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RESEARCH
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**Implementation of
an evidence based
falls risk screening
and assessment
for older people
presenting to
Emergency Departments
after a fall**

Final report to the Australian
Government Department of Health
and Ageing

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List of abbreviations

ATSI	Aboriginal and Torres Strait Islander
ADL	Activities of daily living
BRHS	Bairnsdale Regional Health Service
ED	Emergency Department
GP	General Practitioner
GVH	Goulburn Valley Health
HARP	Hospital Admission Reduction Program
HIS	Health Information System
NARI	National Ageing Research Institute
NUM	Nurse Unit Manager
ProFaNE	Prevention of Falls Network Europe
RCT	Randomised Controlled Trial
RACF	Residential Aged Care Facility
SDMH	Sandringham District and Memorial Hospital
VQC	Victorian Quality Council

For the purposes of the literature review the phrase “older people” refers to people aged 65 years and older, but for people of Aboriginal and Torres Strait Islander (ATSI) communities an age of 50 years and older is meant.

Executive Summary

Falls account for around 20% of all Emergency Department (ED) presentations among people aged 65 years and over. Half of all older people presenting to ED with a fall are discharged home. These older people are at high risk of future falls, injuries, depression and functional decline within 6 months after being discharged home from the ED. Despite emerging evidence that a multifactorial intervention is effective in preventing further falls, a strong focus of ED management of fallers is the acute management of injuries, and there is often limited capacity for exploring factors contributing to the fall, or institution of preventive measures to reduce risk of future falls.

There is a clear need to bring together the research evidence of what works (in terms of validated screening and assessment tools, and multifactorial targeted management plans) to reduce the risk of future falls and ED presentations, and hospital admissions. This project aimed to address this need by developing individualised approaches to implementation of the screening / assessment and management processes within each participating ED, recognising the unique characteristics of different EDs. These case studies can serve as demonstrations of how the approach could be utilised more broadly in other EDs. In addition, the resources developed, and a series of state based forums for ED staff will support wider uptake of the approach.

Four EDs (two in Melbourne metropolitan, one in regional and one in rural Victoria) that did not currently use a standardised falls risk screening tool took part in the project. The project team in conjunction with each ED developed individualised implementation models based on their staffing, internal processes, and referral patterns. In first phase, the project team supported each ED to successfully implement best practice falls risk screening processes through focus group, evidence based guidelines, education and training to staff. In the second phase, the project team undertook a process evaluation through random medical record audit, patient interviews and pathway mapping, and staff focus groups. In the final phase, the project team disseminated project outcomes through nationwide workshops to obtain feedback on potential broader application of a falls risk screening tool in other EDs.

Overall, there was an increase in documentation of falls history, falls related referrals, and screening completion immediately after the falls risk screening tool implementation phase commenced. Although the use of the screen was lower than anticipated, falls related referrals increased to 25% during the first three months and maintained at 14% between 3-6 months following screening commencement across the four EDs. Interviews of a randomly selected sample of people who presented to the ED after a fall indicated that nearly half were found to be at high risk of a further fall. Despite the relatively low rates of uptake of the screening process, 39% of the high risk group had a falls prevention intervention subsequent to their ED presentation. The results highlight that there remains scope for further refinements of the methodology applied in this project to achieve improved screening and referral rates.

Based on the activities implemented, evaluation and feedback the project team make the following recommendations:

1. that there be ongoing work towards effective implementation of falls risk screening tools in Emergency Departments;

2. that future approaches explore integrating the falls risk screening tool with other screens and documentation requirements, particularly discharge planning for older people;
3. that the Australian Government and state governments explore opportunities to support building on current interest and activity in falls risk screening in the Emergency Department setting, for example, a further round of workshops in six to 12 months time;
4. that with the transition to electronic records in the ED, falls risk screening and referral tools should be integrated within electronic tools;
5. that scoping of agencies suitable for referral within an ED's catchment be undertaken, to maximise the appropriate linkage of clients with follow up assessment and intervention services; and
6. that the executive summary, barriers and facilitator list, and resources from this project be widely disseminated to support ongoing development in the field.

In summary implementing a falls risk screen in the ED to initiate referrals for further assessment and management remains an important goal for this setting. This project has resulted in production of useful resources to support this and some key learnings of facilitators and barriers to be utilised by other ED's across Australia aiming to achieve the same goal.

1 Introduction

Falls account for around 20% of Emergency Department (ED) presentations for people aged 65 and over (Close et al. 1999; Bell et al. 2000; Lightbody et al. 2002). Each year in Victoria at least 10,000 older people present to hospitals for fall-related injuries and about half are discharged home (Cassell 2001). Approximately a quarter of ED falls presentations amongst people aged 65 and over are from residential care facilities (Bell et al. 2000).

There is no national data on the number of presentations to an ED due to falls. The indicator used nationally to detail the prevalence of falls related injuries is falls related hospitalisations. The age-standardised rate of hospitalisations for injuries due to falls for all people aged 65 years and older in 2003–04 in Australia was 2,295 per 100,000 population, which equates to over 60,000 hospitalisations due to falls (Bradley and Harrison 2007). Given the Victorian data on discharge destination from ED (Cassell 2001), we can assume that about the same number are seen in EDs and sent home.

The majority of older people presenting to an ED have sustained an injury as a result of a fall, with fracture reported as the most common injury (Bell et al. 2000; Russell et al. 2006). Assessment and management of falls in the ED often mainly focuses on the injury, with limited time and resources utilised to investigate falls further (Close and Glucksman 2000). Injuries can result in physical impairments such as pain, decreased strength, and also in secondary problems such as depression, fear of falling, and general de-conditioning (Close et al. 1999; Russell et al. 2006). These problems can lead to loss of independence, poor lifestyle, reduced quality of life and death.

Falls presentation to the ED by older people impact on the burden of the health system in Australia. The health system cost in Western Australia alone was estimated at around \$83 million in 2001 and is projected to increase to \$174 million in 2021 if there is no change in falls rates (Hendrie et al. 2004). Furthermore, this study also reported that over half of this cost was due to hospital inpatient treatment and the overall cost became more pronounced with increasing age.

There is strong research evidence from randomised controlled trials that demonstrate that falls can be prevented among older people living in the community (Gillespie et al. 2003; Hill et al. 2004). Single intervention approaches that have been shown to be effective include:

- exercise programs that incorporate balance (home exercise, tai chi, group exercise);
- psychotropic medication withdrawal;
- home visits by Occupational Therapists ;
- cataract extraction; and
- vitamin D and calcium supplementation.

In addition, falls prevention approaches that combine two or more approaches (multi-factorial programs), usually based on addressing risk factors identified through a comprehensive falls risk assessment process, have been shown to be effective.

Evidence from randomised controlled trials indicates that vitamin D and calcium supplementation can reduce the risk of fractures (Bischoff-Ferrari et al. 2004). However, early promise of injury prevention research of hip protectors in the residential care setting has not been sustained in community dwelling populations, where compliance with use is poor (Parker et al. 2005).

Data from a large randomised trial involving seven large metropolitan Melbourne Emergency Departments indicated that approximately 50% of ED fallers in the control group experienced falls in the subsequent 12 months (Russell et al. submitted). This project has used a comprehensive falls risk assessment tool – the Falls Risk for Older People –Community version (FROP-Com) in a home assessment by a health practitioner (physiotherapist, occupational therapist, or medical practitioner) as the basis for determining appropriate interventions. Work to date has shown that:

- (1) older people presenting to EDs and being discharged home on average have a very high risk of falling (Russell et al, 2006);
- (2) the FROP-Com has high retest and inter-rater reliability (Russell et al. in press);
- (3) the FROP-Com is able to discriminate mild levels of falls risk (Murray et al, 2005); and
- (4) the FROP-Com has moderately high predictive accuracy in identifying those presenting to ED after a fall who will fall again in the subsequent 12 months (Russell et al. in press)

From the results of this work (which was still in progress at the time of commencement of this project), an abbreviated version of the FROP-Com was developed, based on those items most strongly predictive of future falls risk from the full FROP-Com assessment. This abbreviated tool (the FROP-Com screen) has 3 items. It is proposed that this 3 item screen will be more practical and time efficient within the busy Emergency Department setting, and will be able to be used in ED's to determine those at greatest risk of future falls, which will inform decision making as to those who require a full FROP-Com or other detailed assessment and management plan.

Although there have been some changes within staffing, structure and processes within Emergency Departments in recent years to address the broader management of patient throughput and time management, older people presenting with falls often still do not receive a management plan that will see their falls risk assessed and managed. There is a clear need to bring together the research evidence of what works (in terms of validated screening and assessment tools, and multifactorial targeted management plans) to reduce the risk of future falls and ED presentations, and hospital admissions. This project aimed to address this need.

Project Aims:

- (1) to establish processes for successful implementation of a validated falls risk screening process (and subsequent assessment where indicated) for older fallers presenting to Emergency Departments;
- (2) to evaluate outcomes associated with the newly implemented falls risk screening and assessment procedures; and
- (3) to develop and implement a dissemination plan to promote project outcomes and strategies to support broader implementation of the screening and assessment procedures.

1.1 Definition of a fall

There are many definitions of falls, however for the purpose of this project, a fall is defined as:

“An event which results in a person coming to rest inadvertently on the ground or floor or other lower level” (World Health Organisation)

2 Literature Review

A literature review was conducted to inform the development of the guidelines. The literature review sought evidence regarding best practice for falls prevention for older people who are discharged home after presenting to an Emergency Department following a fall. A computerised literature searches was conducted using MEDLINE (Ovid and PubMed) and CINAHL in March 2007.

The search strategy included:

[old* OR aged* OR elder* OR senior* OR geriatr* OR“65+”]

AND

[fall* OR stumble* OR trip* OR slip*]

AND

[emergency* OR casualty OR “ED” OR “A&E” OR accident*]

AND

[prevent* OR guideline* OR “best practice” OR treat* OR “risk assessment” OR strateg* OR screen* OR intervention*]

The search was then refined using the MESH terms Accidental Falls/prevention & control OR Accidental Falls

The MEDLINE search was limited to articles in:

- English,
- human,
- people aged 65+ years and
- time span 1990-2007, the search field being the abstract and title.

Further articles were found using a snowballing approach by obtaining other references from reference lists at the conclusion of articles. Other articles were obtained from previous literature searches completed by NARI staff members as well as through searching the Australian federal and state governments key references and publications on falls amongst older people. Researchers in the area of falls in older people were also contacted and secondary references checked.

2.1 Selection criteria

All articles relating to falls for older people who presented to an ED following a fall were identified. Titles and abstracts of articles were examined to determine the appropriateness of the article in relation to the aim of this literature review.

2.2 Appraisal of selected papers

Levels of evidence based on the National Health and Medical Research Council (NHMRC) guidelines were applied to all articles on older people presenting to the Emergency Department following a fall. Selected articles were appraised and rated based solely on their study design.

Level of evidence	Description
I	Evidence obtained from a systematic review of all relevant randomised controlled trials.
II	Evidence obtained from at least one properly designed randomised controlled trial.
III-1	Evidence obtained from well designed pseudo-randomised controlled trials (alternate allocation or some other method).
III-2	Evidence obtained from comparative studies with concurrent controls and allocation not randomised (cohort studies), case control studies, or interrupted time-series with a control group.
III-3	Evidence obtained from comparative studies with historical controls, two or more single-arm studies, or interrupted time series without a parallel control group.
IV	Evidence obtained from case series, either post-test or pre-test and post-test.

Also used for the purpose of this review is the term “Consensus Opinion”, which was used to describe evidence based on consensus of expert opinion and the findings of expert working parties (The Victorian Quality Council 2004).

2.3 Data synthesis

All articles identified as relevant were read by at least one member of the project team. Key themes related to effectiveness of falls prevention approaches in the ED, and factors influencing best practice were extracted and integrated into the review. As the type of interventions, study designs and study populations were heterogenous, a meta-analysis was not undertaken.

2.4 Results

The initial electronic search identified 648 articles, this was reduced to 160 on the inclusion of the MESH terms. On review of article titles, 62 articles were selected as being of direct relevance and abstracts were obtained. The abstracts were further reviewed and 16 articles with a specific emergency department focus were found.

Of these

- five were randomised controlled trials involving patients recruited through an ED,
- two were cohort studies examining the preventative measures taken and falls outcomes,
- two were from a single pre and post study of the implementation of falls practice Guidelines examining i) falls documentation and ii) self-reported preventive health measures and falls rates post ED presentation,
- two were cross sectional descriptions of falls risks present and functional decline associated with the fall,
- one was a file audit of documentation,
- one was a descriptive study of the reported practices of healthcare providers in regard to evidence based falls prevention, and
- three were reviews of the literature.

A number of other falls prevention reports, reviews and guidelines were reviewed. These documents addressed fall prevention in the community; in hospitals both acute and sub-acute; and residential care facilities. However none of them specifically addressed falls prevention in the Emergency Department. They included:

- Australian Government Department of Health and Ageing, literature review by NARI,
- Australian Council for Safety and Quality in Healthcare Guidelines,
- Victorian Quality Council Guidelines, and
- NHS Patient Safety Observatory reports.

2.4.1 Falls risk amongst older people presenting to an ED

Falls are multifactorial and can be caused by extrinsic risk factors, intrinsic risk factors or a combination of both (Hill and Schwarz 2004). Extrinsic risk factors include environment or activities associated with high risk of falling such as uneven footpaths, poor lighting or loose mats on the floor. Intrinsic risk factors refer to age-related physiological and pathological changes in the sensory, neurological and musculoskeletal systems relating to balance. Medications are considered one of the intrinsic risk factors for falls. Older people presenting to an ED with a fall exhibit multiple risk factors (Bell et al. 2000). Evaluation of risk factors in an Australian group of fallers over 60, who had presented to an Emergency Department after a fall and were discharged home showed a mean of 7.3 risk factors per participant, the most common being: polypharmacy, home hazards, balance deficit, arthritis and a history of falls in the last 12 months (Russell et al. 2006).

Older people who present to an ED after a fall are at high risk of falls. Two thirds reported having one or more falls in the year prior to attending an ED (Close et al. 1999; Russell et al. 2006). Falls rates after an ED presentation range from:

- 25% (Lightbody et al. 2002) to 33% (Salter et al. 2006) after 6 months,

- 19.3% (Baraff et al. 1999a) to 52% (Close et al. 1999) after 12 months and up to 68% after 12 months in a high risk group (Davison et al. 2005).
- Nearly half of older people had fallen again after 18 months (Donaldson et al. 2005).

Re-presenting to an ED with further falls can be common with 6% re-presenting within 24 hours (Salter et al. 2006).

Despite the documented presence of risk factors, the proportion of older fallers being discharged directly home varies between 35% to 63% (Bell et al. 2000; Cassell 2001; Lightbody et al. 2002; Paniagua et al. 2006). Those discharged home were often managed for their injury alone, and 10% (Paniagua et al. 2006), 28% (Salter et al. 2006) and 37% (Reeson and Wafer 2001) had no follow up plan documented. There is some evidence to suggest that older people being discharged home from an ED have limited usage of support services after returning home (Rowland et al. 1990).

Even those who fall but do not present to an ED may be at high risk. A recent study in the UK found that of people who called an ambulance after a fall, more than a third were left at home, and of these 49% called an ambulance at least once during the next two weeks. This group was at 5.4 times greater risk of death during that two weeks, compared to an age matched population (Snooks et al. 2006).

Key Points

- People who present to an ED for a falls related presentation are at high risk of further falls.
-

2.4.2 Falls risk screening and assessment

Screening refers to a quick process to identify patients who are at greatest risk of falling and in need of more detailed assessment. Assessment refers to a more detailed process to identify the falls risk factors that contribute to a persons overall risk of falls and falls related injuries (The Victorian Quality Council 2004). Information from a falls risk assessment should inform decisions about appropriate interventions to reduce the risk of future falls.

It is important that risk factors, if present, are appropriately assessed. This may not happen without raised awareness and follow through. No-one in a cohort of older women who had fallen and presented to an ED reported being referred for a vision assessment in the next 18 months (Donaldson et al. 2005). Lack of appropriate care may mean that people face an increased risk of falling. Falls risk profile increased significantly in the six months after a falls related ED presentation for a Canadian cohort of older people, who failed to receive guideline care (Salter et al. 2006).

Studies examining falls risk factors in people who have presented to an ED after a fall often have reported multiple modifiable risk factors that are able to be identified on assessment (Close et al. 1999; Whitehead et al. 2001; Lightbody et al. 2002; Davison et al. 2005). One study using retrospective screening of medical records identified polypharmacy, contributing medical conditions and cognitive impairment as important falls risk factors, although falls history was not collected in most fallers

(Paniagua et al. 2006). These risk factors may not be identified or addressed at the current level of usual care (Salter et al. 2006).

Key Points

- Screening people for falls risk targets those in need of detailed assessment.
-

2.4.3 Falls prevention in the Emergency Department setting

There has been a number of RCT's that have worked with groups of older people who have presented to an ED after a fall. These studies, by recruiting through an ED, are effectively screening for falls and referring on for further assessment, in these cases, by the research team.

Close and colleagues found that medical assessment by a Geriatrician; focusing on visual acuity, balance, cognition and medication review, with appropriate referral and direct contact with the general practitioner, and an occupational therapy home safety visit reduced the risk of falling by 61% after one year. The authors recommend the adoption of clear fall prevention strategies for older people presenting to an ED (Close et al. 1999).

A similar study included medical assessment and intervention - visual acuity, cardiovascular assessment and medication review; physiotherapy assessment and intervention for gait and balance; and occupational therapy home safety assessment and interventions. The study selected people who had at least one fall in the 12 months preceding the index fall leading to the ED presentation and were thus a higher risk group. Falls were reduced by 36% after one year, although the percent of people who fell did not change (Davison et al. 2005).

A nurse-led falls prevention intervention that addressed similar risk factors as the above two studies, failed to find a significant reduction in falls after six months. This study was reliant on referrals to GP's to make changes to medical treatments such as changes to medications, and referrals to physiotherapists and occupational therapists (Lightbody et al. 2002).

An Australian study to investigate the effect of an individualized falls risk profile based on screening for known risk factors, failed to find a reduction in falls after 6 months. This study screened for risk factors and then sent a letter to the person's GP detailing the risks found and suggestions for appropriate falls reduction strategies (Whitehead et al. 2001).

A key group of people excluded from the above studies is people with cognitive impairment. One study was identified that selected people over 65 who had presented to an ED and had cognitive impairment. All people recruited to this study were given a multifactorial risk assessment, while only those in the intervention group had recommended interventions identified. This study failed to find a significant difference in falls after one year (Shaw et al. 2003).

From the reviewed studies of older people presenting to ED's after a fall, a number of points can be drawn.

- This group is at high risk of recurrent falls, although lack of consistent format of reporting falls rates (eg falls per 1,000 person days) makes comparisons difficult.
- Follow up periods need to be long enough for outcomes to become apparent, increasing the power of the studies. One year is recommended by ProFaNE (Lamb et al. 2005).
- Falls can be reduced in people aged 65 and over who present to an ED.
- Interventions arising from a specialist, multifactorial falls risk assessment, are a common theme in the successful trials.
- To date people with cognitive impairment have generally been excluded from successful falls prevention studies. Different falls and injury prevention strategies may be required for this group.

Although the evidence from RCT's may show that multifactorial treatments can reduce the risk of falls, there is however little evidence that such interventions are routine for this high risk group. Of older women who had fallen and presented to an ED, most did not receive guideline care with 32% reporting being referred to their family physician, 24% reporting being referred for physiotherapy, and none reporting being referred for a vision examination (Donaldson et al. 2005). Older ED patients received appropriate fall evaluation in 3.4% of files audited in an assessment of the quality of care received (Wenger et al. 2003) and 3.7% of cases on review of file and interview (Salter et al. 2006).

Key Points

- The risk of future falls can be reduced in older people who have presented to an ED after a fall,
 - A falls risk assessment forms the basis for referral and treatment in successful programs for older people presenting to an ED after a fall.
 - Falls and falls related injury prevention strategies may need to be different for people with cognitive impairment.
-

2.4.4 Falls prevention reviews

There have been a number of systematic reviews of the falls prevention literature. These include Cochrane reviews (Gillespie et al. 2003; McClure et al. 2005), other systematic reviews and meta analyses (Hill-Westmoreland et al. 2002; Moreland et al. 2003; Chang et al. 2004), a review for the WHO (Todd and Skelton 2004), a report for the Australian Government Department of Health and Ageing (Hill et al. 2004) as well as reviews made as part of guidelines development (*see below*). The reviews generally concur as to the evidence on falls prevention. Multidisciplinary, multifactorial, health / environmental risk factor screening/intervention programs are likely to be beneficial, as are single interventions such as exercise programs designed to increase strength and balance, Tai Chi, home hazard identification and modification and cardiac pacemakers where appropriate (Gillespie et al. 2003; Todd and Skelton 2004; Rubenstein 2006; Ganz et al. 2007). The importance of identifying people at high risk of falling is a consistent theme across reviews (American Geriatrics Society et al. 2001; Hill and Schwarz 2004; Todd and Skelton 2004), and the ED has been identified as a key point for conducting risk screening and/or assessments (Currie 2006).

The foregoing reviews were falls prevention in general and mainly covered community-dwelling older people. Another three reviews specifically examined falls prevention for older people presenting to the ED following a fall (Babcock Irvin et al. 2000; Burns 2001; Weigand and Gerson 2001). The reviews suggested that multidisciplinary intervention was effective in reducing falls and that early identification of ED patients at risk of falling was feasible. The reviews also found a lack of falls prevention research based at an ED as there was only one randomised controlled trial, the PROFET study (Close et al. 1999), at the time.

2.4.5 Falls prevention guidelines

There have been a number of guidelines published for the prevention of falls (Feder et al. 2000; American Geriatrics Society et al. 2001; Moreland et al. 2003; The Victorian Quality Council 2004; Australian Council for Safety and Quality in Health Care 2005; McInnes et al. 2005). Only one of these guidelines (Baraff et al. 1997) specifically targets Emergency Departments (others have been developed for one or more of the main settings for falls prevention – community, hospital, or residential care facilities), although some guidelines identify the Emergency Department as a venue where those who have had a fall can be identified and targeted for follow up. Common elements across the various guidelines include recommendations for:

- screening or assessment to identify those at increased risk of falls, and factors contributing to the increased falls risk. It is recommended that a validated screening / assessment tool be used. Details about circumstances of previous falls should be included as they can provide useful information in determining possible contributory factors;
- developing a plan of referrals / interventions that address the key identified falls risk factors;
- implementing the referrals / interventions to reduce risk of future falls. These include single interventions that have been shown to be effective in reducing falls (eg balance related exercise programs, reduction of psychotropic medications, home assessment and modifications (including behavior modification) by occupational therapists, cataract surgery), and injury prevention approaches such as hip protectors, and strategies to increase vitamin D levels. Combinations of these single intervention approaches (ie multi-factorial interventions combining two or more single interventions) have also been shown to be effective, including in high risk populations such as people presenting to Emergency Departments after a fall, and people in residential care settings;
- providing information to older people with increased risk of falls (verbal and / or written) to support their understanding that falls can be prevented, and strategies that can achieve this;
- providing falls prevention training for staff involved with assessment, referral, and implementation of interventions for people with increased falls risk; and
- organizations should periodically review processes to minimize risk of falls, for example, audit the completion rate of falls risk screening tools, and of referrals / interventions being implemented.

2.4.6 Adherence with falls prevention recommendations

One critical issue with falls prevention is that of adherence to fall prevention initiatives. The point has been made that effective falls prevention requires a considerable commitment from the person participating (Skelton and Todd 2005), yet adherence to falls prevention recommendations can be highly variable. The best

adherence data for fall prevention activities is on home modifications and exercise. One reported measure of compliance with home modifications is the percentage of people who had undertaken at least half the home modifications recommended. At least half of home modification recommendations were adhered to, for 65% (Cumming et al. 2001) and 70% (Clemson et al. 2004) of participants. However adherence to individual modifications range from 19% to 72% (Cumming et al. 2001; Stevens et al. 2001; Clemson et al. 2004).

Adherence rates are highly implicated in the efficacy of exercise programs to prevent falls. Campbell et al in a report on the Otago exercise program found a significantly lower rate of falls in the highest adherence group (exercise three or more session per week) compared to the lowest (exercise less than once per week) (Campbell et al. 2005). Lord et al used attendance records of exercise classes to determine adherence. While the 12-month exercise program for older women did not reduce falls overall, the data suggested that the high adherence group had fewer falls than the group with low adherence to the program (Lord et al. 1995).

Key Points

- Adherence to falls prevention recommendations increases the likelihood of successful outcomes.

2.4.7 Client perspectives

Recognition that adherence to falls prevention interventions is problematic has lead to some examination of older peoples' attitudes and beliefs behind non adherence with recommendations (Clemson et al. 1999; Managing Innovation 2000; Yardley et al. 2006). There are also a number of factors related to the client that can influence uptake and longer term adherence to recommendations to reduce falls. Pride can act as a barrier to the adoption of falls prevention strategies, with many unwilling to appear dependent on anything from spectacles to walking sticks even when they definitely need them (Managing Innovation 2000). Older people may agree that falls prevention is important, but underestimate their risk (Braun 1998), and thus think such prevention is for other older people (Yardley et al. 2006). The term 'falls prevention' may be unfamiliar and the concept difficult for many older Australians to grasp. Older people appear more likely to be motivated by references to falls prevention if it is presented in the context of being in control, remaining independent and in one's own home for longer (Managing Innovation 2000).

Ownership of strategies and the concept of exerting control over ones' environment have been found to be central to why older women do or don't follow through with recommendation on home modifications to reduce the risk of falls (Clemson et al. 1999). Future approaches must be owned by and make sense to clients.

Key Points

- Older people can have ambivalent attitudes to falls prevention advice.
- Maintaining independence, rather than "falls prevention", may be a more acceptable approach to older people.

2.4.8 Health services and health providers perspectives

Whilst the steps taken to disseminate an evidence based fall risk assessment and management strategy have been published, (Baker et al. 2005) and facilitators and barriers to physician uptake of falls risk assessment elicited (Fortinsky et al. 2004; Chou et al. 2006), no studies were found that successfully implemented fall prevention guidelines in an Emergency Department. Nor were studies showing good take up of falls prevention guidelines in Emergency Departments found. The production of guidelines appears inadequate in isolation to improve falls prevention practice (Baraff et al. 1999a; Baraff et al. 1999b; Donaldson et al. 2005; Salter et al. 2006).

Barriers to appropriate intervention were perceived by ED staff to be:

- lack of patient compliance,
- patient co-morbidities,
- time and staffing shortages, and
- economic constraints on patients.

Barriers to appropriate referral were noted as:

- lack of physician availability,
- lack of relevant resources in the community, and
- patient non-compliance (Fortinsky et al. 2004).

This same study identified a need for an organized referral protocol to facilitate comprehensive assessment and long term follow up (Fortinsky et al. 2004). Primary care physicians when interviewed identified the following barriers to fall risk evaluation:

- physician factors of
 - lack of awareness,
 - competing priorities, and
 - lack of training.
- logistic factors of
 - lack of transport for patients,
 - lack of time to conduct a full evaluation,
 - lack of reimbursement for the time to do a full evaluation, and
 - patient attitudes.

They identified circumstances which improve outcomes, including:

- link in to already performed activities such as osteoporosis prevention,
- involvement of family,
- requests from patients to review medications,
- reports from patients of dizziness, and
- positive feedback from patients about physiotherapy,

as facilitators to appropriate falls evaluation and management (Chou et al. 2006).

Key Points

- Having falls prevention guidelines in isolation is unlikely to change practice and improve outcomes. Strategies to support implementation of guidelines, facilitate appropriate change in practice, and address identified barriers are likely to improve outcomes.
 - Practitioners have an important role in identifying and working to minimise individual and service system factors that could limit uptake and adherence to falls prevention recommendations.
-

2.5 Discussion

Falls in older people are a major factor influencing functional independence and quality of life for the individual, and a substantial burden on the healthcare system in terms of both the Emergency Department presentations and in admissions to hospital. With an ageing population, projections indicate that demands on the healthcare system will escalate unless effective preventive steps are implemented.

Falls are a complex problem with many, very different contributing factors which may lead to a fall. The more risk factors present the higher the risk of a fall (Tinetti et al. 1988). Research has shown that a multi-factorial, multidisciplinary approach can reduce the chance of falling in community dwelling older people, even those with high risk of falls (Gillespie et al. 2003).

There is emerging evidence that falls prevention strategies at a population level may be effective in reducing falls (Beard et al. 2006). However, the primary focus of falls prevention activities has been to identify those people at increased risk of falls, and implement targeted interventions to address risk factors.

Studies have shown that people who have presented to an ED for a fall related injury are likely to have fallen previously (Close et al. 1999; Russell et al. 2006), and likely to fall again (Close et al. 1999; Bell et al. 2000; Davison et al. 2005; Donaldson et al. 2005; Russell et al. 2006; Salter et al. 2006). Clearly this is a high risk group of people who are highly likely to benefit from falls prevention initiatives.

There appears to be challenges in implementing fall prevention care to this high risk group. A busy ED may not be the appropriate setting for a comprehensive falls risk assessment. However, it may be an appropriate place to perform screening and initiate referrals for ongoing assessment and management (Hegney et al. 2006).

There have been a number of guidelines developed to assist clinical staff provide evidence based care for older fallers. These guidelines are typically aimed at either the community at large (Feder et al. 2000; American Geriatrics Society et al. 2001; Moreland et al. 2003; The Victorian Quality Council 2004; Australian Council for Safety and Quality in Health Care 2005; McInnes et al. 2005) or to hospitals and residential care facilities (The Victorian Quality Council 2004; Australian Council for Safety and Quality in Health Care 2005). Only one set of guidelines was aimed at ED's (Baraff et al. 1997). This was implemented through a one off educational intervention, and as it was not an official guideline of the organization, there were no ongoing quality management activities to support practice change. This study obtained small but important improvements in the documentation of selected history and physical examination items and the prescribing of calcium and vitamin D, (Baraff et al. 1999b), but did not reduce the rate of repeat falls following the ED visit after the implementation (Baraff et al. 1999a).

Barriers to effective falls prevention management in an ED have been reported, including lack of time and staffing shortages, complexity of patients, lack of resources in the community and lack of patient adherence (Fortinsky et al. 2004). An approach that incorporated an organized referral protocol to access local expertise in assessment of falls risk factors was considered to be promising by ED physicians (Fortinsky et al. 2004).

Older peoples' attitudes to, and engagement with, falls prevention need to be taken into consideration when determining the most appropriate falls prevention interventions for an individual. Older people may have ambivalent attitudes to falls prevention, which may stand in the way of their adoption or follow through with falls prevention interventions. Strategies are needed to support older people understand the need and potential benefits of the falls prevention recommendations being made, and to support them in the uptake and longer term participation in these recommendations.

2.6 Conclusions

There is high quality evidence that falls by older people may be prevented in high risk groups in the community. The presentation at an Emergency Department with a falls related injury is often preceded by other falls, which means that this group is at high risk of falling again. Best practice falls prevention indicates that a multi-factorial, multidisciplinary approach based on a detailed assessment of falls risk factors is most likely to be effective in this high risk group.

The challenge is to identify those people coming into an ED who would benefit from falls prevention interventions and to embed in routine practice activities that would support implementation and sustained involvement of the patient in recommended falls prevention activities.

A guidelines document has been produced (NARI 2007) which outlines recommendations based on the literature review (Blackberry et al. 2007), to support practice change to embed an evidence based falls prevention approach within the ED setting.

3 Best Practice Guidelines

Best practice fall prevention guidelines for the Emergency Department were developed by NARI in conjunction with a project steering committee group that included an ED clinician, representatives of the Australian Government Department of Health and Aging, the Victorian Department of Human Services, the Australian Government Department of Veterans' Affairs, and a consumer representative. Staff at participating EDs where the guidelines were to be piloted were also involved with the guidelines development.

3.1 Objectives of the Guidelines

3.1.1 Target populations

The guidelines were designed for older people (aged 65 years and over or aged 50 and over for people from Aboriginal and Torres Strait Islander communities). The principles may also have applicability to younger people with health problems contributing to a fall causing presentation to an ED.

The guidelines primarily target those presenting to an ED from home, and who are discharged home from the ED (ie not those who are admitted), although the principles in these guidelines could form the basis of assessment and management / documentation / transfer of information etc for those being admitted to hospital as well.

Likewise, the principles in the guidelines should apply to people presenting to an ED from residential care, although the guidelines have not been specifically designed to target this group. However the FROP-com falls risk screen itself was developed in a population that did not include bed or wheelchair bound people and as such it is not appropriate for use with these people.

None of the identified studies explicitly included Aboriginal and Torres Strait Islander people. The inclusion age for this group (>50 years old) was based on the age for inclusion in Australian Government funded aged care initiatives.

3.1.2 Scope of guidelines

The purpose of these guidelines is to provide an evidence based framework for older people who present to an ED to receive appropriate screening, referral and management of their falls risk factors. There is substantial research evidence, that with appropriate identification and management of risk factors, falls can be prevented in high-risk groups (Gillespie et al. 2003; Hill et al. 2004). Comprehensive use of an evidence based screening tool to identify people at high risk of falling will facilitate referral to health services that can further assess and address modifiable risk factors. The appropriate management and prevention of falls in an older population is likely to reduce the fall related consequences of de-conditioning, fear of falling, fractures, admissions to hospital and nursing home admissions.

Older people who present to an ED after a fall and are discharged home are at high risk of further falls. These guidelines are designed to guide best practice falls

prevention actions implemented by staff for older people presenting to Emergency Departments after a fall, to improve outcomes and reduce the risk of further falls or injuries from falls. They are designed to be used by Emergency Department staff including medical officers, nursing staff, care co-ordinators and allied health staff, to support best practice care and management for older people who may be at high risk of further falls and subsequent injury, possible hospitalisation or entry into supported care as a result of a fall.

Potential health benefits of implementing these recommendations are the reduced risk of falls and injury, hospitalisation and entry into supported care secondary to falls. Additional benefits may include maintained quality of life, decreased fear of falling, and improved strength, balance and function.

3.1.3 Updating the guidelines

The research evidence base in falls prevention is growing rapidly. There is a need for intermittent review of any guidelines in the context of new research evidence. The NHMRC recommend that Clinical Guidelines be reviewed every 3 to 5 years. It is therefore, recommended that these guidelines be reviewed and updated in 2010.

3.1.4 Implementation of the guidelines

These guidelines provide framework for EDs to determine areas of current practice which do and do not meet best practice in falls prevention. They need to be considered in the context of other areas of quality care for older people in EDs. There needs to be support for the implementation to maximise likely outcomes, including:

- staff training;
- policies and procedures;
- ongoing review; and
- linkage with other falls prevention programs (such as within the hospital and the local community).

3.2 Guideline recommendations

Recommendation 1. All Emergency Departments should have a policy that outlines procedures for screening, assessment, management and referral of older people presenting to Emergency Departments as a result of a fall.

Evidence Level - consensus opinion (Baraff et al. 1999a).

Rationale: A policy outlining procedures for assessment, management and referral will provide clear guidance to staff in the Emergency Department as to expected practice. Without such a policy consistent practice is unlikely.

Recommendation 2. All Emergency Department staff should have an opportunity for orientation training, and ongoing education, which includes falls prevention policy and procedures and research evidence to support this.

Evidence Level - consensus opinion (McInnes et al. 2005)

Rationale: Orientation and professional development that include falls prevention policy are important ways in which the policy is disseminated to staff. Without familiarity with the policy and procedures and the research evidence that supports it, evidence based best practice is unlikely to be consistently practiced (McInnes et al. 2005).

Recommendation 3. An evidence based screening procedure, which identifies older patients presenting to Emergency Departments at risk of future falls, should be implemented independently, or within an overall risk screen.

Evidence Level – consensus opinion (Perell et al. 2001)

Rationale: Use of a falls risk screen to identify high risk patients and to trigger further actions is an important part of clinical practice (Perell et al. 2001). People who have had a recent fall may not have sought medical assistance at the time (Gabell et al. 1985). A presentation at an ED is an important opportunity to establish if the person has had a previous, possibly unreported fall, or has previously unrecognised falls risk factors.

Recommendation 4. All older people with an elevated falls risk should have modifiable falls risk factors addressed.

Evidence Level – II (Close et al. 1999; Davison et al. 2005)

Rationale: Identified falls risks such as poor balance and deteriorating eyesight are able to be addressed either through direct referral by the ED staff to appropriate health services, such as physiotherapy or optometry, or by referral to a health service who will undertake further assessment and / or introduce appropriate intervention or make referrals for these to occur. If other factors contributing to falls risk are evident (for example use of psychotropic medications, or involvement of home hazards in a fall), referrals may be made to address these factors as well.

Recommendation 5. All older people with a high falls risk identified on a screen should have a comprehensive falls risk assessment conducted by a trained practitioner using a validated tool.

Evidence Level – II (Close et al. 1999; Davison et al. 2005)

Rationale: It may not be feasible to conduct a comprehensive falls risk assessment within the context of a presentation to an ED. If this is the case, people with high falls risk should be referred to a health service / practitioner that is able to conduct a comprehensive assessment and make referrals for risk factors that are subsequently revealed. This could possibly involve a nurse or Care Coordinator from the ED, the general practitioner, the Assessment Team, or a community therapist.

3.3 Good Practice Points

1. The older persons' primary health provider should be informed of the risk screening result and subsequent referrals.

Follow up of modification of risk factors identified from initial screening and any subsequent assessment, is vital. A persons' primary health care provider, such as General Practitioner (GP) is the key person for ongoing management of identified risk factors. The GP should be alerted to the necessity of ongoing monitoring of falls risk, even when the person is found to be currently at low risk, as falls risk increases with age.

2. The Emergency Department should have a clear referral pathway identified for people found to be at high risk of falls or who have modifiable falls risk factors.

The screening and subsequent referrals must be as streamlined as possible for the clinicians in the ED. There should be as little opportunity as possible for system error to impede the appropriate management of falls risk. Strategies such as pre-formatted referral forms can support implementation of the referral process.

3. The Emergency Department staff should communicate clearly to patients and their carer/s about the potential benefit and rationale for referrals and intervention recommended to reduce falls risk.

Clear communication about the reasons referrals are being made and the potential benefits that might ensure is important. This will help patients and their carer/s to take up the falls prevention recommendations being made. Strategies to support the older person in uptake of and longer term participation with falls prevention recommendations are vital.

4. Emergency Departments should review the completion of falls risk screening and referral as part of their routine audit of medical records.

The introduction of guidelines is not in itself sufficient to ensure good implementation (Baraff et al. 1999a; Baraff et al. 1999b). One tool of implementation is the provision of feedback to the group. Conducting an audit of files such as using the audit tool developed (see Appendix 1) will provide necessary feedback to identify areas where practice can be improved (McInnes et al. 2005).

4 Development of the FROP-Com screen

4.1 Background

The FROP-Com screening tool was developed from a longer falls risk assessment tool - the Falls Risk for Older People in the Community [FROP-Com] assessment tool. In the year 2000 a team of experts at the National Ageing Research Institute developed the FROP-Com assessment tool, as a comprehensive falls risk assessment for community dwelling older people. The FROP-Com covers 13 risk factors in 26 questions with ordinal scoring (0 –3) or dichotomous scoring. It is suitable for use by all health professionals looking for a tool to investigate the multiple factors associated with falling. It has been found to have high levels of reliability and moderate predictive accuracy (Russell et al. in press). The full FROP-Com assessment tool and its guidelines for scoring and further assessment and interventions are available at <http://www.health.vic.gov.au/agedcare/maintaining/falls/providers/home/frop.htm>.

Over time it became apparent that there was a clinical need for a shorter screening tool, which could be used by health professionals to quickly assess falls risk, when time was limited (e.g in the ED). Thus a study to produce a FROP-Com screening tool was designed. The aims of the FROP-Com screen study were to (1) develop the subset of items from the FROP-Com assessment tool that were most predictive of falls into the FROP-Com screen, (2) evaluate the newly developed FROP-Com screen's predictive capacity and (3) evaluate the newly developed FROP-Com screen's reliability.

4.2 Methodology

4.2.1 Development of the FROP-Com screen and its predictive accuracy

The study to develop the FROP-Com screen was undertaken as a prospective cohort study, utilising participants randomised into the control arm of a larger randomised controlled trial (RCT). Participants were recruited through seven acute hospital Emergency Departments in Melbourne, Australia. Patients were eligible if they were aged sixty years or older, lived in the community; presented to an ED as a result of a fall; were discharged directly home following emergency care and were able to walk independently.

After discharge from the ED participants were visited at home by a member of the research team. The FROP-Com was performed at this home based assessment. The outcome measure used was the occurrence of falls (no falls versus at least one fall) in the 12-month follow-up period. The individual items from the full FROP-Com assessment tool most predictive of falls in the 12 month follow-up period were selected to form the FROP-Com screen. These items were identified through univariate and multivariate logistic regression. The FROP-Com screen was then evaluated by calculating sensitivity and specificity at different cut-offs. The best cut-off was identified by finding the cut-off with the highest Youden's Index (sensitivity + specificity –1).

4.2.2 Reliability of the FROP-Com Screen

Intra-rater and inter-rater reliability were also assessed as sub-studies within the RCT. Twenty consecutive consenting participants from one hospital took part in the intra-rater reliability study and 20 consecutive consenting participants from a second hospital took part in the inter-rater reliability study. The inclusion criteria for the reliability studies were participation in the RCT and having functional English.

Intra-rater and inter-rater reliability were assessed by comparing the FROP-Com screen score obtained in the post ED discharge home visit with that obtained in a second home visit. For the intra-rater reliability study one rater (a Physiotherapist) performed all of the initial post ED discharge assessments and then returned to the participant's house two weeks later to repeat the FROP-Com. For the inter-rater reliability study two raters (a physiotherapist and a Doctor) performed the FROP-Com with the 20 participants. In the second visit, two weeks later, the assessor was blinded to the initial FROP-Com results. To determine the intra-rater and inter-rater reliability of the FROP-Com, Intraclass Correlation Coefficients (ICC) and 95% confidence intervals were calculated.

4.3 Results

4.3.1 Development of the FROP-Com screen and its predictive accuracy

The initial analysis for the FROP-Com screen was undertaken before the main study was completed. At this time, there were 184 participants in the control group of the study, whose data was analysed for the purpose of developing the FROP-Com screen. Of the 184 participants in the study 70.1% (95% CI: 62.9% – 76.6%) were female and the mean age was 76.5 (95%CI: 75.3 – 77.7). In the 12-month follow up period, 97 of the 184 participants (52.7%) sustained one fall or more falls (Russell M, unpublished data).

In the multivariate logistic regression, number of falls in the past 12 months, observation of the person's balance and the person's self report of their vision were statistically significant independent predictors of falls. These three items were selected to comprise the FROP-Com screen. Added together the three items had a score range of zero (no risk) to seven (high risk). Youden's index was highest (0.25), indicating the best level of predictive accuracy, at the cut off of 2/3, with 2 or less indicating lower risk and 3 and above indicating higher risk. At this cut-point sensitivity was 70.1 (95%CI: 61.0-79.2) and specificity was 55.2 (95%CI 44.7-65.6).

4.3.2 Reliability of the FROP-Com Screen

The ICC for intra-rater reliability for the FROP-Com was 0.64 (95%CI: 0.22- 1.00) and the ICC for inter-rater reliability was 0.82 (95%CI: 0.56-1.00).

4.4 Discussion

In summary, the FROP-Com screen (figure 1) was developed based on data from a sample of older people presenting to Emergency Departments after a fall. The screening tool consists of three risk factors:

- number of falls in the past 12 months,

- observation of steadiness during standing, walking and turning, and
- the person's self report of their vision.

It is a quick and easy tool to apply to determine level of falls risk, with moderate accuracy and reliability. Guidelines for the management of individual risk factors identified in the screening are available (appendix 2).

**Falls Risk for Older People
in the Community (FROP-Com) Screen**

(Affix Patient ID Label)

UR No _____

Surname: _____

Given Name _____

DOB _____

Screen all people 65 years and older (50 years and older Aboriginal & Torres Strait Islander peoples)

Date of screen: / /

HISTORY OF FALLS (0 – 3 points)		SCORE
<p>Number of falls in the past 12 months?</p> <ul style="list-style-type: none"> Use the WHO definition of a fall “An event which results in coming to rest inadvertently on the ground or lower level”. Current ED falls presentation should be included. Include the terms “slips”, “trips”, “faints” and “any other accidents” to elicit a complete falls history. 	<p>o Nil in 12 months (0)</p> <p>o 1 in the last 12 months (1)</p> <p>o 2 or more in 12 months (2)</p> <p>o 1 or more requiring hospitalisation in the past 12 months (3)</p>	[]

SENSORY LOSS (0 – 1 points)		SCORE
<p>Does the client have an uncorrected vision deficit that limits their functional ability?</p> <ul style="list-style-type: none"> trouble seeing objects clearly, e.g. the television, cracks in the footpath (visual acuity). trouble judging distances, e.g. going down stairs, distance of cars away (depth perception) (question about this particularly if wearing bifocals). trouble seeing in half light, e.g. seeing large objects, steps, stairs at dusk (contrast sensitivity). has not had their eyes checked in the previous 2 years. 	<p>o No (0)</p> <p>o Yes (1)</p>	[]

BALANCE (0 - 3 points)		SCORE
<p>When walking and turning, does the person appear unsteady or at risk of losing their balance?</p> <ul style="list-style-type: none"> Observe the person standing, walking a few metres, turning and sitting. If the person uses an aid observe the person with the aid. Do not base on self-report. If level fluctuates, tick the most unsteady rating. If the person is unable to walk due to injury, score as 3. 	<p>o No unsteadiness observed (0)</p> <p>o Yes, minimally unsteady (1)</p> <p>o Yes, moderately unsteady (needs supervision) (2)</p> <p>o Yes, consistently and severely unsteady (needs constant hands on assistance) (3)</p>	[]

Total Risk Score	[]
-------------------------	-----

Grades for Falls Risk		
o Low falls risk	0 – 2	o Implement actions for identified individual risk factors and recommend health promotion behaviour to minimise future ongoing risk (e.g. increased physical activity)
o High falls risk	3 - 7	o Refer to local services quoting falls risk, and requesting falls assessment. o Letter to GP informing them of falls risk and referral for further assessment.

Figure 1 FROP-Com screen

5 Screening Implementation and Evaluation Methodology

The project involved three phases:

5.1 Phase 1: Establish processes and conduct training for implementation in each participating ED

A project steering committee was established to meet 4 monthly throughout the project. The steering committee included members of the project team, project advisors and representatives from the Australian Government Department of Health and Ageing, Victorian Department of Human Services, Department of Veterans' Affairs and consumers. The steering committee reviewed at each meeting:

- progress by the project team in meeting key project timelines,
- progress in production of deliverables / resources, and
- that the project remains within the financial budget framework.

Four Emergency Departments were recruited to participate in this project (two from rural/regional Victoria and two Melbourne metropolitan EDs). The primary inclusion criteria were:

- the EDs do not currently use a standardised falls risk screening tool, and
- be willing to participate.

The target populations were:

- People aged 65 years and over (Aboriginal and Torres Strait Islander communities aged 50 years and over) who presented to ED after a fall and being discharged home, and
- Staff at participating EDs.

An ethics approval was sought from each participating ED as the project was outside the quality assurance category. After receiving ethics approval, focus groups with ED and surrounding health services staff were conducted to identify current practice, gaps and project targets within each ED. Written informed consent was obtained from each staff attending the focus groups.

Each ED is likely to differ with respect to staffing, internal processes, referral patterns and local availability of resources. To accommodate this, the project team in conjunction with each individual ED, identified the processes that would most likely be successfully implemented in that setting. The implementation models would vary to a degree, and would serve as useful case studies of the need for flexible and adaptive approaches within EDs.

An updated literature review of effective approaches and barriers to best practice falls prevention in Emergency Departments informed development of best practice guidelines for assessment and management of older people presenting to Emergency Departments following a fall. The best practice guidelines were used as a checklist for determining current practice and priorities in each of the four participating EDs. Based on the feedback on what was feasible to be implemented on each site, NARI developed an individualised best practice mapping pathway in introducing the screening and referral management for each ED.

The falls risk screen documentation was approved by the medical record documentation committee in the three health services that introduced the screen as a stand alone document. The fourth health service included the screen questions as part of a regular review of documentation and did not require separate approval (site D).

Once processes and protocols have been established within a participating ED, staff training programs (formal group training, as well as self learning modules for staff unable to attend, and new staff) were conducted to ensure all staff were familiar with the processes and protocols. At this stage, the processes and protocols were formally commenced within the participating EDs, with ongoing support and monitoring by the NARI team.

A bimonthly newsletter was distributed to staff at participating EDs. The newsletter aimed at informing staff on project progress update, profile of project team, recent article on falls prevention and upcoming conferences.

A payment of \$6050 was made to each participating ED to support the equivalent of 0.1EFT staff time during approximately five months project implementation period. This was intended to gain buy-in from the EDs.

5.2 Phase 2: Evaluation of effectiveness of implementation model

A number of evaluation approaches was utilised to determine effectiveness of the screening implementation models in each participating ED. The evaluation approaches included:

- random audits of 50 medical records for patients attending each of the participating EDs following a fall in a given period, to determine
 - the proportion of patients with the screening tool completed;
 - the proportion of patients classified at high risk of future falls; and
 - the proportion of patients classified at high risk who had a full FROP-Com assessment completed, or referral for another type of detailed falls risk assessment.
- face-to-face structured interviews with 20 randomly selected patients presenting to each of the four participating ED to investigate falls risk level based on the FROP-Com screen, falls risk screen completion in the ED and care received following discharged from the ED.
- samples of individualised mapping pathway of selected high risk older people presenting to each ED with a fall to identify care relative to the developed best practice guidelines / checklist (see phase 1); and
- focus groups with staff from the four participating EDs to identify barriers and facilitators to effective widespread implementation within each participating ED.

Health information staff at each participating hospital were contacted to generate list of 50 randomly selected patients for medical records audit. The key contact staff mailed project information to patients. Patients who agreed to be interviewed returned the expression of interest form back to NARI in a reply paid envelope. Hospital staff undertook a follow-up phone call when responses were low until 20 patient interviews were completed. Written informed consent was sought from each

staff and patient as required by the Human Research Ethics Committee prior to commencing evaluation approaches.

The random medical records audit and patient interviews were conducted in three separate stages (figure 2). The first 10 audits and 4 patient interviews were completed prior to the screening being implemented (**Pre-implementation stage**). A further 20 medical records audit and 8 patient interviews took place immediately following screening implementation (**Post1-implementation stage**). The final 20 medical records audit and 8 patient interviews were completed between 3-6 months following screening implementation (**Post2-implementation stage**).

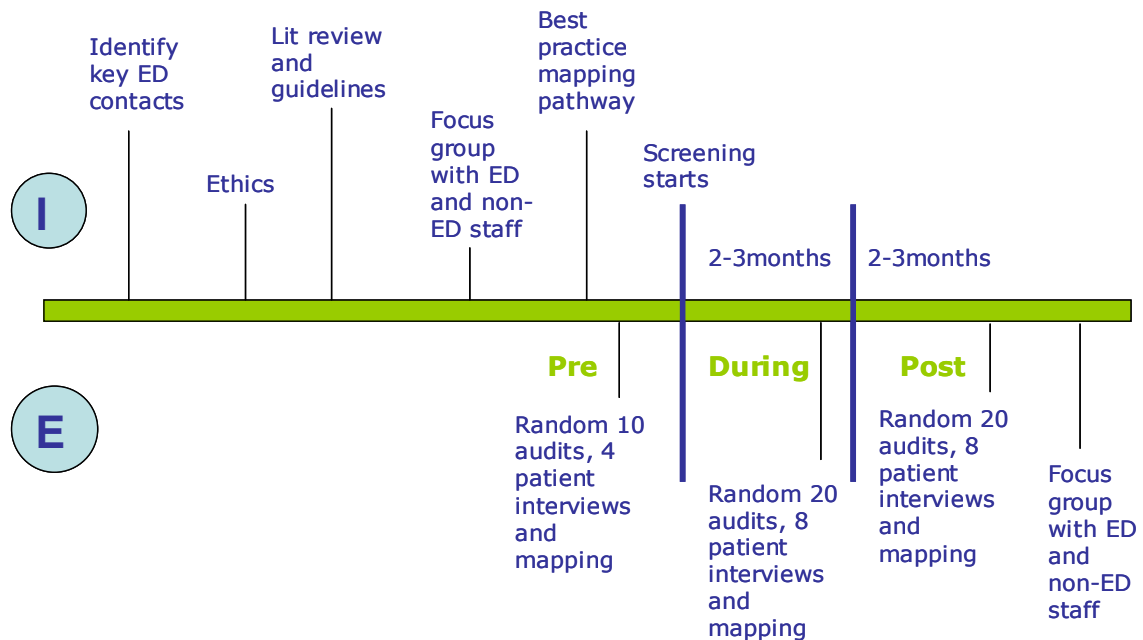


Figure 2 Schematic of implementation and evaluation plan.

5.2.1 Data analyses:

Focus groups were audio-taped and transcribed verbatim. Thematic analyses by independent raters were carried out to identify key themes to be considered in further refinement and wider dissemination of the screening and further assessment and management program.

Descriptive analyses were undertaken in these evaluation approaches to describe and summarise demographic responses and proportion of screening completion.

5.3 Phase 3: Resource development and dissemination plan

In the third phase, the project team disseminated the findings from the four EDs' implementation and evaluation processes in statewide forums for ED, hospital and community health staff in six states. The aims of the half-day workshops were to share learnings from implementing a falls risk screening tool in four Victorian EDs

and to gather feedback on similar implementation processes in other EDs around Australia. Falls prevention project officers from each state were approached to assist in dissemination of project findings through half-day workshops in their states.

Results of phase 1 and 2 together with feedback from the workshops were used to develop discussion documents and resources for Emergency Department staff in other health services as a template for similar implementation within their facilities. Project results and training resources will be disseminated via conferences, journal publications, the Australian Government Department of Health and Ageing and NARI websites.

6 Implementation

6.1 Recruitment of EDs

In order to increase generalisability of the project outcomes, the project team recruited two metropolitan, one regional and one rural Emergency Departments. Six health service emergency departments were approached to take part in the study in order to achieve the four ED's required. Three were metropolitan EDs, two were in regional and one in rural areas. One metropolitan ED that was approached chose not to participate in the project and one rural ED was not included once two others had agreed to participate.

6.2 Description of participating EDs

The four EDs that participated in the study were:

- Bairnsdale Regional Health Service
- Sandringham and District Memorial Hospital
- Goulburn Valley Health and
- Austin Health

Bairnsdale Regional Health Service (BRHS) is a small rural hospital with a recently refurbished emergency department. It was the smallest ED involved in the study in terms of size of the facilities and staffing levels, ED presentations (Table 1) and ED presentations for those aged 65 and over due to falls (Table 2). BRHS covers a large remote area of eastern Victoria, and has the lowest catchment population density of the four EDs that participated in the study. The area has a structure that provides community health services via the BRHS itself rather than via separately funded Community Health Centres. There are no falls clinics within the BRHS catchment, the closest is in Traralgon, 120 km to the west of Bairnsdale. Traralgon is 340km west of the most easterly town in the BRHS catchment.

Sandringham and District Memorial Hospital (SDMH) is a community hospital, servicing people in the southern suburbs of Melbourne. It shares its' catchment with two large tertiary hospitals, The Alfred and the Monash Medical Centre. It is the second smallest ED in the study in terms of size of facilities and staffing levels (Table 1), and ED presentations but the second largest in terms of ED presentations for those aged 65 and over due to falls (Table 2). The southern suburbs of Melbourne are a comparatively affluent white collar area of the city with a large older population.

Goulburn Valley Health (GVH) is a regional referral hospital servicing the regional centre of Shepparton and the surrounding rural areas. GVH is the second largest ED in the study (Table 1) and has the second most ED presentations, but the third most ED presentations for those aged 65 and over due to falls (see Table 2).

Austin Health is a large tertiary hospital in Melbourne's north east. The ED is approximately three times the size of the next biggest ED in the study, (Table1). It has the most ED presentations in the study and the most ED presentations for those aged 65 and over due to falls, being ranked third in the state overall for presentations in this category (Table2).

Implementation and evaluation results are reported de-identified. That is as Health Service A, B, C and D.

Table 1 Comparisons of the four participating Emergency Departments

	Bairnsdale Regional Health Service (rural)	Sandringham and District Memorial Hospital (small metro).	Goulburn Valley Health (regional)	Austin Health (large metro)
Area serviced	East Gippsland, including Mallacoota, Ormeo & Benambra. Catchment population 40,000.	Community hospital servicing population of 300,000 people in the southern suburbs of Melbourne shared with Alfred and Monash.	Population of about 60, 000 in the Greater Shepparton area and provides services to secondary catchment of 160,000.	Primary catchment of over 250,000 in the north east Melbourne suburbs of Darebin, Banyule and Nillumbik and a secondary catchment of a further 266,000.
Facilities in the ED	7 cubicles, 1 triage assessment room, 1 treatment room, 1 assessment room 1 plaster room Not available	11 cubicles, 9 staffed,	Has 15 cubicles and 4 short stay beds staffed	The ED has 44 treatment areas including a six-bed paediatric area, a Fast Track area and an eight bed Short Stay Unit. 8 beds available
Short Stay Unit	Not available	4 beds available. Opened mid 2007.	8 beds available	8 beds available
Staff in the ED	16 nursing staff approx 5 EFT medical staff	23.5 EFT nursing 17 EFT medical specialists registrars, and junior staff	35 EFT nursing staff 15 EFT medical staff	Approx 100 nursing, plus care-coordination team and medical staff
Allied Health in ED	Page acute allied health during business hours	Page acute allied health during business hours. Week-end physio available since late 2007	Some allied health in HARP ED, plus page acute allied health during business hours	ED Care Co-ordination team provide allied health for extended hours during the week plus some coverage at week-ends

	Bairnsdale Regional Health Service (rural)	Sandringham and District Memorial Hospital (small metro).	Goulburn Valley Health (regional)	Austin Health (large metro)
Care Coordination	Not available (HARP for COPD and diabetes)	Aged care liaison available for people aged 70 and over identified by a readmission risk screen at triage.	HARP ED provides case management for people aged 70 and over identified by the readmission risk screen.	Care Co-ordination available for extended hours for those aged 70 and over identified by the readmission risk screen at triage. This is "most people over 70".
Case Management	Not available (HARP for COPD and diabetes)	BCOP Better Care for Older People (HARP)	HARP ED provides case management of older people who are discharged home	Case management available outside ED by Community Link for those deemed at high risk of readmission
Risk Screens used	Readmission Risk screen on ED documentation. However there is no longer anyone in the Aged Care Liaison role designated to manage identified cases.	Readmission risk in use in the ED. This risk assessment is compulsory and appears on the triage sheet. Positive screen refers to Acute Aged Care Service.	Discharge screening tool on ED documentation, and does include "fall in the last 4 weeks". Positive screen refers patients to PAC, HARPDMT, APATT/ACAS, Allied Health, Falls Clinic, Drug Alcohol Counsellor as appropriate.	Readmission risk screen at triage. Positive screen refers patients to care coordinators while the patient is in the ED or for follow up if after ECCT hours.

Table 2 Presentations and falls data for the four participating Emergency Departments

	Bairnsdale Regional Health Service (rural)	Sandringham and District Memorial Hospital (small metro)	Goulburn Valley Health (regional)	Austin Health (large metro)
Presentations to ED per year	14,500	26,000	36,000	48,500
*Rank for the number of falls presentations in the age group 65 and over (from 36 participating ED's)	27	9	12	3
*Falls presentations in those aged 65 and over	250	846	541	1305
• who were discharged home n (%) State average 50.4%	153 (61.2)	516 (61.0)	269 (49.7)	561 (43.0)
• who were admitted to a ward n (%) State average 18.2%	48 (19.2)	138 (16.3)	94 (17.4)	247 (18.9)
• who were discharged to a residential care facility n (%) state average 20.6%	41 (16.4)	125 (14.8)	174 (32.2)	478 (36.6)
• who were transferred to another hospital campus n(%) state average 2.9%	6 (2.4)	59 (7.0)	0 (0)	11 (0.8)
• who left after advice or at own risk n (%) state average 1.0%	2 (0.8)	8 (0.9)	4 (0.8)	8 (0.7)
• n (%) over 80 state average 53.8%	144 (57.6)	509 (60.2)	269 (49.7)	734 (56.2)
• n (%) female state average 69.5%	179 (71.6)	620 (73.3)	385 (71.2)	941 (72.1)

* 2006 Data from the Victorian Emergency Minimum Dataset, by the Victorian Injury Surveillance Unit.

6.3 Staff focus group 1

A staff focus group was held on each ED site to understand current practice and gaps for service improvement. The ED Director, Nurse Unit Manager (NUM), Associate NUM (ANUM) or Care Coordinator Team Leader circulated the focus group invitation to their staff. Staff who attended the focus groups at three of the four sites included ED Directors, ED NUM, ED ANUM, emergency physicians, nursing, allied health, Hospital Admission Reduction Program (HARP) Coordinator, Geriatrician from Falls and Balance Clinic, local GP Division representative, community falls prevention officer, executive sponsor and quality manager. The focus group at the fourth sites was primarily attended by members of the care-coordination team with some ED nursing staff. On average, each focus group was attended by seven staff per ED.

Some of the issues discussed in the focus group included:

- Current processes employed by ED to identify older people who present with falls
- Under what circumstances is it most or least likely to happen? How often this process is undertaken
- Who would be the best person in the ED to screen for older fallers using this tool
- How would this screen fit in with other types of risk screen currently used
- Processes that would facilitate or hinder the uptake of this tool in ED
- Current referral system in ED for older fallers being discharged home
- What are the most common referrals made? Are there gaps in the services that are available, that you would like to refer to?
- Who would be the most appropriate person to conduct a more comprehensive falls risk assessment or to implement further management plan if the screening indicates a person to have high risk of further falling?

Common themes arising from the four focus groups included:

- Different care pathway for simple falls (environment related) and medical related falls presentation
- Nurses may be the best person to screen as there are high turn-over of medical staff
- Limited GPs and allied health resources for further referral particularly in rural and regional areas
- Competing demands with clinical work, paper work and other screening tools

6.3.1 Development of individualised referral pathways

An individual referral mapping pathway was designed for each site based on the information gathered at these focus group discussions. This mapped both current referral patterns and any improvements identified. Figures 3, 5, 7 and 9 describe current falls referral mapping pathway from 4 different types of ED. Figures 4, 6, 8 and 10 show best practice falls referrals mapping pathway for 4 different types of ED. It should be noted that referral mapping varied considerably between EDs, depending upon the range of health services available locally.

A manual for the FROP-Com Screening Tool and individualised guidelines for each site were developed after the local best practice referral patterns had been established (appendix 2). Later data analysis on the FROP-Com screening tool resulted in a modification to the items included – see section 10.4 and appendix 5 for further details.

Figure 3 Falls referral pathway at a large metro ED

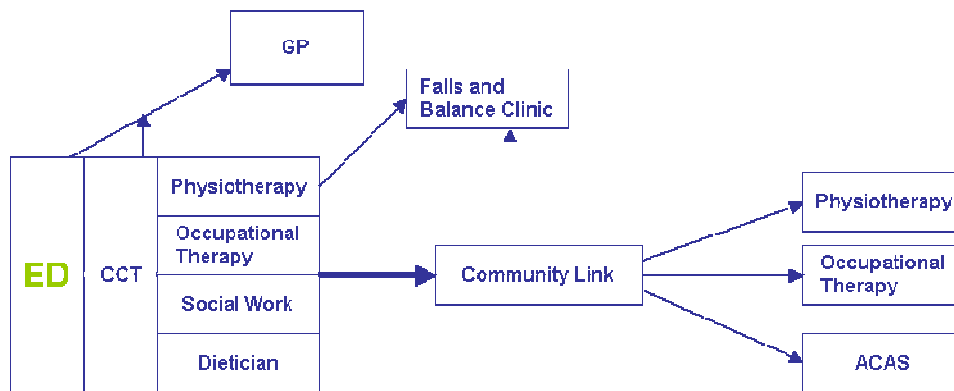


Figure 4 Best Practice falls referrals at a large metro ED

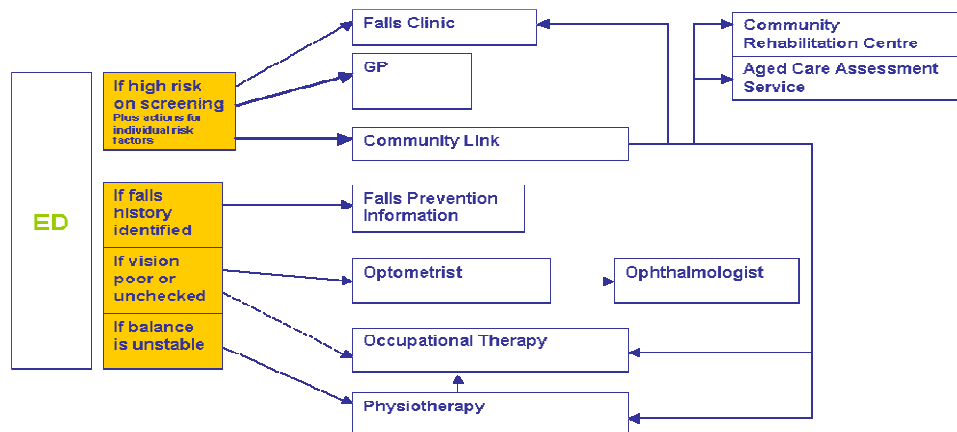


Figure 5 Falls referral pathway at a small rural ED

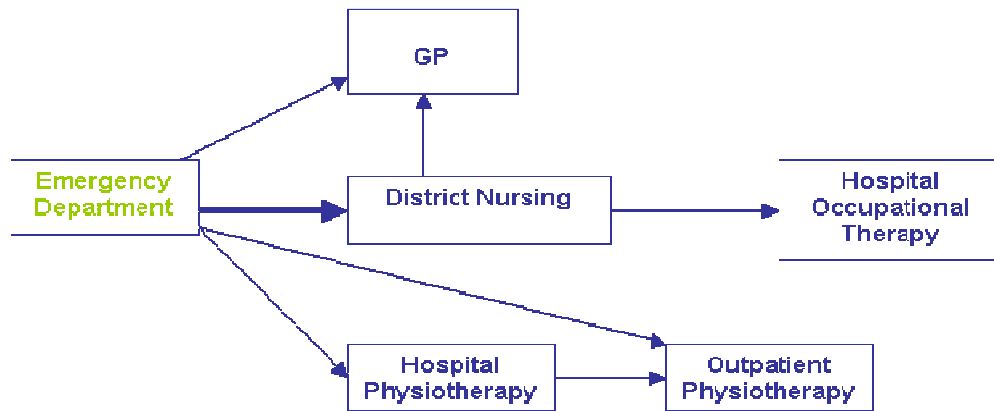


Figure 6 Best Practice falls referrals at a small rural ED

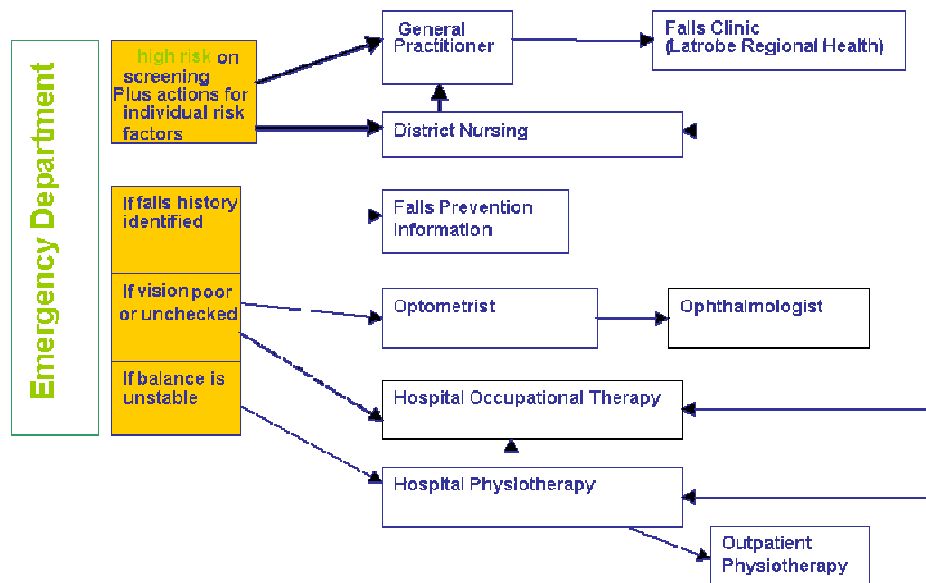


Figure 7 Falls referral pathway at a small metro ED

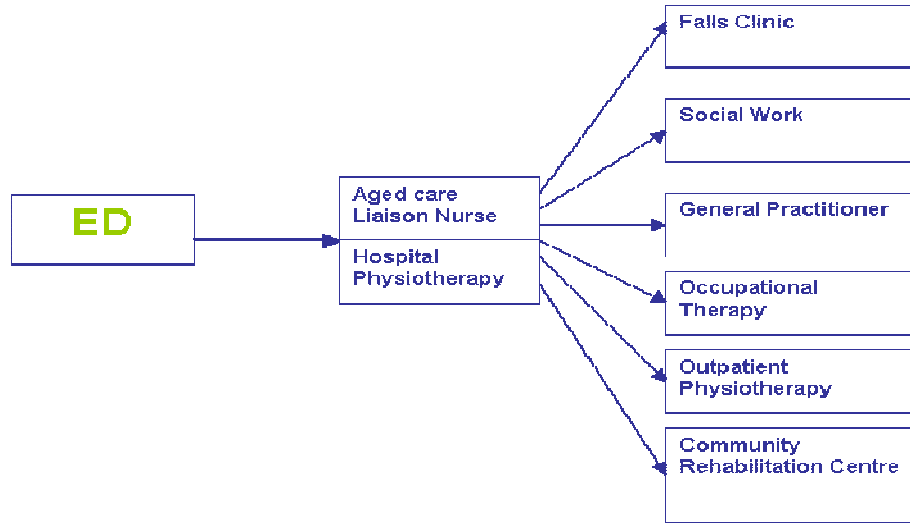


Figure 8 Best Practice falls referrals at a small metro ED

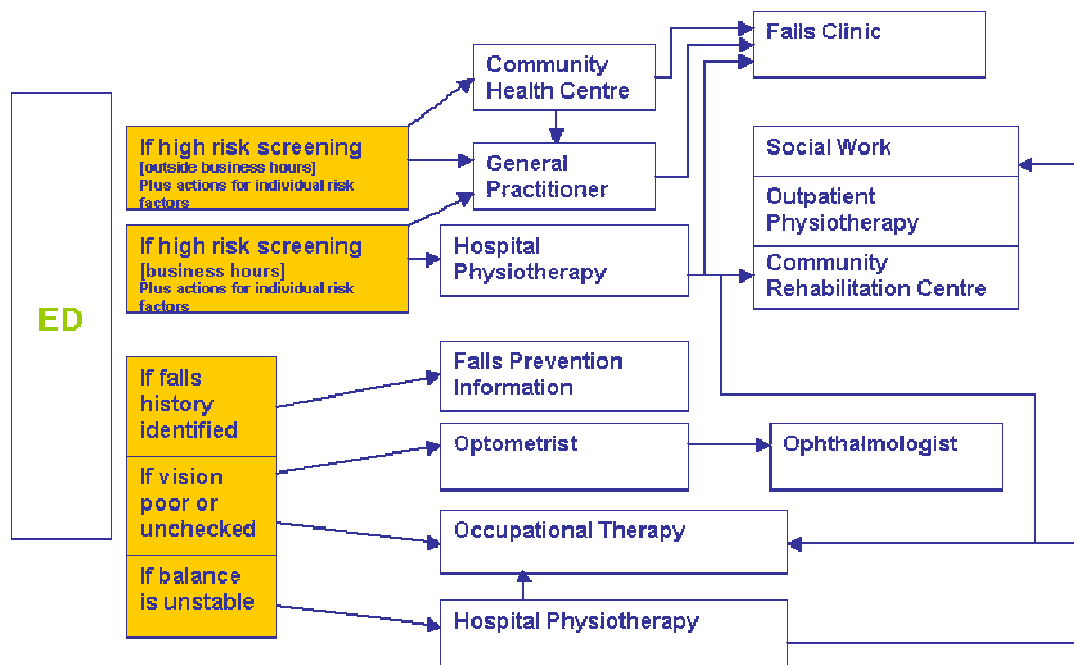


Figure 9 Falls referral pathway at a large regional ED

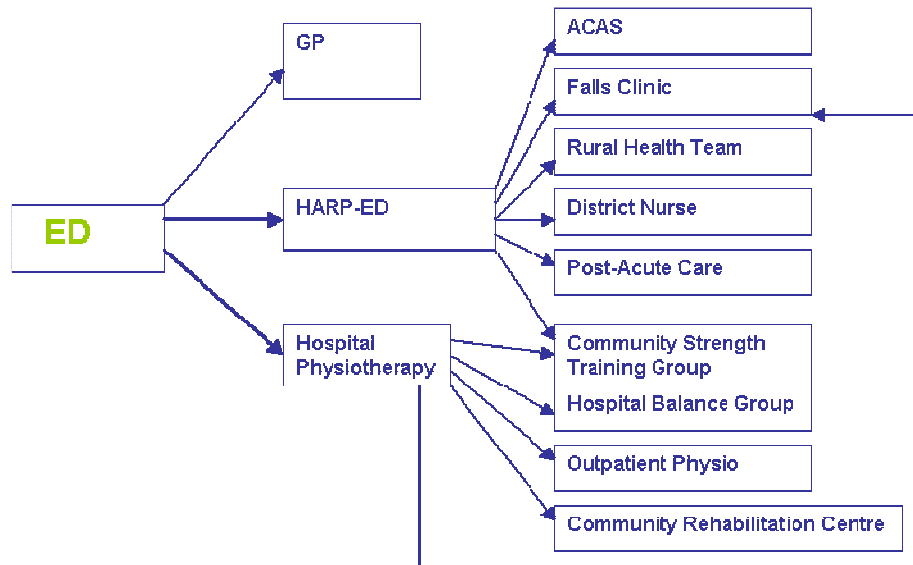
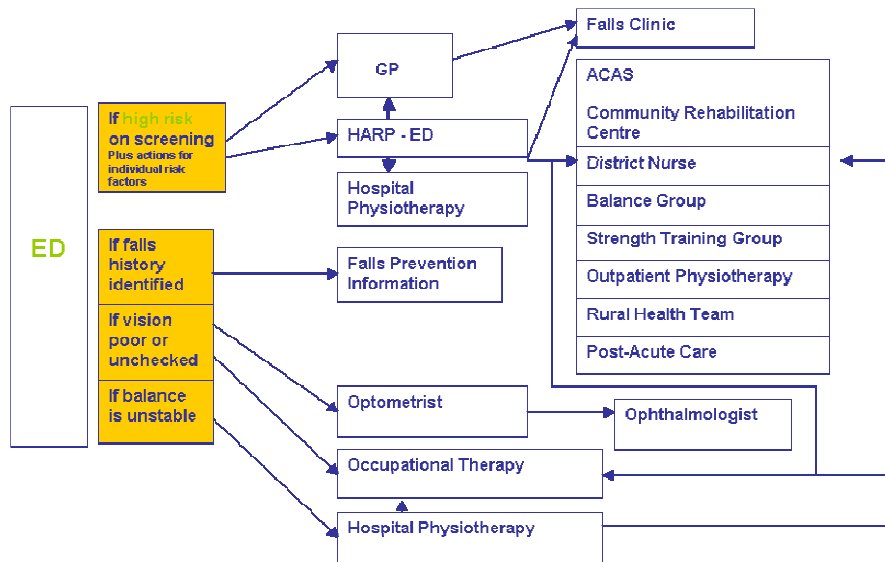


Figure 10 Best Practice falls referrals at a large regional ED



6.3.2 Development of individualised screens

Health Service A

Screen

This Health Service introduced the risk screen as a separate A4 sheet.

Key Contact Person

The main contact person for the project was the regional Falls Prevention Project worker. The project worker was a member of the health service but not an ED staff member and so the main contact in the ED and thus the clinical champion at this site was the NUM.

Process

Health Service A trialled two processes. The first process involved nursing staff including the screen in the paperwork and using the screen at discharge. This was done to target those who it was known would be discharged home and avoid screening those who were admitted. After this was trialled for some weeks, it was felt that people were being missed by the screening as they had often left the department by the time discharge paperwork was completed. A second process of including the screen with the paperwork at triage was then trialled.

Health Service B

Screen

This Health Service developed a version of the screen on an A4 sheet, printed back and front onto an orange (a colour identified with falls) piece of paper. The first page was a localised version of the screen whilst on the back were referral options for those at high risk of falling, particularly detailing options based on time of presentation (in hours or out of regular hours), health insurance status and patient's address. Also included are the steps for making a referral and check boxes to record which referrals have been made.

Key Contact Person

The key contact person was an ED nurse who was given a falls portfolio with implementing the falls risk screen as a central activity of the portfolio.

Process

The screen was to be included in the patient's file on registration/arrival by the ward clerk. The screen was then to be completed by the doctor who would make any referrals required.

Health Service C

Screen

This Health Service introduced the risk screen as a separate A4 sheet.

Key Contact Person

The key contact person for this ED was the nurse unit manager (NUM).

Process

The screen could be initiated either at triage or primary ED nurse and to be completed by the primary nursing staff, with follow through to be provided by the HARP-ED team.

Health Service D

Screen

This Health Service integrated the screen questions into the existing care-coordinator paperwork. There was an existing referral pathway for older people who needed further assessments or community supports.

Key Contact Person

The key contact person was an ED care coordinator.

Process

The screen was to be included in the routine assessment of any older (70 years and over) person who presented to the ED. The care coordinators have a brief to provide discharge planning to those at risk of readmission and see “most people over 70”.

Summary

There was considerable diversity in existing falls prevention screening and referral processes between the four participating EDs, and variability in the method developed to integrate the new falls risk screen. This variability was driven by the project team’s aim to be flexible in how the tool was introduced within each setting as well as being sensitive to local issues. However, some of the changes made to accommodate local needs may have limited the ultimate utility of the screening tool and screening process.

6.5 Education and training

Education and training resources were developed to support the roll out the falls risk screening tool. A PowerPoint presentation was prepared covering:

- background of falls as a public health issue,
- the evidence base of falls prevention interventions in the group 65 and over who have presented to an emergency department
- falls risk factors
- the falls risk screen
- possible referral options

This presentation was offered as an in-service prior to commencing the screen implementation in each ED. In-services were presented by NARI staff either as part

of a regular in-service program, or as an informal process of catching small groups of staff as they were free to attend during a shift. An average of two presentations were provided to capture staff working on different shifts. A CD with a copy of the presentation and a version with a voice over narrative to be used as an independent learning tool was left with each ED. Staff would be able to access this information from the CD on their computers.

Health Service A

Training resources to support implementation of the screening and management program were delivered to ED staff (2 doctors and 6 nurses) in two sessions on 15th August 2007.

Health Service B

Training resources to support the implementation of the screening and management program were delivered to 13 ED staff (7 medical staff, 5 nurses and 1 allied health) in two sessions conducted by NARI staff on the 19th and 20th September. Five nursing staff used the education package on CD in addition to these sessions. Records of the numbers receiving one on one or small group education regarding the risk screen and referral processes were also maintained at this site. Thirty-four nursing staff, 21 medical staff and 11 clerical staff utilised these approaches. This is from the 37 permanent nursing staff, 32 medical staff currently on the roster and 18 ED clerks at the time the training was undertaken.

Health Service C

Training resources to support implementation of the screening and management program were delivered to 18 ED staff (17 nurses and 1 allied health) in three sessions on 6th September 2007.

Health Service D

Training resources were offered to the Care co-ordination team, who were to administer the screen. They were also offered to the ED nurse educator for other ED staff. No data is available on use of the education package in this ED.

6.5.1 Issues on training and education program implementation

Staff availability such as night staff, different shifts, and large numbers of part time staff made it difficult to adequately provide education to the entire ED staff. There were different levels of awareness and training on falls prevention among ED staff. Differences in resources and practice at the different sites required individualisation of the education package to each site.

High staff turn over in EDs means that education will need to be repeated at frequent intervals, or alternatives such as self-learning modules need to be utilised.

7 Evaluation

7.1 Medical record audits

A small number of audits (n=10) and interviews (n=4) were conducted at each site with patients who had presented to the ED for a fall, before the screen was in use. This was to give some indication of falls awareness in practice in the sites. Two subsequent rounds of audits (n=20) and interviews (n=8) were conducted after the start of screening, one soon after screening began and a second round a few months later, giving a total of 50 audits and 20 interviews at each site. Interview response rates are shown in Table 3.

The Health Information Services (HIS) departments at each site produced lists of people who were 65 and over who had presented to the ED for a fall and been discharged home. The lists were for a month prior to implementation, the month immediately after the month in which screening was started, and one or two months subsequent to that. The HIS randomly selected the required number of files from the list of appropriate patients and retrieved the files which were then audited by the NARI project officer.

The small numbers of presentations at health service B meant that all files for the four months after screening was started were audited and all people approached for consent to be interviewed.

It was a requirement of the health service C ethics committee that consent be obtained to audit the files, as well as to interview people. This was a constraint in obtaining sufficient numbers to audit, and consequently a larger number of people needed to be approached in order to yield sufficient numbers of people consenting to have their files audited. This requirement was in contrast to the other sites, who required consent to interview only, considering file audit a routine part of quality assurance processes, although health service D only allowed audits to be conducted by someone who had routine access to files. Fortunately the NARI project officer conducted medical record audits for some clinical service units at the health service D on a casual basis and was deemed to be a suitable person.

There was a considerable delay in obtaining files to audit at two sites. Health service A introduced a new electronic medical record system soon after the start of screening. HIS were unable to spare the resources to assist with audits for a number of months, due to demands on HIS staff for training in the new system followed by increased workload in using the new system. This meant that although files were audited from the period following implementation, the actual auditing occurred later, at the time of the second post implementation audit.

There were also delays in obtaining files for audit at health service C, due to difficulties in obtaining consent to audit. The low initial rates of response to a letter requesting consent required a follow up phone call from a health service C staff member. Difficulties in identifying a suitable staff member to make these calls resulted in delays.

7.2 Demographic Results

The average age of the people whose files were selected for audit ranged from the mid to late seventies, and the percentage of females was between 50 and 70 percent. Also presented are the demographic profiles of the subset of people at each site who were interviewed. The average age for people who consented for an interview is slightly younger ranging from early seventies to late seventies. (Table 4)

Table 4 Demographic data.

	A	B	C	D	Total
Audit					
Average age	76.3	78.2	75.0	77.6	76.8
Average age male	70.4	81.1	74.4	79.2	76.3
Average age female	77.2	76.6	75.4	76.9	76.5
% female	70.3	65.0	55.8	51.8	60.7
Interview					
Average age	72.5	78.6	73.8	76.6	75.4
% female	66.7	68.8	50.0	55.0	55.1

Note some data on gender and age was not recorded for early audits.

7.3 Audit Results

7.3.1 Documentation of previous falls history in the medical record.

All files identified for audit had a fall included as documented in the history taken at presentation. The audit identified whether falls *prior to this presentation* were recorded. Two sites, B and D, had relatively higher levels of falls history recorded as part of the medical history prior to implementation. One site, A, had low levels prior to implementation, and this was consistent over the study period. The fourth site C had low rates of previous falls history documented in the history prior to implementation, but this has steadily increased by the end of the study period. (Table 5)

Table 5 Documentation of previous falls history in the medical record.

	A %	B %	C %	D %
Pre-implementation	9	30	0	25
Post implementation 1	8	35	15	45
Post implementation 2	9	30	26	35

7.3.2 Documentation of falls related referrals in the medical record

Documentation of falls related referrals, was a very general parameter. Any referrals that in the opinion of the auditor, could be falls related, for example physiotherapy or occupational therapy referrals was rated as a falls related referral. It would appear there may have been an increase in falls related or allied health referrals immediately after implementation, however this fell to pre-implementation rates by the third audit period (Table 6).

Table 6 Documentation of falls related or allied health referrals in the medical record

	A	B	C	D
	%	%	%	%
Pre-implementation	0	10	10	20
Post implementation 1	25	18	23	30
Post implementation 2	9	15	5	25

7.3.3 Completed screens

Two sites (A and C), had very low rates of use of the screen, however, in the cases where the screen was used, the presentation was a high falls risk. Site B had the highest rate of use of the screen at the first audit, but this fell to a low level at the second audit (Table 7). Site D had low levels of fully completed screens, but moderate levels of partially completed screens. The other three sites had no partially completed screens (Table 8). In Audit 2 at site D, for example, for each presentation with the care coordinator paperwork present, falls history was documented each time, vision was documented one third of the time and mobility was documented about half the time.

Table 7 Fully completed screens

	A	B	C	D
	%	%	%	%
Post implementation 1	8	35	8	15
Post implementation 2	0	5	0	10

Table 8 Partially completed screens

	A	B	C	D
	%	%	%	%
Post implementation 1	8	35	8	45
Post implementation 2	0	5	0	35

7.4 Patient Interviews

7.4.1 Proportion of people at high risk of future falls

It was not possible to adequately designate people at low or high risk at audit due to low rates of completion of the screen. It was however possible to identify people's risk at interview. The rates of high falls risk at interview ranged from 37% to 57% across the 4 sites (Table 9), averaging 46% overall.

7.4.2 Proportion of patients classified at high risk who had a referral for falls prevention intervention

There were falls prevention interventions in place prior to this ED presentation for high falls risk people for between 29% and 58% of high falls risk cases at each site. These were usually previous home safety assessments that were initiated after a previous inpatient stay, but also included previous and current falls and balance assessment or classes. New interventions were instigated subsequent to the ED presentation for between 25% and 71% of high falls risk cases at the sites. Of these, there were two referrals (6%) for further falls assessments. Other interventions included, home safety assessments (4, 11%), medical review (4, 11%), Physiotherapy or balance exercise classes (5, 14%). One referral for gait retraining, and one referral for a falls assessment were declined. (Table 9).

Table 9 Falls risk and fall prevention interventions from patient interviews

	Risk High risk/total (%)	Falls prevention interventions for high risk patients		
		None n (%)	Prior to ED presentation n (%)	Subsequent to ED presentation n (%)
Site A	7/18 (39)	1 (14)	2 (29)	5 (71)
Site B	7/19 (37)	1 (14)	4 (57)	2 (29)
Site C	10/20 (50)	3 (30)	4 (40)	4 (40)
Site D	12/21 (57)	0 (0)	7 (58)	5 (42)*

* This figure includes two interventions that were offered and declined.

7.4.3 Patient mapping

Interventions that people received were mapped against best practice for high risk people. Some examples of these maps are presented in appendix 3.

Sometimes in depicting the patient pathway it is not possible to confirm that interventions were due to the ED presentation. For example it may be difficult to confirm that the ED contacted the patient's GP about their falls risk. However if a patient discussed falls with their GP it is marked on the map as discussed. This is not to say the ED did or did not report falls risk, only that the patient talked to their GP.

8 Identified Barriers & Facilitators

A second staff focus group was held on each ED site to discuss and evaluate the implementation of the falls risk screen. The ED Director, Nurse Unit Manager (NUM), Associate NUM (ANUM) or Care Coordinator Team Leader circulated the focus group invitation to their staff. Staff who attended the focus groups at three of the four sites included ED Directors, ED NUM, ED ANUM, emergency physicians, nursing, allied health, Hospital Admission Reduction Program (HARP) Coordinator, community falls prevention officer, and executive sponsor. The focus group at the fourth sites was attended by members of the care-coordination team. On average, each focus group was attended by seven staff per ED. Staff were invited to discuss what had been implemented, what they felt had worked and what had not worked well. They were also asked what other EDs could learn from their experience.

Focus groups were recorded and transcribed. Key themes were drawn from the transcripts and are presented in Table 10. Identified enablers or potential enablers (Table 11) were analysed, as were identified barriers (Table 12).

Table 10 Key Points

	A	B	C	D
Staff at the focus group knew what the process was meant to be, but they recognised that usage hadn't been as good as it could have been.	✓		✓	
Falls are an issue for this ED.	✓			✓
If someone is identified as having a high falls risk, particularly if they fail the walk test, they would be admitted.	✓			✓
Discrepancy between what an ED thinks of as high falls risk, "Is this person likely to fall tomorrow, and the project definition, "is this person likely to fall in the next 12 months".	✓			
Increase in referrals to physiotherapy after the screening implementation.	✓		✓	✓
Issues with the overall use of screening tools such as pressure ulcer and readmission risk.	✓	✓	✓	
Need for a comprehensive screening document.		✓	✓	
An environment more slated towards primary care.		✓	✓	
Being involved in the project has raised awareness of falls and fall prevention.	✓	✓		
IT system incorporating falls risk questions would facilitate screening.	✓			
Initial successes but this was not maintained in the long term.	✓		✓	
Triage puts the screen with the patient file / other documentation.	✓		✓	
Delays in further assessments or treatment particularly if person not able to pay.			✓	

	A	B	C	D
Timely access to a GP is an issue in rural areas.			✓	
The possibility of having a falls alert on the person's medical file.			✓	
Using this screen means that practice is more consistent across different disciplines.				✓
It is important to see the person in their own home to get a full picture of their situation.				✓

Table 11 Identified Enablers

	A	B	C	D
Auditing provides feedback to staff.	✓		✓	
Screening older people at ED is an opportunity.	✓			
Compliance with falls prevention recommendations may be higher, once someone has ended up at a hospital as a result of a fall.	✓			
Having a key/designated person where screening and discharge is their priority.	✓			
Having a clinical champion to raise awareness.		✓	✓	
Regular inservice is preferable to orientation program. Education means a consistent level of knowledge can translate to consistent practice.		✓		✓
Using a "falls risk screen" sticker in patients' history/general notes.		✓		
Having a clear discharge planning focus.				✓
Having the questions integrated as part of an assessment form means that information is not lost.				✓
Having a clear simple local referral pathway.		✓	✓	✓
Reward and recognition program to encourage people to complete screen and make referrals.		✓		

Table 12 Identified Barriers

	A	B	C	D
Time <i>Balance between primary and emergency medicine</i>				
ED has been very busy, things like screening won't be done if people are "snowed under with actual emergency work"	✓		✓	
It does make more work in the here and now and that impacts on the amount of care you can offer a person. However , the information is then available if the person comes in again.	✓		✓	✓
6 months is probably not long enough.		✓		
Systems <i>There are issues as to when the screen should be done.</i>				
Some screen questions can be asked early in a presentation, but the mobility assessment may not be done until later eg after X-rays.	✓	✓	✓	✓
Is there any point in doing the screen if the person is to be admitted?	✓			
If the person is sent to the fast-track area, they might be missed		✓		✓
Issues of catching people who come in "after hours" eg availability of allied health staff.		✓		✓
IT barriers				
Resistance to using the computer system, to make referrals	✓			
Culture				
Historically hospitals have only worried about what's going on inside the walls, so we've had to change that culture	✓			
Filing				
Should the screen be kept (during the presentation) with the nursing notes or the medical notes		✓		
Emergency department ward clerks need to be clear on the process.		✓		
Coding and filing the screen in medical record means more work for HIS (delays in filing may lead to low rates of screens on audit)			✓	
Discharge or care co-ordination is a specialised field that needs training.				✓
Staff turn over				
It is an issue keeping education up, particularly with junior medial staff who have a high rotation through the ED.		✓		
Unfilled EFT creates time pressures			✓	

9 Dissemination of Project Findings

Workshops were held in each state to disseminate findings from the falls risk screening in EDs, to receive feedback on the risk screen and to discuss any falls initiatives currently being undertaken at different states. The workshop covered topics such as the evidence regarding falls prevention interventions and the Emergency Department, development of the FROP-Com Screen and the implementation of the falls risk screen into EDs in Victoria (Appendix 4). Participants also discussed processes and shared innovative falls prevention projects that were in place in their states.

9.1 Queensland

The Brisbane workshop was hosted by the Queensland Health Patient Safety Officer for Falls Prevention Special Projects and held at the Skills Development Centre Royal Brisbane and Women's Hospital.

Sixty-three bookings were taken, with 47 people signing the attendance sheet. 8 name stickers not taken.

Points discussed

- Problems at night and week-ends – After hours.
- Discharge nursing (planning) not always available.
- Potential for IT application of screen.
- Holistic view of the patient vs. symptomatic/ treat the disease view.
- GP involvement is crucial and also problematic.
- It is important to do home visits. You get a very different picture when you see someone in their own home, rather than a clinic.
- Difficulty in operationalising falls prevention. “We have the evidence, how can we get practice change?”

No formal feedback sheets were distributed at this workshop. However, NARI has received feedback following the workshop that the FROP-COM Screen had a good review from some Departments of Emergency Medicine. This discussion was prompted by the workshop. There is also ongoing discussion on standardising the falls risk screening and assessment tools across the state.

9.2 Western Australia

The Injury Control Council of Western Australia hosted the West Australian workshop. Forty-seven bookings were taken, five people attended who had not registered and 46 signed the attendance sheet.

Attendees included ten project workers, including Safety & Quality Investment for Reform (SQuIRe) project and Older Patients Initiatives, a policy officer with the Department of Health, a consumer representative, two geriatricians, ten allied health, five nurses.

Discussion ranged across a number of topics including:

- Night / day resources availability.
- Rural / Metropolitan resources availability.
- The lack of evidence relating to falls risk in Aboriginal and Torres Strait Islander peoples.

- Split between what happens ideally, and what happens in reality.
- Metropolitan areas have care co-ordinators in the ED's and were implementing risk screens. Country areas do not have these programs and are under resourced.
- Involvement of GP's is difficult.

The consumer representative made the point that consistency in practice is very important. Hearing different things from different people is confusing and leads to people giving up and not making any changes.

Thirty feedback sheets were received. Comments from feedback sheets included:

- *I work in the area of discharge planning and therefore found this workshop very useful. I enjoyed the networking and discussions throughout the workshop.*
- *A lot of discussion surrounded lack of sustainability/resourcing. What is the point of identifying risk if we haven't got the resources to do anything about it?*
- *Good system needs careful consideration prior to implementation – local barriers*
- *The best of this session was the chance to meet with colleagues & brainstorm issues affecting the way we do things – the barriers & strategies we could consider*
- *Would have been useful to have more discussion regarding implementing screen in ED setting, (practicalities of this)*
- *WA has good falls projects/Risk assessment & referral processes in metro area. Country health services lack staff for assessment especially allied health teams. Community based programs may be the way to go but most services are provided by other organisations. Cost/time factors a major problem and staffing recruitment in all areas.*
- *WA has gone a long way in falls risk screening and evaluation. Be good to match data from Vic/NSW/WA. See if what we are doing does make a difference. Still huge gaps for follow up back into community. In many ways hospitals are silos – Government needs to spend more money with follow up home visits. The RACF sectors do miss out because they are considered maintenance care rather than rehabilitation.*

Overall how useful was the Workshop

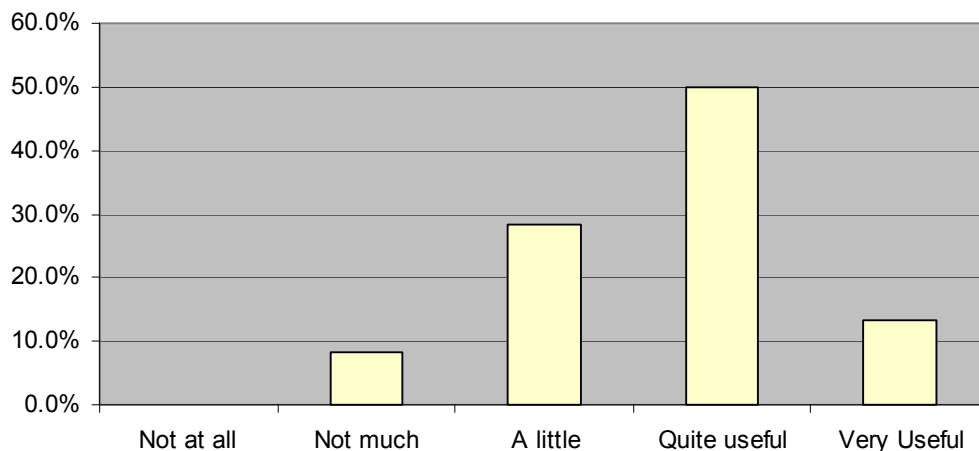


Figure 11 Feedback on the usefulness of the workshop in Western Australia

A videoconference was held with 5 rural ED's courtesy of the WA Country Health Service (WACHS).

Issues raised during this hour long session included:

- Lack of resources to follow up on screen.
- No resources are provided to implement in ED, or will be implemented and then will fall by the wayside, 2 years ago it was mental health.
- People not good at doing the recommendations after the assessment.
- Staff shortage - high turn over.
- One small community has the capacity to book people in for health assessments in the ED before there is a health crisis. They can only do it because they are a small community.

9.3 *South Australia*

The South Australian workshop was hosted by the SA Dept of Health, Falls Prevention Project Officer. Twenty-two bookings were taken and 25 signed the attendance sheet. Participants included two doctors, three allied health, seven project/policy people, and the rest nursing including patient safety, discharge, transition care, and ED. Two people were from rural hospitals and one from a private hospital. All the major metropolitan public hospitals, except two were represented. The Department of Health had two representatives attending.

Points that were raised during discussion included:

- Importance of catching all older people, not just fallers.
- Falls and indigenous people.
- There are a lot of screening tools eg pressure ulcers, dietary as well as falls. How to prioritise, what assessments to then use. How do you catch and use that information.
- Flags on the patient information system to identify fallers
 - Electronic tool
 - Electronic flags.

There was time spent talking about what is happening locally and otherwise networking. This included discussion about ongoing communication with interested participants, with perhaps another workshop/get together in a few months time with the Department of Health to facilitate.

The workshop was used as an opportunity to showcase a number of innovative falls prevention initiatives. One initiative was www.falssa.com.au a falls prevention in South Australia website that "provides a one stop shop of falls prevention and management information for health professionals, GP's, 'Over 50's and carers." This website appears to be a clear resource that encourages engagement in healthy aging by older people and provides tools such as referral pathways for clinicians.

Also showcased was "Pathways to Independence" from the South Adelaide Health Service region. This program aims to be a common referral point for falls assessment for GP's, the community, ambulance service, hospitals, both inpatients and ED's (on screening). It aims to provide appropriate assessments and then referral to services available in the community. This promising program provides exactly the streamlined assessment and referral pathway recommended by our project. The project reported that they are receiving referrals for people being

discharged from an inpatient stay, but they are finding getting referrals from Emergency Departments problematic.

Feedback sheets were distributed and 15 feedback sheets were received back. Comments from feedback sheets included:

- *The opportunity for practical discussion was useful.*
- *Concentrated in the past on falls within the hospital. Will look further a field to implement falls prevention for all people.*
- *Great networking with other hospitals. Excellent to hear that we have all fairly similar challenges.*
- *The opportunity for practical discussion was useful.*
- *It would be great to continue communication / sharing of information, state wide as well as with NARI.*

Overall how useful was the Workshop

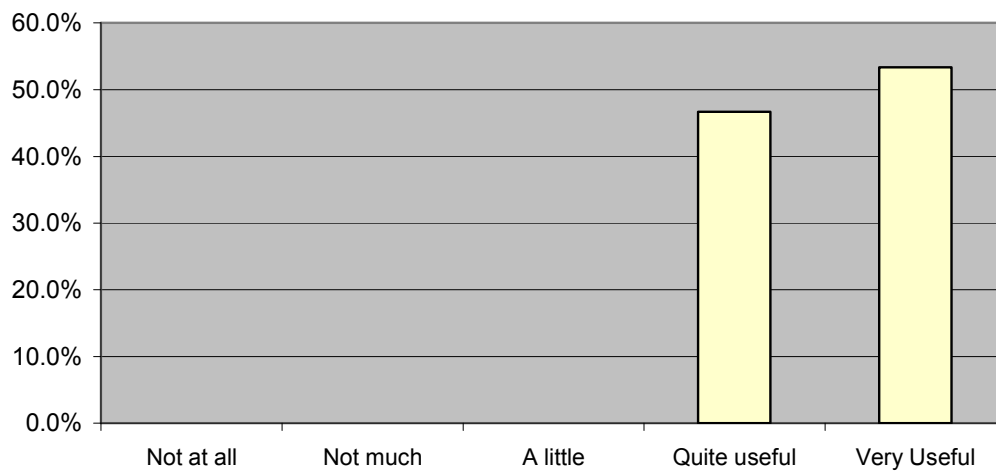


Figure 12 Feedback on the usefulness of the workshop in South Australia

9.4 New South Wales

The NSW Falls Prevention Program hosted this workshop at The Clinical Excellence Commission. Twenty-one registrations were taken and 18 people attended. Participants included falls prevention researchers, geriatricians, allied health, nurse educators and nurses.

NSW has recently introduced Aged-care Services in Emergency Team (ASET) into some Emergency Departments. This team is comprised of allied health and nurses who assess and develop a plan of care for older people as they come through an Emergency Department.

IRMRC (Injury Risk Management Research Centre) are developing a screening tool. The researchers are using data collected as part of routine practice by the ASET nurses to analyse which questions are most predictive of further falls.

This group was very centralised in their approach with the need for a standardised top down approach mentioned a number of times. This approach would mean that standardised, streamlined systems could be implemented and appropriate supports

could be provided. It was put that introducing individual systems in each ED was too hard. An ED taskforce is in place that would facilitate a standardised approach in ED's across the state.

The workshop was used as an opportunity to promote the NSW Falls Prevention Network. A page was circulated listing the resources available from the network and details for regional falls network contacts.

Points raised during discussion included:

- Costs of fall prevention interventions were prohibitive for many people. What about Medicare for personal alarms.
- Mobility assessment in the ED will have a higher rate of disability than in the community due to acute injuries and this may bias this screen.
- Important to distinguish between falls prevention interventions and discharge supports.
- Holistic person centred care is important.

The way forward needs:

- Ongoing dialogue
- Reference group
- Pooling ideas and resources.

It was proposed to hold another workshop on the topic of progressing falls prevention in NSW and standardising tools and guidelines, with the Clinical Excellence Commission to organise.

Ten feedback sheets were received. Comments from feedback sheets included:

- *Interesting: A standard consistent system needs to be implemented statewide. Education, training and resources needed*
- *Good if standardization can be achieved*
- *Less background and more on evaluation data*
- *Difficult subject, thought provoking*

Overall how useful was the Workshop

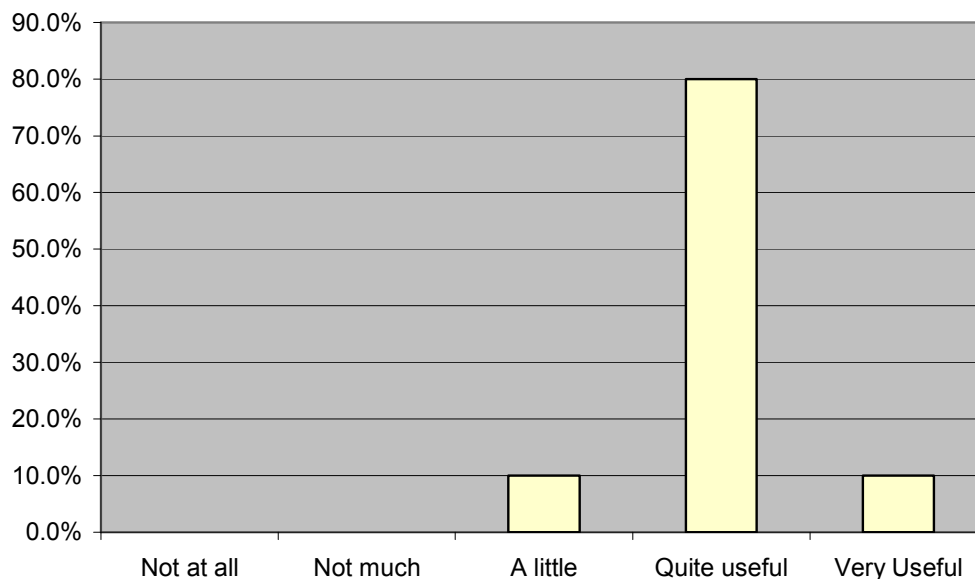


Figure 13 Feedback on the usefulness of the workshop in New South Wales

9.5 Tasmania

The Tasmanian Department of Health and Human Services, Injury Prevention Policy and Program Officer hosted the Tasmanian workshop. This workshop was held in Launceston in order to be central for the participants and facilitate attendance for more remote staff. Seventeen people registered and 13 signed the attendance sheet. Attendees included a community nurse, two nurses from Aged Care Assessment Teams (ACAT), a physiotherapist, two nurse educators, ED nurses, and two ambulance officers.

As the ambulance service was represented at this workshop a number of interesting points were raised with respect to the ambulances' role in screening for falls risk. These were that the ambulance officers were in a unique position to identify a number of falls risks as they often attend the persons' home, and see many more "fallers" than they transfer to hospital. Data reported showed that the ambulance service attended as many people for falls as for chest pain. The Tasmanian Ambulance Service is working on project to refer people who have fallen, but do not require hospital to community allied health. This project has so far resulted in 35 referrals in 3 months.

Other issues discussed included:

- Delays and long waiting lists to get services in for people at high risk of falls.
- Wholistic care of older people is important.
- Time of day of the presentation makes a difference to services available.
- GP's need;
 - Education on falls.
 - To know about services available.
- Overall care of older people;
 - Processes take time.
 - Need to identify people "going downhill" to avert crisis.
- Community Health well positioned to identify vulnerable people.
- Lack of wide spread knowledge of falls prevention options.
- Home visits are crucial, plus they give an opportunity for education.
- Strong perceived lack of resources to follow up for high risk people.

Thirteen feedback sheets were received. Comments included:

- *A very interesting workshop identifying a definite benefit to be instituted in my work area in ED. I feel inspired and better equipped to pursue this matter at work.*
- *Available resources for falls prevention in regional/rural Australia is a major issue.*
- *Raised awareness but highlighted issues that would impact upon implementation of formalised system.*

NARI has received a request to use the screen from a Tasmanian Hospital since the workshop.

Overall how useful was the Workshop

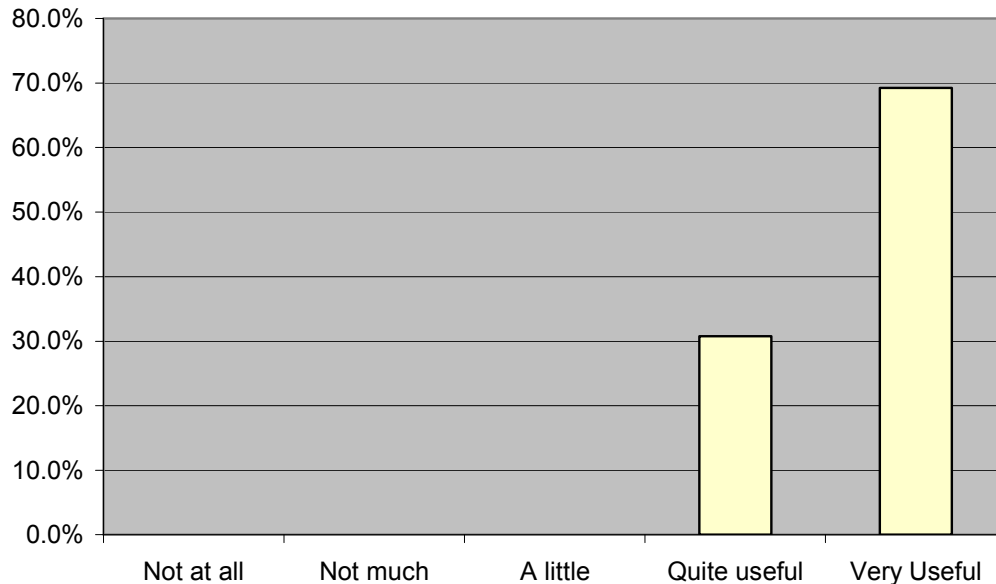


Figure 14 Feedback on the usefulness of the workshop in Tasmania

9.6 Victoria

The Victorian Workshop was hosted at the Victorian Department of Human Services. There were 58 registrations, and 62 people attended. Attendees were predominantly allied health. They included at least 16 physiotherapists, three occupational therapists, three care coordinators and 11 nurses including HARP and clinical educators.

Discussion topics included:

- Didn't have the services to refer to.
- Balance question was difficult, because people may not be cleared to get up, when the screen was performed. Although another person felt the balance question was similar to what they already did and it would work.
- Who is the most appropriate person to do the screening.
- People may not tell the truth about ADLs because they are worried about ending up in a residential care facility.

Forty-nine feedback sheets were received. Comments included:

- *A health promotion coordinator needs to be appointed to drive implementation of the falls risk screen. Individual ED's are under resourced / overworked currently for staff to drive this program.*
- *Such variable services / funding existing within various ED's. That impacts on feasibility of implementation of tool and access to follow up services for patients identified as high risk.*
- *Will work optimally if a designated staff member "owns" the Falls Program in the hospital.*

- *Need for more geriatricians in an acute hospital setting, not only in falls clinics / rehabilitation etc.*
- *The major issue we have is offering appropriate services to implement preventive strategies. There is already an extensive waiting list for services such as falls and balance clinic.*

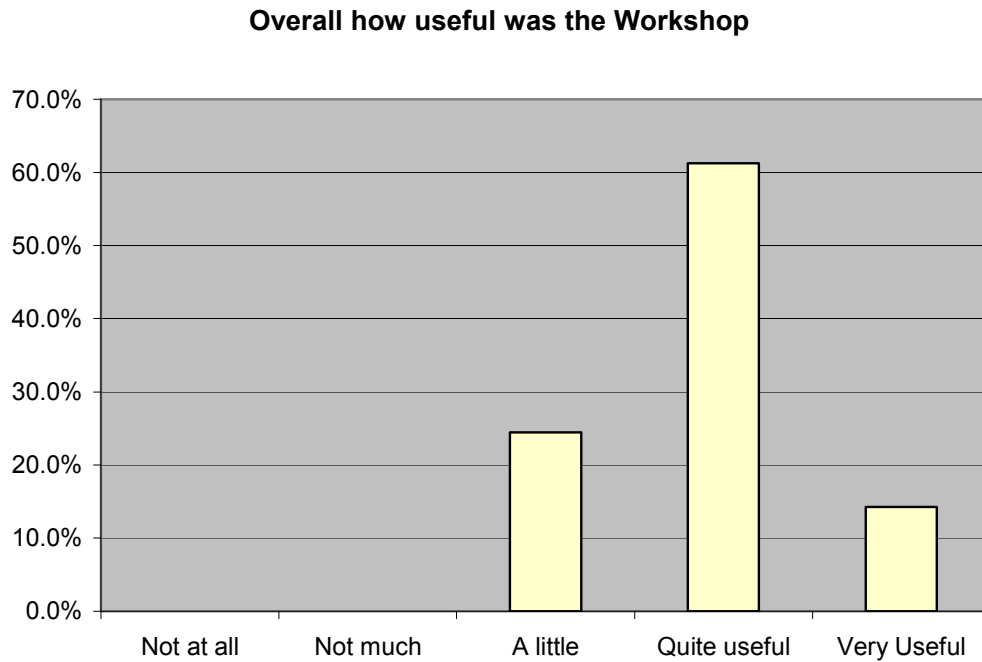


Figure 15 Feedback on the usefulness of the workshop in Victoria

	Home visits really important	Usefulness of networking at the workshop	Need to have the clear local systems to follow up people identified by the screen	GP involvement	Rural metro divide for staff & resources	Need to have the adequate resources to follow up people identified by the screen	Night day resources availability	Consumer engagement with assessment recommendations	Costs to consumers can be prohibitive	Falls and indigenous people	Electronic Tools	Screening all older people, not just "fallers"	Need to have the clear central system to support implementation of the screen
Queensland	↑			↑			↑				↑		
Western Australia	↑	↑	↑	↑	↑	↑	↑	↑		↑			
South Australia		↑	↑							↑	↑	↑	
New South Wales	↑	↑						↑	↑				↑
Tasmania	↑	↑	↑	↑	↑	↑			↑			↑	
Victoria			↑		↑	↑							↑

Table 13 Points raised at interstate ED Falls Risk Screen Workshops

10 Discussion

This project aimed to implement a falls risk screening process in four quite different Emergency Departments throughout Victoria. Overall, the project failed to achieve successful widespread implementation of falls risk screening within the participating Emergency Departments. However, there were some positive outcomes associated with the project, which will be of benefit to the field as others build on the learnings derived from this project.

10.1 Implementation

This project has reinforced the many challenges in implementing substantial practice change in the busy Emergency Department setting, and in health services generally.

There are a number of key drivers that have been identified elsewhere and were reinforced in this project that facilitate successful change in health services. Facilitating factors include having a key local champion, having a culture within the site of preparedness to accept change, and having sufficient support and resources to implement the change. Some of these elements are intrinsic to the specific ED, and are difficult to modulate through an external project team. Others, for example, providing resources, are activities that the project team can modulate. For this project, another element introduced aiming to increase acceptability and utility of the screen within participating EDs was having a responsive and flexible protocol to accommodate differing needs and current practice in the participating EDs. While there were some benefits seen in incorporating this level of flexibility, it also has potential to weaken the overall approach.

Health Service A

This ED had a general discharge risk assessment tool that included a falls history question. This tool was not well used. There was no longer anyone in the position designated to follow through with those found to be at high risk of readmission. This position used to be the Aged Care Liaison Nurse, which staff felt was a useful role. Thus this ED was not identifying people at high falls risk in a systematic manner and was likely to underutilise support services. The nursing staff allocated to care of the person in the ED bay was considered best positioned to conduct a falls risk screen. The District Nursing Service was considered best positioned to conduct a further falls risk assessment on those discharged home identified as being at high risk.

Health Service B

Detailed steps spelled out on the screen sheet facilitated complete follow through with the appropriate referral option. Having a clinician in the department as a driver of the project facilitated the uptake of falls risk screening tool. A falls portfolio enabled this key contact staff member to take ownership of falls prevention initiatives, which facilitated integration into ED processes. This key contact was also able to liaise with local community health services, which were able to offer a number of assessment places for people identified as high risk on screening. This resulted in increased options available for follow up and assessment. The key contact also instigated monitoring activity, (the recording of referrals in a book which replicated the process for other Aged Care

referrals). ED Staff also commented that seeing the contact person in the department reminded them to complete the screen.

Health Service C

Prior to this project there was no tool used to identify high risk fallers. The HARP-ED had recently been set up in this hospital to identify people at high risk of representation to the ED and provide appropriate further assessments and referrals. The criteria of age and presentation with a fall were used to identify people at risk of re-presentation for follow up by the HARP-ED. There was a wide range of resources available to people who live in the catchment area, although there were some long waiting lists and a restricted range of options for people from outlying areas.

Health Service D

Integrating the screening questions into existing paperwork alleviated the need to introduce a new process into work habits, which was seen as a key facilitator. However, there were a number of drawbacks. The way the questions were incorporated meant the screen was not scored. Thus the identification of a person as high risk fell back onto each clinician. Also due to the layout of the document, which did not group the three risk screen questions together, the less intuitive risk factor of “uncorrected vision deficit” may not have been identified as a falls risk factor. This may risk leaving falls history as the de-facto risk screen and would result in an overall decrease in predictive accuracy. The short version of the screen omitted prompts on how to ask the questions and classify the risk factors and this had potential to introduce variability in how the questions were asked and answered.

In summary, integration of the screening tool together with other required documentation, in particular with consideration to discharge planning appears to be an approach more likely to be successfully implemented in the ED setting, rather than introducing it as a stand-alone tool. This has the potential to increase the likely understanding by staff of its usefulness, thereby increasing likely adherence.

10.2 Evaluation

10.2.1 Use of the screen (random medical records audit)

Overall, there was an increase in documentation of falls history, falls related referrals, and screening completion immediately after the falls risk screening tool was introduced. However this was not maintained in the four months project roll-out period at the EDs. Throughout the project, four possible factors that may have influenced the usage of the falls risk screen were identified:

- Metropolitan vs rural setting;
- Presence of a clinical champion who was a member of the ED staff but not the Nurse Unit Manager (NUM);
- the rate of falls history documentation in the medical record before implementation of the screen; and
- Previous involvement in fall prevention projects.

A possible explanation of the metropolitan vs rural differences related to a workforce issue - both of the metropolitan sites had unfilled ED positions, and thus were understaffed during the implementation period. Secondly is the lack of a clinical champion from the ED. Staff feedback agreed that a project like this would be best given to a senior staff member such as an Associate Nurse Unit Manager (ANUM), but not the NUM. Although the NUM is a key stakeholder who needs to be engaged and supportive, they may not be in the best position to champion implementation of a project like this.

The two sites with higher rates of documentation of falls history in the medical record before implementation of the screen had higher rates of use of the screen. The rate of documentation of previous falls, either on the screen or in the notes, did not change over the period of the project in three of four sites. Two EDs with higher rates of falls history documentation had previously been involved in recruiting older people who presented with a fall to the ED in the randomised control trial from which the risk screen was developed. This suggests that there is higher falls prevention awareness among some of the staff in these two EDs.

Although the use of the screen was lower than anticipated, falls related referrals increased to 25% during the first three months and were maintained at 14% between 3-6 months following screening commencement. These results were higher than previously reported by other studies where only 3-4% older patients who presented to the ED following a fall received guideline level falls prevention management.

10.2.2 Patient Interviews

Forty six percent of the people interviewed were found to be at high risk of a further fall. Of this high risk group, only 14% had not had any falls prevention intervention. Half of the fall prevention actions identified at interview among this high risk group had been put in place due to a previous inpatient stay, in particular home safety assessments.

Veterans generally had a good knowledge of falls prevention options that were available for them, and many had taken advantage of the home safety assessment offered by the Department of Veterans' Affairs.

10.3 Interstate Workshops

The focus groups and national workshops highlighted many factors influencing successful implementation of a falls risk screening tool. Interestingly, although some of these factors were common across the participating ED's, there were many that were raised in only one or two of the ED's. In particular, the national workshop series proved to be very popular, drawing good attendances, and generating healthy debate regarding future application of falls risk screening tools such as the FROP-Com screen. In a number of the states, there was a stated need to build on the current status of falls risk screening in EDs, seeing the project and the workshop series as the start of a greater focus on this issue, with some recommending the need for an update of progress on a statewide basis in the coming six or 12 months.

The project has also developed a number of valuable resources for the field, including an ED specific falls prevention literature review, guidelines for best practice in falls prevention for Emergency Departments, and training resources in falls prevention, specifically to support implementation of the falls risk screening tool in this setting.

A potential limitation of falls risk screening in Emergency Departments that was reported both from participating ED's and from the workshop series, was the question of whether there were sufficient suitable community referral services available if substantial numbers of people presenting to the ED are identified with high falls risk. There is a need for ED services to scope and increase awareness of services within their catchment areas that will be able to provide appropriate services to at risk clients. This may involve exploring additional, less commonly utilised community services within a region.

10.4 Further developments

During the period of the implementation study, further work was carried out on the development of the FROP-Com screen. As the study from which the data for the development of the screen was concluded, more data was available for analysis. The preliminary analyses reported earlier (section 4, pages 21-23) were repeated once the full data set was available (after this project had commenced in the four ED's). The revised results are reported below, (Appendix 5) and result in a change in the three items of the FROP-Com screen, with vision dropping out of the top three predictor items, and need for assistance in ADLs moving in to the FROP-Com screen instead. The other two items, falls history and balance, remained unchanged. The last option in the falls history was revised. The revised screen and guidelines for using the screen are available (Appendix 5) and http://www.nari.unimelb.edu.au/research/research_falls_service.htm.

10.5 Conclusions

Although this project did not achieve its desired goal of successful widespread implementation of a falls risk screening tool in the four participating Emergency Departments, there remains a sense that it is still a worthwhile goal to work towards. In particular, a slight modification to the FROP-Com screening tool based on subsequent analyses by the team who developed the tool, means that the one item that changed (activities of daily living included, while vision impairment was omitted) may be seen as having greater relevance to discharge planning and the ability of the older person to cope on return to the home environment. Emergency Departments aiming to introduce a falls risk screening tool will benefit from reviewing the barriers and facilitators identified in this project, as well as having access to the project resources.

This project serves as a pilot for implementing a falls risk screening tool in the ED setting. There are some limitations of this project's findings. Firstly, lessons learnt were from Victorian ED and may not be generalisable in ED in other states. Wider implementation in EDs in different states is warranted. Secondly, this project was not designed to identify whether falls risk screening will reduce falls. A cluster randomised controlled trial with long-term follow-up is needed to investigate outcomes associated with implementing falls risk screening in the ED setting.

11 Recommendations

Based on the activities implemented, evaluation and feedback the project team make the following recommendations:

1. that there be ongoing work towards effective implementation of falls risk screening tools in Emergency Departments;
2. that future approaches explore integrating the falls risk screening tool with other screens and documentation requirements, particularly discharge planning for older people;
3. that the Australian Government and state governments explore opportunities to support building on current interest and activity in falls risk screening in the Emergency Department setting, for example, a further round of workshops in six to 12 months time;
4. that with the transition to electronic records in the ED, falls risk screening and referral tools should be integrated within electronic tools;
5. that scoping of agencies suitable for referral within an ED's catchment be undertaken, to maximise the appropriate linkage of clients with follow up assessment and intervention services; and
6. that the executive summary, barriers and facilitator list, and resources from this project be widely disseminated to support ongoing development in the field.

References

American Geriatrics Society, British Geriatrics Society and Prevention A A o O S P o F (2001). "Guidelines for the prevention of falls in older persons." Journal of the American Geriatrics Society **49**: 664-72.

Australian Council for Safety and Quality in Health Care (2005). Preventing falls and harm from falls in older people. Best practice guidelines for Australian hospitals and residential aged care facilities.
[http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/CC63330AF385C3F2CA25718F000CCC30/\\$File/falls.pdf](http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/CC63330AF385C3F2CA25718F000CCC30/$File/falls.pdf) (accessed April 2007).

Babcock Irvin C, Wyer P C and Gerson L W (2000). "Preventive care in the emergency department, Part II: Clinical preventive services--an emergency medicine evidence-based review. Society for Academic Emergency Medicine Public Health and Education Task Force Preventive Services Work Group. [see comments.]" Academic Emergency Medicine. **7**(9): 1042-54.

Baker D I, King M B, Fortinsky R H, Graff L G, Gottschalk M, Acampora D, Preston J, Brown C J and Tinetti M E (2005). "Dissemination of an Evidence-Based Multicomponent Fall Risk-Assessment and -Management Strategy Throughout a Geographic Area." Journal of the American Geriatrics Society **53**(4): 675-680.

Baraff L J, Della Penna R, Williams N and Sanders A (1997). "Practice guideline for the ED management of falls in community-dwelling elderly persons. Kaiser Permanente Medical Group." Annals of Emergency Medicine **30**(4): 480-492.

Baraff L J, Lee T J, Kader S and Della Penna R (1999a). "Effect of a practice guideline for emergency department care of falls in elder patients on subsequent falls and hospitalizations for injuries." Academic Emergency Medicine **6**(12): 1224-1231.

Baraff L J, Lee T J, Kader S and Della Penna R (1999b). "Effect of a practice guideline on the process of emergency department care of falls in elder patients." Academic Emergency Medicine **6**(12): 1216-1223.

Beard J, Rowell D, Scott D, van Beurden E, Barnett L, Hughes K and B N (2006). "Economic analysis of a community-based falls prevention program." Public Health **120**(8): 742-51.

Bell A J, Talbot-Stern J K and Hennessy A (2000). "Characteristics and outcomes of older patients presenting to the emergency department after a fall: a retrospective analysis." Medical Journal of Australia **173**(4).

Bischoff-Ferrari H A M, MPH; , Dawson-Hughes B M, Willett W C M, DrPH; , Staehelin H B M, Bazemore M G M, Zee R Y M and Wong J B M (2004). "Effect of Vitamin D on Falls: A Meta-analysis." JAMA **291**(16): 1999-2006.

Blackberry I, Galvin P, Bingham A, Hill K, Russell M, Liaw T and Taylor J (2007). A literature review on falls prevention for older people presenting to Emergency Departments following a fall: Effective approaches and barriers to best practice. Report by the National Ageing Research Institute (NARI) to the Australian Government Department of Health and Ageing.:
http://www.nari.unimelb.edu.au/research/pdf_docs/Pauline%20PDFs/NARI%20Literature%20Review%20ED%20falls%20Risk%20Screen%20August%202007.pdf.

Bradley C and Harrison J E (2007). Hospitalisations due to falls in older people, Australia, 2003–04. Injury research and statistics series. Adelaide, AIHW.

Braun B L (1998). "Knowledge and Perception of Fall-Related Risk Factors and Fall-Reduction Techniques Among Community-Dwelling Elderly Individuals." Physical Therapy **78**(12): 1262.

- Burns E (2001). "Older people in accident and emergency departments." Age and Ageing **30 Suppl 3**.
- Campbell A J, Robertson M C, La Grow S J, Kerse N M, Sanderson G F, Jacobs R J, Sharp D M and Hale L A (2005). "Randomised controlled trial of prevention of falls in people aged ≥ 75 with severe visual impairment: the VIP trial." British Medical Journal **331**(7520): 817-.
- Cassell E (2001). "Prevention of hospital treated fall injuries in older people." Hazard **48**: 7-12.
- Chang J T, Morton S C, Rubenstein L Z, Mojica W A, Maglione M, Suttorp M J, Roth E A and Shekelle P G (2004). "Interventions for the prevention of falls in older adults: systematic review and meta-analysis of randomised clinical trials." British Medical Journal **328**(7441): 680.
- Chou W C, Tinetti M E, King M B, Irwin K and Fortinsky R H (2006). "Perceptions of Physicians on the Barriers and Facilitators to Integrating Fall Risk Evaluation and Management Into Practice." Journal of General Internal Medicine **21**(2): 117-122.
- Clemson L, Cumming R G, Kendig H, Swann M, Heard R and Taylor K (2004). "The Effectiveness of a Community-Based Program for Reducing the Incidence of Falls in the Elderly: A Randomized Trial." Journal of the American Geriatrics Society **52**(9): 1487-1494.
- Clemson L, Cusick A and Fozzard C (1999). "Managing risk and exerting control: determining follow through with falls prevention." Disability & Rehabilitation **21**(12): 531-541.
- Close J, Ellis M, Hooper R, Glucksman E, Jackson S and Swift C (1999). "Prevention of falls in the elderly trial (PROFET): a randomised controlled trial." Lancet **353**(9147).
- Close J C and Glucksman E (2000). "Falls in the elderly: what can be done?" Medical Journal of Australia **173**(4): 176-7.
- Cumming R G, Thomas M, Szonyi G, Frampton G, Salkeld G and Clemson L (2001). "Adherence to occupational therapist recommendations for home modifications for falls prevention." American Journal Occupational Therapy **55**(6).
- Currie L M (2006). "Fall and injury prevention." Annual Review of Nursing Research **24**.
- Davison J, Bond J, Dawson P, Steen I N and Kenny R A (2005). "Patients with recurrent falls attending Accident & Emergency benefit from multifactorial intervention--a randomised controlled trial." Age and Ageing **34**(2).
- Donaldson M G, Khan K M, Davis J C, Salter A E, Buchanan J, McKnight D, Janssen P A, Bell M and McKay H A (2005). "Emergency department fall-related presentations do not trigger fall risk assessment: A gap in care of high-risk outpatient fallers." Archives of Gerontology and Geriatrics **41**(3): 311-317.
- Feder G, Cryer C, Donovan S and Carter Y (2000). "Guidelines for the prevention of falls in people over 65. The Guidelines' Development Group.[comment]." British Medical Journal **321**(7267): 1007-11.
- Fortinsky R H, Iannuzzi-Sucich M, Baker D I, Gottschalk M, King M B, Brown C J and Tinetti M E (2004). "Fall-risk assessment and management in clinical practice: views from healthcare providers." Journal of the American Geriatrics Society **52**(9).
- Gabell A, Simons M and Nayak U (1985). "Falls in the healthy elderly: Predisposing factors." Ergonomics **28**: 965-975.
- Ganz D A, Bao Y, Shekelle P G and Rubenstein L Z (2007). "Will my patient fall?" JAMA. **297**(1): 77-86.

Gillespie L D, Gillespie W J, Robertson M C, Lamb S E, Cumming R G and Rowe B H (2003). "Interventions for preventing falls in elderly people." Cochrane Database of Systematic Reviews (3): CD000340.

Hegney D, Buikstra E, Chamberlain C, March J, McKay M, Cope G and Fallon T (2006). "Nurse discharge planning in the emergency department: a Toowoomba, Australia, study." Journal of Clinical Nursing **15**(8): 1033-1044.

Hendrie D, Hall S E, Arena G and Legge M (2004). "Health system costs of falls of older adults in Western Australia." Australian Health Review **28**(3).

Hill K and Schwarz J (2004). "Assessment and management of falls in older people." Internal Medicine Journal **34**(9-10): 557-564.

Hill K, Vratsidis F, Haralambous B, Fearn M, Smith R, Murray K, Sims J and Dorevitch M (2004). An analysis of research on preventing falls and falls injury in older people: Community, residential care and hospital settings (2004 update). Canberra, Report by the National Ageing Research Institute for the Australian Government Department of Health and Ageing.

Hill-Westmoreland E E, Soeken K and Spellbring A M (2002). "A meta-analysis of fall prevention programs for the elderly: how effective are they?" Nursing Research **51**(1): 1-8.

Lamb S E, Jorstad-Stein E C, Hauer K and Becker C (2005). "Development of a Common Outcome Data Set for Fall Injury Prevention Trials: The Prevention of Falls Network Europe Consensus." Journal of the American Geriatrics Society **53**(9): 1618-1622.

Lightbody E, Watkins C, Leathley M, Sharma A and Lye M (2002). "Evaluation of a nurse-led falls prevention programme versus usual care: a randomized controlled trial." Age and Ageing **31**(3): 203-210.

Lord S, Ward J A, Phillipa W and Maureen S (1995). "The effect of a 12-month exercise trial on balance, strength, and falls in older women: a randomized controlled trial." Journal of the American Geriatrics Society **43**(11): 1198-206.

Managing Innovation (2000). National Falls Prevention for Older People Initiative "Step Out with Confidence" A study into the Information Needs and Perceptions of Older Australians Concerning Falls and Their Prevention. Canberra, Commonwealth Department of Health and Aged Care.

McClure R, Turner C, Peel N, Spinks A, Eakin E and Hughes K (2005). "Population-based interventions for the prevention of fall-related injuries in older people." Cochrane Database Syst Rev(1): CD004441.

McInnes L, Gibbons E and Chandler-Oats J (2005). "Clinical practice guideline for the assessment and prevention of falls in old people." Worldviews on Evidence-Based Nursing **2**(1): 33-6.

Moreland J, Richardson J, Chan D H, O'Neill J, Bellissimo A, Grum R M and Shanks L (2003). "Evidence-based guidelines for the secondary prevention of falls in older adults." Gerontology **49**: 93-116.

NARI (2007). Falls Prevention Guidelines for the Emergency Department, Australian Government Department of Health and Ageing.

Paniagua M A, Malphurs J E and Phelan E A (2006). "Older patients presenting to a county hospital ED after a fall: missed opportunities for prevention." American Journal of Emergency Medicine **24**(4).

Parker M, Gillespie W and Gillespie L (2005). "Hip protectors for preventing hip fractures in older people." Cochrane Database of Systematic Reviews(3): CD001255.

- Perell K L, Nelson A, Goldman R L, Luther S L, Prieto-Lewis N and Rubenstein L Z (2001). "Fall risk assessment measures: an analytic review." Journals of Gerontology Series A Biological Sciences and Medical Sciences **56**(12): M761-6.
- Reeson C and Wafer M (2001). "Falls in accident and emergency departments." Nursing Standard **15**(50).
- Rowland K, A.K. M, Richardson D A, Hudson K and Woodhouse K W (1990). "The discharge of elderly patients from an accident and emergency department: functional changes and risk of readmission." Age and Ageing **19**(6): 415-8.
- Rubenstein L Z (2006). "Falls in older people: epidemiology, risk factors and strategies for prevention." Age and Ageing **35 Suppl 2**.
- Russell M, Hill K, Blackberry I, Day L and Dharmage S (2006). "Falls risk and functional decline in older fallers discharged directly from emergency departments." Journals of Gerontology Series A-Biological Sciences and Medical Sciences **61**(10): 1090-1095.
- Russell M, Hill K, Blackberry I, Day L and Dharmage S (submitted). "Development of the falls risk for older people in the community (FROP-Com) screening tool." Age and Ageing.
- Russell M, Hill K, Day L, Blackberry I and Dharmage S (in press). "The reliability and predictive accuracy of the falls risk for older people in the community assessment (FROP-Com) tool." Age and Ageing
- Salter A E, Khan K M, Donaldson M G, Davis J C, Buchanan J, Abu-Laban R B, Cook W L, Lord S R and McKay H A (2006). "Community-dwelling seniors who present to the emergency department with a fall do not receive Guideline care and their fall risk profile worsens significantly: a 6-month prospective study." Osteoporosis International **17**(5).
- Shaw F E, Bond J, Richardson D A, Dawson P, Steen I N, McKeith I G and Kenny R A (2003). "Multifactorial intervention after a fall in older people with cognitive impairment and dementia presenting to the accident and emergency department: randomised controlled trial." British Medical Journal **326**(7380).
- Skelton D A and Todd C J (2005). "Thoughts on effective falls prevention intervention on a population basis." Journal Public Health **13**: 196-202.
- Snooks H A, Halter M, Close J C T, Cheung W-Y, Moore F and Roberts S E (2006). "Emergency care of older people who fall: a missed opportunity." Quality and Safety in Health Care **15**(6): 390-392.
- Stevens M, Holman C D A J and Bennett N (2001). "Preventing Falls in Older People: Impact of an Intervention to Reduce Environmental Hazards in the Home." Journal of the American Geriatrics Society **49**(11): 1442-1447.
- The Victorian Quality Council (2004). Minimising the risk of falls and fall-related injuries: guidelines for acute, sub-acute and residential care settings. Melbourne, The Victorian Quality Council Safety and Quality in Health.
- Tinetti M, Speechley M and Ginter S (1988). "Risk factors for falls among elderly persons living in the community." New England Journal of Medicine **319**: 1701-7.
- Todd C and Skelton D (2004). What are the main risk factors for falls amongst older people and what are the most effective interventions to prevent these falls. Health Evidence Network report. Copenhagen, WHO Regional Office for Europe: <http://www.euro.who.int/document/E82552.pdf> accessed 26 April 2007.

Weigand J V and Gerson L W (2001). "Preventive care in the emergency department: should emergency departments institute a falls prevention program for elder patients? A systematic review." Academic Emergency Medicine **8**(8).

Wenger N S, Solomon D H, Roth C P, MacLean C H, Saliba D, Kamberg C J, Rubenstein L Z, Young R T, Sloss E M, Louie R, Adams J, Chang J T, Venus P J, Schnelle J F and Shekelle P G (2003). "The Quality of Medical Care Provided to Vulnerable Community-Dwelling Older Patients." Annals of Internal Medicine **139**(9): 740-747.

Whitehead C, Crotty M, Wundke R and Funicane P (2001). Evidence based clinical practice in falls prevention: A randomised controlled trial of a falls prevention service. Australian Association of Geriatric Medicine Conference, Blue Mountains.

World Health Organisation Definition of a fall;
http://www.who.int/violence_injury_prevention/other_injury/falls/en/index.html. **accessed May 2007.**

Yardley L, Donovan-Hall M, Francis K and Todd C (2006). "Older people's views of advice about falls prevention: a qualitative study." Health Education Research **21**(4): 508-517.

Appendices

Appendix 1 Audit Tool

Medical Record Audit Tool: Falls Prevention Guidelines for Emergency Departments

Falls risk screen to be completed for each person aged 65 and over (50 and over Aboriginal and Torres Strait Islander people) that has presented to the ED with a falls related presentation.

Audit Date	
Auditor	
UR Number	
Screening tool	
Has the falls risk screening tool been completed?	
Has a falls history been taken?	
Has vision been checked?	
Has the balance test been administered?	
Has the screen been scored?	
Referral	
Has the person had referrals as a result of the falls risk screen?	a. Yes b. No, score = 0 c. No, score > 0 d. No, not completed
<ul style="list-style-type: none"> • Vision item 	
<ul style="list-style-type: none"> • Balance item 	
If high risk, then	
Has the persons' GP been informed of the outcome of the falls risk screen and of any referrals made?	
Has the person been referred for a falls risk assessment ?	
Notes	

Falls Risk for Older People in the Community (FROP-Com) Screen: Guidelines

Working together to prevent falls



Falls risk screening guidelines developed by: National Ageing Research Institute
This screening tool is an abbreviated version of the Falls Risk for Older People in the Community (FROP-Com) tool. The FROP-Com has been investigated for reliability and validity as part of a large randomised controlled trial "Falls Aren't Us". It is currently used in several research studies and in clinical settings. The FROP-Com Screen was developed, based on those items most strongly predictive of future falls risk from the full FROP-Com assessment. The 3-item screen will be more practical and time efficient than performing the full FROP-Com. This will make the FROP-Com Screening tool particularly relevant within busy settings, such as Emergency Departments. The screening tool will enable health professionals and researchers to determine those at greatest risk of future falls, which will in turn inform decision making as to those who will require a full FROP-Com assessment (or other detailed falls risk assessment) and management plan.

These guidelines provide definitions and detail to support the screen, and suggest management options if a specific risk factor is identified.

More information on the FROP-Com Screen is available from NARI at info@nari.unimelb.edu.au.

August 2007

Falls Risk for Older People in the Community (FROP-Com) Screen: Guidelines

These Guidelines are designed to assist health professionals in the use of the FROP-Com Screen. The first section describes definitions and scoring options for the FROP-Com Screen. The second section lists possible interventions to consider if a risk factor has been identified. The third section is a suggested referral map, and a copy of the screening tool, which can be tailored to different settings.

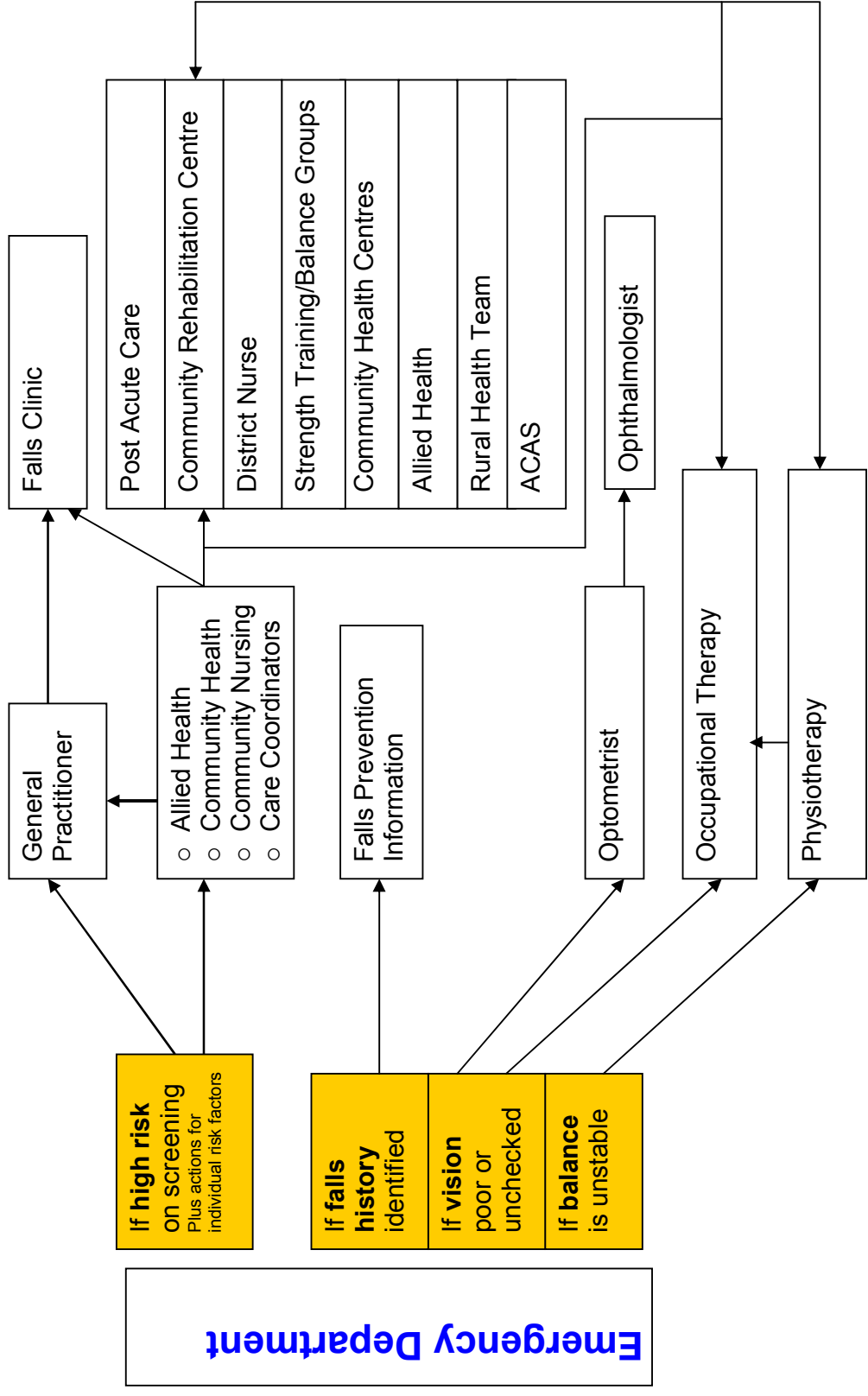
All people aged 65 and over, (50 and over Aboriginal and Torres Strait Islander Peoples), presenting to the Emergency Department should be screened for falls risk.

Question	Scoring guidelines
Falls History	
Question 1	<p>Use the WHO definition of a fall - "An event which results in coming to rest inadvertently on the ground or lower level,". Current ED falls presentation should be included. Include the terms "slips", "trips", "faints" and "any other accidents" to elicit a complete falls history.</p> <ul style="list-style-type: none"> o Score as 0 if no falls in the past 12 months. o Score as 1 if 1 fall in the past 12 months. o Score as 2 if 2 or more falls in the past 12 months. o Score as 3 if admitted to hospital due to a fall in the past 12 months.
Sensory Loss: Vision	
Question 2	<p>Score as 1 if the person reports on questioning (wearing their glasses if applicable):</p> <ul style="list-style-type: none"> o trouble seeing objects clearly, e.g. the television, cracks in the footpath (visual acuity). o trouble judging distances, e.g. going down stairs, distance of cars away (depth perception) (question about this particularly if wearing bifocals). o trouble seeing in half light, e.g. seeing large objects, steps, stairs at dusk (contrast sensitivity). o has not had their eyes checked in the previous 2 years.
Balance	
Question 3	<p>Observe the person standing, walking a few metres, turning and sitting. If the person uses an aid observe the person with the aid. Do not base on self-report. If level fluctuates, tick the most unsteady rating. If the person is unable to walk due to injury, score as 3.</p> <ul style="list-style-type: none"> o Score as 0 if no unsteadiness observed. o Score as 1 if the person: <ul style="list-style-type: none"> ➤ appears unsteady performing any of these tasks. ➤ is making modifications to appear steady (e.g. an increased level of effort, feet spread apart to maintain balance, or is consistently touching the walls or furniture). o Score as 2 if the person: <ul style="list-style-type: none"> ➤ appears moderately unsteady walking and would require supervision to walk safely. ➤ is making modifications and still appears unsteady. o Score as 3 if the person: <ul style="list-style-type: none"> ➤ is consistently or severely unsteady on walking or turning and would need hands on assistance.

Suggested options for management of falls risk factors

Question	Score	Suggested options for management
FROP-Com Screen Questions		
History of falls		
Question 1 <i>(Those falling in the past are three times more likely to fall in the future than someone who has not had a fall)</i>	0 ≥ 1	No intervention. • Provide falls prevention brochure.
Sensory loss: Vision		
Question 2 <i>(Home modifications have been found to be effective in preventing falls in visually impaired older people)</i> <i>(Removing cataracts has been found to be effective in reducing falls)</i>	0 1	No intervention. Options: • Advise to see an Optometrist if the client has not been reviewed in past 2 years or the client is reporting decreased vision. • Refer to an Occupational Therapist if vision is impaired. • Refer to General Practitioner for consideration of: ➢ referral to Vision Australia (includes mobility training and aids for visually impaired) if vision is impaired and has not been previously referred. ➢ referral to an Ophthalmologist if requires specialist review (e.g. cataracts that the person is not already seeing an ophthalmologist for).
Balance		
Question 3 <i>(A person with a balance or walking deficit is approximately three times more likely to fall)</i> <i>(Individuals undertaking balance and strengthening exercises prescribed by a physiotherapist, group classes (of balance, strength and fitness exercises), and Tai chi classes have been found to be effective in reducing falls)</i>	0 1-3	No intervention. Options: • Refer to a Physiotherapist for assessment and exercises to improve gait and balance, and/or use/change of walking aid. • Inform the General Practitioner.

Overall FROP-Com Screen score		Options:
	0	No intervention required
	1 - 2	<ul style="list-style-type: none"> • Implement management options as per individual risk factors.
	3 - 7	<ul style="list-style-type: none"> • Implement management options as per individual risk factors. • Notify GP about patients' high risk of further falls for further referrals and implementation of a management plan. • Refer for further assessment. <ul style="list-style-type: none"> ○ Allied Health ○ Community Health ○ Community Nursing ○ Care Coordinators



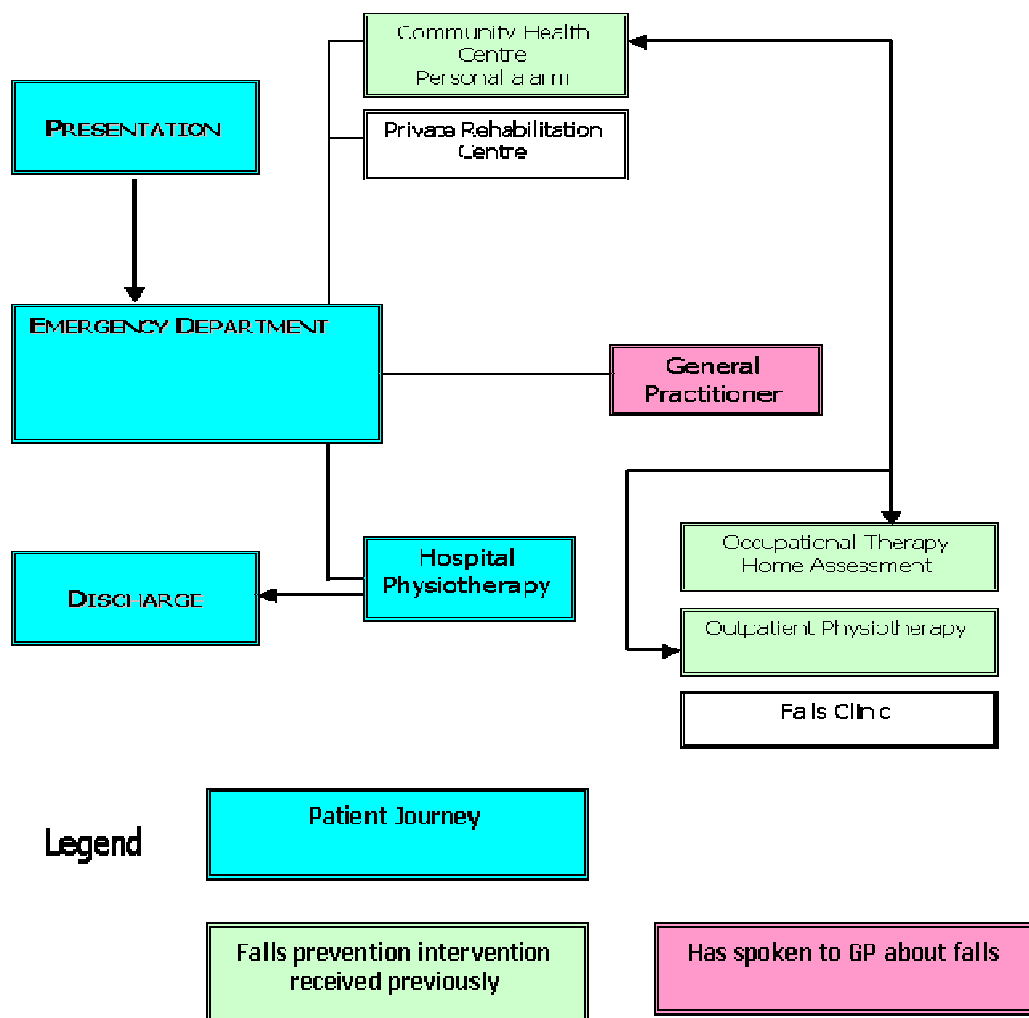
Appendix 3 Patient Mapping

Below are the case studies mapping of patients' journey against best practice falls referral pathway from each ED.

Case study 1

This 70-year-old gentleman lives in a unit on his own. He fell in a showroom, tripping as he came around a corner, over a low platform that was jutting out. He has had 3 or 4 falls in the last 12 months and about one near miss per month particularly when he feels he loses his balance.

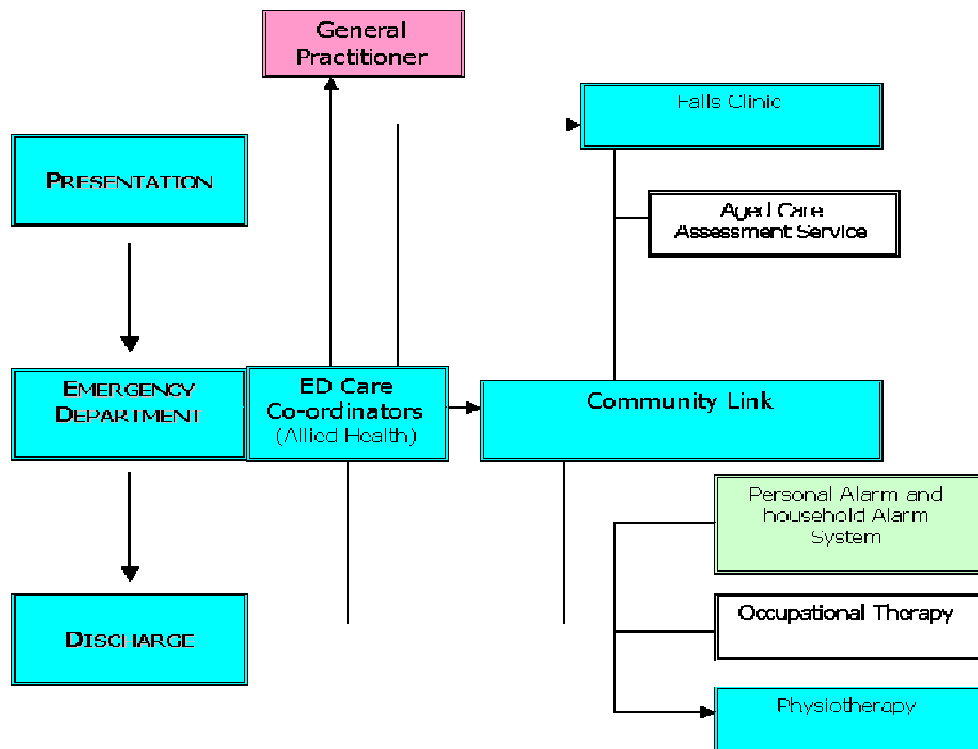
He has spoken to his GP about his falls and is considering getting a personal alarm, but is concerned about the cost. He has also spoken to the physiotherapist whom he is seeing for a previous back injury about falls and his balance. He had a home safety assessment from the local community health after a previous inpatient stay, for the above back injury. He is having trouble with his current glasses prescription, but he has seen his optometrist this year.



Case study 2

This 74-year-old man has been diagnosed with early stages of Parkinson's disease. He has had approximately 5 falls during past twelve months. He has noticeable postural instabilities and balance issues. He says he has a good vision and he uses multifocal eyewear. He has seen an optometrist about 18 months ago.

Following his recent visit to the ED after a fall, he was referred to Community Link and has received physiotherapy through Community Rehabilitation Centre. He has also been referred to and has attended falls and balance clinic. He has a personal alarm and his house is equipped with a household alarm system, which was installed after a previous inpatient stay.



Legend

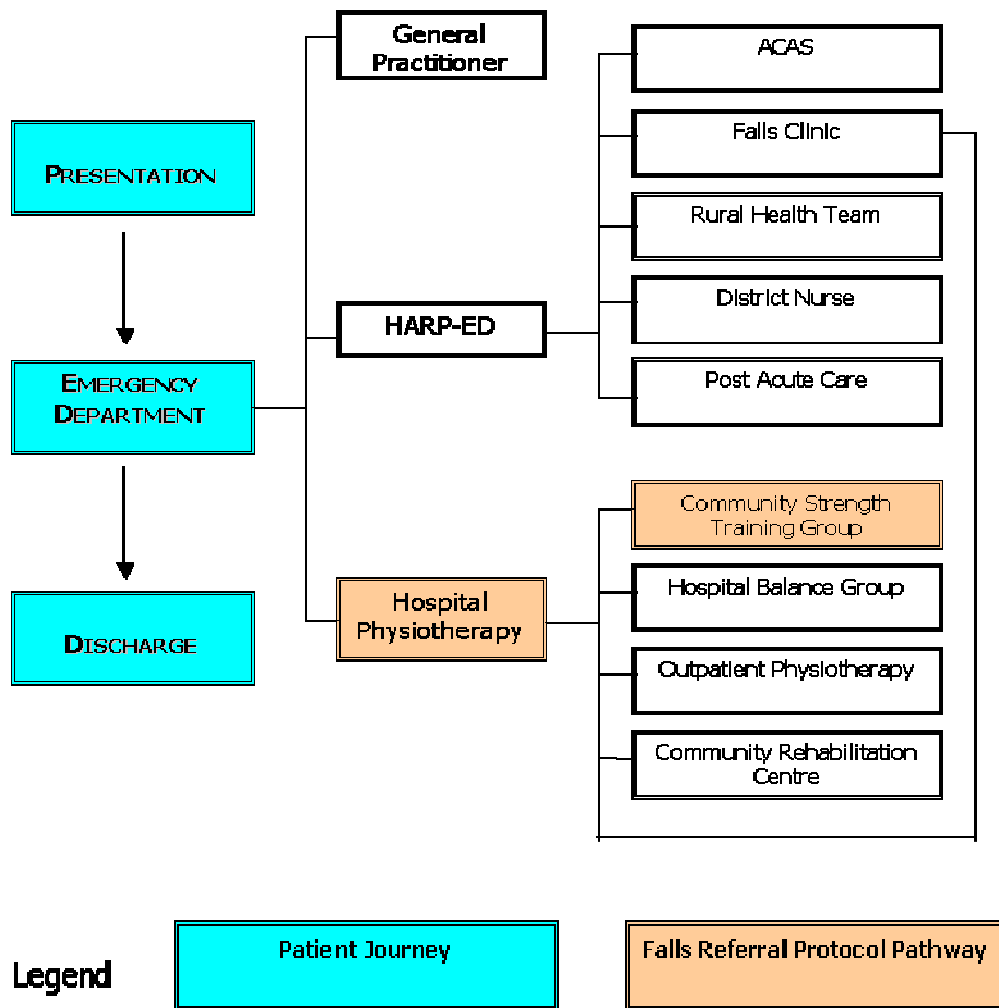
Patient Journey

Falls prevention intervention received previously

Has spoken to GP about falls

Case study 3

This 68-year-old lady had an accident on her farm. She tripped in the cattle yard and fell heavily onto her face. In the last 12 months, she has had few trips in the garden and also some near misses crossing the road. She feels her eyesight is worse since the accident, and now has difficulty judging distances. She stopped doing Tai Chi about 12 months ago and stopped walking for exercise about 2 years ago, and feels she is slowing down now. Her recent medical history includes a bad bout of arthritis about 3 months ago. She was treated in the ED for lacerations to her face. She spoke to her GP in regards to treatment of her injuries from this fall, but not about fall prevention.

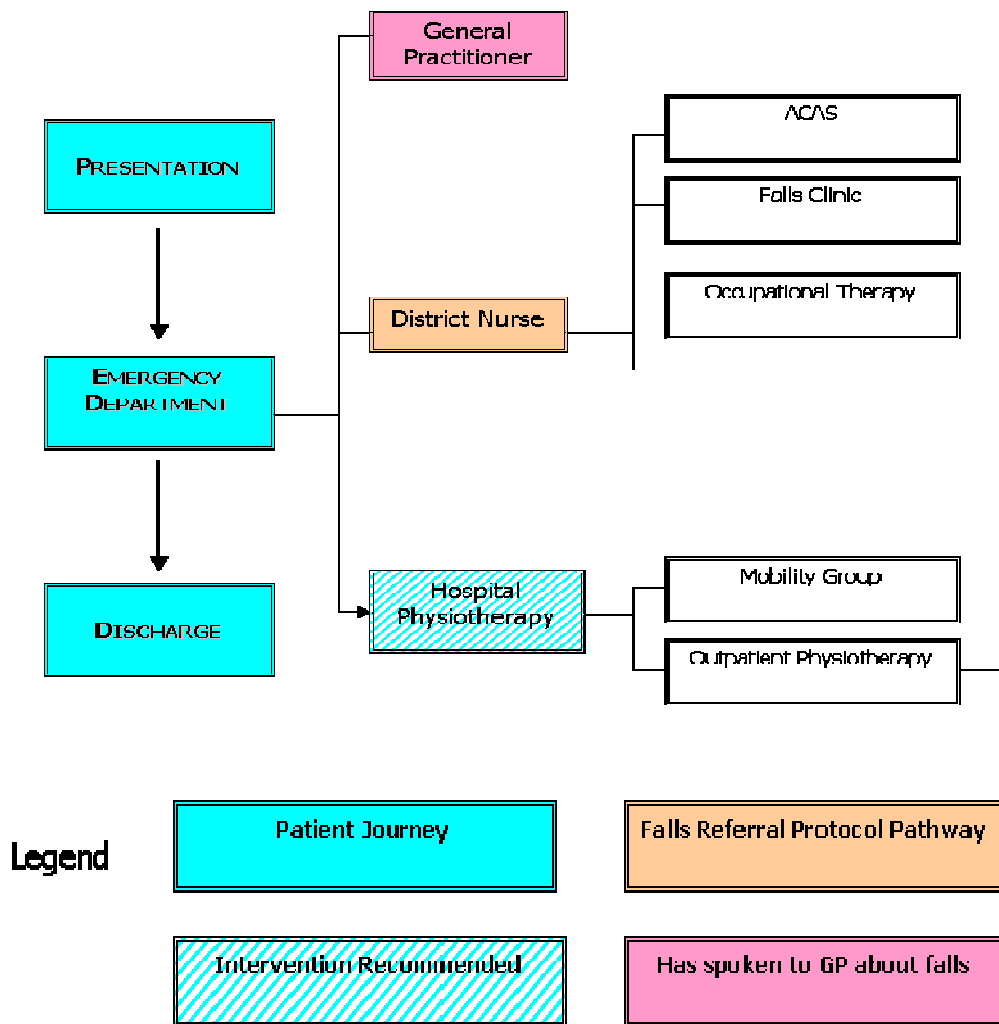


Case study 4

This 65-year-old woman has had 6 falls and a number of near misses during past twelve months. She has also previously been admitted to hospital after a major fall. She says that she has no trouble seeing objects but she finds it hard to judge distances. She last saw an optometrist nearly two years ago. She is moderately unsteady when walking.

She suffers from asthma. A serious asthmatic episode followed by a fall in the shower led her to this ED presentation. The ED has suggested physiotherapy, however, she has not undertaken this recommendation.

She says that she started losing her balance after a recent brain surgery. She takes multiple medications and she revealed that sometimes these make her feel drowsy. Also, she says that she gets dizzy when stand up. She has spoken to her GP about her falls.



Appendix 4 Falls Risk Screen Workshop Outline

The National Ageing Research Institute is funded by the Commonwealth Department of Health and Ageing to implement an evidence based Falls Risk Screen for older people presenting to four Emergency Departments in Victoria.

The FROP-Com (Falls Risk in Older People – Community) screen is a short three-question tool to identify those at community risk of falling (30% per annum) and those at higher risk (60% per annum). The implementation of the FROP-Com screen is supported by evidence based falls prevention guidelines developed for the emergency department and an education package for staff on falls prevention and the use of the FROP-Com Screen.

We plan to disseminate the study findings and learnings in a half-day workshop in 6 states including:

Topic	Length
Rationale for screening falls in ED (program logic, policy into practice)	15 min
Literature Review (community dwelling, ED, single vs multiple interventions)	15 min
Falls prevention guidelines in ED	15 min
Falls risk screening tool development	15 min
Screening methods, subject, setting	15 min
Evaluation of screening implementation: <ul style="list-style-type: none">- Consultation with key stakeholders- Training and education resources- Medical records audits and patients' interviews	45 min
Tea break	30 min
Workshop falls risk screen process in ED setting	20 min
Lessons learnt: <ul style="list-style-type: none">- How to fit amongst other ED risk screens- Cultivating links between ED and other health services	30 min
Concluding remarks and where to from here	10 min
Discussion	30 min

Appendix 5 Revised FROP-Com Screen

During the period of the implementation study, further work was carried out on the development of the FROP-Com screen. As the study from which the data for the development of the screen was concluded, more data was available for analysis. The preliminary analyses reported earlier (section 4, pages 21-23) were repeated once the full data set was available (after this project had commenced in the four ED's). The revised results are reported here and result in a change in the three items of the FROP-Com screen, with vision dropping out of the top three predictor items, and need for assistance in ADLs moving in to the FROP-Com screen instead. The other two items, falls history and balance, remained unchanged. The last option in the falls history was revised. The revised screen and guidelines for using the screen are available below and http://www.nari.unimelb.edu.au/research/research_falls_service.htm.

FROP-Com screen – revised analysis with full data set

Of the 344 participants in the study 69.2% (95% CI: 64.3% – 74.1%) were female and the mean age was 75.9 years (95%CI: 75.0 – 76.8) (Russell et al. submitted). In the 12-month follow up period 164 (47.7%) sustained one fall and 180 (52.3%) sustained no falls.

In the multifactorial logistic regression number of falls in the past 12 months, observation of the person's balance and the question regarding the need for assistance to perform domestic ADLs remained statistically significant predictors of falls. These three items were the items chosen for the FROP-Com screen.

Youden's index was highest (0.34) at a cut off of 3/4. At this point sensitivity was 67% (95%CI: 59.9%-74.3%) and specificity was 67% (95%CI: 59.8%-73.6%).

The ICC for intra-rater reliability for the FROP-Com screening tool was 0.87 (95%CI: 0.70-0.95) and the ICC for inter-rater reliability was 0.89 (95%CI: 0.75-0.96).

In summary, the newly developed FROP-Com screen consists of the risk factors of number of falls in the past 12 months, observation of balance, and needing assistance performing ADLs. It is a quick and easy to apply falls risk screening tool with a moderate capacity to predict falls.

As with all screening and assessment tools the most appropriate cut-off point for the FROP-Com screen should be considered in the context of the requirement of the setting. A cut-off of 3/4 was found to have the greatest level of sensitivity and specificity. However a cut-off of 2/3 may be the most appropriate choice, resulting in only 20% of fallers incorrectly classified as low risk and 50% of non-fallers classified as high risk. In the clinical situation, if resources are scarce the cut-off point for further assessment and intervention could be raised to a higher cut-off to decrease the numbers of false positives and if resources for the management of high risk fallers are more available the cut-off can be lowered.

Feedback from staff focus group supported this modification of the screen tool. One group found that including the vision deficit question raised a falls risk factor that otherwise would not have been addressed, this group of staff routinely document

assistance required with ADL and thus would achieve higher rates of compliance of usage of the screen.

Analysis of patient interviews shows that most people interviewed (97%), had their eyes checked within two years, which complied with the recommendation of the Australian Optometrists Association. It would appear that older people presented to the ED following a fall in this project received an appropriate eye care.

Falls Risk for Older People in the Community (FROP-Com) Screen: Guidelines

Working together to prevent falls



Falls risk screening guidelines developed by: National Ageing Research Institute

This screening tool is an abbreviated version of the Falls Risk for Older People in the Community (FROP-Com) tool. The FROP-Com has been investigated for reliability and validity as part of a large randomised controlled trial "Falls Aren't Us". It is currently used in several research studies and in clinical settings. The FROP-Com Screen was developed, based on those items most strongly predictive of future falls risk from the full FROP-Com assessment. The 3-item screen will be more practical and time efficient than performing the full FROP-Com. This will make the FROP-Com Screening tool particularly relevant within busy settings, such as Emergency Departments. The screening tool will enable health professionals and researchers to determine those at greatest risk of future falls, which will in turn inform decision making as to those who will require a full FROP-Com assessment (or other detailed falls risk assessment) and management plan.

These guidelines provide definitions and detail to support the screen, and suggest management options if a specific risk factor is identified.

More information on the FROP-Com Screen is available from NARI at info@nari.unimelb.edu.au.

March 2008

Falls Risk for Older People in the Community (FROP-Com) Screen: Guidelines

These Guidelines are designed to assist health professionals in the use of the FROP-Com Screen. The first section describes definitions and scoring options for the FROP-Com Screen. The second section lists possible interventions to consider if a risk factor has been identified. The third section is a suggested referral map, and a copy of the screening tool, which can be tailored to different settings.

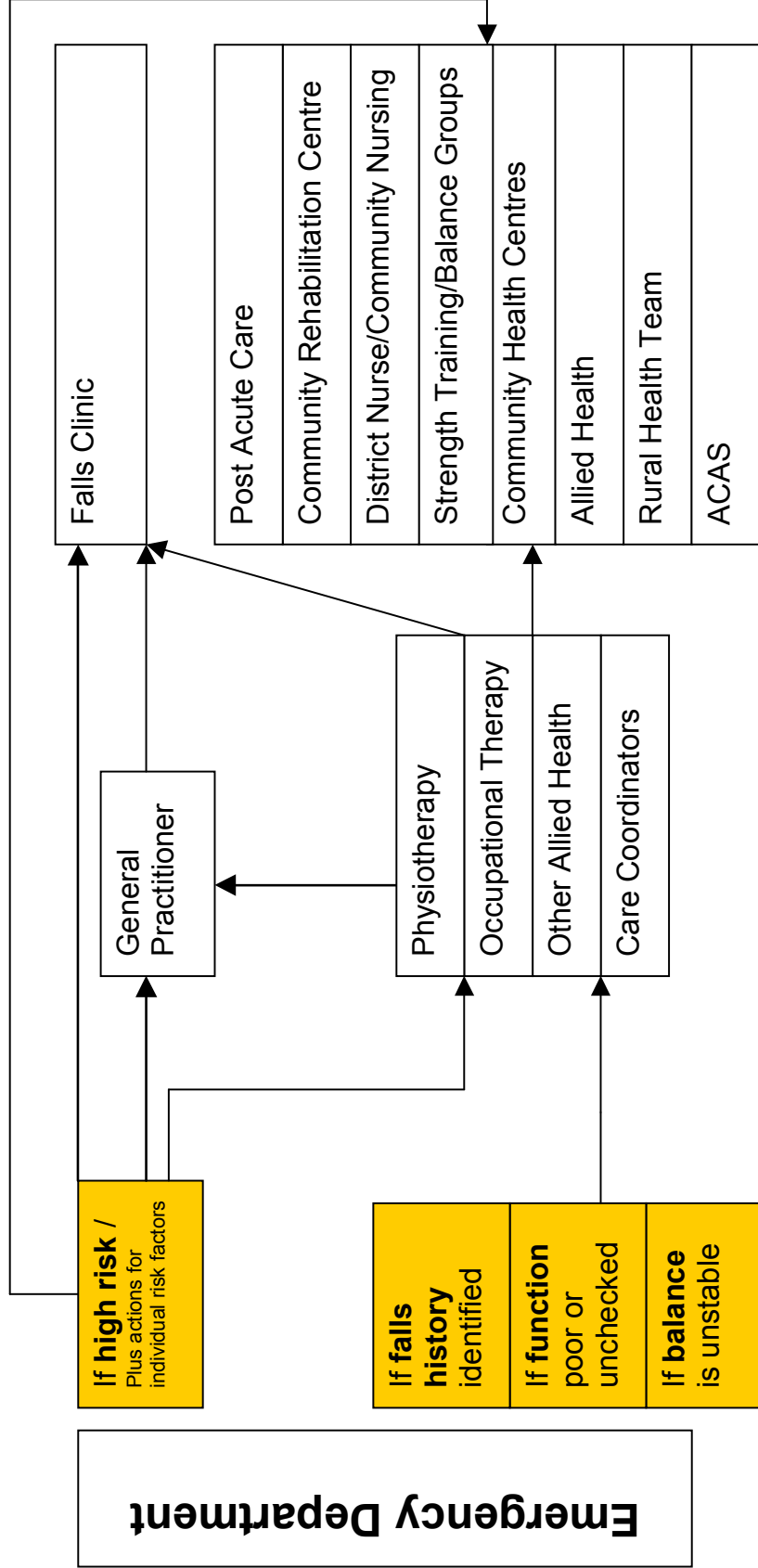
All people aged 65 and over, (50 and over Aboriginal and Torres Strait Islander Peoples), presenting to the Emergency Department should be screened for falls risk.

Question	Scoring guidelines
Falls History	
Question 1	<p>Use the WHO definition of a fall - "An event which results in coming to rest inadvertently on the ground or lower level,". Current ED falls presentation should be included. Include the terms "slips", "trips", "faints" and "any other accidents" to elicit a complete falls history.</p> <p>1 Score as 0 if no falls in the past 12 months. 2 Score as 1 if 1 fall in the past 12 months. 3 Score as 2 if 2 falls in the past 12 months. 4 Score as 3 if 3 or more falls in the past 12 months.</p>
Function: ADL status	
Question 2	<p>Ask the person about their ability to shop, perform housework, laundry and cooking prior to the most recent fall.</p> <ul style="list-style-type: none"> o Score as 0 if the person is completely independent o Score as 1 if the person requires another person to be present but does not require assistance e.g. shopping with someone else o Score as 2 if the person requires assistance on most occasions with one or more of the above tasks e.g. being driven to the shops, assistance with the heavier housework o Score as 3 if the person requires assistance to perform all of the above tasks including smaller household tasks e.g. making the bed, doing the dishes.
Balance	
Question 3	<p>Observe the person standing, walking a few metres, turning and sitting. If the person uses an aid observe the person with the aid. Do not base on self-report. If level fluctuates, tick the most unsteady rating. If the person is unable to walk due to injury, score as 3.</p> <p>5 Score as 0 if no unsteadiness observed. 6 Score as 1 if the person: <ul style="list-style-type: none"> o appears unsteady performing any of these tasks. o is making modifications to appear steady (e.g. an increased level of effort, feet spread apart to maintain balance, or is consistently touching the walls </p>

Suggested options for management of falls risk factors

Question	Score	Suggested options for management
FROP-Com Screen Questions		
Falls History		
Question 1 <i>(Those falling in the past are three times more likely to fall in the future than someone who has not had a fall.)</i>	0 1-3	No intervention. <ul style="list-style-type: none"> Inform the GP and address individual risk factors.
Function: ADL status		
Question 2 <i>(A person with impaired ADL is twice as likely to fall as someone who does not have such an impairment.)</i>	0 1-3	No intervention. Options: <ul style="list-style-type: none"> Refer to an occupational therapist if experiencing difficulty with functional tasks and not receiving the care required: Prior to the fall, On discharge from the ED. Refer to a physiotherapist for assessment and exercise to improve function. Refer to specific services if short / long term need identified (e.g. home help, person care, meal delivery service).
Balance		
Question 3 <i>(A person with a balance or walking deficit is approximately three times more likely to fall as someone without a deficit.)</i>	0 1-3	No intervention. Options: <ol style="list-style-type: none"> Refer to a Physiotherapist for assessment and exercises to improve gait and balance, and/or use/change of walking aid. Refer to an Occupational Therapist if requires an assessment of home environment. Inform the General Practitioner.

Overall FROP-Com Screen score	0	No intervention required
	1 - 3	1 Implement management options as per individual risk factors.
	4 - 9	2 Implement management options as per individual risk factors. 3 Notify GP about patients' high risk of further falls for further referrals and implementation of a management plan. 4 Refer for further assessment (see pathway below)



Medical Record Audit Tool: Falls Prevention Guidelines for Emergency Departments

Falls risk screen to be completed for each person aged 65 and over (50 and over Aboriginal and Torres Strait Islander people) that has presented to the ED with a falls related presentation.

Audit Date	
Auditor	
UR Number	
Screening tool	
Has the falls risk screening tool been completed?	
Has a falls history been taken?	
Has ADL function been checked/asked about?	
Has the balance test been administered?	
Has the screen been scored?	
Referral	
Has the person had referrals as a result of the falls risk screen?	<ul style="list-style-type: none"> a. Yes b. No, score = 0 c. No, score > 0 d. No, not completed
<ul style="list-style-type: none"> • ADL function 	
<ul style="list-style-type: none"> • Balance item 	
If high risk, then	
Has the persons' GP been informed of the outcome of the falls risk screen and of any referrals made?	
Has the person been referred for a falls risk assessment ?	
Notes	

