Prevention (Residential Care)

Understanding Risk of Falls in People With Cognitive Impairment Living in Residential Care.
Residents older than 60, with cognitive impairment who had a life expectancy of at least 6 months and were not bedbound or recently discharged from hospital (n = 109) completed baseline assessment and had adequate falls follow-up. Fallers took more medications, were more likely to be taking antidepressants, had more functional impairment, poorer balance and gait, were more impulsive and anxious, exhibited more dementia-related behaviors and performed worse on cognitive tests involving attention and orientation, memory and fluency. Logistic regression analysis identified 4 significant and independent predictors of falls: poor attention and orientation, increased postural sway with eyes closed, anxiety, and antidepressant use.

Falls in newly admitted nursing home residents: a national study.
The cohort for this study included individuals experiencing their first nursing home (NH) admission between January 1, 2006 and December 31, 2006 in the United States and with a follow-up Minimum Data Set (MDS) assessment completed 30 days or more after admission (n = 230,730). This cohort is predominantly comprised of post-acute care residents receiving skilled services who are mainly short-stay NH residents with a plan for returning home. One in five newly admitted NH residents suffered at least one fall. The occurrence of falls among this cohort has consequences like risk of injury, rehospitalisation and a decreased likelihood of returning home. Only certified nursing assistant (CNA) staffing was associated with a decrease in fall risk. Facilities with higher CNA staffing were associated with fewer falls. The size of the effect is modest, and further research is needed to better understand the observed association.


Older people's recruitment, sustained participation, and adherence to falls prevention interventions in institutional settings: a supplement to the Cochrane systematic review.
The following key points were developed upon review of the 41 RCTs included in the Cochrane systematic review of falls prevention interventions in hospitals and nursing care facilities:

- Falls prevention interventions rely on the active participation of older people.
- On average, 49% of inpatients/residents approached are recruited and by 12 months 16% of residents are lost.
- Adherence varied for exercise (24–89%), medication (68–88%) and multifactorial (11–93%) interventions.
- On average, by 12 months, only a third of nursing care facility residents are likely to be adhering to interventions.
Attention should be paid to increasing participation in and engagement with effective falls prevention interventions.

Reducing Staff Isolation and Developing Evidence-Informed Practice in the Aged Care Environment Through an Action Research Approach to Falls Prevention.
This study aimed to examine whether an action research approach was effective in reducing the isolation of staff in 2 residential aged care facilities, within the context of an evidence-informed falls prevention program. A Falls Action Research Group comprising 12 nursing/non-nursing staff across 2 residential aged care facilities was established and engaged in critical dialogue and action over 12 months to improve their fall prevention activities. Through the group members' engagement, a research community was established that diminished staff isolation by engaging members in a sustained process of collaboration around falls prevention, which worked to disrupt occupational silos and challenge traditional staff hierarchies.

A qualitative investigation of injurious falls in long-term care: perspectives of staff members.
This Canadian study used focus groups and one-on-one interviews mainly with staff (mainly Special Care Aids and licensed nurses) in long term care facilities (n = 98 in 7 LTC facilities) to collect data regarding staff’s general perceptions of falls and fall prevention strategies. Staff viewed falls as an important issue with intervention challenges related to resident characteristics (primarily dementia) and insufficient staffing. Supervision, monitoring and physically assisting residents were the most commonly used interventions. Other strategies mentioned included medication monitoring, multidisciplinary decision making, assistive devices, hip protectors, lower beds and bedside mats. Many commented that they would like to have more services provided by physical therapists. Staff identified reasons against restraint use consistent with that reported in the literature; however, some voiced concerns about restraint removal especially for patients with dementia who are impulsive.

Effect of the Exercise Dance for Seniors (EXDASE) Program on Lower-Body Functioning Among Institutionalized Older Adults.
Authors conducted a multi-centre, randomized controlled trial to measure the effects of the EXDASE program on lower-body functioning in sedentary, frail older adults living in residential care facilities. At baseline, there were no statistically significant differences between the intervention (n = 27) and control groups (n = 25) where both showed a substantial level of impairment. The 3-month EXDASE program consisting of once-a-week exercise had a positive effect on mobility-related outcomes. While the control group tended to experience some decline over the course of the study, the intervention group showed improvement on several outcomes. Authors conclude that a relatively
simple dance-based exercise can support lower-body functioning in previously sedentary, frail older adults.

http://jah.sagepub.com/content/vol22/issue1/

**Interventions for preventing falls in older people in nursing care facilities and hospitals.**
This review includes 41 trials involving 25,422 participants, with about three quarters being women and having an average age of 83 years. Many of the participants had cognitive problems. In nursing care facilities, interventions targeting multiple risk factors were not clearly effective in preventing falls but may be so when these interventions are provided by a coordinated team of health workers. The prescription of vitamin D reduces falls, as may a review of medication by a pharmacist. There is no evidence that other interventions targeting single risk factors reduce falls and this includes exercise interventions. For patients who are in hospital for more than a few weeks, interventions targeting multiple risk factors, and supervised exercise, are effective. Limitations of the review included the small number of hospital studies, difficulty isolating effects of individual components of treatments that involved multiple components, and the variability of interventions.


**A cluster randomised controlled trial to prevent injury due to falls in a residential aged care population.**
In this cluster randomised controlled trial involving 5391 residents in 88 aged care facilities, authors tested the effectiveness of having a full-time nurse employed to encourage best-practice falls injury prevention strategies during a 17-month period. Despite significant increases in the provision of hip protectors and use of vitamin D supplementation in both intervention and control facilities, there was no difference in the number of falls or falls injuries between the intervention and control groups, nor a reduction in falls overall. There was also no difference between the 7-month pre-intervention period and the intervention period in the number of falls or falls injuries. Factors related to residents having an increased risk of falls with fractured neck of femur included being ambulant, having dementia, increasing age, and having a high falls risk assessment score. Authors conclude that it is difficult to change falls risk among high-risk populations, including people with dementia. The use of important strategies such as hip protectors and vitamin D and calcium supplementation increased during the study, probably with contamination of control facilities. Longer follow-up may be required to measure the impact on falls outcomes of the strategy of using a facilitating nurse.

**Community falls prevention for people who call an emergency ambulance after a fall: randomised controlled trial**
This randomised controlled trial included 204 adults over 60 years-old living at home or in residential care who had fallen and called an emergency ambulance but were not taken to hospital. Participants were referred to community fall prevention services or standard medical and social care. Community fall prevention services were mainly delivered in participants’ homes (strength/balance training, home hazard assessment with provision of equipment, medication and blood pressure check and referrals); however group sessions (twice weekly for 6 weeks) in community centres were also offered (strength/balance training, strategies for activities of daily living, nutrition, home hazards, footwear and how to get up from a fall). Of the participants who received treatment (n = 98), 79 received treatment purely at home and 19 received home treatment and participated in the group sessions. The primary outcome was the rate of falls over 12 months, ascertained from monthly diaries. Secondary outcomes were scores on the Barthel index, Nottingham extended activities of daily living scale, and falls efficacy scale at baseline and by postal questionnaire at 12 months. The incidence rates of falls per year were 3.46 in the intervention group and 7.68 in the control group. The intervention group achieved higher scores on the Barthel index and Nottingham extended activities of daily living and lower scores on the falls efficacy scale. The number of times an emergency ambulance was called because of a fall was significantly lower for the community falls prevention participants.  
http://www.bmj.com/cgi/reprint/340/may11_1/c2102

**Impact of participation in a wellness program on functional status and falls among aging adults in an assisted living setting.**


In this quasi-experimental study 36 aging adults (72-96 years of age) participating in a wellness program were evaluated at enrollment and after 12 months of participation. The wellness program consisted of small group and individual exercise sessions, with emphasis on balance/ postural control, endurance, flexibility, and strengthening. Evaluation tools used included Mini-Mental State Examination, Berg Balance Scale, and 6-Minute Walk Test. Falls over 12 months were determined by tracking annual reported incidence of falls. Subjects were classified as "regular" or "non-regular" exercisers on the basis of participation frequency and adherence. There were no differences between exercisers at the time of enrollment. Based on results, authors conclude that regular participation in an individualized wellness program as little as twice weekly for 9 of 12 months provides protection against functional decline and risk of falls in older adults in assisted living settings.

**Nursing staff attitudes of hip protector use in long-term care, and differences in characteristics between adherent and non-adherent residents: A survey and observational study.**


Through survey and observation of nursing home staff (n = 37) and residents (n = 68), authors describe attitudes of day versus night shift caregivers towards the use of a soft hip protector, residents' adherence about the use of such protectors, and differences in characteristics between adherent and non-adherent residents. When introduced to hip
protectors, 85% of residents agreed to wear them. At 8 months, only 29% was still wearing their hip protector with significant differences between day and night shifts. Although virtually all caregivers (97%) considered a hip protector policy in residential care as feasible, the attitude towards hip protectors was found to be significantly different between day and night caregivers. Pain and discomfort, patient insight in the usefulness of these devices, interference with incontinence materials, and the overall resident mix and care acuity were reported as major barriers.

**Multifactorial intervention to reduce falls in older people at high risk of recurrent falls: a randomized controlled trial.**
Authors evaluated the effectiveness of a multifactorial intervention in older persons (n = 217; 106 intervention, 111 usual care) living independently or in assisted living facilities with a high risk of recurrent falls. Primary outcome measures were time to first and second falls after randomization. Secondary outcome measures were fractures, activities of daily living, quality of life, and physical performance. The intervention included referrals to specialists, medication reviews and instructions for things like home modifications and walking aids. Results show that this intervention does not reduce falls in high-risk, cognitively intact older persons. New intervention programs and strategies to further increase adherence should be developed and tested in this target group. http://archinte.ama-assn.org/content/vol170/issue13/index.dtl

**External hip protectors are effective for the elderly with higher-than-average risk factors for hip fractures.**
This cluster randomised controlled trial included women ≥65 years (n = 672) in nursing homes (n = 76) with at least one of the following risk factors: history of any prior fracture, low body-mass index (BMI), family or individual history of hip fracture, frequent faller status, current smoker, or other frail residents. Overall compliance with use of hip protectors was 79.7%. In the intervention group, 19 hip fractures occurred (54.0/1,000 person-years), whereas 39 hip fractures occurred in the control group (78.8/1,000 person-years). In subgroup analysis, hip protectors were more effective for prevention of hip fractures in residents with fall history and BMI ≤19.0. Authors conclude that hip fracture risk can be reduced with hip protectors among elderly women with fall history and low BMI.

**Physical activity opportunities in Atlantic Canada long-term care facilities.**
Witcher, D, Spence, JC. Well Spring 2009; 20(1)
Authors of this article describe the design and results of their study which assessed the availability of physical activity opportunities in Atlantic Canada long-term care facilities. Key survey (n=112) results indicated that while 89% of facilities offered physical activity programs, no facility offered endurance, flexibility and strength activities at the optimal frequency and duration recommended by Canada’s Physical Activity Guide to Healthy Active Living for Older Adults. Of the facilities that offered no physical activity (n=12),
most indicated that it was due to a lack of interest by the residents, inadequate space and equipment, and lack of time. Authors recommend that facilities take steps to enhance physical activity for the health and well-being of their residents.


A multifactorial intervention for the prevention of falls in psychogeriatric nursing home patients, a randomised controlled trial (RCT).
A cluster-randomised controlled 12-month trial was conducted in psychogeriatric wards in 12 Dutch nursing homes to evaluate the effectiveness of a multifactorial falls prevention intervention. The intervention consisted of fall prevention teams doing a falls risk assessment for each patient, discussing the outcomes in conjunction with the findings from the patient’s general medical assessment and then deciding which individual fall prevention activities were necessary. Then they, or colleagues, executed these specific fall prevention activities, which could include any or all of the following: anticipating the circumstances and causes of falls, critically reviewing and monitoring medication intake (type, number, dose and time of intake), individually designed exercise programmes, carefully (re)assessing the need for assistive and protective aids, and promoting the correct use of these aids. The intervention group had a significantly lower mean fall incidence rate than the control group and subgroup analyses showed that fall risk declined further as patients participated longer in the intervention programme.

The challenges of interpreting efficacy of hip protector pads in fracture prevention in high-risk seniors.
Juby AG. Clin Rheumatol; 2009 Feb 25.
This study matched 2 cohorts of long-term care residents (n=58; 25 hip pad and 33 control) in Edmonton, AB to assess the efficacy of hip protector pads by controlling for some of the variables that may affect susceptibility to hip fracture. There were two new hip fractures in the hip pad group vs. 8 confirmed fractures in the control group. The author notes that measuring the efficacy of hip protectors is a challenge in light of environmental variables (furniture, flooring, staff, nutrition, hydration, exercise programmes, mobility support, supervision) and other variables like individual characteristics (ethnicity, height, weight/BMI, impulsivity, use/ non-use of walking aids, etc.), types of fall, type/fit of hip protector pads, etc. In the end, the author suggests that hip protector pads should be offered to high risk, frail elderly (cognitive or physical issues; severe osteoporosis (T score <−2.5); low body mass index), especially in those unable/unwilling to take pharmacotherapy (calcium, vitamin D and anti-resorptive medication).

Caregiver fear of falling and functional ability among seniors residing in long-term care facilities.
In this 3-month longitudinal study in long-term care facilities, nurses and special care aides (n = 550) completed questionnaires which assessed their views on falls and pain in their individual residents (n = 84), while residents’ functional abilities were assessed
before and after the three-month period, and falls and fall-related injuries sustained by residents were recorded. After controlling for physical risk factors for falling and functional ability at the beginning of the study, staff fears that residents might experience pain or falls were found to be predictive for restraint/restriction use. In turn, the use of restraints/restrictions was found to be predictive for future functional ability of residents with dementia (after controlling for functional ability at the beginning of the study) and injurious falls (after controlling for physical risk factors for falling).

Person-environment interactions contributing to nursing home resident falls.
Four focus groups were conducted with licensed practical nurses, RNs and geriatric nursing assistants from two nursing homes with the highest and lowest fall rates within one corporation’s team of facilities to gain insight into the range of person, environment, and interactive circumstances that lead to falls in nursing homes. Thematic analysis was applied to the data to identify 3 overarching themes and 11 corresponding categories:

- **Person Theme** - Change in Residents' Health Status, Decline in Residents' Abilities, and Residents' Behaviors and Personality Characteristics
- **Nursing Home Environment Theme** - Design Safety, Limited Space, Obstacles, Equipment Misuse and Malfunction, and Staff and Organization of Care
- **Interactions Leading to Falls Theme** - Reasons for Falls, Time of Falls, and High-Risk Activities

Findings highlight interactions between person and environment factors as significant contributors to resident falls. Authors concluded that a special focus on the modification of environmental circumstances appears to be critical, as they are often more easily and efficiently addressed by nursing home staff.

Does a functional activity programme improve function, quality of life, and falls for residents in long term care? Cluster randomised controlled trial.
A cluster randomized control trial was conducted with one year follow up in 41 low level dependency residential care homes. Residents (n=330) were offered a goal setting and individualized program called Promoting Independence in Residential Care by a gerontology nurse, reinforced by usual healthcare assistants while other residents (n=352) received social visits. The program had minimal impact for elderly people in residential care with normal cognition but was not beneficial for those with poor cognition and may have increased depressive symptoms. Participation in the activities was estimated to be low (45% doing none or few). Anecdotal reports from the intervention nurses indicated that the staff uptake was variable.

Circumstances surrounding falls in patients with dementia in a psychogeriatric ward.
Prospective data were collected on falls (n=229) among patients (n=191) in a psychogeriatric ward. The fall rate was equally high during the night and the day. The proportion of diurnal rhythm disturbances and activity disturbances was higher for falls at night than for falls during the day. Circumstances associated with an increased risk of falls, as shown by a short time to first fall after admission, were anxiety, darkness, not wearing any shoes and, for women, urinary tract infection.
The effect of bedrails on falls and injury.
The author of this letter to the editor points out that there is most likely an under reportage of deaths and injuries attributed to bedrail entrapments in all healthcare settings. He notes that the FDA recommends procedures for measuring and assessing gaps in hospital beds. However, he suggests that it would be much easier to put beds at the lowest possible height and to avoid bedrails for those who may try to exit the bed or work their way into a dangerous position.

Effectiveness of multifaceted fall-prevention programs for the elderly in residential care.
Five studies met the inclusion criteria in this systematic review of studies examining multifaceted fall-prevention programs for older persons in residential care. Inclusion criteria were randomized, controlled trials with adequate follow-up study components in their design. The five studies showed some evidence of efficacy. The examined programs utilized a wide range of intervention strategies such as environmental modifications, exercise, medication adjustments, and provision and repair of mobility aids.

Rate of accidental falls in institutionalised older people with and without cognitive impairment halved as a result of a staff-oriented intervention.
The intervention group received multi-faceted training from an osteoporosis nurse specialist. Primary outcome measures were total fractures and hip fractures over the previous 12 months. Secondary outcome measures included home falls in previous 12 months and number of residents prescribed evidence based bone-health treatments. Data suggested that the structured training led to increases in prescriptions of treatment (vitamin D and calcium biphosphonate) and decreases in fractures and risk factors.

Use of a falls incident reporting system to improve care process documentation in nursing homes.
This study showed that there was more complete documentation of post-fall assessments and care processes in the medical records of nursing homes using a menu-driven incident reporting system than of nursing homes using standard narrative incident reports.

Physical and psychosocial correlates of fear of falling: among older adults in assisted living facilities.
Fear of falling is the most common reported fear among older adults. Several studies have shown that fear of falling is common even among older adults who have not actually experienced a fall indicating that factors other than previous fall experience play a role. The results of the current study revealed that the strongest factors independently associated with fear of falling was the use of walking devices, followed by depression,
balance impairment, female gender, trait anxiety, and previous history of a fall or falls. Improving physical fitness and increasing one’s self-efficacy and sense of control over the environment can decrease these sources of fear among older adults.

**A randomized controlled trial of fall prevention by a high-intensity functional exercise program for older people living in residential care facilities.**
A randomized controlled trial was conducted to evaluate the effectiveness of a high-intensity functional exercise program in reducing falls in residential care facilities. During the 6-month follow-up period, when all participants were compared, no statistically significant differences between groups were found for fall or incidence rates. A subgroup interaction analysis revealed that among participants who improved their balance during the intervention period, the exercise group had a lower fall rate than the control group. Authors conclude that high-intensity functional exercise program may prevent falls among older people living in residential care facilities who have improved their balance.

**Factors associated with hip protector adherence among older people in residential care.**
Two hundred ninety nine residents in 17 homes were offered three pairs of SAFEHIP hip protectors (HP), and adherence was measured using diaries completed daily. Increased HP adherence was associated with hypertension, incontinence, a previous history of falls and fractures, and hip fracture history in the residential care home. Decreased adherence was associated with arthritis of the lower limbs and dizziness on first rising. Variations in staff or resident knowledge and attitude towards HPs may also explain some variation of use.

**A Student-Led Demonstration Project on Fall Prevention in a Long Term Care Facility**
Students conducted a literature review on seniors’ falls and interviews with the Executive Director and the Director of Nursing to identify interventions that would have measurable outcomes and would fit the needs of the facility. Interventions included educational sessions for staff, identification of unit-based falls champions, weekly interdisciplinary inspections of units to identify potential hazards, and falls data collection with feedback to staff. A badge was also created for caregivers to wear which featured a falls-prevention checklist to address before leaving a resident’s room. There was a significant decrease in falls 3 months following the intervention and facility administration started addressing falls at all staff meetings.
An Evaluation of a Monitoring System Intervention: Falls, Injuries, and Affect in Nursing Homes
A unit having automated sensing monitors placed under each resident’s bed sheet, bathroom, and bedroom exits was compared to a unit without monitors. These monitors alert caregivers via a silent pager of the movements of high-risk residents. Caregivers could then respond and provide assistance to residents. Groups did not differ in terms of the odds of falling or the rates of injuries during the study period.

Could a policy of provision of hip protectors to elderly nursing home residents result in cost savings in acute hip fracture care? The case of Ontario, Canada.
Sawka AM et al. Osteoporosis International 2007; 18: 891-827
The authors estimated the costs of acute care for hip fractures among nursing home residents and then estimated the efficacy of using hip protectors through a meta-analysis of randomized controlled trials. Authors concluded that there was reasonable probability that giving hip protectors to all nursing home residents aged 65 or older could lead to healthcare cost savings. If, however, more nursing home staff time was required to apply the hip protectors, there would most likely no significant cost savings.

Efficacy of a hip protector to prevent hip fracture in nursing home residents.
Kiel D et al. JAMA 2007; 298 (4): 413-422
Authors point out the continued controversy around the efficacy of hip protectors. 1042 nursing home residents wore a hip protector on one hip for an average of 7.8 months so that each participants served as his or her how control. The incidence rate of hip fracture on protected verses unprotected hips did not differ. Authors conclude that the results of this study add to the increasing body of evidence that hip protectors, as currently designed, are not effective for preventing hip fracture among nursing home residents.

Fear of Falling in New Long-Term Care Enrollees.
During the transition period to a new LTC facility, older adults are at increased risk of falls. Fear of falling is a risk factor for falls in older adults often contributing to activity restriction. This prospective cohort study measured the prevalence of fear of falling and identified potentially treatable risk factors by utilizing self-reported falls, the falls efficacy scale, medical conditions, the short geriatric depression scale, and physical performance measures among 112 new enrollees in three long term care facilities. Authors suggest that providing opportunities for rehabilitative therapy for increased strength and balance along with interventions to deal with depression, low back pain and lower extremity arthritis may reduce fear and improve patient safety during this transitional period.