資料３　施設・地域における高齢者の転倒予防ガイドライン

タイトル	国	作成元	引用文献番号
Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults	カナダ	British Columbia（州）	8
The Safe Living Guide	カナダ	Public Health Agency of Canada	9
Preventing Falls and Harm From Falls in Older People: Guidebook for Australian Residential Aged Care Facilities	オーストラリア	Australian Commission on Safety and Quality in Health Care	10
Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Community Care	オーストラリア	Australian Commission on Safety and Quality in Health Care	11
Evidence Profile: Risk of Falls	—	World Health Organization	13

Public Health Agency of Canada | Agence de la santé publique du Canada

The Safe Living Guide

A guide to home safety for seniors

Canada

The Safe Living Guide

A guide to home safety for seniors

To promote and protect the health of Canadians through leadership, partnership, innovation and action in public health.

—Public Health Agency of Canada

The Safe Living Guide—A guide to home safety for seniors
is available on the Internet at the following address:
http://www.publichealth.gc.ca/seniors

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Chez soi en toute sécurité — Guide de sécurité des aînés

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Fall Prevention: Risk Assessment and Management for Community-Dwelling Older Adults

Effective Date: June 30, 2021

Scope

This guideline addresses the identification and management of older adults aged ≥ 65 years living in the community with risk factors for falls, and is intended for primary care practitioners. The guideline facilitates individualized assessment and provides a framework and tools to manage risk factors for falls and fall-related injuries. Hospital, facility-based care settings and acute fall management are outside the scope of this guideline, although some of the principles in this guideline may be useful in those settings.

Key Recommendations

- Annually, or with a significant change in clinical status, ask patients ≥ 65 years about their fall risk using simple one-minute screening tools to identify people at risk of falls:
  - Three question approach and/or
  - Staying Independent checklist
- Recommend exercise to improve strength and balance and safe mobility. This is the most effective fall prevention intervention.[1–5] See Exercise Prescription and Programs below.
- For those evaluated as "at risk" or who have had a fall, a multifactorial risk assessment is recommended over multiple visits to review (see Multifactorial Risk Assessment, Fall History and Intervention section):
  - Medications
  - Medical conditions (including review of common geriatric conditions)
  - Mobility (endurance, strength, balance and flexibility)
  - An assessment of the home environment
  - Osteoporosis risk assessment and management (increases risk of fracture from fall)
- After a fall, interdisciplinary assessment and care planning can reduce the risk of future falls. A team-based approach, when available, is recommended (see Referral Options section).

Epidemiology

Incidence of Falls and Fall-Related Injuries Among British Columbians Aged ≥ 65 Years

- One in three fall annually in the community setting.[6]
- One hospitalization every 30 minutes, with 83% from community and 17% from facility-based care.[7]
- Every day ~3 older adults die from a fall. ~1,000 direct and indirect deaths annually.[7]
- Forecasted to continue increasing with population aging.[8] There was a 33% increase in hospitalizations from 2009-2016.[7]

Burden of Falls and Fall-Related Injuries Among British Columbians Aged ≥ 65 Years

- Annual total cost (including emergency room visits, hospitalized treatment, permanent disability, and cost of deaths) is $1.4 billion.[9,10] Annual total cost does not include societal costs, such as the cost of reduced quality of life, reduced productivity for older adults (e.g., informal caregiving, volunteering, and employment) and reduced productivity for family caregivers.
- 10-15% of falls result in serious injuries including fractures and head injuries.[11]
- Falls are the cause of 40% of admissions to facility-based care.[12]
- Falls are the cause of 95% of hip fractures:[7]
  - 30% die within the following year,[7] this reflects their increasing frail status[13]
  - 50% lose mobility and independence[7]

Prevention of Falls and Fall-Related Injuries Among Older Adults Aged ≥ 65 years

- Most falls are predictable and preventable (see the *Associated Document: Facts About Falls*).
- Older adults are unlikely to initiate a conversation about fall risk, even if they have sustained injuries from falls in the past.
- Older adults under-recognize their fall risk and under-report falls. They have low awareness that most falls are preventable and are not a normal part of aging.
- Clinical assessment by a healthcare provider and multifactorial interventions to address predisposing factors can decrease falls by approximately 25% among those at high risk.[14,15]
- Screening and interventions to reduce falls in community-dwelling older adults at the primary care level is cost effective (estimated at $35,213 per Quality Adjusted Life Years).[16]

Risk Factors

Falling is an indicator of a complex system failure requiring multifactorial assessment and intervention.[13] These can be categorized into four dimensions: biological, behavioural, environmental and socioeconomic factors (see Table 1). Medical conditions that cause gait and balance problems are reviewed in Appendix A: Medical Conditions Associated with Gait and Balance Disorders.[17,18]

- Frailty and multi-morbidity, not increasing age, is the primary consideration in fall risk. For those ≥ 80 years, 60% fell over a 12-month period, reflecting their frail status.[19–21]
- Fear of falling results in self-imposed activity restrictions and further functional decline, depression, feelings of helplessness, and social isolation.[22] This fear in turn increases risk of falling.
- Older adults often misattribute a fall to "bad luck" or an environmental hazard. In reality, "tripping" reflects an inability to compensate and prevent the fall from occurring.[23–25]
- Less than half who fell recently will disclose falling to their healthcare providers.[26,27] Admitting falls may carry its own stigma around weakness or frailty and can be met with embarrassment, fear, or avoidance.
- Older adults have low awareness of the multifactorial interventions that can prevent falls.[28]

Table 1. Risk Factors Associated with Falls and Fall-Related Injury[18,22,29–40]

Major risk factors that have the strongest associations for prediction of falls	

• Overarching Factor: History of falls, especially multiple falls[41]
• Advanced age
• Medication (psychotropics, antipsychotics, sedative/hypnotics, antidepressants, see Appendix C: Medications Contributing to the Risk of Falling)
• Functional decline: limitations in any activities of daily living (ADLs) or instrumental activities of daily living (IADLs)
	• Medical and/or psychiatric comorbidity
	  ▪ Lower body weakness
	  ▪ Difficulties with gait and balance
	  ▪ Visual impairments
	  ▪ Urinary incontinence/rushing to the bathroom
	  ▪ Pain and stiffness from arthritis
	  ▪ Depression

Additional risk factors associated with falls and fall-related injury	
Medical/Biological/Intrinsic Factors • Frailty	• Refer to Appendix A: Medical Conditions Associated with Gait and Balance Disorders for medical conditions that cause gait and balance problems
Functional Changes • Impaired mobility • Balance deficit	• Functional decline: limitations in any ADLs or IADLs • Urinary and/or bowel incontinence/urgency
Behavioural Factors • Fear of falling • Communication (e.g., language barriers, aphasia, literacy level) • Risk-taking behaviours • Impaired safety awareness, impulsivity	• Lack of exercise • Inappropriate footwear/clothing • Misuse of assistive devices, inappropriate devices • Poor nutrition • Dehydration/inadequate fluid intake
Socioeconomic Factors • Lower level of education • Poor living conditions • Living alone	• Lack of support networks/social interaction • Inadequate support to caregiver for dependant elderly[42–44] • Lack of transportation
Environmental Factors • Stairs • Home hazards (clutter, see *Associated Document: Checklist for Preventing Falls at Home*) • Inadequate lighting • Inadequate visual contrast with a change in surface of level	• Seasonal weather hazards (e.g., rain, ice, snow, see *Patient Handout: Tips to Stay Fall Free in Winter*) • Poor building design and/or maintenance. • Lack of: handrails, curb ramps, rest areas, grab bars • Obstacles/tripping and slipping hazards: pets, cords, rugs, furniture

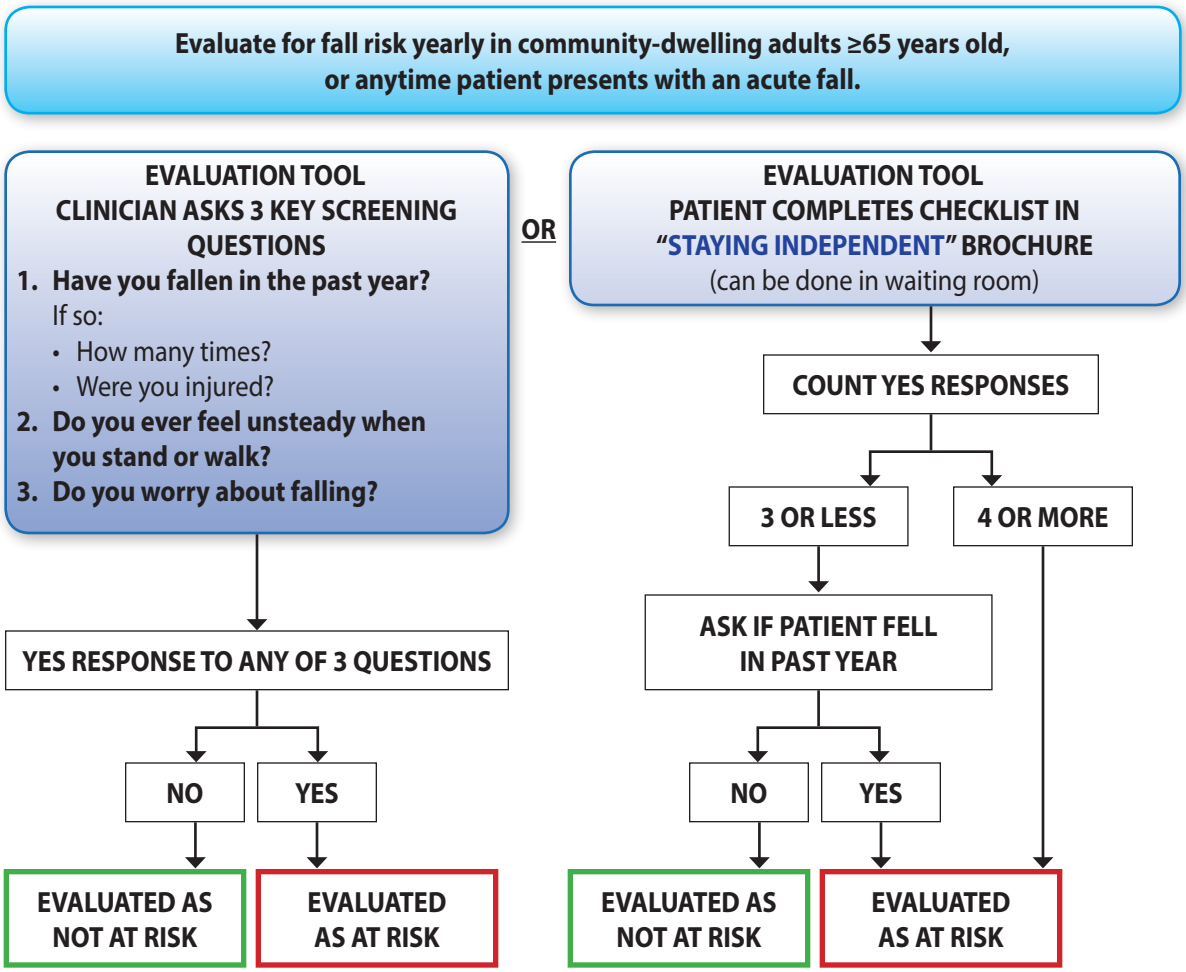
Evaluating Patients for Fall Risk

- Annually evaluate fall risk in patients ≥ 65 years using one of two evaluation tools (see text below and Figure 1).[45,46]
- Reassess for fall risk if there is a significant change in the patient's health: physical, cognitive, mental status, behavioural, mobility, medication changes, social network or environment.[47–49]

One of two evaluation tools can be used to assess patient fall risk (see Figure 1 below):[50]

1. **Primary care practitioner asks 3 questions (could be done in one minute):**
   - Ask the following questions, as needed:
     1. Have you fallen in the past year? If so:
        - How many times?
        - Were you injured?
     2. Do you ever feel unsteady when you stand or walk?
     3. Do you worry about falling?
   - If the patient answers "yes" to any of the three questions above, carry out a multifactorial risk assessment and fall history.
2. **Staying Independent Checklist (can be done in the waiting room):**
   - Ask the patient or their caregiver to complete the *Staying Independent Checklist* to identify major fall risk factors (see the Associated Document: Staying Independent Checklist)
   - The *Staying Independent Checklist* can be made available in the office as a handout and distributed by other healthcare providers (e.g., nurse or medical office assistant [MOA]).

Figure 1: Staying Independent Checklist



Patient Evaluated as at Risk: Multifactorial Risk Assessment, Fall History and Intervention

Falls History and Assessment of Modifiable Risk Factors

- For patients with multiple health concerns, consider using "rolling" assessments over multiple visits, targeting at least one area of concern at each visit.

Interventions are recommended for patients based on their individualized multifactorial risk assessment (see Figure 2 below and Appendix B: Categories of Assessment for Patients Evaluated at Fall and Injury Risk (with suggested management)).

- The single most effective fall prevention intervention is participation in a safe exercise program designed to improve strength and balance.[1–5] See Exercise Prescription and Programs below.
- All other fall prevention interventions are effective when completed in combination.
- Fall prevention quality improvement strategies proven to reduce falls include: education and reminders for patients and team changes, case management and staff education for clinicians.[51]

Figure 2: Categories of Assessment for Patients Evaluated at Fall and Injury Risk[50]

See Appendix B for accompanying details and suggested management. See also the BC Guideline: *Frailty in Older Adults – Early Identification and Management*.

History

1. Fall history

Functional review

2. Physical activity and endurance
3. Limitations in activities of daily living (ADLs)
4. Access and use of adaptive equipment

Medical review

5. Co-morbidities and risk factors
6. Medication review
7. Nutrition and hydration
8. Continence/rushing to the bathroom
9. Vitamin D intake

Social and environmental review

10. Substance use
11. Environmental and home hazards
12. Living alone and social isolation

Physical exam

Functional review

13. Mobility
14. Feet and footwear

Medical review

15. Visual acuity
16. Orthostatic/postural hypotension
17. Other system examination

Follow-Up

- For those with an intervention care plan, follow-up with patient in 30-90 days to discuss the care plan's value and discuss ways to improve patient receptiveness to the care plan.
- Older adults may struggle with changing their health behaviours. Frequent, brief follow-up discussions focused on barriers and facilitators are recommended.
- For suggested motivational interviewing responses see the Talking about Fall Prevention with Your Patients resource.
- To advise a patient on how to manage after a fall, see HealthLinkBC.ca: How to Get Up Safely After a Fall
- Older adults may also wish to promote fall prevention when talking to their family and friends.

Patient Evaluated as Not at Risk of Falls

Consider the opportunity to discuss the following to reduce future risk:

- Educate the patient on fall and injury prevention (see the patient brochure from the US CDC What You Can Do to Prevent Falls and *Patient Handout: Facts About Falls*).
- Reassess annually, or if patient presents with a fall.
- To maintain low risk category, encourage proactive participation in strength and balance exercise or fall prevention program, including community or online.

Referral Options

See the *Patient Handout: Referral Options Resource Guide for Patients and Caregivers*

Exercise Prescription and Programs

- The single most effective fall prevention intervention is participation in a safe exercise program designed to improve strength and balance.[1–5]
- Older adults can check with their community centre, physiotherapist or call HealthLink BC at 8-1-1 (or 7-1-1 for the deaf and hard of hearing) to speak with a qualified exercise professional for exercise prescription or to learn more about individual or group exercise options.
- For older adults who prefer to engage in physical activity at home, exercise videos are available online: findingbalancebc.ca: Exercise.

Best practice recommendations for falls prevention exercise: [14,47,52]

General considerations:

- Should be tailored to the individual (i.e., pitched at the right level, taking falls history, functional ability and medical conditions into account).[53]
- Should be delivered by specially trained instructors to ensure appropriate increases in intensity.
- Care should be taken to ensure it is carried out in a manner that does not increase the risk of falling.

Type of exercise:

- Exercise should provide progressive challenge to balance. Strength training and walking may be included in addition to balance training. High-risk individuals, however, should not be prescribed brisk walking programmes.[54]
- Adherence to exercise routines increases with levels of enjoyment; it is important to recommend physical activity on an individual basis centred on goals, current fitness level, and health status.[23]
- Evidence informed exercise programs include: Osteofit (including Get Up & Go!) and Physical Activity Services (offered through HealthLink BC/8-1-1).
- Other forms of exercise which may increase balance and strength (e.g., yoga, Pilates, tennis, dancing) have many benefits but may be insufficient in themselves for falls prevention. Supplemental activities may be considered.[3,5,55]

Frequency and duration:

- Adults ≥ 65 years should accumulate at least 150 minutes of exercise per week in bouts of 10 minutes or more.[56,57]
- Older adults at risk of falling should do balance training for three or more days per week.[53]

Geriatric Medicine

- Geriatric Medicine (hospital, private office)/falls clinic or practitioner specializing in the care of the elderly.
- Determine if your community has a specific falls prevention clinic or a multidisciplinary geriatric clinic (e.g., Vancouver General Hospital, Vancouver Coastal Health, Fraser Health, Providence Health Care).

Home and Community Care

- Primary care practitioners play an essential role in identifying patients in need of increased supports and facilitating intake into the system of care support. Ensure patients and caregivers in need of support are referred to local health care and social services, which are available from both publicly subsidized and private pay providers.
- For help finding information on social and health resources in your local community, see BC211 at www.bc211.ca
- Case managed services available to eligible patients through Home and Community Care within local health authorities include:
  - community nursing for acute, chronic, palliative or rehabilitative support
  - community occupational therapist, physiotherapist, dietician consultation as available and appropriate
  - services for personal care, health care and social and recreational activities
  - home support for assistance with activities of daily living
  - caregiver respite/relief
  - adult day care, assisted living and facility-based care
  - end-of-life care services
- For more information, see www2.gov.bc.ca: Home and Community Care or contact your local health authority.
- Consider directing caregivers to www.FamilyCaregiversBC.ca and the BC Family Caregiver Support Line at 1-877-520-3267.

Advance Care Planning

- Falls commonly accompany severe frailty and advance care planning is advised.
- See *BCGuidelines.ca: Frailty in Older Adults – Early Identification and Management* and *Advance Care Planning: Resource Guide for Patients and Caregivers* for further information on advance care planning.

Vision Correction – Ophthalmologist and Optometrist

- A referral is not required for an optometrist visit however some extended health plans do require one. See: bc.doctorsofoptometry.ca/find-a-doctor/
- According to the BC Optometrist fee schedule, the Medical Services Plan provides limited or partial coverage as a benefit for optometric services in adults (bc.doctorsofoptometry.ca/patients/medical-services-plan/):
  - Adults aged 19–64: eye exams not covered by MSP unless medically required
  - Seniors aged 65+: one full eye examination annually
- A referral is required to see an ophthalmologist. See: BCSEPS.com: Directory of Eye Physicians and Surgeons

Diagnostic Codes

- **ICD-9 codes:** E880-E888[58]
- **ICD-10 codes:** W00-W019.9[59]

Appendices

- Appendix A: Medical Conditions Associated with Gait and Balance Disorders
- Appendix B: Categories of Assessment for Patients Evaluated at Fall and Injury Risk (with suggested management) (with suggested management)
- Appendix C: Medications Contributing to the Risk of Falling
- Appendix D: Conducting a Medication Review

Associated Documents

- Staying Independent Checklist
- Patient handout: Facts about Falls
- Checklist for Preventing Falls at Home
- How to Get Up Safely After a Fall
- Patient handout: Tips to Stay Fall Free in Winter
- 30 Second Chair Stand
- Four Stage Balance Test
- Referral Options Resource Guide for Patients and Caregivers

Resources

Practitioner Resources

- **BCGuidelines.ca**
  - Frailty in Older Adults – Early Identification and Management
  - Resource Guide for Older Adults and Caregivers
- **RACE: Rapid Access to Consultative Expertise Program** – www.raceconnect.ca

  A phone consultation line for physicians, nurse practitioners and medical residents.

  If the relevant specialty area is available through your local RACE line, please contact them first. Contact your local RACE line for the list of available specialty areas. If your local RACE line does not cover the relevant specialty service or there is no local RACE line in your area, or to access Provincial Services, please contact the Vancouver/Providence RACE line.
  - **Vancouver Coastal Health Region/Providence Health Care:** www.raceconnect.ca
    www.raceapp.ca (**tip:** download the RACEapp+ to your device from the Apple or Android stores)

    ☎ 604-696-2131 (Vancouver) or 1-877-696-2131 (toll free) Available Monday to Friday, 8 am to 5 pm, excluding statutory holidays.
  - **Northern RACE**
    ☎ 1-877-605-7223 (toll free)
  - **Kootenay Boundary RACE**
    ☎ 1-844-365-7223 (toll free)
  - **For Fraser Valley RACE:** www.raceapp.ca (**tip:** download the RACEapp+ to your device from the Apple or Android stores)
  - **Vancouver Island RACE:** to register, please visit www.raceapp.ca (tip: download the RACEapp+ to your device from the Apple or Android stores). For more information, please visit South Island Division of Family Practice: RACE
- **Gov.bc.ca: Fall Prevention**
- **Gov.bc.ca: Fall Prevention Resources in BC**
- **Pathways**
  - An online resource that allows GPs and nurse practitioners and their office staff to quickly access current and accurate referral information, including wait times and areas of expertise, for specialists and specialty clinics. See https://pathwaysbc.ca/login
- **US Centre for Disease Control: Talking about Fall Prevention with Your patients**

Patient and Caregiver Resources

- **Doctors of BC – Stay Active, Stay Safe**
- **Gov.bc.ca: Fall Prevention Resources**
- **Finding Balance BC**
  - www.findingbalancebc.ca
- **Fraser Health: Your Guide to Independent Living (multilingual)**
- **HealthLink BC: Preventing Falls in Older Adults**

- **HealthLink BC: Seniors' Falls Can be Prevented**
- **HealthLink BC: How to Get Up Safely After a Fall**

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This draft guideline is based on scientific evidence current as of effective date.

The draft guideline was developed by the Guidelines and Protocols Advisory Committee in collaboration with the BC Injury Research and Prevention Unit.

For more information about how BC Guidelines are developed, refer to the GPAC Handbook available at BCGuidelines.ca: GPAC Handbook.

THE GUIDELINES AND PROTOCOLS ADVISORY COMMITTEE

The principles of the Guidelines and Protocols Advisory Committee are to:

- encourage appropriate responses to common medical situations
- recommend actions that are sufficient and efficient, neither excessive nor deficient
- permit exceptions when justified by clinical circumstances

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Disclaimer

Appendix A: Medical Conditions Associated with Gait and Balance Disorders

Cardiovascular Diseases
- Arrhythmias
- Postural hypotension
- Aortic stenosis
- Congestive heart failure
- Coronary artery disease
- Peripheral arterial disease
- Thromboembolic disease

Neurological Disorders
- Cerebellar dysfunction or degeneration
- Delirium
- Cognitive impairment/dementia
- Multiple sclerosis
- Myelopathy
- Normal-pressure hydrocephalus
- Parkinson's disease
- Stroke
- Vertebrobasilar insufficiency
- Vestibular disorders/vertigo

Sensory Abnormalities
- Hearing impairment
- Peripheral neuropathy
- Visual impairment

Musculoskeletal Disorders
- Cervical spondylosis
- Gout
- Lumbar spinal stenosis
- Muscle weakness or atrophy
- Arthritis (pain and stiffness)
- Osteoporosis complications
- Podiatric conditions
- Leg length discrepancy

Infections
- Acute infection
- Tertiary syphilis
- Human immunodeficiency virus associated neuropathy

Metabolic Diseases
- Diabetes mellitus
- Hepatic encephalopathy
- Hyper- and hypothyroidism
- Obesity
- Uremia
- Vitamin B12 deficiency

Mental Health and Substance Use
- Depression
- Fear of falling
- Substance use disorder

Sleep Disorders
- Insufficient sleep due to multiple medical issues including chronic pain, bladder and prostate problems
- Poor quality or insufficient sleep due to undiagnosed sleep disorders including obstructive sleep apnea

Other
- Other acute medical illnesses
- Recent hospitalization or surgery

Reference: Salzman B. Gait and balance disorders in older adults. Am Fam Physician. 2010 Jul 1;82(1):61–8.

Appendix B: Categories of Assessment for Patients Evaluated at Fall and Injury Risk (with suggested management)

History

1. Fall history

- Circumstances of the fall(s) (e.g., date, location, and time of falls, what the patient was doing at the time of a fall, belief as to the cause, witnessed details, mobility aid, use of medical alert device)
- Associated symptoms preceding and after the fall (e.g., palpitations, loss of consciousness, headache, nausea). NOTE: patients with loss of consciousness will require a syncope assessment
- Frequency of falls
- Details of any fall-related physical and/or psychological injuries
- Severity and duration of any changes in ADLs/mobility status and in client's confidence walking/fear of falling
- Post-fall interventions

History: Functional Review

2. Physical activity and endurance (e.g., how far they can walk)

- Assess patient readiness and fitness for physical activity (fall risk, injury risk, cardiac risk, etc.)
- Activity level/endurance and strength
- Exercise program including strength and balance exercises
- Fatigue and energy level

Suggested management:

- Refer to a community or home exersice program (see: Exercise Prescription and Programs) that focuses on balance and strength, suits individual patient level and includes appropriate increases in intensity. Consider falls history, frailty/functional abilities, current exercise level, review of medical comorbidities (including cognitive status) and motivational level. Review barriers to exercise such as transportation.
- In BC, this includes programs like Osteofit (including Get Up & Go!); Physical Activity Services (offered through HealthLink BC/8-1-1); an Otago-based program class; Tai Chi; SAIL (Strategies and Actions for Independent Living) and SAIL-FN (Strategies and Actions for Independent Living for First Nations).
- If pain and balance issues impair suitability for a group exercise program, consider referral to a physiotherapist and/or a qualified kinesiologist.
- Refer individuals with a gait and balance impairment to a physiotherapist and/or a qualified Kinesiologist, for balance and gait training (see the Mobility section for standardized tests recommended to assess balance and gait).
- Manage and/or refer any medical causes of impaired gait. See Appendix A: Medical Conditions Associated with Gait and Balance Disorders for Medical Conditions Associated with Gait and Balance Disorders.
- Encourage use of an alert device to provide support:
  - Consider other technology in the home: Philips Lifeline, SafeTracks GPS Canada, SafeGuard Medical Alert, Telus LivingWell Companion, Apple Watch Series 4 or 5 (has a falls sensor to detect falls, which will automatically call for help if set up and linked to a phone)
- Equipment with correct fit may be recommended by physiotherapy and/or occupational therapist to prevent falls and injury (see Choosing the correct walking aid for patients).
- If history suggests patient may be subject to recurrent falls, consider:
  - Hip protectors (see fraserhealth.ca: Hip protectors, Interiorhealth.ca: Hip protectors work!)
  - Helmets and/or head protection for those with a history of falls

3. **Identify limitations in ADLs** (for example: mobility, nutrition, lifts and transfers, bathing, dressing, grooming and toileting)

Suggested management:

- Consider referral for occupational therapy, home care support, social work, etc. available through Home and Community Care at local health authorities.
- Review safe transportation, driving skills as appropriate.

4. **Access and use of adaptive equipment**
    - Evaluate if and how the patient uses adaptive equipment and/or mobility aids

History: Medical Review

5. **Co-morbidities and risk factors**
    - See Appendix A: Medical Conditions Associated with Gait and Balance Disorders for a list of medical conditions that cause gait and balance problems and Table 1 for risk factors

Suggested management:

- Optimize treatment of comorbidities identified. Some comorbidities have associated guidelines at BCGuidelines.ca:
    - *Frailty in Older Adults – Early Identification and Management*
    - *Major Depressive Disorder in Adults*
    - *Stroke and Transient Ischemic Attack*
    - *Diabetes Care*
    - *Cardiovascular Disease*
    - *Hypertension*
    - *Cognitive Impairment*
    - *Osteoporosis* (increases risk of fracture from fall)

6. **Medication review**
    - See Appendix C: Medications Contributing to the Risk of Falling for a list of medications that increase risk of falling or serious outcomes if a fall incident occurs
    - For information and resources on conducting a medication review, see Appendix D: Conducting a Medication Review, Beers Criteria or deprescribing.org
    - Request a medication review by a trained pharmacist which is covered by BC Pharmacare for eligible patients

Suggested management:

- Consider withdrawing or minimizing use of psychoactive medication(s), cardiovascular medication(s), sedative(s) or medication(s) with anti-cholinergic side effects.
- **Educate patients on increased risk of hemorrhage with anticoagulant and antiplatelet use.** Advise to watch for new symptoms if they fall. Anticoagulants and antiplatelets (e.g., warfarin, NOACs, ASA and other antiplatelet agents) increase the risk of bleeding from an injury from a fall, however, may still be indicated based on individualized risk assessment.[60–62] A detailed discussion of anticoagulants for the person at risk is beyond the scope of this guideline and individualized discussion with the patient is warranted. For more information, see the associated BC Guideline: *Use of NOAC in Non-Valvular Atrial Fibrillation* and BC Guideline: *Warfarin Therapy Management*.
- Certain drugs (proton pump inhibitors [PPI], corticosteroids, etc.) may increase the risk of fracture during a fall and review of PPI use is warranted.[60,63] For more information, see the associated BC Guideline: *Osteoporosis: Diagnosis, Treatment and Fracture Prevention*.

7. Nutrition and hydration

- Assess volume intake and loss (e.g., diarrhea, vomiting, fluid restriction), diet/appetite, weight loss, dentition, swallowing, obesity

Suggested management:

- Consider a nutrition supplement
- Direct patient to dietitian services offered through HealthLinkBC.ca or 8-1-1 or local health unit or hospital outpatient services. Consider referral to a speech language pathologist, dentist, or denturist as appropriate

8. Continence/rushing to the bathroom

- Assess urinary and bowel continence and causes (e.g., Benign Prostatic Hyperplasia)

Suggested management:

- Review medications that may contribute to bowel/bladder urgency (e.g., diuretics, laxatives, etc). For additional details on medications that contribute to fall risk see Appendix C: Medications Contributing to the Risk of Falling
- Consider adding a bowel protocol
- Consider referral to a Nurse Continence Advisor, where available (e.g., Fraser Health, Providence)

9. Vitamin D intake

- Recommend Vitamin D supplementation

Suggested management:

- Vitamin D supplementation is recommended in northern hemispheres. It is not effective for fall and fracture prevention but can promote muscle strength
- For specific recommendations on Vitamin D and for patients at risk of osteoporosis, see the associated guidelines at BC Guideline: *Vitamin D Testing* and BC Guideline: *Osteoporosis*

History: Social and environmental review

10. Substance use

- Review of substance use, including alcohol, cannabis use and illicit drug use

Suggested management:

- For further information on alcohol consumption, see the BC Guideline: *Problem Drinking* or the *Canadian Low Risk Drinking Guidelines*

11. Environmental and home hazards

- Ask about potential home hazards (stairs, lack of handrails or grab bars, poor lighting, slippery or uneven surfaces [e.g., throw rugs, tub floor], obstacles and tripping hazards)
- Consider seasonal hazards

Suggested management:

- Refer to an occupational therapist for a home assessment and environmental modification
- Consider directing patient to access help at home through BetteratHome.ca
- For further information on environmental hazards see *Associated Document: Checklist of Preventing Falls at Home* and *Patient Handout: Tips to Stay Fall Free in Winter*

12. Living alone and social isolation

- Both of these factors increase falls risk. Community referrals/social prescribing using services to promote health and wellbeing and reduce social isolation are important interventions.[64]

Physical exam: Functional review

13. Mobility

- Evaluate gait, strength and balance
- One or both of the following short standardized tests is recommended to assess balance and gait[25,47–49,65,66] Conducting more than one mobility or balance screening test will enhance specificity and sensivitity[48]
  - **30 Second Chair Stand Test (optional)** - see *Associated Document: Chair Stand Test* for instructions. The 30 Second Chair Stand Test, also known as the "30 Second Sit to Stand Test", assesses lower extremity strength, and is quick and easy to administer in the clinical setting.
  - **Four Stage Balance Test (optional)** - see *Associated Document: Four Stage Balance Test* for instructions. The Four Stage Balance Test assesses static balance and is quick and easy to administer in the clinical setting.

14. Feet and footwear

- Ankle flexibility, plantar tactile sensitivity, toe plantar/flexor strength, moderate to severe bunion, toe deformity, ulcer, and/or deformed toenail have all been associated with falls[67]
- Proper footwear is important for fall prevention (e.g., shoe fit, traction, insoles, heel height)

Suggested management:

- Treat identified foot problems or refer to a podiatrist and/or pedorthist and/or orthopedics specialist

Physical Exam: Medical Review

15. Visual acuity

- Common assessment tool (Snellen eye test)
- Encourage annual eye examinations
- Assess for use of multifocal lenses (multifocal lenses are not recommended). Patients wearing multifocal glasses may have added risk for falls due to impaired distance contrast sensitivity and depth perception.
- For those with cataracts, expedited surgery on the first affected eye is shown to significantly reduce fall risk. See *BCGuidelines.ca: Cataract – Treatment in Adults*

Suggested management:

- Refer to an ophthalmologist or optometrist for vision assessment and correction
- Stop, switch, or reduce the dose of medication affecting vision (e.g., anticholinergics)

16. Orthostatic/postural hypotension

- For best results, measure blood pressure and pulse rate after patient has been lying for 5 minutes and again after patient standing for one minute.[68] For further information, see Measuring Orthostatic Blood Pressure.
  - A decrease in standing blood pressure of greater than 20mm Hg indicates an increased risk for falling when standing up.

Suggested management:

- Treat reversible causes, stop, switch, or reduce the dose of medications that contribute to hypotension
- Educate about importance of exercises (e.g., foot pumps)
- Review need for adequate hydration
- Consider compression stockings

17. Other system examination

- Evaluate patient for new diagnosis or diagnoses that may contribute to fall risk:
  - Cardiovascular examination: orthostatic vitals, arrhythmia, murmurs and bruits
  - Neurological examination: sensory, pyramidal, cerebellar, extrapyramidal, peripheral neuropathy, spinal stenosis, radiculopathy
  - Sensory examination
  - Joint and muscle examination (including kyphosis)
  - Leg length measurements
  - Cognitive screen
  - Depression screen

Reference: Materials for Healthcare Providers | STEADI - Older Adult Fall Prevention | CDC Injury Center [Internet]. 2019 [cited 2020 Feb 21]. Available from: https://www.cdc.gov/steadi/materials.html

Appendix C: Medications Contributing to the Risk of Falling

Examples of drugs that can increase the risk of falling, or of a serious outcome if a fall occurs, and possible mechanisms.

Falls are often caused by multiple factors. This list should be used in conjunction with other fall prevention strategies. A patient should not be denied beneficial or necessary drug therapy based on this list.

Possible mechanisms (often unclear): (1) Drowsiness. (2) Dizziness. (3) Hypotension/orthostatic hypotension. (4) Parkinsonian effects. (5) Ataxia/gait disturbance. (6) Vision disturbance. (7) Osteoporosis or reduced bone mineral density increases the fracture risk if a fall occurs. (8) Risk of serious bleeding if a fall occurs. Individualize therapy. (9) Fracture risk; mechanism unclear. (10) Hypoglycemia. (11) Theoretical due to potential hypoglycemia. (12) Conflicting evidence; many studies do not find an association between antihypertensive drugs and falls or fractures with beta blockers, ARBs, calcium channel blockers or diuretics; caution with high doses and when beginning therapy. (13) Syncope.

Drugs that can increase the risk of falling, or of a serious outcome if a fall occurs (and possible mechanisms)	Generic (chemical) name
ACE Inhibitors (3)	Benazepril, Captopril, Cilazapril, Enalapril, Fosinopril, Lisinopril, Perindopril, Quinapril, Ramipril, Trandolapril
Alcohol (1,5)	
Alpha Receptor Blockers (2, 3, 13 especially initial doses)	Alfuzosin, Doxazosin, Prazosin, Silodosin, Tamsulosin, Terazosin
Anticoagulants (8)	Acenocoumarol (nicoumalone), Apixaban, Dabigatran, Dalteparin, Enoxaparin, Fondaparinux, Heparin, Rivaroxaban, Tinzaparin, Warfarin
Antiplatelet Drugs	Acetylsalicylic Acid, Clopidogrel, Prasugrel, Ticagrelor, Ticlopidine
Anticonvulsants (1,2,5,6,7)	Brivaracetam (1,2,5), Carbamazepine (1,2,6), Clonazepam (1,2,5), Ethosuximide (1,2,5), Gabapentin (1,2,5,6), Lacosamide (1,2,5,6), Lamotrigine (1,2,6), Levetiracetam (1,2,5), Oxcarbazepine (1,2,5,6), Phenobarbital (1,2), Phenytoin (1,2,5,7), Pregabalin (1,2,6), Primidone (1,2), Rufinamide (1,2,5), Topiramate (1,2), Valproic acid (1,2,5), Vigabatrin (1,2)
Antidepressants (1,2,3,5,6,7)	Amitriptyline, Bupropion, Citalopram (1,2,3,6,7), Clomipramine, Desipramine, Desvenlafaxine, Doxepin, Duloxetine, Escitalopram (1,2,3,6,7), Fluoxetine (1,2,3,6,7), Fluvoxamine (1,2,3,6,7), Imipramine, Lithium, Maprotiline, Mirtazapine, Moclobemide, Nortriptyline, Paroxetine (1,2,3,6,7), Sertraline (1,2,3,6,7), Tranylcypromine (2,3), Trazodone, Trimipramine, Venlafaxine, Vortioxetine
Antidiabetic drugs	Albiglutide (11), Canagliflozin (3, 7), Chlorpropamide (11), Dapagliflozin (3, 7), Delaglutide (11), Empagliflozin (3, 7), Exenatide (11),Gliclazide (11), Glimepiride (11), Glyburide (11), Insulin (10), Liraglutide (AHFS}, Repaglinide (11), Pioglitazone (7), Tolbutamide (11)
Antiemetics	Aprepitant (2,5), Dimenhydrinate (1), Fosaprepitant (2,5), Nabilone (1,2,3,6), Scopolamine (1,6)
Antihistamines, sedating (1) Cold Medications that contain sedating antihistamines (1)	Brompheniramine, Cetirizine, Chlorpheniramine, Diphenhydramine, Hydroxyzine Trimeprazine
Antihypertensive Drugs, other (see 12)	Beta blockers, Calcium Channel Blockers
Antiparkinson Drugs (1,3,5)	Bromocriptine (1,3), Entacapone (1,3,5), Levodopa (1,3,5), Pramipexole (1,3,5), Rasagiline (1,3,5), Ropinirole (1, 3,5), Rotigotine (1,3,5), Selegiline (3,5)
Antipsychotics and Related Drugs (1,3,4)	Aripiprazole, Asenapine, Chlorpromazine, Clozapine, Flupenthixol, Fluphenazine, Haloperidol, Loxapine, Lurasidone, Methotrimeprazine, Olanzapine, Paliperidone, Perphenazine, Pimozide, Prochlorperazine, Quetiapine, Risperidone, Thiothixene, Trifluoperazine, Ziprasidone, Zuclopenthixol
Caffeine, large amounts (7)	

Drugs that can increase the risk of falling, or of a serious outcome if a fall occurs (and possible mechanisms)	Generic (chemical) name
Cannabinoids (1,2,3)	Cannabidiol, Marijuana
Chemotherapy (7)	Anastrozole, Bicalutamide, Buserelin, Exemestane, Goserelin, Histrelin, Letrozole Leuprolide, Methotrexate, Triptorelin
Cholinesterase inhibitors (13)	Donepezil, Galantamine, Rivastigmine
Corticosteroids, oral (7)	
Corticosteroids, inhaled, high-dose (7)	Beclomethasone, Betamethasone, Budesonide, Ciclesonide, Cortisone, Dexamethasone, Fludrocortisone, Fluticasone, Hydrocortisone, Methylprednisolone, Mometasone, Prednisolone, Prednisone, Triamcinolone
Digoxin (mechanism unknown)	n/a
Diuretics, loop and thiazide	Bumetanide, Chlorthalidone, Furosemide, Hydrochlorothiazide, Indapamide, Metolazone
Eye drops (6)	n/a
Herbal products, Natural Health Products, Natural Sleep Aids, Natural Products for Sexual Enhancement (possible adulteration with undeclared drugs)	n/a
Metoclopramide (1,2,4)	
Muscle Relaxants (1,2)	Baclofen, Chlorzoxazone, Cyclobenzaprine, Dantrolene, Methocarbamol, Orphenadrine, Tizanidine
Nitrates (2,3,13)	Isosorbide dinitrate, Isosorbide mononitrate, Nitroglycerin
NSAIDs	ASA/acetylsalicylic acid (8)
Opiates/Narcotics (1,2,3)	Buprenorphine, Butorphanol, Codeine, Fentanyl, Hydromorphone, Meperidine, Methadone, Morphine, Oxycodone, Sufentanil
Proton Pump Inhibitors (9)	Dexlansoprazole, Esomeprazole, Lansoprazole, Omeprazole, Pantoprazole, Rabeprazole
Sedative/hypnotics, Benzodiazepines Barbiturates (1,2,5)	Alprazolam, Bromazepam, Buspirone, Chloral hydrate, Chordiazepoxide, Clobazam, Clonazepam, Clorazepate, Diazepam, Diphenhydramine, Doxylamine, Flurazepam, Lorazepam, Midazolam, Nitrazepam, Oxazepam, Phenobarbital, Temazepam, Triazolam, Zopiclone

Drugs are listed by generic (chemical) name under each drug group. For Brand (manufacturer's) names, check in the Compendium of Pharmaceuticals and Specialties under the generic product monograph.

This list includes only those drugs for which there is evidence of increased risk of falls or their consequences or a logical potential risk. There may be other drugs that increase this risk in certain patients.

List above published by Finding Balance BC: Medications and the Risk of Falling

Appendix D: Conducting a Medication Review

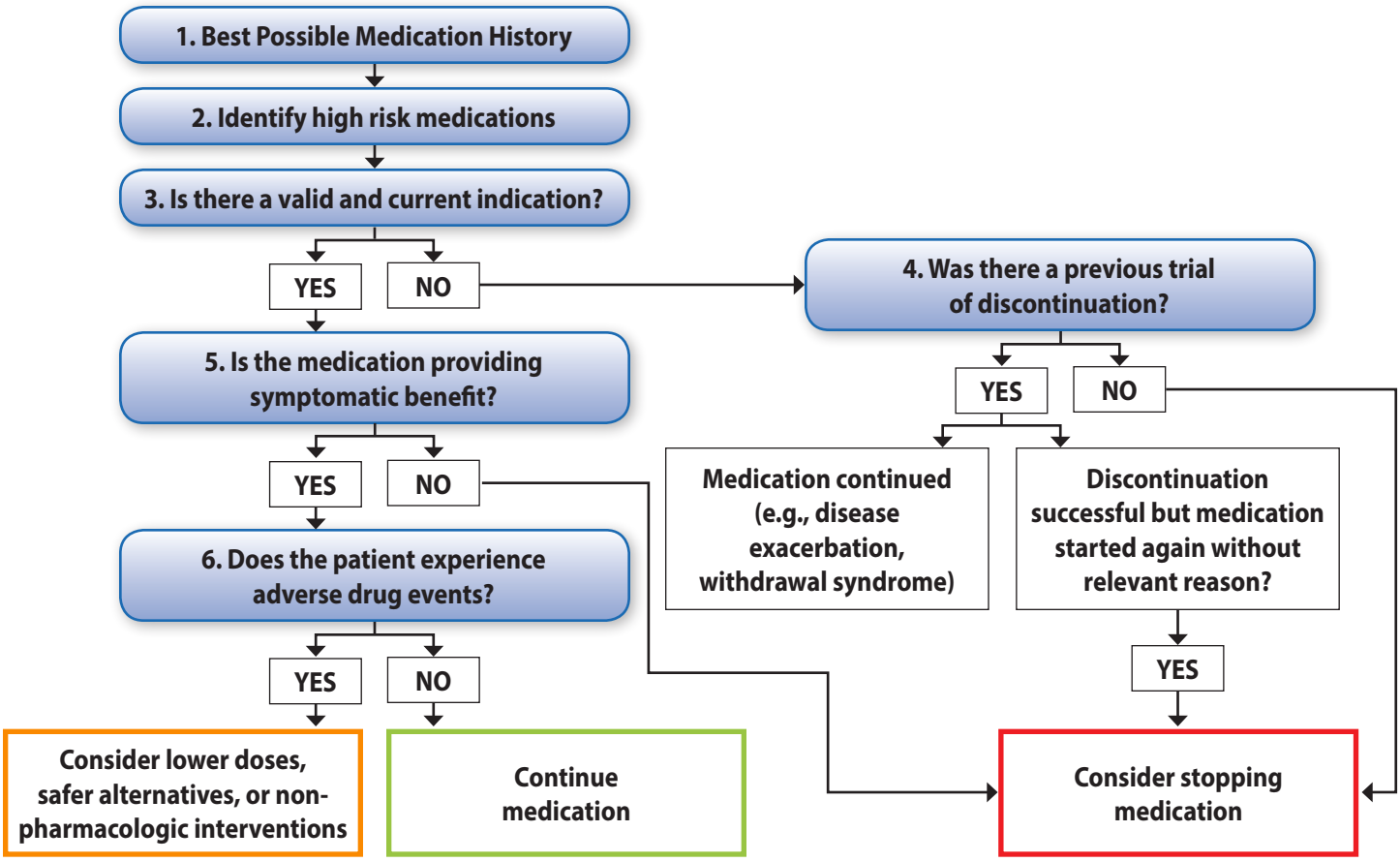
- **Be aware of inappropriate medications with potential to harm patients with frailty.** Weigh the benefits and risks of each and all medications. Not all polypharmacy is inappropriate.
- **Consider requesting a medication review by a pharmacist when a potential or existing medication-related problem has been identified.** Many community pharmacists are trained in medication reviews.
- **BC Pharmacare covers the cost of a medication review by a pharmacist for eligible BC residents.** For information on patient eligibility, see www2.gov.bc.ca: PharmaCare Policy Manual.
- **Consider a team-based phone call about medication review results.** Physicians may be eligible for conference and telephone management incentive fees – see www.gpscbc.ca: Billing Guides.
- **Communication between care providers is essential for effective medication management.** Prescribers must work with pharmacists, supporting health care providers, and the patient and caregivers to ensure potentially inappropriate medications are avoided; medications and doses are appropriate to goals of care, pill burden is minimized, and side effects are not treated with more medications without considering medication-related causes.

Common medication-related problems:

- Adverse medication reactions
- Medication interactions
- Dose too high or too low
- Improper medication selection
- Unnecessary medication
- Omission of necessary medication
- Inappropriate adherence

Figure 3: Medication Review Algorithm for Older Adults with Frailty

Algorithm adapted from Poudel A, Ballokova A, Hubbard RE, Gray LC, Mitchell CA, Nissen LM, et al. Algorithm of medication review in frail older people: Focus on minimizing the use of high-risk medications. Geriatr Gerontol Int. 2016 Sep;16(9):1002–13.



1. Compile best possible medication history – see PharmaCare: Best Possible Medication History (BPMH)—Patient Section

- **Get a list of drugs from the patient's pharmacy or PharmaNet.** Physicians and nurse practitioners licensed in BC can get community access to PharmaNet – see Gov.bc.ca: Community Health Practice Access to PharmaNet. Other sources of information include: product labels, medical records; hospital discharge summaries; and interviews with the patient, family or caregivers.
- **Collect and document all pertinent information about the patient's current and recently discontinued medications,** including prescription and non-prescription drugs and natural health products. If appropriate, have the patient bring all his/her medications into the appointment. Information to be collected includes:
  - Medication name
  - Strength and dosage form
  - Directions
  - Name of prescriber
  - Indication
  - Date started and stopped
  - How medication actually taken
  - Adverse drug events
  - Other relevant information (e.g., lipid profile, HbA1C levels, INR)
- **Assess adherence to medication regimen (prescribed vs. actual use).** Consider patient-specific factors (e.g., cognition, beliefs, vision, swallowing, manual dexterity); lack of patient adherence may be due to sensory or cognitive deficits. Encourage the use of medication organizers/packaging, including medication blister packs, dosettes and pouch strips to improve adherence.

2. Identify high risk medications

- **Consider if any medications are contributing to medical problems.** Potentially inappropriate medications may cause adverse drug events in patients with frailty due to pharmacological properties interacting with physiological changes of aging and/or existing medical conditions.
- **Be aware of "prescribing cascades":** an adverse reaction interpreted as a new medical condition, and additional drug therapy ordered to treat this problem.
- **Deprescribing tools can be used to identify potentially inappropriate medications** but are not intended to replace clinical judgement or individualization of care.

Deprescribing Tools[1]	Online Resources	
• Beers Criteria[2] • STOPP/START[3]	• http://medstopper.com/ • Deprescribing.org	• Polypharmacy.ca • SharedCareBC.ca: Polypharmacy Risk Reduction Initiative

3. Validate indications for each high-risk medication

- **Match each medication with an established medical problem.** Validation involves two steps:
  1) verify the diagnosis against formal diagnostic criteria; and then
  2) verify the evidence supporting the benefits of using the medication in patients with frailty (improvement of symptoms, function, quality of life, and risk of future adverse drug events.
- Engage the patient in the discussion/decision-making, clarifying the patient's health care goals and willingness to carry out the therapeutic plan. Older patients often have different therapeutic outcomes/objectives than younger patients. Quality of life rather than therapeutic efficacy is generally more important in patients with short life expectancy.

4. Consider previous discontinuation trials

- **Consider discontinuing a medication where there is either no valid diagnosis or indication of a previous discontinuation trial.** If a previously discontinued medication was restarted due to withdrawal symptoms, disease relapse, or other reasons, further assessment is needed.

5. Assess whether the medication is providing ongoing symptomatic benefit

- Medications used in patients with frailty should be prioritized according to their ability to suppress disabling or troubling symptoms or current active medical conditions, rather than the primary or secondary disease prevention (especially if unlikely to occur during remaining lifespan).
- **Medications fall under two categories:**

Medications providing immediate symptomatic benefits (e.g., analgesics) or are **essential to preventing rapid symptomatic deterioration** (e.g., diuretics and ACE inhibitors for severe heart failure)	**Medications having no effect on symptoms and primarily used to prevent disease complications in the medium to long-term**
High risk medications in this category **need to be assessed** based on a balance between the: • magnitude of immediate symptomatic benefit; • magnitude of the risk of short-term harm; and • availability of equally effective non-pharmacological treatments.	High risk medications in this category **should be considered for discontinuation** unless the risk of a catastrophic disease event in very high and likely to occur within 6 to 12 months.

6. Assess whether the patient is experiencing adverse drug events

- A discontinuation trial is warranted where a current high-risk medication is causing or has caused adverse drug events.

7. Consider withdrawing, altering, or continuing medications

- Any decision on stopping, altering, or continuing medications must be tailored to the clinical status of individual patients – consider patient life expectancy, goals of care, values and preferences, and the medication's likely impact on the patient's quality of life. Consider the following:
  - changing to a **safer alternative** from the same or a pharmacologically similar medication class;
  - using a **non-pharmacological treatment**, when available and appropriate;
  - adjusting medication **dosage or frequency**;
  - **withdrawing** the medication; and
  - **continuing** the medication, as currently prescribed/used.

8. Conduct regular, ongoing medication reviews

- Consider monitoring requirements for medications. Medication reviews should be conducted regularly based on clinical judgement, but particularly after changes in care settings, discharge from hospital, significant changes in health status, or changes in medication regimen.

Notes:

1. The STOPP/START tool has been shown to be superior to the Beers Criteria for predicting hospitalization and improving outcomes in the elderly but is more time consuming to apply than the Beers Criteria. See Boland B, Guignard B, Dalleur O, Lang P-O. Application of STOPP/START and Beers criteria: Compared analysis on identification and relevance of potentially inappropriate prescriptions. European Geriatric Medicine. 2016 Sep;7(5):416–23.

References:

1. American Geriatrics Society 2015 Beers Criteria Update Expert Panel. American Geriatrics Society 2015 Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults. J Am Geriatr Soc. 2015 Nov;63(11):2227–46. Available at: onlinelibrary.wiley.com/doi/10.1111/jgs.13702/epdf
2. O'Mahony D, O'Sullivan D, Byrne S, O'Connor MN, Ryan C, Gallagher P. STOPP/START criteria for potentially inappropriate prescribing in older people: version 2. Age Ageing. 2015 Mar;44(2):213–8. Available at: www.ncbi.nlm.nih.gov/pmc/articles/PMC4339726/

Associated Document: Staying Independent Checklist

You can open this questionnaire as an interactive brochure. Complete the form online, then print your results:

- **Gov.bc.ca: Staying Independent**
- **Gov.bc.ca: Are you at Risk of Falling?**

Please Circle "Yes" or "No" for each statement below

Check your risk of falling			Actions to Staying Independent
Yes (2)	No (0)	I have fallen in the last 6 months*	Learn more on how to reduce your fall risk, as people who have fallen are more likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	Talk with a physiotherapist about the most appropriate walking aid for your needs.
Yes (1)	No (0)	Sometimes, I feel unsteady when I am walking.	Exercise to build up your strength and improve your balance, as this is shown to reduce the risk for falls.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	Incorporate daily balance exercises and reduce home hazards that might cause a trip or slip.
Yes (1)	No (0)	I am worried about falling.	Knowing how to prevent a fall can reduce fear and promote active living.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	Strengthening your muscles can reduce your risk of falling and being injured.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	Daily exercise can help improve your strength and balance.
Yes (1)	No (0)	I often have to rush to the toilet.	Talk with your doctor or incontinence specialist about solutions to decrease the need to rush to the toilet.
Yes (1)	No (0)	I have lost some feeling in my feet.	Talk with your doctor or podiatrist, as numbness in the feet can cause stumbles and falls.
Yes (1)	No (0)	I take medicine that sometime makes me feel light-headed or more tired than usual.	Talk with your doctor or pharmacist about medication side effects that may increase the risk of falls.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	Talk with your doctor or pharmacist about safer alternatives for a good night's sleep.
Yes (1)	No (0)	I often feel sad or depressed.	Talk with your doctor about symptoms of depression and help with finding positive solutions.

- Add up the number of points in parentheses for each "yes" response.
- If you scored 3 or less and HAVE NOT fallen, you are at low risk of falling.
- *If you scored 3 or less and HAVE fallen in the last year, you may be at risk of falling.*
- If you scored 4 points or more, you may be at risk for falling.
- Discuss this brochure with your doctor to find ways to reduce your risk.

The above checklist was developed by the Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Vivrette, Rubenstein, Martin, Josephson & Kramer, 2011).

Patient Handout: Facts About Falls

FALSE: Falls are normal. If you fall and don't get hurt, you don't need to tell anyone.

TRUE: Do not be embarrassed about falling. Tell your caregiver if you have fallen so that you can learn about how to prevent another fall. It's important to remember that falls are *not* a normal part of getting older; falls are preventable, and *anyone* can greatly reduce their risk of falls. If you fall, even if you don't get hurt, make an appointment to discuss with your doctor. Falls are preventable, even as you get older. One in three British Columbians over the age of 65 fall each year. Most falls result in minor injuries, such as bruises, but about 10% to 15% result in serious injuries, such as broken bones.

FALSE: Most falls happen outside, because of hazards like uneven sidewalks or icy steps.

TRUE: Most falls happen inside the home, not outside. Injuries from falls occur not because we tripped over something (such as pets underfoot, or kids leaving toys around) – but because seniors often lack the leg strength to stop falling after they are tripped by something.

FALSE: Reducing your fall risk takes a lot of time and money.

TRUE: There are simple steps anyone can take to reduce their fall risk that are free or cost very little!

- **Exercise:** The best way for anyone to reduce their risk of falling is to increase their strength and balance through exercise. Anyone can call HealthLinkBC at 8-1-1 to talk to a qualified exercise professional for free. They can walk you through a physical activity readiness questionnaire and provide physical activity information and guidance as well as advice on classes in the community, many of which are offered at low cost. For no cost exercises, there are online videos on **FindingBalanceBC.ca** that seniors can use to follow along at home. Ensure that you choose a safe level of exercise to start from. Anyone, can increase their strength and balance by exercising.
- **Vision Assessments:** Medical Services Plan (MSP) covers routine eye examinations for those 65 years of age and older. As vision can change quickly as we get older, it's important to make sure prescriptions are up to date.
- **Medication Reviews:** Some medications can interact with others to cause dizziness and seniors may be on a higher dose of medications than they need. You can review your medications with your doctor or a pharmacist in person, or a pharmacist over the phone at HealthLinkBC at 8-1-1.
- **Home Hazard Assessment and Modifications:** It's important to remove all objects that can cause hazards on hallways and floors in the home, such as: throw rugs, cords, and piles of clutter. It can also be helpful to install supports, such as grab bars. The BC Housing **Home Adaptations For Independence** program (https://www.bchousing.org/housing-assistance/HAFI) provides grants for low income seniors. Improper footwear such as slippers can be a fall hazard.
- **Plan ahead:** Let people know your plans and take a cell phone or whistle with you or wear an alert system when you leave your house.

There are many devices such as, canes, walkers, grab bars, and shoes where proper fitting should be reviewed with a health professional. In many cases prescribed equipment may be covered by third party insurance.

Call HealthLinkBC at 8-1-1

Patient Handout: Tips to Stay Fall Free in Winter

It only takes a split second to fall, but here are some tips to help you from falling.

Choose your footwear carefully

- Check your traction: wear boots and shoes with a good grip.
- Consider using an anti-slip shoe traction device or ice cleats on your shoes. Even though you have these devices on, you still need to avoid icy and slippery surfaces. Always take off these grips or cleats when indoors because they may make you slip on indoor flooring.

Plan ahead

- Make sure you have enough time to get where you're going. Your chances of falling increase when you're running late and rushing.
- Be aware of winter weather conditions.
- Let people know your plans and take a cell phone or whistle with you or wear an alert system when you leave your house.
- If you fall, have someone that can assist you in getting help as quickly as possible, this may even save your life.

Use caution as you walk

- Walk like a penguin to prevent falls on snow and ice
  - Walking like a penguin: means moving slowly and taking very small steps.
  - Keep your feet pointed outward to allow for wider base of support and your knees slightly bent and relaxed to lower your center of gravity.
  - Your hands should be kept out to your side and out of your pockets for balance like a penguin's wings. Wear gloves so you can keep your hands out of your pockets.
  - Keep your head up and don't lean forward.
  - See the video link from Alberta Health Services for more information: Walk Like a Penguin
- Walk on cleared walkways. Use the safest route to your location and the safest route into the building.
- Find a clear path around snow or ice when you can.
- Be careful of hidden ice and dark areas on pavement as they can be slippery and dangerous. Assume all wet, dark areas on pavement may be slippery or icy. Walk around them if you can.
- Use a backpack, making sure that it fits, to keep your hands free. Avoid carrying anything heavy that may make you lose your balance or that blocks your view as you walk.
- If you use a cane, buy and attach an ice tip.
- Avoid texting or talking on your phone and walking at the same time.
- Be careful getting on or off a bus as the steps or the road may be slippery. Use the font door to exit, so the driver can lower the bus for a safer exit.
- Be careful getting in and out of your car. Hold onto your car door or car as you get out to give yourself extra support.
- Use Nordic poles if recommended to you by a healthcare professional. For some people, Nordic poles may not be appropriate.

Use handrails on stairs and ramps

- If you're walking on a slope where there are no handrails, be extra careful.
- Check your railings and ensure they are sturdy as they may save you from an unexpected fall.

Remove snow as soon as you can from your porch, steps, walkway and driveway

- Keep your salt and shovel indoors to avoid slipping outside.
- Spread sand or grit on your steps and walkways. You could also try carrying a small container of sand or grit to sprinkle on icy or sloped surfaces that you can't walk around.

Stay active

- On especially bad weather days, consider whether you really need to go out or not.
- If ice and snow make it unsafe to exercise outdoors, stay active with an indoor routine that includes strengthening and balance exercises.
- Don't let your fear of falling get in the way of winter outdoor activities. Staying indoors and being inactive can increase your fall risk.

Ask for help

- Most people are willing to help you navigate across a slippery sidewalk or parking lot or to help with snow removal.
- If entrances or sidewalks are not safe, ask people to help remove the snow or use de-icer. Businesses and property managers can help reduce the dangers.
- Plan ahead for snow and icy days.

Adapted from:

1. CARP (Canadian Association for Retired Persons). Farewell to Falls Resource Guide (2019). https://s3.amazonaws.com/zweb-s3.uploads/carp/2019/11/FarewellToFalls.pdf
2. Centre for Hip Health and Mobility. Tips for Staying Fall-Free this Winter. http://www.hiphealth.ca/blog/tips-for-staying-fall-free-this-winter
3. Fall Risk Management Program, Alberta Health Services. Winter Walking Tips: Lower Your Risk of Falling (2019). https://myhealth.alberta.ca/Alberta/Pages/winter-walking-tips.aspx
4. Michigan Government. Winter Fall Prevention & Safety Tips. https://www.michigan.gov/documents/mdch/Winter_Fall_Prevention_494521_7.pdf
5. Osteoporosis Canada. Navigating Winter (2014). https://osteoporosis.ca/wp-content/uploads/COPING_November_20_2014.pdf

Fall Prevention Resources

Practitioner Resources

Occupational Therapist

- See: https://www.caot.ca/site/findot
- A referral may be required to access an occupational therapist and extended health insurance may cover their services.

Physiotherapist

- See: https://bcphysio.org/find-a-physio?&form=yesg
- A referral is not required for a physiotherapist visit however some extended health plans do require one.

Patient and Caregiver Resources

Dietitian

- Dietitian services are offered through HealthLinkBC.ca or 8-1-1

Physical Activity Services

- Qualified Exercise Professional services are offered through HealthLinkBC.ca or 8-1-1

Podiatrist (foot and ankle surgeon)

- See: http://www.bcpodiatrists.ca/
- A referral is not required for a podiatrist visit however some extended health plans do require one.

Pedorthist (modifies footwear and employs supportive devices)

- See: https://www.pedorthic.ca/find-a-pedorthist/
- A referral is not required for a pedorthist visit however some extended health plans do require one.

Home and Community Care

- For help finding information on social and health resources in your local community, see BC211 at www.bc211.ca or call 2-1-1
- Case managed services available to eligible patients through Home and Community Care within local health authorities include:
  - community nursing for acute, chronic, palliative or rehabilitative support
  - community occupational therapist, physiotherapist, dietitian consultation as available and appropriate
  - services for personal care, health care and social and recreational activities
  - home support for assistance with activities of daily living
  - caregiver respite/relief
  - adult day program, assisted living and facility-based care
  - end-of-life care services
- For more information, see Gov.bc.ca: Home and Community Care or contact your local health authority.

HealthlinkBC.ca or 8-1-1

- 8-1-1 is a free-of-charge provincial health information and advice phone line available to British Columbians. The 8-1-1 phone line is operated by HealthLink BC, which is part of the Ministry of Health.
- Registered nurses and dietitians, qualified exercise professionals, and pharmacists are available through HealthLinkBC.ca or 8-1-1.

Call HealthLinkBC at 8-1-1 or BC211 at 2-1-1

Guidebook for Preventing Falls and Harm From Falls in Older People: Australian Residential Aged Care Facilities

A Short Version of Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Residential Aged Care Facilities 2009

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

ACSQHC was established in January 2006 by the Australian health ministers to lead and coordinate improvements in safety and quality in Australian health care.

Copies of this document and further information on the work of ACSQHC can be found at http://www.safetyandquality.gov.au or from the Office of the Australian Commission on Safety and Quality in Health Care on +61 2 9263 3633 or email to mail@safetyandquality.gov.au.

Acknowledgments

ACSQHC acknowledges the authors, reviewers and editors who undertook the work of reviewing, restructuring and writing the Falls Guidelines and guidebooks. ACSQHC acknowledges the significant contribution of the Falls Guidelines Review Expert Advisory Group for their time and expertise in the development of the Falls Guidelines 2009.

ACSQHC also acknowledges the contributions of many health professionals who participated in focus groups, and provided comment and other support to the project. In particular, the National Injury Prevention Working Group, a network of jurisdictional policy staff, played a significant role communicating the review to their networks and providing advice.

The guidelines build on earlier work by the former Australian Council for Safety and Quality in Health Care and by Queensland Health.

The contributions of the national and international external quality reviewers and the Office of the Australian Commission on Safety and Quality in Health Care are also acknowledged.

ACSQHC gratefully acknowledges the kind permission of St Vincent's and Mater Health Sydney to reproduce many of the images in the guidebook.

Guidebook for Preventing Falls and Harm From Falls in Older People: Australian Residential Aged Care Facilities

A Short Version of *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Residential Aged Care Facilities*

The Australian Commission on Safety and Quality in Health Care (ACSQHC) has developed three separate falls prevention guidelines, with the help of older Australians, for older Australians:

- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Community Care 2009*
- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals 2009*
- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Residential Aged Care Facilities 2009.*

Collectively, the guidelines are referred to as the Falls Guidelines.

The Falls Guidelines are based on current and relevant literature. They identify principles of care and special considerations for culturally and linguistically diverse, Indigenous, and rural and remote groups. The Falls Guidelines use evidence based recommendations, good practice points, case studies and points of interest to facilitate understanding and promote implementation.

There is a need for further research to establish the effects of interventions on falls rates. Therefore, the Falls Guidelines recognise that the sound clinical judgment of informed professionals is best practice in situations where strong recommendations have not been made.

This abridged version of *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Residential Aged Care Facilities 2009* is designed as a quick reference tool, to guide clinical practice and to help residential aged care facilities to develop and implement practices to prevent falls and injuries from falls. The full guidelines for Australian residential aged care facilities are a more comprehensive resource and should be referred to when implementing a falls prevention program.

Support resources

Other resources available from http://www.safetyandquality.gov.au:

- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Community Care 2009*
- *Guidebook for Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Community Care 2009*
- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals 2009*
- *Guidebook for Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals 2009*
- *Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Residential Aged Care Facilities 2009*
- *Implementation Guide for Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Hospitals and Residential Aged Care Facilities 2009*
- Fact sheets
  - Falls facts for residents and carers
  - Falls facts for doctors
  - Falls facts for nurses
  - Falls facts for allied health professionals
  - Falls facts for support staff (cleaners, food services and transport staff)
  - Falls facts for health managers.

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Acronyms

ACSQHC	Australian Commission on Safety and Quality in Health Care
ADL	activities of daily living
BPPV	benign paroxysmal positional vertigo
RACF	residential aged care facility
RMMR	residential medication management review

Preventing Falls and Harm From Falls in Older People

Best Practice Guidelines
for Australian Community Care
2009

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTH CARE

ISBN: 978-0-9806298-3-5

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Other resources available from http://www.safetyandquality.gov.au:

- *Guidebook to Preventing Falls and Harm From Falls in Older People: Best Practice Guidelines for Australian Community Care 2009*
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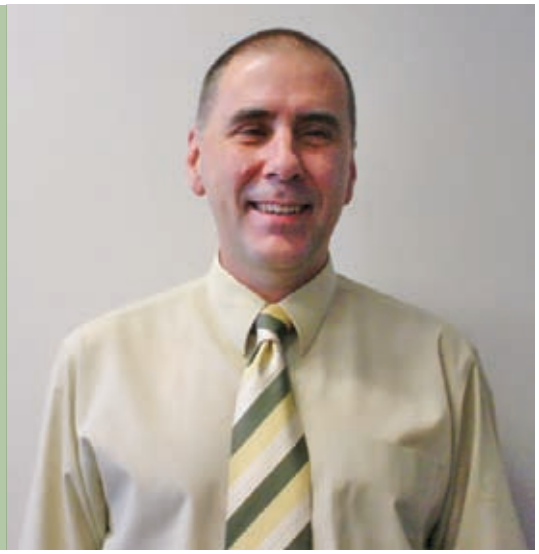
Statement from the chief executive



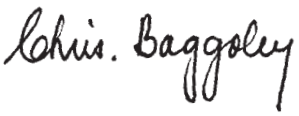
Australians today enjoy a longer life expectancy than previous generations, but for some this is disrupted by falls. As we age, our sure-footedness declines and, at the same time, our bones become increasingly brittle. The comment that 'he fell and broke his hip' is heard all too often — in fact, almost one in three older Australians will suffer a fall each year. Such falls can have extremely serious consequences, including significant disability and even death.

Falls are one of the largest causes of harm in care. Preventing falls and minimising their harmful effects are critical. During care episodes, older people are usually going through a period of intercurrent illness, with the resultant frailty and the uncertainty that brings. They are at their most vulnerable, often in unfamiliar settings, and accordingly attention has been paid to acquiring evidence about what can be done to minimise the occurrence of falls and their harmful effects, and to use these data in the national Falls Guidelines.

These new guidelines consider the evidence and recommend actions in the three main care settings: the community, hospitals and residential aged care facilities. Each of three separate volumes addresses one of these care settings, providing guidance on managing the various risk factors that make older Australians in care vulnerable to falling.

The Australian Commission on Safety and Quality in Health Care is charged with leading and coordinating improvements in the safety and quality of health care for all Australians. These new guidelines are an important part of that work.

The ongoing commitment of staff in community, hospital and residential aged care settings is critical in falls prevention. I commend these guidelines to you.



Professor Chris Baggoley
Chief Executive
Australian Commission on
Safety and Quality in Health Care
August 2009

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Evidence profile: risk of falls

Scoping question:
Do interventions to prevent falls produce any benefit or harm for older people at risk of falls?

The full ICOPE guidelines and complete set of evidence profiles are available at who.int/ageing/publications/guidelines-icope

Painting: “Wet in Wet” by Gusta van der Meer. At 75 years of age, Gusta has an artistic style that is fresh, distinctive and vibrant. A long-time lover of art, she finds that dementia is no barrier to her artistic expression. Appreciated not just for her art but also for the support and encouragement she gives to other artists with dementia, Gusta participates in a weekly art class.

Contents

Background

In older people, falls are the most prominent external cause of unintentional injury. Research suggests that one third of community-dwelling people aged over 65 years fall each year and almost half of them experience recurrent falls *(1–10)*. Incidents of falls by older people are strongly associated with hospitalization, severe functional decline, care dependency and premature admission to institutional care *(11)*. Nearly 15% of falls result in non-fatal injuries *(12)*, ranging from minor bruises and wrist lacerations to hip fractures *(4, 5, 13)*. More importantly, 23–40% of injury-related deaths in older people are attributable to falls *(9, 14)*.

The risk factors for falls are complex and multifactorial in nature. Evidence from longitudinal studies suggests strong interactions among multiple risk factors, such as age, sex, previous history of falls, chronic diseases and environmental factors *(4, 10, 14)*. Medical conditions that increase the risk of falls include: orthostatic hypotension *(6, 8, 10, 15)*, musculoskeletal disease *(3, 5, 16)*, visual impairment *(7, 17, 18)*, low systolic blood pressure, stroke, cognitive impairments, Parkinson's disease, gait disorders, balance disorders and sensory impairments *(3, 4, 7, 10, 14)*. Medications in general, and polypharmacy in particular, increase the risk of falls in older people *(19)*.

In recent years, there has been an increasing level of research and policy interest in the public health impact of falls. The effectiveness of single and complex programmes for the prevention of falls and fall-related injuries was extensively tested among older people at risk of falls *(20)*. Most intervention studies were carried out in community settings; a few were undertaken in hospitals and residential care settings *(13)*. In this document, the evidence for fall-prevention interventions undertaken for community-dwelling older people at risk of falls has been summarized to inform the recommendations provided in the full ICOPE guidelines available at who.int/ageing/publications/guidelines-icope.