping Out Project |
| First author & year **Baker (2007)** Location **Connecticut, United States** Publication type **Dissemination study** | Strategies to embed and integrate a falls risk-management program | To implement evidence-based fall-prevention programming into seniors centres | Seniors centres in Connecticut (n=9) | Step-by- Step, a multi-strategic intervention conducted over 3 years to assist organisations in embedding and integrating a falls prevention intervention. Step-by-Step aimed to enhance knowledge and behaviours of centre staff | Strategies addressing challenges to implementation were extracted from monthly work-group meeting minutes. | After 18 months, 5 centres were implementing the falls intervention in full, 2 were implementing exercise programs only and 2 had ceased the intervention. Program sustainability was most likely when the intervention was integrated into ongoing services. Strategies to address implementation challenges included: a focus on health promotion rather than falls prevention, |

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| **(Complex intervention study)** | | | | and members and promote relationships between the centres and local clinicians | | securing administrative support and defining roles in relation to the falls intervention, reallocation of resources, engaging opinion leaders among senior centres members, marketing of the falls intervention to older people and local health providers, translation of program materials and collaboration between centre administrators and intervention staff to change existing practices. |
| First author & year **Barnett (2004)** Location **New South Wales, Australia** Publication type **Survey study** | Sustainability of falls prevention program activities | To assess program sustainability across multiple community-stakeholders at 5 years post-intervention | Northern Rivers Area Health Service, New South Wales (NSW), community stakeholders including: community health professionals, shire councils, access committees & older people | Stay on Your Feet (SOYF), a multi-strategy public health falls prevention program consisting of: awareness raising, community education, policy development, engagement of health professionals and interventions directly targeting older people | Survey data collected from October 2001 to June 2002 Focus group data collected with older people only | *Community health* One hundred and twenty-nine staff responded (63% response rate). The most frequent SOYF related activities continuing at 5 years were: preventing falls in public places, medication checks and gentle exercise classes. Continuation of SOYF related activities was due to: making the activity part of the normal work role, having available resources, prioritising the activity and the compatibility of the activity with other projects. *Shire council* Nine councils responded (90% response rate). Four councils retained the SOYF resources and none of the nine councils felt that current falls prevention activities were related to |

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| | | | | | | SOYF.<br><br>*Access committees*<br>Eight committees responded (100% response rate). None of the committees continued any of the SOYF activities at 5 years.<br><br>*Older people*<br>Eight focus groups were conducted with 73 older people. 48% remembered SOYF with most remembering after being prompted with SOYF promotional materials. Of the 48%, half reported some SOYF initiated behaviour changes. |
| First author & year **Barnett (2003)**<br><br>Location **New South Wales, Australia**<br><br>Publication type **Survey study** | Sustainability of falls prevention program activities | To assess program sustainability by general practitioners at 5 years post-intervention | Northern Rivers Area Health Service (NSW), general practitioners (GPs) | Stay on Your Feet (SOYF), a multi-strategy public health falls prevention intervention which included the distribution of a GP-developed SOYF resource package to GPs in the north coast of NSW | Survey data collected in late 2001, 5 years after the intervention | One hundred and thirty-nine GPs responded (response rate of 67%). Of the 117 GPs practicing at the time of SOYF, 80% had heard of SOYF and of these 63% reported that their practice had been influenced 'somewhat'. 50% retained a copy of the SOYF package with 55% reporting occasional use of the package and 41% reported no use at all. There was no significant association between the use of the SOYF package and current falls prevention practice. |

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **Day (2011)** <br><br> Location **Victoria, Australia** <br><br> Publication Type **Study protocol** | Incorporation of falls prevention strategies into agency work programs | To develop, implement and evaluate guidelines for program sustainability | Agencies in Victoria providing services to people aged 65 years and over living in the community | Agencies will review their current falls interventions and develop a work plan to address any gaps. Training and support will be provided for agencies in the use of the sustainability guidelines. | Evaluation of the guidelines by each agency. Focus groups will be conducted at 4 months to evaluate the process of embedding changes within each agency | Study is underway, results not yet available |
| First author & year **Ganz (2009)** <br><br> Location **California, United States** <br><br> Publication Type **Design of a quality improvement program** | The use of theory to develop a sustainable fall prevention program. | To develop, using a theory-driven process, a fall prevention program that could be implemented and sustained | Staff of the Veterans Affairs Greater Los Angeles Healthcare System (VAGLAHS). | Organisational theory, diffusion of innovation theory as well as previous research and experience were used to guide the program development process. <br><br> The principles of continuous quality improvement were used to guide program implementation. <br><br> Meetings were held with leadership staff. A multidisciplinary work-group was created to develop and oversee the falls prevention program. | Process evaluation: the number of meetings held, the type of fall prevention program developed and <br><br> Program evaluation: Implementation of the program at 6-months | Two leadership and two work group meetings were held between February and October 2008. The Telecare fall prevention program was developed and implemented during this 6-month period. The work group and program continued beyond the initial 6-month study period. The authors concluded that the program development process resulted in successful initial implementation and sustainability. A formal research evaluation of the program is planned. |

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **Hughes (2002)** Location **London, United Kingdom** Publication type **Survey study** | Strategies used by organisations engaged in fall prevention initiatives | To determine the prevalence and nature of falls prevention activities | Primary and secondary National Health Service (NHS) organisations based in London (n=143) | Any falls prevention activity engaged in by the organisation | Survey data collected from October 2000 to March 2001 | One hundred and five organisations provided survey data, a response rate of 73%. Of the 13 primary care organisations reporting current implementation of falls prevention programs, most were initiated within the previous 3 years (n=10), made use of fall prevention working parties (n=9) and monitored falls n=10). Staff training, the employment of fall prevention co-ordinators and program evaluation were strategies used in approximately half these 13 organisations. |
| First author & year **Li (2007)** Location **Oregon, United States** Publication type **Single group study (pre & post-test)** | Maintenance of a falls prevention program | To evaluate the Tai-Chi-Moving for Better Balance program | Seniors centres (n=6) in 5 cities in Oregon, older people aged 60 years or older, physically mobile and without severe mental deficits | One hour Tai Chi class conducted each week for 12 weeks. | Program maintenance at 12 weeks measured by each centre's willingness to consider Tai Chi as part of the centre's program and continuation of the program after completion of the intervention | All centres expressed an interest in continuing the program. 5 of the 6 centres continued to offer the program. One centre was waiting on instructor availability. |

| Publication | Aspect of Program Sustainability | Study Aim | Setting & Population | Intervention | Data Collection | Main Findings |
|---|---|---|---|---|---|---|
| First author & year **van Beurden (2003)** Country **Australia** Publication type **Survey study** | Sustainability of falls prevention program activities | To assess program sustainability by community pharmacists at 5 years post-intervention | Northern Rivers Area Health Service (NSW), community pharmacists | Stay on Your Feet (SOYF), a multi-strategy public health falls prevention intervention which encouraged pharmacists to engage in activities answering medication queries and the promotion of products to reduce falls risks | Survey data collected in October 2001, 5 years after the intervention | Fifty-three pharmacists responded (response rate of 79%). Of the 46 pharmacists practicing at the time of SOYF, 45% had heard of SOYF and of these, 79% reported that their practice had been influenced 'somewhat' and 13% reported conducting SOYF related activities. Most commonly reported activities were advising clients of the increase in falls risk associated with some prescription medications. |

Quality assessments were conducted for the four survey studies (See Table 4.2). Of these, one study met ten of the thirteen assessment criteria (Hughes, 2002), two studies met eight criteria (Barnett et al., 2003; van Beurden et al., 2003) and one study met six criteria (Barnett et al., 2004).

## 4.5 Discussion

We systematically reviewed the published literature to determine what theories, models or frameworks have been developed for the sustainability of community-based falls prevention programs, what factors affect program sustainability and what interventions are effective for promoting, enhancing or achieving program sustainability. Fifteen publications were included in the review.

### 4.5.1 Principal Findings

Three publications described models and frameworks for program sustainability that could be applied at the broader levels of falls prevention policy, research and service delivery (Rose et al., 2007, at the individual program level (Farkas et al., 2003) or both (Ganz et al., 2008). Each model differed in focus. One model focussed on the sustainability of a state-wide infrastructure for the assessment, advocacy, communication, education, training and evaluation of falls prevention initiatives (Rose et al. (2007). A second model focussed on the role of program stakeholders including researchers, program providers, programs administrators and consumers in embedding programs within organisations (Farkas et al., 2003). The need for a positive policy environment in which healthcare organisations, community-based services and consumers can collaborate to routinely implement falls prevention programs was the focus of a third model (Ganz et al., 2008).

We did not identify any theories that have been developed empirically to guide the sustainability of community-based falls prevention programs. Two conceptual frameworks, the Knowledge Dissemination and Utilization Framework and the Innovative Care for Chronic Conditions Framework, while relevant to program sustainability, have not been developed directly from the experiences of those engaged in falls prevention programs.

We identified four empirical studies investigating factors affecting program sustainability. Differences in how program sustainability is defined by people involved

in community-based falls prevention programs was found in one well conducted qualitative study (Hanson et al., 2009);  a finding consistent with the broader literature on program sustainability (Hanh et al., 2009; Pluye et al., 2004a; St Leger, 2005). A range of factors  affecting program sustainability were reported in three studies evaluating sustainability of a falls prevention exercise program (Bagnall et al., 1998), a falls risk-management program (Baker et al., 2007) and falls prevention activities initiated as a result of the appointment of falls safety officers (Peel et al., 2010). Different combinations of factors were reported in each of these three studies, suggesting that different factors may influence program sustainability in different ways depending on the nature of the program and the context within which the program is implemented.

The factors influencing program sustainability ranged from program related costs, working in partnership with program stakeholders, tailoring the program to the setting, the need for ongoing training and the modification of existing practices. The potential influence of factors related to the program, the setting and the broader operating context on program sustainability have also been reported in the broader health literature (Buchanan & Fitzgerald, 2007; Gruen et al., 2008; Scheirer, 2005). However, as found in the systematic review conducted by Sheirer (2005), none of these three studies in our review, evaluated any statistical association between program sustainability and the factors identified within each study. Furthermore, given the design of the three studies, we could only assess study quality for the study conducted by (Baker et al., 2007). As such, we found overall that the literature investigating the factors affecting the sustainability of community-based falls prevention programs was limited and hence it remains unclear which factors or combinations of factors are the most important for program sustainability.

We found no controlled studies evaluating interventions for promoting, enhancing or achieving program sustainability. Four studies in our review described or evaluated specific interventions for maximising the likelihood of program sustainability (Bagnall et al., 1998; Baker et al., 2007; Day et al., 2010; Ganz et al., 2009). The interventions consisted of different multi-strategic approaches relevant to the specific program and setting, with the aim of assisting organisations in planning, implementing and sustaining their falls prevention programs.  At the time of preparing this review the effects of these types of interventions on program sustainability were available from

only two studies (Bagnall et al., 1998; Baker et al., 2007), with both reporting the continuation of programs either in their usual or modified format at eighteen months after program commencement. However, longer term results have since become available for the study undertaken by Ganz et al. (2009) showing that program sustainability was not achieved primarily due to a lack of sufficient, ongoing resources and reduced leadership support (Miake-Lye et al., 2011).

Five studies reported on the sustainability of falls prevention programs but in the absence of a specific intervention aimed at improving the likelihood of program sustainability (Barnett et al., 2004; Barnett et al., 2003; Hughes, 2002; Li et al., 2008; van Beurden et al., 2003). Three of the five studies evaluating the sustainability of the same program by program stakeholders after five years indicated some continuation of program related activities by community-based health professionals but no continuation of program related activities by general practitioners, local councils and access committees (Barnett et al., 2004; Barnett et al., 2003; van Beurden et al., 2003). In one study, a limited number of falls prevention activities were reported for programs initiated within the previous three years (Hughes, 2002). The positive intent of organisations to continue a falls prevention program beyond the twelve-week program period was reported in one study, but program continuation beyond this time-frame is unknown (Li et al., 2008).

The findings from these studies suggest that falls prevention program activities may be more likely to continue when accompanied by interventions aimed at program sustainability. Interventions to enhance program sustainability have been suggested in the broader health literature. Examples of  multi-strategic interventions suggested in the literature include actively planning, managing and monitoring program sustainability (Buchanan & Fitzgerald, 2007; Davies & Edwards, 2009; Pluye et al., 2004b; Shediac-Rizkallah & Bone, 1998) and targeting the factors influencing program sustainability (Maher et al., 2007; Scheirer, 2005). However, none of these suggested interventions have been evaluated in controlled trials and it is currently unclear whether such interventions result in sustained programs.  As well, the findings by Miake-Lye et al. (2011) suggest that strategies to enhance program sustainability may need to focus on specific factors relevant to the setting and context. Thus, in the absence of high quality trials and given the limited number and variable quality of the studies included in our

review, it is unknown what types of interventions are the most effective for achieving sustainable community-based falls prevention programs.

### 4.5.2    Strengths and Limitations of the Review

In this review we developed broad inclusion criteria to enable a comprehensive review of the published literature relevant to our three review objectives. We conducted an exhaustive search of the published literature to ensure that we captured as many relevant publications as possible. We searched a variety of data sources and incorporated numerous search terms and phrases into our search strategies, which we sourced from the broader literature on program sustainability. Relevant publications were independently assessed for inclusion by two reviewers. The data extraction and study quality assessments were conducted by one reviewer and checked for accuracy by a second.

Despite these strengths, we encountered some challenges in conducting this review which may limit interpretation of the findings. First, for some publications it was difficult to determine if program sustainability was the primary focus. Second, the publications included in our review were disparate in nature and methodologically diverse, making the synthesis of publications difficult. Third, the study design was not stated or unclear for four of the eleven empirical studies included in this review. For these four studies we assigned a study design based on the information provided by the study authors and then made decisions regarding the suitability of each study to undergo quality assessment. Finally, despite the high quality of some of the empirical studies included in our review, we did not identify studies utilising robust designs for evaluating associations between specific factors and program sustainability or the effectiveness of interventions for achieving program sustainability.

### 4.5.3    Implications of the Review Findings

#### 4.5.3.1    Implications for Practice

Limited recommendations for practice can be made based on the findings of this review. We found no theory, frameworks or models to guide program sustainability that have been empirically developed from the experiences of those engaged in community-based falls prevention programs. While two conceptual frameworks to guide practice have been suggested in two publications in this review, other theories, models and

frameworks to guide the sustainability of health care programs have been also been proposed in the broader literature (Bray et al., 2009; Buchanan & Fitzgerald, 2007; Edwards et al., 2007; Gruen et al., 2008; Johnson et al., 2004; Maher et al., 2007; Mancini & Marek, 2004; May & Finch, 2009; Olsen, 1998; Shediac-Rizkallah & Bone, 1998). Most models and frameworks have been developed from a review of the literature and professional consensus, few have been developed directly from the experiences of program stakeholders and none have been formally tested. Hence, at this stage we cannot recommend any one framework or model to guide the sustainability of community-based falls prevention programs.

A variety of factors may affect the sustainability of falls prevention programs but it is unclear from our review which factor or combination of factors are the most important for achieving program sustainability. Given that the relationship between specific factors and program sustainability remains unclear, practitioners may need to take a comprehensive approach in identifying factors relevant to both the program and the setting that may affect the sustainability of their chosen falls prevention program. Given that program stakeholders may define program sustainability differently, we recommend that practitioners ensure that a consistent definition for program sustainability is used that is acceptable to all program stakeholders.

The findings of this review suggest that community-based falls prevention programs may be sustained when supported by interventions aimed at maximising the likelihood of program sustainability. However, it is unclear from the limited number and type of studies included in our review, which strategy or combination of strategies is more likely to lead to sustained programs. Based on the findings of this review and the broader literature, we recommend that strategies targeting the context-specific factors influencing program sustainability be developed during the program planning process and then monitored and managed during the process of program implementation.

### 4.5.3.2   *Implications for Research*

From the findings of this review we make some recommendations for future research. In this review we found inconsistencies across studies in the terms used for program sustainability and how sustainability was defined and measured. Hence, developing consensus in how program sustainability is conceptualised, defined and measured

would facilitate both the retrieval and comparison of research studies on this topic; a need highlighted by others (Graham et al., 2010; Scheirer et al., 2008; Wiltsey-Stirman et al., 2011).

We, like others, recommend that researchers clearly indicate if their research relates to program sustainability, state explicitly the study design used and provide the rationale for the selected study design (Armstrong et al., 2008). A variety of research approaches and study designs are available to researchers interested in developing and evaluating the effectiveness of improvement strategies and complex interventions in health (Craig et al., 2008; Eccles, Grimshaw, Campbell, & Ramsay, 2003). Commencing with theoretical, qualitative or modelling research to develop the intervention, researchers can then select quantitative evaluation designs that minimise the risk of bias and maximise generalisability of the findings (Eccles et al., 2003). A taxonomy to improve reporting of complex interventions is also now available (Lamb et al., 2011). These tools may provide a useful foundation for researching and reporting complex processes such as program sustainability.

In our review we found no theories that have been empirically developed to guide program sustainability, explain how program sustainability may be achieved or to underpin the development of interventions for enhancing sustainability. As such, studies are needed to develop and test theories and models appropriate to the sustainability of community-based falls prevention programs. Research studies incorporating more robust research designs are needed to identify the factors most associated with program sustainability, investigate the overall and relative importance of the factors identified within this review and to evaluate the effectiveness of interventions for achieving sustainable programs.

## 4.6   Chapter Summary

In this chapter I presented a systematic review of the published literature on the sustainability of community-based falls prevention programs conducted in association with colleagues from The University of Sydney. We used rigorous review methods in accordance with recommended processes for conducting systematic reviews. We included fifteen publications in the review which were disparate in nature, design and quality.

Overall, the research evidence relevant to the sustainability of community-based falls prevention programs is limited.  Our review findings indicate that no theories to guide program sustainability have been developed directly from those engaged in falls prevention programs, that a variety of factors may influence program sustainability and that programs may be more likely to continue over time when supported by interventions aimed at program sustainability. In light of these findings we have made some recommendations for practice and future research on this topic.

# Chapter Five

# Introduction to the Qualitative Inquiry into Program Sustainability

## 5.1    Introduction

In this chapter I provide the rationale for the main research study, a qualitative inquiry into program sustainability and present the study aims and research questions. I also describe Stepping On, the community-based falls prevention program featured in this study.

## 5.2    Study Rationale

Sustainable falls prevention programs are needed (Clemson et al., 2010). However, findings from the systematic review presented in Chapter Four, indicated that limited research has been conducted investigating the sustainability of community-based falls prevention programs. The factors influencing program sustainability are not well understood and it is unclear how program sustainability may be achieved. No theories to guide program sustainability have been empirically developed directly from the experiences of those engaged in falls prevention programs. Hence studies are needed to identify the factors critical for program sustainability and to explain how programs can be sustained over time (Stevens et al., 2010).

## 5.3    Study Aims and Research Questions

In this study I aimed to explore the factors affecting the sustainability of Stepping On, a community-based falls prevention program, to develop an understanding and explanation for how such programs can be sustained over time. The study addressed two broad research questions:

1.   What factors influence program sustainability?
2.   How can program sustainability be achieved?

## 5.4 Study Description

A detailed description of the methods used in this study will be provided in Chapter Six. Here I provide a brief overview of the study and describe Stepping On, a falls prevention program for older people living in the community.

### 5.4.1 Brief Study Overview

To address the study aims I conducted a qualitative research study, using methods for developing grounded theory. I recruited and interviewed participants from community-based organisations involved with the Stepping On falls prevention program.

### 5.4.2 The Stepping On Program

#### 5.4.2.1 Program Description

Stepping On is an effective multi-faceted program for preventing the falls in older people living in the community (Clemson et al., 2004; Gillespie et al., 2009). As such, the program is recognised as a successful intervention (Karinkanta, Piirtola, Sievanen, Uusi-Rasi, & Kannus, 2010; Lord et al., 2007, p. 358) and has been recommended as one of a suite of effective falls prevention interventions by the Australian Commission on Safety and Quality in Health Care (2009) and one of four interventions selected for dissemination by the National Center for Injury Prevention and Control in the US (2008a).

Stepping On is appropriate for people aged 65 years and over living in the community who have a history of falling or a fear of falling. The program aims to improve self-efficacy in relation to falls, encourage behaviour change to reduce the risk of falling and to reduce falls. The program is conducted in a small group format, consisting ideally of 12 participants. While there are no formal screening or eligibility criteria used to determine participation in the program, the program is unsuitable for people with cognitive impairments or who require a walking aid other than a walking stick. The program consists of seven weekly sessions, a home visit for each participant and a booster group session at three months. Each weekly session is conducted over two hours and focuses on the major risk factors for falling. Program sessions and topics are summarised in Table 5.1.

Table 5.1 Components of the Stepping On Program

| Session | Topics |
| --- | --- |
| 1 | Introduction, Overview and Risk Appraisal |
| 2 | Exercise and Moving about safely |
| 3 | Home hazards |
| 4 | Community safety and Footwear |
| 5 | Vision and falls, Vitamin D and Hip Protectors |
| 6 | Medication management and Mobility mastery experiences |
| 7 | Review and plan ahead |
|  | The Home Visit |
|  | Three-month Booster Session |

The program is facilitated by a program leader. Guest presenters deliver key content on specific risk factors. For example, an occupational therapist delivers content relevant to home safety, which is the focus of program Session 3. A comprehensive program manual is available which outlines the evidence and principles underpinning the program, describes the program content and guides program leaders and co-ordinators in program implementation (Clemson et al., 2003).

The program was developed on a sound theoretical basis to facilitate individual behaviour change. Program participants are encouraged to: 1) determine issues related to falls that are personally relevant; 2) realistically appraise their personal falls risk; 3) gain knowledge and explore strategies for reducing their personal risk of falling and 4) take control and maintain the strategies they developed during the program.

Adult learning principles and cognitive-behavioural approaches are utilised throughout the program enabling participants to reflect on their falls risk, to reframe beliefs and attitudes about their risk of falling and to then make changes to minimise these risks (Clemson, Manor, & Fitzgerald, 2003). Evidence-based content is utilised in the program, individual behaviour change is emphasised and the program is targeted to those people most likely to benefit.

### 5.4.2.2   Program Effectiveness

Stepping On has been evaluated in a randomised controlled trial (Clemson et al., 2004). The study was conducted in six metropolitan localities in NSW, Australia. Three hundred and ten participants aged 70 years and over, who had fallen in the previous

year or who considered themselves at risk of falling were recruited to the study. A variety of methods were used to recruit participants to the study (Clemson, Taylor, Kendig, Cumming, & Swann, 2007).

Participants were randomly allocated to either the Stepping On program (n=157) or a control group intervention (n=153) consisting of up to two social visits by occupational therapy students. The primary outcome measure for the study was the occurrence of falls at fourteen months after randomisation. Data on falls were collected using a self-report falls schedule completed monthly. Secondary outcome measures included any changes in behaviours to protect against falls, self-efficacy in relation to falls, physical activity, health status and general worries. Data were collected at fourteen months by an assessor who was blinded to group allocation.

At study commencement the groups were comparable on key demographic characteristics and baseline outcome variables. Two hundred and eighty five participants provided data at study end, a follow up rate of 92%. At fourteen months, 179 falls occurred in the intervention group, 255 falls occurred in the control group, corresponding to a relative risk of 0.69 and associated 95% confidence interval of 0.50 to 0.96. These results demonstrated that participation in the Stepping On program resulted in a 31% reduction in the risk of falls when compared to participation in the control intervention. When compared to the control group, participants in the Stepping On program used more protective behaviours (p=0.024) and maintained their confidence in their ability to avoid a fall during various everyday tasks (p=0.042). This methodologically sound study featured concealed random allocation to groups, equivalency of groups at baseline, blinded assessment of some outcome measures, adequate follow-up, analysis according to intention to treat and between groups data analysis.

Further research on the Stepping On program is being conducted. A study investigating the effectiveness of the Stepping On program in combination with an individualised home exercise program to prevent falls, reduce mobility-related disability and enhance participation is currently underway (Orr et al., 2010).

### 5.4.2.3   *Translation into Practice*

Factors influencing the translation of the Stepping On program into practice have been investigated in a mixed methods study conducted by Clemson, Mathews, Dean,

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Lovarini and Alam (2008d). From March 2007 to January 2008 community organisations from diverse service sectors and cultural communities were recruited, trained and supported to implement the Stepping On program. Train-the trainer workshops were developed and conducted (Clemson, Alam, & Lovarini, 2008a, 2008b). Some program handouts and materials were translated into the languages of participating organisations.

Of the sixteen participating organisations, eleven implemented one or more programs by study end in May 2008. Interviews with key personnel from participating organisations indicated that a variety of factors enabled program adoption and implementation. These factors included the positive attributes and skills of program leaders and co-ordinators, the ability of the program to address an important health need, having the necessary support from management and other program stakeholders and having sufficient program funding. Challenges included dealing with practical issues affecting program implementation, being able to recruit sufficient numbers of older people to participate in the program, securing sufficient program funding and managing staff changes. Despite these challenges, many organisations were able to implement multiple programs. Potential influences on the sustainability of the Stepping On program included early planning for sustainability, the availability of ongoing funding, support and training and the development of effective working partnerships and networks. Clemson and colleagues concluded that a train-the trainer approach can lead to the successful uptake of Stepping On by diverse organisations, that a variety of factors can enhance or inhibit program adoption and implementation and that more research was needed over a longer time frame to determine the factors critical for program sustainability.

From 2009 (two years after the commencement of the main research study), dissemination and implementation of the Stepping On program began throughout one state in Australia, as a falls prevention initiative of the New South Wales Government (Clemson et al., 2010; NSW Department of Premier and Cabinet, 2009). A study investigating the adaptation and implementation of Stepping On by organisations in the US is also currently underway (Sleet et al., 2008).

## 5.5   Chapter Summary

Little is known about how community-based falls prevention programs can be sustained. I conducted a qualitative research study to address this knowledge gap and to develop an understanding of how such programs can be sustained over time. The experiences of organisations involved with the Stepping On program provided the foundation for this research. In the next chapter I describe the research methodology and methods used to conduct this study.

# Chapter Six

# Research Methodology & Methods

## 6.1 Introduction

In this study I aimed to explore the factors influencing sustainability of a community-based falls prevention program and explain how program sustainability may be achieved. In this chapter I describe the research methodology and methods used to achieve these study aims.

## 6.2 Research Methodology

As in all types of research, the study design must be the most appropriate for achieving the research aims and answering the research question. In this study I used a qualitative research approach utilising a grounded theory methodology.

### 6.2.1 The Qualitative Research Approach

Qualitative research can be defined in different ways. In a generic sense qualitative research refers to research activities that locate the researcher in the world of the research participants to *"study things in their natural setting, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them"* (Denzin & Lincoln, 2005, p. 3).

A qualitative research approach is appropriate to use when the focus of the research is on the exploration of how and why phenomena occur, when a detailed understanding of a phenomenon in certain contexts is required or for the generation of theory and theoretical frameworks (Cresswell, 2007, p. 39; Morse & Richards, 2002, pp. 27-28).

Qualitative research aims to provide a holistic account of the phenomenon under investigation by identifying the factors affecting the phenomenon and their interaction within certain contexts (Cresswell, 2007; Grbich, 1999, p. 28). Qualitative research can generally be characterised by research activities conducted in the natural setting (that is, the setting in which the phenomenon occurs) and sampling that serves an investigative purpose rather than for statistical representation of a population. Qualitative research

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can rely on multiple sources of data and takes an inductive approach to data analysis with an emphasis on coding of data into concepts and themes, focussing on the perspectives and meaning of the phenomena to the research participants (Carter & Little, 2007; Cresswell, 2007, pp. 38-39).

Some researchers have advocated for the use of more exploratory approaches to researching and understanding the processes and factors affecting the translation and sustainability of evidence into practice (Glasgow et al., 2003; Greenhalgh et al., 2005, p. 227). Qualitative research offers a variety of methodologies suitable for this purpose.

### 6.2.2   Qualitative Research Methodologies

A variety of methodologies are included under the umbrella of qualitative research (Morse, 1994, pp. 223-224). Methodology refers to the overall strategy used by researchers to guide and justify the methods used within the research (Carter & Little, 2007). Well-known examples of qualitative methodologies include ethnography, grounded theory, phenomenology, discourse analysis, action research and narrative research (Carter & Little, 2007; Cresswell, 2007, pp. 6-10; Dew, 2007).

The choice of methodology is important, since methodology determines how the research is shaped and conducted, how the data will be collected, analysed and interpreted as well as the end product of the research (Dew, 2007). The choice of methodology will be influenced by the aims of the study and the nature of the research problem under investigation (Cresswell, 2007, p. 78; Morse & Richards, 2002, p. 36). For example, if the aim of a study is to understand and describe the meaning and lived experience of a certain phenomenon by individuals, then a phenomenological methodology would be the most appropriate (Morse, 1994, p. 223). If the aim of the research is to describe and understand the rituals and routines of specific groups or cultures, then an ethnographical study design would be the preferred choice (Cresswell, 2007, pp. 68-72; Fetterman, 1989).

At a more fundamental level, the choice of methodology will also be influenced by the epistemological position of the researcher. Epistemology is a philosophical concept that is concerned with knowledge; what knowledge is, how it's created and how it may be explored (Carter & Little, 2007). Various epistemologies exist including positivism/empiricism, critical emancipatory positions, constructivism/interpretivism, postmodernism and poststructuralism (Grbich, 2007, pp. 3-15).

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Some methodologies are linked to specific epistemologies and theoretical perspectives (Carter & Little, 2007; Dew, 2007). For example, some forms of ethnography (the methodology) are informed by symbolic interactionism (the theoretical perspective) which in turn is informed by the view that knowledge is constructed (the epistemology)(Crotty, 1998, pp. 1-17). Various theoretical perspectives may also be used to guide the design and conduct of qualitative research projects in the absence of a particular methodology (Reeves, Albert, Kuper, & Hodges, 2008; Willis et al., 2007).

It has been argued that researchers bring to their research their own views of how knowledge may be explored and created and that this will (or should) influence the selection of methodology (Carter & Little, 2007). Hence, if a researcher takes the epistemological stance that knowledge is socially constructed, then he or she may be more likely to choose a methodology that reflects this particular view (Carter & Little, 2007). Researchers may have different yet valid epistemological views. What is important is that the researcher establishes their particular epistemological view and selects a methodology and methods consistent with that view (Carter & Little, 2007).

### 6.2.3   Choice of Methodology for the Current Study

In this study I aimed to explain how sustainability of a community-based falls prevention program may be achieved. I chose to work within the constructivist/interpretivist tradition. This epistemological position asserts that knowledge is socially embedded and is constructed from the interactions between the researcher and research participants (Grbich, 2007, pp. 8-9).  Research based on this epistemological position focuses on the *"exploration of the way people interpret and make sense of their experiences in the worlds in which they live"* (Grbich, 2007, p. 8). This epistemological position matches my own view that when conducting qualitative research, knowledge is co-created between researcher and research participants and that there may be varying interpretations of phenomena depending on the context and experiences of those involved.

As an occupational therapist, I have provided clinical services to older people with the aim of maximising their functioning, independence and participation. In the field of falls prevention I have worked alongside a variety of community-based organisations and local service providers to address and minimise falls hazards for older

people. Thus, my experiences both as an occupational therapist and in the field of falls prevention are likely to inform (but not dictate) the processes used for data collection and analysis. Working within the constructivist/interpretivist tradition accounts for these influences.

Given these considerations, I required a research methodology underpinned by the constructivist/interpretivist tradition suitable for the exploration and explanation of a process. A grounded theory methodology in the form described by Charmaz (2006) best matched these criteria and hence was selected as the research methodology for this study.

## 6.3 Grounded Theory Methodology

### 6.3.1 What is Grounded Theory?

Grounded theory is a qualitative research methodology that enables the development of theory to explain certain phenomena (Cresswell, 2007, pp. 62-68). A grounded theory approach is appropriate to use when the concepts pertaining to a given phenomenon have not been identified or the relationships between the concepts are not well understood (Strauss & Corbin, 1998, p. 40). A grounded theory approach is also recommended when the research questions relate to processes or experiences and any changes in these elements over time, phases or stages (Grbich, 1999, p. 173; Morse, 1994, p. 224; Morse & Richards, 2002, p. 30).

In grounded theory an inductive approach is taken in which the researcher attempts to build an understanding of the phenomenon from data that has been collected and analysed, and then generates a theory to explain the phenomenon (Dew, 2007; Strauss & Corbin, 1998, p. 12). Thus, the theory is "grounded" in the data provided by the research participants, all of whom have experienced the process under investigation (Cresswell, 2007, p. 63). While grounded theory originated within the sociological sciences, it is a methodology well-suited for investigating health-related phenomena (Mellion & Tovin, 2002; Stanley, 2006).

### 6.3.2 Origins of the Grounded Theory Methodology

The grounded theory methodology was developed in the 1960s by sociologists Glaser and Strauss (1967). In her book "Constructing Grounded Theory: A Practical Guide

Through Qualitative Analysis" Charmaz described the development of the grounded theory methodology (2006, pp. 4-9).

Grounded theory methodology was developed during a time when positivist research approaches were preferred by the scientific community. Positivist research approaches take the view that knowledge is created objectively and can be explored in a quantifiable way. As a result, the emphasis is on the development of hypotheses from existing theories and then the testing of these hypotheses in objective and replicable experiments. While quantitative research designs and methods are legitimate, these approaches dominated research during the mid 20$^{th}$ century. Thus, research questions and designs that did not "fit" neatly within these quantitative approaches were either ignored or derided as unsystematic and biased.

Glaser and Strauss were interested in studying social processes and developing theoretical explanations ("theory") for how these processes occurred. Drawing on the theoretical perspective of symbolic interactionism[2], existing methods for field research and the systematic procedural style of quantitative research, Glaser and Strauss developed specific procedures for generating grounded theory. These procedures were based on the core elements characterising their methodology which included the:

- Simultaneous processes of data collection and analysis;
- Construction of theoretical codes and categories from the data;
- Use of the 'constant comparative' method to facilitate theory development;
- Development of theory throughout the data collection and analysis process;
- Use of memo-writing to determine the nature of the theoretical categories and their relationships to each other;
- Use of sampling methods to enhance theory generation.

While studying the process of dying in hospitals, Glaser and Strauss demonstrated that theory could be developed from the research data through the application of explicit and systematic research methods. From these early developments however, the views of Glaser and Strauss began to diverge resulting in very different approaches to grounded theory.

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[2] Symbolic interactionism is a theoretical perspective which asserts that reality and meaning is socially constructed through the process of interaction between people (Blumer, 1969). These interactive processes are dynamic and interpretive, relying on language, and other symbols of communication.

### 6.3.3 Variants in Grounded Theory Methodology

Grounded theory methodology has diverged into variant forms accompanied by differing methodological procedures (Grbich, 2007, p. 71; Morse & Richards, 2002, p. 57). While Glaser continued to advocate for the methodology in its original form (Glaser, 1978), Strauss teamed with Corbin to develop alternate methods for generating theory (Strauss & Corbin, 1998). Thus grounded theory methodology "split" into two camps known as either the Glaserian approach or the Straussian approach (Grbich, 2007, p. 72). While both approaches shared many of the core elements of grounded theory described earlier, there were clear differences in how each researcher believed grounded theory should be practiced (Charmaz, 2000, p. 510; McCann & Clark, 2003). Key differences between these two approaches are listed in Table 6.1.

In more recent times, alternate forms of grounded theory to those developed by Glaser and Strauss have been proposed (Charmaz, 2006; Clarke, 2005). As a result, researchers now need to both specify and justify the form of grounded theory methodology used within their research studies (Grbich, 1999, p. 180). The constructivist approach to grounded theory developed by Charmaz was the grounded theory methodology I selected for this study (Charmaz, 2000, 2006).

### 6.3.4 Constructivist Grounded Theory

Charmaz offered a form of grounded theory that is based on the epistemological view that knowledge is constructed through the interaction of the researchers and research participants with the aim of developing an interpretive understanding of the meanings participants ascribe to the phenomenon under investigation (Charmaz, 2000, p. 510).

Charmaz felt that the earlier forms of grounded theory developed by Glaser and Strauss tended to be too objectivist in nature, in that they were based on an assumption that an external objective reality existed which could then be "discovered" or "verified" (Charmaz, 2000, p. 510). Charmaz rejected the notion that theory would "emerge" from the data in a way that was independent of the researcher. She argued that theories are not discovered but are constructed from the interactions between the researcher, the research participants and the research process. Thus the constructed theory is an interpretation of the studied world and not an objective reporting of it.

Table 6.1 Differences Between the *Glaserian* and *Straussian* Approaches to Grounded
Theory

| Characteristic | Glaserian Approach | Straussian Approach |
|---|---|---|
| **Focus** | Discovery of theory | Verification and validation of theory |
| **Process** | Theory emerges from data | Theory generated from coded data and hypothesis testing |
| **Researcher role** | Neutral or independent | Active involvement |
| **Data analysis** | Flexible approach using coding and the analytic technique of constant comparison | Structured approach consisting of rules and procedures for conducting the data analysis incorporating three levels of data coding |

Rather than offering prescriptive research methods which characterised other forms of grounded theory, Charmaz provided a set of principles and practices to guide the processes of data collection, analysis and theory construction (Charmaz, 2006, p. 9). Charmaz encouraged researchers to use these methods flexibly, in ways that suited the distinctive nature of individual research studies.

There is no best or recommended form of grounded theory methodology. Researchers need to select the form of grounded theory that best fits their epistemological stance, methodological preferences and the nature of the research study.

The use of qualitative research methodologies that are historically and theoretically situated and offer flexible rather than dogmatic methods have been recommended (Carter & Little, 2007). Charmaz offered a constructivist approach to grounded theory, supported by practical, flexible, clearly described processes to guide theory construction.

## 6.4   Research Methods

When conducting qualitative research, there must be congruence between the methodology selected and the methods used for sampling, data collection and analysis (Morse & Richards, 2002, pp. 31-32; Richards, 2005, pp. 11-31). My methods were guided primarily by the flexible processes recommended by Charmaz (2006). In the following sections I describe the methods as stages in the research process, however, in practice, grounded theory studies follow a non-linear, iterative process consisting of overlapping phases of sampling, data collection, data coding, memo writing and theory

construction (Charmaz, 2006, p. 11). In addition to the qualitative methods employed in this study, some quantitative data were collected to record the characteristics of the study participants and their organisations as well as the details of the Stepping On programs implemented by each organisation.

### 6.4.1 Ethical Approval for the Study

Approval to conduct this study was obtained from the human ethics committees of The University of Sydney and two health services (See Appendix Four). The Participant Information Sheets and Participant Consent Forms used in this study are provided in Appendix Five.

### 6.4.2 Setting, Sampling and Recruitment

#### 6.4.2.1 Setting

This study was conducted in Western Sydney, NSW, Australia. Western Sydney is a large geographical region comprising 14 local government areas (LGAs) and approximately two million people. The population in Western Sydney is culturally diverse. Western Sydney is home to the largest urban communities of Aboriginal and Torres Strait Islanders and over one third of the population have migrated to Australia (New South Wales Government Office of Western Sydney, 2009). In some Western Sydney LGAs, the proportion of people from a non-English speaking cultural background is approximately 50% (Auburn Council, 2006; Fairfield City Council, 2006). Many LGAs of Western Sydney are considered socially and economically disadvantaged when compared to other LGAs in the wider Sydney region (Western Sydney Regional Organisation of Councils, 2006).

#### 6.4.2.2 Sampling in Grounded Theory Studies

In grounded theory, sampling occurs in two ways. Sampling is initially purposive, becoming more theoretical as the theory is constructed (Drauker, Martsolf, Ross, & Rusk, 2007). In purposive sampling, participants are recruited to the study for the knowledge they have about the phenomenon under investigation. As the data are analysed and the theory develops, theoretical sampling may then be used by the researcher to collect any additional data needed to enable full and complete construction of the theory. Additional data may be sought from participants already recruited to the

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study, by recruiting new participants, through researcher observations or from other sources such as documents and records.

In this study, purposive sampling was used to identify and recruit people involved with Stepping On, a community-based falls prevention program. All recruited participants were then interviewed about their program experiences. As the data from these initial interviews were analysed, a second round of interviews were conducted with selected participants (theoretical sampling) with the aim of further refining the theory. A full description of these sampling processes is provided in the following sections.

### 6.4.2.3   Participant Eligibility Criteria

In this study, I aimed to recruit people involved with the Stepping On program and interview them about their experiences in sustaining the program. When researching these types of processes it has been recommended that studies should occur whilst the process is underway (Rogers, 2003, pp. 102-135). In that way data can be gathered at different times during the process and recall bias can be avoided. In other words, the process can be studied as it is happening and researchers can investigate why innovations, such as health care programs, may be rejected, continued or discontinued. Given these considerations, I was interested in identifying people:

- Who were new to the Stepping On program, and with varying intentions to sustain the program over time;
- With experience in implementing the Stepping On program and sustaining the program over time;
- Involved with the Stepping On program who may have some insight into how the program may be sustained.

This initial approach to sampling enabled me to gain broad and multiple perspectives on the nature and process of program sustainability, which in turn provided a foundation for the developing theory.

### 6.4.2.4   Participant Recruitment

Potential participants were identified from a related research project, funded by the Australian Government and conducted from March 2007 to June 2008, investigating the uptake, implementation and sustainability of Stepping On, a community-based falls

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prevention program (described earlier in Chapter Five, Section 5.4.2.3). The project was conducted by a research team at The University of Sydney in partnership with a consortium of community organisations (Clemson et al., 2008d).

In the project, community organisations from diverse sectors and cultural communities, providing services to older people, were recruited, trained and supported to adopt, implement and sustain Stepping On. Train-the-trainer workshops were developed and conducted as part of the project. Translated program materials were made available where possible, to participating organisations. Support following the workshops was provided by the research project officer by way of formal meetings, informal workplace visits and email and telephone contacts.

Impetus for the project came from the need to address the rising costs of fall-related injuries among older people and a desire to implement Stepping On as a fall prevention strategy within one health service in Western Sydney. With a limited availability of health professionals, alternate models for delivering the Stepping On program in the community were needed. Hence, community-based organisations interested in conducting Stepping On, were invited to participate in the project.

A variety of organisations participated in the project with many providing services to older people from culturally and linguistically diverse (CALD) backgrounds or those living in socio-economically disadvantaged areas. These two population groups can experience significant barriers in accessing health promotion programs, and efforts to improve participation have been recommended (Johnstone & Kanitsaki, 2008; National Health and Medical Research Council, 2006).

*6.4.2.5   Recruitment Procedure*

In this study, participant recruitment commenced in May 2007 and concluded in October 2008. The recruitment process occurred in three stages:

1.  I approached potential participants for the present study when they attended meetings or training workshops in relation to the project described earlier. During my conversations with each person I determined if they met the study eligibility criteria, discussed with them the nature of the study and asked them if they may be interested in participating.

2.  Once a person had expressed an interest in participating, I then contacted them by email, either directly or via their work manager and invited them to be part of

this study. To further inform the person about the study, I attached the relevant Participant Information Sheet and Participant Consent Form to the email.

3. When each person agreed to participate, an interview time and location was organised. Prior to the interview, I reiterated the contents of the Information Sheet with the participant. A signed Participant Consent Form was received from each participant either at the time of interview or a few days prior to that.

From these activities, 34 participants from 15 organisations were recruited to the study. A comprehensive description of the participants and organisations in this study is provided in Chapter Seven.

### 6.4.3   Data Collection

Interviews and observations were the main methods for gathering data. Additional data were collected to record the characteristics of the study participants and participating organisations as well as information regarding the Stepping On programs sustained by each organisation over time.  Data were collected from February 2007 to November 2009.

### 6.4.3.1   Interview Data Collection

Interviews were the primary method of data collection used in this study. Interviews are a common method for collecting data in qualitative research studies and are used to elicit information about what people do, think or believe about a particular topic (Minichiello, Aroni, Timewell, & Alexander, 1995, p. 62).

#### Interview Types

Interviews may be structured, semi-structured or unstructured. Minichiello et al. (1995, pp. 63-65) described the differences between these interview approaches. Structured interviews are commonly used in surveys or opinion polls and are characterised by the use of highly structured, standardised questions which are asked of all research participants. Typically in structured interviews, closed-ended questions are predominantly used, in which the research participant must choose between pre-determined responses such as "yes", "no" or "don't know". The structured nature of this interview approach provides limited opportunity for the participant to express what is relevant, important or significant to them. The focus of semi-structured interviews is on

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the broader research topic. Interview questions relevant to the research topic guide the interview process, but are used flexibly to enable greater exploration of the issues pertinent to the research topic. In unstructured interviews, formal, prepared questions are dispensed with, with the interview taking on the form of an informal yet "controlled conversation".

The semi-structured and unstructured approaches to interviewing are examples of an in-depth interviewing style. In-depth interviews enable the researcher to gain a detailed understanding of the research participant's perspectives on the research topic (Minichiello et al., 1995, p. 68).  In-depth or "intensive" interviews as described by Charmaz (2006, p. 25), are useful in grounded theory studies in that the research participant's insights, experiences and interpretation of those experiences relevant to the research topic, may be more effectively elicited.  In in-depth interviews, broad, open-ended questions are used, which may become more focussed as the interview progresses or in response to the information emerging during the interview. During in-depth interviews, research participants are encouraged to tell their stories, reflect on their experiences and "be the expert". In this study I used semi-structured, in-depth interviews.

*Interview Process*

A series of initial and follow-up interviews were used in this study. The rationale for this approach was two-fold. First, by interviewing participants on two occasions I was able to capture their experiences in sustaining the Stepping On program over time. Second, this approach to data collection enabled data from the first interviews to be analysed and developed into preliminary theoretical concepts, which could then be further explored in the follow-up interviews. These concomitant processes of data collection and analysis are typical of grounded theory studies. Most interviews were conducted with individual participants; with some conducted as group interviews.

A total of 42 interviews were conducted: 25 initial and 17 follow-up interviews. Thirty-four participants from 15 organisations took part in the initial interviews. Twenty-four participants from 12 organisations were interviewed a second time. Reasons for not participating in the follow-up interviews were that the participant no longer worked for the organisation (n=5) or the participant was no longer involved with the program (n=3). Two participants whose role was to support other organisations in

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sustaining the program (but not actively implementing the program themselves) were interviewed once only.

The initial interviews were conducted from May 2007 to October 2008. The follow-up interviews commenced in September 2008 and concluded in February 2009. The average time between the initial and follow-up interviews was 13 months within a range of nine to 22 months. The time delay between the initial and follow-up interviews was considered a reasonable period of time to enable participants to provide (during the follow-up interview) a realistic and authentic account of their experiences in sustaining the program over time.

Of the 25 initial interviews, 24 were conducted in face-to-face format. One initial interview was conducted as a telephone interview at the request of that participant. A face-to-face interview format was used for all 17 follow-up interviews.

Nineteen initial interviews were conducted with participants on an individual basis, while six were conducted as group interviews, once again at the request of those involved. At follow-up, 12 individual and five group interviews were conducted. Most interviews were conducted at the workplace (n=40) with two interviews conducted at a local cafe. The length of each interview ranged from 45 to 90 minutes.

The need to establish rapport with those being interviewed has been acknowledged (Minichiello et al., 1995, p. 79; Spradley, 1979, p. 78). To encourage each participant to talk freely and ease any apprehension of those participants unused to being interviewed, I conducted the interview in an informal, conversational style. At the outset of the interview, I explained to the participant that I may refer to my list of interview questions from time to time and make brief written notes of any issues raised by the participant that I wanted to particularly focus on or refer back to later in the interview. Translators were not required for those participants for whom English was not their primary language. To ensure a complete and accurate interview record, all interviews were audio-taped with each participant's permission (Minichiello et al., 1995, p. 98).

*Initial Interview Questions*

Interview questions were developed to guide both the initial and follow-up interviews. In the initial interview, participants were first asked about their work role, their role in relation to the Stepping On program and the services provided by the organisations they

work for or are associated with. From there, open ended questions were used in a flexible way to enable early, in-depth exploration of the research topic.

For those participants new to the Stepping On program, the questions during the initial interview focused on the reasons for adopting the Stepping On program and their early experiences in program implementation. For those participants with some experience with the Stepping On program, the questions were expanded to explore aspects of program sustainability. The questions used to guide the initial interviews are summarised in Table 6.2.

*Follow-up Interview Questions*

The aim of the follow-up interviews was to ascertain if the organisation was continuing the Stepping On program and to explore the reasons for why the program was or wasn't being sustained. Open-ended questions focussing on these issues were developed to guide the follow-up interviews.

At the time of commencement of the follow-up interviews (towards the end of 2008), the analysis of the initial interviews and observational data collected up to that time, indicated that a variety of factors may play a role in program sustainability. These factors related to the nature of the Stepping On program, the people involved with the program, differences in how the program was implemented by each organisation, changes affecting each organisation and a reliance on support for the program. What remained unclear however was how and to what extent these factors impacted on program sustainability. As well, other potential factors affecting program sustainability not identified during the initial interviews may have emerged as organisations implemented their programs over time. It was necessary therefore, to gain additional data from the participants to more completely determine the nature and relevance of these and any other as yet unknown factors for program sustainability. Thus the follow-up interviews served as a method for theoretical sampling in this study.

The questions used to guide the follow-up interviews are shown in Table 6.3. Early in the interview I clarified with each participant the number of programs implemented since the initial interview and their intention to continue the program. The interview questions were then tailored according to whether the organisation intended to continue the program or not.

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<p style="text-align: center;">Table 6.2 Initial Interview Questions</p>

| *Participants New to Stepping On* | *Participants Experienced in Stepping On* |
|---|---|
| Please tell me about yourself and your organisation. | Please tell me about yourself and your organisation. |
| Can you tell me about how you got started with Stepping On? | Can you tell me how you became involved with Stepping On? |
| How does falls prevention and Stepping On 'fit' with your organisation? | How does falls prevention and Stepping On 'fit' with your organisation |
| What have been your experiences in getting Stepping On up and running? | What have been your experiences so far in running Stepping On? |
| What has enabled you to get started with Stepping On? | What has enabled you to implement your Stepping On programs? |
| Have there been any challenges? If so, how have you been able to overcome them? | Have there been any challenges? If so, how have you been able to overcome them? |
| Is there anything else you would like to add? | Do you think your organisation will continue to run Stepping On? Why? |
| | Is there anything else you would like to add? |

<p style="text-align: center;">Table 6.3 Follow-up Interview Questions</p>

| **Follow-up interview opening questions:** <br> **What are your general impressions after conducting your program[s]?** <br> **What has happened in relation to Stepping On since conducting your first/previous programs?** <br> **Are you planning to continue the program?** | |
|---|---|
| *Intending to Sustain the Program* | *Not Intending to Sustain the Program* |
| What has motivated you to run more programs? | Why are you not planning to run more programs? |
| What has helped you run more programs? | What would help you run more programs? |
| What has hindered you in running more programs? | What has hindered you in running more programs? |
| Were your experiences different with each program? [if more than one program conducted] | Were your experiences different with each program? [if more than one program conducted] |
| What do you think are the critical factors allowing Stepping On to continue long term? | What do you think are the critical factors allowing Stepping On to continue long term? |
| Do you think the program will keep going over time? Why/why not? | |
| How will you know if your program has reached sustainability? | |

### 6.4.3.2 Observational Data Collection

Observational data were also collected as part of this study. Observations are a method for collecting data in qualitative studies in which the researcher enters the research setting to observe elements of the phenomenon under investigation (Mason, 2002, p. 84). The use of observation as a data collection method may be influenced by the type of research question, the epistemological position of the researcher or by pragmatic and ethical considerations (Mason, 2002, pp. 85-87). Depending on the nature of the study, researchers may be interested in observing processes, behaviours, events or interactions. In this study, I conducted a series of observations with the aim of recording any events, processes or factors that may influence program sustainability. I chose to conduct observations in addition to the interviews for three reasons:

1. Observations enable the generation of data in specific contexts;
2. When used in combination with other methods, data from observations may provide alternate perspectives of the phenomenon under investigation.
3. Observations may generate important data not articulated during the interview process.

### Process for Collecting Observational Data

I collected observational data in a variety of ways. As described in Section 6.4.2, participants for the present study were recruited from a project in which organisations were trained and then supported to implement the Stepping On program. Training was conducted by a project team at the University of Sydney and delivered via three two-day workshops conducted in June 2007, August 2007 and February 2008 and three half-day workshops conducted in September 2007, November 2007 and April 2008. As well, throughout the project, meetings were conducted regularly between the project team and the participating organisations. To collect observational data, I attended all training workshops and project meetings with participating organisations.

During the workshops and meetings I recorded information, events and stories provided by the participating organisations pertaining to program sustainability. I also observed and recorded any interactions between program leaders, co-ordinators and experts focussing on program sustainability.

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To further familiarise myself with Stepping On, I attended and observed one program session conducted in the community. I chose not observe the Stepping On programs conducted by the organisations participating in this study as my focus was on collecting only those data necessary to enable full theory construction. Given that my aim was to explore in-depth with program leaders and other program stakeholders, the issues surrounding program sustainability, I chose interviews as the primary method to gather this data rather than conducting a large number of program observations.

All observations were conducted overtly. My role and the purpose of my attendance at these events was explained to those present at the time of the observation occurring.

*Recording of Observational Data*

All observational data were recorded as field-notes. Field-notes are a written record of observations made "in the field" (Mason, 2002, p. 98). Field-notes may consist of descriptions of what is being observed or the interpretive reflections of the researcher or both (Minichiello et al., 1995, p. 216). To ensure that information and insights are not "lost", field-notes should be recorded where possible during or soon after the observation occurs (Emerson, Fretz, & Shaw, 1995, p. 13). There is no recommended format for recording field-notes. The field-note format selected by a researcher will depend on the purpose of the field-notes and the type of information to be recorded (Mason, 2002, p. 99).

In this study, I used a two-stage process for recording my observations. Initially, I recorded handwritten notes either during or very soon after each observation. From there, I prepared a typed version of the handwritten notes in a format specifically developed for this study (See Appendix 6). The field-notes were prepared in typed format to enable easy importation of each field-note into the computer-based data analysis program utilised in this study. In the field-notes, I recorded a description of my observations and where appropriate, my reflections on the potential implication of what I had observed for program sustainability. I also recorded the date, time, location and purpose of the observation as well as the people present during the observation. A total of 69 field-notes were generated in this study.

Table 6.4 Data Describing the Study Participants and Participating Organisations

| Participants | Organisations |
|---|---|
| Job title or position | Geographical location |
| Employment status | Service sector |
| Years in position (at time of recruitment to study) | Service type, number of employees |
| Hours worked with the organisation per week | Presence of a parent organisation |
| Professional background | Source of funding for the organisation |
| Role in relation to the Stepping On program | Association with specific CALD communities |

### 6.4.3.3 Other Data Collection

While the primary focus of the data collection in this study was on gathering qualitative data, I also collected some descriptive data to record the characteristics of the participants and organisations participating in this study. I also collected data regarding the Stepping On programs implemented by each organisation and the intention to sustain the program beyond the end of this study.

### Participant & Organisational Characteristics

Data were collected to describe the key characteristics of the participants and organisations in this study. All data were collected from each participant during the initial or follow-up interview. The types of participant and organisational data collected are summarised in Table 6.4.

### Program Sustainability Outcomes

To enable analytic comparisons to be made between those organisations sustaining and not sustaining the Stepping On program I collected data to determine: 1) the total number and frequency of Stepping On programs conducted by each organisation and 2) whether organisations intended to sustain the program beyond the end of the study. These data were confirmed via email contact with each participant in late 2009.

### 6.4.4 Data Analysis and Theory Construction

In grounded theory, data analysis commences with initial coding of the data records, with the coding becoming more focussed as the analysis proceeds.
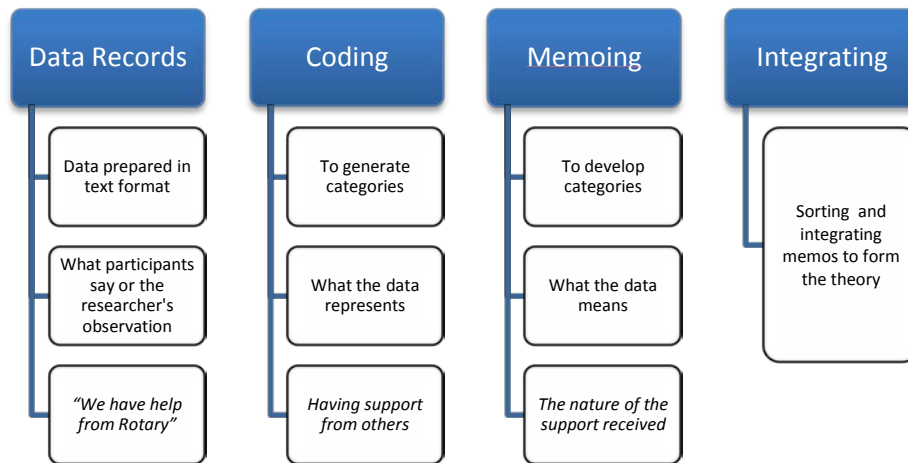
Figure 6.1 Key Components of the Data Analysis Process

As the data are coded, memos are written with the aim of developing certain codes into theoretical categories. From there, the memos are sorted and integrated to form the theory. The key components of the data analysis process are summarised in Figure 6.1. All interview and observational data were included in the analysis. All data from the interviews and field notes were coded. When writing memos, I considered the information gained from both the interviews and my observations.

In grounded theory studies, the constant comparative method is used at each stage of the data analysis. Constant comparison is a technique where data, codes and categories are compared and contrasted with the aim of developing and refining the properties of a category (Stanley, 2006, p. 67). In analysing their data, researchers may compare data with data, data with codes, codes with codes, codes with categories and categories with categories (Charmaz, 2006, p. 81). For example, the responses of different people at different times may be compared, codes may be compared with the aim of sorting them into categories or categories may be compared to identify the relationships between them.

### 6.4.4.1 Data Records

All interviews and field-notes were typed. Interviews were transcribed verbatim by a professional typist. I then checked each typed interview record for accuracy (Richards, 2005, p. 51). All electronic data records were stored in password-protected computers.

Hard-copies were stored in a locked filing cabinet. Forty-two interview and 69 field-note data records were imported into NVivo (version 8.0).

### 6.4.4.2   Computer-Assisted Data Analysis

In qualitative research, computer software may be used to facilitate the data analysis process. Typically, data analysis software enables researchers to manage, query, model or report their data as well as record and organise ideas generated during the analytic process (Bazeley, 2007, p. 2). Whilst the use of computer software can facilitate a more methodical and efficient approach to data analysis, it does not replace the analytic skill of the researcher (Bazeley, 2007, p. 7; Bringer, Johnston, & Brackenridge, 2004).

The decision to use computer-assisted analysis will depend on the purpose of the research and the type and level of analysis required (Auld et al., 2007). In this study I wanted to manage the data records in a centralised location, efficiently search the data records, assign codes to the data, sort the codes into categories, generate coding reports, record memos and maintain a study journal.  To achieve these tasks, I used NVivo, a software program that is well suited for use in grounded theory studies (Bringer, Johnston, & Brackenridge, 2006).

### 6.4.4.3   Data Coding

Coding is commonly used in the analysis of qualitative data. Coding has been defined as the process of "categorising segments of data with a short name that simultaneously summarises and accounts for each piece of data" (Charmaz, 2006, p. 43). Coding is a way of classifying and indexing text in a way that facilitates the development of categories and hence conceptualisation (Bazeley, 2007, p. 66). Hence, researchers use coding to move beyond individual data records, with the aim of forming categories containing data segments from multiple data records (Richards, 2005, p. 86). In coding, researchers select, separate and sort the data, determine what the data is about and then assign these data representative codes (Charmaz, 2006, p. 45).

In grounded theory, the aim of coding is to separate data into categories which will then be developed and integrated to form the theory. Various processes for coding data in grounded theory studies have been proposed. Charmaz (2006, pp. 42-71) suggested the flexible processes of initial and focussed data coding.

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Table 6.5 Examples of Initial Coding

| Text Data | Initial Code |
|---|---|
| **Line-by-line coding:**<br><br>*"Yeah, I think getting strangers to come in would be a lot harder, with no idea"* | Line coded as:<br>*Being local and familiar* |
| **Segment-by-segment coding:**<br><br>*Alice*<br>*"I think also in a small town, and this is probably different to the city, is that for a lot of the people that are coming in, well for me, I'm probably familiar with them".*<br><br>*Lorraine*<br>*"You probably are, yeah*<br><br>*Alice*<br>*"So you can kind of build that rapport before they come in and it's really important for me to always find a connection with somebody. You know, that um... like "how's your Mum going?" or something like that, so build that connection and I think living here that's one of the benefit's that I'll have is because I know so many people, and once you've got that, and that kind of builds trust as well. You know, because you are familiar with them and they trust you and that's the hardest part is building up that rapport with them, yeah".* | Segment coded as:<br>*Being local and familiar* |
| **Same text assigned to multiple codes:**<br><br>*"Well it is both really, because people meet on the basis that they need to talk to each other. They need to connect, a lot of them are living alone at home and they're quite lonely, and they suffer from various illnesses a lot of them are depressed, so they need to come out. But also the main reason for establishing a group is to give them information. To tell them about what's happening. To promote new programs and new ideas, give them anything possible that we have that's in Polish, because they wouldn't be able to understand or read, you know, in English. So that's a very important part of that meeting. And obviously myself connecting with them, because after... people don't come to me, you know they don't think it's the right thing to do, "I can manage it on my own", "I'm not going to bother her"... this sort of thing. So when you get close to them they talk, they open up and then they're ready to do it, which is good".* | Segment coded as:<br>*Being local and familiar*<br>and<br>*Matching role* |

Other grounded theorists have recommended more formal methods of coding such as open, axial and selective coding (Strauss & Corbin, 1998) or theoretical coding (Glaser, 1978). In this study, coding was conducted according to the processes of initial and focussed coding as recommended by Charmaz.

*Initial Coding*

According to Charmaz (2006) the initial coding phase involves defining and labelling segments of data according to what the data represents or suggests. Initial codes should reflect actions to ensure the focus remains on processes, perspectives and meanings specific to the study participants. In that way, the codes and resulting theoretical categories will be "grounded" in the experiences of those participating in the study. During initial coding, Charmaz (2006, p. 49) advised researchers to remain open to what the data suggest, stay close to the data and keep codes simple, precise and analytic. Initial coding may occur word-by-word, line-by-line, segment-by-segment or by incident-to-incident. A combination of all four approaches may also be used.

Using the approach recommended by Charmaz (2006), I commenced coding of the interview and field-note data, creating initial codes as I worked through each record. I coded data line-by-line or segment-by-segment depending on the nature of the data being coded. Where appropriate to do so I assigned the same text data to multiple codes. Examples of initial coding are provided in Table 6.5.

As more data were coded, the number of initial codes increased and more data segments were coded to either new or existing codes. After coding the initial interview and field-note data for two of the participating organisations, I reflected on the types and nature of the over one hundred initial codes created up to that point. This reflective process is described as the "pit stop" and encourages researchers to review and compare their codes and identify any patterns within the data (Bazeley, 2007, p. 155).

In comparing the initial codes and the data assigned to each, many codes were related and therefore, could be grouped together. For example, many initial codes related to the people involved with the Stepping On program, such as: *being flexible*, *being local and familiar*, *being motivated*, *being organised*, *dealing with challenges*, *deciding Stepping On roles*, *rethinking Stepping On roles* and *enjoying a challenge*. As a result of the coding review process I started to group related codes together using a process of focussed coding.

*Focussed Coding*

Focussed coding involves using the most significant, frequent or related initial codes to sort, synthesise and integrate large amounts of data (Charmaz, 2006, p. 57).
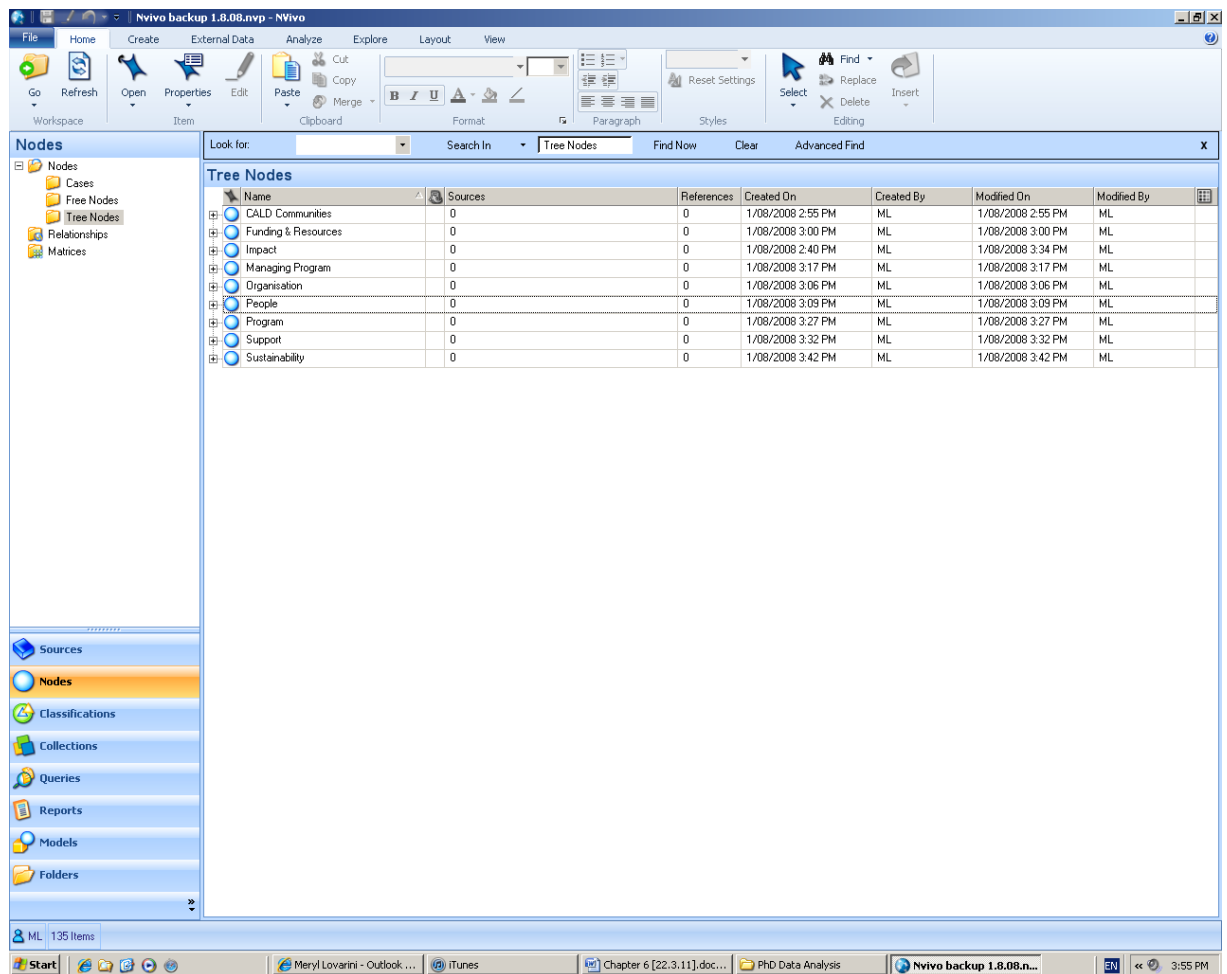
Figure 6.2 Early Focussed Codes

Focussed codes form the categories that eventually will be integrated to form the grounded theory. In this study, I created focussed codes by grouping together initial codes that appeared related or that seemed to be the most important for program sustainability. After conducting the first coding review (described earlier), I grouped all initial codes under nine focussed codes: 1) *CALD communities*, 2) *Funding and resources*, 3) *Impact*, 4) *Managing program*, 5) *Organisation*, 6) *People*, 7) *Program*, 8) *Support* and 9) *Sustainability*. These early focussed codes (known as Tree Nodes in NVivo) are shown in Figure 6.2.

Figure 6.3 shows how some of the initial codes were grouped under the focussed code titled *People*. Thus, from these two examples it can be seen that the process of focussed coding enables the generation of categories and subcategories. In that way, the properties and characteristics of each category can be identified.
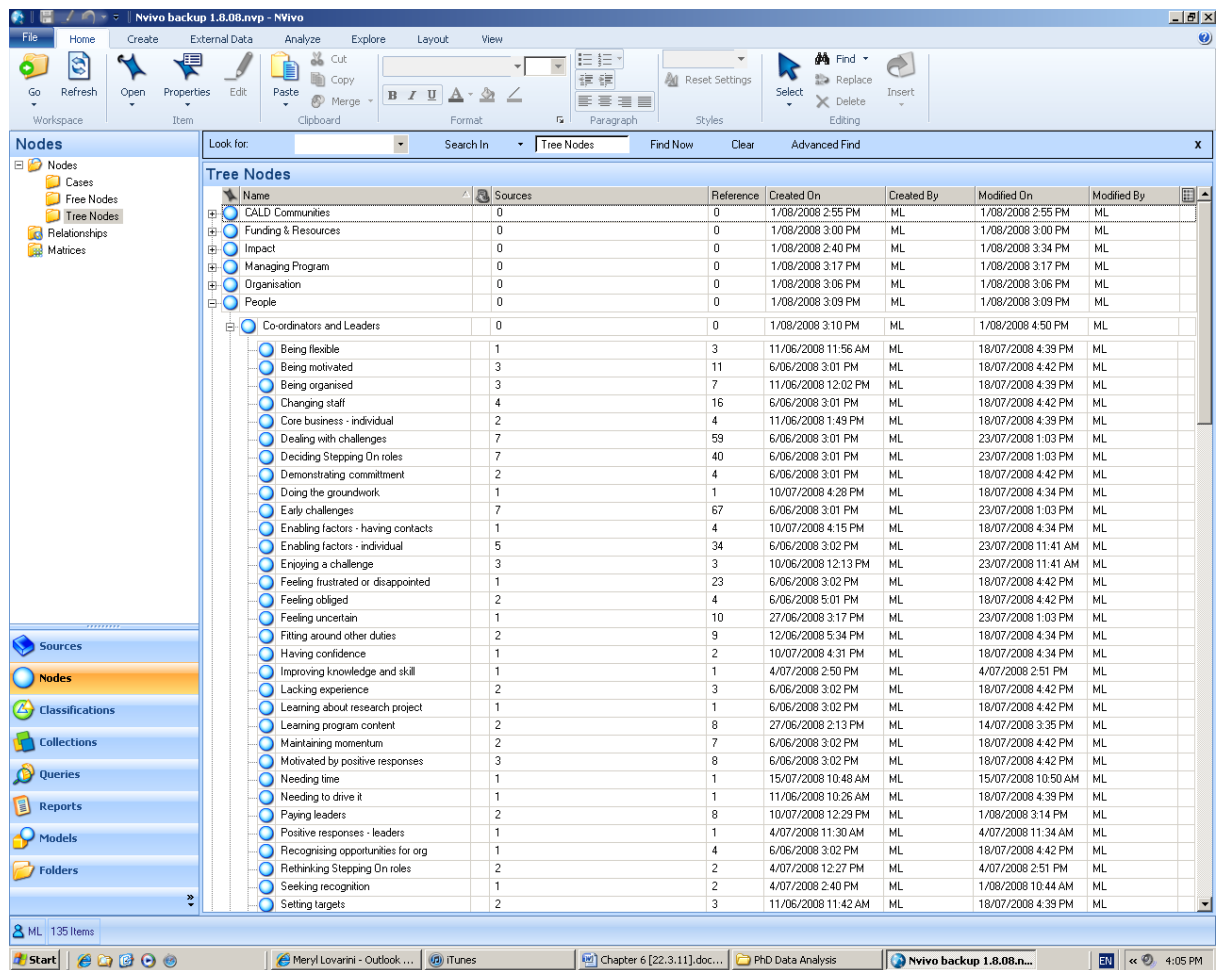
Figure 6.3 Early Focussed Code for 'People'

As the coding continued and the data and codes were reviewed and compared, five categories most significant for program sustainability were identified: 1) *Organisation*, 2) *People*, 3) *Program*, 4) *Support* and 5) *Sustainability*. However, while coding was used to generate and identify these five categories, it was through memo-writing that the categories were further developed.

### 6.4.4.4   Memo-writing

Memos are informal notes recorded by the researcher throughout the data analysis process. Memos enable researchers to reflect on the analysis and record ideas, discoveries, impressions, descriptions and contexts (Morse & Richards, 2002, pp. 113-114). In grounded theory, memos help researchers to analyse their ideas about the codes, identify gaps in the data collection, develop certain codes into categories and demonstrate relationships between categories (Charmaz, 2006, p. 85).

There is no recommended method or structure for writing memos. Instead, Charmaz provided suggestions for the type of information that could be recorded in memos to help advance the analysis. For example, in relation to the study of processes, researchers may want to focus on the conditions in which the process develops, when, why and how the process changes and the consequences of the process.

Irrespective of how memos are constructed or what form they take, the focus of memo-writing should be on the exploration, understanding and development of the emerging categories and their components. To do this, researchers may compare categories or sub-categories with general categories. In writing memos about categories, researchers can determine what the categories consist of and specify any relationships between them (Charmaz, 2006, p. 91).

In this study, I created a series of early and advanced memos (See Figure 6.4). The early memos were used to record ideas and thoughts about potential categories during the early phases of coding. For example, in the early memo titled *Difference,* I wrote about how each organisation seemed different in how they managed their programs, that these differences seemed dependent on the organisational context and that what may be an issue for one organisation may not be an issue for others.

As the coding progressed and the five main categories were identified, I created five advanced memos, one for each category. I wrote in each memo as I coded the data. In that way I could record and capture my thoughts at the time they were occurring.

In each memo I recorded my ideas and impressions about the nature of the category and what this meant for program sustainability. For example, in the advanced memo titled *People,* I wrote notes about managers, a sub-category of the category *People*. In comparing the responses of program leaders, program experts and managers, I wrote in the memo about the roles and responsibilities of managers in relation to program sustainability. An excerpt from this memo is presented in Box 6.1.

As more data were coded and as the memo developed I was better able to delineate the importance of managers for program sustainability in terms of their personal characteristics, the nature of support they provided for the program and the conditions under which support for the program would be continued. Thus, through the use of memos I was able to start linking the theoretical categories of *People*, *Program* and *Support*.
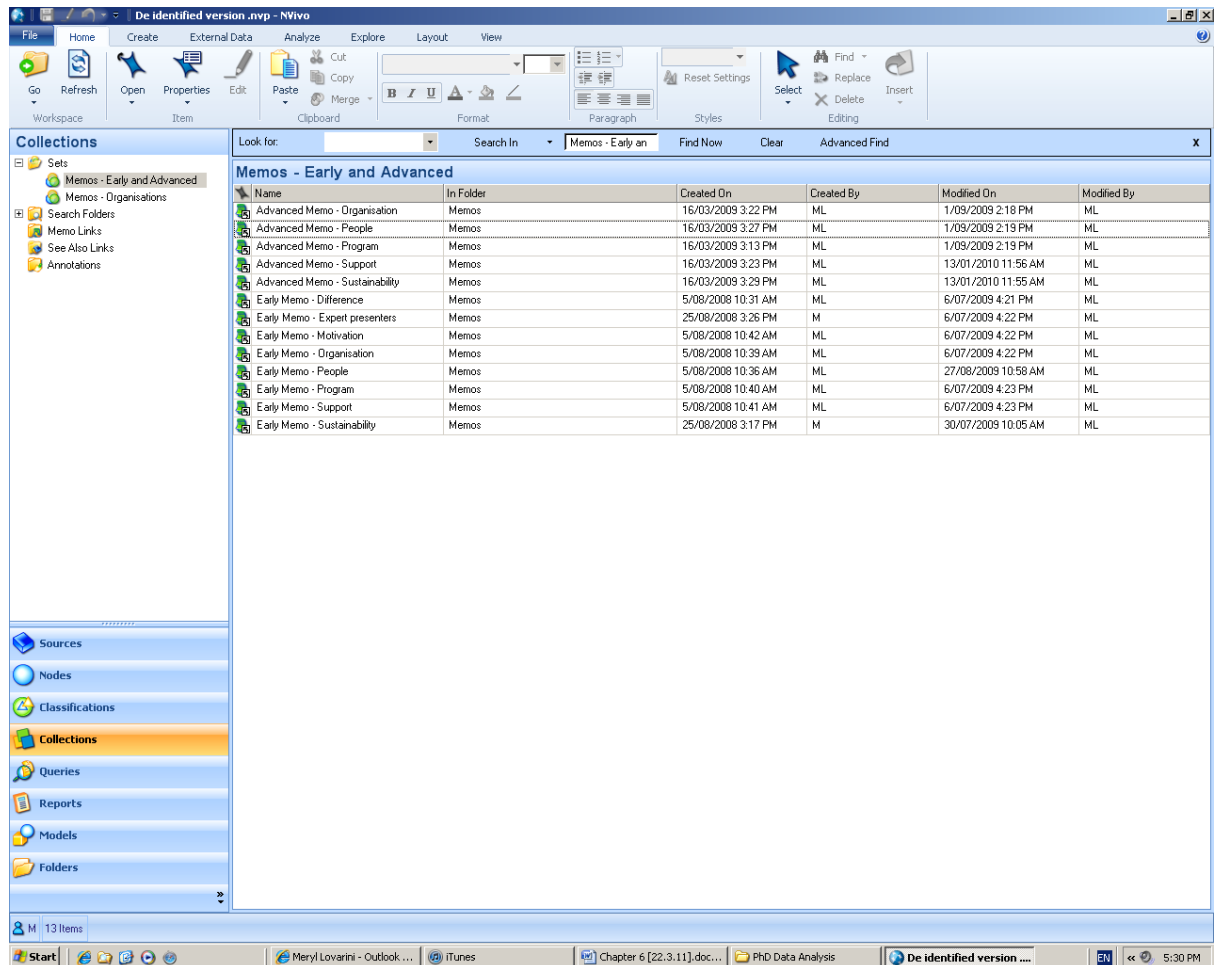
Figure 6.4 Early and Advanced Memos

Box 6.1 Excerpt from Advanced Memo 'People'

*Manager roles and responsibilities in relation to program sustainability...*

Need management support, manager must have a vested interest in the program, building capacity of the organisations to enable sustainability, the importance of managers in being positive about the program and supporting people in the organisation who want to run the program, make decisions about whether the program should be funded or not or people can be freed up to run the program, feeling uncertain yet positive , gaining commitment from staff, sees her people as capable, enthusiastic and long standing role in organisation, experience in taking on new programs, flexible approaches and going with the best option, generating enthusiasm in staff and having confidence in their ability to implement the program, planning well for issues that are under the control of the organisation, liking the personal approach to program promotion, pragmatic approach to work, very positive manner, talking to other managers to get their approval and involvement, manager is visionary in approach to promoting Stepping On, support to take on the program and staff attend the TTT workshop, manager enjoys change, and has experience in obtaining grants and introducing new programs within the organisation, approving and overseeing role, middle man between management committee and staff, supporting staff, developing their confidence, support needs to be more than lip service...

In addition to the category memos, I also created memos for each of the participating organisations so that ideas and reflections specific to each organisation could be recorded and stored in the one location.

### 6.4.4.5   Constructing the Theory

So far I have described the analytic processes of data coding and memo writing as methods for identifying and developing the theoretical categories. These overlapping processes are critical for constructing grounded theory. To fully construct the theory however, researchers must first determine if the theoretical categories are adequately "saturated" and then in a final process, sort and integrate their memos (Charmaz, 2006, pp. 113-121).

*Saturating Theoretical Categories*

Data saturation is a phrase used frequently yet differently by qualitative researchers. Saturation usually refers to the point in the data analysis where "nothing new is coming up" (Richards, 2005, p. 135). Data may be considered saturated when no new codes or categories are emerging from the analysis and when the researcher is confident that the analysis fully accounts for the phenomenon being studied (Stanley, 2006, p. 73). Therefore, once the data are saturated, no further data collection is required. For Charmaz, saturation refers to the point where new data do not reveal new properties of the categories or give rise to new theoretical insights (2006, p. 113).

It has been argued that a reliance on data saturation as a marker of theoretical adequacy is problematic. Data saturation may be achieved early and superficially as a result of "shallow data" and a "shallow analysis" (Charmaz, 2006, p. 114; Richards, 2005, p. 136). It's also been argued that claiming a state of data saturation is at best researcher conjecture, with claims difficult to legitimise (Dey, 1999, p. 257).To overcome these limitations it has been recommended that researchers should aim for theoretical focus and sufficiency (Dey, 1999, p. 257; Richards, 2005, pp. 136-138).

Focus refers to a theory that specifically accounts for the phenomenon under investigation and is not characterised by the use of generalities such as "some people felt..." or "it would seem..." (Richards, 2005, p. 136). Sufficiency refers to a theory that provides a simplified and coherent explanation of the phenomenon, that accounts for all

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the data and the categories created from that data and is one that makes sense to others (Richards, 2005, p. 137).

In this study, I used a series of strategies to determine theoretical saturation, focus and sufficiency. Once the coding of all data records was complete, I reviewed the analysis to determine whether:

1. New codes and categories were continuing to emerge from the analysis;
2. New and important issues relevant to the theory were being coded at existing codes;
3. The information recorded in the memos during the latter period of coding revealed new or different insights to those recorded just prior to this period.

From these processes I determined that no new codes or categories were emerging from analysis and that no new information or insights relevant to the theory that I had constructed up to that point, were being coded or recorded in the memos. In terms of theoretical focus and sufficiency, the theory was constructed from the analysis of all interview and observational data, drawing on the specific experiences of the research participants. A theoretical model was developed to encapsulate of the key components of the theory. I have presented this model to colleagues and others involved in falls prevention research.

*Sorting and Integrating Memos*

In addition to the processes for establishing theoretical saturation, focus and sufficiency, memos are sorted and integrated. In sorting and integrating memos, researchers can review and compare all information contained within the memos with the aim of refining the theoretical links between categories and building logic and coherence into the theory (Charmaz, 2006, pp. 115-117).

Memos may be sorted and ordered in a way that reflects the studied experience and the logic of the categories. Diagrams may be used during the sorting process to confirm connections and relationships between the categories. By integrating memos, researchers can determine how the categories best fit together. As stated by Charmaz, sorting and integrating memos should aim to "create the best possible balance between the studied experience, your categories and your theoretical statements about them" (2006, p. 117).

In this study I sorted and compared memos throughout the entire data analysis process. Through the processes of memo sorting and integration, I constructed and diagrammed various versions of the theory and the theoretical model, which were refined as the data analysis progressed. I tested the theory by comparing those organisations sustaining the program and those not sustaining the program against the key components of the theory. In conducting these tests, I was able to demonstrate that there was sufficient "fit" between the theory and the experiences of the participating organisations.

### 6.4.5   *Research Rigour and Quality*

Achieving and demonstrating rigour and quality in qualitative research is important, however, there are diverse and at times conflicting views and on what comprises a rigorously conducted qualitative study (Cresswell, 2007, p. 203; Dixon-Woods, Shaw, Agarwal, & Smith, 2004; Higgs & Adams, 1998; Rolfe, 2006). For some, demonstrating congruence between the epistemological position of the researcher, the methodology chosen and the methods used in the study is sufficient (Carter & Little, 2007).

Others have argued that a rigorous study is one where the findings are credible, transferable, dependable and confirmable (Lincoln & Guba, 1985, p. 300). Ballinger (2006) suggested that a rigorous qualitative study is characterised by coherence between the research aim and orientation, systematic and careful conduct of the research, a convincing, relevant interpretation of the data and a clear accounting of the researcher role throughout the research process. Along with these perspectives, frameworks and checklists have also been developed for appraising the quality of qualitative studies (Kitto, Chesters, & Grbich, 2008; Long & Godfery, 2004; Meyrick, 2006; Tong, Sainsbury, & Craig, 2007).

Despite these different approaches and perspectives, some criteria have been suggested in the literature for evaluating the quality and rigour of qualitative research studies in general and more specifically, in grounded theory studies. In this section, I initially summarise the strategies I used to enhance the rigour and quality of this study followed by an explanation of the chosen strategies.

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### 6.4.5.1 Rigour and Quality in this Study

In this study I used a combination of strategies to enhance study rigour and quality. These strategies are summarised in Table 6.6.

### 6.4.5.2 Rigour and Quality in Qualitative Research

*Methodological Congruence*

Methodological congruence refers to the "fit" between the research question[s], the epistemological perspective of the researcher, the methodology and the methods used in the study (Pearson, 2010, p. 215). Methodological congruence ensures that the researcher remains consistent in approach throughout the entire research process (Morse & Richards, 2002, p. 33). It has been suggested that the use of "one-size-fits all" quality standards and checklists for appraising the rigour and quality of qualitative studies may be dispensed with entirely if researchers can clearly demonstrate consistency between their epistemological position, the selected methodology and the methods used to conduct the study (Carter & Little, 2007).

*Audit Trail*

An audit trail refers to evidence of how the research was conducted (Morse & Richards, 2002, p. 177). An audit trail may consist of a journal in which the researcher logs the research activities and reflections as well as analytic records such as interview transcripts, coding schemas and memos (Lincoln & Guba, 1985, p. 319; Rodgers & Cowles, 1993).

It has been suggested that the presence of an audit trail establishes the rigour of the study and the credibility of the findings by demonstrating how the raw data were analysed and interpreted (Wolf, 2003). Others have questioned this view, stating it would be impossible to audit and confirm another researcher's coding and analysis given the interpretive nature of the activity (Cutcliffe & McKenna, 2005; Morse & Richards, 2002, p. 177). At a minimum, it is important for researchers to provide an account of important methodological and analytic decisions made throughout the research process (Bazeley, 2007, p. 29; Richards, 2005, p. 43). In that way researchers can demonstrate the process for how the findings were developed, justify their conclusions and thus enhance the "believability" of the research findings.

Table 6.6 Strategies used in this Study to Enhance Rigour and Quality

| Quality Criteria | Strategies used in this Study |
|---|---|
| **Methodological Congruence** | I chose the constructivist grounded theory methodology proposed by Charmaz (2006) and used research methods consistent with that approach. |
| **Audit Trail** | I kept a journal throughout the study in which I recorded all methodological decisions and personal reflections. I also kept a variety of records including the signed consent forms, interview transcripts, field notes, codes, memos and draft versions of the theory and theoretical framework. |
| **Researcher Reflexivity** | I regularly scrutinised my decisions in relation to the data collection and analysis. For example, from the brief review of the literature I conducted at the outset of the study, it appeared that program sustainability was viewed as a final phase in a process commencing with program adoption, followed by program implementation. As well, researchers tended to focus on the barriers and enablers of program sustainability. I structured my early data collection and analysis around these assumptions but soon learnt that program sustainability did not necessarily follow a neat linear process and that often barriers could be overcome. Thus, I modified how I coded the data to ensure that I was not forcing data to fit these preconceived assumptions. |
| **Triangulation** | In this study I used a variety of data sources and data collection methods to gain multiple perspectives on program sustainability in a variety of contexts. For example I interviewed people who held a variety of roles in relation to the Stepping On program and who came from diverse organisations. |
| **Member Checking** | I used member checking in two ways; 1) to check facts and 2) to gain feedback on the main research findings.<br>*Checking facts...*<br>Where appropriate I contacted participants to confirm specific facts such as the number of hours worked per week by the participant.<br>*Gaining feedback...*<br>I sought feedback from the research participants to determine if my explanation for achieving program sustainability made sense to them and fit their experiences. I provided a summary of the research findings to each participant and invited them to make any comment on the findings (See Appendix 7).  Participants were not obliged to provide feedback or participate in the member checking process. Three participants provided feedback on the study findings. It was not feasible or appropriate to pursue the reasons for why some participants chose not to provide feedback. |
| **Peer Debriefing** | Throughout the data analysis process I met with my research supervisors on regular occasions to review the developing theory. |
| **Prolonged Field Exposure** | I collected data over a two and half year period from February 2007 to November 2009. |
| **Coding Consistency** | I conducted the entire data analysis. To ensure coding consistency I developed definitions for each code and conducted regular checks to ensure that all data were being coded consistently. |

| Quality Criteria | Strategies used in this Study |
|---|---|
| **Rich Data** | During the interviews I collected in-depth data from each participant by asking them about their views and to provide examples of their experiences. These data were supplemented by the field-note data and the data I collected on the program sustainability outcomes for each organisation. In this way I was able to gather rich data about each of the participating organisations and their experiences in trying to achieve program sustainability. |
| **Use of the Literature** | I conducted a brief literature review at the outset of the study in mid 2007. I then conducted a more in-depth literature review in late 2010, after the data analysis had concluded. |
| **Theory:**<br>  &bull; *Credibility* | In this study I had multiple contacts with the study participants and their organisations over a two and a half year period, comprising 42 interviews and 69 observations. The data collection and analysis were conducted in a systematic way according to recognised processes for constructing grounded theory. |
|   &bull; *Originality* | This study provides for the first time, a theoretical explanation and framework for program sustainability in falls prevention that has been developed directly from those engaged in program implementation. |
|   &bull; *Resonance* | The theory was developed from the experiences of a broad range of organisations and I included all interview and field-note data in the analysis. Responses from participants during the member checking process indicated agreement with the study findings especially in relation to the nature of support that organisations require. |
|   &bull; *Usefulness* | The usefulness and contribution of this theory developed in this study, will be discussed in depth in Chapter Twelve of this thesis. |

*Researcher Reflexivity*

In qualitative research, researchers bring to their studies certain ideas, preconceptions and biases about the nature of the phenomenon being investigated. Researchers must acknowledge and be explicit about how their preconceptions and biases may influence the research design and process (Curtin & Fossey, 2007; Mays & Pope, 2000; Richards, 2005, p. 26).

*Triangulation of Data and Methods*

Triangulation is a term commonly used in qualitative research but is often defined and used in different ways. Triangulation may refer to the use of different types of data or methods to gain multiple perspectives on the phenomenon under investigation (Richards, 2005, p. 21). Erlandson, Harris, Skipper and Allen (1993, pp. 137-139) stated that triangulation is a technique that makes use of multiple sources of data (time,

space, person), methods (observations, interviews, videotapes, photographs, documents) or investigators (single, multiple).

Triangulation has also been described as a strategy in which "different methods are used to elicit information about the same phenomenon, and the resulting data compared to check concurrence" (Ballinger, 2006, p. 238). In that way, Ballinger argued, the validity of the research findings could be established. Others however, warn against the use of triangulation as a form of "validity checking" in qualitative studies since different methods will rarely produce findings that can be readily compared, let alone be declared consistent (or otherwise) (Bloor, 2001, p. 385; Richards, 2005, p. 140).

Despite these inconsistencies in opinions and perspectives, at a broad level, triangulation offers a method for gaining multiple perspectives, thus leading to a more thorough understanding of the research topic (Curtin & Fossey, 2007).

*Member Checking*

Member checking is a process in which the researcher seeks feedback from the research participants ("members") as a form of respondent validation (Richards, 2005, p. 178). Member checking may be used to confirm data, descriptions or experiences or to verify the researcher's interpretations (Curtin & Fossey, 2007; Erlandson et al., 1993, p. 142). Participant responses may then be incorporated into the study findings (Mays & Pope, 2000).

The value of member checking as a method for demonstrating rigour in qualitative studies has been the subject of debate. Bloor (2001, p. 391) argued that a participant's endorsement of the research findings is provisional and subject to change, that each participant has not been privy to the full range of data provided by others and that a participant may focus on aspects of the analysis not of central interest to the researcher. As well, while it is useful to gain feedback from those participating in the research, researchers need to clear on what is being checked, by whom and how any responses should be interpreted (Richards, 2005, pp. 178-180).

*Peer Debriefing*

Peer debriefing is a technique in which the researcher can present and discuss aspects of the study with peers or colleagues. Depending on the nature of the research, debriefing

may assist researchers to explore, develop and report their ideas about the data collection and analysis, thus improving credibility of the research process (Erlandson et al., 1993, p. 140).

*Prolonged Engagement in the Field*

It has been suggested that qualitative researchers need to spend extended periods of time "in the field" to familiarise themselves with the contexts of the research participants, build trust and rapport with the participants and ensure that data collection is not "distorted" by events occurring within a particular or limited timeframe (Erlandson et al., 1993, p. 133).

It is likely however, that the length of time spent in the field collecting data will depend on the nature of the research and research question. For example, if the research focus is on how a process changes over time, then it would be reasonable for the researcher to plan for an appropriate amount of time in the field to capture these experiences.

*Coding Consistency*

Coding is a vital component of the data analysis process and is the frame upon which the analysis is built (Charmaz, 2006, p. 45). Thus, researchers should regularly check their coding to ensure consistency in how the data are coded, categorised and analysed (Richards, 2005, p. 125).

*6.4.5.3   Rigour and Quality in Grounded Theory Studies*

Methods for enhancing the rigour and quality of specific qualitative research methodologies such as grounded theory have been recommended. For example, Chiovitti and Piran (2003) suggested eight strategies for enhancing the "credibility", "auditability" and "fittingness" of grounded theory studies. Elliot and Lazenblatt (2005) encouraged researchers to demonstrate consistency of research methods with accepted grounded theory practice.

The quality of a grounded theory study may be judged according to the version of grounded theory used by the researcher. For example, based on their processes for developing grounded theory, Strauss and Corbin developed seven criteria for judging the quality of a grounded theory study (Cresswell, 2007, p. 216). Glaser (1978) stated

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that a grounded theory must demonstrate "fit", "work", "relevance" and "modifiability". In this study I used the version of grounded theory proposed by Charmaz (2006) who offered her own criteria for enhancing and evaluating the rigour and quality of grounded theory studies.

*Rich Data*

In grounded theory studies researchers should aim to collect rich data. Rich data, also known as "thick descriptions" are detailed and capture participant's views, experiences and actions as well as the contexts in which people participate (Charmaz, 2006, p. 14; Geertz, 1973, pp. 6-7). Rich data may be collected through the use of in-depth interviews, extensive field-notes or both. Rich data ensure that the resultant theory is based on data that are substantial, relevant, suitable and sufficient (Charmaz, 2006, p. 18).

*Appropriate use of the Literature*

Early forms of grounded theory recommended that the literature review be delayed until the completion of data analysis (Charmaz, 2006, p. 165). In doing so, the researcher could articulate their own ideas and not be influenced by the ideas or findings of others. However in research practice, a review of the literature is usually required to establish the need for the study. Thus there is a need to balance what the researcher knows about the phenomenon from the literature review with what they can learn from the data (Morse & Richards, 2002, p. 165).

To achieve this balance, a variety of strategies have been suggested. First, researchers may "bracket" or set aside their knowledge by summarising at the outset of the study what is known about the phenomenon and any preliminary thoughts that the researcher may have about it (Charmaz, 2006; Morse & Richards, 2002, p. 169). As the theory is more fully developed, researchers can then return to the literature to review what is known on the topic. In doing so, researchers can "claim, locate, evaluate and defend" their findings in relation to the current literature (Charmaz, 2006, p. 163).

*Theory Credibility, Originality, Resonance and Usefulness*

Charmaz suggested that grounded theories can be evaluated according to their credibility, originality, resonance and usefulness (Charmaz, 2006, pp. 182-183).

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Credibility may be assessed according to whether the researcher had close familiarity with the topic, sufficient data to merit the claims, had made systematic comparisons between observations and categories and had demonstrated strong links between the gathered data and the analysis. Originality refers to whether the theory offers new insights into the studied phenomenon and the extent it challenges, extends or refines current ideas. Resonance refers to whether the theory portrays a comprehensive explanation of the studied phenomenon and whether this explanation makes sense to those experiencing the phenomenon. Usefulness of the theory may be assessed according to whether the theory can be applied by people in every-day worlds, contributes to knowledge in general and lead to further research in substantive areas.

## 6.5   Chapter Summary

In this chapter I have described in detail the research methodology and methods used in this study. The rationale for the choice of a grounded theory methodology was provided and the processes used for sampling and recruitment were outlined. I have described in-depth, the procedures I used to collect and analyse the data and construct the theory. Finally, I have presented the issues surrounding quality and rigour in qualitative research and outlined the strategies I used to enhance the rigour and quality of this study. In the following chapter, I describe the characteristics of the people and organisations who participated in this study.

# Chapter Seven
# Participant and Organisational Characteristics

## 7.1  Introduction

Thirty-four participants from 15 organisations participated in this study. In this chapter I describe the characteristics of the study participants and their organisations.

## 7.2  Participant Characteristics

The characteristics of the 34 study participants are shown in Table 7.1. Participants were mostly female (n=31, 91%) and from the professional backgrounds of nursing (n=10), welfare (n=5), occupational therapy (n=5) or the social sciences (n=4). Nineteen participants worked part-time within their organisation, with fifteen working full-time.

Within their respective organisations, participants held a variety of positions described as volunteer (n=5), nurse (n=4), occupational therapist (n=4), health promotion/education officer (n=4), service manager/team leader/co-ordinator (n=4), direct care worker (n=3), health worker (n=3), aged and disability officer (n=2), program/project co-ordinator (n=2), community settlement officer (n=1), falls prevention co-ordinator (n=1) and casual worker (n=1). Of the five volunteers, one worked as a full-time accountant, one worked full-time in information technology, one was a full-time student and one was a retired midwife. The background of the remaining volunteer is unknown.

Most participants were leaders for the Stepping On program (n=14) or had combined roles of program co-ordinator and leader (n=11). Three participants were engaged in program co-ordination activities only. Three service managers were involved in program decision-making, but were not directly involved in program co-ordination or delivery. Three participants were familiar with the program and were considered program 'experts'. Of these three participants, one co-ordinated and lead programs whilst training and mentoring other program leaders, one trained and supported organisations in program implementation and one participant promoted and supported the program within her organisation.

Additional people who were invited to participate in the study were not interviewed (n=9). Two people declined the invitation as they had recently resigned from their work positions. For the remaining seven, the reasons for not participating are unknown. The role of those not participating included volunteer (n=4), nurse (n=2), physiotherapist (n=1), health promotion officer (n=1) and religious officer (n=1). Those not participating were from three community health services (n=4), a welfare organisation providing services to Turkish speaking older people (n=3), a food services organisation (n=1) and a religious organisation providing services to Korean-speaking older people (n=1).

## 7.3   Organisational Characteristics

Fifteen organisations participated in this study. Of these, 13 were implementing or intending to implement the Stepping On program at the time of recruitment to the study. Two organisations did not implement the program but trained and supported others to do so. Of these two organisations, one was from the university sector and one was from the government health sector providing population-based preventative health services.

The characteristics of the thirteen participating organisations implementing or intending to implement the program are shown in Table 7.2. Most of the 13 organisations provided services in urban areas (n=9) and received government funding (n=11). Six organisations provided welfare services, four provided community health services with one each providing food, aged day care or council-related services. Half of the organisations were not-for-profit organisations (n=7), three were government health organisations, two were non-government health organisations and one was a local council. Five organisations were part of a larger 'parent' organisation. The organisations varied in size from one full-time employee to over two hundred employees. Two organisations used volunteers exclusively to provide their services. Five organisations provided specific services to older people in the Turkish (n=2), Polish (n=1), Arabic (n=1) and Indian (n=1) communities. Three organisations not associated with specific cultural communities provided some Stepping On programs for older people of Chinese and Turkish cultural backgrounds.

Table 7.1 Participant Characteristics
(n=34)

| Participant* | Gender | Position | Employment Status | Years in Position at Time of Study Recruitment | Approximate Hours Worked per Week | Professional Background | Role in Relation to Stepping On Program |
|---|---|---|---|---|---|---|---|
| Claire | Female | Health Promotion Officer | Part-time | 1.0 | 20 | Unknown | Co-ordinator |
| Tracey | Female | Clinical Nurse Consultant | Full-time | 1.0 | 38 | Nursing | Co-ordinator |
| Rosemary | Female | Registered Nurse | Full-time | 2.5 | 40 | Nursing | Leader |
| Fay | Female | Enrolled nurse | Part-time | 1.0 | 23 | Nursing | Leader |
| Nadira | Female | Community Team-Leader | Full-time | 2.0 | 35 | Social Science | Service Manager |
| Lesley | Female | Ageing & Disability Officer | Full-time | 1.0 | 35 | Social Science | Co-ordinator & Leader |
| Aldina | Female | Community Settlement Officer | Full-time | 2.5 | 35 | Welfare | Co-ordinator & Leader |
| Agnieska | Female | Manager | Full-time | 7.0 | 35 | Legal | Service Manager |
| Klaudia | Female | Direct Care Worker | Part-time | 10.0 | 25 | Social Work | Leader |
| Basha | Female | Direct Care Worker | Part-time | 7.0 | 25 | Teaching | Leader |
| Jadwiga | Female | Polish Health Worker | Part-time | 4.0 | 24 | Teaching | Co-ordinator & Leader |
| Marjan | Female | Project Co-ordinator | Part-time | 1.5 | Unknown | Journalism | Co-ordinator & Leader |

| Participant* | Gender | Position | Employment Status | Years in Position at Time of Study Recruitment | Approximate Hours Worked per Week | Professional Background | Role in Relation to Stepping On Program |
|---|---|---|---|---|---|---|---|
| Rachel | Female | Service Co-ordinator | Full-time | 7.0 | 38 | Welfare | Co-ordinator & Leader |
| Alice | Female | Casual worker | Part-time | Unknown | Variable | Nursing | Leader |
| Lorraine | Female | Volunteer | Part-time | 2.5 | 2.0 | Unknown | Leader |
| Angela | Female | Manager | Full-time | 10.0 | 38 | Social Work | Service Manager |
| Gail | Female | Client Support Worker | Part-time | 2.5 | 28 | Nursing | Leader |
| Sally | Female | Mental Health Worker | Part-time | 7.0 | Unknown | Nursing | Leader |
| Celia | Female | Volunteer Co-ordinator | Part-time | 4.0 | 8 | Administration | Leader |
| Jillian | Female | Occupational Therapist | Part-time | 1.0 | 18 | Occupational Therapy | Co-ordinator, Leader & Expert |
| Sophie | Female | Health Education Officer | Part-time | 3.0 | 28 | Welfare | Co-ordinator and Leader |
| Georgia | Female | Occupational Therapist | Full-time | 1.0 | 38 | Occupational Therapy | Leader |
| Tina | Female | Occupational Therapist | Full-time | 7.0 | 38 | Occupational Therapy | Leader |
| Nicole | Female | Health Promotion Officer | Part-time | 5.0 | 24 | Nursing | Co-ordinator & Leader |
| Kerry | Female | Health Promotion Officer | Full-time | 13.0 | 38 | Nursing | Co-ordinator & Leader |
| Emily | Female | Nursing Unit Manager | Full-time | 2.0 | 38 | Nursing | Co-ordinator |

| Participant* | Gender | Position | Employment Status | Years in Position at Time of Study Recruitment | Approximate Hours Worked per Week | Professional Background | Role in Relation to Stepping On Program |
|---|---|---|---|---|---|---|---|
| **Aysun** | Female | Bilingual Health Worker | Full-time | 13.0 | 38 | Welfare | Leader |
| **Suman** | Male | Volunteer | Full-time | 1.5 | 35 | Accounting | Co-ordinator & Leader |
| **Chandra** | Female | Volunteer | Part-time | 1.5 | 6 | Information Technology | Leader |
| **Deshan** | Male | Volunteer | Part-time | 1.5 | 6 | Student | Leader |
| **Noor** | Male | Aged Care Worker | Full-time | 1.0 | 35 | Welfare | Co-ordinator & Leader |
| **Shirley** | Female | Volunteer | Part-time | 0.5 | Variable | Nursing | Co-ordinator & Leader |
| **Amira** | Female | Occupational Therapist | Part-time | 1.5 | 28 | Occupational Therapy | Trainer, Expert |
| **Lyn** | Female | Falls Advisor | Part-time | 3.0 | 32 | Occupational Therapy | Supporter, Expert |

*Pseudonym

| Organisation* | Location | Service Sector | Type of Organisation | Parent Organisation | Primary Source of Funding | CALD^ Communities | Number of Employees |
|---|---|---|---|---|---|---|---|
| Regional Community Health | Semi-rural | Community Health | Non-Government Health Service | Yes | Government | Nil | Unknown |
| The Council | Urban | Local Government | Local Government | No | Council Revenue | Turkish# | >250 |
| Turkish Services | Urban | Welfare | Not for profit | No | Government | Turkish | 1 |
| Polish Services | Urban | Welfare | Not for profit | No | Government | Polish | 35 |
| Regional Welfare | Semi-rural | Welfare | Not for profit | No | Government | Nil | >60 |
| Rural Food Services | Semi-rural | Food Services | Not for profit | No | Government | Nil | 16 |
| Urban Community Health | Urban | Community Health | Non-Government Health Service | Yes | Government | Chinese# | Unknown |
| Rural Community Health | Urban & Semi-rural | Community Health | Government Health Service | Yes | Government | Chinese# | >80 |
| Suburban Community Health | Urban | Community Health | Government Health Service | Yes | Government | Nil | >90 |
| The Day Service | Urban | Aged Day Care | Government Health Service | Yes | Government | Turkish | 8 |
| Indian Care | Urban | Welfare | Not for profit | No | Donations | Indian | 31 Volunteers |

| Organisation* | Location | Service Sector | Type of Organisation | Parent Organisation | Primary Source of Funding | CALD^ Communities | Number of Employees |
|---|---|---|---|---|---|---|---|
| **Arabic Services** | Urban | Welfare | Not for profit | No | Government | Arabic | 5 |
| **Urban Welfare** | Urban | Welfare | Not for profit | No | Government | Nil | 5 Volunteers |

*Pseudonym ^Culturally and linguistically diverse
#Stepping On programs provided primarily for English-speaking older people, but some programs conducted for people of Turkish or Chinese cultural background

## 7.4    Chapter Summary

Participants in this study were from a variety of professional backgrounds, held varied positions within their organisations and were mostly Stepping On program leaders, program coordinators or both. Participating organisations came from a variety of service sectors, were located mostly in urban areas, with some providing services specifically for older people from CALD communities.

# Chapter Eight

# The Grounded Theory: An Overview

## 8.1 Introduction

In this study I aimed to explore the factors influencing sustainability of the Stepping On program and to develop an understanding for how such community-based falls prevention programs can be sustained over time. I conducted a qualitative research study using grounded theory methodology and developed a theory explaining how program sustainability can be achieved.

In this chapter I present an overview of the grounded theory for achieving program sustainability. The theory was developed from the experiences of those engaged directly with the program and is based on the interacting factors influencing program sustainability. The findings supporting this theory will be presented in detail in the following chapters.

## 8.2 Achieving Program Sustainability: A Grounded Theory

Organisations operate within diverse and changing contexts. Consequently, organisations differ in their intent and ability to sustain the program, in the way in which the program is sustained and in how program sustainability is manifested. Thus, organisations address program sustainability in ways that match their particular settings and circumstances.

Despite differences in these organisational contexts, all organisations need motivation and capacity to sustain the program and will do so providing certain conditions relevant to the organisation are met. Three critical conditions, common across all organisations, are necessary for program sustainability:

1. The program must offer benefits and value, which must continue for the program to continue.
2. There must be committed, proactive, enthusiastic, positive, persistent people involved with the program, who have a belief in the program and its benefits. Program co-ordinators and leaders must be trained, supported and available.

3. Ongoing support that matches the specific needs of the organisation must be received.

While the nature of the benefits, the type of people involved and the kind of support required varies between organisations, and can vary over time due to changing circumstances affecting each organisation, all three conditions must be met to ensure that organisations have the necessary motivation and capacity to sustain the program.

Organisations use a range of context-specific strategies to create, manage and control the conditions necessary for program sustainability. If the necessary conditions are met, the program will continue. If the conditions are not met, then the program may be postponed or cancelled until the conditions are met. If it is unlikely that the conditions can be met then the program will cease.

Developing networks and working in collaborative partnerships with others are key strategies used by organisations to sustain the program. A network linking organisations with program partners, supporters, funders and experts may assist organisations in meeting the conditions necessary for program sustainability and thus enhance the motivation and capacity of each organisation to sustain the program.

## 8.3    The Theoretical Model

A theoretical model comprising the central elements of the grounded theory is presented in Figure 8.1
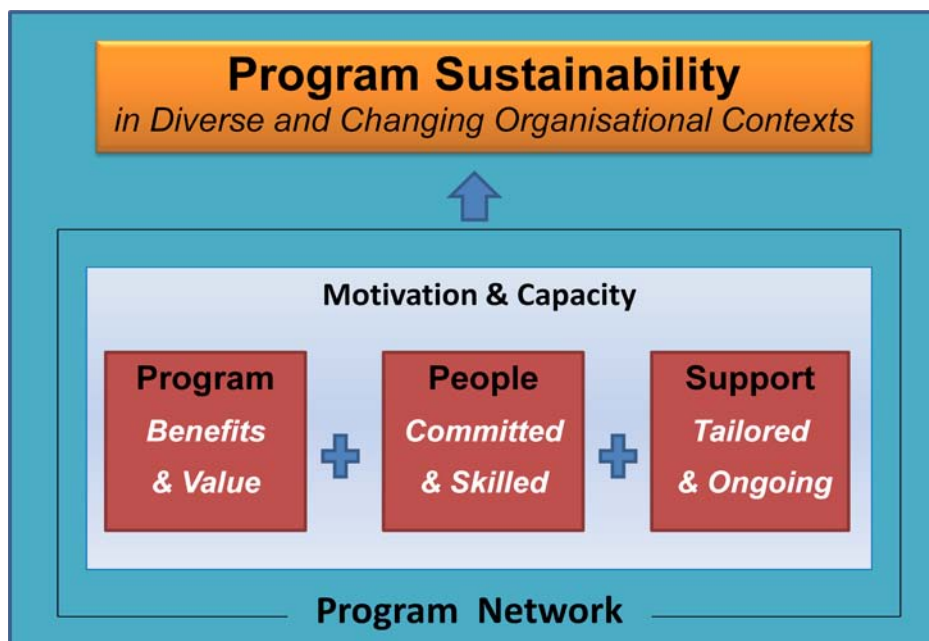


Figure 8.1 Achieving Program Sustainability: A Theoretical Model

## 8.4 Chapter Summary

A theory and accompanying theoretical model for how program sustainability can be achieved has been outlined in this chapter. A detailed account and explanation of the theory is provided in Chapters Nine, Ten and Eleven.

# Chapter Nine
# Program Sustainability Outcomes

## 9.1 Introduction

In developing the theory for achieving program sustainability, I reviewed the program sustainability outcomes for each organisation. In doing so, my aim was to examine if program sustainability may be associated with certain organisational characteristics. In this chapter I present the program sustainability outcomes for the organisations participating in this study and show that having certain organisational characteristics does not account for whether organisations sustain the program or not.

## 9.2 Program Sustainability Outcomes

The program sustainability outcomes achieved by each organisation by the end of 2009 are shown in Table 9.1.

### 9.2.1 Programs Implemented

In 2007, at the outset of the study, 11 organisations were new to the program, while two were experienced in program implementation. By late 2009, at study end, 12 organisations had implemented a total of 52 programs. One organisation implemented no programs despite an intention to do so at study outset.

Organisations differed in the number of programs implemented. Of the 12 implementing organisations, nine implemented multiple programs, with three implementing one program only. For those organisations implementing multiple programs, the number of programs implemented ranged from two to seventeen.

### 9.2.2 Frequency of Implemented Programs

The frequency of programs implemented over time differed between organisations. For example, one organisation, Regional Community Health, implemented five programs from 2007 to 2009 while another organisation, Regional Welfare, implemented two programs within the same time period.

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Table 9.1 Program Sustainability Outcomes for Each Organisation
(n=13)

| Organisation | Program Experience at Study Recruitment | Program Implementation Period | Total Programs Implemented by end 2009 | Intent to Continue Program in 2010 |
|---|---|---|---|---|
| **Urban Community Health** | Experienced | 2007 - 2009 | 17 | Yes |
| **Rural Community Health** | Experienced | 2005 - 2007 | 8 | No |
| **Regional Community Health** | New to program | 2007 - 2009 | 5 | Yes |
| **Indian Care** | New to program | 2008 - 2009 | 5 | Yes |
| **Rural Food Services** | New to program | 2007 - 2009 | 3* | Yes |
| **The Council** | New to program | 2008 | 3 | Yes# |
| **Suburban Community Health** | New to program | 2007 - 2008 | 3 | No |
| **Polish Services** | New to program | 2007 - Unknown | 3^ | Unknown |
| **Regional Welfare** | New to program | 2007 - 2008 | 2 | No |
| **Urban Welfare** | New to program | 2008 | 1 | No |
| **Arabic Services** | New to program | 2008 | 1 | No |
| **The Day Service** | New to program | 2008 | 1 | No |
| **Turkish Services** | New to program | 2007 - 2009 | 0 | No |
| | | | **Total = 52** | |

*3 programs confirmed for the period 2007 – 2009
^3 programs confirmed for 2007 only
#The Council did not implement any programs in 2009, but indicated that they re-commence the program in 2010

### 9.2.3   Intent to Continue the Program

Of the 12 implementing organisations, one organisation ceased all programs in 2007, five organisations did not implement any additional programs after 2008 and program activities beyond 2007 are unknown for one organisation.  Five organisations expressed an intention to continue the program in 2010.

### 9.3    Organisational Characteristics and Program Sustainability

The program sustainability outcomes outlined in the previous section demonstrate that not all organisations implemented the program despite an intention to do so, that there was considerable variability between organisations in the number and frequency of the programs implemented and that the number of organisations implementing the program decreased over time. As well, organisations differed in their intention to sustain the program beyond the timeframe of the research study.

To examine the potential influence of organisational characteristics on these differences in program outcomes I compared the organisational characteristics listed in Chapter 7, Table 7.2, for those organisations:

- Implementing or not implementing the program;
- Implementing single or multiple programs;
- Sustaining or not sustaining the program.

### 9.3.1    *Organisations Implementing or Not Implementing the Program*

One organisation, Turkish Services, did not implement any programs despite a stated intention to do so at the outset of the study. Turkish Services is a not for profit organisation, providing government funded welfare services in an urban setting to Turkish speaking older people. Other organisations, such as Arabic Services for example, shared similar characteristics to the Turkish Services, yet were able to implement at least one program. These differences in outcome suggest that organisational characteristics alone do not fully explain why some organisations can implement at least one program while others cannot.

It is noted that Turkish Services had only one paid employee, suggesting that very small organisations may be less able to implement the program. However, four volunteers associated with Turkish Services were recruited and trained to be program leaders, none of whom then went on to implement any programs. Other welfare organisations of similar limited size each implemented at least one program. Thus, although it may appear that organisational size can affect the capacity of an organisation to implement at least one program, organisational size alone does not fully account for why this is so.

### 9.3.2 Organisations Implementing Single or Multiple Programs

Nine organisations implemented multiple programs while three organisations implemented one program only. All three organisations implementing one program only, Arabic Services, Urban Welfare and the Day Service were small in size, which could imply once again that being of smaller organisational size may influence whether an organisation can implement multiple programs. However, for these three organisations it was not the size of their organisation that was the primary reason for implementing one program only.

Arabic Services always intended to implement one program only for their established group of older people who met weekly. The Day Service implemented one program but then faced uncertainty regarding what programs they should be providing to their clients due to an organisational restructure. Urban Welfare wanted to implement more than one program but lacked the necessary funding to do so. So for these three organisations, being of a smaller size was not the key factor influencing the decision to implement one program only. Other factors played a greater role.

### 9.3.3 Organisations Sustaining or Not Sustaining the Program

Five organisations indicated their intention to sustain the program beyond the conclusion of this study. A comparison of characteristics for those organisations sustaining and not sustaining the program is presented in Table 9.2. The program sustainability outcomes are unknown for one organisation, Polish Services. Hence, the information in Table 9.2 is based on the twelve organisations for which data are available.

The data in Table 9.2 demonstrate that the five organisations sustaining the program are diverse in organisational type, size, funding, service sector and the location in which their services are delivered. However, in comparing organisations sustaining the program with those not sustaining the program, it can be seen from Table 9.2, that only one of the five welfare organisations and one of the four organisations providing services to culturally diverse (CALD) communities were sustaining the program.

This finding could suggest that both welfare and "CALD" organisations are less likely to sustain the program. However, as revealed during the interviews, and as will be shown in Chapter 10, the reasons for why these and other organisation were not sustaining the program were in large part unrelated to the characteristics of the organisation and had more to do with other factors affecting the organisation.

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Table 9.2 Characteristics of Organisations Sustaining and Not Sustaining the Program (n=12)

| Characteristic | Specific Characteristic (Number of Organisations at Study Recruitment) | Sustaining Program (n=5) | Not Sustaining Program (n=7) |
|---|---|---|---|
| **Location** | Urban (8) | 3 | 5 |
| | Semi-rural (3) | 2 | 1 |
| | Urban & Semi-rural (1) | 0 | 1 |
| **Service Sector** | Welfare (5) | 1 | 4 |
| | Community Health (4) | 2 | 2 |
| | Local Government (1) | 1 | 0 |
| | Food Services (1) | 1 | 0 |
| | Aged Day Care (1) | 0 | 1 |
| **Organisational Type** | Not for Profit (6) | 2 | 4 |
| | Government Health Service (3) | 0 | 3 |
| | Non-government Health Service (2) | 2 | 0 |
| | Local Government (1) | 1 | 0 |
| **Parent Organisation** | Yes (5) | 2 | 3 |
| | No (7) | 3 | 4 |
| **Primary Source of Funding** | Government (10) | 3 | 7 |
| | Council Revenue (1) | 1 | 0 |
| | Donations (1) | 1 | 0 |
| **Association with Culturally Diverse (CALD) Communities** | Turkish (2) | 0 | 2 |
| | Indian (1) | 1 | 0 |
| | Arabic (1) | 0 | 1 |
| | Nil Specific (8)* | 4 | 4 |
| **Organisational Size** | >250 (1) | 1 | 0 |
| | >50 (3) | 0 | 3 |
| | >15 (1) | 1 | 0 |
| | <10 (3) | 0 | 3 |
| | Volunteers only (2) | 1 | 1 |
| | Unknown (2) | 2 | 0 |

*Eight organisations provided Stepping On programs primarily for English-speaking older people. Of these eight organisations, three providing occasional programs for older people of CALD backgrounds

Furthermore, from Table 9.2 it can be seen that half the organisations providing programs to English-speaking older people did not sustain the program, suggesting that irrespective of whether programs are delivered by "CALD organisations" or "non-CALD organisations", some organisations find sustaining the program a challenge.

## 9.4   Chapter Summary

Organisations participating in this study differed in the number of programs they implemented, the frequency of their implemented programs and their intention to sustain the program beyond the end of the study.  In this chapter I have shown that

program sustainability was not reliant upon the particular kind of organisation or combination of organisational characteristics described in this study. In the next chapter I will show that program sustainability relied not on having certain organisational characteristics but on having certain conditions met.

# Chapter Ten

# The Elements of the Grounded Theory

## 10.1   Introduction

In this chapter I elaborate on the central elements of the theory. In comparing and contrasting the experiences of organisations participating in this study, I provide a detailed analysis of the factors influencing program sustainability and explain how organisations can sustain their programs over time.

## 10.2   Achieving Program Sustainability: A Grounded Theory & Model

Based on the findings of this study I developed a theory for how program sustainability can be achieved. In summary, organisations operate within diverse and changing contexts and thus address program sustainability in ways that match their particular settings and circumstances. Despite differences in context, all organisations need motivation and capacity to sustain the program and will do so providing certain conditions relevant to each organisation are met.

Program sustainability relies on three critical conditions: 1) the program must provide benefits and value, 2) people involved with the program must be committed, skilled and available and 3) ongoing support must be received that is tailored to the needs of the organisation. While the nature of the program benefits, the type of people involved and the kind of support varies with each organisation, all three conditions must be met to ensure that organisations have the necessary motivation and capacity to sustain the program.

Organisations engage in a range of activities to create, manage and control the conditions necessary to sustain the program. If the conditions are met, then the program will continue. If the conditions are not met then the program may be postponed or cancelled until the conditions are met. If it is unlikely that the conditions can be met then the program will cease.

Developing networks and working in partnership with other organisations are key strategies used by organisations to sustain the program. A network linking organisation and program partners may assist organisations in meeting the conditions necessary for program sustainability and thus enhance the motivation and capacity of each organisation to sustain the program.

A theoretical model comprising the central elements of the grounded theory was presented in Chapter Eight (see Figure 8.1) and is reproduced here.
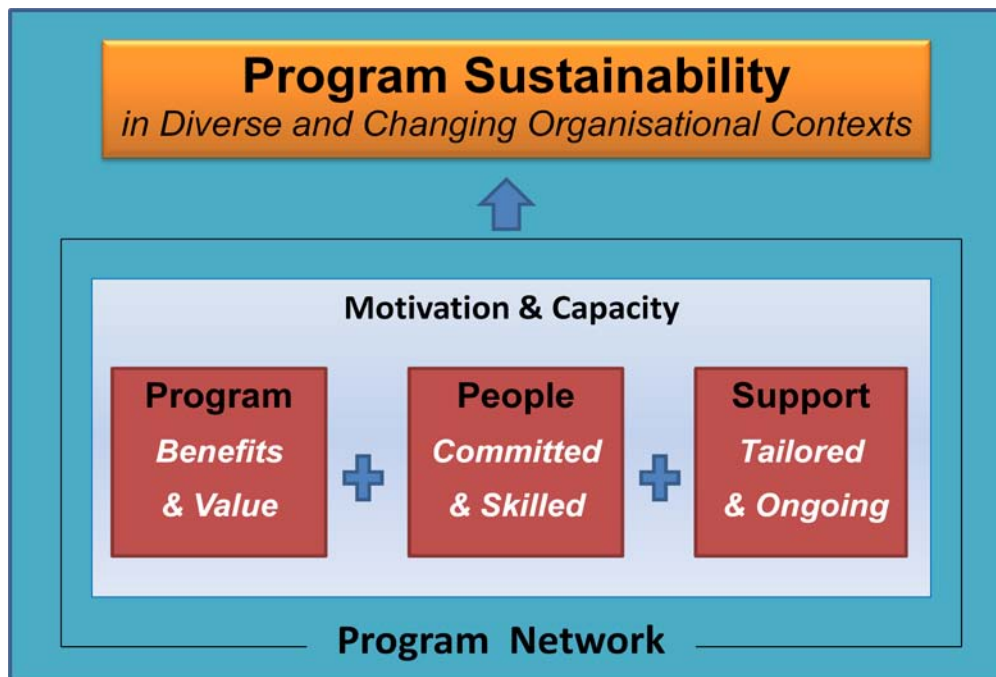


In the following sections I expand on each element of the theory to illustrate their relevance and importance for program sustainability.



## 10.3  Program Sustainability in Diverse and Changing Organisational Contexts

Organisations operated within diverse and changing contexts which in turn influenced how program sustainability was addressed by each organisation.

### 10.3.1  Diverse Organisational Contexts

The organisations participating in this study were diverse. Organisations differed in structure, purpose, in the types of services provided or in levels of funding, staffing or resources. These contextual differences influenced how organisations addressed program sustainability in a number of ways.

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First, the organisational context influenced the intent of an organisation to sustain the program. Arabic Services provided a variety of services to Arabic speaking people in Western Sydney. Noor, the Aged Care Worker at Arabic Services, conducted the program for his established group of older clients who met regularly at the centre each week. Despite his enthusiasm for the program, Noor saw no need to continue it at Arabic Services unless the nature of his role or the services provided changed such that new clients commenced with the organisation. For other organisations however, program sustainability was an important goal in meeting the health needs of both existing and future clients.

The organisational context also influenced the ability of an organisation to sustain the program and how the program was sustained. An examination of the differences in how organisations funded and implemented their programs illustrates this point. Indian Care and Urban Welfare both relied on volunteers to deliver the program. Both organisations worked in partnership with the same local council who provided venues for the program and other program resources. The involvement of volunteers at Indian Care was an important factor contributing to the implementation of five programs over a two year period and the intention to keep the program going. In contrast, Urban Welfare implemented one program only. Having only one trained and available volunteer to implement the program limited the ability of Urban Welfare to sustain the program:

> *We're all volunteers with our organisation and I just could not do another seven weeks on my own. And that's a shame because I really think had we been able to do that then we probably would have continued. And I think that's why the others [other organisations] are able to continue, because they do have paid workers. It does make a difference.*

> *Shirley, Program Leader*

For Shirley, having a paid worker to deliver the program was essential for program sustainability. As such, the program was unlikely to resume at Urban Welfare unless some funding for a program leader became available.

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Urban Community Health and Rural Food Services were two organisations sustaining the program but who used different funding models to do so. Urban Community Health is a community health service where for some staff members, the delivery of the program formed part of their usual work role. As such, funding for the program came primarily from the community health service budget. At Rural Food Services however, some staff members delivered and managed the program in addition to their usual tasks. To pay for this additional time and hence enable the program to continue, additional funding from a *"special projects budget"* was sought by the Manager from the organisation's Management Committee. As these examples demonstrate, organisations used different methods to sustain the program depending upon the organisational context.

Finally, program sustainability meant different things to different organisations. For Rachel, a program co-ordinator and leader from a welfare organisation, program sustainability meant having sufficient funding to implement at least two programs a year. Receiving constant requests for the program from older people represented program sustainability for Shirley, a program leader from a different welfare organisation. For Jillian, a program co-ordinator and leader from a community health service, program sustainability meant achieving a state where the program was *"owned"* by both the organisation and the government health department. Thus, for Jillian, the program became *"core business"* for staff, was included in staff job descriptions and meant that she could:

> *...take six months off and comeback and the program's [still] been running.*

For others however, making the program core business did not guarantee a sustainable program, as Lesley, program co-ordinator and leader at Council, explained:

> *It's core business for me because I make it core business. Okay, so I nominate it as something in my work plan. It goes to my manager for approval. If she approves it, that's fine, it's there. [But]...it's not something that is fixed and, you know, for the next worker that comes along it may be that for them promoting other services is far more important.*

Thus, depending on the context, organisations differed in what program sustainability meant and how it was manifested. It is clear then, that the contexts within which organisations operate were diverse. As a result, organisations addressed program sustainability in ways that reflected the context of the organisation.

### 10.3.2 Changing Organisational Contexts

Organisational contexts changed and this too influenced program sustainability. A venue may be available for one program but not others, staff could change, resources could fluctuate or the organisation may be restructured.

Changes in the organisational context had a positive or negative influence on the intent and ability of an organisation to sustain the program. For Lyn, a Falls Advisor within a large heath service, it was a challenge continuing the program within local health centres due to an ongoing and protracted restructure of the health service. The uncertainty surrounding future work roles and services made program planning a difficult task.

Not all organisational changes had a negative effect however. At The Council, the appointment of a new Ageing and Disability Officer resulted in the implementation of three programs by Council, five programs by organisations supported by the Council and an intention to sustain the program by both Council and one of the organisations they supported.

In response to changing circumstances, organisations needed to use a variety of strategies to enable the program to continue. For example, at Rural Food Services, a physiotherapist from the local government funded health service was available for their first program but not for subsequent programs. To enable their second program to proceed, additional program funds were made available by the service manager enabling a local physiotherapist from the private sector to be engaged. Thus, changes in the organisational context and in the circumstances affecting an organisation had an important influence on how program sustainability was addressed by each organisation.

Given these diverse and changing contexts, organisations addressed program sustainability in ways that matched their particular setting and circumstances. However, despite differences in organisational context, *all* organisations required motivation and capacity to sustain the program.

## 10.4  Needing Motivation and Capacity to Sustain the Program

Organisations needed motivation and capacity to sustain the program. To illustrate this point, I present the experiences of two organisations, Regional Community Health and Regional Welfare. Regional Community Health (see Box 10.1) were sustaining the program because they had the motivation and capacity to do so. In contrast, Regional Welfare (see Box 10.2) lacked sufficient capacity to sustain the program, despite motivation to keep the program going.

Box 10.1 Regional Community Health

*Regional Community Health*

Regional Community Health is a community health service in a semi-rural area west of Sydney. From 2007 to 2009, Regional Community Health planned to implement seven programs, five of which were implemented with two programs cancelled. Regional Community Health intended to sustain the program into 2010.

*Motivation*

Early motivation to implement the program at Regional Community Health came from a recognition that the program could provide multiple benefits.  For Rosemary, a program leader, the program fitted well with the needs of their clients and the type of services providing by the community health service:

> *Yeah, [the program] fits in very well.  A community orientated thing, it*
> *encompasses, you know, primary health care, how to prevent [falls], you know…*
> *get people's confidence back up when they've had a fall, yeah.  So I think it [the*
> *program] fits in well with the clients that we see here.*

For Tracey, the program co-ordinator, the program offered an important 'next step' for older people who may have been hospitalised as a result of a fall, allowing these people to receive the necessary information to prevent further falls:

> *It [the program] is a good primary healthcare strategy.  Falls is an important part*
> *of health prevention and promotion.  And the continuum of care between hospital*
> *and community is important to me.  The integration of care is important to me and*
> *I think little programs like this aid in that, in the development of that um sort of*

*strategy. It comes back down to primary health care where we're giving people an*
*informed choice but we have to transfer that knowledge first, before they can make*
*that informed choice…and this is the program that does that, in the area of falls.*

The program also offered staff the opportunity to learn new skills and expand their role as Tracey
explained:

*I have got the assistance of one RN and one EN… they will be facilitating [the*
*program]and I am using it as an exercise for my nurses to learn those facilitation*
*skills…I am trying to foster that side of their nursing skills and this is a good*
*vehicle to do that with. I encourage them [the community nurses] to deliver*
*education to the community and we involve ourselves in primary health care*
*principles and community nursing principles of which Stepping On is one of*
*those…one of those vehicles that we can um…ah… actively participate in primary*
*healthcare ventures, or health promotion ventures.*

Seeing the program benefits provided the necessary motivation for Regional Community Health to
continue the program, as indicated in this exchange by Rosemary and Fay, the two program leaders:

**Fay:** *I think it's good for the community.*
**Rosemary**: *Yeah*
**Fay**: *I think it's good for the people we're doing it for.*
**Rosemary**: *And I can see how …*
**Fay**: *You wouldn't want that to stop*
**Rosemary**: *No, it's a good program for them, I mean we're not going to help every*
*single person but, you know, the evidence is there to sustain why we've put the falls*
*program in.*

*Capacity*
At Regional Community Health, there was a program co-ordinator to manage the program and
oversee the workloads of the two program leaders to ensure the leaders had the necessary time for
program preparation and implementation.  Both program leaders received training in program
implementation at workshops conducted by program experts. Regional Community Health had
access to a variety of health professionals willing to contribute to the program as guest presenters as
well as ongoing support for the program from senior management. Encouragement, advice and
support were readily available from program experts. Receiving various support from local
community organisations was an important factor enabling Regional Community Health to have
sufficient capacity to keep the program going:

**ML [Interviewer]:**  *So, structuring of workloads, having levels of management*
*support…any other things that have helped you continue the program?*
**Tracey [Program Co-ordinator]:** *Community support.  Yeah, cause we've had help*
*from Windsor RSL, we've had help from Rotary, we've had help from Lion's Club,*

> *we've had help from the Community Board of Advice, we've had help from the*
> *Richmond Club, we've had help from Bunnings.*

Through their program promotion activities, Regional Community Health were able to attract a sufficient number of program participants to enable the implementation of five programs over a three year period.

At times however, Regional Community Health were limited in their ability to implement the program. One program planned for June 2008 was cancelled due to an insufficient number of program participants. Despite this challenge, the program was rescheduled and eventually implemented in September that year. Problems with community transport services resulted in the cancellation of a program planned for 2009. But for Tracey, the program co-ordinator, her motivation to continue the program was undiminished by this event, describing such challenges as *"growing pains"*. Thus, three programs were implemented following the cancelled program in 2008 and Regional Community Health planned to sustain the program in 2010, despite the cancelled program at the end of 2009.

Our attention now turns to Regional Welfare, who like Regional Community Health were motivated to sustain the program but unlike Regional Community Health did not have sufficient capacity to do so.

Box 10.2  Regional Welfare

### Regional Welfare

Regional Welfare is a welfare organisation, also based in a semi-rural area west of Sydney. Regional Welfare implemented two programs, one in 2007, the other in 2008, after which all programs ceased.

#### Motivation
Rachel is the program co-ordinator at Regional Welfare. She was motivated to implement the program because it addressed an important health issue for her older clients:

> *It will be a fall that finally takes them from independence into full time residential*
> *care.*

These sentiments were echoed by Alice, a program leader:

> *With a program like this you are educating people on falls prevention in order to*
> *allow them to maintain their independence in their own home.*

Rachel and Alice faced some challenges in implementing their first program, particularly in relation to engaging and utilising local health professionals as guest presenters. For example, Rachel spent considerable time and effort to gain support for the program from the local government-funded health service. Support however, did not eventuate, which meant that a physiotherapist from the private sector had to be identified, engaged and paid for. As well, an occupational therapist engaged to attend the program became unavailable at the last minute. Despite these challenges, Rachel found that the program was well-received by some program participants:

> I saw a couple at the Christmas party...our community lunch activity...and I asked how they were and they said "excellent, thanks to you. We're still doing our exercises". There's one older lady and I see her still walking briskly around the neighbourhood. She gained great improvement and said that after three months, she could now walk up the steps of the railway without hanging on, and felt quite confident with that.

While Rachel felt that not all program participants would claim such benefits, the positive responses from some program participants, gave her sufficient motivation to plan for a second program in 2008 and a desire to continue the program in 2009.

*Capacity*

To implement their first program in September 2007, Rachel recruited a casual worker, Alice, and a volunteer, Lorraine, to work as a program leader and co-leader, respectively. All three were trained in program implementation at workshops conducted by program experts. Some funding was available from the organisation to pay for Alice to lead the program should Rachel be unavailable and also to pay a private physiotherapist to attend the program as a guest presenter. Similar to Regional Community Health, encouragement, advice and support were available to Regional Welfare from program experts. A venue was secured for a small fee at a local retirement village and transport was arranged for program participants if needed. However, despite these accomplishments, for Rachel, fitting these activities around her usual duties was a challenge:

> Because if I'm in that office the rest of my stuff doesn't go away...with people ringing I can't tell them "I'm with the Stepping On group today, don't talk to me about the fact that you just fell down the steps!"

In spite of these challenges, the first program at Regional Welfare went ahead in September 2007. However, Regional Welfare's capacity to implement a second program planned for early 2008, was negatively affected when one program leader left the organisation and another was unavailable for personal reasons. As such, Rachel had no option but to postpone the program. Attempts to implement the program in May 2008 were again thwarted, this time by a change in Rachel's work role, a change which meant that whilst Rachel would be available to co-ordinate the program, she would no longer be available to implement it.

The second program at Regional Welfare finally went ahead in September 2008. With some funds available from the organisation to pay for two program leaders, the program was implemented by Alice, a trained program leader previously involved in Regional Welfare's first program and Michelle, a new recruit who was experienced in working with older people but untrained in program implementation. A free venue at the Regional Welfare premises was available for the program as was the community bus owned by Regional Welfare. Given the challenges in engaging the physiotherapist and occupational therapist in their first program and a lack of other health professionals available to participate as guest presenters, Alice, the program leader delivered the entire program content. For Rachel, it was a pragmatic decision to enable the program to go ahead:

> *We just ran with what was available...*

Rachel was confident that Alice had the skill and knowledge to deliver all program content, as was Alice:

> *I was fine with that, because I guess I've...working in the industry... I've had a lot of training with you know, that kind of stuff and especially the exercise part of it.*

Despite Rachel's desire to continue the program in 2009, the precarious nature of the budget - *"the budget is not looking great at the moment"* - Rachel's increased workload and the departure of both Alice and Cathy from the organisation resulted in a greatly diminished capacity to sustain the program. With a lack of trained staff and continued funding from the organisation unlikely, the program ceased at Regional Welfare in 2008. Thus, despite a motivation to sustain the program, Regional Welfare simply did not have the capacity to do so.

The contrasting experiences of Regional Community Health and Regional Welfare show that organisations needed both motivation *and* capacity to sustain the program. While both organisations were motivated to keep the program going, only Regional Community Health had the necessary capacity to do so. Tracey, the program co-ordinator, summarised the situation at Regional Community Health well:

> *I believe it [the program] is sustainable because we are ongoing*
> *and we are sustaining it and it's not costing us lot of money. The*
> *girls are all trained, they're quite enthusiastic about delivering it,*
> *it's getting the punters [older people] in the door and we're doing*
> *that through the hospital and our advertising in the community, and*
> *yes we'll run at least two a year while the numbers remain the way*
> *they are.*

For Rachel, the program co-ordinator at Regional Welfare, they too would have the capacity to sustain the program but only if they have sufficient resources:

> *We keep coming back to the dilemma of the Stepping On program*
> *not being funded. If there was some funding, we could employ*
> *someone specifically for that purpose or offer someone who is*
> *already working with frail aged people some extra [work] hours.*
> *We could schedule in one or two programs a year if we had the*
> *resources to do it...the financial resources to do it"*

From the responses of both Tracey and Rachel, we can see that certain conditions are necessary if organisations are to sustain the program.

**Needing Certain Conditions**

### 10.5 Needing Certain Conditions to Sustain the Program

Organisations had sufficient motivation and capacity to sustain the program providing certain conditions relevant to the organisation were met.

#### 10.5.1 Context-Specific Conditions

Each organisation had a set of context-specific conditions upon which program sustainability rested. To demonstrate this point, we can examine the necessary conditions for program sustainability at Rural Food Services, a not-for-profit organisation providing services to older people living in a semi-rural location on the outskirts of Sydney. Rural Food Services have implemented three programs and will continue the program providing certain conditions are met.

For Angela, the Manager at Rural Food Services, the program must continue to provide tangible benefits for the organisation and their clients. She needs committed, positive, organised and trained staff who are available to implement the program. Being able to secure program funding, either from within or external to the organisation and having the support from local health professionals is crucial. Receiving program updates and advice from program experts was considered critical for the program to

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continue. As well, being able to access free training for her staff in program implementation is for Angela, essential for program sustainability:

> *Certainly if the training…not being able to access the training. With Sally leaving, it only leaves three who've done the training …and that's going to happen. That would certainly bring it [the program] to a halt, not having access to that free training.*

For the program leaders at Rural Food Services, having support from their manager, being formally trained in program implementation and having older people willing to participate in the program were some of the conditions considered necessary for the program to continue. The opportunity to liaise with program experts and other program leaders to share experiences, update their knowledge and improve their skills was also an important consideration:

> *Well things change all the time. Ways of doing things change. If there was going to be changes we need to be trained into those areas that are being updated.*
>
> > *Celia, Program Leader*

Having access to local health professionals willing to be guest presenters for the program and an ability to pay for their attendance if necessary, was crucial:

> *I think it [the program] always depends on being able to get the physio. That's the most problematic area for the service.*
>
> > *Gail, Program Leader*

Thus, for Rural Food Services, a combination of conditions specific to their organisation needed to be met if they were to sustain the program.

While some organisations shared a similar combination of conditions to those expressed by Rural Food Services, other organisations varied in the types and combinations of conditions necessary for program sustainability. For example, the Day Service would sustain the program providing the benefits of the program were superior to the other programs offered by their service and if there was continued access to

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health care interpreters. As well, the Day Service would sustain the program if directed to do so by senior management and if the directive was accompanied by appropriate program support.

### 10.5.2 Three Critical Conditions

Three critical conditions, common to all organisations, were necessary for program sustainability: 1) the program had to provide benefits and value; 2) people involved with the program had to be committed, skilled and available and 3) the organisation had to receive support over time that matched their needs. While the nature of the program benefits, the type of people involved and the kind of support varied across organisations, all three conditions had to be satisfied for the program to be sustained.



## 10.6 Program Benefits and Value

The program offered a variety of benefits for both older people and the organisation. These benefits were strong motivators for initially implementing the program and then sustaining it.

### 10.6.1 Benefits for Older People

The serious consequences of falls for older people were well recognized. The program was seen as beneficial for older people in that it addressed this important health issue:

> *So if we can keep people fit, active and ambulatory longer it*
> *maintains or strengthens their possibilities of remaining outside of*
> *nursing care, or any care.*
>
> *Lesley, Program Co-ordinator and Leader*

Nicole is a program co-ordinator and leader at Rural Community Health. For Nicole, the program offered a strategy to address the high incidence of falls that had been recorded in their geographical area:

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> *Nicole: Falls has become an issue in this area. When we looked at the stats we realised that the [our] area has the highest rate of hospitalisation due to falls in the Sydney metro area... So we decided, or my manager decided that it was, should be a priority area for health promotion position so we went about deciding, this was 3 years [ago] now, deciding to actually implement some programs that might make a difference.*
>
> *ML [interviewer]: And was Stepping On part of that?*
>
> *Nicole: That's right, yeah. So we've got a number of strategies and the Stepping On program was just one of the strategies that we implemented in the area.*

For some, a personal experience provided a strong desire to address the issue of falls. For Noor, a program leader, the program offered the opportunity to address this important issue with his older clients:

> *It happens every day, it happens every time, same as with everybody. My mother she was an old lady, she fall down and broken her hips. Broken her hips and after 6 months she passed away. My father-in-law is the same, exactly the same. Also fall down and broke his hips, and when we were talking about the stop falling down, everyone has a story about, and that's why I told them [his clients] you need it. You need to be able... with the knowledge, with the information, with the experience to stop that happening to you. So the strength of the program... it is very realistic, it cares about health, about the future and how person goes through life. Health is the most important thing in life, before the money, before the pensions, before the cars. If you are not healthy you will not enjoy living. So this is the strength of the program in my opinion is that it faces a very realistic issues and faces things every person needs in life.*

Having a direct experience of falls convinced some that something had to be done:

> *Because we come across people who have had falls in their home.*
> *Our volunteers delivering the hot meals come across people who*
> *have had a fall... they've tripped over something in their home. I've*
> *actually left this office sometimes and gone down when someone's*
> *rung in and they've had a fall. We've gone straight down and got*
> *the ambulance. We come across it enough to know it's a priority*
> *for us to get some education out there.*
>
> *Angela, Service Manager*

For Angela, offering the program to their clients was a way of preventing falls rather than offering the usual *"band aid"* services following a fall. The program also provided an opportunity to attract new people to the services provided by the organisation:

> *It, what the program I think could achieve is to be on two levels...*
> *address issues of people who are currently receiving support*
> *services from our organisation, so who already have issues related*
> *to falls, so improve their prognosis and minimize the risk of falls at*
> *home...but also have the much wider preventative role, reaching out*
> *to people that are still not yet recipients of services but you know*
> *gradually will become recipients so we might prevent a lot of falls*
> *occurring if we educate [the] community*
>
> *Agnieska, Service Manager*

The program provided a chance for older people to improve their confidence and reduce any sense of isolation they may have, as Lorraine and Alice, two program leaders described:

> **Lorraine***: To give them confidence as well*
> **Alice***: And provide that support that some people need. Because*
> *quite often older people feel like they're very isolated and...Yeah,*
> *giving that basic information I think will give them what they need*

> *Lorraine: As well as they're not so isolated if they can come to something like this. There's a bit of community and communication with each other, and yeah. They realise they're not the only ones in that situation*

The potential benefits of the program for older people were a potent factor motivating organisations to implement the program. Many of these benefits were realised providing the motivation to sustain the program. For Kerry, a program leader at Suburban Community Health, the program addressed an identified health need for older people:

> *I guess the reason that falls is quite vital is that there are a lot of people out there that are ageing and you basically want to keep them out of hospital. You want to keep them on their feet, not, you know, have them in a situation where they're becoming frailer.*

The positive responses of the older people participating in the program confirmed for Kerry, the benefits of the program:

> *One lady in particular... we were able to get the occupational therapist to see her and get home maintenance in, she was in Granville. That is magic and she was so committed to the exercises. She was set up and she was doing them. She had a list on the kitchen table...Isn't that what we're trying to do? Is keep these people from being part of our aged services, in respite ... and her in particular [it] would have been very sad because she bred dogs and she's got the last dog she ever bred, [so] there's just the two of them. She never got married and doesn't have any...very few family and no children. So if she fell she'd be the type of person that would be lying there... for days, maybe before anyone knew.*

Not all older people demonstrated benefits from participating in the program as Rachel, a program coordinator and leader explained:

> *Rachel: You know probably at least 50% of the people didn't*
> *exercise... didn't continue.*
> *ML [interviewer]: So did they say any particular reason why or...?*
> *Rachel: Um not particularly. You know, "oh I'm not well enough".*
> *You know the excuses...."or my leg's sore".*

Despite these responses by some program participants, the program was considered by Rachel to be of sufficient benefit to implement a second program:

> *I believe strongly in the program and particularly in preventing*
> *falls... I just think it [the program] is really valuable.*

Organisations differed in how they measured the benefits of the program. Angela, a Service Manager used a combination of evaluation methods:

> *My benchmarks mainly are the number of people attending.  The*
> *length of time they stay in the program, their feedback sheets and*
> *my one-to-one contact with them at some stage at the beginning and*
> *end of the program. That would come about also [by] talking with*
> *the staff, with ourselves, how we are doing it overall.*

Other organisations used formal outcome measures to evaluate the effectiveness of the program, while others simply sought verbal feedback from the program participants. Whatever the method used by organisations, providing sufficient benefits were demonstrated, this provided adequate motivation to continue the program.

### 10.6.2  Benefits for Program Leaders and Coordinators
The benefits of the program were not restricted to older people; there were benefits for program leaders too. Georgia, a program leader at Urban Community Health felt fortunate and excited at the prospect of implementing the program and improving her knowledge and expertise:

> *I was very lucky that they [the organisation] took on Stepping On*
> *with such enthusiasm.  I think because of my role as an*

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*occupational therapist, the amount of people I see at home that have*

*had a fall or such a fear of falling, that when I read up about it [the*

*program] and heard my colleague speaking about it, that I just*

*thought it was going to be excellent and it was good for me as well*

*to gain new knowledge and kind of a bit more expertise towards*

*falls prevention.*

Seeing the program benefits, provided job satisfaction for Georgia, knowing that the program could deliver such great results for her clients:

*I can see already the confidence in people and with their exercises*

*and the balance, you know challenging that…and they are definitely*

*getting more confident…just the feedback has been amazing from*

*people [the program participants] saying it's so interesting and that*

*they're really enjoying it. It just makes your job very worthwhile,*

*cause sometimes you don't hear it. You know. So it's lovely in that*

*group that you do hear that. You can see it in them, like it's just a*

*change in them, it's in their walking and things like that that you*

*can see over the period of time… that's why I do this job you know,*

*so it's brilliant.*

At Rural Food Services, the program allowed staff to be challenged and try something new:

*I started to talk to them [the staff] about it and they were enthused*

*and I also felt, and probably a bit selfishly and I'm not sure I shared*

*it with them, I felt they both needed from my point of view,*

*something else to get them, you know, interested or something else,*

*another challenge.*

<div align="right">

*Angela, Service Manager*

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Having the opportunity to implement the program was appreciated by Gail, Celia and Sally, the program leaders at the Rural Food Services:

> *Gail*: *It's going to be fun as well for us.*
>
> *Celia*: *I think we'll get more out of it.*
>
> *Sally*: *Yeah, that's always good…good as workers doing something new.*
>
> *Celia*: *A new…a new challenge.*
>
> *ML (interviewer): But a challenge in a…kind of a good way.*
>
> *Gail: Oh absolutely.*

For some program leaders, there were personal benefits from being involved in the program. The program provided them with the knowledge necessary to prevent themselves from falling in the future:

> *Because I thought it's not going to hurt me in the future either. Because I am retired now, and it might just help me stop falling over when I get older too.*
>
> <div align="right">*Lorraine, Program Leader*</div>

### 10.6.3 Benefits for the Organisation

For many organisations, there were wider benefits associated with implementing the program. Polish Services for example felt that the program offered an opportunity for the organisation to gain greater recognition and exposure:

> *Plus in, in addition I guess you know because it's a research program, for us as an organisation it's also um it's, it's a good exposure of what we do, you know in, in eh among other service providers and it, it brings up also its good also in negotiations for future fundings that we are involved with this type of projects so we are not just service deliverer but we also you know can, can contribute on other levels you know the research level as well. And it gives the community's needs also a bits of wider uh recognition and you know and exposure.*
>
> <div align="right">*Agnieska, Service Manager*</div>

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Indian Care is a newly established not for profit welfare organisation. For them, the program complemented the range of services they were developing for older people from Indian cultural backgrounds:

> *Well basically we want to start off with old age care... that was our main priority as soon as we launched Indian Care...which is basically for the elderly. And as soon as we started off with the respite care and community care for the elderly we saw Stepping On as the best opportunity.*
>
> <div align="right">*Chandra, Program Leader*</div>

Other organisations viewed the program as an opportunity to extend their services, thus enabling them to address the needs of their clients that had up until that point, not been adequately addressed:

> *It [the program] fits in clearly with the goals and values of health promotion, which again I think have been sidelined even though people like to say "oh yes, we like to do prevention" but they don't really, um and that it's [been] very poorly resourced... so I think um yeah it [the program] works on several levels.*
>
> <div align="right">*Sophie, Program Coordinator and Leader*</div>

The program served as a vehicle to help some organisations achieve broader organisational objectives. Lesley is the Ageing and Disability Officer at a local Council. She saw the program as a way of assisting local community organisations to build their profile and gain credibility as a service provider. Lesley explained how she used this approach with another organisation, Indian Care:

> ***Lesley****: I've actually started to partner them [Indian Care] with a large service provider. What they're hoping to do, is this partnering idea that they become the community hub and they make referrals for the community members to the various services as needed. So Indian Care, through Stepping On and through me have now got this relationship with the larger service provider...they've*

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*now got one with someone else.  So, I'm helping them to build their*
*power base.*
***ML*** *[interviewer]: So why do they need Stepping On?  Why can't*
*they just be introduced to these organisations?*
***Lesley****: Because Stepping On gives them something with which to*
*attract people to them.*

Having a program that assisted organisations to meet falls prevention policies and
guidelines was also considered a benefit:

> *So they [the organisation] were…they were very good so I realised*
> *that actually the system is supporting it because it's part of the*
> *guidelines for Health and we fit perfectly into that you know… so*
> *it's something right now perfectly timed you know for the*
> *community.*
>
> *Jadwiga, Program Co-ordinator and Leader*

From these examples it can be seen that the program offered a variety of benefits and
that the realisation of these benefits was a strong motivator to sustain the program, or at
least a desire to do so.  The program however did not suit all organisations and at time
opinions varied about the program benefits. The experiences of the Day Service
described in Box 10.3 highlight these issues.

Box 10.3 The Day Service

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*The Day Service*

The Day Service provides services to frail older people living in the community from a variety of
cultural backgrounds. The organisation provides social and health education programs and is situated
within the community health services section of a large public health organisation. Clients attend the
service usually one day per week from mid morning to mid afternoon.

   The Stepping On program was seen by Emily, the Manager at the Day Service and Aysun,
the Turkish Bilingual Health Worker as a good opportunity to address the issue of falls, a major
concern of their elderly clients. As well, the program could assist the organisation in moving from an
emphasis on social programs to programs focussing on health promotion and prevention. The Day
Service implemented one program and despite Emily and Aysun's early enthusiasm, they had no

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plans to implement further programs. A number of factors influenced this decision.

First, there was a mixed response to the program by the program participants. Whilst the program made the participants more aware of what they could do to prevent falls, some participants seemed to resent the structured nature of the program and preferred their usual informal, social routine. As well, the program impacted negatively on the time available for staff to complete some necessary administrative tasks such as the organisation of lunch orders.

Emily felt that it would be difficult for the Day Service to sustain the program because they had a limited turnover of clients attending their service. Once they had run the program for all their clients, it would be a long time before they needed to run the program again:

> *I think that also it can be limiting. Because our group doesn't, they're not um*
> *transient, is that the word, like they don't come and go, so we've run the program*
> *for that Turkish group. We won't be able to run it again for them for many, many*
> *years because the group's unchanged. So that's the other difficulty in our area.*
> *Our groups don't change so you wouldn't be able to run…. You know, it's not like*
> *I guess you're doing it down at the local community centre for a new bunch [of*
> *people].*

Adding to Emily's concerns was the uncertainty over the type of health programs to be conducted by the Day Service in the future. A formal review of the programs implemented by the Day Service was underway at the time the Day Service implemented their *Stepping On* program. As part of the review, an alternative program to address falls and other health concerns of the Day Service clients had been proposed by others *"higher up"* in the organisation. As a result Emily felt obliged to implement any program that she was instructed to:

> *It may be something that we don't necessarily agree with however it's what the*
> *[organisation's] chosen. So I think you sometimes feel like, cause it's a bigger*
> *organisation, your hands are tied, and we've just got to run with what they, what*
> *you know what's, um told by others above…yeah.*

Therefore, although the program offered potential benefits, a mixed response to the program by the program participants, the nature of the service provided by the Day Service and a directive to implement an alternate program, meant that the program was not sustained by the Day Service.

Hence, while the program must offer benefits, the benefits must be recognised by all stakeholders for the program to be sustained and the program must be compatible with the nature of the service provided by the organisation.

### 10.6.4 Matching Organisational Philosophy and Services

Many features of the program were important factors influencing program uptake and sustainability. Having a program that matched the philosophy of the organisation was essential. Angela, a Service Manager, described how the program fitted with their service philosophy:

> *You know when I first saw the program and came across it I talked to the management... our management committee about it... the broad philosophy here is the first one is the client is always number one. So any decisions we make here if you put the client first you normally come out making the right choice and the right decision if you really truly think about what's best for them and talk to them about it. And then the other philosophy we've got, in our village restaurants we have an attitude of gentle education. So that everything we do there is based on educating people quietly and slowly over a great meal about their future and, you know...do you know how to access transport, think of your community nurse, think about crossing the road safely, um...this is how you can get access. We've printed a booklet on how you can get access to food delivered to home...if you're ill and the chemist and that. So that's our philosophy. We do all the other stuff like the Bingo and the quizzes and all that which is really good for their mind, but we do have this quiet gentle education process. So Stepping On fitted into that, that commitment we've got.*

For others, the program reflected the essence of the service provided by the organisation:

> *I think it's community health itself. I think finally there is a program that really reflects what community health is about. It's about keeping people safe at home and not only through education but also empowering them to have, you know, really much like the knowledge and the skills that they can do something, that they have*

> *the control, you know, for them to remain independent in their*
> *home.*

<div align="right">

*Tina, Program Leader*

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The program was valued because it could be incorporated into the types of services typically provided by the organisation:

> *So if we sort of melded it [the program] into our primary health*
> *care approach then we can justify why we are doing it.  I mean*
> *early childhood nurses have this approach all the time and they run*
> *mothers groups, they run parents groups, so I couldn't see much*
> *differences to applying those rules to the chronic and complex area*
> *of community nursing.*

<div align="right">

*Tracey, Program Co-ordinator and Leader*

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### 10.6.5  Filling a Gap

The program was seen as filling a much needed gap in that it targeted a particular group of older people with specific needs:

> *But the Stepping On program is that middle program that meets that*
> *need for those people that are starting to become frail, they've lost*
> *confidence and basically won't go to a gym, won't fit into that*
> *exercise program, but if we get them through the Stepping On*
> *program to a certain level of it, we can then get them into a*
> *ShareWest [exercise] type program, or into a Tai Chi program*

<div align="right">

*Kerry, Program Co-ordinator and Leader*

</div>

Some acknowledged that once the number of older people needing services started to decline the program may in fact become redundant. However, this situation was unlikely to happen anytime soon:

> *I mean there's going to be a decrease in numbers you know of*
> *elderly, but still, I mean we have reached just a tiny proportion…*

<div align="right">

*Agnieska, Service Manager*

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### 10.6.6 Positive Program Features

The empowering nature of the program was valued by program leaders:

> *So it was really... finally there's like an extension [of our services]*
> *that's well researched and really allowing the person to own their*
> *health... own responsibility for their own health status so to speak.*
> *Instead of us talking at them it's actually for them to feel that*
> *they've got control and they've got the answers and I think it works*
> *for them being in a very supportive group that everyone experiences*
> *the same thing.  I think sharing their own experiences they come to*
> *realise; "well I can do something about it". It's not like a health*
> *professional, you must do it.  It's coming from the group to say, well*
> *you know," I've gone through it, I've done this, or maybe I should*
> *do this", so everything needs to come within the group. I think it's*
> *an extremely valuable the program... how the concept of, you*
> *know...um facilitating the individual's realisation that "this is what*
> *I have to do"*
>
> <div align="right">*Tina, Program Leader*</div>

As well, the group based nature of the program provided the opportunity for older people to realise that they were not alone in dealing with the consequences of falling:

> *I think, I just think in a group process because some of the older*
> *people think, "oh I'm getting older, you know, I will fall", that*
> *sometimes with the group process I feel when you discuss it with*
> *them one-on-one, you know, that there are other people out there*
> *who have had falls who have fear of falling, but some people like a*
> *group process because they can identify with other people that "I'm*
> *not the only one and there actually is something that can be done*
> *about this"*
>
> <div align="right">*Georgia, Program Leader*</div>

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Being a group-based program also provided a secondary but important benefit of increasing socialisation for the people participating in the program:

> *It was very much a social get together as well, they really enjoyed both programs that just came through…was that it was that whole social aspect.  For these people, a lot of them don't get to go out or interact so it was very much a social thing as well, which was really good.*
>
> *Alice, Program Leader*

The program was seen as a credible, comprehensive and research based. Lyn worked in a large health service, assisting departments in implementing falls prevention programs. She was a supporter of the program:

> *Basically what I wanted to do was get across the messages about what works in falls prevention and introduce them to Stepping On because it is a good evidence based program for community settings.*

Amira trained organisations in program implementation. From her experience, having a research based program was a motivating factor for organisations to implement the program:

> *I think the fact that the innovation [the program] has been subject to a randomised control trial and as part of that research was demonstrated to have a significant impact on decreasing the risk of falls in that community, I think that's a very positive factor that a lot of organisations have focused on.  So they know that the evidence is there, so they can justify it from that perspective.*

Having an evidence-based program provided organisations with a reason to sustain the program:

*I think primarily because we can argue that it's a research based*
*program that does have a significant impact on falls. And that, so*
*in terms of an outcome for older people in our area that it's a really*
*good benefit. And, but the other purpose was, as I said, just around*
*getting the staff more in tune with the health promotion,*
*preventative, focus, and it was something that they can connect with*
*it because it is research and they understand that framework.*

*Sophie, Program Co-ordinator and Leader*

Also, being a well-designed, self-contained program that included an instruction manual
was valued:

*So we're going to put this as a good solid program, it's tangible,*
*you can look at it, you can see it…and it was written well, it was put*
*together well, it was evaluated well and then it has a three month*
*follow up as well. So, well this is pretty good really, we can really*
*use this.*

*Tracey, Program Co-ordinator*

The program was considered easy to learn and implement by some program leaders but
not by others. For Nicole, it was a straightforward process:

*The program itself is so simple that it's easy enough to run, so*
*that's not a problem, it's not daunting.*

But Klaudia, a program leader new to the program, expressed some anxiety when
preparing for their first program at Polish Services:

*What we were afraid…because we didn't have the... like a practical*
*lesson how to run every session. For example I haven't done [this]*
*before in my life.*

Despite these early concerns however, the program was considered fun and enjoyable to implement, with Klaudia acknowledging after their first program that *"it was a pleasure to do this program for them"*

In summary, for the program to be sustained, the program must offer ongoing benefits and value to the organisation and the people associated with it. The program must not conflict with the nature of the service provided by the organisation and must offer advantages over other programs.

<div align="center">

**Committed and Skilled People**

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## 10.7  Committed and Skilled People

While seeing the program benefits was important for program sustainability, organisations also needed people who were committed, skilled and available.

### *10.7.1  Committed People*

Program co-ordinators and leaders must be committed to the program. For Sophie, a program co-ordinator, having committed and enthusiastic people to lead the program was essential:

> *I think the other thing is really identifying key people that are*
> *around here on staff who are very committed to doing some more*
> *interesting stuff...preventative work with people and* [who] *really do*
> *have that kind of understanding who want to work like that.*
> *So...people were very enthusiastic, because it [the program] gave*
> *them an opportunity to that.*
>
> <div align="right">*Sophie, Program Co-ordinator and Leader*</div>

For Rachel and Tracey, their commitment to the program was enhanced by their personal beliefs:

*I believe strongly in the program...particularly in preventing falls*
*rather than mopping up after falls.*

*Rachel, Program Co-ordinator and Leader*

*The population's getting older so I believe in teaching people how*
*to take control of their own situation and do something about it*
*themselves, but they can't do that if you don't give them the vehicle.*

*Tracey, Program Co-ordinator*

For some, commitment to the program was gained through the enthusiasm of others within their organisation:

*I think we were very lucky 'cause we had Jillian here as well and*
*she's so passionate and enthusiastic about it that you couldn't not*
*want to do it. So yes, it's brilliant.*

*Georgia, Program Leader*

Thus, a belief in the program was necessary to keep the program going:

*To drive it [the program] you have to have someone who's a*
*believer. If they don't believe it they are not going to do it, and*
*they're not going to push it. You have to think it's worthwhile,*
*because if you're indifferent, the result will be different. You will let*
*things slide....*

*Lesley, Program Co-ordinator and Leader*

Commitment to the program however, could waiver. The program leaders at Rural Food Services recognised the importance of maintaining enthusiasm for the program:

*I think as a follow on from the training, it's really important to build*
*on the enthusiasm that we all had...and that we're working as a*
*team and supporting each other...which I think we are very*
*fortunate to have.*

*Sally, Program Leader*

Persistence and resourcefulness were necessary characteristics to address the many challenges confronting program co-ordinators and leaders. For Tracey, a program co-ordinator, it came down to taking a proactive approach:

> *There's a task in front of me. Nurses traditionally are verbs. And by that I mean they're little doing words. And ah if there's a task there it's got to be done, well just bite the bullet, get it done, another obstacle, well climb over it and keep on going, which is precisely what we do.*

A sense of humour helped too:

> *It's going to need someone who has the confidence and doesn't mind making a goose of themselves, you know…having a bit of fun with it.*
> >                          *Lesley, Program Co-ordinator and Leader*

Thus, program co-ordinators and leaders needed to be committed, self-motivated and undeterred by program challenges and setbacks.

### 10.7.2 Skilled People

Commitment to the program alone however, was insufficient for the program to continue; people needed skills. Program leaders needed skills in program implementation.

Lyn was involved in promoting and supporting the program within her organisation. During my interview with Lyn, I asked her what it would take to keep the program going. A key factor for Lyn was the availability of ongoing training to enable program leaders to gain the necessary skills and knowledge to implement and sustain the program:

> *The availability of training…if there was regular training happening that would make it much easier to be directing staff into that…giving them the skills…helping them see the vision. Not only*

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*getting the skills but it's actually helping them understand what it's*
*[the program] about and the value of it.*

Program co-ordinators needed skills to drive the program and keep it going. Tracey, a program co-ordinator, recognised that the program did not run itself and that program sustainability relied on the skills and actions of someone to keep the program going:

*If you don't continue to inject life into it [the program], then it's*
*going to die.*

Sophie, a program co-ordinator and leader at Urban Community Health, used a variety of strategies to sustain the program. A key strategy was to develop partnerships with local organisations. Maintaining positive relationships with her community partners required skill and sensitivity:

*Sophie: ...but also being sensitive to that organisation's priorities*
*and needs and also feeding into what's going to make them look*
*good really and understanding that underlying political aspect...I*
*think that's really important. And I mean the level of work with*
*some of the staff at Council, for example, I know them very well*
*now....but then if it's people I'm not [familiar with], I'm just*
*developing a partnership, you actually have to be very careful and*
*get to know what their priorities are.*
*ML [interviewer]: So being able to identify where your partners are*
*at and being able to kind of 'pitch' your approach appropriately, is*
*that an important thing?*
*Sophie: Yes absolutely, yes.*

Thus at Urban Community Health, the program was sustained because skilled program co-ordinators were making it that way. But skilled people may be lost to the organisation. As such, program co-ordinators and leaders must be available if the program is to continue.

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### 10.7.3 Available People

For many organisations the program ceased when co-ordinators or leaders were no longer available. Having sufficient staff available to co-ordinate and conduct the program was a challenge, as Agnieska, a Service Manager highlighted:

> *I think the biggest problem, the biggest obstacle and challenge is*
> *the capacity when it comes to staffing, the staffing level.*

For Jadwiga, Polish speaking program leaders had to be available for the program to continue with her clients, particularly for those clients that were isolated or had limited English skills:

> *And also being aware of the fact that there is something that is*
> *delivered in the Polish language that they can... that the people can*
> *access and... because I know that a lot of clients that I have, told me*
> *that they have been aware of the program within the hospital but*
> *they wouldn't go there because they feel that they can't*
> *understand... they can't express themselves, they didn't feel*
> *comfortable for whatever reasons they gave me... so I thought if this*
> *is stopping them from participating and benefiting you know well*
> *then maybe this is an opportunity to do something.*

However, when staff were available for the program, it was important that the program was not dependent on one person alone:

> *I don't want to "be it"...the objective is that it [the program] runs*
> *without me.*
>
> > *Jillian, Program Co-ordinator, Leader and Expert*

Planning for the possibility of changes in staff was an important consideration. When I asked Tracey, a program co-ordinator, if the program would keep going at Regional Community Health, she responded:

> *I hope so. I would like to train someone up as a "me", to do that*
> *just in case I want to move on, so that they know and it [the*
> *program] doesn't just dissolve.*

But as Amira, a program expert stated, simply replacing program staff is not enough. Staff who leave the organisation must be replaced by people who have an equal enthusiasm for the program:

> *I think if any of those people left, l think they would have to be*
> *replaced by people that had a reasonably strong passion for it as*
> *well. Otherwise I think it [the program] could be quite easily*
> *pushed aside.*

In sum, for the program to continue there must be co-ordinators and leaders who are available, committed to the program and skilled in program co-ordination and implementation.

<div style="background-color:#b5514e; color:white; padding:20px; text-align:center;">**Tailored and Ongoing Support**</div>

## 10.8  Tailored and Ongoing Support

So far, I have shown that to achieve program sustainability, the program had to offer benefits and value to the organisation and people assigned to the program had to be both committed and skilled. Organisations also needed a variety of support that matched their needs at the time they needed it.

The type, combination and intensity of support required by each organisation varied according to the circumstances affecting the organisation and could change over time if circumstances changed. Generally, however, to sustain the program, organisations needed a range of ongoing support including: support from management; support from other program leaders; program funding; training in program implementation; advice from program experts; access to health professionals willing to participate in the program and support for the program from older people themselves.

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### 10.8.1 Management Support

Having management support for the program was critical for most organisations:

> *I mean we have a, a good support from our management
> committee…it would not have been possible without you know, the
> management commitment to do this type of activities.*
>
> *Agnieska, Service Manager*

Sophie, a program co-ordinator and leader, had no "authority" over staff who implemented the program. As such, management support was crucial in enabling the program to continue:

> *ML [interviewer]: Okay, so what are the things that have helped
> you keep the program going?*
> *Sophie: I'd have to say the level of support, management support
> from the director and my immediate line manager as well, now.*
> *ML: So when you say the support from your immediate manager
> and from the director… the nature of that support is?*
> *Sophie: Um, everything from practical things… so if I need
> resources or you know um, it's there, like I can negotiate the.
> We've come up with a deal, for example, to get the Stepping On
> handouts translated to Chinese, its only gonna cost us a thousand
> bucks but it's still, I'm able to go [to management] and say "can we
> do this?" "Yep that's not a problem". So it's that kind of instant
> response. It's not… I don't have to jump through hoops to justify
> everything I do. There's a level of trust
> that, "you know what you're doing so that's fine get on with it and if
> we can do it we will, that's fine". So I think all that sort of
> thing…and also talking through the staffing issues, because that's
> added a level of complexity to it that you wouldn't have if you had a
> couple of people on staff that that's [the program] what they do.
> But it changes it dramatically when you're trying to get people
> involved who are involved in other clinical work and, you know,*

*other responsibilities and all those things, it's actually quite*

*complex.*

Interest in the program and ongoing encouragement from both management and colleagues was valued by program leaders:

> **Rosemary** *[program leader]: I think we're very well supported by*
> *Stacey.*
> **Fay** *[program leader]: Yeah, Stacey's good.*
> **Rosemary**: *I mean you know Stacey, she's interested to hear about*
> *it…"how did you go this week?" How you know… she wants to*
> *know all about it and Tracey, I mean they're happy to [say] "how*
> *did you go?"… That motivates us I guess and I think the rest of the*
> *people we work with, they're really supportive as well, aren't they?*
> **Fay**: *Yeah*
> **ML** *[interviewer]: Like the community nurses?*
> **Rosemary**: *Yeah, they are.*

For others however, gaining and maintaining management support for the program was a challenge especially if the aims of the program did not match the priorities of the organisation:

> *Their number one priority at the health system is preventing access*
> *block in emergency. That's the number one…But you know, the*
> *bottom line is people complain when they don't get a hospital*
> *bed…people don't complain about a lack of prevention. People*
> *complain when they can't get treated. The health system is all*
> *about having a hospital bed when I need one…and that's the reality.*
>
> <div align="right">*Lyn, Program Expert*</div>

### 10.8.2 Support from Other Program Leaders

Having support and feedback from other program leaders was appreciated by some:

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*If there was something I could have done better, we kind of just*
*speak to each other about that and just maybe "approach it this*
*way" or "approach it that way" and just kind of learn from each*
*other which is good.*

*Georgia, Program Leader*

### 10.8.3 Program Funding

Along with management and colleague support, organisations needed funding to support the program. All organisations had to decide how their programs would be funded and where the required funds would come from. Depending on the organisation, funding was usually needed to pay for program leaders, program resources or guest presenters.

Most organisations worked in partnership with others so that program costs could be shared. Shirley, a program co-ordinator and leader with a welfare organisation worked in partnership with the local Council:

*ML [interviewer]: So did you have to pay for any guest presenters?*
*Shirley: Council paid…Council paid for those…we couldn't…we*
*couldn't have done that. We wouldn't have had the funding for that.*

Some program co-ordinators used a range of methods to secure additional funds for the program. Nicole, a program co-ordinator and leader at a community health service, applied for and received over $2000 in grant money from a local club and the local Council. She used the money to pay for the Stepping On program manual, the attendance of a physiotherapist as a guest presenter, a data projector and a variety of other program resources. However, funding from grants tended to be one-off payments, grants were not always available and although helpful, were rarely a form of ongoing funding for the program. As such, some participants felt that some form of ongoing funding at the level of government was needed to either fully or partially fund the program over time.

The level of funding required by each organisation and for each program varied depending on the circumstances affecting the organisation. For example, an organisation may have had access to a venue at no cost for some programs but not for

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others. At Indian Care, the program was conducted by volunteers. However, Suman, the program co-ordinator, realised that funding may be required in the future to pay for program leaders. Thus, the cost of implementing each program may change depending on the prevailing circumstances. As such, many organisations used strategies to contain program costs to enable the program to continue. Charging a program fee was one such strategy.

For some organisations their ability to continually fund the program was limited by how the organisation itself was funded to deliver services. Many welfare organisations received funding to deliver specific services such as home-based care or home modifications. As such, the programs conducted by these organisations were heavily reliant on the availability of excess or surplus funds within the organisation. Given the uncertainty associated with this form of funding, some organisations were either unable to sustain the program or could only plan for programs on a year-by-year basis. For other organisations however, providing there were sufficient funds available from within the organisation itself or through their partnerships with others, the program would be sustained. Thus, the level of financial support needed for the program varied between organisations and from program to program within each organisation.

### 10.8.4 Training

For many, the ongoing availability of workshops to train leaders in program implementation was an important factor contributing to program sustainability. For Angela, a Service Manager, having people formally trained in program implementation was crucial:

> *I think that the training is a fairly crucial part, to getting the right facilitator and the right person there implementing it*

Other organisations were less reliant on training workshops, but still recognised the need for training. At Urban Community Health, experienced program leaders partnered with leaders new to the program, to teach and model program implementation. Thus, whilst the preferred mode and intensity of training varied across organisations, having access to some form of training was considered essential for program sustainability by most organisations.

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### 10.8.5 Advice and Assistance from Program Experts

While training was important for most organisations, having access to program experts was also important in keeping the program going over time. When Nicole, a program co-ordinator and leader, decided to implement the program in 2005, no formal training in program implementation was available. Nicole was not daunted by the program content and essentially taught herself how to implement the program using the program manual as a guide. For Nicole however, having the support of program experts when she needed it was beneficial:

> *And the support...I think that's been really helpful as well... to know*
> *that you don't just get the manual you actually get some assistance*
> *behind that...where you know if I ever had any questions or wanted*
> *to discuss an issue or whatever, I could discuss it....*

When Lesley, a program co-ordinator and leader, experienced difficulties in identifying a physiotherapist for her programs, she turned to Amira, a program expert, for assistance. As a result of Amira's actions, an appropriate physiotherapist was found.

### 10.8.6 Support from Health Professionals

Health professionals played an important role as guest presenters in the program and their participation was crucial for program sustainability. However, gaining commitment from suitable health professionals to participate in the program was a challenge for many organisations:

> *One of the problems we've had is our support from allied health.*
> *Particularly in relation to the physio cause it's such a large*
> *component of the Stepping On Program and we've been told that*
> *they have to rationalise those services and will only be offering one*
> *Stepping On Program, per year per community health centre.*
>
> <div align="right">*Nicole, Program Co-ordinator and Leader*</div>

While many organisations were pleased with the level of skill and knowledge of the guest presenters, others were less than pleased, as Rachel a program co-ordinator, explained:

> *Um our first episode with the physio it was just a one off situation*
> *with that particular physio. We had some complaints from some of*
> *the participants. The physio was quite forceful…things that were*
> *quite easy for her to do were very difficult for the participants to do.*
> *Particularly getting down on the hard timber floor and then not*
> *being able to get up. And some of the people suffered from knee*
> *problems afterwards.*

Rachel also experienced problems when seeking the support of other health professionals. When she approached the local optometrist he said that *"he'd rather die than speak in front of a group"* and that *"he'd rather pull his own toenails out"*. The local pharmacist stated that whilst she was willing to participate, her time would need to be paid for because *"there's only one pharmacist you know"*.

It was common for organisations to pay for their guest presenters, in the absence of health professionals available from government funded health services. But this could place a financial burden on organisations even though many were pleased with the performance of the guest presenter during the program:

> *We've gone over budget for the 2 programs, particularly in staff*
> *hours. And the other part is because we haven't had access to a*
> *physio we've had to pay for a private one to get the program up and*
> *going. Even though I had written information from Health, "yes*
> *we'd support it and we'd be there", none of that came through. So*
> *we did have to find the $500 for the physio's cost, which worked out*
> *very well because she was certainly a special personality.*
>
> <div align="right">*Angela, Service Manager*</div>

Thus, while support from health professionals was essential for program sustainability, there were many challenges facing organisations in engaging and retaining health professionals for their programs.

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### 10.8.7  Support from Older People

Finally, the program had to be supported by older people. Despite active marketing of the program, many organisations experienced challenges in recruiting older people to the program. If sufficient numbers of older people could not be attracted to the program then the program could cease:

> **ML** [interviewer]: *Do you think the program will keep going over time?*
>
> **Fay** [program leader]: *I don't know.  It would be good if it did.  But I think recruitment wise you could find that it [the program] would fade out.*
>
> **ML**: *Because you can't recruit [older] people?*
>
> **Fay**: *Can't get them no.  It's just our biggest thing.*
>
> **Rosemary** [program leader]: *And I think two times a year...I think if we did it three times a year, depends what the feedback is... I mean the people that come they think it's a brilliant program and they think you know "why can't you get the people?"... And then they tell their friends, you know we've had a follow on like that haven't we?*
>
> **Fay**: *Yeah.*
>
> **Rosemary**: *So we just need to get them.*

### 10.8.8  Potential Forms of Support

Based on their experiences in sustaining the program, many participants suggested other ways that the program could potentially be supported and thus sustained. Rachel, a program co-ordinator with a welfare organisation felt that the program may have a better chance of sustainability if conducted by government funded health organisations, simply because they *"to some extent have already got the [program] participants"*.

Conversely, Lyn, a falls advisor from a government funded health service, felt that the program was more sustainable if supported by government departments, yet conducted by local community organisations who provide regular services directly to older people:

*My thoughts are that the focus has to be on working with organisations that work with older people in an ongoing capacity. I really think the best sustainability is with people like Rural Food Services that see their clients week in, week out, year in, year out, servicing the older people in an ongoing way...keeping them functioning in the community is their core business. There, that's where the focus has to be.*

Some participants felt that program sustainability may be enhanced if other forms of support, not currently available were available. Examples of such support included:

- Gaining program funds from other relevant organisations such as private health insurers or government departments specialising in services to older people;

- Having DVDs of the program content delivered by the guest presenter, which could then be used when the guest presenters were either absent or unavailable;

- Having the program endorsed and funded by government and then made available to service providers through a tender or service brokerage system;

- Having program leaders formally qualified to implement Stepping On and then offering the program to organisations as a private service and

- Better marketing of the program, for example, in mainstream magazines to gain greater exposure of the program in the broader community.

In summary, to sustain the program, organisations needed support that matched their specific needs. Support had to be ongoing for the program to be sustained over time.

## 10.9 Creating, Managing and Controlling the Conditions

Organisations engaged in a range of activities to create, manage and control the conditions necessary for program sustainability. For example:

- Tracey limited their programs to two or three per year, to ensure the program leaders retained the capacity to implement the program alongside their primary work responsibilities;

- Jillian and Sophie created a *"critical mass"* of program leaders by regularly training and mentoring staff in program implementation;

- Angela consulted with staff to ensure that the program did not negatively impact on them and spoke with program participants to determine their satisfaction with the program;

- Suman developed partnerships with a variety of organisations to enable the expansion of the program into different locations.

The ability to create, manage and control the conditions necessary for program sustainability had important consequences for whether the program continued or not.

### 10.9.1 Consequences for the Program

Depending upon whether the conditions necessary for program sustainability were met, the program either was sustained by an organisation, ceased and then re-commenced at a later time or ceased entirely.

#### 10.9.1.1 The Program was Sustained

If the conditions necessary for program sustainability were met then the program was sustained. Urban Community Health implemented many programs over a number of years and intended to keep the program going.

For Urban Community Health, the program would be sustained providing it was valued by the organisation and given the same *"status"* as other services, there were enthusiastic staff trained in program implementation and there was ongoing support for the program from management as well as local community-based organisations, with

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whom they had developed program partnerships. Jillian and Sophie, the program co-ordinators were careful in their program planning to ensure these conditions were met, but there may be a limit to what they could reasonably control as Sophie explained:

> *Yeah…I don't know… I mean I think you never know in Health what*
> *decisions are going to be made tomorrow that are going to blow*
> *everything under water completely and maybe you know…yeah.*
> 
> *Sophie, Program Co-ordinator and Leader*

For now however, the conditions necessary for program sustainability at Urban Community Health were being met and hence the program was continuing.

### 10.9.1.2 The Program Ceased, then Recommenced

If the necessary conditions for program sustainability weren't met, the program ceased but then re-commenced when the conditions could be met. At the Council, Lesley, a program co-ordinator and leader implemented three programs in 2008 and included four programs in her work plan for 2009. For Lesley, program sustainability rested on a number of conditions. Chief amongst them was the availability of a *"program champion"*:

> *"If you don't have a champion, it [the program] won't work"*

Lesley considered herself to be the program champion at the Council; she was trained and experienced in program implementation and had a personal belief in the program benefits. But when, Lesley's role at the Council was expanded, she no longer had enough time or energy to promote the program. As a result, an insufficient number of program participants were recruited to enable any of the four programs planned for 2009 to proceed. When asked if the Council would be implementing any programs in 2010, Lesley responded *"no"*. Thus, it seemed, that despite Lesley's earlier planning, program sustainability would not be realised at the Council.

However, in early 2010, conditions at the Council changed. Lesley was able to create time within her work schedule to implement the program, additional program funding became available and there was an opportunity to train an additional staff member in program implementation. Hence despite Lesley's statement at the end of

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2009 that she would not be sustaining the program, the program was back on the agenda at the Council for 2010.

From the experiences of the Council, we can see that the program ceased when the conditions necessary for program sustainability could not be met but that the program re-commenced when the conditions were more favourable. Providing these favourable conditions continued, the program would continue at the Council.

*10.9.1.3 The Program Ceased Entirely*

Finally, if it is unlikely that the necessary conditions for program sustainability could be met then the program ceased entirely. Nicole a program co-ordinator and leader at Rural Community Health, implemented eight programs from 2005 – 2007. All programs then ceased.

Like other organisations, program sustainability at Rural Community Health relied on a combination of conditions. For example, the program had to meet a community need, be easy to implement and have the endorsement and support of all levels of management. For Nicole, having a motivated and committed person was necessary to co-ordinate, lead and sustain the program:

> *I think it would take a very motivated, committed health promotion*
> *officer in this position or equally motivated health...multicultural*
> *health person...someone within health to push that.*

Although Nicole was able to implement eight programs over a three-year period, a restructure of the organisation in 2007 resulted in a job change for Nicole and no guarantee from management that the program would continue as part of the restructured service. These changing conditions meant that there was no longer anyone available to co-ordinate and lead the program. As well, despite a waiting list of older people wanting to participate in the program and ongoing requests for the program from local organisations, uncertainty of support for the program from management resulted in program discontinuation. A later check in 2009, confirmed that the program had not re-commenced and that there were no plans to resurrect the program at Rural Community Health in the near future.

In comparing the experiences between Urban Community Health, The Council and Rural Community Health, it can be seen that if the necessary conditions for

program sustainability can be met, then the program will be sustained. If the necessary conditions cannot be met then the program may cease and then re-commence when the conditions can be met. If it is unlikely that the necessary conditions can be met then the program will not continue and cease entirely. Therefore, it cannot be assumed that organisations currently sustaining the program will continue to do so and vice versa. Organisations will only have the motivation and capacity to sustain the program providing conditions pertinent to the organisation are met.

**A Program Network**

## 10.10  Having a Program Network

Developing networks and working in partnership with others were important strategies used by organisations to sustain the program. The experiences of Urban Community Health highlight this finding.

### 10.10.1 Working in Partnerships

Urban Community Health has implemented many programs since 2007 and intend on sustaining the program. While management support for staff time and training was vital, other sources of funding and resources have contributed to the sustainability of their program. Partnerships with local community organisations such as Councils, Registered Clubs and Neighbourhood Centres have resulted in additional funding and resources that have enabled the program to not only continue over time  but continue at low cost. These types of partnerships have resulted in a variety of ongoing support for the program such as:  access to venues at no cost, access to community transport services, funds for program equipment and refreshments, free use of laptop computers and data projectors and assistance with marketing and promotion of the program.

### 10.10.2 Engaging Program Partners for Ongoing Support

Organisations needed to first engage partners and then keep them engaged if the program was to continue. Support for the program came from a range of program partners either within or outside the organisation. Tracey, the program co-ordinator at

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Regional Community Health recognised that engaging program partners was crucial for both program uptake and sustainability. She used a variety of strategies to initially engage program partners and then keep them engaged with the program over time.

For example, a presentation to the Health Service Board resulted in endorsement of the program by senior management, which then lead to the inclusion of the program in the organisation's business plan as well as the specific allocation of staff time for program implementation. Reporting of key program achievements was an important strategy to keep senior management engaged with the program, as was entering (and winning!) the health service Project of the Year Award. Key staff members involved with the program were supported by Tracey and any concerns were promptly addressed. Regular face-to-face meetings with local community organisations resulted in ongoing financial support and promotion of the program. To engage older people in the program, Tracey along with the program leaders Rosemary and Fay, commissioned newspaper articles featuring the program, promoted the issue of falls prevention in local shopping centres and sought support for the program from colleagues within the health service. For Tracey, such efforts were necessary to gain and maintain the required support for the program. As a result, for Regional Community Health:

> *The program is being sustained... it's supported, it's delivered, it's*
> *evaluated and it's ongoing.*

Despite feeling that their program had reached sustainability, Tracey knew however, that the ongoing support of key program partners would be necessary for the program to continue.

### 10.10.3 A Network for Sustainability

Developing and maintaining partnerships was at times challenging and time-consuming. At Rural Food Services, there were concerns about how ongoing support for the program would be maintained. As well, maintaining the integrity and effectiveness of the program over time was a concern. Having and being part of a formal network linking organisations and program partners was proposed as a mechanism to address these concerns and thus help them continue the program:

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> *Gail [program leader]: Just to reduce the isolation. A network, I*
> *think I said it in the last workshop, a network of providers linked*
> *together through a database or a website, you know, somewhere*
> *where we could all plug in. I mean that would help some of the*
> *things with updating* [the program] *because actually a Stepping On,*
> *or a falls prevention workshop or falls prevention website that*
> *provides that kind of stuff, as well as a link, you know, like a mailing*
> *link, mail list.*
> *Sally [program leader]: And exchanging* [with others] *what works and what*
> *doesn't.*

Ideally for Gail, the network would consist of a managed website providing:

- An updated list of organisations conducting the program including details of where the program was being conducted and contact details for the program leaders;
- Links to organisations willing to support the program or become program partners;
- Updates on developments and research conducted in relation to the program as well as other falls prevention programs;
- Links to relevant program resources and
- Opportunities for program leaders to *"talk with each other"*.

In this way, a network would assist Rural Food Services in meeting the conditions necessary for program sustainability.

Jillian too felt that for program sustainability, there needed to be *"centralised"* support for program leaders and their organisations consisting of a website as well as program information days conducted annually. As a program expert, Jillian was often asked for program information and advice. To support organisations more directly and efficiently, Jillian proposed a program website where requests for assistance could be posted and responded to in a timely manner. In that way, organisations could more easily be supported in ways that matched their needs, and as such their ability to sustain their programs over time would be enhanced.

In sum, a program network provides a potential mechanism to assist organisations in meeting the conditions necessary for program sustainability, thus enhancing the motivation and capacity of organisations to sustain the program.

## 10.11 Chapter Summary

In this chapter I have provided a detailed analysis and explanation of the elements comprising the theory for how program sustainability can be achieved. I have described the relevance and importance of each element and emphasised the three critical conditions necessary for program sustainability. In the following chapter I bring these findings together and illustrate the theory with two case studies.

# Chapter Eleven

# Illustrating the Theory: Two Case Studies

## 11.1 Introduction

In Chapters Eight, Nine and Ten I presented the findings from this study and described in-depth, a grounded theory for how program sustainability can be achieved. In this chapter, I draw these findings together and illustrate the theory with two case studies. In the first, I present Indian Care, an organisation sustaining the program. In the second, I describe Suburban Community Health, an organisation in which the program has ceased.

## 11.2 Case Study 1: Indian Care

Indian Care is a not for profit, charitable organisation providing welfare services to older people from Indian communities in Western Sydney. Founded in 2006, and overseen by a committee of volunteer directors, the organisation provides a range of services consisting of primarily day centre programs. During the time of this study, Indian Care employed no staff and relied on donations, money raised through fund-raising activities and over thirty volunteers to provide their services. Suman, Chandra and Deshan were the volunteers at Indian Care involved with the coordination and implementation of the Stepping On program. All three, none of whom were health professionals, worked or studied full-time outside of the Indian Care organisation.

*Early Program Experiences*

Indian Care became aware of the Stepping On program in early 2008, through their association with Lesley, the Ageing and Disability Officer at a nearby Council. As a new organisation, Indian Care was keen to develop their range of services. Although it was something new to the Indian community, Stepping On was seen as a suitable program for Indian Care to deliver, in that it offered health benefits to older people; a key priority for the organisation.

Being a charitable organisation, funds and resources for the program were limited. Therefore, to deliver the program, Indian Care formed a partnership with the Council who provided a program venue at no cost and some program resources. Council also provided assistance with promotion of the program in the community and

the engagement and payment of some guest presenters. Three volunteers were trained in program implementation at training workshops conducted by program experts. In using volunteers, program costs for the organisation were limited to the provision of refreshments and program handouts. Although the program was delivered in English, bilingual program leaders and volunteers were able to translate information during the program if necessary.

*Motivation and Capacity to Sustain the Program*

To sustain the program, Indian Care needed both motivation and capacity. Motivation to sustain the program came from their early program experiences. Although the number of program participants was small for their first program (n=6), the numbers increased substantially for their second (n=25). This signalled to Indian Care that the program was needed in their community. As well, the positive response to the program by the participants provided the motivation for Indian Care to keep the program going and for the program to become a *"product"* for the organisation. That is, a service that could be offered to their older people and act as a vehicle to promote the organisation in the community. Motivation also came from each other, with Suman feeling *"inspired"* by the work of his volunteer colleagues.

Capacity to sustain the program was influenced by a number of factors. Receiving extensive and ongoing assistance from the Council, being trained in program implementation, having *"contacts"* for the guest presenters, having a packaged program and knowing that expert support was available was valued by Indian Care. The growing confidence of program leaders in promoting and implementing the program added to their capacity and an intention to deliver the program for older people in other geographical locations.

*Needing Certain Conditions: Program + People + Support*

For Indian Care, having sufficient motivation and capacity to sustain the program was contingent on a number of conditions. First, the benefits of the program for both the older people as well as the organisation had to continue for the program to continue. Next, Indian Care needed people trained in program implementation, who were available, reliable, enthusiastic and able to deal with any challenges in delivering the program. Finally, a variety of ongoing support was required including continued access to free or low cost venues, volunteers to assist during the program and access to guest

presenters who could attend the program when required. Having sufficient numbers of older people interested in participating in the program was crucial, because if the *"numbers drop off"* then it would not be feasible for the program to continue. As well, it was envisaged that some program funding may be needed in the future for resources such as translated program materials, for payment of guest presenters or to pay program leaders in the event that volunteer leaders were unavailable due to their paid work commitments.

*Creating and Managing the Necessary Conditions*

To meet these conditions and thus sustain the program, Indian Care engaged in a variety of activities. The role of program leader was shared so that the paid work of the program leaders was not compromised. As well, programs could be conducted on the weekend if necessary. Additional volunteers were trained in program implementation. When training workshops conducted by the program experts were no longer available, Indian Care trained additional leaders *"in-house"* primarily through program observation.

A partnership with another organisation providing services to the Indian community, enabled the delivery of a second program, the translation of the program recruitment brochure into one community language and led to the formation of an ongoing *"seniors social support group."* Another partnership with a local service provider resulted in the availability of a bus to transport program participants.

Funds received from a community grant enabled the purchase of program resources such as a laptop computer and data projector. Volunteers were recruited to serve refreshments and provide additional transport if required. Suman cultivated partnerships with other Councils with the aim of expanding the program into other geographical areas and to gain the necessary support.

*Sustaining the Program*

As a result of such activities, Indian Care implemented five programs from 2008 to 2009, and expected to sustain the program in the future. Thus, providing the favourable conditions continued at Indian Care, the program too would continue.

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*A Network for Sustainability*

Despite their intention to sustain the program however, it was acknowledged by Indian Care that the program was sustainable *"for now"*, in part because they were well supported by their partnerships with others. Should the nature and intensity of that support change, program sustainability at Indian Care may be at risk. Thus, being part of a network linking program providers and partners may provide a mechanism for Indian Care to more easily source and receive the ongoing support necessary for them to sustain the program over time.

## 11.3  Case Study 2: Suburban Community Health

Suburban Community Health is a government funded community health organisation based in Western Sydney. Situated within a large health service and with approximately ninety staff, the organisation provides a range of health services including programs for older people. Kerry, a full-time Health Promotion Officer at Suburban Community Health, was the program coordinator and leader for Stepping On. Employed for over ten years and with a background in nursing, Kerry was used to coordinating and implementing a variety of health promotion programs.

*Early Program Experiences*

Kerry was introduced to the Stepping On program in 2006, when attending a training program on falls prevention conducted by the health service. During the training, Stepping On was presented as an example of an evidence-based falls prevention program suitable for community settings. As such, the program had been recommended as one of a range of strategies included in the health service action plan for preventing falls. For Kerry, the program fell within the scope of her work role and offered an opportunity to attract older people who may need but not use community based services.

Kerry emerged from the training program *"all fired up"* with the aim of developing a steering committee or *"network"* to plan and guide how falls prevention could be addressed at Suburban Community Health. One of Kerry's first actions was to invite the Aged Care Worker at the local Council onto the committee. They had worked together on a number of successful health promotion initiatives for older people and Kerry knew that the Aged Care Worker would be an enthusiastic committee member.

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However, Kerry's early plans to implement falls prevention activities including the Stepping On program were thwarted. At that time, a major restructure of all community health services was occurring, resulting in some uncertainty regarding which falls prevention programs should or would be offered across community health in the future. As such, Kerry was instructed to put her activities *"on hold"*. Despite this setback, Kerry remained keen to implement Stepping On. So when she was later contacted by the Aged Care Worker from the Council, who offered some funding towards the program, Kerry saw it as too good an opportunity to pass up. For Kerry, when money was available to run a program you *"do not ignore it"*. Thus, a partnership with Council was formed which resulted in the delivery of two Stepping On programs in 2007 and Kerry's intention to sustain the program. However, like Indian Care, Suburban Community Health, needed both motivation and capacity to do so.

*Motivation and Capacity to Sustain the Program*

Kerry's motivation to sustain the program was influenced by a number of factors. First, the prevention of falls was a health priority at national, state and health service levels. Thus, there was a *"mandate"* to address falls in some way. As well, Kerry was keen to offer a program that kept people healthy; one that could *"keep them out of hospital"*.

In promoting the two programs conducted with the Council, the response from older people wishing to participate was overwhelming, such that Kerry *"made sixty-eight calls to tell people they hadn't gotten in to the program"*. For those participating in the two programs, the responses were very positive and Kerry too felt a sense of satisfaction in delivering such a beneficial program. As a result, Kerry became an *"advocate"* for the program and was keen for it to continue.

The capacity to sustain the program at Suburban Community Health was also influenced by a variety of factors. Initial capacity to deliver the program came primarily from the partnership with Council in which program tasks and resources were shared. While Kerry used the program manual to guide program planning, she gained skills in program delivery at a training workshop conducted by program experts. Program venues were made available at no cost by two local community clubs, who also assisted with program advertising. Health professionals from neighbouring community health organisations within the larger health service were enthusiastic about the program and were available as guest presenters. For Kerry, being *"stubborn"*, persistent and able to negotiate were important factors in securing the necessary support for the program.

As well, for Kerry, the program was *"coordinated, easy to follow and easy to train other people in it"*.

However, despite having sufficient capacity to deliver two programs, Kerry knew her motivation and capacity to sustain the program would depend on a number of conditions being met.

*Needing Certain Conditions: Program + People + Support*

For Kerry, the program had to provide measurable benefits for those participating. In that way she could provide evidence of the effectiveness of the program to management and hence justify the time spent involved with the program.

Given the limited resources at Suburban Community Health, Kerry needed to share program tasks with others who were available to take on the role of program leader and who were as committed and enthusiastic about the program as she was. Thus, working in partnership with other organisations was crucial if the program was to continue.

Some funding for the program was also necessary, because for Kerry, *"working in health…part of what blocks you is finding funding"*. Thus, funds were needed, primarily to pay for program resources such as the leg weights and program handouts. Given the limited number of allied health professionals available within the community health service and their large clinical caseloads, additional funds would probably be needed in the future to pay for guest presenters such as physiotherapists. Finally, the program would continue, providing older people were willing to participate and commit to the seven-week program.

While these conditions were necessary for the program to continue at Suburban Community Health in the short term, for Kerry, endorsement and resourcing of the program by the government health department was crucial for the program to be sustained in the long term. In that way the program would be officially recognized as an effective program for community health organisations to deliver, and hence be supported by upper management as such. For now however, Kerry would *"definitely be pushing to do some programs"* at Suburban Community Health; at least one or two programs a year.

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*Creating and Managing the Necessary Conditions*

Kerry engaged in a range of activities, to meet these conditions and keep the program going at Suburban Community Health. She conducted a formal evaluation of each program and prepared evaluation reports. When the Aged Care Worker from Council resigned and Council funds were no longer available to support the program, Kerry explored other options to fund and deliver the program. A request for the program from a local community organisation provided Kerry with an opportunity to develop a new program partnership. Sharing tasks and charging a program fee of $30, which was acceptable to the program participants, resulted in the delivery of a third program by Suburban Community Health in 2008.

Kerry developed additional partnerships with a retirement village and another local Council. A program planned for 2008 in partnership with Council, however, was cancelled due to an insufficient number of program participants, difficulties in securing an appropriate venue and no occupational therapists and physiotherapist available to participate as guest presenters. Despite this setback, Kerry was hopeful that the program would proceed with Council in the future.

With the changes affecting the community health organisation and a possible expansion of her work role, Kerry aimed to change the nature of her program role from one of program leader to that of program *"consultant"*. For Kerry, if she retained *"ownership"* of the program, she would not have sufficient capacity to keep the program going, given her responsibility for other health promotion programs such as tobacco control and nutrition. Thus, her aim was to train, mentor and support other organisations to deliver and sustain the program. In that way, an *"infrastructure"* would be created, whereby community organisations would take responsibility for delivering and sustaining the program but be supported to do so by Kerry in a way that was viable for her. Using this model, Kerry expected to support two organisations to deliver the program in 2009.

*The Program Ceased*

As demonstrated, Kerry engaged in a range of activities to sustain the program. As a result, three programs were delivered by Suburban Community Health in partnership with two organisations from 2007 to 2008. Despite Kerry's efforts and her intention to support two community-based organisations to deliver the program in 2009, Kerry's resignation from her work position and a change of staff at both partner organisations

meant that the program could not continue. As a result, the program ceased at Suburban Community Health in 2009 and was unlikely to recommence unless endorsement and support for the program from management or the government health department was forthcoming. Furthermore, the demise of the program at Suburban Community Health, meant that ongoing support for the partner organisations wishing to deliver the program was no longer available.

*A Network for Sustainability*

Kerry's ability to sustain the program for at least two years rested heavily on the development of successful partnerships with other organisations. Kerry recognized the importance of developing networks with others for program sustainability and aimed to be a central source of support for community organisations wishing to deliver the program. However, a reliance on one person to develop and provide a program support network meant that program sustainability was endangered when that person was no longer available to fulfill that role. Thus, for Suburban Community Health and its partner organisations, having access to a larger network linking them with other organisations and program partners may have provided the necessary and ongoing support required for them to deliver and sustain the program.

## 11.4  A comparison of Indian Care and Suburban Community Health

In comparing the experiences of Indian Care and Suburban Community Health we can see that each organisation differed in the context in which they operated and as such addressed program sustainability in ways that suited their particular circumstances.  In the case of Suburban Community Health in particular, changes in the organisational context necessitated a rethink in how the program could be sustained.

Regardless of any differences in context however, both organisations needed motivation and capacity to sustain the program. Having sufficient motivation and capacity to sustain the program was contingent on certain context relevant conditions, centering around the ongoing benefits delivered by the program, the skill and commitment of those involved and the availability of ongoing support matching the needs of the organisation.

Both organisations engaged in a variety of activities to meet the conditions necessary for program sustainability and thus keep the program going. When the conditions were met as in the case of Indian Care, the program continued. When the conditions could not be met at Suburban Community Health, the program ceased.

Both organisations relied heavily on partnerships and networks with other organisations to support and sustain the program. A network linking program providers and partners, therefore, may provide a mechanism enabling organisations to receive ongoing support that meets their current and changing circumstances. As such, a program network may assist organisations in meeting the conditions necessary for program sustainability, thereby enhancing the motivation and capacity of the organisation to do so.

## 11.5  Chapter Summary

In this chapter I have illustrated the theory by providing two case studies of organisations participating in this study. In the next and final chapter in this thesis, I examine the findings from this study in relation to the current literature and provide recommendations for practice, policy and research.

# Chapter 12

# Discussion, Recommendations and Conclusion

## 12.1  Introduction

This is the first study to develop a theory explaining how community-based falls prevention programs can be sustained by organisations over time. The theory explains that program sustainability can be achieved providing three critical conditions are met. The program must provide benefits and value, committed and skilled people must be available and ongoing support that matches the needs of the organisation must be received. While the nature of the program benefits, the type of people involved and the kind of support required varies with each organisation, and may vary over time due to changing circumstances affecting the organisation, all three conditions must be met, to ensure that organisations have sufficient motivation and capacity to sustain the program. Organisations use a range of context-specific strategies to create, manage and control the conditions necessary for program sustainability. Working in collaborative partnerships with others is a key strategy used by organisations to sustain the program. A network linking organisations with program partners may assist organisations in meeting the conditions necessary for achieving program sustainability, thus enhancing the motivation and capacity of organisations to sustain the program.

These findings were developed from a qualitative study in which 34 participants from 15 diverse organisations involved with the Stepping On falls program and engaged in a train-the-trainer evaluation research project, were interviewed. Twenty-five initial and 17 follow-up interviews were conducted, supplemented by observations recorded in 69 field-notes. Data were collected from February 2007 to November 2009 and rigorously analysed according to recognised principles and processes for constructing grounded theory.

The findings from this study advance our understanding of how community-based falls prevention programs can be sustained and make an important contribution to the emerging field of sustainability science. In this final chapter, I examine these findings in relation to the falls prevention and program sustainability literature, interpret the findings in relation to the tenets of complexity theory and make some recommendations for how these findings may be used by organisations, policy-makers and researchers.

## 12.2   A Theory for Program Sustainability

*Theories for Program Sustainability in Falls Prevention*

To date, no theories have been empirically developed to explain how community-based falls prevention programs can be sustained. Two frameworks for conceptualising how falls prevention activities may be better co-ordinated, implemented and sustained in community settings have been described in the falls prevention literature.

In the first, Ganz, Alkema and Wu (2008) suggested that the principles of the Innovative Care for Chronic Conditions Framework (ICCC) developed by the World Health Organisation could be applied to enable better coordination of falls prevention activities between healthcare organisations and the broader community, so that older people at risk of falling could be more readily identified and then linked to appropriate falls prevention services.  While the ICCC Framework offers health care organisations some broad principles for practice focussing on the coordination, continuity, quality, nature and organisation of services, the framework does not offer specific details for how such services can be sustained.

In the second, Farkas and colleagues (2003) described the application of the Knowledge Dissemination and Utilization Framework. Originating from the academic fields of training and curriculum development, Farkas et al. suggested that the framework may be applied to the field of gerontology research to guide researchers in how to take a more systematic approach to the ways their research findings could be disseminated and utilised over time by other researchers, organisations and consumers. While the authors provide some broad suggestions for how organisations may utilise research findings into falls prevention practice, the framework serves primarily to reinforce to researchers the need to consider how their study findings can be maximised by others beyond the life of their research projects.

Although these two conceptual frameworks highlight the need for sustainable programs and provide broad principles for improved collaboration, coordination and delivery of falls prevention activities in the community, neither framework provides sufficient detail for how organisations can sustain their programs over time or highlight the factors that may be critical to that process. As well, neither framework was founded from falls prevention research or developed directly from the experiences of those engaged in falls prevention activities. The imperative therefore, is to move from broad-based principles and approaches to a more in-depth understanding of how sustainability of community-based falls prevention programs can be achieved. As such, the theory

developed in this study, provides an important next step in improving our understanding of how organisations can sustain their falls prevention programs over time and offers a framework to guide that process.

*Theories for Program Sustainability in Sustainability Science*

In recent times, sustainability has become an important global issue, with the focus primarily on the need for sustainable development, resources and environments. Yet some have argued that sustainable health is also an important goal and thus worthy of attention (Bloom, 2007). With the growing interest in health and sustainability and an increasing number of studies investigating the sustainability of health care programs, the term sustainability science has been used to describe this emerging field (Gruen et al., 2008).

While various program sustainability models, frameworks and checklists have been reported in the literature, only one substantial theory, other than the one described in the current study, has been developed to guide the routine use of health care programs by organisations over time. The Normalisation Process Theory (NPT) was developed to understand how new health technologies, practices, interventions or programs may become routinely used and sustained in everyday practice (May & Finch, 2009). The NPT was been developed over a ten-year period in a series of phases, commencing with secondary analysis of data from qualitative studies followed by theory refinement and expansion through a combination of researcher collaborations and the application of the theory to empirical studies (May et al., 2009). Although the authors report using the techniques of grounded theory as part of the theory development process, it is unclear how these techniques were applied.

The NPT takes a sociological perspective and  postulates that practices become routinely embedded as the result of people working individually and collectively, that embedding of practices is affected by how people make sense of, engage with, enact and appraise the effects of the practice and that the integration of a new practice requires continual monitoring over time. In short, for practices to be sustained, people must understand the practice, be committed to it, be able to do it and see the benefits from doing it.  As such, the authors argue, attention needs to be paid to whether people, both individually and collectively, understand, commit to, can perform and evaluate the practice.

In comparing the NPT with the theory developed in the current study, there are some similarities between the two. Both theories emphasise the crucial link between seeing the program benefits and program continuation and stress the involvement of people who are committed to the program and skilled in its implementation. Thus, both theories confirm the importance of these factors for program sustainability.

There are some differences between the two theories. First, while the NPT acknowledges that support is needed so that people can adequately perform the program or practice, there is a lesser emphasis on the importance of support, particularly ongoing support, as a necessary condition for program sustainability, a key finding in the current study. Next, the theory developed in this study, moves beyond a focus on the influences on program sustainability to a consideration of the strategies needed to create, manage and control those influences. Finally, the importance of partnerships and networks to facilitate program sustainability, a key finding in this study, is not considered within the NPT. Thus, the theory developed in this study complements and extends the work of May and colleagues by emphasizing the need for ongoing support, highlighting the importance of strategies to address the influences on program sustainability and the role of partnerships and networks for program continuation.

The need for theoretically informed interventions and practices has been acknowledged (Davies et al., 2010b). Yet, selecting a theory or suite of theories to guide practice can be a challenge given the plethora of models, frameworks and theories that are currently available relevant to the translation of research evidence into practice (Grol et al., 2005; Rycroft-Malone & Bucknall, 2010b). Rycroft-Malone & Bucknall (2010b) report that the choice of theory may be facilitated by considering whether the theory is robust, logical, generalisable, testable, useful and appropriate.

The theory from this study was comprehensively developed using rigorous methods, provides a clear and logical explanation for how program sustainability can be achieved, was developed prospectively from the experiences of those directly engaged in falls prevention activities in diverse settings and can be tested with other falls prevention and health care programs.  Few theories have been developed focusing specifically on program sustainability, thus, as will be shown later in this chapter, the theory developed in this study will be of use to those interested in enhancing the sustainability of programs over time.

## 12.3  The Conditions for Program Sustainability

In conducting this study, I was guided by two broad research questions: 1) What factors influence program sustainability? and 2) How can program sustainability be achieved? I found that the key influences on program sustainability were the context in which the program was delivered, the motivation and capacity of organisations to sustain the program as well as factors related to the nature of the program, the type of people involved with the program and the kind of support received. These interacting influences and factors formed the conditions necessary for program sustainability, conditions which then influenced how organisations sustained their programs over time.

*Falls Prevention and the Conditions for Sustainability*

Few studies have investigated the factors associated with the sustainability of community-based falls prevention programs. Findings from the limited number of studies published to date suggest that different factors may influence sustainability in different ways depending upon the type of program and the program setting. For example, one study investigating the sustainability of a falls prevention exercise program found that working in partnership with local service providers, minimizing program start-up costs and charging a program fee contributed to program continuation over a 12 month period (Bagnall et al., 1998). In contrast, having ongoing training for staff delivered in flexible formats and having sufficient funding for a staff member to drive programs were identified as important factors for the continuation of falls prevention activities initiated by Falls Safety Officers (Peel et al., 2010).

In the current study, I found that although some conditions were critical for program sustainability, the way these conditions were manifested differed for each organisation. For example, all organisations needed support for the program to continue, but the kind and combinations of support required by each organisation varied depending on the context and setting. In some settings for example, program venues were available, in other settings support was needed to access venues at no or low cost. Thus, the findings from this study confirm the important influence of context on how program sustainability is addressed by organisations.

No studies to date have identified which factors or combination of factors are the most important for the sustainability of community-based falls prevention programs. The findings of this study show that program sustainability rests on three critical conditions and that all three conditions must be met for organisations to have sufficient

motivation and capacity to sustain the program. These findings, therefore, advance our understanding of which factors are most important for program sustainability.

Common approaches to understanding the factors associated with the sustainability of community-based falls prevention programs have been to identify and list relevant factors (National Ageing Research Institute, 2001) or to categorise factors according to whether they are facilitators or barriers to program sustainability (Cassell & Day, 2002). The findings from the current study suggest an alternate approach, in that the focus could shift from simply identifying factors to one of identifying the context-specific conditions under which program sustainability may be achieved. A focus on "conditions" rather than "factors" was evident in a recently published study in which the researchers aimed to identify the criteria for successful falls prevention programming in community organisations in the US (Kramer, Vivrette, & Rubenstein, 2011). In this study, six community and seniors' centres provided a 12-week multi-component falls prevention program of varying intensities over a two-year period. Each centre then described the program-related activities sustained by the centre, the perceived threats to program sustainability and criteria for successful programming at their centre.

The findings of the study indicated that the centres continued to engage in some falls activities aimed at program continuation and that there were a variety of threats to program sustainability for all levels of program intensity. The findings of the study found that for wider implementation of programs to occur, a number of conditions had to be met. The program had to meet a demonstrated need, the centre needed adequate resources to adequately deliver the program, there had to be program "buy-in" from centre staff and there must be sufficient funding to sustain the program over time.

These results support the findings of the current study, in that the conditions necessary for sustainability centre around the value of the program in meeting a certain need, the commitment required of those involved and support for the program that is context-specific. Thus a focus on the conditions for sustainability may offer a more useful approach to improving our understanding of the conditions under which sustainability is most likely and in which circumstances and contexts.

*Sustainability Science and the Conditions for Sustainability*

In this study I found that organisations needed both motivation and capacity to sustain the program and that neither component on its own was sufficient for programs to be

sustained. Similar findings have been described by Greenhalgh et al. (2005, pp. 186-190) in their review of empirical studies investigating the predisposition and capacity of organisations to implement and sustain innovations.

Current findings from the broader literature on the sustainability of health care programs suggest that multiple interacting factors can influence program sustainability (Gruen et al., 2008), that the influence of factors can vary across settings due to differences in organisational contexts (Buchanan & Fitzgerald, 2007, p. 38) and that factors may exert different influences at different times due to changes in circumstances affecting the organisation (Davies & Edwards, 2009, pp. 169-170). The findings from the current study are consistent with these conclusions.

Some studies have been conducted with the aim of identifying the factors most important for program sustainability. For example, the findings from a review of empirical studies conducted by Scheirer (2005) suggested that sustainability was more likely if the program could be modified over time, there was a good 'fit' between the program and the organisation, there were perceived program benefits for both clients and staff, a program champion was present and support was provided by other organisations. These findings concur with the findings from the current study, thus highlighting the importance of these factors for program sustainability. Some caution, however, is needed here, because the factors associated with program sustainability have (again) been shown in a recent review to be conceptualized, defined and categorized in various ways, thus making direct comparisons between studies difficult (Wiltsey-Stirman et al., 2011). Nevertheless, the similarities in the critical factors identified by Scheirer and the critical conditions identified in the current study, suggest that the benefits of the program, the enthusiasm and commitment of the people involved and the need for support are all important for program sustainability.

### 12.3.1 Program Benefits and Value

For the program to be sustained, I found that the program had to offer benefits and value to a variety of program stakeholders including older people, program leaders, program coordinators and the organisation and must offer advantages over other programs. While the nature of the benefits and how they were measured differed between organisations, the program had to be compatible with the organisation and not conflict with the nature of the services provided by the organisation. Participants in this

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study viewed the program as credible, evidence-based and comprehensive and were impressed with the empowering nature of the program for older people.

*Program Benefits and Value - Falls Prevention*

Surprisingly, the influence of the program itself on program sustainability has received little attention in the falls prevention literature. Cassell and Day (2002) reported that the sustainability of community-based falls prevention programs may be facilitated where there is a good fit between falls prevention and the core business of the organisation, there are tangible benefits for the organisation and those involved with the program, there is good evidence underpinning the program and where there is an acknowledged program need.

*Program Benefits and Value - Sustainability Science*

The importance of the program benefits for program sustainability has been recognized in the broader literature. For example, Maher and colleagues suggest that for changes in practice to be sustained, the practice must provide benefits beyond helping patients, the benefits must be immediate, supported and believed and the change of practice must fit with the strategic aims and culture of the organisation (Maher et al., 2007). Similar findings have been reported by others (Johnson et al., 2004; Scheirer, 2005; Shediac-Rizkallah & Bone, 1998; Wiltsey-Stirman et al., 2011).

Thus, the consistency of findings between this study, those of Cassell and Day (2002) and the broader literature on program sustainability implies that the nature and benefits of the program play an important role in the sustainability of both falls prevention and health care programs in general.

### 12.3.2 Committed and Skilled People

The findings from this study indicated that program coordinators and leaders had to be committed, skilled and available. For the program to continue, program leaders and coordinators had to be persistent, self-motivated, resourceful and enthusiastic and have a belief in the program. Program leaders and coordinators needed negotiation skills as well as skills in program co-ordination and delivery. People had to be available to coordinate and lead the program, the program could not rely on one person alone and program staff who left the organisation had to be replaced by people who had an equal enthusiasm for the program.

*Committed and Skilled People - Falls Prevention*

The need for committed, 'high calibre' people has been recognized by others, but the loss of key personnel at the local level remains a challenge for many organisations (Cassell & Day, 2002; National Ageing Research Institute, 2001). This finding mirrors the experiences of some of the organisations participating in the current study. It has been shown that training workshops can result in the uptake and implementation of falls prevention programs (Clemson et al., 2008d). Yet, despite a range of opportunities for health professionals to gain knowledge in falls prevention, for example at conferences, via professional networks or through post-graduate units of study, broad-based workforce training in falls prevention program delivery remains limited at present (Clemson et al., 2010). Thus, while there is a need for skilled people to enable program sustainability, ensuring their availability and skill level may prove a difficult task for many organisations.

*Committed and Skilled People - Sustainability Science*

The importance of program 'champions' for program continuation, has been reported in a number of studies in the broader literature on program sustainability. Program champions are advocates for the program (Scheirer, 2005), who possess analytical and intuitive skills, can exert influence over others and have well-developed interpersonal and negotiating skills (Rogers, 2003, pp. 414-417). As such, local champions play a key role in the adoption, implementation and sustainability of health innovations and programs.

While the need for skills training has been highlighted in some studies (Shediac-Rizkallah & Bone, 1998; Wiltsey-Stirman et al., 2011), the findings from the current study indicate that program leaders and coordinators need training not only in program delivery but also in negotiation skills. Thus, training programs may need to be expanded to enable trainees to develop and practice skills in negotiating and networking.

Other studies have found that programs must not rely on certain people and that strategies must be in place to shield against the sudden departure of key personnel (Nilsen et al., 2005). As well, the need to replace program staff with people who are equally committed to the program has also been reported (Evashwick & Ory, 2003). The availability of bilingual program leaders to enable the program to continue in

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specific cultural communities was an important finding in the current study. A finding similar to those described in a recent systematic review (Henderson, Kendall, & See, 2011).

In sum, while the findings of the current study confirm the vital importance of committed and skilled people for the sustainability of falls prevention and other health care programs, challenges remain in how such people can be identified, trained, supported, retained and replaced.

### 12.3.3 Tailored and Ongoing Support

All organisations needed support to sustain the program. The type, combination and intensity of support varied with each organisation and varied over time when circumstances affecting the organisation changed. Support had to match the needs of the organisation and be received at the time it was needed if the program was to continue. Common forms of support included funding, training and expert advice alongside support for the program from management, health professionals and older people.

*Tailored and Ongoing Support - Falls Prevention*

The need for ongoing support has been reported in some falls prevention studies. For example, Miake-Lye et al. (2011) reported the discontinuation of a program due to insufficient resources and reduced leadership support, with the authors concluding that a more supportive context was needed. Other forms of support such as adequate program resources and materials and ongoing support from older people have also been described (Baker et al., 2007). A lack of ongoing program support has been reported as barrier to program sustainability (Cassell & Day, 2002). The consistency of these findings with the findings in the current study, add weight to the argument that organisations need ongoing support if they are to sustain their programs over time.

*Tailored and Ongoing Support – Sustainability Science*

As in the falls prevention literature, the need for a range of ongoing support to enable program continuation has been highlighted in the broader literature on program sustainability (Johnson et al., 2004; Maher et al., 2007; Shediac-Rizkallah & Bone, 1998). A common issue often raised in the literature is the importance of ongoing program funding (Wiltsey-Stirman et al., 2011). This issue too was important for the

organisations participating in the current study. I found that organisations varied in how they funded their programs, in the level of funding needed and that their funding needs could change over time. Surprisingly, many of the participating organisations appeared to have modest funding needs. For example, some organisations only needed additional funds to pay for the guest presenters, but were able to fund all other program costs. To ensure adequate and ongoing funding for their programs, organisations in this study used a range of innovative strategies such as working in partnership with others, charging a program fee, limiting the number of programs delivered per year and utilising volunteers.

Other studies have shown that while it is a challenge, organisations can secure sustainable funding from a variety of sources (Evashwick & Ory, 2003; Scheirer, 2005) or may limit programs depending on the available resources (Nilsen et al., 2005). Some studies have shown that while some program funding is needed, often small amounts of funding could make a substantial difference in whether programs proceeded or not (Cheadle et al., 2010). Although having programs that are fully funded, for example, centrally at the level of government, may be a solution to the challenges of securing sustainable funding (Campbell & Robertson, 2010), others has been argued that program sustainability may be vulnerable when programs are dependent entirely on external sources and from one source alone (Hanson et al., 2005).

It is clear then, that sustainable funding is needed for sustainable programs, and that achieving sustainable funding at local levels is a challenge for most organisations. Thus, funding models that support yet not endanger program sustainability are needed.

## 12.4   Strategies for Program Sustainability

In this study I found that organisations used a range of context-specific strategies to enable the program to continue. While the strategies varied between organisations, and could vary over time as circumstances changed, all strategies were aimed at creating, managing and controlling the context-specific conditions necessary for program sustainability. An active approach to planning and monitoring was required because the conditions for program sustainability could change over time and therefore, it could not be assumed that because the program had continued in the past, it would continue to do so in the future.

*Falls Prevention and Strategies for Sustainability*

Findings from the systematic review described in Chapter Four of this thesis, suggest that community-based falls prevention programs are more likely to be sustained when supported by strategies aimed at program sustainability. In other words, programs do not sustain themselves and must therefore, be accompanied by active, appropriate strategies that can adapt to changing conditions and circumstances (Public Health Agency of Canada, 2005).

A range of strategies to promote program sustainability have been reported in the falls prevention literature such as the inclusion of the program into work plans and taking action to secure program sponsorship and funds (Cassell & Day, 2002), the use of sustainability guidelines (Day et al., 2010), working in partnership with local service providers and charging a program fee (Bagnall et al., 1998) and a combination of training programs, the formation of work groups and collaborative partnerships (Baker et al., 2007). While many of these strategies were also used by organisations in the current study, there is no-one strategy that will be suitable for all organisations, settings and circumstances. Organisations need only use the most appropriate strategies to enable them to meet the necessary and context-specific conditions for program sustainability.

*Sustainability Science and Strategies for Sustainability*

Broad strategies have also been suggested in the literature to enhance the sustainability of health care programs including early planning for sustainability (Pluye et al., 2005), targeting the factors influencing program sustainability (Scheirer, 2005), embedding of programs into organisational routines (Pluye et al., 2004b) and managing the barriers to program sustainability (Buchanan & Fitzgerald, 2007, p. 259). All of these approaches may be useful for organisations, but they will only be of use if they can assist organisations in meeting the conditions necessary for program sustainability. That is, strategies must be tailored to the unique needs of the organisation.

Tailored approaches for changing practice have been shown to be effective in some studies. For example, Goodwin et al. (2001), showed in a randomised controlled trial, that an intervention tailored to the needs of individual family practices resulted in improved rates of preventive service delivery at 12 months and that these improvements were sustained over an additional year beyond the conclusion of the direct intervention (Stange, Goodwin, Zyzanski & Dietrich, 2003).

It's also been highlighted in the broader literature that the context in which programs are delivered can change and hence ongoing monitoring of the program is required in response to those changes (Jansen et al., 2008). However, as was found in the current study, there may be some circumstances affecting the program that are beyond the control of those responsible. It may be therefore, that alternate options for program delivery may need to be available in the event that it is no longer feasible for an organisation to sustain the program.

## 12.5  A Network for Program Sustainability

Working in partnership and developing networks with others were important strategies to enhance program sustainability. Partnerships enabled organisations to share program tasks, reduce program costs and to more easily access program advice, guest presenters, resources and venues. Despite the benefits however, partnerships were at times challenging to develop and difficult to maintain. As such, a formal network linking organisations with program partners, supporters, funders and experts was proposed by some study participants, as a solution to these challenges. A program network was viewed as a way for organisations to more easily access the necessary support required to sustain their programs over time.

*Falls Prevention and Networks for Sustainability*

Partnerships between organisations have been identified as a facilitator of program sustainability in one falls prevention project (Cassell & Day, 2002). However, the authors also found that effective partnerships required ongoing commitment and goodwill between partners and should ideally be structured within a formal framework for co-operative action.

Although some studies have described initial partnerships between researchers and community-based organisations to develop sustainable programs (Bagnall et al., 1998; Baker et al., 2007; Kramer et al., 2011; Miake-Lye et al., 2011), no studies have evaluated the effect of ongoing partnerships and formal or informal networks on the sustainability community-based falls prevention programs.

While falls prevention networks exist both in Australia and internationally (Clemson et al., 2010; Scott et al., 2010), the influence of such networks on program uptake, implementation and sustainability is currently unknown.

*Sustainability Science and Networks for Sustainability*

The importance of partnerships and collaborations between program stakeholders for program sustainability has been highlighted in the broader literature (Nilsen et al., 2005; Scheirer, 2005; Wiltsey-Stirman et al., 2011). The potential for networks to facilitate program sustainability has been demonstrated in two studies. Using an uncontrolled prospective study design, Cheadle and colleagues (2010) reported that a physical activity network aimed at older people and comprising researchers, community organisations and local institutions, contributed to the sustainability of some walking groups and fitness classes beyond the five-year time frame of the study. Splett et al. (2006) evaluated the continuation of asthma care practices by organisations involved in a collaborative between school communities and community health care organisations. They found that many of the practices were maintained over a four-year period, principally due to the ongoing support from an expert in asthma management. While the effectiveness of networks is now being evaluated using more rigorous study designs such as in randomised controlled trials (Munneke et al., 2010), the effect of networks on program sustainability is currently unknown.

It was suggested by some in the current study that an online network in the form of a managed and moderated website may assist organisations to sustain their program over time. Such a network, it was proposed, would enable organisations to more easily access program resources, seek advice and collaborate with others. While the value of online networks in health has been the subject of some research, the focus has been primarily on the evaluation of network use, membership and reach (Thomas, Fried, Johnson, & Stilwell, 2010). As such, it is currently unknown if online networks can facilitate program sustainability.

The use of networks to promote the translation of findings from health research into practice has gained attention in recent times. In exploring the value of networks in public health for example, Robeson (2009) found that a range of network theories and models exist, that networks can take many forms, that there is a lack of consensus for how networks are conceptualised and defined and that few tools are available to measure network value and effectiveness. From her review, Robeson concluded that an effective network may be characterised by: a clear purpose and goal; an ability to meet the needs of network members; a culture of trust; specified roles; a flexible infrastructure; supportive processes; diverse membership; adequate resources and demonstrated value to the members of the network.

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In studying and evaluating networks in health, the use of network theory and analysis to evaluate the effectiveness of networks in health has been advocated. For example, Luke and Harris (2007) reported that network analysis has been used in studies of disease and information transmission networks and of how social networks influence individual health behaviours. However, the application of network theory and analysis to organisational networks has been limited to date. Of the research that has been conducted, Luke and Harris reported that organisational networks were commonly developed to facilitate referrals and for sharing of funding, programs or services, but that building relationships between organisations took resources and may limit organisational autonomy.

Specific network structures have been evaluated in some studies. For example, the effectiveness of a "hub-and-spoke" network model for the delivery of educational programs for patients with Type 1 diabetes was evaluated in a single-group, before and after study conducted by Rogers, Turner, Thompson, Hopkins and Amiel (2009). With the aim of enabling more equitable and efficient delivery of a diabetes educational program, diabetes teams from three small local services (the "spokes") were trained as diabetes advisors, while the five-day patient educational programs were delivered by diabetes educators at a larger centralised health service (the "hub"). Thus, the "hub" was responsible for program delivery, while the "spokes" were responsible for supporting patients in applying the program principles in daily life.

At 12 months, improvements in both diabetes control and quality of life outcomes for the program participants were reported; findings which were comparable to the results found in the original trial evaluating the effectiveness of the educational program alone. Although the authors concluded that the "hub and spoke" model of service delivery was feasible and effective for patients, the effect of this type of approach on program sustainability is unknown.

Thus, despite the promise of networks to facilitate the adoption, implementation and sustainability of health care programs, the characteristics of effective networks, how networks function in practice and the impact of networks still need to be determined (Li et al., 2009; Ranmuthugala et al., 2011; Wensing, van Lieshout, Koetsenruiter, & Reeves, 2010).

## 12.6  Complexity Theory as an Interpretive Framework

Program sustainability involves change; change in practices, processes and circumstances. The overall findings from this study may be explained by the tenets of complexity theory; a broad-based theoretical perspective that offers one approach to understanding change in healthcare (Grol, Wensing, Hulscher, & Eccles, 2005, pp. 31-32). In contrast to other organisational change theories, complexity theory recognises the unique nature of organisations, acknowledges variation in practice between organisations and the need for flexible approaches to the implementation of change in healthcare environments (Litaker, Tomolo, Liberatore, Stange, & Aron, 2006).

The application of complexity theory in healthcare has gained prominence in recent times, primarily in response to the increasing complexity of the health care environment. Modern healthcare entails complex disorders comprising multiple factors, the potential involvement of multiple health professionals, various options for treatment delivery and multiple types of evidence accompanied by varied values and preferences of patients (Plsek & Greenhalgh, 2001). As such, it has been suggested by Plsek and Greenhalgh, that complexity theory and its associated concepts may provide a useful framework for considering clinical and organisational problems in complex healthcare environments.

While multiple definitions for complexity exist, complexity generally " lies in the middle of the continuum between order and chaos and represents the actions of combinations of units that make up the whole" (Noll, 1997). With its origins in the natural sciences, there is no unified theory of complexity. Rather, complexity theory comprises a set of concepts, tenets and tools that may be applied to explain the nature of systems and how they behave (Litaker et al., 2006; Paley & Eva, 2011).

The concepts of complexity theory have been applied to healthcare in various ways, for example, in relation to the process of clinical care and decision-making (Wilson & Holt, 2001), education and training (Fraser & Greenhalgh, 2001), the management and organisation of care (Plsek & Wilson, 2001) and the design of interventions (Litaker et al., 2006). Despite the increasing interest in complexity theory and healthcare, there is variation in how complexity concepts are defined and debate on how these concepts can be applied and adapted to the healthcare environment (Greenhalgh, Plsek, Wilson, Fraser & Holt, 2010; Paley, 2007). To that extent, the use of complexity theory in healthcare is still in its infancy (Paley & Eva, 2011).

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Nevertheless, complexity theory is characterised by certain tenets, all of which have relevance to the findings of the current study.

### 12.6.1 A Focus on Systems

Complexity theory focuses on systems; what they consist of, how they behave and how they change. In healthcare, systems can be at the level of organisation, team or healthcare practice. Within complexity theory, such systems have been described as "complex adaptive systems" defined as "a collection of individual agents with freedom to act in ways that are not always totally predictable, and whose actions are interconnected so that one agent's actions changes the context for other agents" (Plsek & Greenhalgh, 2001). Thus, the organisations participating in the current study may be considered as complex adaptive systems.

### 12.6.2 System Characteristics and Behaviour

Complex adaptive systems, (hereafter referred to as "systems"), are characterised by a number of features which in turn influence the overall behaviour of the system. Systems are characterised by a variety of interacting components, may be embedded in other systems, are usually self-organising and may behave in various and unpredictable ways.

Systems consist of a large number of components that continuously interact. As such, these interactions exert a greater influence than the single actions of individuals within the system (Grol et al., 2005, pp. 31-32; Plsek & Wilson, 2001). Individuals within the system are connected and they function through working relationships and interactions (Litaker et al., 2006). Thus, when considering change in practice and processes, the focus must be on the system as a whole rather than focussing on the separate components or individuals that make up the system (Grol et al., 2005, pp. 31-32).

Systems can overlap and interact, individuals may be members of different systems and systems can be embedded within other systems. Systems therefore, have "fuzzy" rather than rigid boundaries (Plsek & Greenhalgh, 2001) and thus changes in one system can lead to changes in other linked systems. Therefore, when planning for change, there is a need to consider not only the system itself but how that system relates to other systems.

Systems generally are self-organising, in that individuals within the system follow a few simple and usually shared rules of behaviour to generate a certain result

(Paley, 2007). For example, a group of individuals working as a clinical team will have its own set of behaviours that emerge and evolve over time, which are then used to guide practice within that particular environment (Litaker et al., 2006). It has been suggested therefore, that innovation, progress and change may emerge naturally from the rules and interactions within a system, rather than from rules imposed "centrally" or from outside the system (Plsek & Greenhalgh, 2001).

Systems can re-organise and establish new rules in response to changing circumstances (Noll, 1997) or to solve a problem (Paley, 2007). Individuals within a system may act according to their own set of internalised rules which may not be made explicit, shared or even make sense to others (Plsek & Greenhalgh, 2001). Thus, when planning for change, efforts should be made to uncover the rules governing the behaviour of both the system and the individuals within it.

Given the interaction of the many individuals and components within a system, systems may behave in various and unpredictable ways. For example, small changes in one part of the system may lead to large changes in another part and as a result, new behaviours may emerge (Plsek & Wilson, 2001). While variability in practice may be considered undesirable, it is a natural occurrence within any complex system where there is interaction between many different factors. Reducing variability in practice may be a laudable goal, where there is certainty in outcome (Plsek & Wilson, 2001). However, given that systems behave in varied and unpredictable ways, it may be more prudent to concentrate on desirable variations in practice that take advantage of local opportunities and contexts and which lead to enhanced health outcomes (Litaker et al., 2006).

These characteristics of complex systems were evident in the organisations participating in the current study. Each organisation comprised multiple interacting components which in turn influenced their motivation and capacity to sustain the program. So, for example, for some organisations the program could not be sustained without the support of managers, the availability of additional funds to pay for guest presenters, access to suitable venues and so on. Thus, program co-ordinators needed to take a whole of system approach if the program was to be sustained.

Program leaders were often members of different "systems" either within or between organisations, and this could also influence program sustainability. For example, at Regional Community Health the program leaders were not only involved in the Stepping On program "system" but also in the community nursing "system".

Therefore, these two systems were inter-related and changes in either system could have a substantial impact on the other. Thus, the program co-ordinator at Regional Community Health took both systems into account when planning for program sustainability.

In this study, organisations addressed program sustainability in various and flexible ways. The different experiences of Indian Care and Suburban Community Health, as highlighted in the two case studies, clearly demonstrate this point. In their attempts to sustain the program, each organisation worked differently according to the norms, rules and conventions governing their particular "system". When circumstances changed, some organisations, like Suburban Community Health for example, set new rules to enable the program to continue, such as charging a program fee.

### 12.6.3 Unique Systems

Complex adaptive systems may be considered unique, in that there may be differences in the purpose and membership of each system and in how systems function both currently and over time. Thus, even seemingly identical systems may behave in unique ways due to the influence of context, the effect of individuals from both within and between systems and changing circumstances affecting the system (Litaker et al., 2006).

The unique nature of the participating organisations was particularly prominent in this study. Depending on the context, each organisation differed in structure, purpose, the nature and type of services provided and available resources. These differences then influenced the intent and ability of an organisation to sustain the program, as well as how program sustainability was manifested in each setting. For example, four community health services participated in the current study. By study end two services were sustaining the program and for two, the program had ceased. Although all four services may be categorised as "similar", they differed substantially in how they were structured and staffed, in the types of services delivered and in their capacity to sustain the program over time. The unique nature of the organisations participating in this study meant that each organisation addressed program sustainability in ways that suited their context, setting and circumstances.

### 12.6.4 Patterns within Systems

Although systems can behave in unpredictable ways, behaviour is often guided by an overall pattern (Plsek & Greenhalgh, 2001). Thus, the behaviour of systems may be

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better understood, if the patterns guiding that behaviour can be identified. A specific type of pattern in complexity theory is known as an "attractor" (Plsek & Greenhalgh, 2001). Attractor patterns underlie the behaviour of a system and are the rules used within the system to guide the behaviour of that system towards a certain goal.

In the current study, certain patterns were identified that were relevant to all organisations which could be considered "attractor patterns". The first pattern was that each organisation had a set of context-specific conditions upon which program sustainability rested. Next, three conditions were critical for program sustainability, centring around the benefits and value of the program to the organisation, the availability of skilled people who were committed to the program and the need for appropriate and ongoing program support. Although these patterns were common across all organisations, in line with complexity theory, the way these patterns played out within each organisation varied and could change in response to changing circumstances affecting each organisation.

### 12.6.5 *Linking Actions to Patterns*

Given the importance of attractor patterns for how systems behave, a better understanding of these patterns may lead to more effective methods for promoting change within systems (Plsek & Wilson, 2001). In a practical sense, this means that actions to promote change should link to the patterns within the system. In doing so, actions will be tailored or "shaped" to the unique values, structures and processes of the system and its members, thereby improving the likelihood of successful practice change (Litaker et al., 2006).

Given the prevalence of variation across complex systems, the unique nature of systems and the ability of systems to self-organise, systems should act based on a "minimum specification" or simple rules approach (Plsek & Wilson, 2001). That is, rather than expecting systems to conform to rigidly applied rules and standards, systems could, as an alternative, adhere to a set of minimum specifications or rules and then self-determine how those specifications apply in that setting. This approach has been used to improve systems of care for older people in one area of the United Kingdom (Plsek & Wilson, 2001). In this instance, a minimum set of specifications were developed by members of the care system, which focussed on the service user, multidisciplinary networking, ease of service access, effective assessment processes, crisis avoidance, improved information flow, sharing of budgets and resources across

organisations within the care system and regular specification review and update if necessary. These specifications provided the system with a flexible, approach to service innovation, development and delivery that could evolve over time; a way of working that is not possible when new standards, guidelines and protocols are rigidly imposed.

As described earlier, for each organisation participating in this study, program sustainability rested on a set of context-specific conditions. The actions taken by each organisation were driven by the need to meet those conditions. Thus, in their attempts to sustain the program, each organisation linked their activities directly to those conditions needed for program sustainability. In that way, all activities were tailored to the unique needs of the organisation.

Using the context-specific conditions as a minimum set of specifications, each organisation was flexible in their approach to program sustainability. That is, organisations used a range of targeted strategies at different times to sustain the program that were context relevant and appropriate to the setting and circumstances. Hence, there was no "right" or "wrong" way to sustain the program, just the most "suitable" way that matched the needs of the "system".

### 12.6.6  Summary

Complexity theory offers a useful set of principles in which to consider the findings in this study. The healthcare environment is complex, no two organisations work in the same way and circumstances affecting organisations change. Program sustainability must be considered within these types of operating environments. Identifying the conditions under which programs will be sustained and the flexible use of targeted, contextually-relevant strategies to meet those conditions, will be a necessary approach if organisations are to sustain their programs over time. In complexity theory parlance, organisations need to "set broad targets for change, observe the system as a whole, find the attractors and then link action to these attractors" (Grol et al., 2005, pp. 31-32).

### 12.7  Limitations of the Study

The findings from this study must be considered in light of the study limitations. The theory developed in this study is based on the experiences of organisations from the public and not-for-profit sector, engaged with one falls prevention program conducted in one geographical area. As such, the applicability of the theory to other falls prevention programs and other settings warrants further investigation. Like Stepping

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On, most community-based falls prevention programs whether classified as single, multiple or multi-factorial interventions, are complex interventions, consisting of multiple components (Gillespie et al., 2009). It is likely therefore, that the findings from this study have relevance to other falls prevention programs, but this assertion needs confirmation in future studies.

Recruiting older people to the program was a challenge for many organisations participating in this study; a challenge that has been recognised and investigated in the literature (Clemson et al., 2007) and one that has implications for program sustainability. Despite the need, gaining the perspectives of older people on the value of the program to them and the implications for program sustainability was beyond the scope of the current study.

In this study I did not formally evaluate if program fidelity was maintained by the participating organisations. However, issues surrounding program fidelity emerged during the study. Some organisations made small adaptations to either the program content or in the way the program was delivered. For example, in some programs the exercises were accompanied by music, in others there was a lesser emphasis on topics such as the use of public transport, given the limited options for public transport in that particular setting.

In some cases however, the adaptations were more substantial. For example, in some programs, the entire program content was delivered by the program leaders, the home visit was not conducted, the three-month booster session did not occur or topics such as Tai Chi, nutrition and incontinence were introduced. Also, some program leaders seemed unaware that their programs were drifting from the original program content and structure.

Some of these program changes occurred for reasons beyond the control of the program leader. For example at one organisation, the home visit was not conducted for occupational health and safety reasons. For other organisations, a lack of guest presenters for the program resulted in program leaders seeking other options for the delivery of some program topics.

Program fidelity is an important consideration, since there may be little advantage in sustaining programs that bear little resemblance to those originally found to be effective in randomised controlled trials (Hasson, 2010). However, the need for balance between the flexible delivery of programs to suit the local context while maintaining the essential elements of the program has been reported (Cohen et al.,

2008). As well, practices that can be "re-invented" or adapted to suit the local context are more likely to be adopted, implemented and sustained (Graham et al., 2007; Greenhalgh et al., 2005, p. 84; Rogers, 2003, p. 429; Scheirer, 2005). Thus, when developing and evaluating health care interventions and programs, researchers may need to be more explicit in identifying the elements of the intervention that can be modified to suit local contexts and the essential elements of the intervention that must remain unchanged.

## 12.8  Study Recommendations

The findings of the systematic review presented in Chapter Four suggested that the factors influencing program sustainability were not well understood and that it remained unclear how community-based falls prevention programs could be sustained over time. As such, limited recommendations to guide practice could be made based on the review findings. The need for empirical studies to explore and explain how program sustainability can be achieved was highlighted. The current study addressed this knowledge gap and research need. Thus the findings from the current study have important implications for practice, policy and research. In this section I make some recommendations for how the study findings can assist organisations, policy-makers and researchers.

### 12.8.1  Recommendations for Practice

The theory can assist organisations in understanding the conditions that are critical for program sustainability, to determine how those conditions apply in their particular setting, decide if the program is feasible to sustain or not and then develop appropriate strategies to ensure that the conditions for sustainability can be met. Thus, the theory offers organisations a guide that can be applied systematically to the processes of program sustainability planning and monitoring. To assist organisations, the theory can be operationalised into a series of recommended steps.

In the first instance, organisations can recognise that program sustainability rests on three critical conditions and that all three conditions must be met if they are to have the necessary motivation and capacity to sustain the program over time.

Next, organisations can then determine how the three critical conditions apply in their local setting, paying particular attention to the benefits that the program will need to deliver, the people who will be necessary for the program and the kind of support

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that will be required if the program is to be sustained over time. For example, in relation to the program, organisations need to ask: *What type of benefits do we need to see? Will the type of benefits vary for different program stakeholders? Does the program offer advantages over other programs? How will we know if the program is delivering benefits and value to the organisation? Is the program compatible with and acceptable to the organisation?*

In the relation to the people needed to coordinate and lead the program, the following questions will need to be addressed: *Are people available within the organisation who are enthusiastic about the program? Do they have skills in program coordination and delivery? Do they have negotiation skills? How likely is it that people will be available to coordinate and lead the program now and in the future?*

Questions to ask in relation to the nature of support required include: *What kinds of support do we need and where will that support come from? What support do we need to not only sustain the program but maintain program fidelity? How can the support be acquired now and continued in the future?*

As a result of asking such questions, organisations will have developed the set of context-specific conditions that must be satisfied for their program to be sustained. In other words, it will become clearer what will be required to sustain their program over time. From there, organisations can then determine if it is appropriate, realistic or feasible for them to sustain the program or not. If not feasible, organisations may then consider alternate options such as delivering the program as a "one-off" program, referring older people to other organisations who offer the program or if possible and available "buy-in" the program through an external service provider.

If it is determined that program sustainability is feasible, organisations can then develop context-specific strategies to ensure that the conditions necessary for program sustainability in their setting can be met. In developing their strategies, organisations should consider how partnerships with others can assist them in sustaining their program. Given that circumstances affecting the organisation can change, organisations need to both monitor and manage where possible to do so, the conditions necessary for program sustainability.

### *12.8.2 Recommendations for Policy*

Policy plays an important role in facilitating program sustainability. The findings from this study can be used by policy-makers to better support organisations in sustaining their programs over time.

First, people are needed for program delivery within local communities. While the creation of overarching positions such as falls prevention coordinators is an important first step, attention now must focus on how programs can be adequately and appropriately staffed at the local level. Consideration could be given to the official endorsement and implementation of alternate models of program delivery, for example the development of partnerships between traditional government funded health services and other sectors including welfare, local government and the private sector.

Second, organisations need a range of ongoing support that suits the context and local circumstances. While falls prevention policies provide an overarching blueprint for the support of falls prevention activities, the type of support required at the local level needs serious consideration. Managers need guidance in program selection, people need skills in program delivery and in maintaining program fidelity, regular access to program advice is needed, health professionals are needed as guest presenters and older people need encouragement to participate in falls prevention programs. Policy can facilitate these types of support by recommending specific evidence-based falls prevention interventions, offering appropriate skills training, enabling access to program experts, ensuring reasonable availability of health professionals, developing additional program resources to suit local conditions and engaging in more broad-based marketing of programs to older people.

Third, while funding is needed for programs to be sustained, policy-makers need to explore alternate program funding models with the aim of facilitating program sustainability. Examples could include: sharing program costs between service sectors; charging a modest program fee where appropriate to do so; funding and delivery of programs through tender or service brokerage systems; endorsement and licensing of qualified professionals who can then offer the program as a private service, training, mentoring and supporting local community-based organisations not from the health sector to deliver programs and incentives for health professionals to implement and sustain evidence-based falls prevention practices.

Finally, given the importance of partnerships for program sustainability policy-makers may consider the establishment or the expansion of existing online networks to facilitate links between program providers, partners, supporters, funders and experts.

### 12.8.3 Recommendations for Research

The findings from this study can be used by researchers in a variety of ways. While the theory in this study was developed using rigorous methods, the theory now needs to be prospectively tested against other falls prevention and health care programs in different organisations and geographical settings.

The theory may be used to inform the development and evaluation of interventions aimed at facilitating program sustainability. Interventions should focus on assisting organisations in identifying the conditions necessary for program sustainability relevant to that setting and then the development of accompanying strategies targeting those conditions. This style of intervention would enable the evaluation of more tailored, contextually relevant approaches for enhancing program sustainability. The theory developed in this study could also inform the development of program sustainability guidelines, which may then be used by organisations to guide their program planning and monitoring. The utility and effectiveness of such an approach offers another area of potential research.

Future studies could also focus on the prospective evaluation of any statistical associations between the critical conditions for sustainability identified in this study and sustainable programs in the community. Given that little is known about the impact of networks on program sustainability, studies are needed to determine the characteristics of program networks and their effectiveness.

## 12.9  Conclusion

In this study, I aimed to explore the factors influencing the sustainability of a community-based falls prevention program and to explain how such programs can be sustained by organisations over time. To do this, I conducted a qualitative study using grounded theory methodology. The resultant theory was developed directly from the experiences of those engaged in falls prevention activities and is based on the interacting factors influencing program sustainability.

I found that program sustainability can be achieved providing certain conditions are met, that organisations use a range of context-specific strategies to meet those

conditions and that a network linking program stakeholders may assist organisations in sustaining their programs over time.

These findings are important because despite the imperative, the factors associated with the sustainability of community-based falls prevention programs have not been well understood and until now, there has been little research available to guide how these types of programs can be sustained in practice. As well, the choice of theory to inform and guide the sustainability of health care programs in general has been limited. The complementary nature of the theory developed in this study with the broad-based perspectives offered by complexity theory offers a promising approach for optimising and achieving program sustainability.

This study has resulted in a comprehensively developed, practical theory that can be applied in diverse and complex settings. As such, the theory can now be used to guide practice, assist policy-makers and inform future research.

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# Appendices

## Appendix 1 Systematic Review Protocol

**Reviewers**

Meryl Lovarini [ML]

Lindy Clemson [LC]

Mark Mathews [MM]

Catherine Dean [CD]

**Aim of the Review**

To review any studies that have been published on the sustainability of falls prevention interventions for older adults living in the community.

**Research Questions**

1. What theories, models or frameworks have been developed for the sustainability of falls prevention interventions for older adults living in the community?

2. What factors affect the sustainability of falls prevention interventions for older adults living in the community?

3. What interventions are effective for promoting, enhancing or achieving sustainability of falls prevention interventions for older adults living in the community?

This protocol was developed in accordance with the PRISMA statement and guidelines (Liberati et al., 2009). Additional information regarding the inclusion of multiple study types and systematic reviews of public health interventions, was obtained from the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2009) and the Centre for Reviews and Dissemination guide to systematic reviews(Centre for Reviews and Dissemination, 2009).

This protocol was developed in 2 phases. In the initial phase, the research questions were developed, eligibility criteria were determined, selection of information sources and search terms were completed and the processes for the identification, screening and selection of studies were developed. The searches were then conducted,

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followed by the identification, screening and selection of studies for inclusion in this review.

In the second phase, the processes for data extraction and assessment of study validity were developed taking into consideration the characteristics of the included studies. This iterative multi-phase approach is appropriate for conducting systematic reviews of public health interventions or other complex evidence (Centre for Reviews and Dissemination, 2009; Greenhalgh, Robert, Bate, Macfarlane, & Kyriakidou, 2005).

## METHODS

### Eligibility Criteria

*Types of Studies*

Since the aim of this study is to review any studies published in the scientific literature relevant to the three research questions, all research study types will be included. No language, publication date or publication status restrictions will be imposed (other than any restrictions inherent within the design of each database searched).

*Types of Interventions*

Any type of intervention that aims to reduce the effect of or exposure to any risk factor for falling will be included. Any interventions aimed at reducing the risk and/or rate of falls. No restriction on any type of comparator intervention.

*Type of Participants*

Studies referring to men and women aged 65 years and over or describing participants as elderly, seniors or older adults will be included (Gillespie et al., 2009). Studies will be included if 50% and over of the total number of participants are aged 65 years and over. Studies referring to older adults living in the community will be included. Living in the community is defined as adults living either at home or other places of residence (such as independent living units in retirement villages) where residential related health care or rehabilitation services are not usually provided (Gillespie et al., 2009). Studies referring to older adults in hospital or living in formal residential aged care facilities (such as hostels or nursing homes) will be excluded. If studies refer to a mix of settings, studies will be included if data for each setting is clearly distinguished.

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*Types of Outcomes/Factors*

Any study investigating the sustainability of falls prevention interventions/ programs, relevant to the 3 research questions will be included. Multiple definitions for program sustainability have been described in the literature (Hanson, Salmoni, & Volpe, 2009; Pluye, Potvin, & Denis, 2004). In this review the term sustainability refers to the concept of program or intervention "continuation over time" (Shediac-Rizkallah & Bone, 1998). Studies referring to the sustainability of the effects of the intervention on older adults, rather than the sustainability of the intervention itself, will be excluded.

**Information Sources**

Studies will be identified by searching electronic databases, scanning the reference lists of included studies and from the personal collections of each reviewer of this systematic review. Databases to be searched include: Medline, Embase, The Cochrane Database of Systematic Reviews, The Cochrane Central Register of Controlled Trials, PubMed, Cinahl, OTseeker, PEDro, PsycInfo, AMED and Ageline. A variety of databases will be searched to enhance the likelihood of retrieving relevant studies (Higgins & Green, 2009; Liberati et al., 2009). Formal searches for unpublished studies ("grey literature") will not be conducted for this review as the aim of this study is to review only published studies.

Search strategies matching the design of each database will be developed and recorded. Any changes in original search strategies and associated reasons for any changes will also be recorded. The database platform or provider and the search dates will be recorded. All searches to be conducted by the primary reviewer (ML) in consultation with all reviewers. The primary reviewer is experienced in database searching (Lovarini, Wallen, & Imms, 2006).

**Search Methods**

*Search Terms*

Search terms for the concepts of "older adults" (the population of interest) and "falls prevention" (the intervention of interest), that have been used in previous research will be used in this review (Gillespie et al., 2009; Kastner, Wilczynski, Walker-Dilks, McKibbon, & Haynes, 2006).

To determine appropriate search terms for the concept of sustainability a number of factors were considered. Multiple terms and phrases have been used in the literature

to describe the concept of sustainability and currently there is no consensus on a standard term for this concept (Hanh, Hill, Kay, & Quy, 2009; Pluye et al., 2004). Therefore terms that are synonymous with sustainability and commonly reported in the literature will be used in this review. The terms most commonly used in the literature for the concept of sustainability include: *sustainability, continuation, integration, routinisation, incorporation, embedding, maintenance, institutionalisation, stability* and *durability* (Gruen et al., 2008; Savaya, Elsworth, & Rogers, 2009; Scheirer, 2005). Least common terms are*: resilience, viability, persistence, appropriation, colonisation, longevity, nesting, permanence, perpetuation, survival, assimilation* and *confirmation* (Pluye et al., 2004). Other broader, overarching terms that are frequently used in the literature that may refer to some aspects of sustainability (but less directly so than the other terms) include: *dissemination* and *diffusion* (McKibbon et al., 2010; Straus, Tetroe, & Graham, 2009)

A number of phrases relevant to program sustainability have been reported in the literature including: *"sustained use", "level of use", "local ownership", "community building", "quality improvement", "complex intervention", "routine implementation", "continuous implementation", "sustained implementation", "ongoing implementation" , "implementation science"* and *"sustainability science"* (Eccles et al., 2009; Ganz, Alkema, & Wu, 2008; Johnson, Hays, Centre, & Daley, 2004; McKibbon et al., 2010; Rabin, Brownson, Haire-Joshu, Kreuter, & Weaver, 2008; Straus et al., 2009). Other broader, overarching phrases  that may refer to some aspect of sustainability (but less directly so than other phrases) include: *"knowledge translation", "knowledge exchange", "knowledge transfer", "implementation research", "research use" and "research utilisation"*  (Davis et al., 2003; Eccles et al., 2009; Straus, Graham, & Mazmanian, 2006; Straus et al., 2009).

Some authors have referred to program sustainability as a distinct phase, linked to, but separate from the phases of program adoption and implementation (Graham et al., 2006). It has also been argued that conceptual distinctions need to be drawn between the phases of program implementation and sustainability since programs may be implemented but not sustained (Goodman, McLeroy, Steckler, & Hoyle, 1993). Goodman and colleagues (1993) suggested that it may be useful to separate the concepts of "implementation" and "sustainability" so that they can be studied and measured more appropriately. However other s have suggested that program sustainability should not be considered as a separate phase and that program adoption,

implementation and sustainability consist of concomitant processes that may be affected by overlapping factors (Pluye et al., 2004). This then implies that some studies may refer to aspects of program implementation that also encompass aspects of program sustainability. The term "implementation" on its own, however, usually refers to the process of program implementation rather than program sustainability. Whilst it may make sense to include the term "implementation" in the search strategy, it is likely that this will result in the retrieval of a high number of irrelevant studies.

Advice regarding suitable search terms and combinations was sought from a health services librarian and an information specialist with experience in developing search strategies for systematic reviews. To finalise the search terms for this review, four pilot searches were the conducted in Medline comparing the most and least commonly used terms to describe the concept of program sustainability.

**Pilot Medline Search Form**

Dates searched: 22.6.10, 25.6.10

Logged in: Yes

Platform: OVIDSP

Publishing dates: 1950 - Present

Symbols: / (MeSH, explode option), tw (textword)

Truncations: $ (multiple endings), ? (single letter substitution), need to turn off mapping feature

Phrases: use "…" to search for exact phrase

Endnote: Use Direct Export option

**Pilot Search Strategy 1 – Most common terms and phrases for sustainability**

*Intervention: Line 5*

*Population: Line 9*

*Outcome: Line 32*

1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Exp Aged/

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7. Exp Aged, 80 and over/
8. (senior$1 or elderly or older).tw
9. 6 or 7 or 8
10. Sustain$.tw
11. Continu$.tw
12. Integrat$.tw
13. Routini?ation.tw
14. Incorporat$.tw
15. Embed$.tw
16. Maint$.tw
17. Institutionali?ation.tw
18. Stabil$.tw
19. Durab$.tw
20. "sustained use".tw
21. "level of use".tw
22. "local ownership".tw
23. " community building".tw
24. "quality improvement".tw
25. "complex intervention".tw
26. "routine implementation".tw
27. "continuous implementation".tw
28. "sustained implementation".tw
29. " ongoing implementation".tw
30. "implementation science".tw
31. "sustainability science".tw
32. or/10-31
33. 5 and 9 and 32


**Pilot Search Strategy 2 – Most and Least common terms and phrases used for sustainability**

*Intervention: Line 5*

*Population: Line 9*

*Outcome: Line 53*


1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Exp Aged/
7. Exp Aged, 80 and over/

_____

8. (senior$1 or elderly or older).tw
9. 6 or 7 or 8
10. Sustain$.tw
11. Continu$.tw
12. Integrat$.tw
13. Routini?ation.tw
14. Incorporat$.tw
15. Embed$.tw
16. Maint$.tw
17. Institutionali?ation.tw
18. Stabil$.tw
19. Durab$.tw
20. "sustained use".tw
21. "level of use".tw
22. "local ownership".tw
23. " community building".tw
24. "quality improvement".tw
25. "complex intervention".tw
26. "routine implementation".tw
27. "continuous implementation".tw
28. "sustained implementation".tw
29. " ongoing implementation".tw
30. "implementation science".tw
31. "sustainability science".tw
32. resilien$.tw
33. viab$.tw
34. persist$.tw
35. appropriat$.tw
36. colonisat$.tw
37. longevity.tw
38. nesting.tw
39. permanen$.tw
40. perpetuat$.tw
41. survival.tw
42. assimil$.tw
43. confirm$.tw
44. dissem$.tw
45. diffus$.tw
46. implementation.tw
47. "knowledge translation".tw
48. "knowledge exchange".tw
49. "knowledge transfer".tw
50. "implementation research".tw
51. "research use".tw

_____

52. "research utili?ation".tw
53. or/10-53
54. 5 and 9 and 53


**Pilot Search Strategy 3 – Least common terms and phrases used for sustainability**

*Intervention: Line 5*

*Population: Line 9*

*Outcome: Line 31*


1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Exp Aged/
7. Exp Aged, 80 and over/
8. (senior$1 or elderly or older).tw
9. 6 or 7 or 8
10. resilien$.tw
11. viab$.tw
12. persist$.tw
13. appropriat$.tw
14. colonisat$.tw
15. longevity.tw
16. nesting.tw
17. permanen$.tw
18. perpetuat$.tw
19. survival.tw
20. assimil$.tw
21. confirm$.tw
22. dissem$.tw
23. diffus$.tw
24. implementation.tw
25. "knowledge translation".tw
26. "knowledge exchange".tw
27. "knowledge transfer".tw
28. "implementation research".tw
29. "research use".tw
30. "research utili?ation".tw
31. Or/10-30
32. 5 and 9 and 31

_____

## Pilot Search Strategy 4 – Adoption or uptake

*Intervention: Line 5*

*Population: Line 10*

*Outcome: Line 13*

1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Aged/
7. "Aged, 80 and over"/
8. Frail elderly/
9. (senior$1 or elderly or older).tw
10. 6 or 7 or 8 or 9
11. Adopt$.tw
12. Uptake.mp
13. 11 or 12
14. 5 and 10 and 13

## Pilot Searches Results

*Summary*

| Search | Total Records | Potentially Relevant Records | Relevant Records (%) |
|---|---|---|---|
| Search 1 | 1110 | 18 | 8 (44%) |
| Search 2 | 1679 | 23 | 8 (34%) (All in Search 1) |
| Search 3 | 828 | 14 | 4 (28%) (All in Search 1) |
| Search 4 | 88 | 4 | 3 (4%) (All in Search 1) |

*Studies Retrieved*

| Study | Relevant | Search 1 Most Common Terms | Search 2 Most & Least Common Terms | Search 3 Least Common Terms | Search 4 Adoption & Uptake |
|---|---|---|---|---|---|
| Frick (2010) | X | √ | √ | X | X |
| Milisen (2009) | X | √ | √ | X | X |
| Li (2008) | √ | √ | √ | √ | √ |
| Richard (2008) | X | √ | √ | √ | X |
| Beswick (2008) | X | √ | √ | X | X |
| Rose (2007) | √ | √ | √ | √ | X |
| Baker (2007) | X | √ | √ | √ | X |
| Langridge (2007) | X | √ | √ | √ | X |
| Whitehead (2006) | X | √ | √ | √ | X |
| Chou (2006) | X | √ | √ | √ | √ |
| Mitchell (2006) | X | √ | √ | X | X |
| Sze (2005) | √ | √ | √ | √ | X |
| Brown (2005) | √ | √ | √ | X | X |
| Baker (2005) | √ | √ | √ | √ | X |
| Barnett (2004) | √ | √ | √ | X | X |
| Barnett (2003) | √ | √ | √ | X | X |
| Steinberg (2000) | √ | √ | √ | X | X |
| Resnick (1999) | X | √ | √ | X | X |
| Weerdesteyn (2009) | X | X | √ | √ | X |
| Tinetti (2008) | X | X | √ | √ | X |
| Campbell (2006) | X | X | √ | √ | X |
| Sze (2008) | X | X | √ | √ | X |
| Gardner (2001) | X | X | √ | √ | X |
| Gardner (2002) | X | X | X | X | √ |

Adding the least common terms to the search strategy resulted in more studies identified, but not more relevant studies. The most number of relevant studies was identified by Search 1 (ie terms most commonly used for sustainability in the literature).

The following recommendations were made as a result of the pilot searches in Medline:

- Use search strategy containing most common terms and phrases for sustainability
- Use Aged/ or "Aged, 80 and over"/ or Frail Elderly/ MeSH terms

The search strategies were then refined for each database (available separately).

*Final Search Strategy (Medline Example)*

Medline (OVID), using terms and phrases most commonly used for sustainability

Search Strategy

*Intervention: Line 5*

*Population: Line 10*

*Outcome: Line 33*

1. Accidental Falls/
2. (falls or faller$1 or fallen).tw
3. 1 or 2
4. (program$ or intervention$1 or treatment$1 or innovation$1.tw
5. 3 and 4
6. Aged/
7. "Aged, 80 and over"/
8. Frail Elderly/
9. (senior$1 or elderly or older).tw
10. 6 or 7 or 8 or 9
11. Sustain$.tw
12. Continu$.tw
13. Integrat$.tw
14. Routini?ation.tw
15. Incorporat$.tw
16. Embed$.tw
17. Maint$.tw
18. Institutionali?ation.tw
19. Stabil$.tw
20. Durab$.tw
21. "sustained use".tw
22. "level of use".tw
23. "local ownership".tw
24. " community building".tw
25. "quality improvement".tw
26. "complex intervention".tw
27. "routine implementation".tw

_____

28. "continuous implementation".tw
29. "sustained implementation".tw
30. " ongoing implementation".tw
31. "implementation science".tw
32. "sustainability science".tw
33. or/11-32
34. 5 and 8 and 33


**Study Selection**

Data regarding the study screening, selection and inclusion process will be recorded according to the PRISMA 2009 Flow Diagram. Any disagreements between reviewers during these phases will be resolved by a third reviewer.


*Identification*

The number of studies identified through database searching and other sources will be recorded. Reference lists of all included studies (ie those studies matching the eligibility criteria) will be scanned independently by two reviewers to identify additional potentially relevant studies for screening and eligibility[3]. Additional studies will be identified from the personal collections of each reviewer.


*Screening*

The titles of each identified study will be screened for relevance to the three research questions. The number of studies screened and excluded will be recorded.


*Eligibility*

The full text for each relevant article identified from the screening process will be obtained. Each study will then undergo an eligibility assessment process. Each included study will then be categorised according to each of the three research questions and the study design then determined.


*Process for Study Selection*

1. Studies identified from the database searches will be downloaded into reference management software (Endnote).

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[3] Scanning of reference lists of the included studies conducted by one reviewer [ML]

2. Duplicate studies will be removed in Endnote. Duplicates are defined as two or more records referring to the same study or article. The remaining studies will be exported into an Excel spreadsheet. Each of the four reviewers will then be allocated 25% of these studies for screening[4]. Each study will be screened by title for relevance to the three research questions. Relevance will be recorded in the spreadsheet as 'Yes', 'No' or 'Maybe'. Three column headings in each spreadsheet: Record Type, Record Title and Abstract.

3. Each study identified from the screening process as potentially eligible will then be formally assessed for eligibility. Initially the full text for each study will be retrieved. Two reviewers will then independently assess each study for eligibility according to the eligibility criteria. The results of this process will be recorded on a study eligibility form developed specifically for this review. The reasons for exclusion of studies will also be recorded. Disagreements between reviewers will be resolved by consensus.

Studies identified from the reference lists of the included studies and from the personal collections of each reviewer will then undergo Steps one to three[5]. Each included study will then be categorised according to each of the 3 research questions. The study design for each included study will then be determined.

**Data Extraction**

The methods for data extraction and assessment of study quality are based on those recommended in the Cochrane handbook (Higgins & Green, 2009), The PRISMA statement (Liberati et al., 2009), the CRD Guide for Systematic Reviews (Centre for Reviews and Dissemination, 2009) and used in a review conducted by Greenhalgh et al. (Greenhalgh et al., 2005).

Fifteen studies of diverse study designs and publication types were selected for inclusion in the review. One reviewer (ML) will determine the data to be extracted and then extract the data into evidence tables. Accuracy of the extracted data will be verified by a second reviewer (CD).

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[4] One reviewer [MM] discontinued with the review. His allocated studies were screened by a research assistant and verified by one reviewer [CD]
[5] Studies identified from the reference lists of the included studies and from the reviewers' personal collections were screened by one reviewer [ML].

*Data to be extracted for all included studies*

- Country

- Publication type

- Aspect of program sustainability addressed in the publication

*Data to be extracted for empirical studies only*

- Aim

- Setting

- Population

- Interventions

- Methods

- Main Findings

## Quality Assessment of Individual Studies

Quality assessments will be conducted for the empirical studies only and limited to those studies in which quality assessment checklists are available. The checklists to be used within this review have been used previously in a large systematic review (Greenhalgh et al., 2005). The quality assessments will be conducted by one reviewer (ML) and verified by a second reviewer (CD).

## Summary Measures

Given the disparate nature of the included studies it was not possible or appropriate to calculate summary outcome measures.

# References for the Systematic Review Protocol

Centre for Reviews and Dissemination. (2009). *Systematic reviews. CRD's guidance for undertaking reviews in health care*. York: CRD, University of York.

Davis, D., Evans, M., Jadad, A., Perrier, L., Rath, D., Ryan, D., . . . Zwarenstein, M. (2003). The case for knowldege translation: shortening the journey from evidence to effect. *BMJ, 327*, 33-35.

Eccles, M., Armstrong, D., Baker, R., Cleary, K., Davies, H., Davies, S., . . . Sibbald, B. (2009). An implementation research agenda. *Implementation Science, 4*, 18. doi: 10.1186/1748-5908-4-18

Ganz, D. A., Alkema, G. E., & Wu, S. (2008). It takes a village to prevent falls: Reconceptualizing fall prevention and management for older adults. *Injury Prevention, 14*, 266-271. doi: 10.1136/ip.2008.018549

Gillespie, L., D., Robertson, M. C., Gillespie, W., J., Lamb S, E., Gates, S., Cumming, R. G., & Rowe, B. H. (2009). Interventions for preventing falls in older people living in the community. *Cochrane Database of Systematic Reviews*.(2). Retrieved from http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD007146/frame.html doi:10.1002/14651858.CD007146.pub2

Goodman, R. M., McLeroy, K. R., Steckler, A. B., & Hoyle, R. H. (1993). Development of Level of Institutionalization Scales for Health Promotion Programs. *Health Education and Behavior, 20*, 161-178. doi: 10.1177/109019819302000208

Graham, I., Logan, J., Harrison, M., Straus, S., Tetroe, J., Caswell, W., & Robinson, N. (2006). Lost in knowledge translation: time for a map? *Journal of Continuing Education in the Health Professions, 26*, 13-24.

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2005). *Diffusion of innovations in health service organisations: A systematic literature review*. Massachusetts: Blackwell Publishing Ltd.

Gruen, R. L., Elliott, J. H., Nolan, M. L., Lawton, P. D., Parkhill, A., McLaren, C. J., & Lavis, J. N. (2008). Sustainability science: An integrated approach for health-programme planning. *The Lancet, 372*, 1579-1589.

Hanh, T. T., Hill, P. S., Kay, B. H., & Quy, T. M. (2009). Development of a framework for evaluating the sustainability of community-based Dengue control projects. *American Journal of Tropical Medicine and Hygiene, 80*, 312-318.

Hanson, H., Salmoni, A., & Volpe, R. (2009). Defining program sustainability: Differing views of stakeholders. *Canadian Journal of Public Health, 100*, 304-309.

Higgins, J. P. T., & Green, S. (2009). Cochrane handbook for systematic reviews of interventions. Retrieved from http://www.cochrane-handbook.org/

Johnson, K., Hays, C., Centre, H., & Daley, C. (2004). Building capacity and sustainable prevention models: Sustainability planning model. *Evaluation & Program Planning, 27*, 135-149.

Kastner, M., Wilczynski, N. L., Walker-Dilks, C., McKibbon, K. A., & Haynes, B. (2006). Age-specific search strategies for Medline. *Journal of Medical Internet Research, 8*, e25. doi:10.2196/jmir.8.4.e25

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Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J., . . . Moher, D. (2009). The PRISMA statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: Explanation and elaboration. *PLoS Medicine, 6*, e1000100. doi: 10.1371/journal.pmed.1000100

Lovarini, M., Wallen, M., & Imms, C. (2006). Searching for evidence in pediatric occupational therapy using free versus subscription databases: a comparison of outcomes. *Physical & Occupational Therapy in Pediatrics, 26*(3), 19-38.

McKibbon, K. A., Lokker, C., Wilczynski, N., Ciliska, D., Dobbins, M., Davis, D., . . . Straus, S. (2010). A cross-sectional study of the number and frequency of terms used to refer to knowledge translation in a body of health literature in 2006: A Tower of Babel? *Implementation Science, 5*, 16. doi:10.1186/1748-5908-5-16

Pluye, P., Potvin, L., & Denis, J. (2004). Making public health programs last: Conceptualising sustainability. *Evaluation & Program Planning, 27*, 121-133.

Rabin, B. A., Brownson, R. C., Haire-Joshu, D., Kreuter, M. W., & Weaver, N. L. (2008). A glossary for dissemination and implementation research in health. *Journal of Public Health Management and Practice, 14*, 117-123.

Savaya, R., Elsworth, G., & Rogers, P. (2009). Projected Sustainability of Innovative Social Programs. *Evaluation Review, 33*, 189-205. doi: 10.1177/0193841x08322860

Scheirer, M. A. (2005). Is Sustainability Possible? A Review and Commentary on Empirical Studies of Program Sustainability. *American Journal of Evaluation, 26*, 320-347. doi: 10.1177/1098214005278752

Shediac-Rizkallah, M., & Bone, L. (1998). Planning for the sustainability of community-based health programs: Conceptual frameworks and future directions for research, practice and policy. *Health Education Research, 13*, 87-108.

Straus, S. E., Graham, I. D., & Mazmanian, P. E. (2006). Knowledge translation: Resolving the confusion. *Journal of Continuing Education in the Health Professions, 26*, 3-4.

Straus, S. E., Tetroe, J., & Graham, I. (2009). Defining knowledge translation. *Canadian Medical Association Journal, 181*, 165-168.

# Appendix 2 Quality Criteria for Studies included in the Systematic Review

From Greenhalgh et al. (2005, pp. 237-239)

## Quality Checklist for Questionnaire Surveys

*Research Question and Design*
1. Was there a clear research question, and was this appropriate and sensible?
2. Was a questionnaire the most appropriate research design for this question?

*Sampling*
3. What was the sampling frame and was it sufficiently large and representative?
4. Did all participants in the sample understand what was required of them, and did they attribute the same meaning to the terms in the questionnaire?

*Instrument*
5. What claims for reliability and validity have been made, and are these justified?
6. Did the questions cover all relevant aspects of the problem in a non-threatening and non-directive way?
7. Were open-ended (qualitative) and closed-ended (quantitative) questions used appropriately?
8. Was a pilot version administered to participants representative of those in the sampling frame, and the instrument modified accordingly?

*Response*
9. What was the response rate and have the non-responders been accounted for?

*Coding and Analysis*
10. Was the analysis appropriate (e.g. statistical analysis for quantitative answers, qualitative analysis for open-ended questions) and were the correct techniques used?
11. Were adequate measures in place to maintain accuracy of the data?

*Presentation of Results*
12. Have all relevant results ('significant' and 'non-significant') been reported?
13. Is there any evidence of 'data dredging' (i.e. analyses that were not 'hypothesis driven')?

# Quality Checklist for Qualitative Studies

*Question*
1. Did the paper address a clear research question and if so, what was it?

*Design*
2. What was the study design and was this appropriate to the research question? In particular, was a qualitative approach suitable and was the right design used?

*Context*
3. What was the context of the study? Was this sufficiently well described that the findings can be related to other settings?

*Sampling*
4. Did the researchers include sufficient cases/settings/observations so that conceptual rather than statistical generalisations could be made?

*Data Collection*
5. Was the data collection process systematic, thorough and auditable? Were attempts made to identify and explore disconfirming examples?

*Data Analysis*
6. Were data analysed systematically and rigorously? Did the analysis take account of all observations? Were sufficient data presented? How were the disconfirming observations dealt with?

*Results*
7. What were the main results and in what way were they surprising, interesting, or suspect? Were there any unintended consequences and if so, what were they?

*Conclusions*
8. Did the authors draw a clear link between data and explanation (theory)? If not, what were the limitations of their theoretical analysis?

*Reflexivity*
9. Were the authors' positions and roles clearly explained and the resulting biases considered? Were the authors' preconceptions and ideology adequately set aside?

*Ethics*
10. Are there any ethical reservations about the study?

*Worth/relevance*
11. Was this piece of work worth doing at all, and has it contributed usefully to knowledge?

# Quality Checklist for Mixed Methods/Complex Designs

*Question*

1. Did the paper address a clear research question and if so, what was it? In particular, were complex terms such as 'hospital at home', 'private finance' defined clearly and unambiguously?

*Design*
2. What was the study design and was this appropriate to the research question?

*Funding*
3. Who funded the study and what was their perspective?

*Resource System*
4. In this study, from whom was the innovation said to come?

*Innovation*
5. What was the nature of the innovation?

*Context*
6. What was the context of the study? Was this sufficiently well described so that the findings could be related to other settings?

*User System*
7. Who was receiving the innovation (or to whom was it marketed)?

*Dissemination Mechanism*
8. What (if any) were the elements of the active dissemination process and how did they interact?

*Implementation Mechanism*
9. What (if any) were the elements of the active implementation process and how did they interact?

*Sampling*
10. Did the researchers include sufficient cases/settings/observations so that conceptual rather than statistical generalisations could be made?

*Data Collection*
11. Was the data collection process systematic, thorough and auditable?

*Data Analysis*
12. Were data analysed systematically and rigorously? Were sufficient data presented? How were the disconfirming observations dealt with?

*Results*
13. What were the main results and in what way are they surprising, interesting or suspect? Were there any unintended consequences and if so, what were they?

*Conclusions*
14. Did the authors draw a clear link between data and explanation (theory)? If not, what were the limitations of their theoretical analysis?

*Reflexivity*
15. Were the authors' positions and roles clearly explained and the resulting biases considered?

*Ethics*
16. Are there any ethical reservations about the study?

## Reference

Greenhalgh, T., Robert, G., Bate, P., Macfarlane, F., & Kyriakidou, O. (2005). *Diffusion of innovations in health service organisations: A systematic literature review*. Massachusetts: Blackwell Publishing Ltd.

# Appendix 3 Publications Excluded from the Systematic Review

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Anonymous. (2002). Resources for fall prevention and management of fear of falling. *Generations, 26*(4), 89-92. | Not sustainability |
| Baker, D. I., King, M. B., Fortinsky, R. H., Graff, L. G. t., Gottschalk, M., Acampora, D., . . . Tinetti, M. E. (2005). Dissemination of an evidence-based multicomponent fall risk-assessment and -management strategy throughout a geographic area. *Journal of the American Geriatrics Society, 53*, 675-680. | Mixed settings |
| Ballinger, C., & Clemson, L. (2006). Older People's Views about Community Falls Prevention: An Australian Perspective. *The British Journal of Occupational Therapy, 69*, 263-270. | Not sustainability |
| Banez, C., Tully, S., Amaral, L., Kwan, D., Kung, A., Mak, K., . . . Alibhai, S. M. H. (2008). Development, implementation, and evaluation of an interprofessional falls prevention program for older adults. *Journal of the American Geriatrics Society, 56*, 1549-1555. | Not sustainability |
| Bennett, S., & Ballinger, C. (2006). Considering older people's views is important in gaining and maintaining participation in falls prevention interventions: Commentary. *Australian Occupational Therapy Journal, 53*, 241-243. | Not sustainability |
| Biley, A. (2001). National Service Framework for Older People: management of falls. *British Journal of Nursing, 10*, 1351-1356. | Not sustainability |
| Brown, C., Gottschalk, M., Van, N. P., Fortinsky, R., & Tinetti, M. (2005). Changes in physical therapy providers' use of fall prevention strategies following a multicomponent behavioral change intervention. *Physical Therapy, 85*, 394-403. | Not sustainability |
| Campbell, A. J., & Robertson, M. C. (2006). Implementation of multifactorial interventions for fall and fracture prevention. *Age and Ageing, 35*(Suppl.2), ii60-ii64. | Not sustainability |
| Chou, W. C., Tinetti, M. E., King, M. B., Irwin, K., & Fortinsky, R. H. (2006). Perceptions of physicians on the barriers and facilitators to integrating fall risk evaluation and management into practice. *Journal of General Internal Medicine, 21*, 117-122. | Not sustainability |
| Christmas, C., & Andersen, R. A. (2000). Exercise and older patients: guidelines for the clinician. *Journal of the American Geriatrics Society, 48*, 318-324. | Not falls prevention |
| Claflin, S. (2005). Development of a home care falls prevention and intervention program. *Journal of Clinical Outcomes Management, 12*, 637-642. | Not sustainability |
| Close, J. (2005). Prevention of falls in older people. *Disability and rehabilitation, 27*, 1061-1071. | Not sustainability |
| Coleman, E. A., & Fox, P. D. (2002). Translating evidence-based geriatric care into practice: Lessons from managed care organizations part I: Introduction and physical inactivity. *Annals of Long-Term Care, 10*(9), 33-38. | Not falls prevention |

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Cox, J., & Newton, D. (2005). Clinical update. Developing an integrated falls service. *Primary Health Care, 15*(2), 25-28. | Not sustainability |
| Cumming, R. G. (2002). Intervention strategies and risk-factor modification for falls prevention. A review of recent intervention studies. *Clinics in Geriatric Medicine, 18*, 175-189. | Not sustainability |
| Cwikel, J., & Fried, A. V. (1992). The social epidemiology of falls among community-dwelling elderly: guidelines for prevention. *Disability & Rehabilitation, 14*, 113-121. | Not sustainability |
| Dierickx, K., Milisen, K., De Bondt, K., Smeulders, W., Teughels, S., Dejaeger, E., & Pelemans, W. (2002). Risk screening and assessment of risk factors for falls in community care: A multifactorial intervention programme. *Acta Hospitalia, 42*(4), 23-32. | Not sustainability |
| Dugan, E., & Bonds, D. (2002). Explaining the lack of communication about falls and the fear of falling. *Generations, 26*(4), 48-52. | Not sustainability |
| Eckmann, T. F. (2007). Journey toward personal training older adults. *Journal on Active Aging, 6*(4), 64-68. | Not falls prevention |
| Elley, C. R., Robertson, M. C., Garrett, S., Kerse, N. M., McKinlay, E., Lawton, B., . . . Campbell, A. J. (2008). Effectiveness of a falls-and-fracture nurse coordinator to reduce falls: a randomized, controlled trial of at-risk older adults. *Journal of the American Geriatrics Society, 56*, 1383-1389. | Not sustainability |
| Evron, L., Schultz-Larsen, K., & Egerod, I. (2008). Establishing a new falls clinic - conflicting attitudes and inter-sectoral competition affecting the outcome. *Scandinavian Journal of Caring Sciences, 23*, 473-481. | Not sustainability |
| Fern, A. K. (2009). Benefits of physical activity in older adults: programming modifications to enhance the exercise experience. *ACSM's Health & Fitness Journal, 13*(5), 12-16. | Not falls prevention |
| Ferreira, F. R., Cesar, C. C., Camargos, V. P., Lima-Costa, M. F., & Proietti, F. A. (2009). Aging and Urbanization: The Neighborhood Perception and Functional Performance of Elderly Persons in Belo Horizonte Metropolitan Area-Brazil. *Journal of Urban Health*, *87*(1), 54-66. | Not falls prevention |
| Ferrer, A., Badia, T., Formiga, F., Gil, A., Padros, G., Sarro, M., . . . Pujol, R. (2010). A randomized clinical trial of falls and malnutrition prevention in community-dwelling elders aged 85 years old. The OCTABAIX study. *Revista Espanola de Geriatria y Gerontologia, 45*, 79-85. | Not sustainability |
| Filiatrault, J., Parisien, M., Laforest, S., Genest, C., Gauvin, L., Fournier, M., . . . Robitaille, Y. (2007). Implementing a community-based falls-prevention program: from drawing board to reality. [Comparative Study. Multicenter Study. Randomized Controlled Trial. Research Support, Non-U.S. Gov't]. *Canadian journal on aging = La revue canadienne du vieillissement, 26*, 213-225. | Not sustainability |
| Findorff, M. J., Stock, H. H., Gross, C. R., & Wyman, J. F. (2007). Does the Transtheoretical Model (TTM) explain exercise behavior in a community-based sample of older women? *Journal of Aging & Health, 19*, 985-1003. | Not falls prevention |

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Findorff, M. J., Wyman, J. F., & Gross, C. R. (2009). Predictors of long-term exercise adherence in a community-based sample of older women. *Journal of Women's Health. 18*, 1769-1776. | Not falls prevention |
| Flicker, L., & Gray, L. (1997). Issues in geriatric medicine. *Australian Journal on Ageing, 16*, 106-109. | Not sustainability |
| Frank, J. S., & Patla, A. E. (2003). Balance and mobility challenges in older adults: implications for preserving community mobility. *American Journal of Preventive Medicine, 25*(Suppl 2), 157-163. | Not falls prevention |
| Frankel, J. E., Bean, J. F., & Frontera, W. R. (2006). Exercise in the elderly: research and clinical practice. *Clinics in Geriatric Medicine, 22*, 239-256 | Not falls prevention |
| Fujisawa, M., Ishine, M., Okumiya, K., Nishinaga, M., Doi, Y., Ozawa, T., & Matsubayashi, K. (2007). Effects of long-term exercise class on prevention of falls in community-dwelling elderly: Kahoku longitudinal aging study. *Geriatrics & gerontology international, 7*, 357-362. | Not sustainability |
| Fukukawa, Y., Kozakai, R., Niino, N., Nishita, Y., Ando, F., & Shimokata, H. (2008). Social support as a moderator in a fall prevention program for older adults. *Journal of Gerontological Nursing, 34*(5), 19-25. | Not sustainability |
| Gallagher, B., Corbett, E., Freeman, L., Riddoch-Kennedy, A., Miller, S., Smith, C., . . . Zarrow, A. (2001). A fall prevention program for the home environment. *Home Care Provider, 6*, 157-163. | Not sustainability |
| Gallagher, E., & Brunt, H. (1996). Head over heels: Impact of a health promotion program to reduce falls in the elderly. *Canadian Journal on Aging, 15*, 84-96. | Not sustainability |
| Gandel, C., & Klein, M. (2003). Going steady. *AARP The Magazine, 46*(4C), 68. | Magazine article |
| Gardner, M., Robertson, M., & Campbell, A. (2000). Exercise in preventing falls and fall- related injuries in older people: a review of randomised controlled trials. *British Journal of Sports Medicine, 34*, 7-17. | Not sustainability |
| Gates, S., Fisher, J. D., Cooke, M. W., Carter, Y. H., & Lamb, S. E. (2008). Multifactorial assessment and targeted intervention for preventing falls and injuries among older people in community and emergency care settings: Systematic review and meta-analysis. *BMJ, 336*, 130-133. | Not sustainability |
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| Gavin, T. S., & Myers, A. M. (2003). Characteristics, enrollment, attendance, and dropout patterns of older adults in beginner Tai-Chi and line-dancing programs. *Journal of aging and physical activity, 11*, 123-141. | Not falls prevention |
| Gentleman, B., & Malozemoff, W. (2001). Falls and feelings: Description of a psychosocial group nursing intervention. *Journal of Gerontological Nursing, 27*(10), 35-39. | Not sustainability |

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Gillespie, L., Gillespie, W., Robertson, M., Lamb, S., Cumming, R., & Rowe, B. (2003). Interventions for preventing falls in elderly people. *Cochrane Database of Systematic Reviews.* | Previous version of Gillespie (2009) |
| Gillespie, L. D., Gillespie, W. J., Cumming, R., Lamb, S. E., & Rowe, B. H. (2000). Interventions for preventing falls in the elderly. *Cochrane Database of Systematic Reviews.* | Previous version of Gillespie (2009) |
| Gillespie, L. D., Robertson, M. C., Gillespie, W. J., Lamb, S. E., Gates, S., Cumming, R. G., & Rowe, B. H. (2009). Interventions for preventing falls in older people living in the community. *Cochrane Database of Systematic Reviews* Issue 2. Art.No. CD007146. doi:10. 1002/14651858.CD007146.pub2 | Not sustainability |
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| Publication (n=112) | Reason for Exclusion |
|---|---|
| Huang, T., & Acton, G. J. (2004). Effectiveness of home visit falls prevention strategy for Taiwanese community-dwelling elders: randomized trial. *Public Health Nursing, 21*, 247-256. | Not sustainability |
| Huda, A., & Wise, L. C. (1998). Evolution of compliance within a fall prevention program. *Journal of Nursing Care Quality, 12*(3), 55-63. | Not community setting |
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| Publication (n=112) | Reason for Exclusion |
|---|---|
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| McClure, R., Hughes, K. Ren, C., Mckenzie, K., Dietrich, U., Vardon, P., Davis, E. & Newman, B. (2010). The population approach to falls injury prevention in older people: Findings of a two community trial. *BMC Public Health, 10*, 79. doi: 1186/1471-2458-10-79 | Not sustainability |
| McCrary-Quarles, A. (2007). *Promoting fall prevention among community-dwelling adults attending senior centers in southern Illinois* (Unpublished doctoral thesis). Southern Illinois University Carbondale, United States. | Dissertation |
| McInnes, E., & Askie, L. (2004). Evidence review on older people's views and experiences of falls prevention strategies. *Worldviews on Evidence-Based Nursing, 1*, 20-37. | Not sustainability |
| Milisen, K., Geeraerts, A., & Dejaeger, E. (2009). Use of a fall prevention practice guideline for community-dwelling older persons at risk for falling: a feasibility study. *Gerontology, 55*, 169-178. | Not sustainability |
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| Publication (n=112) | Reason for Exclusion |
|---|---|
| Moore, M., Williams, B., Ragsdale, S., Logerfo, J. P., Goss, J. R., Schreuder, A. B., & Phelan, E. A. (2010). Translating a multifactorial fall prevention intervention into practice: A controlled evaluation of a fall prevention clinic. *Journal of the American Geriatrics Society, 58*, 357-363. | Not sustainability |
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| Philadelphia Corporation for Aging (1995). *Clinical protocol series in community based long-term care*. Philadelphia: Philadelphia Corporation for Aging. | Government report |
| Public Health Agency of Canada (2005). *Report on seniors' falls in Canada*. Ottawa: Public Health Agency of Canada. | Government report |
| Pynoos, J., Rose, D., Rubenstein, L., Choi, I. H., & Sabata, D. (2006). Evidence-based interventions in fall prevention. *Home Health Care Services Quarterly, 25*, 55-73. | Not sustainability |

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Reinsch, S., MacRae, P., Lachenbruch, P., & Tobis, J. (1992). Attempts to prevent falls and injury: a prospective community study. *Gerontologist, 32*, 450-456. | Not sustainability |
| Resnick, B. (2000). A seven step approach to starting an exercise program for older adults. *Patient Education and Counseling, 39*, 243-252. | Not falls prevention |
| Robertson, M. C., Devlin, N., Scuffham, P., Gardner, M. M., Buchner, D. M., & Campbell, A. J. (2001). Economic evaluation of a community based exercise programme to prevent falls. *Journal of Epidemiology & Community Health, 55*, 600-606. | Not sustainability |
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| Sze, P., Cheung, W., Lam, P., Lo, H., Leung, K., & Chan, T. (2008). The efficacy of a multidisciplinary falls prevention clinic with an extended step-down community program. *Archives of physical medicine and rehabilitation, 89*, 1329-1334. | Not sustainability |
| Sze, P., Lam, P., Chan, J., & Leung, K. (2005). A primary falls prevention programme for older people in Hong Kong. *British Journal of Community Nursing, 10*, 166-171. | Not sustainability |
| Tinetti, M. E., Baker, D. I., King, M., Gottschalk, M., Murphy, T. E., Acampora, D., . . . Allore, H. G. (2008). Effect of dissemination of evidence in reducing injuries from falls. *New England Journal of Medicine, 359*, 252-261. | Not sustainability |
| van Beurden, E., Kempton, A., Sladden, T., & Garner, E. (1998). Designing an evaluation for a multiple-strategy community intervention: the North Coast Stay on Your Feet program. *Australian & New Zealand Journal of Public Health, 22*, 115-119. | Not sustainability |
| Voukelatos, A., Cumming, R. G., Lord, S. R., & Rissel, C. (2007). Randomized, controlled trial of tai chi for the prevention of falls: the Central Sydney Tai Chi Trial. *Journal of the American Geriatrics Society, 55*, 1185-1191. | Not sustainability |
| Wenger, N. S., Roth, C. P., Shekelle, P. G., Young, R. T., Solomon, D. H., Kamberg, C. J., . . . Reuben, D. B. (2009). A practice-based intervention to improve primary care for falls, urinary incontinence, and dementia. *Journal of the American Geriatrics Society, 57*, 547-555. | Not sustainability |

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Appendix 3

| Publication (n=112) | Reason for Exclusion |
|---|---|
| Whitehead, C., Wundke, R., & Crotty, M. (2006). Attitudes to falls and injury prevention: what are the barriers to implementing falls prevention strategies? *Clinical Rehabilitation, 20*, 536-542. | Not sustainability |
| Williams, L. (2007). Are your fall interventions enough? *Nursing Homes: Long Term Care Management, 56*(10), 70. | Magazine article |
| Yoshida, H., & Kim, H. (2006). [Frequency of falls and their prevention]. *Clinical Calcium, 16*, 1444-1450. | English translation not available |

# Appendix 4 Ethics Approval

Approval to conduct this study was obtained from the human research ethics committees of The University of Sydney and two health services participating in this study. To protect the anonymity of the two health services, I present here the ethics approval received from The University of Sydney only.

**The University of Sydney**

NSW 2006 Australia

**Human Research Ethics Committee**
www.usyd.edu.au/ethics/human
**Senior Ethics Officer:**
Gail Briody
Telephone: (02) 9351 4811
Facsimile: (02) 9351 6706
Email: gbriody@usyd.edu.au
Rooms L4.14 & L4.13 Main Quadrangle A14

Human Secretariat
Telephone: (02) 9036 9309
(02) 9036 9308
Facsimile: (02) 9036 9310
Email: bdeleon@usyd.edu.au

2 February 2007

Dr L Clemson
Discipline of Occupational Therapy
Faculty of Health Sciences
Cumberland Campus – C42
The University of Sydney

Dear Dr Clemson

Thank you for your correspondence dated **21 December 2006** addressing comments made to you by the Human Research Ethics Committee (HREC). After considering the additional information, the Executive Committee at its meeting on **1 February 2007** approved your protocol entitled *"Translating research into practice: Sustainability of a community-based falls prevention program in minority communities"*

Details of the approval are as follows:

| | |
|---|---|
| *Ref No.:* | 02-2007/9619 |
| *Approval Period:* | February 2007 to February 2008 |
| *Authorised Personnel:* | Dr L Clemson |
| | Professor M Mathews |
| | Dr C Dean |

The HREC is a fully constituted Ethics Committee in accordance with the *National Statement on Ethical Conduct in Research Involving Humans-June 1999* under *Section 2.6.*

The approval of this project is **conditional** upon your continuing compliance with the *National Statement on Ethical Conduct in Research Involving Humans.* We draw to your attention the requirement that a report on this research must be submitted every 12 months from the date of the approval or on completion of the project, whichever occurs first. Failure to submit reports will result in withdrawal of consent for the project to proceed.

### Special Condition of Approval

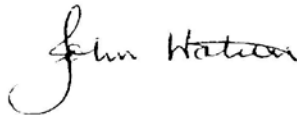Please provide translated copies of the Participant Information Statement, Consent Form and Questionnaires, either certified or with a statutory declaration indicating that they are true and accurate translations of the originals.

### Chief Investigator / Supervisor's responsibilities to ensure that:

(1)  All serious and unexpected adverse events are to be reported to the HREC as soon as possible.

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(2) All unforeseen events that might affect continued ethical acceptability of the project are to be reported to the HREC as soon as possible.

(3) The HREC must be notified of any changes to the protocol. All changes must be approved by the HREC before continuation of the research project. These include:-

- If there are any changes to investigators (e.g. Leaving the University)
- Any changes to the Participant Information Statement and/or Consent Form.

(4) All research participants are to be provided with a Participant Information Statement and Consent Form, unless otherwise agreed by the Committee. The Participant Information Statement and Consent Form are to be on University of Sydney letterhead and include the full title of the research project and telephone contacts for the researchers, unless otherwise agreed by the Committee and the following statement must appear on the bottom of the Participant Information Statement. *Any person with concerns or complaints about the conduct of a research study can contact the Senior Ethics Officer, University of Sydney, on (02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or gbriody@usyd.edu.au (Email).*

(5) The HREC approval is valid for four (4) years from the Approval Period stated in this letter. Investigators are requested to submit a progress report annually.

(6) A report and a copy of any published material should be provided at the completion of the Project.

Yours sincerely

**Associate Professor J D Watson**
**Chairman**
**Human Research Ethics Committee**

cc    Professor Mark Mathews, School of Behavioural and Community Health Sciences, Faculty of Health Sciences, Cumberland Campus – C42, The University of Sydney

Encl:
Participant Information Statement
Participant Consent form
Questionnaires: FES-I, FaB
Translators'/Interviewers' notes

# Appendix 5 Information Sheet and Consent Form

**The University of Sydney**

**Lindy Clemson, PhD**
**Sesquicentenary Senior Research Fellow**
School of Occupation & Leisure Sciences
Faculty of Health Sciences
College of Health Sciences

Cumberland Campus C42
PO Box 170 (East Street)
Lidcombe NSW 1825
Telephone: +61 2 9351 9372
Facsimile: +61 2 9351 9166
Mobile: 0438 630 208
L.Clemson@fhs.usyd.edu.au

*The University of Sydney and [Name of Organisation]*
*PARTICIPANT INFORMATION SHEET*

*Stepping On, Falls Prevention with Community Groups*

You are invited to take part in a research study evaluating the Stepping On falls prevention program.

## What is this project?
The project aims to adapt the Stepping On program to meet the different needs of a range of community groups and to evaluate the barriers and enablers of the adoption, implementation and sustainability of Stepping On within these organisations and community groups. The project will conduct a train-the-trainer program and provide support in implementation. The study is being conducted by Dr. Lindy Clemson, Research Fellow, at the University of Sydney.

## What do you need to do?
If you agree to participate in this study our researcher Meryl Lovarini will interview you before and post implementation of the Stepping On program. The interviews will take about one and a half hours. We will conduct two to three interviews with you over the course of the project. The interviews will be arranged at a mutually agreeable time for you. We will take notes within the interview and record the interview with an audio tape. This is so we can be sure we capture the meanings and words that you use.

## What are the benefits of participating?
By participating in this project you will:
- Be contributing to adaptation and translatability of a falls prevention program with culturally, socio-economically and geographically diverse communities.
- Provide important information about ways to enhance the adoption and sustainability of falls preventions programs like Stepping On

## Confidentiality
Your name will not be attached to any of the data we collect. All aspects of the study, including results, will be strictly confidential and only the investigator's

named above will have access to any information collected. When the information is analysed and written up for publication, no identifying information will be used. The results of this project will be published in medical journals and presented at conferences. The Department of Health and Ageing will also be provided with a summary report.

**Your rights**
Participation in this research project is voluntary. You are not obliged to participate and - if you do participate - you can withdraw at any time.

When you have read this information please ask any questions you may have.

**Contact for further information**
If you would like to know more at any stage, please feel free to contact Meryl Lovarini, Researcher, 02 9351 9680 or Dr Lindy Clemson, Research Fellow, 9351 9372. This information sheet is for you to keep.

---

Any person with concerns or complaints about the conduct of a research study can contact the Senior Ethics Officer, Ethics Administration, University of Sydney on (02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or ▮▮▮▮▮▮▮▮▮▮ (Email).

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_____

**The University of Sydney**

**Lindy Clemson, PhD**
**Sesquicentenary Senior Research Fellow**
School of Occupation & Leisure Sciences
Faculty of Health Sciences
College of Health Sciences

Cumberland Campus C42
PO Box 170 (East Street)
Lidcombe NSW 1825
Telephone: +61 2 9351 9372
Facsimile: +61 2 9351 9166
Mobile: 0438 630 208
L.Clemson@fhs.usyd.edu.au

*The University of Sydney and [Name of Organisation]*

*PARTICIPANT CONSENT FORM*

***Stepping On, Falls Prevention with Community Groups***

I, .........................................................................................................................................
[name]

have read and understood the information for participants on the above named research study and have discussed it with the researcher .

I freely choose to participate in this study and understand that I can withdraw without compromise at any time.

I also understand that the research study is strictly confidential.

I hereby agree to participate in this research study.

**Signature:** ..............................................................................................................

**Name:** ..................................................................................................................

**Date:** ...................................................................................................................

**Appendix 6 Field-note Format**

<table>
<tr><td colspan="2">Stepping On Community Project Field Notes

*Date of event*:
*Date notes recorded*:
*Notes recorded by*:
*Event*:
*People*:
*Location*:
*Time of event*:</td></tr>
<tr><td colspan="2">*Major research theme:* Barriers/enablers/factors affecting the adoption, implementation and long term sustainability of the Stepping On community falls prevention program.
*Focus on:* Event description, impressions, feelings, ideas, observations, circumstances

*Description:*</td></tr>
<tr><td>*Notes*</td><td>*Comments*</td></tr>
</table>

# Appendix 7 Summary of Research Findings for Participants

THE UNIVERSITY OF
**SYDNEY**

**Meryl Lovarini**
PhD Student
Discipline of Occupational Therapy
The University of Sydney

21 September 2010

[Name of Organisation]

Dear [Name]

*Re: Findings of PhD Research Study: Achieving Program Sustainability in Falls Prevention*

It is some time now since I last had contact with you. I hope you are going well. I have been busy writing up my research and hope to complete the PhD shortly. I'm writing to you to provide you with a summary of the main findings of the research study and to give you an opportunity to make any comments on these findings before they are finalised.

If you would like to make any comments then you can do so using any of the following options:

1.  Make comments directly onto this document and email it back to me at mlov0989@uni.sydney.edu.au

2.  Make comments in a separate email and email me at mlov0989@uni.sydney.edu.au

3.  Send your comments to me at the address below

4.  Fax your comments to me on 02 9351 9166

5.  Contact me by telephone on 02 9036 7415.

If you wish to make any comments, can you please submit them to me by the 31$^{st}$ October 2010. Finally, I would to thank you very much for participating in this research study. Your contribution has been very valuable. You may be aware or interested to know that NSW Health is currently funding the implementation of the Stepping On program throughout many Area Health Services in NSW.

Yours sincerely

Meryl Lovarini

Discipline of Occupational Therapy
Faculty of Health Sciences
Room J226, Building J
Cumberland Campus
The University of Sydney
East Street, Lidcombe
NSW 1825 Australia

T +61 2 9036 7415
F +61 2 9351 9166
E mlov0989@uni.sydney.edu.au

ABN 15 211 513 464
CRICOS 00026A

_____

**Meryl Lovarini** (PhD Student, Occupational Therapy)
**Associate Professor Lindy Clemson**
**Professor Mark Mathews**
**Dr Catherine Dean**

## PhD Research Study Summary Report, September 2010

*Achieving Program Sustainability in Falls Prevention*

Thank you for participating in our study about the sustainability of the Stepping On program. This study was conducted as there has been little research conducted on how falls prevention programs can be sustained in the community. Understanding the factors affecting program sustainability is important as this knowledge will assist organisations in determining what is necessary to continue their programs over time. Sustaining health-related programs will also ensure that the time, money and effort spent on programs are not wasted and that the health benefits of the program continue. The aim of this study was to find out the factors affecting sustainability of the Stepping On program and how this program can be sustained in the community. The findings of this research have been presented at scientific conferences and shared with NSW Health and the NSW Clinical Excellence Commission. The findings will be included in a PhD thesis and submitted for peer review in a scientific journal. This report summarises the main findings of the study.

*Participants*
- 34 people participated in the study and agreed to be interviewed. 42 interviews were conducted (25 initial and 17 follow-up) between 2007 and 2009.
- Participants included 17 Stepping On program leaders, 8 program leader and co-ordinators [combined role], 2 program co-ordinators, 3 program experts/supporters and 4 service managers.
- 15 organisations participated, 13 of which were either implementing or intending to implement the Stepping On program, with 2 providing support for implementing organisations.
- Of the 13 organisations implementing or intending to implement the program:
    - 10 were located in urban areas, 3 in semi-rural areas.
    - 5 provided services to Turkish (2), Arabic (1), Indian (1) and Polish (1) speaking older people.
    - 6 were from the welfare sector, 4 from community health and one each from local government, food services and aged day care.

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*Main Findings*

- In early 2007 (the beginning of the study), 13 organisations were either already implementing the Stepping On program (2) or intending to (11).
- By late 2009 (the end of the study), 12 organisations had implemented a total of 52 programs over the period 2005 to 2009.
- Of these 12 organisations, 5 expressed their intention to continue the program in 2010. Of these 5 organisations:
  - ➢ 3 were located in urban areas, 2 in semi-rural areas
  - ➢ 1 organisation provided services to Indian speaking older people, 4 provided services primarily English speaking older people.
  - ➢ 2 were from community heath with one each from the local government, welfare and food services sectors
  - ➢ 2 were not-for-profit organisations, 2 were non-government health services and 1 was a local Council.
- Organisations will sustain the Stepping On program providing certain conditions relevant to each organisation are met. For example, the program will be sustained by an organisation providing:
  1. The program is effective and meets the needs of their older clients.
  2. Funding is available to pay for staff to deliver the program.
  3. There is ongoing training in program delivery available for staff to attend.
  4. There are opportunities to liaise with other program leaders.
  5. Guest presenters such as physiotherapists are available.
  6. Expert advice and program updates are received.

  If these conditions can be met, then the organisation will have sufficient motivation and capacity to sustain the program. If the conditions cannot be met then the program may be postponed, cancelled, transferred to/delivered by an alternate organisation or cease entirely.
- Having sufficient motivation and capacity to sustain the program relies on 3 critical factors that are applicable across all organisations:
  1. The program must offer a variety of benefits and the benefits must continue for the program to continue.
  2. There must be motivated, proactive, enthusiastic, positive, persistent people involved who have a belief in the program and its benefits. The people delivering the program must be trained, supported and available.
  3. Organisations must receive support at the time that they need it and the support must match their specific needs. Developing and working in partnership with other organisations is a critical form of support necessary for program sustainability.

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- Having a more formalised network of people involved with the Stepping On program may facilitate program sustainability. A network could: provide support from program experts and other program leaders; make available program updates if the program or evidence related to the program changes; list program locations; link potential program partners; list potential sources of program funding and provide training and mentoring for program leaders.

In conclusion, organisations need motivation and capacity to sustain the Stepping On program. Program sustainability will be achieved providing the program demonstrates ongoing benefits and value, there are skilled and motivated people available to co-ordinate and lead the program and if appropriate support is received. A Stepping On program network is a potential mechanism for facilitating program sustainability within and across organisations in the community.

Thank you again for participating in the study. As stated in the attached letter, I am happy to receive any comments you may have about these findings. No identifying information has or will be attached to any information collected and analysed as part of this research project.

**Meryl Lovarini**
PhD Student (Occupational Therapy)
The University of Sydney

Tel: 02 9036 7415
Email: mlov0989@uni.sydney.edu.au

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**Appendix 8 Conference Presentations**

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2010). *Conditions necessary for achieving program sustainability in falls prevention: A grounded theory*. Paper presented at the 4th Australian and New Zealand Falls Prevention Society Conference, Dunedin, New Zealand.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2010). *Sustainability of community-based falls prevention interventions: A systematic review*. Poster presented at the 4th Australian and New Zealand Falls Prevention Society Conference, Dunedin, New Zealand.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2010). *Achieving program sustainability in falls prevention*. Paper presented at the International Federation on Ageing (IFA), 10th Global Conference, Melbourne, Australia.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2009). *Achieving program sustainability in falls prevention: A grounded theory*. Paper presented at The University of Sydney, Biennial Faculty of Health Sciences Postgraduate Research Student Conference, Sydney, Australia.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2010). *Sustaining the Stepping On program: Major influences and critical factors*. Paper presented at the Australian Association of Gerontology, NSW Division, Rural Conference, Ballina, New South Wales, Australia.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2008). *Prevention in the community: Partnerships for sustainability including crossing sectorial boundaries and organisational/network supports*. Paper presented at The University of Sydney Sustainability and Health Forum, Sydney, Australia.

Lovarini, M., Clemson, L., Mathews, M. & Dean. (2008). *Translating research into practice: Sustainability of a community-based falls prevention program in diverse cultural communities in Western Sydney*. Paper presented at The Diversity in Health Conference, Sydney, Australia.

# Appendix 9 Sources of Research Funding

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| Postgraduate Research Scholarship funded by the Australian Government Department of Health and Ageing (2007-2008) | $28,044 |
| The University of Sydney Postgraduate Award (UPA) (2008 – 2010) | $50,017 |
| The University of Sydney Postgraduate Research Support Scheme (2010) | $637 |
| The University of Sydney Faculty of Health Sciences Funding Scheme (2010) | $385 |