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1. BACKGROUND

Within Manitoba, falls are the most frequent cause of injury-related deaths and hospitalizations for older adults. In fact, falls account for more than $164 million in health care spending. Hip fractures are one of the serious injuries stemming from falls. Falls account for more than 90% of hip fractures among older adults. Only 50% of these individuals are able to return to their home or live independently again. In-hospital hip fracture rates are higher in Manitoba relative to other Canadian provinces and territories.

Every year in the Winnipeg Health Region, there are more than 22,500 reported falls in community, hospital and personal care home settings. Falls not only account for 54% of all regional critical incidents but are also responsible for 2,000 fall-related hospitalizations each year among adults 65 years of age and over. The average length of stay in a hospital following a fall is 33 days.

The incidence and significance of falls has prompted Accreditation Canada to designate falls prevention and management as a Required Organizational Practice. Specifically, Accreditation Canada now requires all health care teams to “implement and evaluate a fall prevention strategy to minimize the impact of client falls”.

In October 2008, an interprofessional and intersectoral Regional Falls Prevention Leadership Committee was established to facilitate the coordination and consistency of Winnipeg Regional Health Authority’s (WRHA) falls prevention and management initiatives for older adults with the aim of decreasing falls and injuries resulting from falls within the region (refer to Appendix A for a list of committee members). To support this goal, these regional clinical practice guidelines for falls prevention and management were developed.

2. GOALS AND OBJECTIVES OF THE GUIDELINES

The overall goal of this document is to provide evidence informed guidelines to guide falls prevention and management programs across all sectors within the WRHA. Specific objectives include:

- To ensure a consistent approach to falls prevention and management across the region
- To ensure falls assessment and management is prompt, appropriate, and consistent
- To ensure falls assessment and management includes the use of systematic and validated tools
- To identify and address risk factors for falls, decrease the incidence of falls and decrease the incidence of injurious falls
– To provide the foundation upon which falls prevention and management education is based

– To ensure falls prevention and management programs are continually evolving based on critical analysis of key quality indicators and new evidence

### 3. Target Population

These guidelines specifically target adults over the age of 65 years but are applicable to any adult whose condition places them at risk of falling such as those with a history of falls, neurological conditions, cognitive problems, depression, visual impairment or other medical conditions leading to an alteration in functional ability.6

### 4. Target Audience

These guidelines were designed to be used by all health care providers including direct care staff working with older adults, policy makers, educators, and administrators. The guidelines apply equally to all members of the interprofessional team.

### 5. Key Definitions

**Fall:** Unintentionally coming to rest on the ground, floor or other lower level with or without an injury (Developed by the Canadian Falls Prevention Curriculum and adopted by the Manitoba Falls Prevention Network, October 31, 2008).

**Falls Screening Tool:** A tool used to identify a person's risk of falling. A screening tool attempts to identify those at highest risk of falling.6

**Falls Risk Assessment:** A detailed and systematic process used to identify a person's risk factors of falling. It is used to help identify which interventions to implement.6

**Guidelines:** Reflect a summary of best available evidence. Levels of evidence within these guidelines are defined as follows:

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

Level IV: Evidence obtained from case series, either post-test, or pretest and post-test.\(^6\)\(^7\)

No Level Stated: Evidence obtained from expert opinion and stakeholder feedback only

Guidelines without a level of evidence cited beside them reflect those based on expert opinion.

Good practice points: Speak to areas without strong research evidence but are deemed important based on clinical experience or expert consensus.\(^6\)

Additional definitions are included in the Glossary (see page 9).

6. GUIDING PRINCIPLES

• The older adult’s perspective and individual needs are key considerations in the application of this guideline.

• The principle of maintaining the highest quality of life possible while striving for a safe environment and practices should guide intervention choices. Risk-taking, dignity, autonomy and self-determination are to be supported, respected and considered in the plan of care.

• The older adult, their family / caregivers and the interprofessional team must work collaboratively to prevent falls.

• Successful falls prevention programs require screening and assessment of falls risk. However, multifactorial fall prevention interventions are critical to achieve positive client outcomes.

• Understanding the complex interaction between intrinsic factors (e.g. age-related changes, medication, underlying health conditions, lifestyle, etc.) and extrinsic factors (e.g. icy sidewalks, scatter rugs, poor lighting, etc.) is fundamental to fall prevention and management.

• Leadership commitment to a falls prevention and management program is critical for success.
7. Methodology

A comprehensive literature review was conducted to identify currently published systematic reviews, meta-analyses, and clinical practice guidelines. From this review, promising guidelines developed by the Australian Commission on Safety and Quality in Health Care (ACSQHC) were identified. These guidelines entitled “Preventing falls and harm from falls in older people: Best practice guidelines for Australian hospitals, residential care facilities and community care (2009)”6

- Include the most recently published evidence on falls prevention and management (publication date of December 2009)
- Separate guidelines into three areas: hospital, residential aged care facilities (equivalent to PCH/long term care facilities), and community care
- Provide extensive supporting documentation in a clear, easy to understand manner and include implementation tools and guides
- Represent the second revision of the original guidelines created and piloted in 2005.

In order to objectively assess the quality of the ACSQHC guidelines, the Appraisal of Guidelines for Research and Evaluation (AGREE) Tool was used. The AGREE tool is a reliable and valid instrument designed specifically to provide a framework for assessing the quality of clinical practice guidelines.8 Based on the results of the AGREE tool, the Regional Falls Prevention Leadership Committee agreed to adopt the guidelines from ACSQHC (2009). Permission for use was obtained from the ACSQHC.

The ACSQHC guidelines were modified to reflect WRHA terminology and context. Select guidelines around screening, education, evaluation, and sustainability were added. These administrative guidelines pertain equally to all sites, programs, and facilities. Additionally, the existing WRHA clinical practice guidelines for the prevention and management of falls within the Personal Care Home Program were reviewed in July 2010 and embedded into Appendix C of this document.

The draft guidelines were disseminated widely across the WRHA to obtain stakeholder feedback. All stakeholder feedback was reviewed and incorporated at the discretion of the Regional Falls Prevention Leadership Committee based on the congruence of the feedback with the existing evidence.

According to the ACSQHC, the guidelines will be reviewed in 2014 at which time the WRHA will also review and update this document as required.

8. How to Use These Guidelines

The application of these guidelines “is intended to be in the context of professional judgment, clinical knowledge, competence and experience of health professionals. The guidelines acknowledge that the clinical judgment of informed professionals is best practice in the absence of good-quality published evidence. Some flexibility may therefore be required to adapt these guidelines to specific settings, to local circumstances, and to older adult’s needs, circumstances and wishes” (ACSQHC, p. xv).6
9. **Guidelines**

This document represents a summary of the guidelines contained in the full ACSQHC guidelines.6

9.1 **Administrative Guidelines**  
*Applicable to all sites/programs/facilities*

**Screening**
- A standardized falls risk screening tool will be used within all sites/programs/facilities.
- Generally, a falls risk screening tool will provide an overall score. However, the focus should not be on the score but on the specific areas of risk identified.

**Education for Staff**
- All health care providers working with older adults shall be knowledgeable and competent in falls risk assessment, intervention, and prevention.9 Specific topics should include:
  - Definition of a fall
  - Falls statistics including frequency, outcomes and costs
  - Risk factors (intrinsic and extrinsic) associated with falls
  - Consequences of falls including the impact on quality of life and autonomy
  - Assessment of falls including documentation and use of falls assessment tools
  - Falls and injury prevention strategies

**Education for Older Adults/Family**
- Older adults and their family should be offered education regarding risk factors for falling and fall prevention and management strategies.
- Raising awareness of falls prevention among older adults, their family/caregivers, health care providers, policy makers, and the media should be delivered through a population wide information campaign.

**Evaluation**
- Each sector will monitor falls quality indicators on a regular basis and compare indicators across like programs/units to identify trends, causes and degree of injury. Indicators to be measured include incidence of falls, incidence of falls with injury, completion of a falls risk assessment tool, and presence of falls prevention strategies within the care plan.
- Quality indicator results will be widely disseminated (e.g. leadership/management committees, staff meetings, patient/family/resident councils, community groups and other relevant partners)
Administrative Guidelines (continued)

- Each sector will include falls prevention in their Quality Plans. The effectiveness of the fall prevention program will be evaluated to identify areas for improvement.\(^5\)

Sustainability

- Plans for sustainability should be a focus from the development of the program through implementation and evaluation. Continuing education and knowledge translation must be an ongoing priority.

- Each sector should develop strategies related to:
  - Sustaining the issue: keep falls awareness high on the agenda
  - Sustaining behavior changes: build skills, create supportive physical structures, and modify social environments so they are supportive of healthy behaviors
  - Sustaining programs: establish a falls prevention and management committee or working group, partner with other sites / programs / facilities / communities to integrate initiatives.\(^{10}\)

9.2 Clinical Guidelines and Good Practice Points

This document describes specific clinical guidelines and good practice points for Community Services and Programs. This is a sub document of Falls Prevention and Management Clinical Practice Guidelines for Acute Care Facilities, Personal Care Homes / Long Term Care Facilities & Community Services & Programs.

Sector specific subdocuments are also available for:

- Falls Prevention and Management Clinical Practice Guidelines: Acute Care Facilities
- Falls Prevention and Management Clinical Practice Guidelines: Personal Care Homes / Long Term Care Facilities
Balance programs
Exercises / techniques to improve the ability to correct displacement of the body during its movement through space and to compensate for external disturbances.

Bed / Chair alarms
Devices placed on beds / chairs that alarm when a person rises

Cognitive impairment
Impairment in one or more domains of normal brain function (e.g., memory, perception, calculation)\(^6\)

Cognitively intact
Suffering no form of cognitive impairment\(^6\)

Co morbidity
Two or more health conditions or disorders occurring at the same time\(^6\)

Continence
The ability to retain the contents of bladder and / or bowel until conditions are proper for urination / defecation\(^6\)

Delirium
An acute change in cognitive function characterized by fluctuating confusion, impaired concentration and attention\(^6\)

Dementia
Impairment in more than one cognitive domain that impacts on a person’s ability to function, and that progresses over time\(^6\)

Extrinsic factors
Factors that relate to a person’s environment or their interaction with the environment\(^6\)

Hip protectors
Garments or undergarments with pockets on each side, into which protective pads are inserted. Protective pads may be hard or soft-shelled. In the event of a fall, the pad absorbs or disperses the force away from the hip\(^11\)

Intrinsic factors
Factors that relate to a person’s behavior or condition\(^6\)
Malnutrition
A condition that occurs when an individual is not getting enough nutrients. The condition may result from an inadequate or unbalanced diet, digestive difficulties, absorption problems or other medical conditions.6

Mobility assistive devices
Therapist recommended devices such as walkers, canes, wheelchairs, scooters.

Multifactorial interventions
Where people receive multiple interventions, but the combination of these interventions is tailored to the individual, based on an individual assessment.5

Multiple interventions
Where everyone receives the same, fixed combination of interventions.6

Orthostatic hypotension
A difference in systolic blood pressure of greater than or equal to 20 mmHg between lying to standing/sitting after one minute. It can be acquired or idiopathic, transient or chronic, and may occur alone or secondary to a disorder of the central nervous system. It is associated with dizziness, blurred vision, and sometimes syncope, occurring upon standing. Orthostatic hypotension is more clinically significant if there is a large drop in systolic blood pressure, a low standing BP (e.g. below 90 mmHg) or if there are associated symptoms.

Pharmacodynamics
The study of the biochemical and physiological effects that medications have on the body.6

Pharmacokinetics
The study of the way in which the body handles medications, including the processes of absorption, distribution, excretion and localisation in tissues and chemical breakdown.5

Psychoactive medication
A medication that affects the mental state. Psychoactive medications include anti-depressants, anticonvulsants, antipsychotics, mood stabilizers, anxiolytics, hypnotics, antiparkinsonian medications, psychostimulants and dementia medications.6

Single interventions
Interventions targeted at single risk factors.6

Syncope
A temporary loss of consciousness with spontaneous recovery, which occurs when there is a transient decrease in cerebral blood flow.6
References


64. Hawranik P, Bell S. The effectiveness of a vision care services project on falls and fractures in personal care home residents. J Safety Res. [In Press].


Appendix A

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Appendix D

Clinical Guidelines and Good Practice Points:
Community Services and Programs

Falls Prevention Interventions

Guidelines

Single interventions

- Older adults should be encouraged to exercise to prevent falls. Group exercise or home-based programs that combine two or more types of exercise and include balance training have been shown to be effective. (Level I)\(^{51, 56}\)
- When conducted as a single intervention, home environment interventions are effective for reducing falls in high-risk older adults. (Level I)\(^{17}\)
- Vitamin D and calcium supplementation should be recommended as an intervention strategy to prevent falls in older adults who live in the community. Benefits from supplementation are most likely to be seen in adults who have vitamin D insufficiency. (Level I)\(^{72}\) (Level I-\(^*\))\(^{12}\)
- Older adults with visual impairment primarily related to cataracts should undergo cataract surgery as soon as practical. (Level II)\(^{60, 72}\)
- Adults with severe visual impairment should receive a home safety assessment and modification program specifically designed to prevent falls. (Level II)\(^{51, 73}\)
- Use cardiac pacing in older adults who live in the community, and who have carotid sinus hypersensitivity and a history of syncope or falls, to reduce the rate of falls. (Level II)\(^{74}\)
- Collaborative review and modification of medication by family physicians and pharmacists, in conjunction with individual older adults, is recommended to prevent falls. (Level II)\(^{75}\)
- Gradual and supervised withdrawal of psychoactive medications should be considered to prevent falls. (Level II)\(^{26, 56}\)

Multifactorial interventions

- In older adults at risk of falls, individualized assessment leading directly to tailored interventions is recommended. (Level I)\(^{56}\)
- The combination of exercise targeting strength and balance, education and home safety intervention is recommended to reduce the rate of falls in older adults who live in the community. (Level I)\(^{17}\)

Good practice points

- All adults at risk of falling and their family and caregivers should be provided individualized falls prevention education. See the WRHA Staying on Your Feet.\(^{28}\)
- Managing many of the risk factors for falls (e.g. balance problems, medication) will have wider benefits beyond falls prevention.
FALLS RISK SCREENING AND ASSESSMENT

Guidelines

• Older adults should be asked about falls at least once every year by their family physician, nurse practitioner or other health care provider.

• Older adults with a history of one or more falls in the past year should be assessed using a simple, validated balance test or falls risk screen.

• Older adults who perform poorly on a simple test of balance or gait, or on a falls risk screening tool, should undergo a detailed assessment to identify contributory risk factors.

• Falls risk screening and assessment tools used should be evidence based (meaning that they have demonstrated good predictive accuracy, and have been evaluated in the relevant setting in more than one site).

• Falls prevention interventions may need to be modified to make sure they are suitable for the individual, and often the caregiver(s) and family members will also play important roles in implementing falls prevention actions.

Good practice points

• Falls risk screening should be used to guide more detailed assessment and intervention, and the outcomes of the screen should be documented and discussed with the older adult and their family/caregiver(s).

• When the threshold score of a screening tool is exceeded, a falls risk assessment should be conducted as soon as practical. If the score is not exceeded, standard falls prevention strategies apply.

• To develop an individualized plan for preventing falls, health care professionals need to identify systematically and comprehensively the factors contributing to the older person’s increased risk of falling.

• Interventions delivered as a result of the assessment provide benefit rather than the assessment itself; therefore, it is essential that interventions systematically address the risk factors identified.

• Identifying the presence of cognitive impairment should form part of the falls risk assessment process.
Balance and Mobility Limitations

Guidelines

- Use assessment tools to:
  - quantify the extent of balance and mobility limitations and muscle weaknesses
  - guide exercise prescription
  - measure improvements in balance, mobility and strength
  - assess whether the older adult has a high risk of falling

- Deliver exercise programs to prevent falls in older adults who live in the community (e.g. group exercise classes, strength and balance retraining at home, tai chi classes). (Level I)

- Improve the effectiveness of exercise programs for preventing falls by including challenging balance training and frequent exercise. (Level I)

- Encourage exercise for falls prevention in all older adults in the community, not only those who have an increased risk. (Level I)
**Cognitive Impairment**

**Guidelines**
- Older adults with cognitive impairment have an increased risk of falls and should have their falls risk factors assessed.
- Identified falls risk factors should be addressed as part of a multifactorial falls prevention program, and strategies to minimize injuries should be considered (such as using hip protectors or vitamin D and calcium supplementation). (Level I-*)

Note: there is no evidence that falls can be reduced in older adults with cognitive impairment living in the community.

**Good practice points**
- Older adults presenting with an acute change in cognitive function should be assessed for delirium and the underlying cause of this change.
- Older adults with gradual onset, progressive cognitive impairment should undergo detailed assessment to determine diagnosis, and where possible, reversible causes of the cognitive decline. Reversible causes of acute or progressive cognitive decline should be addressed and treated.
- If an older person with cognitive impairment does fall, reassess their cognitive status, including presence of delirium. For example see the Confusion Assessment Method instrument.
- Interventions shown to work in cognitively intact populations should not be withheld from cognitively impaired populations; however, interventions for older adult with cognitive impairment may need to be modified and supervised, as appropriate.

**Continence**

**Guidelines**
- Older adults should be offered a continence assessment to check for problems that can be modified or prevented.
- Manage problems associated with urinary tract function as part of a multifactorial approach to care. (Level I-*)

Note: there is no evidence that assessing or treating incontinence will prevent falls in older adults living in the community.

**Good practice point**
- Check the height of the toilet(s) and the need for rails/raised toilet seats to assist the older person sitting and standing from the toilet(s) in the home.
FEET AND FOOTWEAR

Guidelines

• Health care providers should provide education and information about footwear features that may reduce falls risk. (Level III-2)78

• Include an assessment of footwear and foot problems as part of an individualized, multifactorial intervention for preventing falls in the community. (Level IV)76, 77

Note: there is no evidence that assessing or addressing footwear and foot problems as a single intervention will prevent falls in older adults living in the community.

Good practice points

• Health care providers should educate older adult and provide information on foot problems and foot care, and refer them to a professional with expertise in foot care when necessary.

• Educate older adult and caregiver about safe footwear characteristics including:
  ✦ Soles: shoes with thinner, firmer soles appear to improve foot position sense; a tread sole may further prevent slips on slippery surfaces
  ✦ Heels: a low, square heel improves stability
  ✦ Collar: shoes with a supporting collar improve stability.
  ✦ See the Shoe Safety Checklist24
Orthostatic Hypotension

**Good practice points**

- Studies have indicated that orthostatic hypotension may not be the primary cause of falls. Orthostatic hypotension does, however, increase the potential to fall if the older adult is already a fall risk.

- Assess orthostatic hypotension by monitoring lying and sitting / standing (depending on older adult) blood pressure on admission and as required.
  
  - Have the older adult lie down for 15 minutes and then take blood pressure while he/she is still lying down.
  
  - Then, if the older adult is able to stand, have him/her stand up, and after one minute, take a standing blood pressure. If the older adult is only able to sit up, then take a sitting blood pressure after one minute of sitting with legs dependent.

- If orthostatic hypotension is evident:
  
  - Determine underlying cause such as medications, infection, dehydration, underlying disease (e.g. diabetes, Parkinson’s, cardiovascular disease, stroke, adrenal insufficiency), and other deficiencies (e.g. B12 or folate). Treat underlying cause as appropriate. If medications are the cause, discontinue, decrease or switch as appropriate.
  
  - If possible, instruct the older adult to change position slowly, sit at edge of bed prior to getting up and sit down immediately if feeling dizzy.
  
  - Ensure adequate fluid intake.
  
  - Eat small, frequent meals.
  
  - Elevate head of bed if possible. It may help to tilt the head of the bed up to 20 degrees at night.
SYNCOPE

Guidelines

• Older adults who report unexplained falls or episodes of collapse should be assessed for the underlying cause.

• Assessment and management of potential causes of presyncope and syncope should form part of a multifactorial intervention to reduce rate of falls in older adults. (Level I)\textsuperscript{56}

• Use cardiac pacing in older adults who live in the community, and who have carotid sinus hypersensitivity and a history of syncope or falls, to reduce the rate of falls. (Level II)\textsuperscript{74}

DIZZINESS AND VERTIGO

Guidelines

• Vestibular disorders as a cause of dizziness, vertigo and imbalance need to be identified in the community setting.

Note: there is no evidence from randomized controlled trials that treating vestibular disorders will prevent falls.

Good practice point

• Use vestibular rehabilitation to treat dizziness and balance problems where indicated and available.
Medications

Guidelines

- Older adults living in the community should have their medications (prescribed and nonprescribed) reviewed at least yearly by primary care provider, and for those on four or more medications, at least every six months. See Drugs and the Risk of Falling.\(^{25}\)

- Medication review and modification should be undertaken as part of a multifactorial approach to falls prevention. (Level I)\(^{56}\)

- Gradual and supervised withdrawal of psychoactive medications should be considered to prevent falls. (Level II)\(^{26}\)

- Pharmacist-led education on medication and a program of facilitated medication review by family physicians should be encouraged in the community setting. (Level II)\(^{75}\)

- Due to the increased risk of bleeding post-fall, those older adults on anticoagulant therapy should have regular monitoring of their International Normalized Ratio (INR).

Good practice point

- Consider likely pharmacological changes when prescribing any new medication to an older person and avoid prescribing psychoactive medications if clinically possible.
VISION

Guidelines

- Include vision screening as part of a falls risk assessment. Use a validated screening tool such as the Misericordia Health Centre Focus on Falls Vision Screening Tool.27

- Encourage older adults to have regular eye examinations (every two years) to reduce the incidence of visual impairment, which is associated with an increased risk of falls.

- Older adults with visual impairment primarily related to cataracts should undergo cataract surgery as soon as practical. Surgery for the first eye should be expedited (Level II)60, 72

- When correcting other visual impairment (e.g. prescription of new glasses), explain to the older adult and to their family and caregivers (where appropriate) that extra care is needed while the older adult gets used to the new visual information. (Level II)18

- Older adults with severe visual impairment should receive a home safety assessment and modification program specifically designed to prevent falls. (Level II) 61, 73 See the WRHA Staying on Your Feet Home Safety Checklist.79

- Advise older adults who take part in regular outdoor activities to avoid bifocals, trifocals or progressives and to use single-vision distance glasses when walking — especially when negotiating steps or walking in unfamiliar surroundings. (Level III-2)63

Good practice point

- Detailed assessment by an optometrist or ophthalmologist for a fall-specific eye examination should be requested to include:
  - identification of the presence of eye diseases
  - calculation of subjective refraction and determine optimum eye glass correction
  - assessment of contrast visual acuity and contrast sensitivity
  - assessment of visual fields by means of a full field plot on a Humphrey vision analyzer or equivalent
  - assessment of stereo acuity as a means of depth perception

- As part of a multidisciplinary intervention for reducing falls, encourage use of adequate lighting, contrast and other environmental factors to help maximize visual cues; for example, prevent falls by using night lights, luminous commode seats / toilet signs.

- If an older adult wears glasses, make sure that they wear them for the proper task, and that the glasses are clean (use a soft, clean cloth), unscratched and fitted correctly. If the older adult has a pair of glasses for reading and a pair for distance, make sure the glasses are labeled accordingly, and that distance glasses are worn when mobilizing.
ENVIRONMENTAL CONSIDERATIONS

Guidelines

- Older adults considered to be at higher risk of falling should be assessed by an occupational therapist for specific environmental or equipment needs and training to maximize safety.

- Environmental review and home hazard modification should be considered as part of a multifactorial approach in a falls prevention program for older adults in the community. (Level I)\textsuperscript{56}

- When conducted as a single intervention, home environment interventions are effective for reducing falls in high-risk older adults. (Level I)\textsuperscript{17}

Good practice points

- It is important to help the older person understand the relevance of any environmental modifications, to improve uptake of such interventions.

- Older adults should be encouraged to assess the safety of their home and make modifications as recommended in See the WRHA Staying on Your Feet Home Safety Checklist.\textsuperscript{79}

- If older adults or their family members or caregivers can not assess their home, they can contact Age and Opportunity Safety Aid Program to assist in assessing their home environment (Toll Free: 1-888-333-1808; In Winnipeg call: 956-6440).

- Environmental hazards on public property should be reported to the City of Winnipeg by calling 311

INDIVIDUAL OBSERVATION AND MONITORING

Good practice points

- Bed, chair or foot alarms can alert a caregiver that the person is attempting to mobilize.

- A personal alarm, when worn, can trigger an alert that a person has fallen, and minimize the time they lie on the floor.

- Electronic sensor monitoring systems are being developed and tested, but they are not likely to be available widely for some time.
HIP PROTECTORS

Guidelines

- When assessing an older adult’s need for hip protectors, the family physician or other health professional should consider the older adult’s recent falls history, age, mobility, disability status, and whether they have osteoporosis or a low body mass index.

- Assess the older adult’s cognition and independence in activities of daily living skills (e.g. dexterity in dressing) to help determine whether they will be able to use hip protectors.

- Occupational Therapy should be consulted when considering hip protectors.

- When using hip protectors as part of a falls prevention strategy, the health care team or caregiver should check regularly that the older adult is wearing their protectors, that the hip protectors are in the correct position, and that they have not stopped wearing them because of discomfort, inconvenience or other reasons. (Level I)39

- Occupational therapists or other members of the health care team should teach older adults and their caregivers how to put hip protectors on properly, because their effectiveness is reduced when they are not worn correctly. (Level II)38

Note: hip protectors have not been shown to prevent hip fractures in the community setting.

Good practice points

- Hip protectors should not be relied on to reduce falls-related injuries in the community setting, due to problems with adherence. However, because they offer some protection to older adults in personal care homes / long term care facilities, hip protectors can be considered in community settings as part of a strategy to minimize harm from falls, as long as they are worn properly and their use is monitored.

- If using hip protectors, adequate numbers of hip protectors need to be available to allow for consistent use (compensating for laundering requirements, breakage or damage or other factors).11

- If hip protectors are to be used, they must be fitted correctly and worn at all times.

- Review manufacturer’s instructions for replacement recommendations.
NUTRITION AND HYDRATION

Guidelines:

- Eating a healthy balanced diet according to [Health Canada’s Eating Well with Canada’s Food Guide](#) is recommended for healthy older adults living in the community.80

Good practice point

- “Eating a healthy balanced diet is central to healthy ageing. Adequate intake of protein, calcium, essential vitamins and water are essential for optimum health. If deficiencies do exist, it is reasonable to expect that weakness, poor fall recovery and increased risk of injuries will [ensue].”81
Vitamin D and calcium supplementation

Guidelines

- Consider adequacy of calcium and vitamin D as part of routine assessment of falls risk in older adults living in the community.
- Vitamin D and calcium supplementation should be recommended as an intervention strategy to prevent falls in older adults who live in the community. Benefits from supplementation are most likely to be seen in adults who have vitamin D insufficiency or deficiency. (Level I-*)
- Diagnostic Services of Manitoba (DSM) currently uses the following cut off values for defining vitamin D deficiency:

<table>
<thead>
<tr>
<th>25-hydroxy-vitamin D level</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 25 nmol/L</td>
<td>Deficiency</td>
</tr>
<tr>
<td>25-75 nmol/L</td>
<td>Insufficiency</td>
</tr>
<tr>
<td>75-250 nmol/L</td>
<td>Optimal</td>
</tr>
<tr>
<td>&gt;250 nmol/L</td>
<td>Adverse effects</td>
</tr>
</tbody>
</table>

- Tolerable upper intake level is 4000 IU per day as per Health Canada’s Dietary Reference Intake.
- There is evidence that calcium supplementation of 1000 mg if taken without Vitamin D may increase mortality and is, therefore, not recommended.

Good practice points

- Encourage older adults to include high calcium foods in their diet and exclude foods that limit calcium absorption.
- For older adults with cognitive impairment who have problems with medication adherence, consider using a high-dose preparation of vitamin D weekly.
- Calcium supplementation without concurrent Vitamin D supplementation is not recommended.
OSTEOPOROSIS MANAGEMENT

Guidelines

- Older adults with a history of recurrent falls should be considered for a bone health check. Also, older adults who sustain a minimal-trauma fracture should be assessed for their risk of falls.
- Older adults with diagnosed osteoporosis or a history of low-trauma fractures should be offered treatment for which there is evidence of benefit. (Level I)45

Good practice point

- When using osteoporosis treatments, older adults should be prescribed vitamin D (800-2000 IU) and calcium (up to 1200 mg).41

POST-FALL MANAGEMENT

Good practice points

- After the immediate follow-up of a fall, determine how and why a fall may have occurred and implement actions to reduce the risk of another fall.
- It is better to ask an older adult whether he/she remembers the sensation of falling or whether they think that they blacked out, because many older adults who have syncope are unclear whether they blacked out.
- An in-depth analysis of the fall (e.g. critical incident review) may be required if there has been a serious injury following a fall, or if a death from a fall has occurred in the presence of a member of the health care team.
- Staff should follow the program/service protocol or guidelines for managing older adults immediately after a fall.