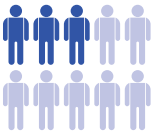
CEP Providers

Fall prevention and management

This tool is designed as a reference to support family physicians, primary care nurse practitioners and other interprofessional team members prevent and manage falls among people aged 65 and older living in the community.

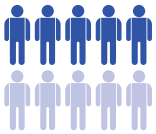
The impact of falls on Canadians[1]

Falls are the leading cause of injury-related morbidity and mortality among people aged 65 and older living in the community. Also, those who have experienced recurrent falls (>1 per year) are at an increased risk for morbidity and mortality.[1-4] **Most falls are preventable.** As a crucial component of older adult care, healthcare providers can work in partnership with older adults to implement a variety of interventions to address and reduce their risks for falling.[2]



20–30% of those ≥65 years of age experience a fall each year

85% of injury-related hospitalizations among those ≥65 years of age are caused by falls



50% of all falls causing hospitalization happen at home

95% of all hip fractures are caused by falls

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SECTION A: Initiate universal screening

Timing of universal screening[5,6]

- Annually screen all patients ≥65 years of age for risk of falls[5]
- Other opportunities for screening include:
  - After a hospitalization, ER visit or medical event (e.g. stroke, fracture, delirium)
  - After a bone mineral density test, decrease in bone density or diagnosis of osteoporosis
  - After a significant change in health status (e.g. weight gain or loss, increased frailty, dementia)[5]
  - After a relevant medication change or addition (e.g. CNS medications or hypotensives)
- Note: use clinical judgement to determine when these opportunities for screening may also apply to patients <65 years of age

Ask all patients ≥65 years: Have you experienced a fall in the last year?[5,6]

NO

Does the patient demonstrate issues with gait, mobility or balance? This can be:

- Observed by the provider, supporting staff, family members or caregivers
- Assessed by asking, "Do you feel unsteady when walking, standing or climbing the stairs? Or do you worry about falling?"[7]
- Measured using the Timed Up and Go (TUG) test[i]

NO

- Discuss risks and interventions related to (see Section B):
  - Physical activity
  - Nutrition and hydration
- Set reminder to reassess next year

YES

Discuss risks and interventions related to (see Section B):

- Falls history
- Physical activity
- Nutrition and hydration
- Medications
- Home safety and accessibility
- Bone health
- Comorbidities
- Social support
- Mobility
- Postural (orthostatic) hypotension
- Visual impairment
- Feet and footwear

YES

Consider referring the patient to your local Specialized Geriatric Services (SGS)[xiii] if the patient has experienced recurrent falls (>1 per year) and has complex care needs (e.g., cognitive decline, neurological comorbidities such as Parkinson's disease).[5]

Talking points[5,6]

Let patients know that they have not been singled out for this screening and discussion

- "I ask all of my patients 65 and over about falls."

Ensure that each patient understands what a fall is

- "A fall is when you accidentally end up on the ground, floor or other lower level, including your knees. A fall is a fall with or without injury."

Link the discussion to what matters to the patient (e.g. independence, activities, goals, involvement)

- "How do you envision your health and/or living situation in the next few year?"

SECTION B: Identify contributing risk factors and implement interventions

Check for all risk factors in the tables below. Implement individualized multifactorial interventions tailored to each patient's risk factors. See Section C for tips on integrating fall prevention into practice, leveraging interprofessional teams and community supports and engaging patients and caregivers.

Talking points[5,6]

Emphasize that most falls (or subsequent falls) are preventable

- "Falls can often be prevented. To find out how we can work together to prevent falls for you, is it okay if I ask you a few questions about your health and do an assessment?"

For a detailed list of phrases, see Talking about Fall Prevention with your Patients[ii]

Frailty and falls

- Adults with frailty are at a higher risk of adverse health events including falls[7]
- Evaluating community-dwelling adults for frailty can play a role in preventing recurrent falls[8]
  - This can be done using tools such as the Clinical Frailty Scale[iii]

Fall risk assessment and interventions[2, 5,6, 9,10]

History

Fall history

How to assess

- If the patient has previously experienced a fall, ask about the following (this information can be collected while the patient is in the waiting room or through your EMR prior to the appointment):
  - Circumstances of the fall(s) (e.g. what the patient was doing at the time of the fall, when was the fall, beliefs about their reasons for the fall, amount of time spent on the ground and how the patient got up)
  - Symptoms preceding and after the fall (e.g. palpitations, syncope, nausea)
  - Frequency of falls
  - Details of any fall-related physical and psychological injuries
  - Post-fall interventions implemented
  - Any recent ER visits or hospitalizations
  - Any changes in activities of daily living, mobility status or confidence in mobility status
  - Any witnesses to the fall who could provide more detail
- Consider referral to rehabilitation[xiv] for support for patients recovering from physical, cognitive or communication problems caused by a fall-related injury

Interventions for all older adults

Physical activity

How to assess

- Ask the patient about their current level of formal or non-formal physical activity

Interventions

- Support the patient to gradually increase their physical activity by choosing activities appropriate for their abilities, level of fitness/frailty, mobility and interests, including:[2,5,9-14]
  - Aerobic physical activities (at least 150 minutes per week, in chunks as short as 10 minutes; this may include everyday activities such as housekeeping, gardening, shopping and walking)
  - Muscle-strengthening activities (at least twice a week)
  - Balance activities (every day)
  - Posture awareness (tuck chin in, draw chest up; every day)
- Provide the patient with handouts like Too Fit to Fall or Fracture[xv] and connect them with a local Seniors Active Living Centre[xvi] (minimal membership fees) or home and community care coordinator[xvii] (to arrange connection with a local Exercise and Falls Prevention Program; no membership fees)

SECTION B: Identify contributing risk factors and implement interventions (continued)

Interventions for all older adults

Nutrition and hydration

How to assess

- Check for adequate nutrition
  - Ask about daily food intake (e.g. "What do you eat in a typical day?")
  - Ask about changes in weight or check current weight against what is in the patient's record. If weight change has occurred, inquire about the cause(s) for the weight change (e.g. changes in appetite, digestion, chewing/swallowing, taste, interest in food, unintentional weight loss, ability to shop or prepare food, food security)
- Check for adequate hydration
  - Ask about fluid intake (e.g. water, other fluids, caffeine, alcohol)

Interventions

- Provide education on adequate caloric intake (e.g. recommend nutritional supplement drinks)
- Consider referral to a home and community care coordinator[xvii] (public; to arrange local support with healthy eating or to connect with meal delivery or dining programs) or a dietitian[xvii] (private) if inadequate nutrition and hydration are suspected

Medications

How to assess

- Consider asking the patient's pharmacist to do a MedsCheck to review the patient's medications (including medications requiring renal dose adjustment)
- Have the patient bring in all medications, including non-prescription drugs, vitamins, cannabis products and supplements
- Ask the patient:
  - "How do you take each of your medications?"
  - "How often do you miss or skip a dose of medication?"
  - "Are there any medications that you wish you could get rid of?"
  - "Are there any medications that you really don't want to stop?"
  - "Are you having any side effects from your medications?"
- Check for medications and scenarios that increase fall risk:[2,5,15-18]
  - High-risk medication classes:
    - Antipsychotics
    - Antidepressants
    - Benzodiazepines
    - Anticonvulsants
    - Antispasmodics/muscle relaxants[7]
    - Opioids
    - Digoxin
    - Loop diuretics
    - Non-selective beta-blockers
    - Antihypertensives as a class*
    - Proton pump inhibitors* (long-term use)
  - Polypharmacy (4+ medications)
  - ≥3 central nervous system medications
  - Medications with high anticholinergic burden[iv]
  - Prescribing cascades (i.e. unnecessary medications added to treat medication side effects that then cause side effects of their own, prompting even further prescribing)

*Observational data is conflicting. Use clinical judgment and patient-related decision-making.

Interventions

- Consider engaging a pharmacist or receiving a consult from GeriMedRisk[v] for support to review and optimize a patient's medications
- For additional resources regarding reducing, tapering or discontinuing medication, see cep.health/tools[vi], deprescribing.org[vii] or medstopper.com[vii]

SECTION B: Identify contributing risk factors and implement interventions (continued)

Home safety and accessibility

How to assess

- Provide the patient with a home safety checklist[xix] (could be done in the waiting room or at home and brought to the next appointment)
- Consider doing a home visit and/or discuss home hazards

Interventions

- Encourage patients in partnership with any family members and caregivers to make the patient's home safe by addressing hazards and accessibility issues[10,12]
- If the patient lives alone, support them to set up fall alarms and medical alert devices ($25-$70/month[19])
- Consider a referral to a home and community care coordinator[xvii] (public) or an occupational therapist[xx] (private) to support identifying and addressing home hazards and accessibility issues

Bone health

How to assess

- Check for history of osteoporosis and assess fracture risk using the FRAX tool[ix, 20]
- Ask about vitamin D and calcium intake from diet and supplements[6,20]

Interventions

- Support patients to increase vitamin D intake through supplementation and calcium intake through diet to optimize bone health if current intake is low (calcium supplementation may be explored if a patient is deficient)[3,5,9-12]
  - Vitamin D intake should be 800-2,000 IU/day[6,20]
  - Elemental calcium intake should be 500-1,200 mg/day[6,20]
- Refer the patient for a bone mineral density test or review existing results if ≤5 years old (≤3 years if previous results demonstrated moderate fracture risk)[20]
- Optimize the management of osteoporosis if present[20]

Comorbidities

How to assess

- Check the patient's medical history and screen for conditions that increase their risk for falls, including (these comorbidities may also increase risk in patients <65 years old)[6,21]:
  - Brain
    - Dementia
    - Parkinson's disease
    - Mild cognitive impairment
    - Sleep disorders (e.g. obstructive sleep apnea) or poor sleep
    - Depression
    - Substance use disorder (e.g. alcohol, cannabis, recreational substances)
  - Central circulation
    - Orthostatic hypotension
    - Cardiac system issues (e.g. arrhythmias, heart block)
    - Stroke or transient ischemic attack
  - Peripheral nerve
    - Diabetes
    - Vitamin B12 deficiency
  - Chronic pain
  - Musculoskeletal
    - Arthritis
  - Diagnoses resulting in deconditioning, medication burden and frailty
    - Chronic kidney disease
    - Anemia (e.g. iron deficiency)
    - Chronic obstructive pulmonary disease
    - Urinary incontinence and benign prostatic hyperplasia

Interventions

- Optimize the management of medical conditions (while being mindful of medications that may contribute to the risk for falls)
  - Could this condition be caused or made worse by a medication?
  - Is the condition adequately treated?
  - Are non-pharmacological options optimized?

SECTION B: Identify contributing risk factors and implement interventions (continued)

Social support

How to assess

- Ask the patient about:
  - Whether they live alone
  - Recent losses (e.g. spouse, family member)
  - Roles or responsibilities (e.g. being a caregiver)
  - Recent changes in living arrangements
  - Access to food and housing
- Look for red flags for elder abuse (See Forms of Abuse[x] for potential signs to look for)

Interventions

- Connect isolated patients with a local Seniors Active Living Centre[xvi] (minimal membership fees)
- Connect patients who are acting as a caregiver for another individual with caregiver support[xxi]
- Connect patients facing barriers related to food and housing security with a home and community care coordinator[xvii] (to arrange local supportive housing, meal delivery or dining programs) or explore 211Ontario[xxii] for local resources
- Connect patients who report or show signs of elder abuse to Elder Abuse Prevention Ontario[xxii] for resources and information, and provide the Senior Support Line (1-866-299-1011)

Physical exam

Mobility

How to assess

- Screen for increased risk of falls using the Timed Up and Go (TUG) test[i] (see next page)
- Assess for gait, strength and balance concerns (see next page)
- Check or ask if the patient uses a mobility aid
- Conduct a musculoskeletal examination of the patient's back and lower extremities, including back flexibility (e.g. how far can the patient forward flex while sitting or standing)
- Conduct a neurological examination (i.e. screen for peripheral neuropathy and radiculopathy)
- Consider referring to a home and community care coordinator[xvii] (public) or physiotherapist[xxiv] (private) for a gait, strength and balance assessment or musculoskeletal examination

Interventions

- For patients with mobility issues, support them to acquire appropriate mobility aids (see Ontario Assistive Devices Program[xxv] for more information on coverage for mobility aids)
  - Consider referral to a home and community care coordinator[xvii] (public; to arrange an occupational therapist or physiotherapist), an occupational therapist[xx] (private) or a physiotherapist[xxiv] (private)
- Ensure that patients with existing mobility aids have the appropriate aid and that it is fitted properly for them:[6]
  - The height of a cane or a walker should be level with the patient's wrist crease
  - A cane should be held contralateral to the patient's weak or painful lower extremity and moved forward at the same time as the weak or painful leg. When using a walker, the patient's feet should stay between the walker's back legs or wheels
  - With both devices, the patient's posture should be upright without leaning forward or to the side
  - For more information on choosing and fitting a mobility aid, see Ambulatory Devices for Chronic Gait Disorders in the Elderly[xi]
- Reserve hip protectors for those at risk of hip fracture (low evidence)[11,12,22]

SECTION B: Identify contributing risk factors and implement interventions (continued)

Timed Up and Go (TUG) test

Time patient while they:

1. Stand up from a chair
2. Walk forward 3 metres
3. Turn
4. Walk back to the chair at their normal pace
5. Sit down again

Patients who take ≥12 seconds to complete the TUG test are at risk for falling

Gait Assessment[6,23]

Observe patient walking to identify potential gait disorders:

Frontal gait	• Wide based gait with short strides, reduced step height and diminished speed • Difficulty picking feet up off the floor (magnetic foot), freezing • Common causes: normal pressure hydrocephalus, stroke
Parkinsonian gait	• Narrow base with small shuffling steps • Stooped posture, en block turns, may have difficulty initiating steps; reduced arm swing • Common causes: Parkinson's disease, drug induced parkinsonism
Ataxic gait	• Wide based gait; clumsy • Difficulty walking walk heel to toe • May be associated with other cerebellar signs (e.g. dysarthria, nystagmus) • Common causes: cerebellar disorder, alcohol use disorder
Hemiparetic gait	• Legs swing outwards in a semicircle from the hip • Common causes: stroke
Neuropathic gait	• Foot drop - will compensate by lifting leg up higher in step • May have other associated signs (e.g. stocking pattern of sensory loss, diminished ankle jerk) • Common causes: lower motor neuron causes (e.g. diabetes, alcohol use disorder, other causes of peripheral neuropathies)
Spastic gait	• Narrow base gait with both legs swinging outwards in a semi-circle; when severe there is scissoring of gait; toes may turn in and scrape the floor • Common causes: upper motor neuron causes (e.g. cervical spondylosis, B12 deficiency)
Myopathic gait	• 'Waddling', slow with difficulty rising from chair • Common causes: sarcopenia

SECTION B: Identify contributing risk factors and implement interventions (continued)

Postural (orthostatic) hypotension

How to assess

- Measure standing and sitting blood pressure (BP) to identify the presence of postural hypotension
  - A drop in systolic BP of ≥20 mmHg or in diastolic BP of ≥10 mmHg within 1-5 minutes of standing is considered abnormal (see Measuring Orthostatic Blood Pressure[xii])
- Ask about dizziness or light-headedness after standing up (may occur without a change to vitals)

Interventions

- Review blood pressure target and adjust blood pressure medications as needed
- Provide education on how to identify and manage postural hypotension (see Postural Hypotension[xxvi])
  - Keep a glass of water at the bedside to drink when waking up
  - Get up gradually from sitting or lying down
  - Perform leg pumps before getting up
- Consider adding medication (e.g. midodrine, fludrocortisone) if orthostatic hypotension cannot be managed by non-pharmacological methods

Visual impairment

How to assess

- Use the Snellen eye test to assess visual acuity quickly
- Ask if the patient has had an eye exam in the past year
- Ask if the patient wears multifocal lenses (increases the risk of falls)
- Check for patient history or the presence of cataracts
- Screen for medications that may affect vision (e.g. anticholinergics)
- Take note of any medical conditions that may impact vision (e.g. macular degeneration, glaucoma)

Interventions

- Consider a referral to an optometrist[xxvii] for patients with possible or worsening visual acuity issues for a vision assessment, provision or adjustment of prescription or cataract surgery assessment[11,12,22] (OHIP coverage for optometry services is currently on hold)
- If the patient wears multifocal lenses, provide education on depth perception and single vs. multifocal lenses
- Consider reducing, tapering or discontinuing medications that might affect vision (e.g. anticholinergics)

Feet and footwear

How to assess

- Evaluate feet for peripheral neuropathy and peripheral vascular disease
- Use the Stay On Your Feet[xxviii] checklist to screen for footwear (worn during the appointment and at home) that increases the risk of falls

Interventions

- Encourage patients to obtain appropriate footwear using the Stay On Your Feet[xxviii] checklist
- After conducting a foot exam, consider a referral to a podiatrist/chiropodist[xxix] for further assessment and treatment if peripheral neuropathy or peripheral vascular disease is identified[11] (OHIP covers a portion of each visit to a registered podiatrist/chiropodist to a designated limit plus contributions to x-rays)[22]

SECTION C: Integrate fall prevention into your practice

Fitting in fall prevention

- **Display fall prevention-related materials** in the office to help start a conversation with patients.
- **Display exercises on waiting room televisions** or screens for patients to follow while waiting for their appointments.
- **Conduct a search in your EMR** to identify patients aged 65 and older.
- **Set an annual reminder** in your EMR to screen for risk of falls.
- **Observe balance, gait and home environment first-hand** by rooming your patients and conducting home visits, when possible.
- **Fit the falls risk assessment into your practice by:**
  - Scheduling a longer appointment
  - Doing the assessment over a series of appointments
  - Incorporating parts of the assessment into existing appointments, including:
    - Assessing feet and footwear during a diabetes visit
    - Discussing calcium and vitamin D intake, nutrition and hydration while reviewing bone mineral density test results
    - Taking orthostatic vitals when renewing blood pressure medications.

Leveraging interprofessional teams and community supports

- **Ask team members**, such as nurses, physician assistants, clinic assistants or front of office staff to complete tasks, including:
  - Observing the patient's gait
  - Taking postural blood pressure
  - Collecting any pre-screening documents or information
  - Checking the patient's medical record before the appointment
  - Helping the patient remove their shoes.
- **Refer to other interprofessional team members,** such as geriatric specialists, physiotherapists, occupational therapists, social workers and dietitians to provide specialized care to patients.
- **Consider referring to interdisciplinary programs** where available (e.g. fall prevention programs, geriatric day hospitals).
- **Engage a pharmacist** to do a medication review with the patient.

Engaging patients and caregivers

- **Empower patients to take an active role in deciding on, documenting and implementing** their interventions and monitoring their risk factors (e.g. taking their blood pressure at home, monitoring home hazards).
- **Engage family members or caregivers before the visit** to get information and **ask them to attend appointments.**
- **Share resources** that patients and caregivers can review and follow at home.
- **Encourage patients to come in person** for the fall risk assessment to allow for a physical exam. Follow-up visits can occur by video or phone if preferred and appropriate.

Provider resources

[i] Timed Up and Go (TUG) test (Centres for Disease Control and Prevention)

[ii] Talking about Fall Prevention with your Patients (Centres for Disease Control and Prevention)

[iii] Clinical Frailty Scale

[iv] ACB Calculator

[v] GeriMedRisk

[vi] Clinical Tools and Resources (Centre for Effective Practice)

[vii] Deprescribing.org

[viii] Medstopper

[ix] FRAX tool (Centre for Metabolic Bone Diseases)

[x] Forms of Abuse (Elder Abuse Prevention Ontario)

[xi] Ambulatory Devices for Chronic Gait Disorders in the Elderly

[xii] Measuring Orthostatic Blood Pressure (Centers for Disease Control and Prevention)

Patient resources

[xiii] Specialized Geriatric Services (Provincial Geriatrics Leadership Ontario)

[xiv] Rehabilitative Care in Ontario (Rehabilitative Care Alliance)

[xv] Too Fit to Fall or Fracture (Osteoporosis Canada)

[xvi] Seniors Active Living Centre (Government of Ontario)

[xvii] Find Home and Community Care (Home and Community Care Support Services)

[xviii] Find a Dietitian (Dietitians of Canada)

[xix] Home Safety Checklist (Centers for Disease Control and Prevention)

[xx] Find an OT (Ontario Society of Occupational Therapists)

[xxi] Support for Caregivers (Ontario Caregiver Organization)

[xxii] 211Ontario

[xxiii] Help For Seniors (Elder Abuse Prevention Ontario)

[xxiv] Find a Physiotherapist (Ontario Physiotherapy Association)

[xxv] Mobility Aids (Government of Ontario)

[xxvi] Postural Hypotension (Centers for Disease Control and Prevention)

[xxvii] Find an Optometrist (College of Optometrists of Ontario)

[xxviii] Stay on your Feet (North East Local Health Integration Network)

[xxix] Find a Chiropodist or Podiatrist (College of Chiropodists of Ontario)

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Fall prevention and management tool ('Tool') was developed as part of the Knowledge Translation in Primary Care Initiative, led by the Centre for Effective Practice, in collaboration with the Ontario College of Family Physicians and the Nurse Practitioners' Association of Ontario. Clinical leadership for the development of the Tool was provided by Dr. Winyan Chung and Dr. Felicia Presenza and was subject to external review by health care providers and other relevant stakeholders. This Tool was funded by the Government of Ontario as part of the Knowledge Translation in Primary Care Initiative.

For statistical and bibliographic purposes, please notify the Centre for Effective Practice (info@cep.health) of any use or reprinting of the Tool. Please use the following citation when referencing the Tool:

Reprinted with Permission from Centre for Effective Practice. (October 2021). Fall prevention and management: Ontario. Toronto: Centre for Effective Practice.

Developed By: CEP Centre for Effective Practice

In collaboration with: Ontario College of Family Physicians; NPAO Nurse Practitioners' Association of Ontario