



**An individualised, facilitated and sustainable approach to implementing  
the evidence in preventing falls in residential aged care facilities**

## **Final Report**

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## Table of Contents

<b>CONSORTIUM MEMBERS</b> .....	<b>2</b>
<b>MAIN MESSAGES</b> .....	<b>2</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>3</b>
Aims and methods .....	3
Outcomes.....	3
Sustainability and implications .....	4
Recommendations .....	5
Conclusion .....	7
<b>1 INTRODUCTION</b> .....	<b>8</b>
1.1 Background.....	8
1.2 Literature Review.....	8
1.3 The nature of the change in practice .....	9
1.4 Context.....	10
<b>2 METHODS</b> .....	<b>10</b>
2.1 Project aims and objectives.....	10
2.2 Stakeholder engagement.....	10
2.3 Model for change / implementation .....	11
2.4 Governance.....	12
2.5 Evaluation methods.....	13
<b>3 RESULTS</b> .....	<b>15</b>
3.1 Process .....	15
3.2 New Resources Developed.....	18
3.3 Impact.....	18
3.4 Dissemination .....	36
3.5 Sustainability .....	37
<b>4 DISCUSSION AND CONCLUSIONS</b> .....	<b>39</b>
4.1 Conclusion .....	41
<b>5 RECOMMENDATIONS</b> .....	<b>41</b>
<b>REFERENCES</b> .....	<b>47</b>
<b>APPENDICES</b> .....	<b>49</b>
Appendix 1: Action Research at Facility 5.....	49
Appendix 2: Changes in practice identified in scoping audit survey .....	59

## Main messages

- Action research proved a suitable process for effectively engaging residential aged care staff in implementing best practice guidelines in falls prevention. It would also be useful for application to other clinical care areas.
- Practice improvements in relation to falls prevention were identified at all facilities and included improvements in training, use of hip protectors and high-low and low-low beds, use of bed and chair alarms, increased observation, increased use of Vitamin D and calcium supplementation, increased sunlight exposure, increased information for residents, increased access to allied health and medical support, improvements in falls risk assessments, improvements in foot care and appropriate footwear, increased identification of high falls risk residents, increased environmental auditing and monitoring of sensory aids.
- External support including funding for facility staff time, funding for environmental modifications and equipment and relevant expertise (in falls prevention, action research, evaluation, data analysis and evidence based practice) were important enablers for supporting project activities in each facility.
- Access to allied health was also found to be an important enabler, and increased access to allied health is required for ongoing falls prevention practice improvements.
- Despite evidence of improvements in practice falls per 1000 bed days increased slightly. Falls injuries per 1000 bed days, however, decreased slightly. The lack of effect on falls may reflect time lag between project interventions and reductions in falls, lack of effect of interventions or increased reporting brought about by increased awareness of falls and falls prevention.
- Staff turnover, lack of management support and limited time for non direct care provision impacted on capacity to implement project activities and anticipated sustainability of practice improvements. Success in project implementation required Falls Resource Nurses to spend at least some of their own time on completing project activities.

## **Executive summary**

### **Aims and methods**

The aim of the project was to effectively implement, in a sustainable manner, best practice guidelines in falls prevention in nine residential aged care facilities (RACFs) across three states. The facilities were selected as a convenience sample to represent a mix of facilities in terms of size (ranging from 30-139 beds), cultural background (one facility provided care to residents of a particular cultural background), location (three facilities were in regional areas and six were in metropolitan areas and were located across Victoria, Queensland and Tasmania) and level of care. Four facilities provided a mix of high and low level care with between 42% and 80% of beds allocated for high level care, two were high care (including one dementia specific unit and one that had a dementia specific unit on site), one facility provided dementia specific low level care and two provided psychogeriatric care.

In line with the research evidence, a multi-factorial, individualised (to the specific requirements of each facility) and all of facility approach was used to implement best practice guidelines in the participating facilities. The main method used was an action research approach. Action research is a process where staff are supported to undertake an investigation into their current practice, recognise problems, envisage possible solutions and take action with the intention of working towards addressing the problem. At each site teams of staff, including a falls champion, the 'Falls Resource Nurse' (FRN), worked with an external project officer to develop and implement falls prevention action plans. Project funding was provided to fund facility staff for one day per week. Staff training, the purchase of hip protectors and high-low or low-low beds, environmental modifications and individual falls risk assessments were other important components of the project method. To further assist with the uptake and sustainability of falls prevention activities and to ensure all levels of staff involved with the facility were part of the process, organisation based steering committees were established for each facility, including direct care staff, management, allied health staff, quality improvement staff, Health Service management, and family members of the residents.

### **Outcomes**

Findings from evaluation of action plans, scoping of existing practice, and interviews with FRNs and facility managers indicated that the action research process was successful for achieving the project aims of implementing best practice guidelines in falls prevention in RACFs. Improvements in practice in relation to falls prevention were identified at all facilities and included improvements in training, use of hip protectors and high-low and low-low beds, use of bed and chair alarms, increased observation, increased use of Vitamin D and calcium supplementation, increased sunlight exposure, increased information for residents, increased access to allied health and medical support, improvements in falls risk assessments, improvements in foot care and appropriate footwear, increased identification of high falls risk residents, increased environmental auditing and monitoring of sensory aids.

Staff surveys on safety culture, sustainability and professional practice also showed improvements in the staff perceptions of the culture of the facility in relation to falls prevention activities and safety. Falls rates, however were not reduced during the project timeframe, although there was a small reduction in the number of injurious falls per 1000 resident bed days. There are a number of possible explanations for the lack of impact on falls rates. First, previous research has suggested that falls prevention projects often initially lead to an increase in reporting falls incidents as people's awareness of falls and prevention strategies increases. Secondly, falls were only reported until June 2009, only shortly after many of the project activities were implemented. A longer follow-up of falls rates may have found a reduction in falls over time. Finally, the mix of interventions implemented may not

have been effective in reducing falls. There is limited research evidence regarding effective falls prevention interventions within residential care. A small number of studies have found that multifactorial interventions are effective but it is unclear as to which elements of a multifactorial intervention are most effective. There are also many gaps in evidence in relation to single interventions such as exercise and what is the most appropriate exercise for residents in aged care facilities.

## **Sustainability and implications**

The action research approach aimed to enable practice change that would be sustainable beyond project funding. Facility managers and FRNs indicated that many of the interventions put in place would be sustained and plans were also in place for repeating the interactive, experiential falls prevention expo at a number of the facilities. Environmental modifications and equipment would also be sustained beyond the project. However, there were also many obstacles to implementing practice change that are likely to impact on the longer-term sustainability of project activities. One of the major challenges was having staff with relevant skills who had the motivation and time to dedicate to project activities in addition to their existing workloads. Many of the FRNs spent at least a few hours a week extra unpaid time to implement project activities. While this shows incredible dedication to falls prevention, it also appeared to lead to some project fatigue with staff needing a break at the completion of the project. Despite having access to funding for backfilling staff this was not always a suitable option due to difficulties finding suitable staff. Some also reported that the amount of funding for backfill was not adequate to meet the demands of the project. Staff turnover was also a barrier, particularly if the FRN, facility manager or project officer changed during the project. Two facilities faced major obstacles as all three of these positions changed having a significant impact on the momentum of project activities.

The support of project activities by an external research body with expertise in the clinical area of concern and in undertaking action research was critical to the success of the project in implementing practice change. Facilities valued the support of project officers in progressing project activities. It is likely that many meetings of the Falls Action Research Groups (FARGs) would not have gone ahead without an external person coming to the facility at a specific time to discuss project implementation. This is not surprising given that few of the involved staff in the facilities had previously been engaged in activities where they took the lead in planning, implementing and evaluating interventions to facilitate evidence-based practice. The research team also played a key role in providing an alternative view or 'fresh eye' on current practice within facilities, and in providing guidance and advice in data collection and evaluation activities. The research team also facilitated staff access to comprehensive falls incident report data.

It became evident in the project that there was limited capacity to use allied health services and expertise within the participating RACFs. Feedback from Falls Resource Nurses (FRNs) and managers reported benefits of being able to engage allied health staff for project activities. These findings highlight the importance of greater links between RACFs, allied health staff and external experts in falls prevention research evidence, action research processes and data collection and evaluation.

Dissemination of project findings will include presentations at national conferences, including three of the 2010 Aged Care Standards and Accreditation Agency's Better Practice events, publication of peer reviewed journal articles and promotion in industry newsletters. Participating facilities will receive a facility specific report as well as a presentation of key findings at their respective sites. A website resource will be available for all RACFs to guide implementation of processes undertaken in this project.

## **Recommendations**

Findings from the project have led to the development of a series of recommendations under broad topics as reported below.

### **Falls incident reporting**

It is recommended that the Aged Care Accreditation Agency standards:

- Include a consistent definition of a fall and a process to ensure consistent uptake by facility staff.
- Focus on processes facilities are implementing to monitor and reduce falls risk. A focus on monitoring falls rates by auditors may lead to staff reluctance to report falls.

It is recommended that RACFs:

- Use a consistent definition of a fall, and include training on falls definition and reporting for all existing and new staff.
- Implement an electronic falls reporting system that all staff are empowered to use to report a fall thereby recognising all staff as part of the falls prevention team.
- Utilise an incident report form that contains categorical responses regarding falls circumstances and outcomes, including any injuries or medical assistance received, and also links to recommendations for addressing risk factors.
- Ensure staff are encouraged to report falls incidents consistent with agreed to definitions.

### **Falls incident evaluation and feedback to staff**

It is recommended that

- RACFs provide falls incident summary reports to all staff or a “falls prevention team” including falls per 1000 bed days, location of falls, time of day of falls and injury rates as routine agenda items on staff meetings or via staff noticeboards.
- Staff are provided an opportunity to reflect on and discuss these reports and to identify possible strategies for reducing falls risk. Involvement with recording of a fall will foster these recommendations.

### **Scoping of current falls prevention activities**

It is recommended that RACFs use a comprehensive scoping audit, such as that used in this project to review extent of existing falls prevention activities and potential areas to address for future action.

### **External support**

It is recommended that

- A learning culture be promoted within RACFs that links facility staff to external expertise in falls prevention research evidence, action research processes and data collection and evaluation. This could be facilitated by the Aged Care Standards and Accreditation Agency through revised standards.
- RACFs develop partnerships with other RACFs to share resources and innovative strategies for preventing falls. This would help to reduce professional isolation and promote reflection on practice.

### **Allied Health**

It is recommended that access to and funding for a broader range of allied health staff and additional hours of support is provided to RACFs.

### **Staff training**

It is recommended that:

- Training programs for residential aged care staff are interactive, experiential and fun and focus on key messages regarding contributing factors for falls from the person and their environment vital in falls prevention. We recommend the adoption of the expo approach used in this project.
- Facilities utilise the falls prevention expo guidelines website (see project website and resources below) to implement a similar program.
- Training is provided so that all staff (across disciplines and different shifts) have an opportunity to attend, promoting the message that 'falls are everyone's responsibility'.

### **Falls prevention evidence**

It is recommended that further high quality research into strategies that help to reduce the risk of falling in RACFs be undertaken. There should also be an emphasis on research in high-risk groups such as residents with dementia.

### **Action research**

It is recommended that facilities use action research as a process for developing evidence based practice in RACFs, not only for falls prevention but for other clinical care areas.

### **Job satisfaction**

It is recommended that research is undertaken to explore the impact of action research or roles such as FRN positions on job satisfaction within RACFs.

### **Teamwork**

It is recommended that RACFs planning to implement practice change engage a team of staff to implement change rather than have all responsibility on one staff member.

### **Staffing issues**

It is recommended that:

- The funding model for RACFs needs to be evaluated to allow capacity for staff to be dedicated for quality improvement activities such as falls prevention.
- Accreditation processes for supporting quality improvement in falls prevention and rewarding facilities for implementing these activities need to be reviewed.
- National strategies for improving job satisfaction, staff recruitment and retention in RACFs are required to provide the increasing level of care required for residents that is anticipated to continue.

### **Environmental modifications and equipment**

It is recommended that:

- RACFs use a comprehensive environmental audit to determine areas requiring modification and that issues and findings are discussed amongst staff and residents to determine the highest priorities.
- RACFs audit lighting within their facilities and try to address issues such as inconsistent lighting, poor lighting and glare.
- Equipment is trialled before purchasing.
- Additional capital funding is available to support facilities to improve the physical environment.
- RACFs implementing environmental modifications allow ample time for planning and making modifications.

### **Project website and resources**

It is recommended that:

- The Department of Health and Ageing approve the use of the project website being active as a link from the National Ageing Research Institute's website.
- RACFs use the website developed through this project to assist in implementing the above recommendations and implementing falls prevention interventions in their facilities.

### **Regular promotion of falls prevention messages to staff, residents and families**

It is recommended that opportunities such as the increasingly utilised "April Falls Day" (April 1<sup>st</sup>) each year be utilised as one of a number of opportunities for falls prevention activities and information dissemination throughout an entire RACF.

### **Conclusion**

Despite the lack of change in falls rates in the participating facilities, the use of action research was a beneficial process for engaging a broad mix of staff in RACFs, facilitating reflection on practice, developing a best practice approach to falls prevention and supporting 'buy in' and staff ownership of innovation. Facility staff anticipate changes to be sustainable beyond project funding, however the impact of staff turnover and lack of staff time dedicated to quality improvement initiatives are likely to create barriers to sustainability. Dedicated quality improvement funding and the support of allied health staff and external experts in falls prevention research evidence, action research processes and data collection and evaluation are required to ensure ongoing support for implementing best practice guidelines in residential aged care facilities.

# 1 Introduction

## 1.1 Background

The aim of the project was to effectively implement, in a sustainable manner, best practice guidelines in falls prevention in nine residential aged care facilities (RACFs) across three states. Despite best practice guidelines for falls prevention being readily available there have been challenges to implementing these in RACFs. In line with the research evidence, a multi-factorial, individualised (to the specific requirements of each facility) and all of facility approach was used to implement best practice guidelines in the participating facilities. The title of the project “Star Project: Working together to prevent falls” indicates what this project aimed to achieve. The Star represented the gold standard for evidence based falls prevention and the “working together to prevent falls” represented the notion that preventing falls is the responsibility of everyone, including management, staff, residents and their families and volunteers, and that they would all be involved in the project.

The project commenced in December 2007 and implementation in facilities ran from May 2008-June 2009. At the beginning of the project, each facility was involved in a scoping audit looking at current falls prevention activity and the environment of the facility. This audit allowed an individualised, yet evidence-based, approach to the project within each facility to try to reduce the impact of falls. In order to increase uptake of falls prevention activities and increase the likelihood of sustainability, an action research approach was used involving a small team of staff across a range of disciplines. The project aimed to provide opportunities for all staff to develop their knowledge in relation to falls risk and prevention, as well as to increase the capacity of a smaller number of staff to use action research as a quality improvement process that could be applied to other areas of clinical care. The purchase of equipment and environmental modifications aimed to improve clinical care, increase resident safety and improve systems for staff to work more effectively.

The project method also aimed to ensure that improvements in clinical care introduced through the project were sustained beyond the project timeframe. The use of action research was central to this approach, as it addressed local barriers to implementing practice change, involved staff on the ground and identified changes that were considered a high priority by staff. To further assist with the uptake and sustainability of falls prevention activities and to ensure all levels of staff involved with the facility were part of the process, organisation based steering committees were established for each facility, including direct care staff, management, allied health staff, quality improvement staff, Health Service management, and family members of the residents. A website resource incorporating guidelines, materials and strategies identified during the project will be developed to assist in supporting broader dissemination of the strategy in RACFs across Australia. This website resource and other project findings will be promoted through a dissemination strategy developed for the project to help promote sustainability of project outcomes.

## 1.2 Literature Review

Falls are common adverse events in RACFs. Reported figures indicate that at least 50% of residents fall in a 12 month period, and that this figure is substantially higher in some at risk populations such as people with dementia where the incidence is 70-80% [1]. Injuries from falls are also more common for RACF residents than for older people living in their own home, with a study by Kallin and colleagues (2002) reporting injuries associated with 54% of falls, and a third of injuries being fractures [2]. Another study identified that over half of the fractures sustained from falls by residents were hip fractures, which have an enormous associated personal and societal cost [3]. Although accurate cost data is not available for costs associated with falls in RACFs in Australia, some data from Europe estimates the

costs associated with falls in residential care to be 994EURO/fall (approximately \$AUD1,560) [4].

There are clear benefits of a multiple strategy approach to falls reduction for older people in residential care settings, both as an intervention and prevention strategy [5]. Randomised trials have shown that multifactorial interventions, either based on falls risk assessments, or a range of general interventions introduced for all residents can reduce falls in residential care settings [6-8]. Single interventions including medication review [9], vitamin D supplementation [10, 11], continence management combined with functional training [12], and staff education [13] have also been shown to reduce falls. Other interventions such as exercise have had mixed outcomes in residential care settings [14-16]. Approaches such as providing information for residents and carers, and strategies to improve observation or surveillance of at risk residents (e.g. bed and chair alarms) are recommended as part of best practice in residential care settings, although there are no randomised trials evaluating the effectiveness of these approaches [5].

Previous reviews have shown that the involvement of staff, the method of training provision, staff awareness of falls and staff implementation of evidence based strategies to prevent falls and falls related injuries are areas requiring further exploration [5, 17].

Despite the availability of best practice guidelines for implementing falls prevention and other interventions in residential aged care, there is moderate evidence that these interventions are not routinely or easily incorporated into routine practice. For example, in a study aiming to implement pain management guidelines and falls prevention guidelines in residential care settings, less than 45% of facilities participating in a training program regarding the guidelines actually implemented one or the other of the guidelines [18]. While there was some evidence of practice change in line with the guidelines in some of the facilities, a range of barriers to implementation were identified.

Action research is an approach that could be useful in engaging staff in falls prevention interventions and for achieving sustainable practice change. Action research is a process where staff are supported to undertake an investigation into their current practice, recognise problems, envisage possible solutions and take action with the intentions of working towards addressing the problem. Utilising this approach, groups of staff collaborate to take action to identify context specific issues, identify and implement an evidence based approach and in the process support and challenge each other to make progress on the problem [19]. Action research is a method of choice when a group of people have a desire to work collaboratively to develop new understandings of their situation to address practical problems through locally specific and contextually appropriate forms of action [20-22].

In addition to limitations implementing evidence based practice, few studies have investigated the financial implications of falls prevention strategies in the residential care setting [5].

### **1.3 The nature of the change in practice**

Best practice guidelines in falls prevention were used including two Australian guidelines developed by the Australian Safety and Quality Council; *Preventing falls and harm from falls in older people. Best Practice Guidelines for Australian Hospitals and Residential Aged Care Facilities* [23] and the Victorian Quality Council (VQC); *Minimising the risk of falls and falls injuries: Guidelines for acute, sub-acute and residential care settings* [24]. International best practice guidelines such as the Registered Nurses' Association of Ontario *Prevention of Falls and Fall Injuries in the Older Adult Guidelines (Canada)* [25] and the National Institute for Clinical Excellence *Clinical practice guidelines for the assessment and prevention of falls in older people (UK)* [26] were also used.

## 1.4 Context

The facilities were selected as a convenience sample to represent a mix of facilities in terms of size (ranging from 30-139 beds), cultural background (one facility provided care to residents of a particular cultural background), location (three facilities were in regional areas and six were in metropolitan areas and were located across Victoria, Queensland and Tasmania) and level of care. Four facilities provided a mix of high and low level care with between 42% and 80% of beds allocated for high level care, two were high care (including one dementia specific unit and one that had a dementia specific unit on site), one facility provided dementia specific low level care and two provided psychogeriatric care.

## 2 Methods

The project involved baseline scoping of existing falls rates and falls prevention activities in each RACF, an action research process, interactive falls prevention training, individual falls risk assessments, provision of equipment and modifications, organisation based steering committees, and an economic evaluation. In all RACFs a pre/post design was adopted with a range of standardised measures utilised to determine the impact of the interventions. The study involved fostering ownership by each facility of best practice falls prevention activities through involvement of staff in partnership with experts in falls prevention using best practice resources to guide the process.

### 2.1 Project aims and objectives

Specific project objectives were to:

1. Determine current level of falls prevention activity and falls data for each facility
2. Develop an individualised plan of activities for best practice falls prevention for each facility
3. Train Falls Resource Nurses in all facilities
4. Train all staff in each facility (including night shift)
5. Ensure a safe environment
6. Improve knowledge of falls prevention among residents and families
7. Improve general practitioner / pharmacist review processes of medications and management of falls risk
8. Implement action learning to identify additional site specific falls prevention activities
9. Review current practice in key areas including physical activity, vision, sunlight exposure and vitamin D supplementation
10. Evaluation of all components of the project
11. Reduction in falls and falls injuries in each facility and across all facilities
12. Dissemination of project method, resources and outcomes

### 2.2 Stakeholder engagement

RACFs were approached in three states across Australia, and all accepted the invitation to participate in the project. These facilities were selected purposively to represent a range of sizes, target groups, and geographic features, including high and low level care, dementia specific, rural/regional, metropolitan, ethnic specific or psychogeriatric. All except one facility were not for profit organisations and some were linked to health services. Across the nine participating facilities approximately 670 people resided and 650 staff were employed. All staff and residents were invited to take part in at least one component of the project.

Each facility was allocated funding to release a nurse staff member to the role of key contact and project support person known as the Falls Resource Nurse (FRN, 0.1 EFT) for the project. The secondment provided an opportunity for the staff member to undertake project activities without being distracted from their existing workload. It was anticipated that this process would contribute to ongoing sustainability through building capacity within the facility. An additional 0.1 EFT funding was provided to support other staff time to be involved in action research and falls prevention activities.

With the assistance and advice of the FRN in each of the facilities, residents and families were informed of the research. Methods of informing and engaging residents and families included attendance at family meetings, flyers distributed on family and resident notice boards and distribution of project information through facility mail outs.

## **2.3 Model for change / implementation**

The project incorporated four major activities for implementing change; action research, training, environmental modifications and equipment and individual falls risk assessments. Action research was the central process where most decisions and planning of other activities was undertaken.

### **2.3.1 Action Research**

Action research was used in the facilities as a key element to work towards achieving the project aims. In each RACF staff interested in falls prevention were invited to join a falls action research group (FARG). To recruit staff, meetings were held in each RACF to identify volunteers. Eligibility for FARG membership included any staff member working within the facility (for example, nurse, personal carer, lifestyle, allied health, kitchen, laundry, cleaning staff, management). Five-six staff members were recruited in each FARG. A project officer facilitated meetings that were audio taped and transcribed. The project officer conducted a first level analysis that was distributed to the respective FARG members prior to the next meeting to ensure the discussion had been recorded accurately and key points included.

The research team developed baseline reports for each site providing a detailed analysis of existing falls incidents, a comprehensive audit of the physical environment and the findings from a staff survey on safety culture. The report also provided FRNs and FARGs a comprehensive overview regarding the current falls prevention activities being undertaken within their facility, as well as gaps and areas where falls prevention activities may need to be introduced or modified. The FARGs were able to use this report in conjunction with their own discussions around falls prevention in their facility to identify the main gaps in evidence based practice and determine which actions they were going to put in place. From May 2008 FARG members met fortnightly - monthly for 12 months to identify key issues, facilitators and barriers to successful falls prevention within their RACF.

The FARGs developed action plans that were then implemented with support and advice from the project officer. Methods for evaluating these actions were established and monitored by the FARGs. Project officers assisted in writing up action plans incorporating evaluation measures.

The project officers facilitating the FARGs in each RACF also maintained a qualitative record of the group's activities or project diary that provided useful data for determining factors that enabled or prevented the success of the falls interventions. This was supplemented with thematic analysis of FARG transcripts using NVivo software.

### **2.3.2 Training and support**

Prior to commencing the project the FRNs were provided with a one day training program on falls prevention, action research, practice change and other aspects of the project, such as data collection processes. In addition to the training program, FRNs were provided with a resource pack which incorporated key information from international best practice guidelines such as the RNAO guidelines (Canada) [25] and the NICE guidelines (UK) [26] as well as the Victorian Quality Council (VQC) falls prevention guidelines [24] and the Australian Safety and Quality Council's guidelines [23]. FRNs and FARG members also had access to expert advice from the multidisciplinary research team including physiotherapists, nurses, social workers and a geriatrician. The FARG also had an initial training session with a nurse experienced in undertaking action research in these settings. Project officers also had

regular teleconferences with this nurse to discuss action research processes and discuss any problems arising.

Facility wide interactive falls prevention training was run at each facility. Development and implementation of the program was tailored to the specific needs of each facility and in some cases was part of the action plan developed in the FARGs. The training aimed to spread the message that falls prevention is everyone's responsibility.

### **2.3.3 Environmental modifications and equipment**

A general environmental audit was completed during the early phase of the project (April 2008) at all participating facilities by one member of the project team to ensure consistency in completion. The intention of the environmental audit was to identify environmental hazards throughout the facility that may require modification in order to make the facility a safer environment for residents. The audit assessed internal communal areas, resident bedrooms and external areas. The environmental audit tool was adapted from a tool developed to improve the environment for older people in health services (Black, Nankervis & Giummarra, 2006). Only one resident bedroom in each facility was audited. If the room was not a vacant one, resident consent for having their room audited was obtained (see process below for obtaining resident consent).

The project budget allowed a set allocation of funding for each facility to spend on environmental modifications, hip protectors for residents with high risk of repeated falls / injury and one or two high-low or low-low beds. The use of these funds was at the discretion of FARGs and managers in each facility, with approval from the external project manager. The environmental audit undertaken included a list of areas that could be improved in each facility. Facility staff used this list to determine which modifications they thought were most useful in preventing falls in their facility. The funds totalled \$17,000, notionally allocated to hip protectors (\$5,000), high-low or low-low beds (\$4,000) and environmental modifications (\$8,000).

A computer was purchased for all participating facilities to ensure that FRNs had adequate access to clinical information resources online and also email facilities to assist with communication between project staff.

### **2.3.4 Individual falls risk assessments**

Individual falls risk assessments were undertaken during the implementation phase of the project (between October 2008 and March 2009) using the Falls Risk for Older People – Residential Care (FROP-Resi). This tool was modified slightly from a previously validated falls risk assessment tool for the sub-acute hospital setting (Hill, Vrantsidis, Jessup et al., 2004). These risk assessments were conducted for each consenting resident (see process below for obtaining resident consent). The purpose of these risk assessments was threefold:

1. To identify individual falls risk of all consenting residents to inform individual strategies.
2. To identify systemic falls risk issues that can be addressed facility wide.
3. To provide information for an overall falls risk profile in each facility.

## **2.4 Governance**

Working with the nine RACFs were three research teams at the National Ageing Research Institute (NARI, lead agency), The University of Tasmania and the University of Queensland. A Chief Investigator oversaw the project and each state had a nominated state manager who oversaw activities within that state, reporting regularly to the overall Chief Investigator. Each state employed project officers to work with the state manager to be the liaison person with each of the facilities. Throughout the project monthly teleconferences were conducted with all project managers and project officers. Within each facility a nurse was allocated as a

Falls Resource Nurse (FRN) and liaised directly with the relevant project officer. A number of teleconferences were held to provide FRNs and the project manager an opportunity to discuss any project implementation issues and share ideas and experiences amongst FRNs.

Overseeing the project was an external steering committee where representatives of peak bodies and relevant interest groups were invited to meetings held six monthly during the project. Representation included: the Aged Care Standards and Accreditation Agency, the Aged Care Division of the Victorian Department of Human Services, the Australian Nursing Federation, and Aged and Community Services Australia, via Aged and Community Care Victoria.

Within each facility an organisation based steering committee was established. There were two instances where two facilities were part of one organisation and had a preference for a joint steering committee to be formed, resulting in a total of seven committees. The purpose of each committee was for the research team to consult with key players within the organisation throughout the duration of the project and to keep them informed of project progress and outcomes. Key responsibilities of the committee included: overseeing the project at an organisation level; monitoring research activities and providing feedback regarding research findings; being a resource to the research team and providing advice from an organisation specific perspective; and discussing strategies for maximising sustainability after project completion.

## **2.5 Evaluation methods**

The evaluation for the Star project consisted of a number of outcome measures, some were facility wide and others were specific to the FARGs. The measures aimed to assess the impact of the project on a variety of levels;

- Were there any changes in the falls prevention activities undertaken during the project?
- Where there any changes in the safety culture amongst staff during the course of the project?
- Did the Falls Resource Nurse training improve falls prevention knowledge?
- What were the process barriers and enablers and what activities were likely to be sustained after the project funding ceased?
- Did the FARGs perceive any changes in professional capacity and sustainability of the organisation in relation to project activities?
- Was there an overall reduction in falls or falls injury rates?
- Was the project economically viable?

The outcome measures and data collection strategies used are described below.

### **2.5.1 Falls and falls injury prevention activity audit (Falls Scoping Audit)**

The falls scoping audit was conducted on two instances at each participating facility, at baseline (April 2008) and at follow-up, after the implementation at activities, (July 2009). This tool was adapted from the "Falls and Fall-related Injury Risk Minimisation Audit" from the Victorian Quality Council Minimising the Risk of Falls and Fall-related Injuries Guidelines (Victorian Quality Council, 2004). The purpose of this tool was to scope the extent of falls and falls injury prevention activities at each facility and to compare changes in activities over the course of the project. It covered issues such as falls risk assessment, collection and use of falls prevention data, and key interventions including group exercise, individual exercise, walking aids, hip protectors, medication review, vitamin D and calcium supplementation, toileting assistance program, adequate condition and use of aids for sensory loss, feet in good condition and appropriate footwear, surveillance, high-low or low-low beds and referral to other health professionals. This scoping audit was completed by the FRN in conjunction with the relevant project officer.

### **2.5.2 Safety Culture Survey**

The safety culture survey was adapted from the safety culture survey for hospitals (Singer, 2007). It had two purposes within this project:

1. To assess safety culture and hazard reporting at baseline
2. To be a pre/post measure to assess change in safety culture and hazard reporting over the course of the project.

The survey was researcher administered to all staff working in each facility within a specified 24-hour period, including staff working on night, day and evening shifts. It was completed at two stages in the project, at baseline (May 2008) and follow-up (June 2009).

### **2.5.3 FRN falls prevention knowledge**

A pre/post test was used to determine whether the FRN training day had been effective in improving FRNs knowledge of falls prevention. A test of knowledge of falls risk factors and prevention initiatives was completed by FRNs at the beginning of the training session. One week after the training day, FRNs were emailed the test and asked to fill it in and return it without referring to any written materials and allowing approximately an hour to complete.

### **2.5.4 Interviews with facility Managers and FRNs**

Interviews with facility managers and FRNs (or any other person from the facility or Health Service who had a substantial involvement in the project) were undertaken by an experienced interviewer from the lead agency who had not been involved in the project to date. These interviews were conducted at the conclusion of the FRN secondment period and following ethics amendment approval (September - October 2009). These interviews were added as an additional outcome measure part way through the project as it was thought they would provide a qualitative description of the barriers and enablers to participating in the project, activities that are likely to be sustained and any key learnings from the project.

### **2.5.5 Action Research Group specific outcome measures**

Two surveys were completed by the FARGs to assess perceptions of changes in professional practice and sustainability of project activities.

The Revised Professional Practice Environment Scale (RPPE) was completed by members of the FARG on two occasions; at the first FARG meeting (May/June 2008) and at the final FARG meeting (April/May 2009). The RPPE scale is a questionnaire designed to gauge the attitudes and opinions of staff within their professional practice environment. It covers a broad range of themes including staff support, resources, access to information and staff knowledge. The RPPE scale was developed by Janette Ives Erickson, RN, Senior Vice President for Patient Care and Chief Nurse at the Massachusetts General Hospital. For the purposes of the Star Project, the RPPE scale was adapted for use within Australian residential aged care settings.

The NHS Sustainability Model questionnaire was developed by the NHS Institute for Innovation and Improvement in 2007 and was completed at two points during the project, at the start of the implementation phase after possible actions had been discussed (September/October 2008) and at the final FARG after the actions had been implemented and analysed (April/May 2009). This project measured the FARGs perception of how sustainable project activities were at different points during the project.

### **2.5.6 Falls and falls injury rates**

Falls and falls injury rates were collected from each participating facility to determine changes over the course of the project. This data included circumstances of the fall,

precipitating factors, consequences of the fall and management of the fall. The data was collected for five different time frames throughout the project:

- July – December 2007 (pre project commencement)
- January – June 2008
- July – December 2008
- January – June 2009

The falls rates were reported as falls/1000 resident bed days and frequency analyses were used to determine the most common locations, circumstances and consequences of falls.

### **2.5.7 Economic evaluation**

If the intervention proved effective in reducing falls a cost effectiveness analysis would be conducted from societal and health-service provider (residential aged care facility) perspectives. The costs of program implementation were tracked during project implementation and valued at market rates where available. If falls were averted, costs of falls and fall-related injury were calculated by comparing fall and fall-injury rates before and after intervention commencement with modelling of cost-per fall data captured from two of the participating sites.

### **2.5.8 Ethics approval**

This project was approved by local human research ethics committees for each site. All staff involved in the FARGs provided informed consent prior to participating. Completion of any surveys by staff was considered implied consent.

Managers and/or FRNs identified residents who were able to give informed consent and provided them with a Plain Language Statement and Consent Form to obtain consent for various components of the project that were outside usual care, such as audits to their rooms, additional falls risk assessment, or implementation of safety devices such as hip protectors. For those residents unable to provide informed consent due to cognitive impairment, facility staff provided relatives/contact persons with a Plain Language Statement and Consent Form to seek consent for participation on behalf of their family member residing in the participating facility.

## **3 Results**

The results are presented in five sections. The first, section 3.1, looks at the project processes and some of the barriers and enablers to implementing the project. Section 3.2 summarises the new resource developed from the project whilst section 3.3 looks at the impact of the project on the use of evidence, and on residents, staff and the facilities. The final two sections consider dissemination and sustainability.

### **3.1 Process**

#### **3.1.1 Ethics**

Ethics approval was required from four different Human Research Ethics Committees across three states prior to beginning implementation activities. This process took longer than anticipated. The delays in gaining ethics approval caused initial delays in the timelines.

#### **3.1.2 Project Staffing**

A major component of the success of the project was based around the appointment of a Falls Resource Nurse (FRN) within each participating facility. It was envisaged that the FRN would be a current staff member with an active role with residents. However there were some differing expectations/understandings of the needs for this position and the type of staff most suitable to fill this role. This problem was resolved by the development of a role

description for the FRN as well as discussions between the facilities and project staff. Interviews with facility managers found that having a good FRN was considered an enabler to effective project implementation. Furthermore, in one facility the FRN became the nurse unit manager of the facility during the course of the project and this was viewed as positive for assisting with project implementation.

As previously explained in section 2.2, the project provided facilities with funding equivalent to 0.2EFT to backfill time for staff involvement in the project. Despite this there were some difficulties in facility staff, including the FRN, having time available for project activities. Firstly, some interview respondents indicated that the amount provided was not considered adequate to address the limited capacity within residential care to undertake a project of this nature. Secondly, the interviews with FRNs and facility managers identified a range of barriers to providing backfill support. One respondent indicated that they were reluctant to use agency staff due to their lack of knowledge and familiarity of residents, however, it was not always possible to get staff to do extra shifts because of their personal commitments. Another indicated that backfilling was difficult when staff are on sick leave and others stated that the constraints weren't project funding but workforce issues limiting the availability of people with the right skills. This problem reinforced the issue of general staff shortages in aged care. One facility used backfill funding to bring evening staff in early to undertake project activities.

One manager indicated that the research team underestimated the time required to undertake the project due to the lack of capacity and there being no 'fat' in the system. Staff were being taken away from other activities which still needed to be done and not necessarily by backfill. FRNs reported spending between 2 – 12 hours per week on project activities. There appeared to be a clear relationship between the hours reported by FRNs and the amount of project activity undertaken at each site. Four FRNs reported not having any backfill staff for them to undertake project activities. This generally related to lower hours per week spent on project activities. Almost all FRNs reported doing some of the project work in their own time, but that provision of backfill was helpful. One FRN also had a management role and indicated that they were still needed for addressing problems even when backfill was provided. One reported; "we put a helluva lot of work into it".

Interviews with facility management and FRNs identified that changes in key project staff, especially changes in FRNs, had an impact on project implementation. In two facilities there were changes in the FRN, the project officer and the facility manager, which resulted in difficulties in maintaining momentum in project activities and miscommunication. One strategy that was used to assist with staff changes was the audiovisual recording of the FRN training day that was held at the commencement of the implementation phase of the project. The recording of the training day was put on to a CD Rom and included an overview of the project, the action research process and a summary of the research evidence relating to falls prevention. New project officers and FRNs were provided with a copy of the CD Rom along with the accompanying PowerPoint presentations. The CD Rom and PowerPoint presentations were also provided to all participating facilities for future reference. It is not clear how useful the CD Rom was for new staff, however, it is likely that more face to face discussions with new staff may have been beneficial. One interview respondent felt that if the project timeframe had been shorter the changes in staff may not have had such an impact.

Engaging a broad representation of staff into various project activities, particularly the action research process, was difficult. One facility was only able to engage Division 2 nursing staff in the project. One facility, in the interviews, described how staff initially felt too busy to take part, but that with the combined effort of management, the research team and other key drivers, this barrier was overcome.

Having project officers who worked part time, who weren't motivated to drive the project or who were geographically distant from the facility were reported as barriers by interview respondents. But overall, project officers were described as enablers with comments indicating they were very available, very supportive and encouraging, constantly on the email, attending research groups and interacting well with the staff.

### **3.1.3 Documentation**

To ensure that project officers and FRNs were aware of their roles and responsibilities in the project role descriptions for their positions were developed. Furthermore, a document detailing the outcome measures that were to be conducted throughout the project, the purpose of these measures, who was conducting and completing them and when was developed. This document assisted in ensuring that all people involved in the project were familiar with what was occurring.

### **3.1.4 Action Research**

The FRN/manager interviews found that the action research approach was generally considered a positive and useful approach to managing practice change within the facilities. Many of the FRNs indicated that the action research was a fun and interesting process. It was described as useful for involving more staff, improving communication, getting buy-in from staff to generate change and raising awareness. However getting all the action research group members together was described as difficult, particularly when they worked different shifts and also studied. One manager indicated that action research was more effective than if the message had come from a manager. Some felt initially reluctant about undertaking the action research and that they might "be in over our heads", but with encouragement from the project team were able to make progress.

### **3.1.5 Staff training**

The general staff training that was originally scheduled in the early stages of the project was delayed to work in with the timelines of the action research process so the action research group could have an active role in organising the training. It was felt that the training would be more effective if facilities had ownership of and involvement in planning the training. This delay in the staff training and incorporating it into the role of the FARGs proved to be beneficial for some facilities as it ensured that staff were fully engaged in the organisation of the training sessions, providing them with the skills and confidence to organise other training programs in the future.

### **3.1.6 Communication**

Good and frequent communication between everyone involved in the project was essential for project progress. There were regular teleconferences between the project team as well as occasional teleconferences throughout the implementation phase of the project between project management and the FRNs. The purpose of the teleconferences with the FRNs was to give them the opportunity to discuss any issues or problems they may have encountered with project implementation and to share experiences with other FRNs.

### **3.1.7 Management support and involvement**

An initial challenge in the project was ensuring facility and Health Service managers were kept involved in the project and provided support to their staff to be involved in the project. This was supported by the findings of the interviews with FRNs and facility managers. Some interview respondents cited inexperience, lack of management support, leadership, commitment and encouragement and lack of understanding of the process or goals as barriers to effective implementation. Organisation based steering committees were established to ensure facility and/or health service management were kept engaged and informed about project activities. In addition, the requirements of both the facility and the project team, in terms of confidentiality and management support and involvement were

detailed in a letter of agreement between the facility and the lead agency. Additional meetings between project management and facility management were held at some facilities to ensure facility management were kept informed about project activities and to discuss any issues that had arisen that were delaying the progress of the project. In the interviews, FRNs reported management support as an enabler to project implementation.

### **3.1.8 Facility culture**

Although not often cited as a barrier, there were a small number of comments made by interview respondents regarding staff resistance to change, such as amongst longer serving staff, and autocratic behaviour. The interviews with FRNs and facility managers found that having supportive staff and staff who were willing to change were enablers to effective project implementation. One facility described having done this before and having a culture used to having other people and processes in the organisation assisted in readiness to take the project on.

### **3.1.9 Accreditation**

Most managers and FRNs indicated that accreditation did not impact on implementing the Star project. Some reported that accreditors viewed their involvement in the project positively. One manager indicated it created some duplication of effort and resourcing. A few indicated that it may have been less stressful if the project was not conducted during accreditation. One respondent felt it had a huge impact and that the accreditation process was demanding and stressful.

### **3.1.10 Project timelines**

Some project activities took longer than originally expected to complete. Some interview respondents felt frustrated at the slow progress in project activities, such as waiting for approvals and follow-up data. These delays reduced enthusiasm and momentum.

## **3.2 New Resources Developed**

A website resource has been developed that provides a guide to implementing falls prevention interventions in a simple to use package with links to various resources such as:

- Information on how to use falls incident data and how to define a fall,
- Evidence based guidelines,
- The falls risk assessment tool used in this project
- The scoping audit tool modified for use during the project for facilities to monitor their practice against evidence based guidelines,
- A guide to action research,
- A guide to implementing an interactive falls prevention expo, and
- Links to relevant websites.

This resource will provide a guide for any facility hoping to implement a falls prevention program to help generalise the findings from the project to other sites. It is intended that the guide will be linked to the National Ageing Research Institute's website.

## **3.3 Impact**

### **3.3.1 Objectives**

Table 1 provides an overview of the project activities and a summary of the data collected to meet each objective, including where the findings can be found in the following sections of the report.

**Table 1: Project objectives**

<b>Project objectives</b>	<b>Data</b>
1 Determine current level of falls prevention activity and falls data for each facility	The falls scoping audit (see Section 3.3.2) and falls incident data (see Section 3.3.3.1) were collected to determine falls prevention activities and falls rates in each facility.
2 Develop an individualised plan of activities for best practice falls prevention for each facility	Each facility developed their own action plan based on findings from the baseline reports (See Section 2.3.1). See Appendix 1 for an example of a facility specific 'action research report'. The report provides an overview of the action research team, the frequency and attendance at meetings, key issues identified in the baseline report and the action plans implemented. It also contains an evaluation of the actions put in place. These reports were prepared by the project officers working with each facility and have been incorporated into a broader report on overall project outcomes presented to each facility.
3 Train Falls Resource Nurse in each facility	Falls Resource Nurses were provided with training on falls prevention, action research, practice change and other aspects of the project at the commencement of the project. A pre-post test to determine whether the FRN training day had been effective in improving knowledge of falls prevention was conducted (see Section 3.3.4.1). Falls Resource Nurses were also financially supported to attend the National Falls Prevention Conference (see Section 3.3.4.4).
4 Train all staff in each facility (including night shift)	All facilities undertook facility wide interactive falls prevention training for all staff (see Section 3.3.4.2)
5. Ensure a safe environment	Each facility was allocated funding for environmental modifications, hip protectors and high-low or low-low beds (see Section 3.3.5.4). A survey to assess safety culture and hazard reporting at baseline, and also to assess change in safety culture and hazard reporting over the course of the project was conducted (see Section 3.3.5.1).
6. Improve knowledge of falls prevention among residents and families	Eight of the nine facilities provided information to the residents and/or families throughout the project (see Section 3.3.3.2).
7. Improve general practitioner / pharmacist review processes of medications and management of falls risk	This information was obtained from the falls scoping audit (see Section 3.3.2). A summary of the findings from the scoping audit for each site are included in Appendix 2. There was not a huge impact from the project on medication review, although two sites indicated increased medical input.
8. Implement action learning to identify additional site specific falls prevention activities	An action research approach, involving the development of site specific action plans, was used in all facilities (see Section 3.3.4.3).
9. Review current practice in key areas including physical activity, vision, sunlight exposure and vitamin D supplementation	The falls scoping audit data was collected to review current practice in this area (see Section 3.3.2 and Appendix 2).
10. Evaluation of all components of the project	Evaluation of the Star project consisted of a number of outcome measures (see Section 2.5 and Section 3.3).
11. Reduction in falls and falls injuries in each facility and across all facilities	Falls incident data (see Section 3.3.3.1) was collected over the duration of the project. There was a small increase in the number of falls per 1000 bed days and a small decrease in the number of fall related injuries per 1000 bed days.
12. Dissemination of project	A website resource has been developed that provides a guide

Project objectives	Data
method, resources and outcomes	for facilities wanting to implement a falls prevention program (see Section 3.2).

### 3.3.2 Impact on the use of evidence

The scoping audit survey was used to determine changes in practice in relation to evidence based falls prevention interventions. Table 2 over page provides a broad summary of the areas where practice has improved during the course of the project. Training for staff has not been included in Table 2 but it was reported to have improved in all facilities. At baseline training was also an area that was consistently reported as a gap in evidence based falls prevention across the nine facilities. Table 2 has been drawn from more detailed information on changes at each site which is included as Appendix 2. This appendix provides a description of the nature and extent of the changes. For example, the proportion of residents at Facility 6 who used hip protectors increased from 16% to 60% and the compliance rate increased from 33% to 100% across the course of the project. Follow-up data on the scoping audit was not available from Facility 3 and therefore is missing from Table 2 and Appendix 2.

**Table 2: Changes in falls prevention activities over the course of the project**

	Changed Falls Risk Assessment Process	Exercise program	Vitamin D/Calcium supplementation	Increased sunlight exposure	Environmental audit	Increased hip protector use and/or compliance	Use of high-low or low-low beds	Use of bed/chair alarms	Observation	Alerts for high falls risk residents	Monitoring sensory aids	Feet/footwear interventions	Medication review/ medical management	Allied health hours	Information for residents and family
Facility 1	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓	✓		✓	✓
Facility 2	✓		✓	✓		✓	✓	✓	✓		✓			✓	✓
Facility 4	✓	✓			✓	✓	✓		✓	✓		✓		✓	✓
Facility 5		✓			✓	✓	✓	✓	✓	✓		✓		✓	✓
Facility 6		✓	✓	✓	✓	✓		✓	✓		✓				✓
Facility 7	✓					✓							✓	✓	✓
Facility 8		✓	✓	✓			✓	✓	✓	✓	✓	✓	✓	✓	✓
Facility 9		✓				✓			✓						

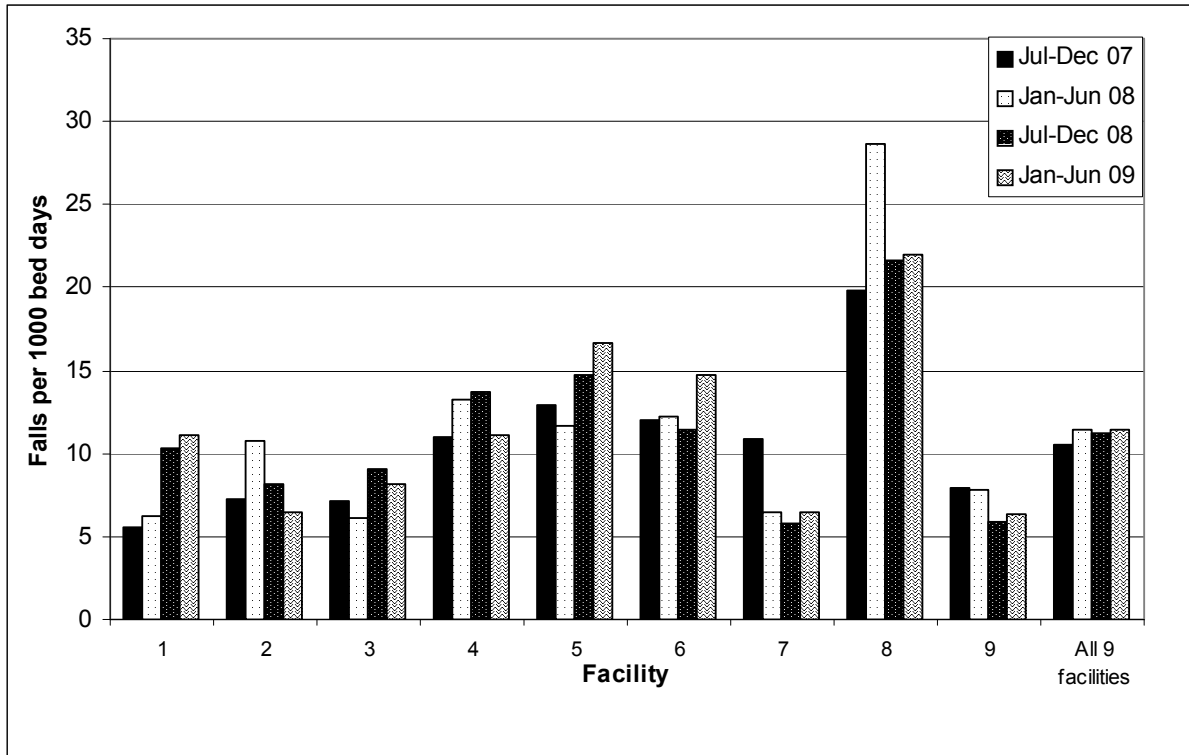
### **3.3.3 Impact on residents**

The impact on residents of project activities was assessed in a number of ways. Falls incident reports were assessed to determine whether there was any change in falls incidents. Evaluations were conducted by FARGs for various actions undertaken in the FARG process. The scoping audit undertaken at the start and end of the action research was used to measure any changes in practice that would benefit residents. Refer to section 3.3.1 for a review of the outcomes from the scoping audit. A common action chosen by FARGs included providing information to residents and family members either through the use of brochures or education/information sessions. These processes and outcomes for residents are described below.

#### **3.3.3.1 Falls incidents**

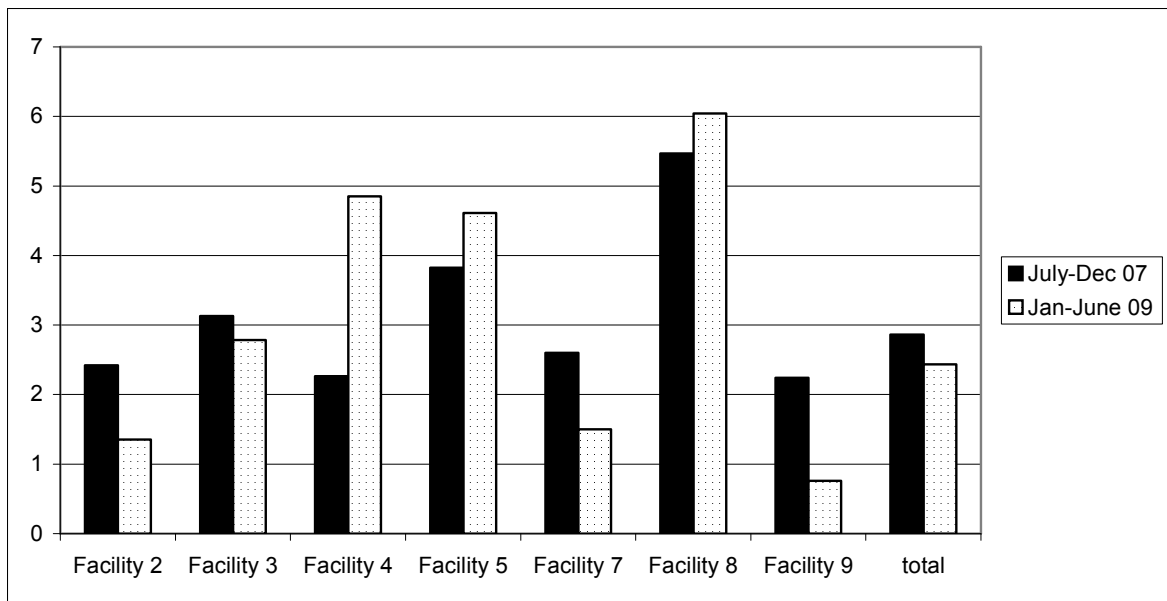
Figure 1 provides the overall falls incident rates for six month periods before the project commenced (Jul-Dec 2007) to the end of project activity (Jun 2009). Falls rates for facilities overall increased by 8.8% over the project with a rate of 10.49 falls per 1000 bed days prior to the project and 11.41 falls per 1000 bed days during the final six months of project activity. Considering changes in each of the participating facilities, there was no consistent pattern in falls rates either declining or increasing.

There are a number of possible explanations for the lack of impact on falls rates. First, previous research has suggested that falls prevention projects often initially lead to an increase in reporting falls incidents as people's awareness of falls and prevention strategies increases. Secondly, falls were only reported until June 2009, only shortly after many of the project activities were implemented. A longer follow-up of falls rates may have found a reduction in falls over time. Finally, the mix of interventions implemented may not have been effective in reducing falls. There is limited research evidence regarding effective falls prevention interventions within residential care. A small number of studies have found that multifactorial interventions are effective but it is unclear as to which elements of a multifactorial intervention are most effective. There are also many gaps in evidence in relation to single interventions such as exercise and what is the most appropriate exercise for residents in aged care facilities.



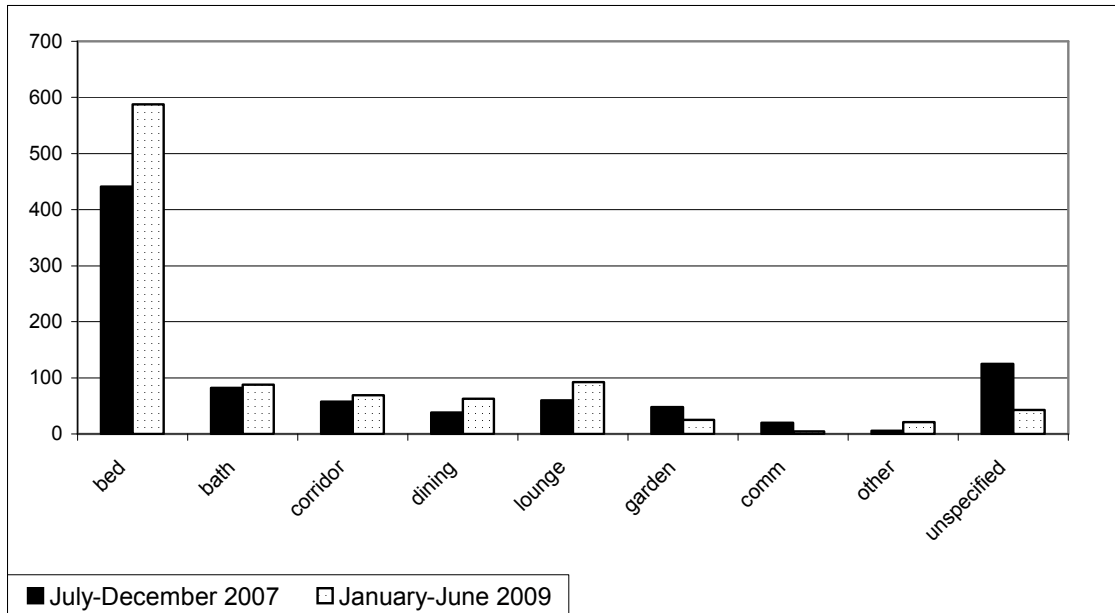
**Figure 1: Falls per 1000 bed days**

Injury rates are provided in Figure 2 below. Despite the falls rate increasing, there was a reduction in injuries over the course of the project dropping by 15% from 2.86 fall related injuries per 1000 bed days prior to the project to 2.44 during the last six months of the project. Facility 1 and 6 are excluded from the table as their data on falls injuries at baseline was not provided. At follow up data on injuries was incorporated into the falls incident data and more easily extracted, suggesting improvements in data collection processes over the course of the project.



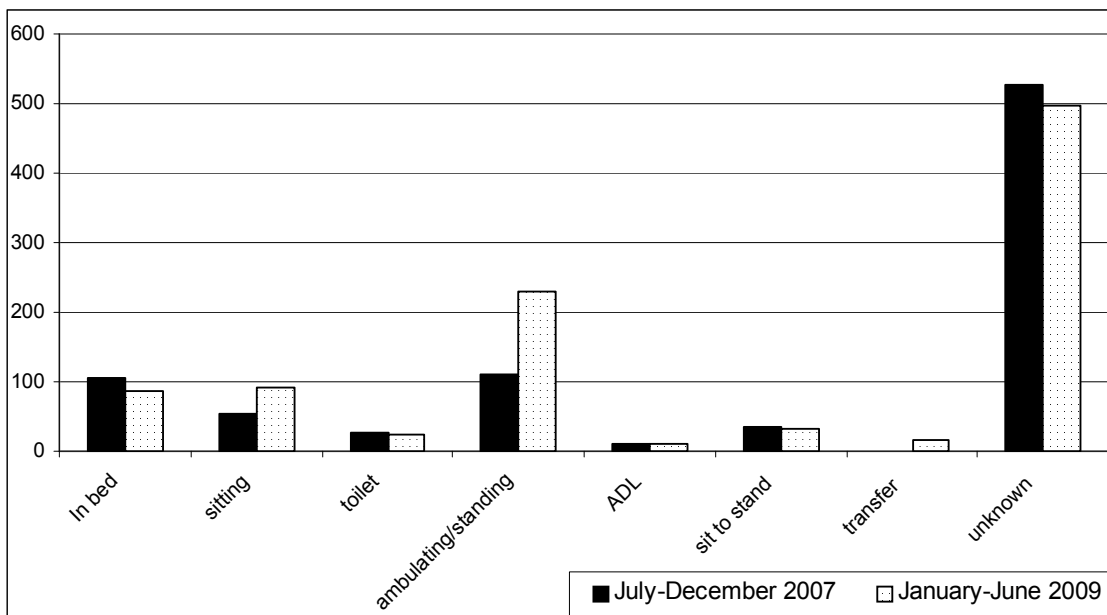
**Figure 2: Falls injuries per 1000 bed days**

Figure 3 reports the location of falls at the six months prior to project commencement and the last six months of project implementation. It is evident that the bedroom is the most common location for falls. Of note also is the drop in 'unspecified' locations of falls, suggesting that more detail is being recorded in incident reporting during project implementation than prior to the project commencing.



**Figure 3: Location of falls**

Figure 4 shows the activity at the time of fall for all falls in the six months prior to project implementation and in the final six months of project implementation. Here the large proportion of responses as 'unknown' reflects the high proportion of falls that are unwitnessed with staff unable to ascertain what the resident was doing at the time of the fall. There has been a slight drop in the number of falls reported as 'unknown' and a considerable increase in the number reported as occurring during standing or ambulating.



#### **Figure 4: Activity at time of fall**

##### **3.3.3.2 Information for residents**

A range of information sessions and expos were conducted for residents and family members as summarised in Table 3.

**Table 3: Information provided to residents and family members**

<b>Facility</b>	<b>Information source for residents and family members</b>
Facility 1	• Falls Awareness week: Information session, n=28
Facility 2	• Falls Awareness week: Information session, n=73
Facility 3	• Falls Awareness month: n=27+
Facility 4	• Information brochure on appropriate footwear • Brochure sent to family members suggesting 'falls preventing' gift ideas sent prior to Christmas
Facility 5	• Information brochure on appropriate footwear
Facility 6	• Falls expo information session: n= 62 • Falls prevention brochures and newsletters were sent to family members • Trade-displays during 2 month falls awareness campaign
Facility 7	• Falls prevention brochure
Facility 8	• Two family members attended the Falls prevention staff expo • Falls prevention brochure
Facility 9	-

The following evaluation illustrates the impact of one of these information sessions for residents and family members. As part of their action plan, one facility conducted a falls prevention expo and falls awareness month for residents, staff and family members. They engaged with other related organisations in co-sponsorship of the event such as Osteoporosis Australia to provide residents, staff and the general public with high quality activities. The falls expo day was well attended and received. Residents asked numerous questions regarding their concerns and discussed falls prevention strategies. An evaluation survey was completed by 27 residents (including some from the independent living units and day therapy who were also invited to attend). The findings are summarised below.

All 27 residents indicated the expo was helpful with comments including; 'excellent', 'enjoyed it extremely', 'very helpful', and 'lots of information'. Twenty five residents indicated they would be able to use the suggestions given. Respondents were asked to report what was most useful and one resident commented that they found the information interesting and really enjoyed the talks, brochures, displays and practical demonstrations. Other responses included:

- 10 respondents indicated it was all useful
- balance (4 respondents/15%)
- nutrition (4 respondents/15%)
- exercise (3 respondents/11%)
- footwear (3 respondents/11%)
- osteoporosis (3 respondents/11%)
- continence and OA (1 respondent/4%).

Eighty five percent of respondents indicated they felt more motivated to exercise and walk. Some comments included: 'I will try if someone can take me'. Residents were asked if they would like more information on particular topics and the following responses were given:

- arthritis (14 respondents/52%)
- balance: (13 respondents/48%)

- independence aids: (12 respondents/44%)
- exercise (11 respondents/41%)
- nutrition (11 respondents/41%)
- osteoporosis (4 respondents/15%)
- continence (3 respondents/11%)
- hip protectors (2 respondents/7%).

Eleven participants reported wanting more information sessions, eight indicated more displays or presentations and seven preferred brochures. Some other comments included: ‘Congratulations on all your work!’, ‘People who have a problem now can talk about it’, and ‘Fruit and lunch were excellent!’

### 3.3.4 Impact on staff

#### 3.3.4.1 FRN training

Eight FRNs completed the FRN training along with a pre and post test of knowledge of falls risk factors and prevention interventions. The pre test was conducted at the start of the training program. One week after the training program, FRNs were emailed the test and asked to fill it in and return it without referring to any written materials and allowing approximately an hour to complete. Prior to the training participants scored an average 8.75 out of 13 for the multiple-choice questions with a score range of 6-11. This improved to 10 out of 13 after the training program with score ranging from 7-13.

#### 3.3.4.2 Interactive falls prevention expos

Facilities were supported to undertake interactive training sessions. The training program was based on one originally developed as the SPLATT (Symptoms, Previous falls, Location of fall, Activity at time of fall, Time of fall and Trauma both physical and psychological) Attack Falls Prevention Expo in 2000, as part of a short term falls prevention project, in collaboration with Melbourne Extended Care and Rehabilitation Service (Melbourne Health). The session aimed to provide an interactive, multidisciplinary and enjoyable program for staff to learn key messages regarding falls prevention. The program involves a range of workstations, each run by a different discipline to impart key messages regarding their area of expertise. For example, stations might include:

- Medications and falls risk (geriatrician/pharmacist)
- Feet and Footwear (podiatrist)
- Transfers and mobility (physiotherapist)
- Environmental hazards (occupational therapy)
- Sensory issues and fear of falling (nurse)
- Nutrition and falls risk (dietician).

Resources for running a similar program have been developed and are linked to the website: *Prevention in Residential Care Working together to prevent falls in residential care: Resource package* (See Section 3.2 ‘New Resources Developed’).

Table 4 provides an overview of the various programs run in each facility/organisation, along with the number of staff who attended. In some facilities, given resource issues and the difficulty in having all staff attend one session on one day, an alternative approach to training was chosen where a number of interactive in-service sessions were conducted over a few weeks.

**Table 4: Staff training programs conducted at each facility**

Facility	Training Program
Facility 1	Falls Awareness week: Interactive training expo, n=30.
Facility 2	Falls Awareness week: Interactive training expo, n=60.

Facility	Training Program
Facility 3	Falls Awareness month: Well attended by staff. Facility engaged with other related organisations in co-sponsorship of the event such as Osteoporosis Australia to provide high quality activities.
Facility 4	Falls prevention expo (multidisciplinary: medical, podiatry, physiotherapy, occupational therapy, dietetics, continence, snoezelen therapy), n=79 including staff from another participating site and other external staff.
Facility 5	Falls prevention expo (multidisciplinary: medical, podiatry, physiotherapy, occupational therapy, dietetics, continence, snoezelen therapy), n=79 including staff from another participating site and other external staff.
Facility 6	<ul style="list-style-type: none"> <li>Falls prevention expo. Physiotherapist, manual handler, podiatrist, compact health systems, dietician, recreation officer, physiotherapy aide (exercise program), n=100 from the facility and 15 external staff.</li> <li>Facility 6 also held a DONs conference with more than 50 attendees.</li> </ul>
Facility 7	Series of in-service sessions on falls prevention: <ul style="list-style-type: none"> <li>1 hr session by physiotherapist, n=11</li> <li>1.5 hr session by geriatrician on medications, n=8</li> <li>30min Occupational therapy session on environment and sensory considerations, n=14</li> <li>30 min dietician session on nutrition and falls, n=12.</li> </ul>
Facility 8	<ul style="list-style-type: none"> <li>Falls expo (multidisciplinary: dietician, physio, occupational therapist, pharmacist, nursing staff, podiatrist), n=45 (including some staff from other sites).</li> <li>1 hr session with geriatrician on falls and medication, n=8.</li> </ul>
Facility 9	Series of in-service sessions on falls prevention: <ul style="list-style-type: none"> <li>1 hr session with physiotherapist on falls prevention, n=18</li> <li>1 hr session on sensory issues and falls run by the FARG, n=21</li> <li>1 hr session on falls and medication by a geriatrician, n=16.</li> </ul>

The following is an evaluation summary from the falls prevention expo conducted at Facility 8. At this expo 45 staff attended (excluding the presenters and the FARG) from mixed venues and disciplines including acute inpatient units, high and low care residential facilities, education and community teams. Seven workstations representing disciplines including falls and balance, physiotherapy, occupational therapy, dietetics, podiatry, nursing and pharmacy were presented.

Responses to the question 'how valuable did you find the falls preventions expo?' included:

- Very good/excellent (6 participants)
- Very good because I learnt so much
- Excellent – I didn't know a chair could be used to help get someone up
- Very hands on
- Great, lots of options
- Excellent- informative and interactive
- Excellent, each and every topic was displayed clearly
- Valuable –I really appreciate what residents have to put up with
- Good, very effective
- Quite valuable
- Hands on
- Good really related to my role as a Div 2
- Very interesting to see new products and thoughts
- Extremely valuable for my work in residential care
- Very valuable I learnt so much

All responses indicated that there were no ways in which the expo could be improved except for one staff member suggesting a bigger room may have been better. Responses to the

question 'is there anything you learnt that you would implement at your facility tomorrow?' included:

- Be very sure that all items are not in the resident's way.
- The concept of placing yourself in the resident's position shift by shift was great.
- Thank you for the information about the Steady this was great.
- Use of Fortisips for a supplement for thin fluids.
- Replace old chairs in our facility.
- Almost everything especially the sensory obstacles faced by resident.
- More attention to food and fluids intake at medication times.
- Yes I learnt a lot.
- I know how sensory deprivation feels.

#### **3.3.4.3 Action Research**

The aim of the action research method was to try to build capacity within facilities to reflect on practice and undertake quality improvement and evaluation initiatives, not only for undertaking falls prevention activities but also being able to transfer these skills for other areas of clinical practice.

According to interviews with FRNs and facility managers, the action research approach was generally considered a positive and useful approach to managing practice change within the facilities and ten respondents indicated it would be a useful approach for other clinical areas. Dementia, managing challenging behaviours, oral hygiene, pain management and continence were other areas that staff suggested they would like to use action research for. One facility had already started using action research to trial brightly coloured plates for improving nutrition. Many of the FRNs indicated that the FARG was a fun and interesting process.

Few FRNs indicated that they developed skills through the project, particularly those who already had management positions. However there were some comments that the project had been a useful experience in terms of public speaking, leadership, organisation skills and running a training program.

#### **3.3.4.4 National Falls Prevention Conference**

To assist in the development of falls prevention expertise amongst the FRNs, costs were covered by the project to enable them to attend the 3<sup>rd</sup> Australian and New Zealand Falls Prevention Conference in October 2008. Almost all of the FRNs were able to attend and found the experience a valuable one for supporting their roles as FRNs. Some of the benefits including networking, having time to sit and listen and take in the information, reinforced information, provided some new ideas and helped to see how widely researched falls prevention is. One reported that some of the speakers were difficult to understand.

### **3.3.5 Impact on the residential aged care facilities**

The impact on the residential aged care facilities of the project can be demonstrated in a number of ways. Findings from the safety culture survey, the sustainability model questionnaire and the Revised Professional Practice Environment Scale indicate organisational culture changes as reported by staff. Environmental modifications and purchase of equipment also had direct impact on the environment within the facilities. These are reported below.

#### **3.3.5.1 Safety culture survey findings**

At baseline 347 staff completed the safety culture survey, compared with 287 at follow-up around 13 months later. Of the 287 staff who completed the follow-up survey, 223 (78%) reported having worked at the facility over the project timeframe (previous 12 months).

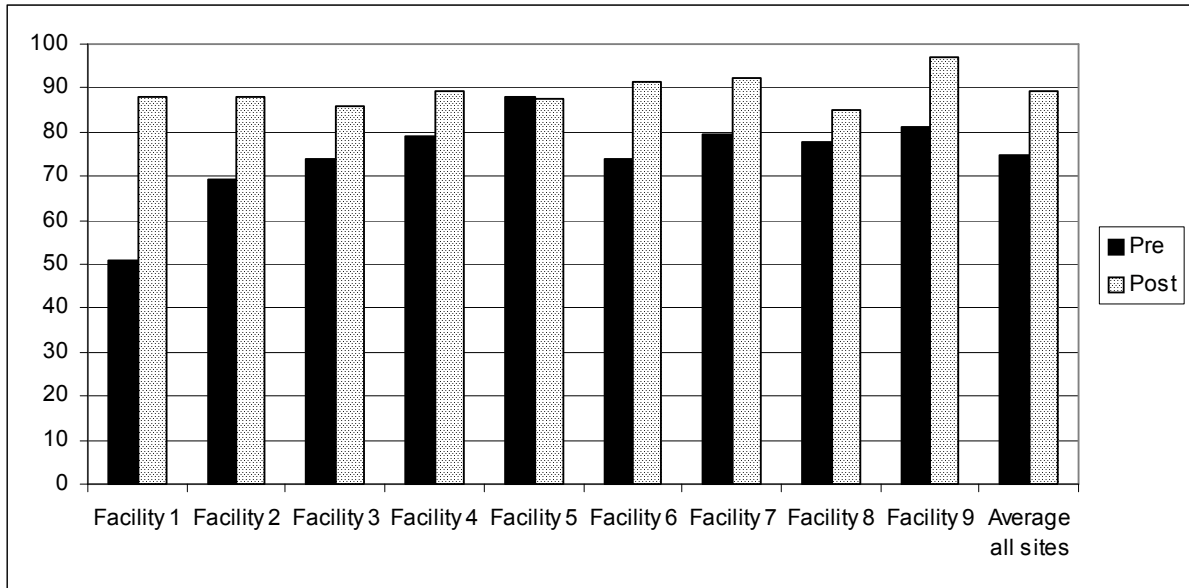
Baseline findings from the Safety Culture survey generally found a positive safety culture across the participating facilities. Of the 52 questions on the survey, staff responses on 38 items did not significantly change over the course of the project. The remaining fourteen items showed a statistically significant improvement in safety culture from baseline to follow-up. These items included:

- I have the support I need from other staff to care for residents.
- The residents' general practitioners work together with staff here as a well coordinated team.
- The managers and supervisors work together with staff here as a well coordinated team.
- Staff here use potentially unsafe shortcuts to get their work done.
- I will be blamed if I make an error.
- Staff in this unit are adequately trained to do their job.
- It is easy for staff to speak up about problems in this residential aged care facility.
- Staff feel comfortable questioning the actions of those with more authority when resident safety is at risk.
- Staff are rewarded for taking quick action to identify a serious mistake.
- My unit recognises safety achievements through rewards and incentives.
- In my unit there is sufficient encouragement from other staff I work with to promote safe care.
- When I have something to say about resident care or safety, I am listened to.
- PCAs / EENs / AINs are involved in resident care planning.
- This residential aged care facility does a good job keeping residents safe.

Data obtained from staff who had been working at the facility over the last 12 months of the project timeframe and were asked to respond to the safety culture compared to 12 months ago also showed improvements in the safety culture. For almost all items more staff indicated improvements in safety culture compared with staff reporting a decline. In particular, in response to the question; "Please tell us how much you think overall resident safety at this residential aged care facility has changed over the past 12 months", 71% of staff reported either better or much better and only 1.7% reported worse or much worse.

### **3.3.5.2 Sustainability Model**

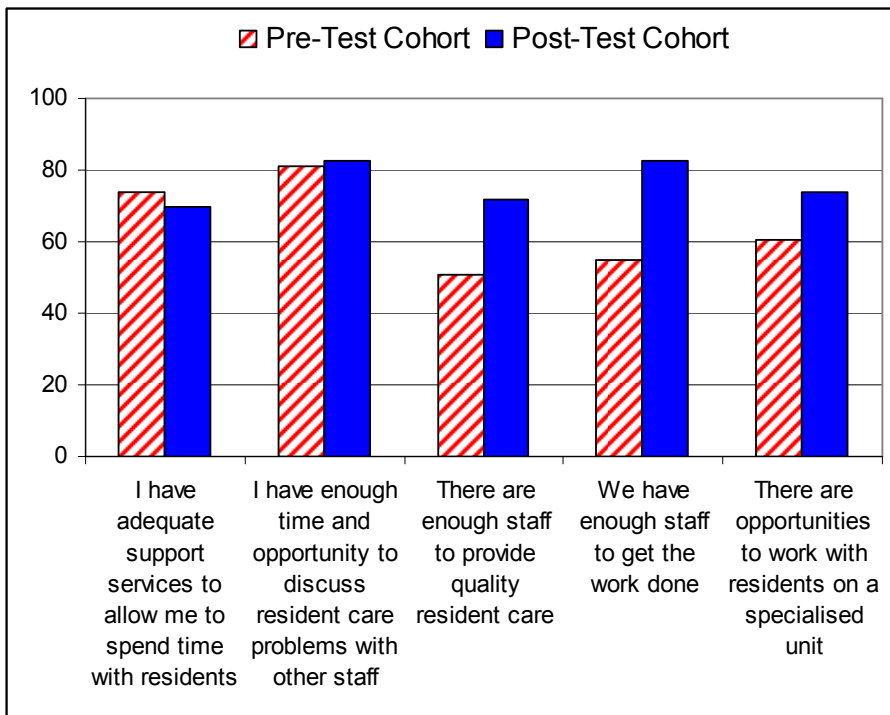
At the beginning of the FARG meetings and in the final FARG meeting, FARG members completed the NHS Sustainability Model questionnaire. Overall scores on the survey are included in Figure 5 and indicate a statistically significant improvement over time in staff's perceptions of factors that would help sustain project activities (t-test,  $p < 0.01$ ). In particular, two items showed substantial capacity building during the course of the project. These included; 'staff involvement and training to sustain the process' and 'clinical leadership engagement'. Improvements were also common for 'credibility of the evidence' and 'senior leadership engagement'. Areas where there was an overall small reduction in capacity included 'benefits beyond helping residents', 'effectiveness of the system to monitor progress' and 'infrastructure for sustainability'.



**Figure 5: Sustainability model total scores for sites and average across all sites**

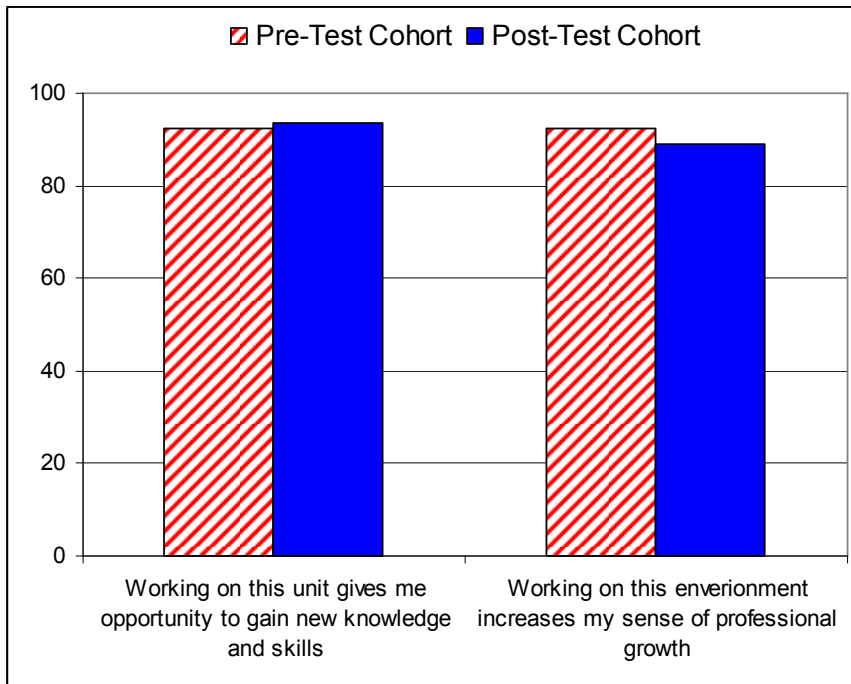
### 3.3.5.3 Revised Professional Practice Environment

The four response categories on the RPPE survey were recoded for the purposes of the analysis: 'strongly disagree' and 'strongly agree' were recoded with 'disagree' and 'agree' respectively. The figures provided illustrate the percentage of staff members who agree with the questions presented from the questionnaire.



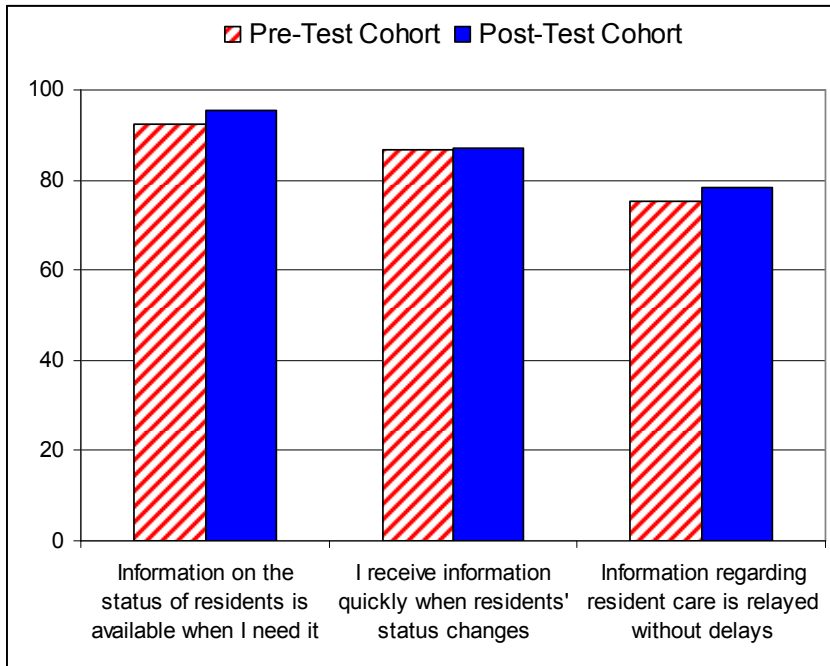
**Figure 6: Staffing and Resources**

Figure 6 highlights the level of access and availability of staffing and resources across the nine facilities within the Star Project. The most significant improvements over the course of the project was the 27.8% increase in the proportion of action research group members who agreed that there was enough staff to get the work done. Similarly, there was a 20.8% increase in the proportion of staff who agreed that there was enough staff to provide quality resident care. There was also an increase of 13.5% in the proportion of staff who agreed there were opportunities to work with residents on specialised units.



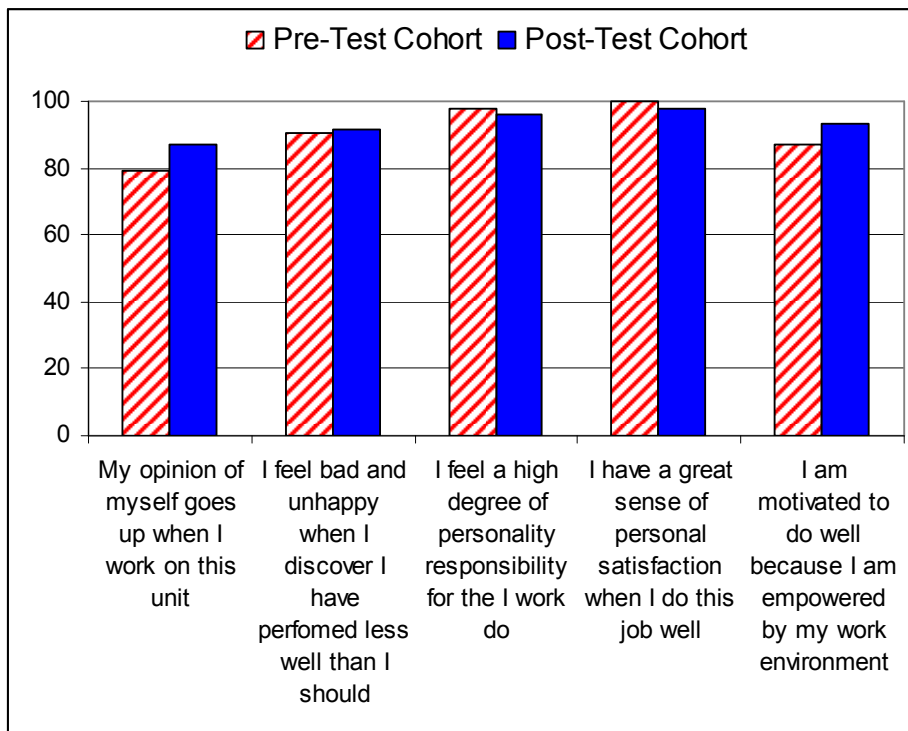
**Figure 7: Knowledge and Skills**

Figure 7 represents the knowledge and skills gained from working on the Star Project and the impact of the project on professional growth. Over the course of the project, there was little change in these two key questions. There was a 3.4% decrease in the proportion of FARG staff across all nine facilities who agreed that working in this environment increases their sense of professional growth.



**Figure 8: Access to Information**

Figure 8 highlights the access to information across the nine facilities within the Star Project. Over the course of the project there were only small improvements on these items.



**Figure 9: Professional Awareness**

Figure 9 illustrates the questions relating to professional awareness of FARG members across all nine facilities. The largest change was an increase of 7.7% in the proportion of staff who agreed with the statement 'my opinion of myself goes up when I work on this unit'.

### 3.3.5.4 Environmental modifications

Table 5 provides a breakdown of the equipment purchased and environmental modifications made with funding provided for the Star project.

**Table 5: Summary of equipment purchased and modifications made**

Facility	Hip protectors	Beds	Environmental modifications
Facility 1	A large percentage of residents have purchased their own hip protectors so the funding was not required for purchasing more. Some residents refuse to use them due to not being comfortable or just refusing to wear them. Information gained through the Star project has helped increase the proportion of residents using hip protectors.	1 lo lo bed	<ul style="list-style-type: none"> <li>• 7 bed/chair sensor alarms,</li> <li>• DECT phones to improve internal communication throughout the facility for staff to request assistance if required.</li> <li>• Additional grab rails installed.</li> <li>• Gym equipment was purchased to assist with exercise programs including:               <ul style="list-style-type: none"> <li>○ fitballs</li> <li>○ 0.5kg dumbbells</li> <li>○ support cushions and</li> <li>○ walking rails.</li> </ul> </li> </ul>
Facility 2	28 pairs	1 electric high-low bed	<ul style="list-style-type: none"> <li>• 2 chair alarms</li> <li>• 2 bed alarms</li> <li>• 4 pendant bells</li> <li>• A handrail</li> <li>• 3 outside park benches</li> <li>• 4 height adjustable chairs</li> <li>• Gymnasium equipment</li> </ul>
Facility 3	15 hip protector starter packs and 63 pairs of hip protector pants	3 beds: Leg Raise Bed and 2 Ultra Nursing Beds including safety sides, self help poles and duo soft mattresses	Luminous Stair nosing was installed on a set of stairs to improve contrast visibility and extended handrails on stairs.
Facility 4	56 pairs	3 electric low beds	Prior to the Star project, residents main access point to the outdoor area was through

Facility	Hip protectors	Beds	Environmental modifications
			<p>the laundry that was narrow, cluttered and had a short step which could pose a tripping hazard. It was recommended that access be changed to the dining area with some reconfiguration of furniture in the dining room and the addition of a ramp from the dining room door to outside. The clearer visibility to outside from the dining room would also encourage residents to go outside. Funding was used to install ramps at both the laundry and dining room door exits and the exit from the dining room was made accessible. Convex mirrors were also installed at the ends of hallways where staff had reported not being able to see residents as they came around corners. This aimed to improve visibility for staff and residents.</p>
Facility 5	62 pairs	1 lo lo bed	<ul style="list-style-type: none"> <li>• 5 bed sensors with wall mounts</li> <li>• The internal mat wells in communal areas were replaced to reduce trip hazards from the edges that tended to rise up. The new flooring was vinyl to match the remaining floor covering.</li> </ul>
Facility 6	Facility 6 did not take up the option of hip protectors as for a number of years they have encouraged families to purchase these when a resident has been identified as a medium to high risk of falls, with the result that all residents where appropriate have hip protectors in place.	All residents have high-low beds and so funds were used for modifications	<ul style="list-style-type: none"> <li>• 5 bed sensors were installed to identify when medium to high risk residents with dementia were out of bed to ensure immediate nurse assistance.</li> <li>• Construction of an outdoor activity shed with awning. This included a concrete slab to both floor of shed and awning and a second roller door for safety. The falls team in consultation with relevant staff felt that an activities shed that could be used by the residents for such things as carpentry, gardening needs, tool storage, painting etc could be used to provide residents with a purposeful outdoor activity to relieve boredom and improve function to reduce falls risk.</li> </ul>
Facility 7	22 pairs	All residents have high-low or low-low beds and so funds were used for modifications	<ul style="list-style-type: none"> <li>• 20 height adjustable chairs</li> <li>• 7 toilet door signs</li> <li>• Considerable modifications were made to the outdoor area to improve safety through resurfacing all pathways to be clear of trip hazards and adequately wide.</li> </ul>
Facility 8	11 pairs	Wide care/ bariatric bed	<ul style="list-style-type: none"> <li>• 24 height adjustable chairs.</li> <li>• A tree stump in the garden was</li> </ul>

Facility	Hip protectors	Beds	Environmental modifications
			<p>removed due to the tripping hazard it posed to residents.</p> <ul style="list-style-type: none"> <li>• Signage was modified using project funding. New signs were developed for all resident and communal areas including communal toilets.</li> </ul>
Facility 9	12 pairs	All residents have high-low beds and so funds were used for modifications	The main area that was addressed was the access to communal toilets for residents through changing the doors to automatic doors. During the audit it was identified that the two toilet doors near the dining room opened inwards, meaning that if a resident fell against the door whilst in the toilet, staff would not be able to get inside the toilet to assist them. The doors were also spring loaded and very difficult for residents to manoeuvre, particularly if they used a walking aid. Many residents required assistance to open the door. The two doors were replaced by automatically opening doors that open as residents approach. One is a sliding door and the other opens inwards but has removable hinges in case a resident requires assistance.

During interviews, managers and FRNs positively reflected on the provision of funding for environmental modifications and equipment through the project. Some reported huge benefits for residents from the changes made. For example signage, height adjustable chairs, sensors and hip protectors were reported to be very useful.

There were, however, many delays and challenges to implementing the modifications including workload of maintenance staff, difficulties getting tradespeople, particularly for small tasks, getting purchasing orders through the health system, equipment taking a long time to arrive and differences in opinion within facilities about what the money should be used for. In some instances there appeared to be conflict between the FARG and the manager about what should be prioritised. Two managers queried the applicability of some aspects of the tool, one in particular had concerns given their building met all Building Codes and certification. However, the tool goes beyond the basic requirements of building codes to try and develop an environment that promotes safety and independence of residents as far as possible. One manager found it useful to trial equipment before purchasing. One respondent indicated that one of their residents used to wander aimlessly a lot. Since they had built the outdoor shed his falls had reduced by 70%. He is now busy, has a purpose and his posture is more upright. This suggests that not only was this environmental modification useful for preventing falls, it was also important for improving residents' quality of life.

In Facility 9, there was an unanticipated outcome from the installation of electronic toilet doors. Whilst the doors have improved residents' access to the toilet and their independence, residents for reasons unknown do not tend to lock these doors and therefore their privacy can be impeded on. Overall, however, the doors have been considered a positive modification to the benefit of residents.

### 3.3.6 Economic evaluation

Data was collected throughout the project to monitor the costs of project implementation to determine economic viability of the project. If the cost of falls reduced was greater than the

cost of the project implementation then it would have proved economically viable. Given that the project was not able to identify a reduction in falls, it was not possible to complete the economic evaluation.

Given that many of the interventions were only being implemented late in the final falls incident collection period, it may be that reductions become evident in subsequent monitoring periods. The trend for a small reduction in falls injuries was positive in terms of financial impact given that costs associated with falls are mostly associated with injuries. If future data indicates a reduction in falls rates, the project may become economically viable over time.

### **3.4 Dissemination**

Strategies to promote awareness of project activities included:

- Project newsletters were distributed to all participating facilities on five occasions during the project to keep staff, residents and family members informed of project progress and activities. A final newsletter will be disseminated in December 2009 with final results from the evaluation included.
- Project activities were presented at resident and family meetings as well as staff meetings at participating facilities.
- Each participating facility established an organisation based steering committee where managers, quality improvement staff, family or resident representatives and other key stakeholders were invited to attend and were kept informed of project progress and activities.
- A poster was presented at the 2008 Australian and New Zealand Falls Prevention conference.
- An article was published in the May 2009 edition of The Standard, the monthly newsletter published by the Aged Care Standards and Accreditation Agency.
- A forum was held in Hobart for the Australian Association of Gerontology (AAG) members in February 2009 to present baseline findings and project activities.

Dissemination of project findings undertaken or planned:

- Four abstracts have been accepted for the 2009 AAG national conference to be held in November. The four oral presentations will form a symposium titled 'Implementing evidence based falls prevention interventions in residential aged care using action research.' The four presentations include:
  - Can the safety culture of residential aged care facilities be impacted upon by an action-research strategy to implement best practice guidelines for prevention of falls?;
  - Physical environments in residential aged care;
  - Developing an evidence based approach to falls prevention: Addressing professional isolation in aged care; and
  - Facilitating best practice falls prevention through an action research approach.
- An abstract has been submitted to present findings at the 19th Annual Tri State Conference and Trade Exhibition organised by Aged & Community Care Victoria (ACCV) in partnership with Aged and Community Services Association of NSW & ACT and Aged and Community Services SA & NT in Mt Gambier in 2010.
- Findings will be presented at the Adelaide, Perth and Sydney Aged Care Standards and Accreditation Agency's 2010 Better Practice events.
- Three papers are in the final editing stage before being submitted to peer reviewed journals. One paper presents the protocol for the Star project, one presents the environmental audit findings and the third examines outcomes from the falls risk assessments. Further papers will be developed to present overall outcomes from the project and if relevant a best practice model for implementing falls prevention programs in residential aged care.
- The Star project will be presented at a Victorian AAG evening forum in December 2009.

- Presentations will be made at each of the participating facilities, or to a broader audience in the facility's health service, based on recommendations by the organisation based steering committee.
- Opportunities for publishing findings in industry journals will be explored.

### 3.5 Sustainability

The project method aimed to promote sustainability in project activities. Purchase of equipment and environmental modifications were likely to be sustained beyond the project. Action research aimed to implement practice change that would be sustained beyond the project funding. To explore expectations regarding sustainability of project activities, FRNs and managers were asked about what they considered would be sustained and factors that would influence sustainability in the future. Findings are reported by facility in Table 6 below.

**Table 6: FRN and manager reports of sustainable project activities**

Facility	Sustainable	Factors influencing sustainability
Facility 1	<ul style="list-style-type: none"> <li>• Staff training now includes falls management; heightened consciousness around falls prevention; thinking more broadly e.g. shoes, lighting.</li> <li>• PCAs encouraged to make suggestions re residents' rooms.</li> <li>• Staff are more aware and assessment is more extensive; staff more willing to make suggestions and referrals. This includes catering staff.</li> <li>• Falls prevention now in staff orientation, not before.</li> <li>• Repeat Expo: will be able to present Expo without extra funding, at least for this year.</li> <li>• Already had a Falls Committee but now new items discussed, more detail to identify patterns.</li> <li>• Implemented Risk Assessment Tool flyers for pre-admission – an ongoing process.</li> </ul>	<ul style="list-style-type: none"> <li>• Empowerment and recognition by the organisation that staff participation and contributions are valued.</li> </ul>
Facility 2	<ul style="list-style-type: none"> <li>• Hip protectors and ongoing purchase.</li> <li>• Incident reporting.</li> <li>• Falls assessment early in admission.</li> <li>• Working on keeping the project team together.</li> <li>• Regular review of falls statistics by RN and team.</li> <li>• Staff training will be repeated: SPLATT had 70 plus staff, went off so well. Having another SPLATT in 2 weeks, aiming to do it annually.</li> <li>• Equipment purchased.</li> <li>• Falls prevention flyer.</li> <li>• All new trainees will do falls prevention training.</li> </ul>	<ul style="list-style-type: none"> <li>• Change is tentatively/tenuously in practice, but change-over of staff will be the test (particularly FRN).</li> <li>• Processes are in place, other people could sustain it, but there are doubts as to whether the motivation will be strong enough.</li> <li>• Will require a positive approach; management support; access to appropriate trainers; capacity/ time.</li> </ul>
Facility 3	<ul style="list-style-type: none"> <li>• Hip protectors.</li> <li>• Beds.</li> <li>• Footwear.</li> </ul>	<ul style="list-style-type: none"> <li>• Key leaders. Training would be necessary for new leaders if they left.</li> </ul>

Facility	Sustainable	Factors influencing sustainability
	<ul style="list-style-type: none"> <li>• Environmental changes: edges on steps, extended handrails, lighting edges on stairs – will all stay.</li> <li>• Staff training is ongoing – physio has always had it in place.</li> <li>• Reducing clutter.</li> <li>• Probably will do another training expo, had done one before the project.</li> <li>• Falls risk chart behind residents' doors will be continued, need to evaluate.</li> </ul>	
Facility 4	<ul style="list-style-type: none"> <li>• Hope to keep recognising the need for hip protectors.</li> <li>• Ramps and convex mirrors.</li> <li>• Greater falls prevention awareness.</li> <li>• Another Expo being planned.</li> <li>• Footwear brochures going out next month.</li> </ul>	<ul style="list-style-type: none"> <li>• Staff awareness and belief that it makes a difference; keeping same staff (if dedicated!)</li> </ul>
Facility 5	<ul style="list-style-type: none"> <li>• Strength exercises and walking program now part of the therapy calendar, 3 times a week.</li> <li>• Consulted relatives re podiatry, put out a flyer on appropriate shoes. Don't know if they're reading it, but the copies keep "flying out the door".</li> </ul>	<ul style="list-style-type: none"> <li>• Will be very interested in the final report to determine future practice.</li> <li>• Strength exercises and walking program dependent on staffing. If therapy staff went, or even one of the two left, would have difficulty in doing the exercise program.</li> </ul>
Facility 6	<ul style="list-style-type: none"> <li>• The shed involving more residents.</li> <li>• Work practices i.e. continence measures linked to falls prevention.</li> <li>• Staff training a given, but will be extended a bit further in relation to risk identifiers/falls prevention.</li> <li>• Another Expo, even every second year.</li> <li>• Purchase more sensor mats if funding there.</li> <li>• Will remain part of the district Falls Committee</li> <li>• Falls prevention is now a mandatory part of orientation.</li> <li>• Already had a good rate of hip protectors.</li> </ul>	<ul style="list-style-type: none"> <li>• Lower incidence in falls, or any other benefits, will motivate staff.</li> <li>• Benchmarking with the 9 facilities in the district and opportunity to share lessons.</li> <li>• Funding and education will influence sustainability in long term.</li> </ul>
Facility 7	<ul style="list-style-type: none"> <li>• Assessment tools still in use.</li> <li>• Hip protectors were a very good innovation. No fractures in 10 months.</li> <li>• Would like to keep with FRN group, nice to keep monthly/bimonthly meetings just for this group.</li> </ul>	<ul style="list-style-type: none"> <li>• Leadership, commitment.</li> <li>• Evidence that changes can be effective.</li> <li>• Nurses' knowledge.</li> <li>• Evidence that falls have reduced, hard to know about injury rate.</li> </ul>
Facility 8	<ul style="list-style-type: none"> <li>• Hip protectors and sensor pads now in practice and documentation.</li> <li>• Staff education may be maintained.</li> <li>• Have started looking at falls and timing of falls.</li> <li>• Will keep Falls Resource Group going for a</li> </ul>	<ul style="list-style-type: none"> <li>• Manager driving it.</li> <li>• FRN maintaining their commitment.</li> <li>• Any reduction of falls would be motivating.</li> <li>• Costs (mats being thrown</li> </ul>

Facility	Sustainable	Factors influencing sustainability
	<p>couple of months.</p> <ul style="list-style-type: none"> <li>• Same footwear company for all new residents – rep from company has been out since initial visit.</li> <li>• Rubber mats (sometimes thrown out with laundry).</li> </ul>	<p>out) at \$8 a mat if lost. Shoes quite expensive - \$150, slippers and sandals \$90.</p> <ul style="list-style-type: none"> <li>• Releasing staff not an issue, but have not had an education in-service just on falls.</li> </ul>
Facility 9	<ul style="list-style-type: none"> <li>• Ongoing staff training.</li> <li>• Hip protectors for a wider range of people.</li> <li>• Awareness of who's a falls risk.</li> <li>• Resident walking programs – staff are building walking into daily practice. Have seen results in improvements in people's mobility levels.</li> <li>• System review of the FRAT tools; the organisation's policy re. Falls management.</li> <li>• More equipment.</li> <li>• Staff more pro-active in identifying risks.</li> </ul>	<ul style="list-style-type: none"> <li>• Staffing and resident mix will influence sustainability in long term.</li> <li>• Maintaining awareness; education to make up for staff turnover; passing on information, stabilising changes to culture will influence sustainability in long term.</li> </ul>

## 4 Discussion and conclusions

Using an inclusive and empowering action research approach to falls prevention in nine residential aged care facilities enabled achievements in the following project objectives:

- Determine current level of falls prevention activity and falls data for each facility
- Develop an individualised plan of activities for best practice falls prevention for each facility
- Train Falls Resource Nurse in each facility
- Train all staff in each facility (including night shift)
- Ensure a safe environment
- Improve knowledge of falls prevention among residents and families
- Improve general practitioner / pharmacist review processes of medications and management of falls risk
- Implement action learning to identify additional site specific falls prevention activities
- Review current practice in key areas including physical activity, vision, sunlight exposure and vitamin D supplementation
- Evaluation of all components of the project
- Dissemination of project method, resources and outcomes.

Findings from evaluations of action plans, scoping of existing practice, and interviews with FRNs and facility managers indicated that the action research process was successful for achieving the project aims of implementing best practice guidelines in falls prevention in RACFs. Improvements in practice in relation to falls prevention were identified at all facilities and included improvements in training, use of hip protectors and high-low and low-low beds, use of bed and chair alarms, increased observation, increased use of Vitamin D and calcium supplementation, increased sunlight exposure, increased information for residents, increased access to allied health and medical support, improvements in falls risk assessments, improvements in foot care and appropriate footwear, increased identification of high falls risk residents, increased environmental auditing and monitoring of sensory aids.

Staff surveys on safety culture, sustainability and professional practice also showed improvements in the staff perceptions of the culture of the facility in relation to falls

prevention activities and safety. Falls rates, however were not reduced during the project timeframe, although there was a small reduction in the number of injurious falls per 1000 resident bed days. There are a number of possible explanations for the lack of impact on falls rates. First, previous research has suggested that falls prevention projects often initially lead to an increase in reporting falls incidents as people's awareness of falls and prevention strategies increases. Secondly, falls were only reported until June 2009, only shortly after many of the project activities were implemented. A longer follow-up of falls rates may have found a reduction in falls over time. Finally, the mix of interventions implemented may not have been effective in reducing falls. There is limited research evidence regarding effective falls prevention interventions within residential care. A small number of studies have found that multifactorial interventions are effective but it is unclear as to which elements of a multifactorial intervention are most effective. There are also many gaps in evidence in relation to single interventions such as exercise and what is the most appropriate exercise for residents in aged care facilities.

The action research approach aimed to enable practice change that would be sustainable beyond project funding. Facility managers and FRNs indicated that many of the interventions put in place would be sustained and plans were also in place for repeating the interactive, experiential falls prevention expo. Environmental modifications and equipment would also be sustained beyond the project. However, there were also many obstacles to implementing practice change that are likely to impact on the longer-term sustainability of project activities. One of the major challenges was having staff with relevant skills who had the motivation and time to dedicate to project activities in addition to their existing workloads. Many of the FRNs spent at least a few hours a week extra unpaid time to implement project activities. While this shows incredible dedication to falls prevention, it also appeared to lead to some project fatigue with staff needing a break at the completion of the project. Despite having access to funding for backfilling staff this was not always a suitable option due to difficulties finding suitable staff. Some also reported that the amount of funding for backfill was not adequate to meet the demands of the project. Staff turnover was also a barrier, particularly if the FRN, facility manager or project officer changed during the project. Two facilities faced major obstacles as all three of these positions changed having a significant impact on the momentum of project activities.

The support of project activities by an external research body with expertise in the clinical area of concern and in undertaking action research was critical to the success of the project in implementing practice change. Facilities valued the support of project officers in progressing project activities. It is likely that many meetings of the Falls Action Research Groups (FARGs) would not have gone ahead without an external person coming to the facility at a specific time to discuss project implementation. This is not surprising given that few of the involved staff in the facilities had previously been engaged in activities where they took the lead in planning, implementing and evaluating interventions to facilitate evidence-based practice. The research team also played a key role in providing an alternative view or 'fresh eye' on current practice within facilities, and in providing guidance and advice in data collection and evaluation activities. The research team also facilitated staff access to comprehensive falls incident report data. It became evident in the project that there was limited capacity to use allied health services and expertise within the participating RACFs. Feedback from Falls Resource Nurses (FRNs) and managers reported benefits of being able to engage allied health staff for project activities. These findings highlight the importance of greater links between RACFs, allied health staff and external experts in falls prevention research evidence, action research processes and data collection and evaluation.

Dissemination of project findings will include presentations at national conferences, including three of the 2010 Aged Care Standards and Accreditation Agency's Better Practice events, publication of peer reviewed journal articles and promotion in industry newsletters. Participating facilities will receive a facility specific report as well as a presentation of key

findings at their respective sites. A website resource will be available for RACFs to guide implementation of processes undertaken in this project.

#### 4.1 Conclusion

Despite the lack of change in falls rates in the participating facilities, the use of action research was a beneficial process for engaging a broad mix of staff in RACFs, facilitating reflection on practice, developing best practice falls prevention and supporting ‘buy in’ and staff ownership of innovation. Facility staff anticipate changes to be sustainable beyond project funding, however the impact of staff turnover and lack of staff time dedicated to quality improvement initiatives are likely to create barriers to sustainability. Dedicated quality improvement funding and the support of allied health staff and external experts in falls prevention research evidence, action research processes and data collection and evaluation are required to ensure ongoing support for implementing evidence based guidelines in residential aged care facilities.

### 5 Recommendations

Table 7 provides a list of recommendations arising from the project findings.

**Table 7: Recommendations**

Issue	Project findings	It is recommended:
<p>1. Falls incident reporting</p>	<p>There were many barriers to collecting and evaluating falls incident data in the aged care facilities. Issues identified included:</p> <ul style="list-style-type: none"> <li>▪ Lack of an electronic reporting system</li> <li>▪ Lack of a consistent definition of a fall</li> <li>▪ Lack of information collected on injuries and outcomes</li> <li>▪ Lack of categorical data for data analysis.</li> </ul> <p>The increase in falls rates over the course of the project in some facilities suggests that raising awareness about falls leads to an increase in falls incident reporting because of a greater awareness and understanding of what constitutes a fall. This finding also suggests underreporting of falls within the facilities prior to the project.</p> <p>Another issue was that falls rates did not correlate well with the extent of falls prevention interventions put in place and extent of evidence based practice, likely reflecting differences in resident profiles and reporting practices.</p>	<ul style="list-style-type: none"> <li>▪ That the Aged Care Standards and Accreditation Agency: <ul style="list-style-type: none"> <li>- Include a consistent definition of a fall and a process to ensure consistent uptake by facility staff.</li> <li>- Focus on processes facilities are implementing to monitor and reduce falls risk. A focus on monitoring falls rates by auditors may lead to reluctance to report falls.</li> </ul> </li> <li>▪ That RACFs: <ul style="list-style-type: none"> <li>- Use a consistent definition of a fall, and include training on falls definition and reporting for all existing and new staff.</li> <li>- Implement an electronic falls reporting system that all staff are empowered to use to report a fall thereby recognising all staff as part of the falls prevention team.</li> <li>- Utilise an incident report form that contains</li> </ul> </li> </ul>

Issue	Project findings	It is recommended:
		<p>categorical responses regarding falls circumstances and outcomes, including any injuries or medical assistance received, and also links to recommendations for addressing risk factors.</p> <ul style="list-style-type: none"> <li>- Ensure staff are encouraged to report falls incidents consistent with agreed to definitions.</li> </ul>
<p>2. Falls incident evaluation and feedback to staff</p>	<p>Difficulties with accessing falls incident data reduced efficiency in evaluating this data and feeding it back to staff to heighten their awareness of falls rates and associated factors. For example, this meant staff were generally unaware of details regarding falls incidents, such as the location or time of day that most falls were occurring.</p> <p>Reporting of injuries was not included as a stand-alone item on most of the incident forms used in participating facilities. There was also inconsistency in definitions such as what was considered a 'minor' injury. Injuries were generally reported in an open description and therefore there was no prompting to record injury in any systematic way. This also meant it was not possible to electronically generate any reports on falls related injuries. Improvements in incident reporting as mentioned in <i>point 1. Falls incident reporting</i> will enable facilities to more readily provide informative falls incident reports that go beyond reporting the number of falls.</p>	<ul style="list-style-type: none"> <li>▪ That RACFs provide falls incident summary reports to all staff or a "falls prevention team" including falls per 1000 bed days, location of falls, time of day of falls and injury rates as routine agenda items on staff meetings or via staff noticeboards.</li> <li>▪ That staff are provided an opportunity to reflect on and discuss these reports and to identify possible strategies for reducing falls risk. Involvement with recording of a fall will foster these recommendations.</li> </ul>
<p>3. Scoping of current falls prevention activities</p>	<p>The use of the comprehensive falls prevention scoping audit enabled identification of gaps in current evidence based practice at each facility.</p>	<ul style="list-style-type: none"> <li>▪ That RACFs use a comprehensive scoping audit, such as that used in this project to review existing falls prevention activities and potential areas to address for future action.</li> </ul>
<p>4. External support</p>	<p>The support of project activities by an external research body with expertise in the clinical area of concern and in undertaking action research was critical to the success of the project in implementing practice change. Facilities valued the support of project officers in progressing project activities.</p>	<ul style="list-style-type: none"> <li>▪ That a learning culture be promoted within RACFs that links facility staff to external expertise in falls prevention research evidence, action research processes and data collection and evaluation. This could be facilitated by the</li> </ul>

Issue	Project findings	It is recommended:
	<p>It is likely that many meetings of the Falls Action Research Groups (FARGs) would not have gone ahead without an external person coming to the facility at a specific time to discuss project implementation. This is not surprising given that few of the involved staff in the facilities had previously been engaged in activities where they took the lead in planning, implementing and evaluating interventions to facilitate best practice.</p> <p>In these activities the research team also played a key role in providing an alternative view or 'fresh eye' on current practice within facilities, in the provision of guidance and advice in the development of data collection and evaluation activities. The research team also facilitated staff access to comprehensive falls incident report data.</p> <p>Two facilities also decided to undertake action research together to share ideas and resources. This proved very useful for both sites and helped to increase awareness of innovative strategies.</p>	<p>Aged Care Standards and Accreditation Agency through revised standards.</p> <ul style="list-style-type: none"> <li>▪ That RACFs develop partnerships with other RACFs to share resources and innovative strategies for preventing falls. This would help to reduce professional isolation and promote reflection on practice.</li> </ul>
5. Allied Health	<p>It became evident in the project that there was limited capacity to use allied health services and expertise within the participating RACFs. Feedback from Falls Resource Nurses (FRNs) and managers reported benefits of being able to engage allied health staff for project activities.</p>	<ul style="list-style-type: none"> <li>▪ That access to and funding for a broader range of allied health staff and additional hours of support is provided to RACFs.</li> </ul>
6. Staff training	<p>The interactive and experiential training program implemented in this project proved to be very popular amongst staff as well as some residents and family members and helped raise awareness of falls risk as well as facilitating staff to gain a better understanding of the perspective of residents.</p>	<ul style="list-style-type: none"> <li>▪ That training programs for residential aged care staff are interactive, experiential and fun and focus on key messages regarding contributing factors for falls from the person and their environment vital in falls prevention. We recommend the adoption of the expo approach used in this project.</li> <li>▪ That facilities utilise the falls prevention expo guidelines website (see point 13) to implement a similar program.</li> <li>▪ That training is provided so that all staff (across disciplines and different shifts) have an opportunity to attend, promoting the message that</li> </ul>

Issue	Project findings	It is recommended:
		‘falls are everyone’s responsibility’.
7. Falls prevention evidence	<p>Despite many practice changes being implemented to reduce falls rates within the participating facilities, the rates of falls did not reduce over the project timeframe. Whilst this may have reflected limitations of the project, lack of a control group, or limited length of time for follow-up, the limitations of the evidence also need consideration.</p> <p>There is limited research evidence regarding effective falls prevention interventions within residential care. A small number of studies have found that multifactorial interventions are effective but it is unclear as to which elements of a multifactorial intervention are most effective. There are also many gaps in evidence in relation to single interventions such as exercise and what is the most appropriate exercise for residents in aged care facilities.</p>	<ul style="list-style-type: none"> <li>▪ That further high quality research into strategies that help to reduce the risk of falling in RACFs be undertaken. There should also be an emphasis on research in high-risk groups such as residents with dementia.</li> </ul>
8. Action research	<p>The use of action research in the participating facilities was reported by FRNs and managers to be an essential process for engaging a broad mix of staff in RACFs, facilitating reflection on practice, developing a best practice approach and supporting ‘buy in’ and staff ownership of innovation.</p> <p>FRNs and managers also reported that in their view utilising an action research approach had the potential to facilitate evidence based practice across a range of areas needing development.</p> <p>Scoping audit data and staff surveys also suggest that positive changes in practice were implemented and that safety culture was improved as a consequence of the project.</p>	<ul style="list-style-type: none"> <li>▪ That facilities use action research as a process for developing evidence based practice in RACFs, not only for falls prevention but for other clinical care areas.</li> </ul>
9. Job satisfaction	<p>Interviews with FRNs indicated that most found the action research and FRN position an enjoyable and rewarding experience. Job satisfaction, however, was not assessed in this project. Job satisfaction is an important issue in RACFs and influences recruitment and retention of suitably qualified staff.</p>	<ul style="list-style-type: none"> <li>▪ That research is undertaken to explore the impact of action research or roles such as FRN positions on job satisfaction within RACFs.</li> </ul>
10. Teamwork	<p>The continuity of project activities relied heavily on stability and continuity of the FRN, facility manager and project officer. Project officers also reported that FRNs</p>	<ul style="list-style-type: none"> <li>▪ That RACFs planning to implement practice change engage a team of staff to implement change rather than</li> </ul>

Issue	Project findings	It is recommended:
	<p>tended to take the greatest responsibility of project activities, despite the FARG role in project activities. The focus and responsibility of the FRN was also promoted by the project method as there was greater funding and support for FRNs.</p> <p>It may be useful to have a greater responsibility placed on the entire FARG so that if an FRN/falls champion leaves, other members of the team are still driving the activities. As one member leaves a new member becomes involved to help maintain continuity. This will also help to build leadership skills amongst a broader range of staff to build greater capacity within facilities and reduce the pressure placed on a few key staff.</p>	<p>have all responsibility on one staff member.</p>
11. Staffing issues	<p>Project funding was essential to facilitate the RACFs participation in the project. Without funding for environmental modifications, equipment and staff time, capacity for involvement would have been limited. Staff availability will also have implications for ongoing implementation of project activities as well as future implementation of quality improvement processes. Difficulties finding backfill staff with appropriate skills and staff having adequate time away from day to day care of residents were constant barriers to implementing project activities. Staff turnover was also a barrier.</p>	<ul style="list-style-type: none"> <li>▪ The funding model for RACFs needs to be evaluated to allow capacity for staff to be dedicated for quality improvement activities such as falls prevention.</li> <li>▪ Accreditation processes for supporting quality improvement in falls prevention and rewarding facilities for implementing these activities need to be reviewed.</li> <li>▪ National strategies for improving job satisfaction, staff recruitment and retention in RACFs are required to provide the increasing level of care required for residents that is anticipated to continue.</li> </ul>
12. Environmental modifications and equipment	<p>The FRNs and facility managers considered the funding provided for environmental modifications and equipment a significant benefit of being involved in the project. There were a number of barriers, however, to implementing modifications and purchasing equipment such as difficulties finding appropriate tradespeople and getting purchasing orders through the health system, equipment taking a long time to arrive and differences in opinion within facilities about what the money should be used for.</p> <p>Issues around lighting were evident in most</p>	<ul style="list-style-type: none"> <li>▪ That RACFs use a comprehensive environmental audit to determine areas requiring modification and that issues and findings are discussed amongst staff and residents to determine the highest priorities.</li> <li>▪ That RACFs audit lighting within their facilities and try to address issues such as inconsistent lighting, poor lighting and glare.</li> <li>▪ That equipment is trialled</li> </ul>

Issue	Project findings	It is recommended:
	<p>of the facilities audited, a significant environmental issue relating to falls risk. Despite this finding, RACFs generally did not prioritise modifications to address lighting issues.</p> <p>A limitation of the approach used in the project was the lack of consultation with residents regarding environmental issues and solutions.</p>	<p>before purchasing.</p> <ul style="list-style-type: none"> <li>▪ That additional capital funding is available to support facilities to improve the physical environment.</li> <li>▪ That RACFs implementing environmental modifications allow ample time for planning and making modifications.</li> </ul>
<p>13. Project website and resources</p>	<p>As an outcome of this project a website resource has been developed to help facilities access relevant resources and website links to facilitate conducting a project similar to the Star project. The website includes links to evidence based falls prevention guidelines, information about incident reporting, a guide for running an interactive falls prevention staff expo, the scoping audit, a guide to action research, the Falls Risk for Older People - Residential Care (FROP-Resi) assessment tool, relevant websites, and many tips and suggestions for implementing evidence based falls prevention interventions.</p>	<ul style="list-style-type: none"> <li>▪ That the Department of Health and Ageing approve the use of the project website being active as a link from the National Ageing Research Institute's website.</li> <li>▪ That RACFs use the website developed through this project to assist in implementing the above recommendations and implementing falls prevention interventions in their facilities.</li> </ul>
<p>14. Regular promotion of falls prevention messages to staff, residents and families</p>	<p>A variety of different approaches to support falls prevention information dissemination to staff, residents and families were utilised in the RACFs, some of which have been described above. Regular and varied approaches to disseminating key falls prevention messages to staff, residents and families should be undertaken.</p>	<ul style="list-style-type: none"> <li>▪ That opportunities such as the increasingly utilised "April Falls Day" (April 1<sup>st</sup>) each year be utilised as one of a number of opportunities for falls prevention activities and information dissemination throughout an entire RACF.</li> </ul>

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## Appendices

### Appendix 1: Action Research at Facility 5

#### Demographics of FARG members

There were five members of the Facility 5 FARG, four female and one male member. The age of members varied, with three aged between 46 and 55 years; one aged between 31 and 45 years; and one aged between 56 and 65 years. All members were born in Australia. The members have diverse roles in the facility; there is a cleaner, two Division 2 nursing staff, a diversional therapist (DT) and a nurse unit manager (NUM). The amount of time the members have spent working at Facility 5, in their current role, and in aged care has varied (see Table 1).

**Table 1: The amount of time FARG members have spent working at the facility, in their current role, and in aged care.**

	Time at facility	Time in current role	Time in aged care
<b>1 to 5 years</b>	1	1	-
<b>6 to 10 years</b>	1	-	1
<b>11 years or more</b>	3	4	4

The qualifications of the group include:

- Cert III Aged Care, Div 2, Endorsed
- Bachelor of Nursing, Post Reg Geriatric, Advanced Business Management Diploma
- Certificate of Diversional Therapy.

#### Falls Action Research Group meetings

In total there were 13 FARG meetings scheduled for Facility 5. On two occasions the planned meetings were cancelled due to members being unable to attend. In addition, the FARG had one meeting without the Star project officer to discuss the first action plan and there were three meetings held between the Star project officer and the FRN to discuss actions and other project activities.

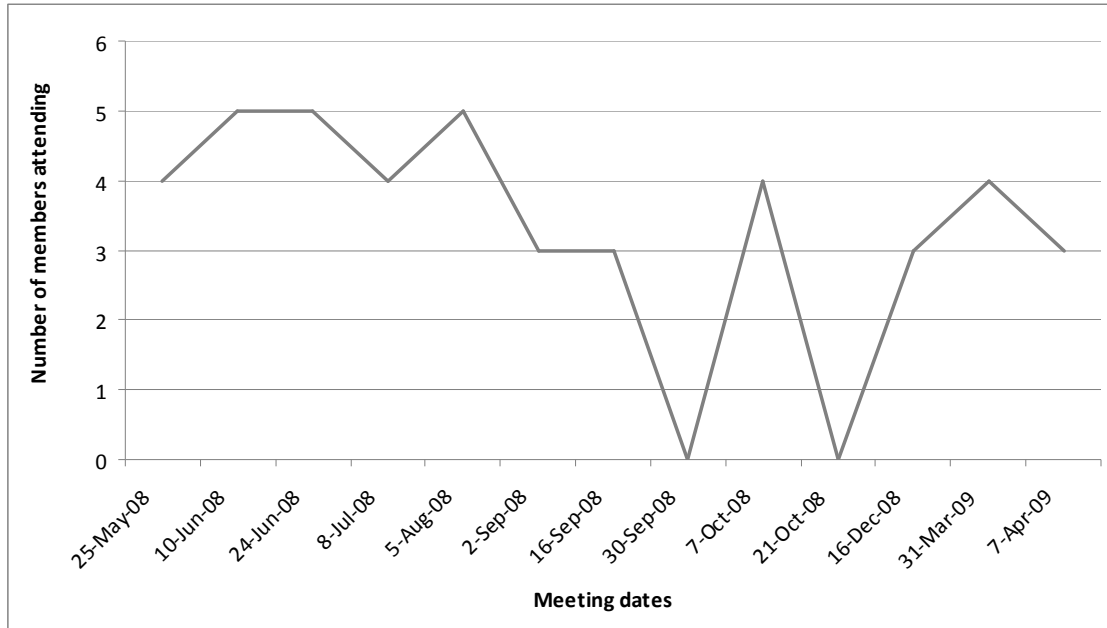
Seven of the FARG meetings were held during the reconnaissance phase, with one of the cancelled meetings also scheduled for this phase. There were two FARG meetings in relation to the first action; one to officially develop the action and the second was used for evaluation of the action. However the group members had decided early in the reconnaissance phase what their first action would be. One of the cancelled meetings was scheduled for during the implementation of the first action, however none of the members were able to attend. There were also two meetings held for the second action; one for the development of the action and the second for evaluation.

Each meeting was recorded and transcribed verbatim. A summary of the transcription with the main themes and issues that arose in the meeting was developed and sent to the FRN prior to the next meeting for distribution to group members. This provided the group members the opportunity to critically reflect on the issues they considered important prior to the next meeting.

## FARG members attendance at meetings

The attendance by group members at meetings varied. Figure 1 shows the number of group members that were in attendance at each meeting. Of the 13 scheduled meetings there were only three meetings where all FARG members were in attendance.

**Figure 1: Action research group attendance**



## Reconnaissance phase

The FARG members undertook a preliminary investigation into their practice. This preliminary investigation began with a discussion around falls prevention, with questions such as the following used as prompts for this discussion:

- Can you tell me about falls within your facility?
- Are falls an issue in your facility?
- What does your facility currently do in terms of falls prevention?
- What are the four highest priorities in this facility to achieve reduced falls among residents?
- Are there barriers to reducing falls at this facility?
- What is your perception of the general attitudes of the staff in the facility to the statement “that many falls are preventable” and there are things that can be done to prevent falls and falls injuries?
- Who are important players in falls prevention?
- Do you have organisational support for falls / falls injury prevention activities within your facility?
- Is there adequate training for staff in the area of falls prevention?

Following these discussions the FARG were presented with baseline data collected by the project team. This consisted of falls data for the six months preceding the start of the project, findings from a scoping audit of falls prevention activity, findings of an environmental audit and the results of a staff survey on resident safety. The key issues that emerged from both the FARG discussion about falls prevention and the baseline data were presented in an issues table that the FARG could use as a reference. The key issues identified at Facility 5 were:

Key Issues from FARG discussions	Key Issues from Baseline Data Report
<p><b>Current practice:</b> It was felt that falls are only a problem for a select number of residents – it is <b>multiple fallers</b>.</p> <p><b>Processes used to identify and manage falls:</b> A <b>risk assessment</b> is done as soon as a resident is admitted to Facility 5. Staff also look on Riskman to see if they have a history of falls from previous facilities or units, or they ask the family. Completed risk assessment forms are kept in the progress notes.</p> <p>Facility 5 has standard things they do for high risk residents, such as hip protectors, red alerts in nursing care plans to alert all staff.</p> <p>Falls prevention is <b>discussed with family</b> approx 4-6 weeks after admission through the management care agreement, however this doesn't provide great detail about specific risk factors etc.</p> <p><b>Incident reporting</b> – reported as a fall even if resident found on floor and no one saw them fall. However if staff know that resident has habit of putting self on floor may use discretion as to whether it is reported or not.</p>	<p><b>Current practice:</b> The <b>falls incident data</b> analysis for July-December 2007 indicated that <b>multiple fallers</b> are a significant issue at Facility 5. Sixteen of the 23 fallers had more than one fall.</p> <p>Scoping survey recommends that risk assessment should also be completed following a fall or after change in health status or environment. It also recommends to consider whether the tool covers all necessary risk factors.</p> <p>It was reported that there is no <b>information on falls prevention</b> routinely available to provide to <b>relatives</b>. However there is a brochure in the Health Service Falls Minimisation Working Group information package.</p> <p><b>Analysis of falls data</b> from July-December 2007 indicated that some data on <b>incident reports</b> at Facility 5 is incomplete, such as activity at time of fall, consequences of fall (injuries), actions implemented as a result of fall.</p> <p>The factors identified through the <b>staff survey</b> that may impact on whether staff complete an incident report for a fall were: - there are only few details available about incident - perception that they would be blamed for a fall if they report it - busy workload - resident falling at end of shift - use of and access to computers - perception that it is better to report than not report.</p> <p>The <b>scoping survey</b> found that Facility 5 has a <b>standard definition of a fall</b> however this is different to that used by the Health Service.</p>
<p><b>Current interventions:</b> <b>Low-low beds</b></p> <p>Ensuring <b>walking aids</b> are with resident at all times.</p> <p><b>Supervision</b></p> <p><b>Hip protectors</b> for multiple / frequent fallers</p>	<p><b>Current interventions:</b> The <b>scoping survey</b> identified that all residents have either a high-low or a low-low bed. There are 6 low-low beds and 24 high-low beds. The nursing staff determine who is allocated a low-low bed.</p> <p>The <b>scoping survey</b> found that some residents are aggressive and attempt to use their walking aids as weapons and therefore are not prescribed one.</p> <p>The <b>scoping survey</b> recommends investigating use of <b>bed/chair alarms</b> as additional forms of surveillance or supervision for high risk residents.</p> <p>The <b>scoping survey</b> recommends investigating different types of hip protectors that may be more comfortable for residents and wear better to increase adherence.</p>

Key Issues from FARG discussions	Key Issues from Baseline Data Report
<p><b><u>Issues that impact on falls management:</u></b>  <b>Capacity to supervise residents</b> – staffing ratios and workloads</p> <p><b>Family members knowledge of falls</b></p> <p><b>Restraint free environment</b> – Health Service has a no restraint policy. Staff believe that this can sometimes have an adverse effect on some of their residents who like to wander.</p> <p><b>Staff knowledge and awareness</b> – staff have some knowledge and awareness about falls but may not be enough.  If the number of fallers in the facility decrease for a while staff become a little less diligent at reporting falls as it is something that is not prevalent.</p> <p><b>Use of resources for staff</b> – there are copies of guidelines etc available for staff use however staff not always aware of them.</p> <p><b><u>Issues that increase risk of resident falls:</u></b>  <b>Poor / in appropriate footwear</b> – a podiatrist comes monthly but will see each resident approx every 8 weeks. It is family's responsibility to provide adequate footwear and this does not always happen. No literature is provided to families about what poor footwear can do.</p> <p><b>Medications</b> – this is often addressed when resident first admitted to facility. Sometimes it is a compromise between aggressive behaviour and falls risk.</p> <p><b>Resident behaviour and cognition level</b> – considered biggest risk factor for resident falls in Facility 5.</p> <p><b>Sensory loss</b> – this is reviewed regularly but there are issues with compliance for wearing aids.</p> <p><b>Muscle weakness and poor balance</b></p> <p><b>Loss of confidence and fear of falling</b></p> <p><b>Incontinence</b> – all residents undergo a continence assessment and then the appropriate continence aids are used and the resident may be referred to the continence group.  There is a toileting program but is only successful in those residents who are prepared to use toilet and wear continence aids – there are issues re adherence with using aids.</p>	<p><b><u>Issues that impact on falls management:</u></b></p> <p>It was reported that there is no <b>information on falls prevention</b> routinely available to provide to <b>relatives</b>. However there is a brochure in the Health Service Falls Minimisation Working Group information package.</p> <p>The <b>scoping survey</b> reported that the most recent education session for staff occurred in 2007 as per the education calendar. However this was only available for nursing staff. The scoping survey recommended that any staff training or education that occurs should involve all staff (not just nursing staff).</p> <p><b><u>Issues that increase risk of resident falls:</u></b>  The <b>scoping survey</b> recommends that families are provided with more information about what is <b>inappropriate footwear</b> and how it can increase falls risk and</p> <p>The <b>scoping survey</b> indicated that <b>medication reviews</b> occur regularly at Facility 5. As little medication as possible is used at Facility 5, and sleeping tablets are not used at all.</p> <p><b>Scoping survey</b> recommended investigating options for encouraging residents to wear sensory aids on regular basis and consider <b>seeking advice from an expert practitioner</b> in dementia area.</p> <p><b>Scoping survey</b> recommended reviewing and investigating suitable options for <b>exercise programs</b> (both group and individual).</p>

Key Issues from FARG discussions	Key Issues from Baseline Data Report
<p><b>Poor nutrition</b> – if a resident loses 3kgs in a month or loses weight in 3 consecutive months, or if they have a low BMI, they are seen by the dietician.</p> <p>Residents not wanting to go outside and therefore effect vitamin D levels</p> <p><b>Environmental:</b></p> <ul style="list-style-type: none"> <li>- mats near the doorways</li> <li>- having clutter free bedrooms very useful in preventing falls</li> <li>- uneven grass area in courtyard</li> <li>- furniture in communal areas</li> <li>- walking frames (being left in corridors etc)</li> <li>- shared ensuites – very narrow and therefore difficult to assist resident in bathroom)</li> <li>- cleaner’s machinery</li> <li>- furniture that gets moved around facility by resident</li> <li>- outside footpaths are narrow</li> <li>- change of colour in lino – this causes problems for some residents as they see it as a hole or something they need to step over</li> <li>- no grabrail near basin in communal toilet</li> <li>- flooring in communal toilets and kitchen area very slippery and mat that is used to prevent people slipping is a tripping hazard</li> <li>- shower and laundry trolleys that are left in hallways can become a tripping hazard</li> </ul>	<p>The <b>scoping survey</b> identified that there is approx 2 hours per month of dedicated <b>dietician</b> time for the facility.</p> <p>The <b>environmental audit</b> identified a range of environmental hazards at Facility 5, including those that require major structural modifications as well as those that are more easily addressed. All the environmental hazards identified by the FARG were identified through the audit plus many more. For more detail on the findings of the audit please see the baseline report.</p> <p>The findings of the environmental audit were discussed in the FARG – a number of the recommendations were seen as possible, however there were a number of things that the group members did not think were practical within their facility:</p> <ul style="list-style-type: none"> <li>- wet floor signs</li> <li>- bedside tables</li> <li>- call bells on cords</li> <li>- bedside lights</li> <li>- light switches visible at night</li> <li>- lever taps in showers</li> <li>- space in shower for soap/shampoo</li> <li>- not buffing floor weekly.</li> </ul> <p>The scoping survey recommended that Facility 5 look at adopting a specific <b>falls prevention environmental audit</b> for communal living areas as well as bedrooms.</p>
<p><b><u>Caring for people with dementia:</u></b></p> <p><b>Complex behaviours</b></p> <p><b>Residents not knowing their limits</b></p> <p><b>Contenance issues</b></p>	<p><b><u>Additional findings:</u></b></p> <p>Findings from the <b>analysis of the falls data</b> between July and December 2007 show:</p> <ul style="list-style-type: none"> <li>- Facility 5 had higher falls rate than the average across all 9 facilities</li> <li>- Large number of falls occurred in bedroom and corridor, but there were a large number where location was not specified</li> <li>- Majority of falls occurred during 3 peak times: midday-3pm, 6-9pm, 6-9am.</li> </ul>

### Action planning – Action cycle 1

ARG members used the information in the issues table to identify areas in falls prevention that they considered important in addressing in the context of the project. These findings were also presented to the organisation steering committee for feedback and review. With the support of the steering committee and facility management, the FARG progressed to engage in the first action cycle.

The first action cycle at Facility 5 involved the development of a walking program for residents. A copy of the Action Plan that was developed for the first action cycle can be seen below.

### **Action Plan 1**

#### Concern

Residents at Facility 5 do not have a regular exercise program and also lack regular outside activity. The lack of exercise programs was identified while collecting information on falls prevention interventions at the facility. The action research group considers the lack of exercise programs an important issue as they are concerned that the lack of physical and outside activity may be having a negative effect on residents muscle strength, Vitamin D levels and therefore balance. A walking program would aim to increase muscle strength and improve balance and therefore decrease falls incidence. Residents spending time outside would increase exposure to UV radiation and production of Vitamin D. Vitamin D aids calcium absorption which decreases the risk of developing a range of musculoskeletal conditions, again reducing falls incidence.

#### Plan

The proposed action is to implement an individualised walking program for residents. The walking program will aim to increase muscle strength, Vitamin D levels, and improve balance, which will decrease residents' falls risk.

The walking program will be incorporated into the current activities program and will be run by the two diversional therapists at Facility 5. Residents will take part in the walking program three times a week. The diversional therapists will determine different possible walking routes around the facility, both inside and outside depending upon the weather.

The action research group has identified six residents they believe will benefit from the walking program. The residents were identified as they are mobile but do not walk often on their own accord. Each resident will have an individualised plan developed by the diversional therapists that details the frequency, length and possible routes of their walking program.

The action research group anticipates that the outcomes of the walking program will include:

- Increased muscle strength
- Increased vitamin D intake
- Decreased aggression
- Increased hunger
- Increased confidence when walking.

#### Data collection strategies

The action research group will develop a questionnaire to be completed by the action research group and an additional diversional therapist prior to and 6-8 weeks after the commencement of the walking program. The questionnaire will collect information about resident balance, falls incidence, aggressive behaviour, and desire to go outside.

Frequency of participation will be recorded, along with any observations about resident progress, and necessary changes to the program. For example, the diversional therapists may need to increase or decrease the walking distance according to resident capacity.

The action research group investigated possible assessments to measure improvements in physical activity and muscle strength; however they believe that the assessments are not appropriate for the residents at Facility 5 who all have cognitive impairment.

The action research group will continue to meet as necessary to discuss any issues with the program and any benefits of the program.

## **Analysis, evaluation and reflection - Action cycle 1**

Following the completion of the first action, the FARG engaged in collaborative analysis of the action, evaluation and reflection.

### Analysis

Six residents were assessed using the questionnaire; however one resident withdrew due to ill health. The results of the assessment were collated and are shown in Table 2. The walking program did not appear to have an effect on how steady the participating residents were on their feet, except for one resident who became more unsteady. The falls incidence of three residents remained the same, while for one resident falls incidence increased and for another resident falls incidence decreased. The frequency of aggressive behaviours displayed by residents did not appear to change. Resident desire to go outside remained constant except for one resident, whose desire to go outside decreased. All residents participated three times a week in the walking program. Residents walked different distances according to their individual capacity. The majority of residents enjoyed the program, and one resident, who staff were unable to ascertain an opinion from due to cognitive impairment, showed no resistance to participating in the program.

### Evaluation and reflection

The action research group enjoyed organising and implementing the walking program. Although the analysis of data showed few improvements for the variables assessed, the action research group is pleased with the progress of the action and the apparent enjoyment shown by residents participating in the program.

Prior to implementing the action the action research group appeared to feel that it may be challenging to reduce falls incidence, due to resident cognitive impairment and frailty. However, the group enthusiastically and comprehensively planned and implemented the action and speak positively of the experience and results. Furthermore, a member of the organisation steering committee for the Star Project reported that she had observed the walking program in action. Her observations of the walking program were that it is working well with residents smiling as they are taken for their walk. In addition, she stated that families think it is "great".

The walking program is now a permanent part of the activities program at Facility 5. This sustainability reflects the motivation and investment the action research group has in continuing to attempt to prevent falls incidence and improve resident quality of life.

**Table 2: Results of assessment before and after resident participation in the walking program**

Resident	Unsteady		No. of falls		Aggressive		Desire to go outside		Frequency	Length	Observation
	Pre	Post	Pre	Post	Pre	Post	Pre	Post			
1	Not at all	Sometimes	0	0	Sometimes	Sometimes	Sometimes	Sometimes	3/week	2 - 4 blocks	Enjoys
2	Sometimes	Sometimes	3	3	Sometimes	Sometimes	Sometimes	Sometimes	3/week	2 laps of courtyard	No resistance
3	Sometimes	-	1	-	Sometimes	-	Sometimes	-	-	-	Withdrawn
4	Sometimes	Sometimes	1	2	Sometimes	Sometimes	Sometimes	Sometimes	3/week	2 laps of courtyard	Enjoys
5	Not at all	Not at all	0	0	Sometimes	Sometimes	Sometimes	Sometimes	3/week	1 lap of courtyard	Enjoys
6	Sometimes	Sometimes	1	0	Sometimes	Sometimes	Most of the time	Sometimes	3/week	1-2 laps of courtyard	Enjoys

### 5.1.1 Action planning – Action cycle 2

The second action cycle at Facility 5 involved organising a staff education session from a local podiatrist and the development of safe footwear and falls prevention brochure. A copy of the Action Plan that was developed for the second action cycle can be seen below.

#### **Action plan 2**

##### Concern

Staff have observed that residents are wearing unsafe and inappropriate footwear that may contribute to falls. It is the family's responsibility to provide footwear to residents. The scoping survey identified that residents and families do not receive information about safe and appropriate footwear and the consequences of poor footwear. The action research group considers residents wearing safe footwear an important issue as they are concerned that unsafe footwear causes residents to trip and slip and therefore increases falls incidence. A safe footwear information brochure would aim to increase family understanding of the importance of safe footwear and falls prevention. A staff education session will give a firm understanding of appropriate footwear so they are able to educate and prompt families if a resident's shoes are unsafe. These interventions would prompt families to buy safe shoes for residents, residents will not trip and slip as much, therefore reducing falls relating to unsafe shoes.

##### Plan

The proposed action is to implement a staff education session from a local podiatrist. This education will aim to increase staff knowledge about appropriate and safe footwear, and how unsafe footwear can cause falls. Staff will then be able to impart this knowledge to family members who buy the residents' shoes.

A brochure will also be developed that provides information about safe footwear and falls prevention. The falls resource nurse will develop a draft brochure using information from the Podiatry Australia and the DHS falls prevention website. The group will provide feedback to refine the brochure. The draft will also be sent to a podiatrist for comment. The falls resource nurse will organise the printing. The final brochure will be discussed and distributed at the resident / relative meeting in May 2009 and sent to all relatives attached to meeting minutes.

The brochure will be available on the unit at the front entrance and given to all new residents' families upon admission.

##### Data collection strategies

Staff will report feedback from relatives about the effectiveness of the brochure in helping to buy correct footwear. Staff will also observe any changes in footwear worn by residents and whether residents are falling less as a result of footwear. The falls resource nurse will be the key person that information is relayed to.

#### **Analysis, evaluation and reflection - Action cycle 2**

Following the completion of the second action, the FARG engaged in collaborative analysis of the action, evaluation and reflection.

##### Analysis

The first part of the action, the podiatry education session, has not been successfully implemented due to staffing issues.

The brochure was developed and sent in the post to all relatives with the minutes of the resident/relative meeting. The FARG decided that it was best to send the brochure out with an

already existing mail out to reduce the cost involved as well as to reduce the amount of mail that relatives received. Some relatives had reported previously that they receive a large amount of mail from the Health Service and therefore do not get to read it all. One relative commented on the brochure in a positive way. The brochure is also available at the entrance of the facility and it has been reported that they are being taken by visitors to the facility. To date it has not been reported whether any residents have had any changes in their footwear.

### Evaluation and reflection

The FARG enjoyed producing the brochure, and were motivated to do so as they felt it was an important area to address and that the action was something that could decrease falls incidence substantially. As staff often get asked by families for advice on what footwear to buy they feel they now have increased knowledge about this topic and are glad that they are able to provide an information brochure if necessary.

The FARG are still keen to arrange the podiatry education session for staff at Facility 5. However, as previously stated, there has been a lack of staffing and this has prevented it happening to date. It is expected to occur prior to the end of 2009.

## **Appendix 2: Changes in practice identified in scoping audit survey**

The analysis below provides a summary of all changes identified on the scoping audit from baseline to follow-up. The follow-up scoping audit was not received from Facility 3. For the other eight facilities, if a facility is not listed it did not report any changes for that particular falls prevention area.

### **Falls Risk Assessment**

#### ***Facility 1***

The falls risk assessment tool changed twice across the course of the project. The final falls risk assessment tool is based on the risk assessment used during the project. An audit to review the percentage of risk assessments was completed during the project. Results identified that some assessments had not been completed. The outcome was to ensure mandatory completion of falls risk assessments on admission. They are now reviewed three monthly or as required and the clinical level 2 registered nurse now checks all assessments are completed.

#### ***Facility 2***

Facility 2 used a falls risk screening tool and falls risk assessment tool both pre- and post-test. During the project period the accuracy of the falls risk assessment tool was assessed and an audit of the completion of the assessment tool conducted.

#### ***Facility 4***

Falls risk assessment processes didn't change however it is now noted that nursing staff or allied health complete the falls risk assessment tool as well as team leaders.

#### ***Facility 7***

Most of the falls risk assessment processes did not change however an audit of the completion of the assessment tool is now reported to occur once a month by nurses.

#### ***Facility 9***

During the project as part of a Star action plan, the staff looked at how many residents did not have a falls risk assessment tool (FRAT) in their file but the falls resource nurse resigned before the action plan could be completed. FRAT was put on the resident-of-the-day checklist (added as one of the Star project action plans), but removed recently by Div 1 as staff completing the checklist were under the wrong impression that they had to complete a new FRAT each month. Acting facility manager will look into putting FRAT back on checklist with a better explanation (ie. staff just need to check that there is one in each resident's file).

### **Falls and falls injury prevention activities**

#### ***Facility 1***

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Completion and review of risk assessment forms
- Residents' risk of falls discussed at team meetings and at handover times
- Review of checklists of risk factors and interventions referred to
- The residents' risk of falls discussed with their general practitioners
- Strategies were implemented to address each modifiable risk factor that is identified on a resident's risk assessment tool.

The processes used to facilitate staff decision making about falls and falls injury prevention interventions have not changed since the implementation phase.

This facility had group and individual exercise interventions pre and post-test. The proportion of residents participating in the group exercise program increased from 15% to 40% and the individual exercise intervention from 20% to 25%. The proportion of residents using hip protectors increased from 25% to 35% and the compliance rate increased from 70% to 80%. The proportion of residents taking vitamin D supplements increased from 9% to 22%, calcium supplements from 9% to 27% and vitamin D and calcium supplements from 13% to 17%. Residents are now also encouraged by the diversional therapist to increase sunlight exposure. There is now a daily review of hearing aids and glasses are checked every three months or as required. There is now a new process for purchasing new footwear where families are contacted and can purchase or request a purchase from 'Shoe Day' which is run every six months. An orange sticker is now placed on resident's wardrobes, care plans and interim care plans to indicate that the resident is at a high risk or falls. The proportion of residents using high-low beds increased from 80% to 98% (two residents have their own bed by choice which is against recommendations). High-low beds are used because the facility also uses falls mats. The hours per month routinely available for a physiotherapist increased from 24 hours to 30 hours. More bed and chair alarms have also been implemented.

### **Facility 2**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at this facility at the start of the project included:

- Completion and review of risk assessment forms,
- Residents' risk of falls discussed at team meetings and at handover times,
- Review of checklists of risk factors and interventions referred to and the residents' risk of falls discussed with their general practitioners.
- Strategies were implemented to address each modifiable risk factor that is identified on a resident's risk assessment tool.

The processes used to facilitate staff decision making about falls and falls injury prevention interventions have not changed since the implementation phase.

This facility used a variety of falls and falls injury prevention activities pre- and post-test. Key changes that occurred during the time of the project included: increases in the proportion of residents who use hip protectors (23% to 32%), take vitamin D and/or calcium supplements (e.g. vitamin D 25% to 33%), and use high-low or low-low beds (16% to 23%).

Staff are now encouraged to take residents outside during the day for sunlight exposure, whereas this did not occur pre-test. Also, in addition to RNs, ENs and care staff are now responsible for ensuring sensory aids are appropriate and working.

Surveillance interventions have improved, with sitters and flagging of those at high risk now used in addition to bed/chair alarms.

The number of hours per month routinely available for a physiotherapist has increased twenty-fold (12 to 250).

### **Facility 4**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Risk assessment form being completed and reviewed upon admission
- A resident's risk being discussed at handover if they are a multiple faller
- A checklist of risk factors and falls prevention strategies (on the reverse of the risk assessment tool) is referred to, and
- A resident's falls risk is discussed with their general practitioner or other health professional.

Following the implementation phase of the project similar processes are used, however it was not reported that a resident's falls risk is discussed with their GP or other health professional now.

At the beginning of the project strategies were implemented in Facility 4 to address each modifiable risk factor that was identified on a resident's risk assessment tool. This still occurs at the facility.

The group exercise program at follow-up was reported to be shorter in length, however more residents were participating. Previously residents had to go to an adjoining facility to partake in a group exercise program, however now the activities coordinator runs a program which allows a greater number of residents to participate (7% pre test to 50% post test).

An allied health assistant has been employed to undertake individual exercise programs with selected residents. However individual exercise programs are only provided to a few residents at present.

There has been an increase in the number of residents wearing hip protectors (from 10% to 30%). Furthermore, the compliance rate for wearing them has increased, although there are still some residents who remove them and need reminding to put them back on. As well as the flagging of high risk residents with an indicator, surveillance interventions at the facility now include locating at risk residents closer to the nurses stations and sitters.

The scoping survey identified that residents and families do not receive information about safe and appropriate footwear and the consequences of poor footwear in relation to falls. A brochure that provided information about safe footwear and falls prevention was developed and presented at the resident and relative meeting and copies were sent out to relatives with the minutes of the meeting. Two residents have received new footwear since the distribution of the brochure, and the action research group were able to attribute this new footwear to the brochure.

It was reported in the pre-test survey that there were no low-low beds at Facility 4 and that the residents use 42 high-low pump up beds that vary in ability and quality. As a result of the project three low-low beds were purchased and 100% of residents now use high-low (39 high-low beds) or the new low-low beds.

Before the project commencement it was reported that the falls and falls injury prevention intervention process did not appear to be working well, however in the post-test it was reported that the processes now appear to be working well. The Falls Resource Nurse reported that whether the processes work can depend on the residents in the facility at the time and whether there are multiple fallers.

### **Facility 5**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Risk assessment form being completed and reviewed
- A resident's risk being discussed at team meetings or handover
- A checklist of risk factors and falls prevention strategies (on the reverse of the risk assessment tool) being referred to, and
- A resident's falls risk being discussed with their general practitioner or other health professional.

These processes did not change during the project.

Individual exercise programs were not available for residents prior to the Star Project, now activity leaders and nursing staff take residents through standing, some standing some sitting, balance, walking and fitness exercises. Walking aids are now checked weekly by nursing staff. The proportion of residents using hip protectors increased from 40% to 83%. Feet and footwear

reviews are now conducted fortnightly as opposed to monthly and the action research group developed a footwear brochure to send out to families. Surveillance interventions have improved with bed and chair alarms now in use as well as flagging of high risk residents. New low-low and high-low beds were purchased through the project. The hours routinely available per month for a podiatrist increased from two-three hours to four-six hours per month.

### **Facility 6**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Falls risk assessments being completed and reviewed
- Resident's falls risk being discussed with general practitioner / other health professional
- Falls risk being discussed with families on some occasions.
- Strategies are implemented to address each modifiable risk factor that is identified on a resident's risk assessment tool.

The processes used to facilitate staff decision making about falls and falls injury prevention interventions have not changed since the implementation phase.

This facility had group and individual exercise interventions pre and post-test. The proportion of residents participating in the group exercise program increased from 20% to 40% and the proportion of residents using a walking aid decreased from 75% to 35%. The proportion of residents at the facility that use hip protectors also increased from 16% to 60% and the compliance rate increased from 33% to 100% across the course of the project. The number of residents taking vitamin D and calcium supplements increased from 8% to 25%. As part of the resident's exercise program residents are taken for a walk out in the sunlight and now non mobile residents are also sat beside glass window for deliberate sun exposure. There is now a regular review process for sensory aids where they are checked each day by staff when resident care needs are attended and optometrist and hearing specialists come in yearly to review residents. Observation interventions have increased to include locating at risk residents closer to the nurses' station and the facility is also in the process of putting bed alarms in situ.

### **Facility 7**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Risk assessment form being completed and reviewed
- A resident's risk being discussed at team meetings or handover, and
- A resident's falls risk being discussed with their general practitioner or other health professional (e.g. physiotherapist).

These processes still occur, however they now also refer to a checklist of risk factors and interventions to assist with this.

This facility had individual and group exercise interventions pre and post test. The proportion of residents wearing hip protectors increased from 13% to 16%, with the compliance rate increasing from 25% to 100%. The nursing staff now also liaise with the physiotherapist to determine which residents are provided with hip protectors. Medication reviews are now conducted every six months, when it is identified as necessary following a falls risk assessment and when there is a change in the resident's condition as opposed to every three months as reported in the pre-test.

Hours per month routinely available for a general practitioner increased from eight to 30 hours, for a pharmacist four to 10 hours, an occupational therapist from no hours to five hours and a dietician from two to five hours.

### **Facility 8**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Risk assessment form being completed and reviewed
- A resident's risk being discussed at team meetings or handover
- A resident's falls risk being discussed with their general practitioner and physiotherapist, and
- Completing Care Plan Two: Mobility.

It was reported that these processes still occur, however a checklist of risk factors and interventions is now also referred to and residents can also be referred to the Falls & Balance Clinic.

Facility 8 had individual and group exercise interventions pre-test and post-test however 90% of residents now complete individual exercise interventions as opposed to 80% pre commencement of the project. The proportion of residents using hip protectors remained the same (25%) and the proportion of residents taking vitamin D and calcium supplements increased (20% to 32%). Before the project there was no other strategies to improve Vitamin D levels in residents, now in summer residents are often encouraged to go outside. There is now a regular review process for sensory aids, with them being checked every morning as opposed to just being examined if staff suspect a problem.

A footwear audit was designed and implemented by nursing staff as a Star project action plan.

The types of observation used increased to include flagging those residents at high risk with indicators and safety observation charts along with the already used bed alarms and locating at risk residents closer to the nurses' station.

The proportion of residents using high-low or low-low beds increased from 7% to 20%. Staff are now able to refer residents to psycho-geriatricians and social workers. The hours per month routinely available for a psycho-geriatrician increased from no hours to eight hours, occupational therapy from four hours to eight hours and dietician from six hours to eight hours.

### **Facility 9**

The processes used to facilitate staff decision making about falls and falls injury prevention interventions at the start of the project included:

- Discussing a resident's falls risk at team meeting / handover, and
- Discussing risk with the general practitioner or other health professionals (e.g. physiotherapist).

Now, following the implementation phase of the Star Project, the processes include those previously used as well as:

- Risk assessment form being completed / reviewed
- Checklist of risk factors and interventions being referred to, and being specified in care plan.

At the beginning of the project strategies were implemented to address each modifiable risk factor that was identified on a resident's risk assessment tool. This still occurs.

Individual and group exercise interventions were run at this facility pre and post test. As part of the project an enhanced exercise program was introduced with personal care staff running a walking group with the residents for a few minutes every day (six residents took part in the specific walking group established as part of the Star project).

The proportion of residents who use hip protectors increased from 27% to 32% and the compliance rate of residents wearing the hip protectors increased from 50% to 90% during the time of the project. It was noted that the environmental modification of communal toilets through

the Star project has increased independence and safety of residents. A new observation intervention introduced during the project involved nursing staff or occasional volunteers undertaking an 'observer' role for 1-2 hours. In terms of communication of falls prevention activities there is now a review of processes used to implement interventions with items now listed on handover sheets, e.g. who wears hip protectors and who has fall-out mat etc- this is possibly an outcome of the Star project. It was also noted that the Star project has increased awareness of falls/falls injury prevention interventions and processes.

## **Falls incident monitoring processes**

### ***Facility 1***

The standard definition of a fall at this facility is an 'incident where a resident unintentionally comes to the ground or a lower level due to an environmental factor, medical condition or where the cause is unknown'. This definition has not changed since the implementation phase of the project. Incidents of falls amongst residents are reported using a paper-based system – a falls incident report form. Once the falls incident form is completed it attached to the client notes/file. Paper based copies are entered into the facility's system. The data is collated and reported back to the nursing unit manager and other relevant staff. There has been no change in the way incidents of falls are reported.

### ***Facility 2***

Prior, to the implementation phase of the project, there was no standard definition of a fall at this facility. Incidents of falls amongst residents are reported using a paper-based system – a general incident report form. Once the general incident form is completed, paper based copies are sent to administration, data is collated and reported back to the nursing unit manager and other relevant staff. There has been no change in the way incidents of falls are reported.

### ***Facility 4***

At the beginning of the project this facility did not have a standard definition of a fall they could refer to. They now do have a standard definition of a fall: "any person who is found to be not in an upright position".

When a fall occurs at Facility 4 it is documented on Riskman, a computerised incident monitoring reporting system, as well as recorded in the resident notes or file and discussed at handover. At the beginning of the project some staff were still documenting falls on a paper-based incident report form and other staff were entering it into the computer. During the course of the project all staff have become competent with being able to enter incidents into the computer.

After the incidents are entered into Riskman data is collated and reported back to the Nurse Unit Manager and then to staff.

### ***Facility 5***

This facility uses the definition of a fall that is in the Victorian Quality Council Falls Prevention Guidelines: "A sudden, unintentional change in position causing an individual to land at a lower level, on an object, the floor, the ground or other surface." This definition is different to the definition that was used at the start of the project. The facility has adopted the definition that is used by falls minimisation working group at their health service.

When a fall occurs staff report the incident into RiskMan, a computerised incident monitoring reporting system, as well as in the resident notes or file. This process has not changed during the course of the project.

After the incidents are entered into RiskMan data is collated and reported back to the Nurse Unit Manager and also to staff. At the start of the project it was stated that the falls data was only reported back to the Nurse Unit Manager, but not to staff.

### **Facility 6**

Before project commencement it was reported that a standard definition of a fall was not routinely used by all staff. In the post-test it was reported that the facility uses a standard definition of a fall as “un-intentionally coming to rest on the ground”. Resident falls are reported through a computerised incident reporting system called PRIME. Data is collated, reported back to the nurse unit manager, and then to staff routinely.

### **Facility 7**

This facility uses a standard definition of a fall, which is common to all its organisation sites. This definition is the same as the one that was used at the start of the project.

When a fall occurs staff document the incident into RiskMan, a computerised incident monitoring reporting system, as well as in the resident notes or file. This process has not changed during the course of the project.

After the incidents are entered into RiskMan data is collated and reported back to the Nurse Unit Manager and also to staff. At the start of the project it was stated that the falls data was only reported back to the Nurse Unit Manager, but not to staff.

### **Facility 8**

This facility uses its organisation’s Falls Prevention and Management Clinical Guidelines, which include a standard definition of a fall. When a fall occurs staff report the incident into RiskMan, a computerised incident monitoring reporting system, as well as in the resident notes or file. This process has not changed during the course of the project. After the incidents are entered into RiskMan data is collated and reported back to the Nurse Unit Manager and also to staff.

### **Facility 9**

At the start of the project this facility did not have a standard definition of a fall. During the Star Project, management adopted the Victorian Quality Council's definition (2004) and it is now part of the Falls Prevention Policy which applies to all the organisation facilities.

The process for documenting falls incidents has not changed throughout the project. Resident fall incidents are still documented using a paper-based general incident report form. The forms are reviewed by the Clinical Care Manager who then passes them on to the Facility manager. The data is compiled and presented at facility meetings.

## **Environmental audits**

### **Facility 1**

At pre-test environmental audits were conducted three times annually. In addition to this audits are now also completed on admission and if the incidence of falls increases.

### **Facility 4**

Prior to the implementation phase of the project there was no system for monitoring environmental audit findings or taking actions to address them but now issues are identified and action plans developed to address the issues.

### **Facility 5**

Audits are now conducted daily as opposed to just on admission. A standard environmental audit tool was used in the beginning but is not now. Prior to the Star project there was no system for monitoring environmental audit findings. At project completion, staff report day to day hazards which are then addressed as soon as possible.

### **Facility 6**

After project commencement this facility developed a falls audit tool to use along with the environmental audit every six months and there is now a system for monitoring environmental audit findings and actions taken to address findings over time. This system includes a six monthly audit and action sent to the nursing manager for review, which is then sent to the district occupational health and safety coordinator and the internal audit is kept at a ward level.

### **Organisational support for falls / falls injury prevention activity**

#### **Facility 1**

In regards to organisation support available, there is now one person responsible for falls prevention whereas prior to project commencement there wasn't. In addition the organisation is now supporting falls prevention activities by providing education for all staff – on commencement of employment and annually, education for residents on admission and during Falls Awareness Week (run annually), and by shortening handover period to ensure staff are on the floor checking the status of residents. A shift has also been specifically implemented for 3-8 a peak time for falls.

#### **Facility 2**

With regard to organisational support available, the Falls Resource Nurse position, created at the beginning of this project, will continue post-completion of the project.

#### **Facility 4**

At Facility 4 there is now one person responsible for falls prevention and an incident / risk management committee whereas prior to project commencement these organisation supports were not present. It was also noted that after project commencement the organisation has been supporting falls and falls injury prevention by increasing staffing on afternoon shifts and increasing the presence and wearing of hip protectors.

#### **Facility 5**

This facilities organisation now supports falls and falls injury prevention activities by discussing it at meetings and with the falls harm minimisation group.

#### **Facility 6**

At this facility there is now one person responsible for falls prevention and there is a falls prevention committee whereas prior to project commencement these organisational supports were not present.

Other ways the organisation has been supporting falls/falls injury prevention activities include revamping of a social activities room where residents can go for a quiet time, one on one time with the recreational officer and social activity away from the ward area. A sign to position chairs and beds at the correct height for resident mobility and transfer needs has also been implemented.

#### **Facility 7**

At Facility 7 there is now one person responsible for falls prevention and there is a falls prevention committee whereas prior to project commencement these organisational supports were not present.

#### **Facility 9**

At Facility 9 there is now one person responsible for falls prevention whereas there wasn't before the project commenced. There is no falls prevention committee at this facility however at post-test it was noted that the OH&S committee have some responsibility for falls prevention activities.

## **Falls and falls injury prevention staff training**

### **Facility 1**

There was no staff training on falls/falls injury prevention in the 12 months prior to project commencement at this facility but during the project 50% of staff participated in SPLATT and DVD training (1-3hours). Information is also given to new staff on falls prevention.

### **Facility 2**

There was no staff training on falls/falls injury prevention in the 12 months prior to project commencement at this facility, but during the project 60% of staff participated in training (two hours of SPLATT training).

### **Facility 4**

There had been staff training on falls in the 12 months prior to project commencement- a one hour in-service session held at handover. During the project a SPLATT falls expo was run utilising resources such as physiotherapists, allied health and podiatrists. 90% of staff undertook the falls training.

### **Facility 5**

Before the Star project the most recent education session for staff occurred in 2007 as per the education calendar. However this was only available for nursing staff. During the project a falls expo was run which involved almost all staff.

### **Facility 6**

This facility runs falls prevention staff training sessions as part of manual handling training, annually and when orientating new staff. The training is a one hour session using the Green box resource kit (lectures and a DVD). During the project a Falls Prevention expo/awareness month was also run with 100 staff from the facility attending.

### **Facility 7**

There was no staff training on falls/falls injury prevention in the 12 months prior to project commencement, however during the project falls training occurred. The training which was based on NARI's SPLATT program occurred over a series of weeks; sessions were provided by a physiotherapist, occupational therapist (environment & sensory), nutritionist and Star Project geriatrician (falls and medications). 25% of the nursing staff undertook the training.

### **Facility 8**

There was no staff training on falls/falls injury prevention in the 12 months prior to project commencement. Ten hours of training occurred as part of the Star Project with a Falls expo comprising NARI's SPLATT falls prevention training program (Movesmart; Falls Expo; one hour sessions in service on falls & medication with geriatrician). This targeted all nursing staff.

### **Facility 9**

There had been staff training on falls in the past 12 months at this facility- an aged care channel education session. After the project had commenced more staff training occurred with in-service sessions modelled on SPLATT taking place. 50% of staff took part in the one hour three weekly sessions with topics including physiotherapy, sensory issues and medication.

## **Falls and falls injury prevention information for residents**

### ***Facility 1***

The falls prevention information provided didn't change much across the project, however more information/brochures are given to resident's pre admission and on admission. This information is also available via resident/family notice boards and meetings.

### ***Facility 2***

The type of information on falls and falls injury prevention available to residents and/or relatives has changed from DVDs to brochures and education sessions with a geriatrician.

### ***Facility 4***

It was noted that prior to project commencement falls prevention information was not routinely available for distribution to residents and relatives. Following project implementation information was available via brochures and an education session at residents and relatives meetings. The action research group also developed a brochure to send to families informing them of falls and how they can assist to prevent falls within the facility, a Christmas gift list and a brochure that provided information about safe footwear and falls prevention.

### ***Facility 5***

The initial scoping survey identified that residents and families do not receive information about safe and appropriate footwear and the consequences of poor footwear. Therefore a safe footwear information brochure to increase family understanding of the importance of safe footwear and falls prevention was developed as part of the project.

### ***Facility 6***

This facility had a brochure that contained falls prevention information for residents and relatives prior to project commencement. During the course of the project a Falls expo information session was run to provide falls prevention information to residents and family members, falls prevention brochures and newsletters were sent to family members and trade-displays were set up during two falls awareness month campaigns.

### ***Facility 7***

Prior to the project there was no information about falls and falls injury prevention available to distribute to residents and/or relatives. A falls prevention information brochure for residents and family members was developed as part of the Star project action plan. This information is now made available by the resident/family notice boards, resident/family meetings and resident/family newsletters.

### ***Facility 8***

Falls prevention information that is available for residents and families now includes a brochure.

## **Monitoring falls / falls injury prevention activities**

### ***Facility 2***

There were changes in the monitoring of falls/falls injury prevention activities, with audits of completion of falls risk screening/ assessment tools and evaluation of falls prevention staff training occurring after project commencement but not before. Likewise, key performance indicators relating to falls/falls injury prevention were used after, but not before, project commencement.

### ***Facility 4***

Evaluation of falls prevention staff training is now conducted whereas it wasn't prior to project commencement.

**Facility 5**

Evaluation of falls prevention staff training and a monthly review of falls incident report data are now conducted whereas they weren't prior to project commencement.

**Facility 6**

There was a change in the monitoring of falls/falls injury prevention activities, with audits of completion of falls risk screening or assessment tools being conducted after project commencement but not before.

**Facility 7**

There was a change in the monitoring of falls/falls injury prevention activities, with audits of completion of falls risk screening/ assessment tools occurring after project commencement but not before.

**Facility 8**

There were changes in the monitoring of falls/falls injury prevention activities, with audits of completion of falls risk screening/ assessment tools and evaluation of falls prevention staff training occurring after project commencement but not before.

**Facility 9**

There was a change in the monitoring of falls/falls injury prevention activities, with audits of completion of falls risk screening or assessment tools being conducted after project commencement but not before.

**Other falls / falls injury prevention activities****Facility 2**

Falls and falls prevention strategies are discussed at case conferences before and after admission of residents. These issues are also discussed after a falls incident occurs. Residents are encouraged to wear hip protectors and participate in exercise programs, such as tai-chi, to prevent falls.

**Facility 4**

The falls resource nurse reported that the facility has taken other measures to prevent falls and falls injuries for the residents. There is improved access to outside areas and placement of mirrors at the end of corridors to increase view.

**Facility 5**

Due to the high rate of falls, falls are discussed at monthly unit meetings and at handover daily.

**Facility 7**

This facility has a falls chart in each module book which has been implemented as a Star project action plan.

**Facility 8**

Other measures undertaken at this facility to prevent falls / falls injuries include:

- New MacIntoshes being placed under kylies
- New footwear
- New signage, and
- Hi-lo chairs

All of these additional activities are as a result of Star Project action plans and environmental modifications.