Comprehensive yet Practical Approach to Falls Prevention

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Disclosure

I have no actual, potential or perceived commercial conflicts of interest with respect to this topic

- **I do not accept support from industry**

I am affiliated with the three free open access non-commercial education resources promoted in this module but have no personal gain in promoting these resources:

1. **Editor-in-chief of the Canadian Geriatrics Society CME Journal - www.geriatricsjournal.ca**
2. **Contributor to www.stopfalls.ca**
3. **Contributor to www.posturalhypotension.ca**

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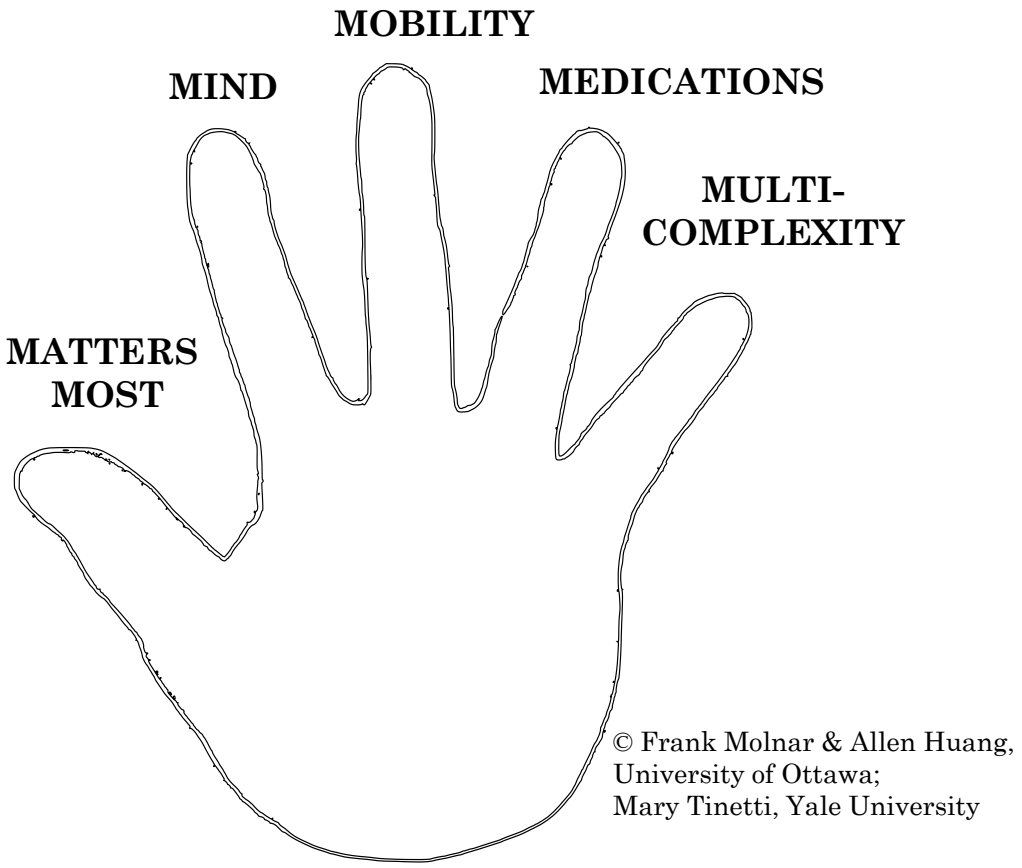
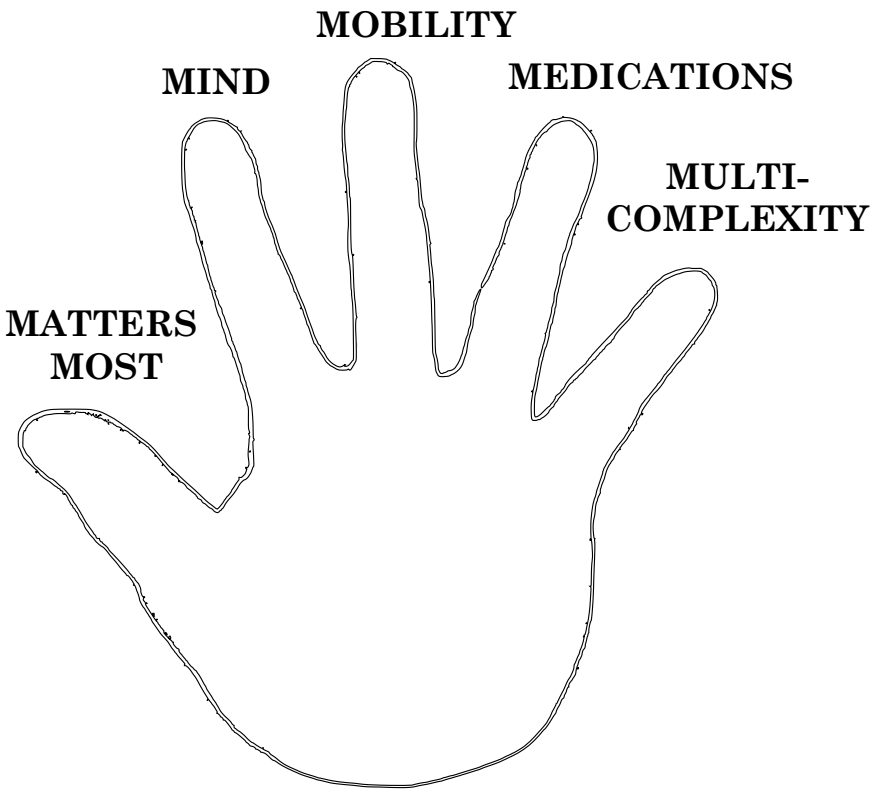
- Champlain Fall Prevention Steering Committee
- Ottawa Public Health Unit
- Eastern Ontario Health Unit
- University of Ottawa, Office of Continuing Professional Development
- Regional Geriatric Program of Eastern Ontario

FALLS within the context of The GERIATRIC 5Ms



- The Geriatric 5Ms are employed internationally to describe the areas of core expertise of the Multidisciplinary Teams that include specialists in Geriatric Medicine and Care of the Elderly Physicians.
- Of the Geriatric 5Ms, **MOBILITY** is the most clearly related to Falls Prevention.
- To understand how some of the other Geriatric 5Ms contribute to Falls Prevention let us look at them in greater detail.

WHEN GERIATRIC MEDICINE CAN HELP YOU AND YOUR PATIENTS

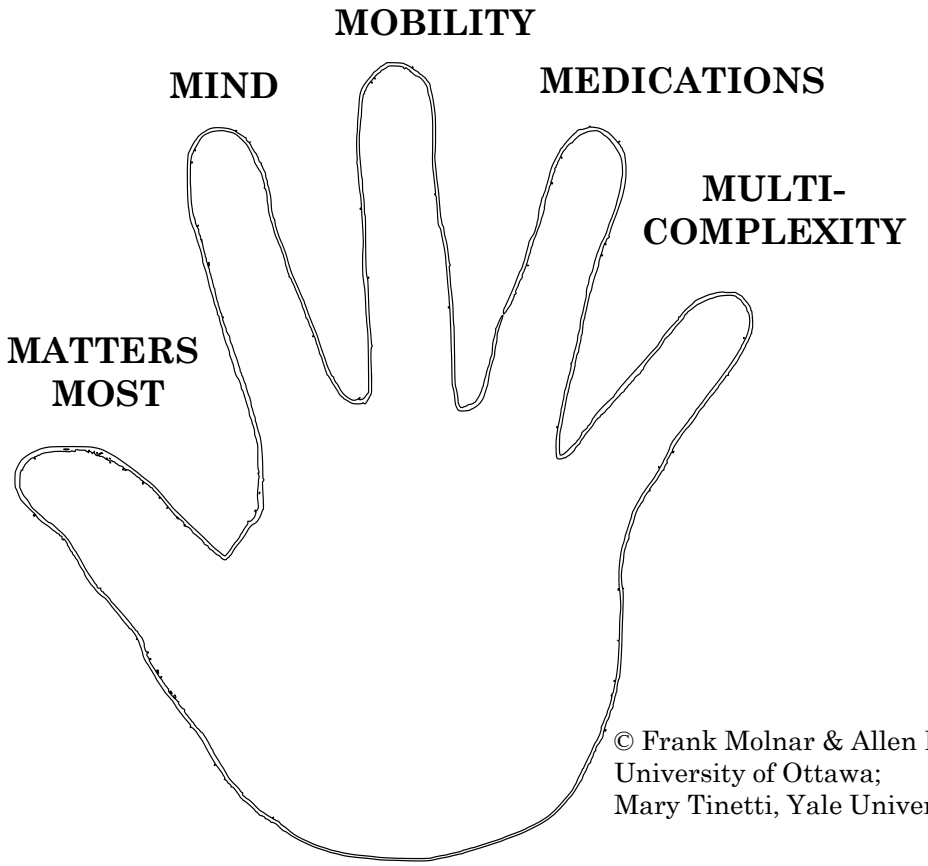


GERIATRIC 5Ms©

MIND	• Mentation • Dementia • Delirium • Depression
MOBILITY	• Impaired gait and balance • Fall injury prevention
MEDICATIONS	• Polypharmacy • De-prescribing • Optimal prescribing • Adverse medication effects and medication burden
MULTI-COMPLEXITY	• Multi-morbidity • Complex bio-psycho-social situation • Multiple interacting diseases
MATTERS MOST	• Each individual's own meaningful health outcome goals and care preferences (Goals of Care)

Other Geriatric 5Ms that are relevant to Falls

- **MIND** – cognitive impairment can contribute to falls and also mandates a more tailored individualized approach to Falls Prevention (as employed in Geriatric Day Hospitals).
- **MEDICATIONS** – This presentation will highlight medications that can cause falls and those that can help with Fall Prevention
- **MULTI-COMPLEXITY** – the multiple interacting medical conditions, social and environmental issues (Bio-psychosocial model) that can contribute to falls or that may serve as parts of a strategy to prevent falls will be reviewed.



Learning objectives

Lesson 1 - Background

Describe the importance of the Falls Prevention

1. **Incidence**
2. **Impact**
3. **Opportunity - Near Falls, Vital sign concept**

Lesson 2 - Screening for Fall Risk

Lesson 3 - Basic Assessment every patient with falls or near falls should have

Screen and clinically assess patients for *the 3PS*

1. **Postural Hypotension**
2. **Pills**
3. **Pain**

Lesson 4 - More in-depth Assessment of patients with falls or near falls

Assessing beyond the 3Ps and/or Referral to Specialized Geriatric Services

Lesson 1: Background

LEARNING OBJECTIVES:

1. To better understand the human cost of falls
2. To better understand the economic impact of falls
3. To appreciate the critical importance of near falls

Falls are extremely costly in human terms and in health care utilization

FALLS are THE leading cause of injury for seniors.

- **1/3 of all seniors fall every year – the physical and psychological consequences are often devastating including disability, chronic pain, loss of independence, depression, reduced quality of life and death (8% of fall-related hospitalizations end in death) .**
- **235,355 ED visits and 84,828 fall-related hospitalizations in Canada in 2012-13**

FALLS are costing the Health Care System BILLIONS of dollars

- **The annual cost for treating hip fractures in Canada is $1.1 billion.**

- Nikitovic, M., et al

- **Direct care costs of falls are $2 Billion per year – Canada**

- Preventing Falls: From Evidence to Improvement in Canadian Health Care 2014, Accreditation Canada

- **Total economic burden of falls per year (Direct costs for health care + Indirect costs to patients their family and the economy) is $6 Billion**

The Good News !!!

The literature suggests that as many as 1/3 of falls-related adverse outcomes are preventable

- ***Division of Aging and Seniors 2006***

Opportunity-The Vital Sign concept & Near Falls

- **The *sudden* onset of *falls* or *near falls* in someone who previously did not have a falling tendency most likely represents new or worsening underlying illness and / or the side effects of a new medication or changing doses of medications.**

Champlain Falls Strategy
How were tools developed

In 2013 the Champlain (eastern Ontario) LHIN Funded regional Falls Strategy developed a falls algorithm based on American and British Geriatric Society Clinical Practice Guidelines. The approach you will see is more detailed than that employed by the AGS/BGS and prioritized items that are more common and more reversible

A Primary Care - Specialist Care Collaboration: Tested in Primary Care and refined with Primary Care based on feedback

Adopted a standardized validated self screening tool "**Staying Independent Checklist**" to complement the algorithm - can be completed by seniors and family members in physician's offices and/or in the community.

Lesson 2: Screening for Fall Risk

LEARNING OBJECTIVES:

1. To better understand when and how to screen for Fall Risk
2. To become familiar with the Staying Independent Checklist
3. To become familiar with published standardized balance and mobility assessment tools
4. Identify and support recommendations for bone health and fall prevention

Screening for Fall Risk

MOBILITY

All older adults should be asked at least once a year about falls, frequency of falling and difficulties in gait or balance. (AGS/BGS guidelines January 2011 – Vol 59, p149.)

FALLS?

A fall in the previous year is the strongest predictor for a future fall (Delbaere, et al. 2008; ICSI 2010;)

NEAR FALLS

Do NOT forget to ask about <u>NEAR FALLS</u>

- **This is the optimal time to intervene**

= Community Health Agencies
= Primary Care Providers
= Specialized or Tertiary Care Providers

Champlain Falls Prevention Strategy: Stay on Your Feet ® Screening Algorithm

All adults 65+ should be screened for falls on an annual basis in community programs or with a Primary Care Practitioner. Consider a self-screening tool: "Staying Independent Checklist" *

Screen for fall(s) or near falls:
- Two or more falls or near falls in past year
- Fall with injury
- Difficulty with walking or balance
- Score of 4 or more on Staying Independent Checklist

Yes to any one of the screening questions?
- Obtain fall history
- Evaluate gait and use of aids if difficulty or change in walking
- Is recurrence of fall likely?

YES

NO

Single fall in past year or several near falls?

YES

Evaluate Gait: Abnormalities noted? Yes/No

YES

NO

NO

Health Promotion Key Messages:
- Encourage regular periodic health visit; annual medication, alcohol review and eye exam
- Complete a home safety checklist annually
- 150 minutes of physical activity per week – consider Champlain Exercise Programs: Champlainhealthline.ca
- Muscle and bone strengthening exercises to improve balance
- Eat 3 or more servings of calcium rich foods daily
- Take a daily vitamin D supplement

Primary Care Assessment/Interventions

1. Obtain relevant medical history, history of falls, physical examination, including cognitive and functional assessment to identify root cause.
2. Determine multifactorial fall risk by assessing: (see Guide on reverse) including:
   - a. **Postural hypotension -** suggest lying and standing BP (www.posturalhypotension.ca)
   - b. **Pills/medication:** minimize meds contributing to falls and consider pharmacy consult; optimize pain management
   - c. **Pain,** gait, balance, mobility and muscle strength (i.e.: TUG or other tests). Evaluate pain-related mobility: and/or need for mobility aids
   - d. Visual acuity
   - e. Other neurological impairments and refer appropriately
   - f. Bone health; assess calcium intake, fracture risk and nutritional review. Supplement vitamin D. Consider calcium & BMD testing. Treat as per www.osteoporosis.ca guidelines.
   - g. Feet and footwear
   - h. Environmental hazards: You Can Prevent Falls (Public Health) at www.stopfalls.ca
   - i. Depression & Behavioural Risk Factors i.e.: ETOH.

REFER

If appropriate, refer to specialized Geriatric services and/ or community programs. See www.rgpeo.com.

See referral and resource list at *stopfalls.ca*

AGS & BGS Guideline: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations/ ; **RNAO** (2017) Prevention of Fall & Fall Injuries in Older Adults: https://rnao.ca/news/updated-bpg-preventing-falls-and-reducing-injury-falls *Staying Independent Checklist available online at (www.stopfalls.ca). Health Canada http://hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php;

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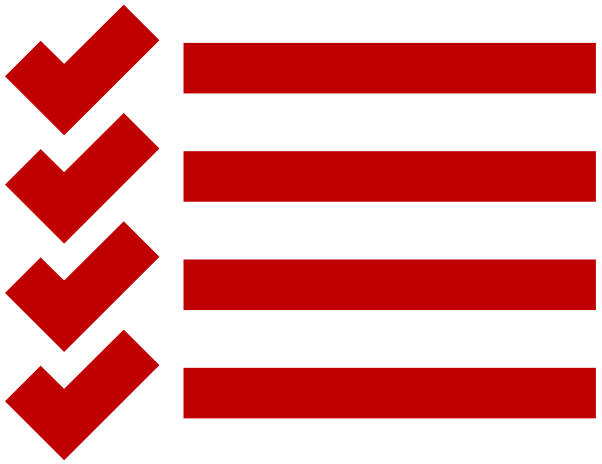
RESOURCES



www.stopfalls.ca

- Staying Independent Checklist
- Algorithm
- Links to many useful resources

Screening Tool
"Staying Independent Checklist"

Developed by VA hospitals in US, used broadly in BC.

Validated and standardized.

Useful as a self-screening tool

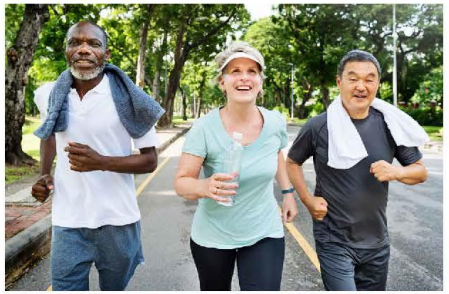
Can be completed by patients alone or with help of family in your waiting room, in their home or in other community settings

Staying Independent Checklist

Are You at Risk for Falls?

Champlain Region
Patient, Family and Caregiver Education Program

Falls are the main reason why older people lose their independence.



✔ Check your fall risk with the **Staying Independent Checklist.**

✔ Use this checklist every year and discuss changes with your doctor.

More information:
Your local public health agency, champlainhealthline.ca or stopfalls.ca

Primary Care Providers: for screening, assessment and program resources, please go to stopfalls.ca

PED 7 (03/2019)

Please circle "Yes" or "No" for each statement below.			Why it matters
Yes (2)	No (0)	I have fallen in the last 6 months.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicine can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
TOTAL _____		**Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor or health-care provider.**	

This 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 (Rubenstein et al. J Safety Res; vol. 42, n°6, 2011, p. 493-499). Adapted with permission of the authors.

Notes: _____

_____

Gait, balance, and mobility TESTS

Get Up and Go

Timed Up and Go

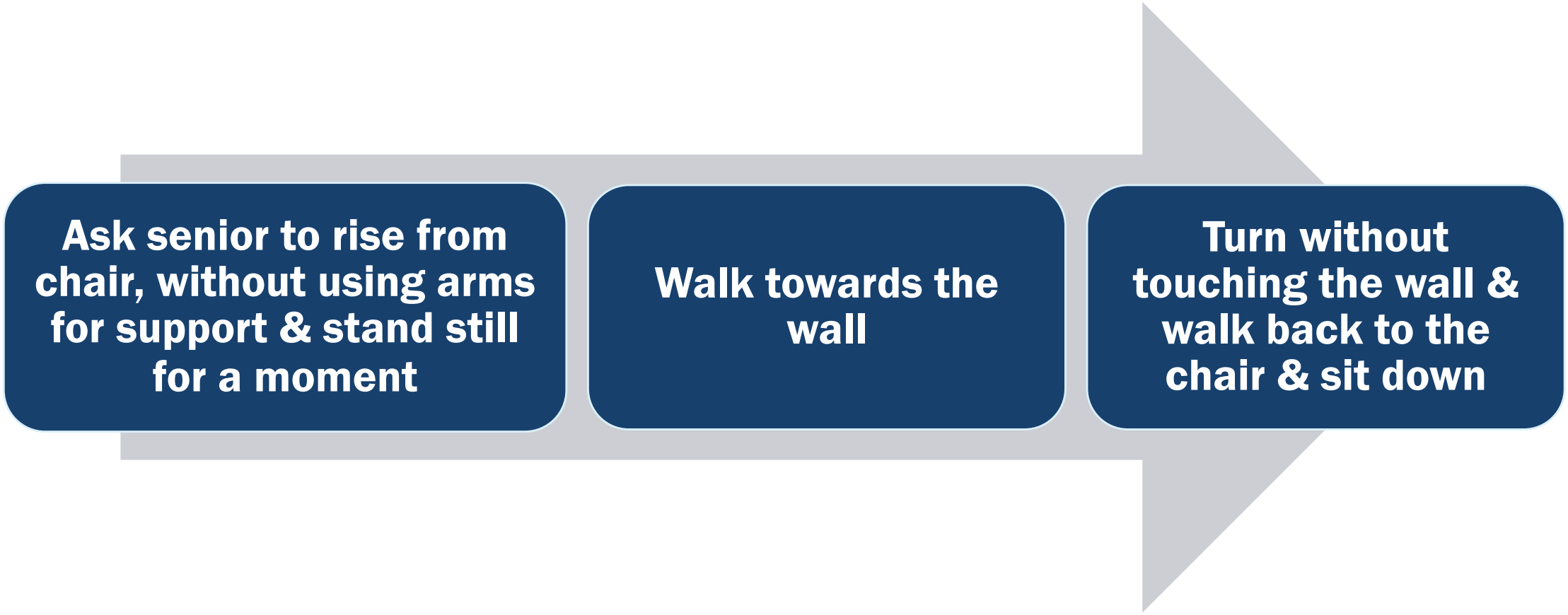
The above tests take a few minutes to set up but once set up can be used for an unlimited number of patients and only takes seconds

30 second Chair Stand Test

If office not set up for above walking tests

Get Up and Go

Place a straight-back chair 3 meters from and facing a wall (preferably a chair that does not have a seat which slants back)



GET UP AND GO CHECK LIST

Maneuver	Normal	Mild Abnormalities	Mod/Severely Abnormal
Rising from chair	No slowness (< 4sec) or hesitancy	Uses assist to begin rising	Uses assist throughout rising, leans forward
Standing	No signs of instability	Wide stance, irregular posture	Severe trunk sway (5-10 degrees), reaches out hand to balance, staggers
Turning	No hesitation, takes 2-3 foot placements to turn	Slowness, hesitation, 4-5 foot placements to turn	More than 6 foot placements to turn or cannot safely execute turn, staggers
Sitting down	Smooth decent, does not use chair for support	Slow descent, hesitates or pauses during descent	Uses chair to sit, does not control descent, nearly misses chair

TUG Timed Up and GO Test

Uses standard chair w armrests *(46cm seat height and 63-65cm armrest height)*

Tape Measure and marker for distance

3m path free of obstruction

Stop watch *(Smart Phone)*

One practice trial is permitted

Senior wears their regular footwear and uses their regular walking aids. *No physical assistance is given.*

Senior to get up out of chair, walk 3 meters, turn around, return and sit down

Instructions at www.stopfalls.ca

TUG scoring

Healthy individuals between the ages of 60-80 years complete the TUG in 10 seconds or less.

- *Steffen, Hacker and Mollinger (2002)*

Standardized cut-off scores to predict risk of falling

A cut-off score of ≥ 13.5 seconds was shown to predict falling in community-dwelling frail elders

- *Shumway-Cook et al. (2000).*

- TUG score for risk of falls is <u>not</u> valid with <u>Cognitive Impairment</u>
  - Persons with cognitive impairment and falls ("**Forgetful Fallers**") likely need referral to <u>Specialized Geriatric Services</u>

The 30-second Chair Stand Test

- **Purpose:** To assess leg strength and endurance.
- **Equipment:**
  - A chair with a straight back without arm rests (seat 17" high)
  - A stopwatch (smart phone)
- **Instructions to the patient:**
  - 1. Sit in the middle of the chair.
  - 2. Place your hands on the opposite shoulder crossed at the wrists.
  - 3. Keep your feet flat on the floor.
  - 4. Keep your back straight.
  - 5. On "**Go**", rise to a full standing position and then sit back down again.
  - 6. Repeat this for 30 seconds.
- On "**Go**", begin timing.
- Count the number of times the patient comes to a full standing position in 30 seconds.
- If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.
- Record the number of times the patient stands in 30 seconds.

The 30-second Chair Stand Test

A below average rating indicates a high risk for falls.

Below Average Scores in seconds

AGE	MEN	WOMEN
60-64	< 14	< 12
65-69	< 12	< 11
70-74	< 12	< 10
75-79	< 11	< 10
80-84	< 10	< 9
85-89	< 8	< 8
90-94	< 7	< 4

Lesson 3: Basic Assessment that every faller/near faller should have - 3Ps

LEARNING OBJECTIVES:

1. To follow the Champlain Fall Prevention Algorithm regarding basic assessment of Falls - 3Ps (Postural Hypotension, Pills, Pain & Mobility)
2. To learn the Differential Diagnosis of Postural Hypotension
3. To enhance awareness of medications that potentially contribute to falls

= Community Health Agencies
= Primary Care Providers
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- Difficulty with walking or balance
- Score of 4 or more on Staying Independent Checklist

1

Yes to any one of the screening questions?
- Obtain fall history
- Evaluate gait and use of aids if difficulty or change in walking
- Is recurrence of fall likely?

YES → 2

NO

Single fall in past year or several near falls?

YES

Evaluate Gait: Abnormalities noted? Yes/No

YES

NO

NO

Health Promotion Key Messages:
- Encourage regular periodic health visit; annual medication, alcohol review and eye exam
- Complete a home safety checklist annually
- 150 minutes of physical activity per week – consider Champlain Exercise Programs: Champlainhealthline.ca
- Muscle and bone strengthening exercises to improve balance
- Eat 3 or more servings of calcium rich foods daily
- Take a daily vitamin D supplement

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   - c. **Pain,** gait, balance, mobility and muscle strength (i.e.: TUG or other tests). Evaluate pain-related mobility: and/or need for mobility aids
   - d. Visual acuity
   - e. Other neurological impairments and refer appropriately
   - f. Bone health; assess calcium intake, fracture risk and nutritional review. Supplement vitamin D. Consider calcium & BMD testing. Treat as per www.osteoporosis.ca guidelines.
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Building a solid Foundation

History and/or description of the falls and current functioning will help with the Differential Diagnosis.

- Sometimes this allows you to move to a specific work up (e.g. vertigo, syncope) without working through this algorithm

Screening of cognition may indicate cognitive issues that confound assessment and prevention of falls.

- "**Forgetful Fallers**" consider referral to Specialized Geriatric Services (e.g. Geriatric Outreach and then on to a Geriatric Day Hospitals).

Part 2: the 3 Ps

1. Obtain relevant medical history, history of falls, physical examination, including cognitive and functional assessment to identify root cause.

2. Determine multifactorial fall risk by assessing: (see assessment checklist on reverse)

a. Postural hypotension

- Heart rate and rhythm

b. Pills/Medication: minimize meds contributing to falls and consider pharmacy consult; optimize pain management

c. Pain, gait, balance, mobility and muscle strength (i.e. TUG or other tests). Evaluate pain-related mobility: consider referral for appropriate mobility aids

OTHER FACTORS

d. Visual acuity

e. Other neurological impairments and refer appropriately

f. Bone health; assess calcium intake and fracture risk; nutritional review. Supplement vitamin D and consider calcium; if ongoing fall risk - consider bone density and treat if OP or history of fragility fractures then treat

g. Feet and footwear;

h. Environmental hazards: consider home hazard checklist at **stopfalls.ca**

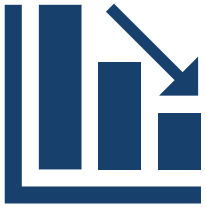
i. Depression and Behavioural Risk Factors i.e. ETOH.

Assessment - 2a: Postural Hypotension

New onset neurological symptoms 1-3 min after sitting or standing

Lightheadedness, perspiration, nausea, weakness, dizziness, headache, vision changes

Measure BP <u>and Pulse</u> after the person has been lying for at least 3-5 minutes and 1 and 3 minutes after standing



American Academy of Neurology definition: A decline of >20 mm Hg in systolic BP and/or >10 mm Hg in diastolic BP on the assumption of an upright posture with or without an increase in PR

Go to
<u>www.posturalhypotension.ca</u>

Canadian Geriatrics Society

4D-AID: A PRACTICAL APPROACH TO THE ASSESSMENT OF THE ORTHOSTATIC HYPOTENSION IN OLDER PATIENTS

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Abstract

Orthostatic Hypotension (OH) is a common geriatric syndrome, usually involving failure of one or more intrinsic mechanisms that help maintain perfusion of the brain during times of orthostatic stress. OH remains underdiagnosed despite the availability of consensus-recognized blood pressure cut-offs, largely due to lack of awareness of the prevalence of this condition in older patients as well as the fact that measurement of postural BP is not considered part of the routine physical examination.

The common causes of OH in older patients are described and the 4D-AID mnemonic, which organizes the approach to OH into a practical and easy-to-remember format for busy clinicians, is presented in the context of an illustrative case.

www.geriatricsjournal.ca - or www.posturalhypotension.ca

Assessment - 2a. Postural Hypotension

4D-AID acronym

I. Causes associated with a **compensatory tachycardia – 4Ds**

- Deconditioning
- Dysfunctional Heart
  - Myocardium (very low Left Ventricular Ejection Fraction)
  - Aortic Stenosis
- Dehydration
  - Disease
  - Dialysis (post dialysis dry weight too low)
  - Drugs
    - Diuretics
    - Anorexic Drugs – narcotics, digoxin, antibiotics, cholinesterase inhibitors

Assessment - 2a. Postural Hypotension

4D-AID acronym

I. Causes associated with a compensatory tachycardia – 4Ds … *continued*

- Drugs – 6 ANTIs
  - Anti-hypertensives
  - Anti-anginals
  - Anti-parkinsonian medications (e.g. Sinemet)
  - Anti-depressants (e.g., Anti-cholinergic tricyclics)
  - Anti-psychotics (Anti-cholinergic effect)
  - Anti-BPH (e.g. Hytrin, Flomax)

Assessment - 2a. Postural Hypotension

4D-AID acronym

II. Causes that present with ***lack*** of compensatory tachycardia - **AID**

- **A**utonomic Dysfunction
  - Diabetic autonomic neuropathy (consider if patient has peripheral neuropathy)
  - Low B12
  - Hypothyroidism
  - ETOH abuse
  - Parkinsonism (Parkinson's disease, Progressive Supranuclear Palsy, Multisystem Atrophy (e.g. Shy Drager))
- **I**diopathic (Bradbury-Eggleston)
  - Depletion of Norepinephrine from sympathetic nerve terminals
- **D**rugs
  - Beta-Blockers

The Ottawa Hospital | L'Hôpital d'Ottawa

Regional Geriatric Program of Eastern Ontario
Programme gériatrique régional de l'Est de l'Ontario

Dizzy Spells from Low Blood Pressure

When you stand up quickly and get a head rush or dizzy spell, you may have what is called "**postural hypotension.**" Your blood pressure quickly drops and you feel dizzy or light-headed. You may faint or fall down.

Here are 10 ways to control **postural hypotension**:

1. Stand up slowly, in two stages:

<u>To get out of bed:</u>
a. Sit on the side of the bed with your legs dangling for one minute.
b. Stand slowly, holding onto the edge of the bed or a stable object for one minute.

<u>To get up after sitting for a while:</u>
a. Pump your ankles up and down or straighten your knees for a few minutes.
b. Stand slowly, holding onto a stable object for one minute.

2. Have all your medicines reviewed by your pharmacist or family doctor.

3. Never bend down all the way to the floor.

4. Be aware that the symptoms of low blood pressure are the worst:
   - 30 to 60 minutes after a heavy meal. Try eating several small meals
   - One to two hours after taking blood pressure medicine.
   - When you are dehydrated (haven't had enough to drink).
   - Right after getting out of bed in the morning. Do things like shaving or blowing your hair dry at least an hour later.

5. Don't do things that make you too hot or thirsty.
   - Drink lots of fluids, but not drinks with alcohol or caffeine (such as coffee, tea, cola or energy drinks).
   - Don't take hot baths. Make sure your bath water is just warm.

6. Don't do things that make you hold your breath or bear down. Don't wear tight belts.

7. Your doctor may say you should wear special waist-high elastic stockings. You will need an order from your doctor for these stockings.

8. Your doctor may say you should raise the head of your bed onto blocks that are 8 to 10 inches high.

9. Stay active every day! Make sure you do light exercises, such as walking or leg strengthening.

10. Losing a lot of weight can make you feel worse. Tell your family doctor.

Non- pharmaceutical treatment of Hypotension - handouts for patients are available on **www.stopfalls.ca** www.posturalhypotension.ca

CGS·SCG
Canadian Geriatrics Society

CAN WE STAY ON TARGET? A REVIEW OF HYPERTENSION TREATMENT IN THE ELDERLY

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Abstract

Hypertension is a leading cause of mortality. The prevalence is reported to be between 40 and 80 percent in those aged over 80 years. There has historically been a lack of consensus concerning the identification and treatment of hypertension in the elderly, making this a research priority. Recent studies and guidelines focusing on the treatment of hypertension in elderly patients have demonstrated the benefit of treatment, but suggest higher targets. However, a comprehensive assessment of each patient's comorbidities, frailty, risk of falls, and cognition is crucial. Each of these variables has the potential to impact therapy, targets, and follow-up requirements.

Assessment - 2a:
Heart rate / rhythm + blood flow

Decreased Cardiac Output

I. Persistantly low BP

1. Very low Left Ventricular Ejection Fraction (e.g. <20% Severe MR with backward flow will lower forward LVEF)
2. Blockage of blood flow
   - Valvular
     1. aortic or mitral stenosis
     2. Subaortic stenosis
     3. Aortic dissection
   - Pulmonary Embolus

Assessment - 2a:
Heart rate / rhythm + blood flow

Decreased Cardiac Output

II. Intermittently low BP

1. **Arrhythmia**
   - **Tachycardia (inadequate time in diastole for heart to fill): VT, SVT, WPW, VF, AFIB …**
   - **Bradycardia; SSS, conduction blocks (complete heart block)**
     - **Can be precipitated by digoxin, beta-blocker (including Timoptic /Timolol eye drops), Cholinesterase Inhibitors, Ca Channel Blockers**
     - **Carotid Sinus Hypersensitivity**

Heart rate / rhythm + blood flow

VASOVAGAL - Syncope Triggered by: **increased firing of vagus nerve and slowing heart rate - thereby decreasing blood pressure**

Stress

- Any painful or unpleasant stimuli, such as:
  - Venipuncture
  - Hitting your funny bone
  - Experiencing medical procedures with local anesthesia
  - Post-surgical pain when standing up or moving too abruptly after the procedure
  - Giving or receiving a needle immunization
  - Watching someone give blood
  - Watching someone experience pain
  - Watching or experiencing medical procedures
  - Sight of blood
  - Occasions of slight discomfort, such as dental and eye examinations

Heart rate / rhythm + blood flow

VASOVAGAL - Syncope Triggered by: **increased firing of vagus nerve and slowing heart rate - thereby decreasing blood pressure**

Stress

- Sudden onset of extreme emotions
- Nausea or vomiting
- Urination ('micturition syncope') or defecation, having a bowel movement ('defecation syncope')
- Abdominal straining or 'bearing down'
- Swallowing ('swallowing syncope') or coughing ('cough syncope')
- Pressing upon certain places on the throat, sinuses, and eyes, also known as vagal reflex stimulation when performed clinically
- **WARNING: Do not jump to this Dx immediately - consider if Holter or Loop/Event Recorder needed + check Postural BP supine vs. standing**

Determine Risk through Multifactoral Assessment Part 2: the 3 Ps

1. Obtain relevant medical history, history of falls, physical examination, including cognitive and functional assessment to identify root cause.

2. Determine multifactorial fall risk by assessing: (see assessment checklist on reverse)

a. **Postural hypotension**

- Heart rate and rhythm

b. **Pills/Medication: minimize meds contributing to falls and consider pharmacy consult; optimize pain management**

c. Pain, gait, balance, mobility and muscle strength (i.e. TUG or other tests). Evaluate pain-related mobility: consider referral for appropriate mobility aids

OTHER FACTORS

d. Visual acuity
e. Other neurological impairments and refer appropriately
f. Bone health; assess calcium intake and fracture risk; nutritional review. Supplement vitamin D and consider calcium; if ongoing fall risk - consider bone density and treat if OP or history of fragility fractures then treat
g. Feet and footwear;
h. Environmental hazards: consider home hazard checklist at **stopfalls.ca**
i. Depression and Behavioural Risk Factors i.e. ETOH.

Assessment: Pills

1. Slow reaction time (drugs that cause delirium and slow mentation)
   - Narcotics, benzodiazepines, ETOH, Anticholinergics (e.g. Ditropan, Detrol, Tricyclic antidepressants).
2. Decrease cerebral perfusion (see Postural hypotension – 6 ANTIs
   - Anti-hypertensives,Anti-anginals,Anti-parkinsonian medications (e.g. sinemet),Anti-depressants (e.g., Anti-cholinergic tricyclics),Anti-psychotics (Anti-cholinergic effect),Anti-BPH (e.g. Hytrin, Flomax)
3. Cause parkinsonism
   - Antipsychotics
   - GI – Stemetil, Maxeran
4. SSRIs - Evidence that SSRIs increase fall risk
5. Vestibular Toxicity
   - Aminoglycosides, High dose loop diretics

Decrease or stop drugs/substances that can cause Delirium

- Is the patient on delirium inducing drugs

(**Do NOT forget to review ETOH use**) :

- Benzodiazepines
- Narcotics
- Alcohol – affects both cognition and balance
- Canabis
- Antihistamines
- Neuroleptics (Antipsychotics)
  - Haldol, Respiridone, Olanzepine
- Anticonvulsants (Seizure medications)
  - Dilantin (Phenytoin), Gabapentin, Pregabalin
    - Keep dilantin level at level that previously controlled seizures – if this info not available then try to keep level < 60)
- Anticholinergics (see next slides)

Anticholinergic (ACh) Risk Scale for Commonly Prescribed Medications

From Carnahan RM, et al. The Anticholinergic drug Scale as a measure of Drug-related Anticholinergic burden: Associations with Serum Anticholinergic Activity, Journal clin Pharmacol 2006;46:1481-86

Level 3: Markedly anticholinergic (ACh)	**Level 2**: ACh adverse events, dose related	**Level 1**: Potential ACh activity, evidence by receptor binding activity	
Antipsychotics Clozapine (Clozaril®) Thioridazine (Mellaril®)	**Antipsychotics** Loxapine (Loxitane®) Molindone(Moban®) Pimozide (Orap®)	**Antipsychotics** Fluphenazine (Prolixin®) Olanzapine (Zyprexa®) Perphenazine Proclorperazine (Compazine®) Trifluoperazine(Stelazine®)	**Anxiety** Alprazolam (Xanax®) Chlordiazepoxide(Librium®) Clonazepam (Rivotril®) Clorazepate(Klonopin®) Diazepam(Valium®) Flurazepam(Dalmane®) Lorazepam (Ativan®) Oxazepam(Serax®) Temazepam(Restoril®) Triazolam(Halcion®) **Antibiotics/Antivirals** Amantadine(Symmetrel®) Ampicillin Clindamycin Gentamicin Vancomycin **Analgesics** Codeine Fentanyl Morphine Oxycodone Tramadol(Ultram®) **Corticosteroids** Dexamethasone Methylprednisolone(Medrol®) Prednisone Triamcinolone
Antidepressant Amitriptyline (Elavil®) Desipramine(Norpramine®) Doxepin(Sinequan®) Imipramine(Tofranil®) Nortriptyline(Aventyl®) Protriptyline(Vivactil®) Trimipramine(Surmontil®)		**Antidepressant** Fluoxetine(Prozac®) Paroxetine(Paxil®) Sertaline(Zoloft®) Fluvoxamine(Luvox®) Phenelzine(Nardil®)	
Antihistamine Brompheniramine Carbinoxamine Chlorpheniramine Clemastine(Tavist®) Diphenhydramine(Benadryl®) Hydroxazine(Atarax®) Promethazine(Phenergan®)	**Antihistamine** Cyproheptadine(Periactin®)		
	Cardiovascular Disopyramide(Norpace®)	**Cardiovascular** Captopril(Capoten®) Chlorthalidone(Hygroton®) Digoxin(Lanoxin®) Diltiazem(Cardizem®) Dipyridamole(Persantine®) Furosemide (Lasix®) Hydralazine (Apresoline®) Isosorbide(Isordil®, Imdur®) Nifedipine(Adalat®) Triamterene(Dyazide®) Warfarin(Coumadin®)	
Muscle Relaxants Orphenadrine(Norflex®)	**Muscle Relaxants** Cyclobenzaprine(Flexeril®)		
Vertigo Dimenhydrinate (Gravol®) Meclizine(Antivert®) Scopolamine(Transderm V®) **GI Antispasmotics** Dicyclomine(Bentyl®) Hyoscyamine(Levsin®) Propantheline **Parkinson Disease** Procyclidine(Kemidrin®) Benztropine(Cogentin®) Trihexphenidyl(Artane®) **Urinary Antispasmotics** Oxybutinin (Ditropan®) Tolterodine(Detrol®) Flavoxate(Urispas®)			
	H2 Antagonist Cimetidine(Tagamet®) Ranitidine(Zantac®)	**H2 Antagonist** Famotidine(Pepcid®) Nizatidine(Axid®)	
	Anticonvulsants Carbamazepine(Tegretol®) Oxcarbazine(Trileptal®)	**Anticonvulsants** Divalproex(Epival®) Valproic Acid (Depakene®)	

How can one sort through this daunting list of medications?

- Look for a **time-based relationship**
  - Falls or confusion worsened after starting this medication (or increasing the dose).
- Ask Pharmacist to review drugs that may be contributing to falls and/or impairing cognition (theoretical perspective) and then apply a practical lens based on personal knowledge of patient to develop a tailored personalized plan for medication adjustments https://canadiangeriatrics.ca/wp-content/uploads/2018/10/5_Frank-Molnar-Article-Formatted-FinalV2.pdf

Canadian Geriatrics Society

INTERVENTIONS TO REDUCE MEDICATION-RELATED FALLS

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Introduction

Falls are a common event in older adults. It is estimated that, in Canada, between 20 to 30% of seniors fall each year, and half of those who fall will have a repeat fall the next year.[1,2] The rate of falls is higher with increasing age, with those aged 75 years and over being at highest risk.[2–4] The perception of what constitutes a fall varies with the individual and can be interpreted as anything from unsteadiness or imbalance to an event that causes injury or results in seeking medical attention.[5] However, the officially accepted definition by The World Health Organization (WHO), American Geriatric Society (AGS), and British Geriatric Society (BGS), is "an event which results in a person coming to rest inadvertently on the ground or floor or other lower level."[6]

Falls are not benign events. They are the leading mechanism of injury causing death in the elderly population, as well as the leading cause of nonfatal injuries and traumatic hospital admissions in the elderly.[7] Five to 10 percent of falls result in serious injury, including fracture, head injury, or laceration.[8] Ninety-five percent of hip fractures are caused by falls. Of those patients who suffer a hip fracture, 20% will die within one year and another 20% are newly institutionalized.[9,10] In addition to injury, fear of falling can result in decreased activity, social isolation, and further functional decline.[11]

Falls occur across the spectrum of settings, including the community, home, seniors' homes, long-term care, and acute care. Falls are more frequent in acute care, with three times as many seniors falling in hospital, compared to the community, although rates are variable based on the type of unit and reason for admission.[12,13]

Falls and near falls are known to be multifactorial in nature. Medications are one of the most common modifiable risk factors attributed to falls. The AGS practice guidelines state, "Patients who have fallen should have their medications reviewed and altered or stopped as appropriate in light of their risk of future falls. Particular attention to medication reduction should be given to older persons taking four or more medications and to those taking psychotropic drugs."[14] Ideally, it is important to target both patients who have had falls as well as those experiencing near falls, in order to prevent future falls and the adverse outcomes associated with falling.

This article reviews the common medications implicated in falls in the elderly and barriers to stopping these medications and provides clinicians with direction and tips on how to manage a complex senior with multiple comorbidities and on many medications who is falling.

Determine Risk through Multifactoral Assessment Part 2: the 3 Ps

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2. Determine multifactorial fall risk by assessing: (see assessment checklist on reverse)

a. **Postural hypotension**
   - Heart rate and rhythm

b. Pills/Medication: minimize meds contributing to falls and consider pharmacy consult; optimize pain management

c. **Pain, gait, balance, mobility and muscle strength (i.e. TUG or other tests). Evaluate pain-related mobility: consider referral for appropriate mobility aids**

OTHER FACTORS

d. Visual acuity
e. Other neurological impairments and refer appropriately
f. Bone health; assess calcium intake and fracture risk; nutritional review. Supplement vitamin D and consider calcium; if ongoing fall risk - consider bone density and treat if OP or history of fragility fractures then treat
g. Feet and footwear;
h. Environmental hazards: consider home hazard checklist at **stopfalls.ca**
i. Depression and Behavioural Risk Factors i.e. ETOH.

Resources: deprescribing.org

https://deprescribing.org/resources/deprescribing-guidelines-algorithms/

deprescribing algorithms for:

- Antipsychotics
- Antihyperglycemics
- Benzodiazepine receptor agonists

Canadian Geriatrics Society

MANAGEMENT OF DIABETES AMONG FRAIL OLDER ADULTS

Jacqueline McMillan, MD, *University of Calgary*

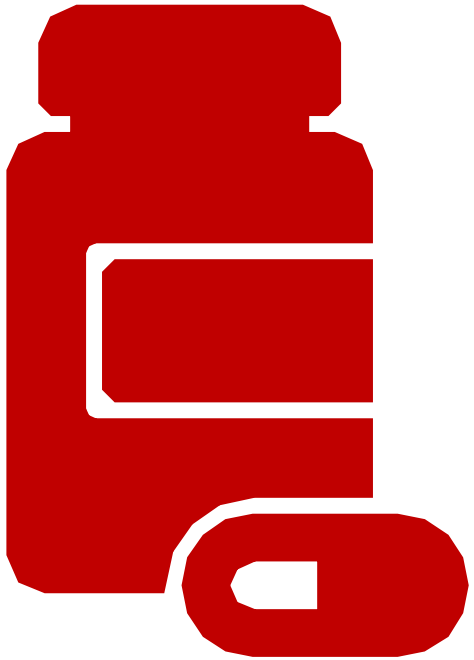
Jayna M. Holroyd-Leduc, MD ***FRCPC,*** *University of Calgary*

Abstract

Diabetes in frail older adults has been associated with increased mortality, reduced functional status, and an increased risk of institutionalization. These individuals have double the mortality of age-matched controls with the most frequent cause of death attributable to macrovascular complications. Furthermore, they have worse quality of life and use more health care resources compared with younger adults. A diagnosis of diabetes is one of the strongest predictors of functional decline in older adults. Older adults with diabetes often have comorbidities, functional impairments, and geriatric syndromes leading to frailty. The combination of diabetes and frailty produces a complex challenge.

This article will address diabetes care in an aging population, and the discussion will be based on current evidence and relevant clinical practice guidelines.

Pain, mobility, gait and strength



Optimize Medications for Pain;

1) Tylenol arthritis, long acting 650 mg TID straight
OR
Tylenol Extra Strength; 500 mg q 4 h straight while awake
(Maximum Tylenol dose – 3 grams / 24 hours)

2) Topical Analgesics if 1 or 2 discrete superficial sites of pain
(i.e. Topical Voltaren, topical Lidocaine)

3) NSAIDS if safe;
no heart failure, renal dysfunction, or elevated BP

4) Narcotics if safe;
watch for delirium, anorexia with weight loss, constipation

Pain, mobility, gait and strength

Do NOT forget that Physiotherapy and Occupational Therapy can make major contributions to pain control that can allow us to decrease medication use via approaches including but not restricted to:

[1] compensatory strategies,

[2] positioning,

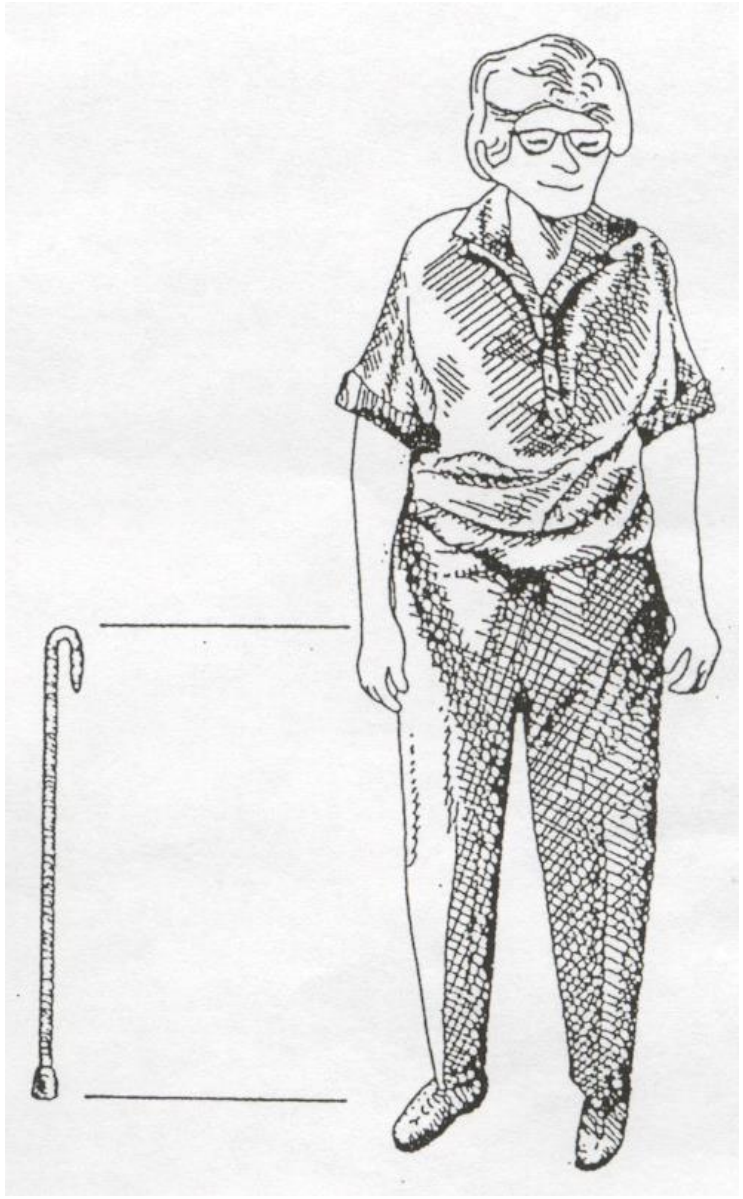
[3] exercise – balance and strengthening,

[4] offloading joints and improving base of support with appropriate mobility aids

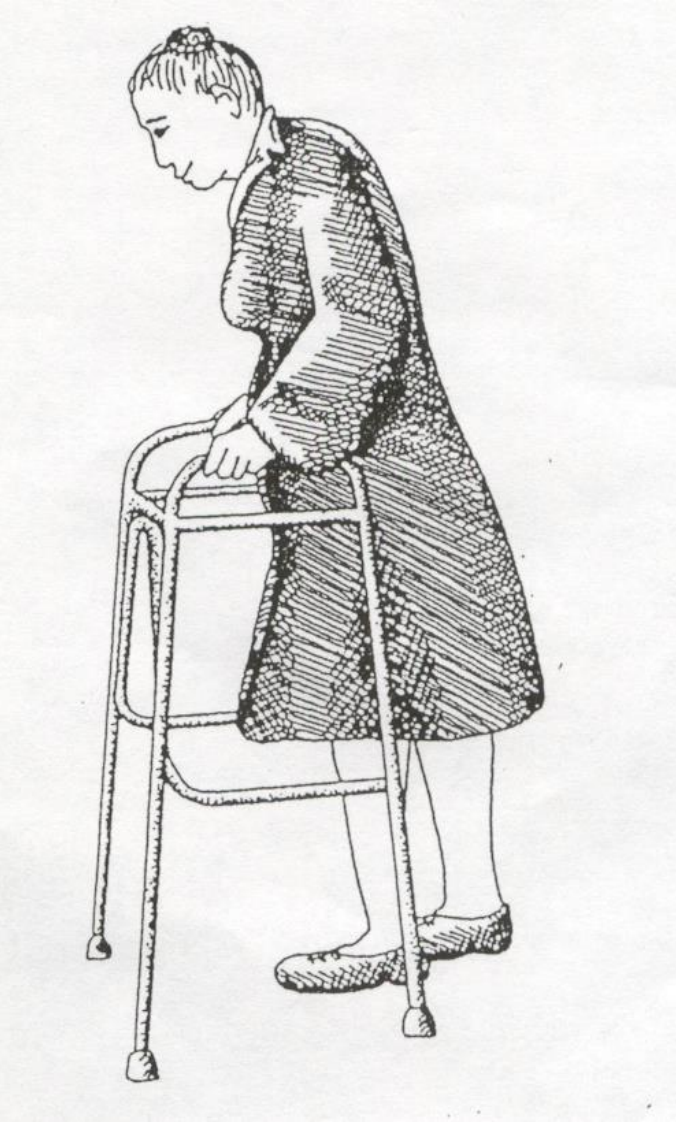
MOBILITY AIDS - Cane

- ✓Correct height
- ✓Correct use
- ✓In good repair

1. Cane height: wrist crease
   If Kyphosis consult Physiotherapy
2. Does bottom of cane have rubber tip
3. Are they using the cane on the correct side



MOBILITY AIDS - Walker



✓Correct height

✓Correct use

✓In good repair

1. Walker height: 1-2 inches higher than wrist crease

   If Kyphosis consult Physiotherapy

2. Walker seat height: 1-2 inches higher than knee crease

Gait, balance, and mobility TESTS

Consider combined assessment

Get Up and Go

- qualitative observation grid

Timed Up and Go

- Quantitative measurement of speed

* Once set up, takes very little time to administer

30 second Chair Stand Test

- If office not set up for above walking tests

Lesson 4: In-depth Assessment - beyond the 3Ps

Learning objectives:

1. To better understand the other causes of falls (beyond Postural Hypotension, Pills and Pain)
2. To review Public Health and Osteoporosis Canada Bone Health recommendations
3. To understand when and how to refer to **Specialized Geriatric Services**
4. Become aware of resources at www.stopfalls.ca and www.geriatricsjournal.ca

= Community Health Agencies
= Primary Care Providers
= Specialized or Tertiary Care Providers

Champlain Falls Prevention Strategy: Stay on Your Feet ® Screening Algorithm

All adults 65+ should be screened for falls on an annual basis in community programs or with a Primary Care Practitioner. Consider a self-screening tool: "Staying Independent Checklist" *

Screen for fall(s) or near falls:
- Two or more falls or near falls in past year
- Fall with injury
- Difficulty with walking or balance
- Score of 4 or more on Staying Independent Checklist

1

Yes to any one of the screening questions?
- Obtain fall history
- Evaluate gait and use of aids if difficulty or change in walking
- Is recurrence of fall likely?

YES

NO

2

Single fall in past year or several near falls?

YES

NO

Evaluate Gait: Abnormalities noted? Yes/No

YES

NO

3

Health Promotion Key Messages:
- Encourage regular periodic health visit; annual medication, alcohol review and eye exam
- Complete a home safety checklist annually
- 150 minutes of physical activity per week – consider Champlain Exercise Programs: Champlainhealthline.ca
- Muscle and bone strengthening exercises to improve balance
- Eat 3 or more servings of calcium rich foods daily
- Take a daily vitamin D supplement

Primary Care Assessment/Interventions

1. Obtain relevant medical history, history of falls, physical examination, including cognitive and functional assessment to identify root cause.
2. Determine multifactorial fall risk by assessing: (see Guide on reverse) including:

   a. **Postural hypotension -** suggest lying and standing BP (www.posturalhypotension.ca)

   b. **Pills/medication:** minimize meds contributing to falls and consider pharmacy consult; optimize pain management

   c. **Pain,** gait, balance, mobility and muscle strength (i.e.: TUG or other tests). Evaluate pain-related mobility: and/or need for mobility aids

   d. Visual acuity

   e. Other neurological impairments and refer appropriately

   f. Bone health; assess calcium intake, fracture risk and nutritional review. Supplement vitamin D. Consider calcium & BMD testing. Treat as per www.osteoporosis.ca guidelines.

   g. Feet and footwear

   h. Environmental hazards: You Can Prevent Falls (Public Health) at www.stopfalls.ca

   i. Depression & Behavioural Risk Factors i.e : ETOH.

REFER

If appropriate, refer to specialized Geriatric services and/ or community programs. See www.rgpeo.com.

See referral and resource list at *stopfalls.ca*

AGS & BGS Guideline: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations/ ; **RNAO** (2017) Prevention of Fall & Fall Injuries in Older Adults: https://rnao.ca/news/updated-bpg-preventing-falls-and-reducing-injury-falls *Staying Independent Checklist available online at (www.stopfalls.ca). Health Canada http://hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php;

Document reviewed / revised 2018

Assessment – 2d. Visual Acuity

- Sudden vision changes with inadequate time to compensate
- Cognitive problems interfering with inability to compensate for poor vision.
- Severe vision problems beyond ability to compensate
- DDX:
  1. Glaucoma (lose peripheral vision – tunnel vision)
  2. Cataracts
  3. **A**ge **R**elated **M**acular **D**egeneration (ARMD)
     - lose **c**entral **c**olor vision
     - Sudden change in vision in patient with ARMD is an ophthalmologic emergency – call ophthalmologist ASAP to have them determine if patient has a growing retinal tear and needs laser treatment on an urgent basis.

Assessment - 2e: Other Neurological Impairments

(list is illustrative, not exhaustive)

- 3Ds - Dementia, Delirium, Depression
  - Apraxia, decreased compensation, slow mentation
- Stroke, cerebellar disease, NPH, Seizures
- subdural hematoma, subarachnoid bleed (cause and effect of falls)
- Spinal stenosis, Myasthenia Gravis, ALS
- Myopathy, myositis (not strictly neuro but do not forget)
- Peripheral or Autonomic neuropathy
  - ETOH, DM, B12 …
- Parkinsonism (next slide)

Assessment - 2e: Other Neurological Impairments

DDx of Parkinsonism (Parkinson's Plus) - consider referral to Neurology

1. Parkinson's Disease (idiopathic parkinsonism)
   - **TRAP**: Resting **T**remor, Cogwheel **R**igidity, **A**kinesia / bradikinesia
   - (slowness), **P**ostural Instability (decreased balance, falls)
2. Vascular parkinsonism
   - TRAP, limited to no response to Parkinson's meds, basal ganglia strokes
3. Drugs (antipsychotics, GI drugs [stemetil, maxeran])
4. Lewy Body disease (referral to Specialized Geriatric Services)
   - Dementia, Longstanding Hallucinations, Longstanding Fluctuation
5. Progressive Supranuclear Palsy (PSP)
   - Loss of downward gaze and then all eye movements
   - depression, anxiety, psychosis, dementia
6. Late Alzheimer's
7. Multisystem atrophies (MSA – multiple neurologic symptoms)
   1. Shy-dragger, OPCD, SND etc.

Assessment - 2e:
Other Neurological Impairments

Vertebrobasilar Insufficiency

Provoked by head or neck movement

Seconds to minutes

Other brainstem symptoms

- Diplopia
- Dysarthria
- Facial numbness
- Ataxia

Reduced vertebral artery flow on doppler or angiography

Treatment:

- Behaviour modification

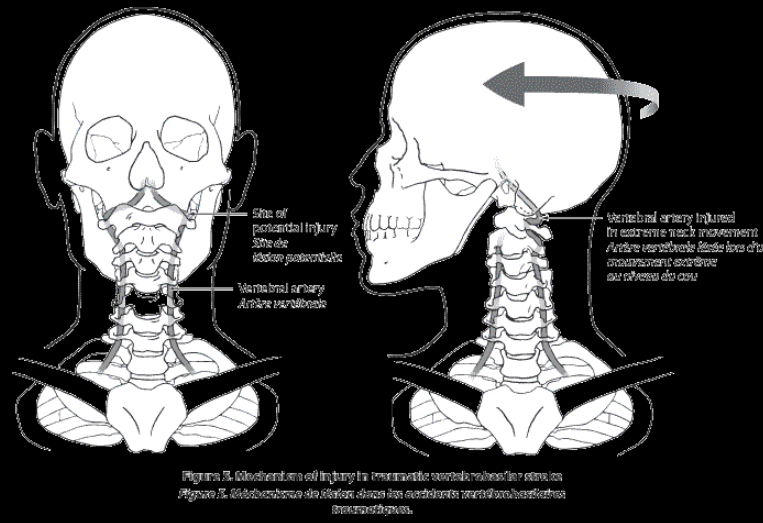


Figure 2. Mechanism of injury in traumatic vertebrobasilar stroke
Figure 2. Mécanisme de lésion dans les accidents vertébrobasilaires traumatiques.

Assessment - 2f: Bone Health; nutritional review

- Currently, Ottawa Public Health recommends daily for adults 51 years and older:
  - 3 or more servings of Milk and Alternatives
  - Adequate amounts of calcium and vitamin D rich foods
  - A vitamin D supplement of 400 IU
- RCTs and meta-analyses have demonstrated a beneficial effect of Vitamin D in fall prevention distinct from its effect on bone health
  - Possibly via muscle strength and neuromuscular function.
  - Recommended article; THE ROLE OF VITAMIN D IN BONE METABOLISM AND BEYOND (Martha Spencer, Roger Wong)
    - www.geriatricsjournal.ca
    - http://canadiangeriatrics.ca/wp-content/uploads/2016/11/The-Role-of-Vitamin-D-in-Bone-Metabolism-and-Beyond.pdf

Ottawa Public Health

Calcium from food and/or supplement:

- Women
  - 51-70 yrs : **1200 mg**
  - 71yrs + : **1200 mg**
- Men
  - 51-70 yrs : **1000 mg**
  - 71yrs+ : **1200 mg**

Vit D from food and supplement, (♀ and ♂)

- **51-70 yrs : 600 IU**
- **71yrs + : 800 IU**
- **Recommendations include a supplement for all adults 50 yrs + of 400 IU**
- **Upper maximum intake: 4000 IU**

Bone health and nutrition

Ottawa Public Health; Includes link to resources for seniors.

http://documents.ottawa.ca/sites/documents.ottawa.ca/files/documents/issue_89_en.pdf

Osteoporosis Canada - calcium calculator

http://www.osteoporosis.ca/osteoporosis-and-you/nutrition/calculate-my-calcium/

Assessment - 2g: Feet and Footwear

Don't forget to take off the socks and shoes to assess the feet. The feet reveal a great deal about a person. Neglected feet can be a marker of many things including inability to reach feet to care for them, depression, neglect, cognitive impairment…

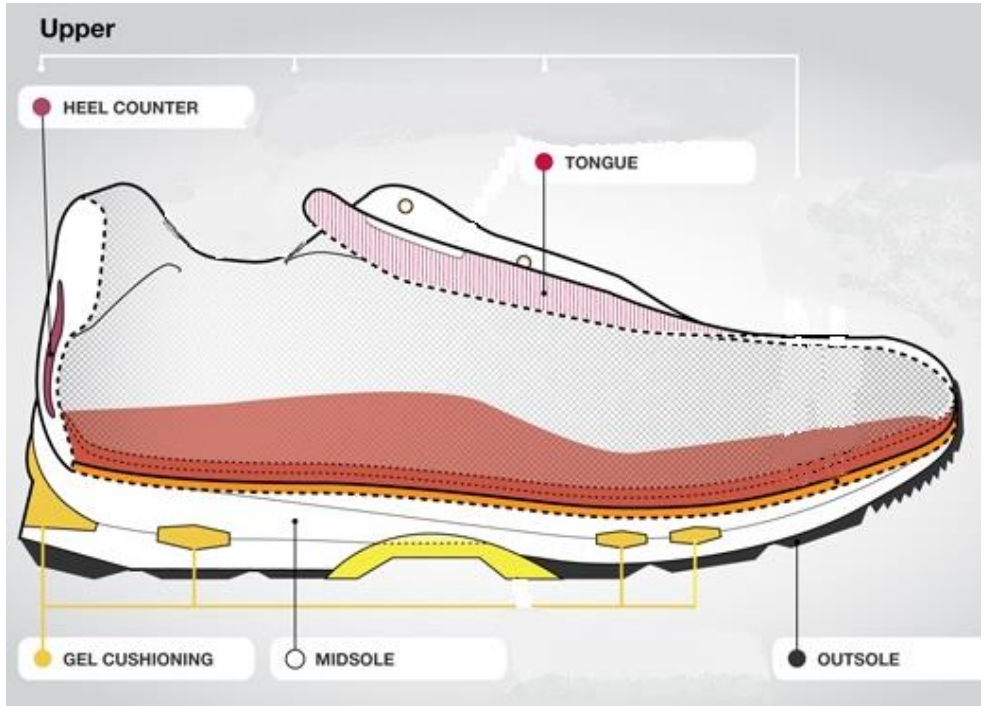
Examine for

- Moderate or severe bunions
- Toe / nail deformities
- Ulcers
- Loss of position sense (proprioception)
  - Filament test, vibration sensation may be more sensitive but less specific
- Edema
- Pain on weight bearing
- Deformity with altered biomechanics

Assessment - 2g: Feet and Footwear

Footwear – Extrinsic factors are not part of the traditional medical examination but critical to assess in patient with falls and near falls

Ask to see shoes they were wearing when they fell (if possible) or at least get a description of the shoes. Look for:



- Poor fit (foot moving in shoe)
- Lack of support (not laced or buckled)
- High heels
  - Note: some women develop Achilles tendon shortening with chronic high heel use and have difficulty transitioning to lower shoes
- Small surface area contact with floor
- Smooth slippery sole (lack of functional anti-slip surface by design or if worn out)

Assessment - 2h
Environmental hazards

- **Difficult to assess in the office**
- **Consider referral for in-home OT assessment**
- **Alternatively can ask patient and/or family to gather information via the Home Hazard checklist -** Available free through Public Health Agency of Canada
  - http://www.phac-aspc.gc.ca/seniors-aines/publications/public/injury-blessure/prevent-eviter/index-eng.php

Assessment - 2h
Environmental hazards

Home hazards **(may ask family members to take pictures with smart phones)**

- Poorly lit stairs, ramps or doorways
- Stairs with irregular step width or height
- Stairs without handrails or marking on the edges
- Slippery floors, throw rugs, loose carpets
- Raised sills in door jams
- Clutter
- Low toilet seats
- Lack of grab bars in bathrooms
- Poorly maintained or improperly used mobility aids and equipment

2i. Mood and Behavior

Depression can impact on compensatory strategies as well as management of other chronic diseases (e.g. Diabetes, CHF)

Review for risk taking behavior

ETOH use (never hurts to ask again – check with family / caregiver)

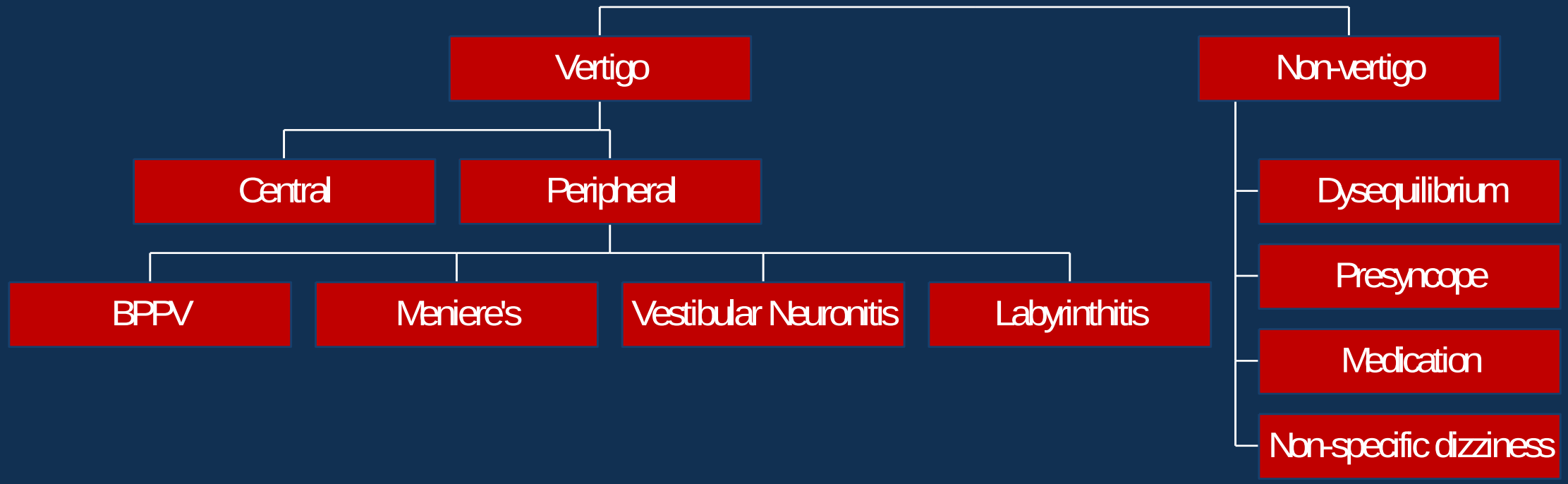
Not using mobility aid as prescribed

Standing on ladders / furniture after advised not to

Vertigo - not covered in this module

Refer to Neurology or ENT if

- Persistent
- CNS finding(s) that cannot be attributed to inner ear (symptoms aside from vertigo, tinnitus, decreased hearing, nausea) suggesting central cause



While assessing and addressing cause(s) of near falls and falls

Consider ordering a **Bone Mineral Density** if you feel there is a risk of fall occurrence / recurrence and if you feel their life expectancy merits treatment of osteoporosis

= Community Health Agencies
= Primary Care Providers
= Specialized or Tertiary Care Providers

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- **Fall with injury**
- **Difficulty with walking or balance**
- **Score of 4 or more on Staying Independent Checklist**

1

Yes to any one of the screening questions?
- **Obtain fall history**
- **Evaluate gait and use of aids if difficulty or change in walking**

Is recurrence of fall likely?

2

YES → 3

NO

Single fall in past year or several near falls?

YES

Evaluate Gait: Abnormalities noted? Yes/No

YES

NO

NO

Health Promotion Key Messages:
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2. Determine multifactorial fall risk by assessing: (see Guide on reverse) including:

a. Postural hypotension- • suggest lying and standing BP See www.posturalhypotension.ca
b. Pills/medication: minimize meds contributing to falls and consider pharmacy consult; optimize pain management
c. Pain, gait, balance, mobility and muscle strength (ie

d. Visual acuity
e. Other neurological impairments and refer appropriately
f. Bone health; assess calcium intake & fracture risk; nutritional review. Supplement vitamin D and consider calcium; if ongoing fall risk - consider bone density and treat if OP or history of fragility fractures then treat
g. Feet and footwear;
h. Environmental hazards: You Can Prevent Falls (Public Health) at stopfalls.ca
i. Depression & Behavioural Risk Factors ie ETOH.

4

REFER

If appropriate, refer to specialized Geriatric services and/ or community programs. See www.rgpeo.com.

See referral and resource list at *stopfalls.ca*

AGS & BGS Guideline: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations/ ; **RNAO** (2017) Prevention of Fall & Fall Injuries in Older Adults: https://rnao.ca/news/updated-bpg-preventing-falls-and-reducing-injury-falls *Staying Independent Checklist available online at (www.stopfalls.ca). Health Canada http://hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php;

Document reviewed / revised 2018

= Community Health Agencies
= Primary Care Providers
= Specialized or Tertiary Care Providers

Champlain Falls Prevention Strategy: Stay on Your Feet ® Screening Algorithm

All adults 65+ should be screened for falls on an annual basis in community programs or with a Primary Care Practitioner. Consider a self-screening tool: "Staying Independent Checklist" *

Screen for fall(s) or near falls:
- Two or more falls or near falls in past year
- Fall with injury
- Difficulty with walking or balance
- Score of 4 or more on Staying Independent Checklist

1

Yes to any one of the screening questions?
- Obtain fall history
- Evaluate gait and use of aids if difficulty or change in walking
- Is recurrence of fall likely?

YES

NO

2

Single fall in past year or several near falls?

YES

NO

Evaluate Gait:
Abnormalities noted?
Yes/No

YES

NO

3

Health Promotion Key Messages:
- Encourage regular periodic health visit; annual medication, alcohol review and eye exam
- Complete a home safety checklist annually
- 150 minutes of physical activity per week – consider Champlain Exercise Programs: Champlainhealthline.ca
- Muscle and bone strengthening exercises to improve balance
- Eat 3 or more servings of calcium rich foods daily
- Take a daily vitamin D supplement

Primary Care Assessment/Interventions

1. Obtain relevant medical history, history of falls, physical examination, including cognitive and functional assessment to identify root cause.
2. Determine multifactorial fall risk by assessing: (see Guide on reverse) including:
   - a. **Postural hypotension -** suggest lying and standing BP (www.posturalhypotension.ca)
   - b. **Pills/medication:** minimize meds contributing to falls and consider pharmacy consult; optimize pain management
   - c. **Pain,** gait, balance, mobility and muscle strength (i.e.: TUG or other tests). Evaluate pain-related mobility: and/or need for mobility aids
   - d. Visual acuity
   - e. Other neurological impairments and refer appropriately
   - f. Bone health; assess calcium intake, fracture risk and nutritional review. Supplement vitamin D. Consider calcium & BMD testing. Treat as per www.osteoporosis.ca guidelines.
   - g. Feet and footwear
   - h. Environmental hazards: You Can Prevent Falls (Public Health) at www.stopfalls.ca
   - i. Depression & Behavioural Risk Factors i.e.: ETOH.

REFER

4

If appropriate, refer to specialized Geriatric services and/ or community programs. See www.rgpeo.com.

See referral and resource list at *stopfalls.ca*

AGS & BGS Guideline: http://www.americangeriatrics.org/health_care_professionals/clinical_practice/clinical_guidelines_recommendations/prevention_of_falls_summary_of_recommendations/ ; **RNAO** (2017) Prevention of Fall & Fall Injuries in Older Adults: https://rnao.ca/news/updated-bpg-preventing-falls-and-reducing-injury-falls *Staying Independent Checklist available online at (www.stopfalls.ca). Health Canada http://hc-sc.gc.ca/fn-an/food-guide-aliment/index-eng.php;

Document reviewed / revised 2018

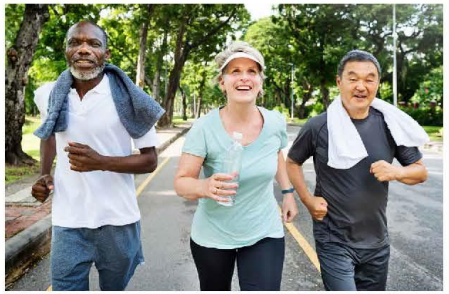
Staying Independent Checklist

Review all previous screening tests

Are You at Risk for Falls?

Champlain Region
Patient, Family and Caregiver Education Program

Falls are the main reason why older people lose their independence.



✔ Check your fall risk with the **Staying Independent Checklist.**

✔ Use this checklist every year and discuss changes with your doctor.

More information:
Your local public health agency, champlainhealthline.ca or stopfalls.ca

Primary Care Providers: for screening, assessment and program resources, please go to stopfalls.ca

PED 7 (03/2019)

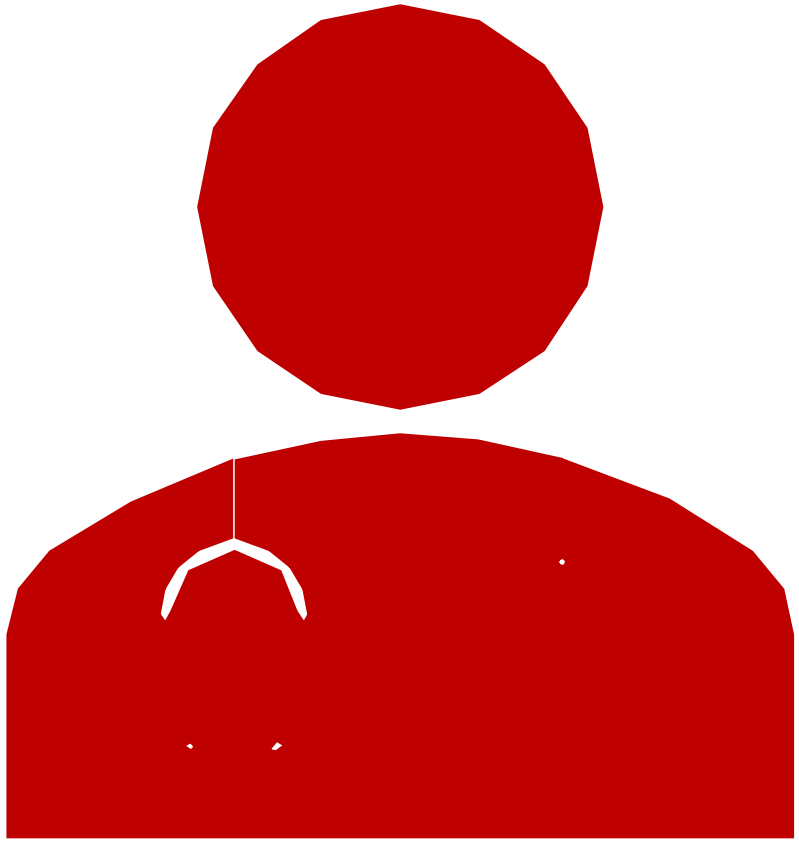
Please circle "Yes" or "No" for each statement below.			Why it matters
Yes (2)	No (0)	I have fallen in the last 6 months.	People who have fallen once are likely to fall again.
Yes (2)	No (0)	I use or have been advised to use a cane or walker to get around safely.	People who have been advised to use a cane or walker may already be more likely to fall.
Yes (1)	No (0)	Sometimes I feel unsteady when I am walking.	Unsteadiness or needing support while walking are signs of poor balance.
Yes (1)	No (0)	I steady myself by holding onto furniture when walking at home.	This is also a sign of poor balance.
Yes (1)	No (0)	I am worried about falling.	People who are worried about falling are more likely to fall.
Yes (1)	No (0)	I need to push with my hands to stand up from a chair.	This is a sign of weak leg muscles, a major reason for falling.
Yes (1)	No (0)	I have some trouble stepping up onto a curb.	This is also a sign of weak leg muscles.
Yes (1)	No (0)	I often have to rush to the toilet.	Rushing to the bathroom, especially at night, increases your chance of falling.
Yes (1)	No (0)	I have lost some feeling in my feet.	Numbness in your feet can cause stumbles and lead to falls.
Yes (1)	No (0)	I take medicine that sometimes makes me feel light-headed or more tired than usual.	Side effects from medicine can sometimes increase your chance of falling.
Yes (1)	No (0)	I take medicine to help me sleep or improve my mood.	These medicines can sometimes increase your chance of falling.
Yes (1)	No (0)	I often feel sad or depressed.	Symptoms of depression, such as not feeling well or feeling slowed down, are linked to falls.
TOTAL _____		**Add up the number of points for each "yes" answer. If you scored 4 points or more, you may be at risk for falling. Discuss this brochure with your doctor or health-care provider.**	

This 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 (Rubenstein et al. J Safety Res; vol. 42, n°6, 2011, p. 493-499). Adapted with permission of the authors.

Notes: _____

_____

When to refer to Specialized Geriatric Services



- If you require assistance with evaluation of fall risk
- If you require assistance with treatment
- If your patient is falling and has cognitive impairment “Forgetful Fallers”

Where / How to refer

Specialized Geriatric Services (SGS) experts in mobility/falls assessment and treatment.

Geriatric Assessment Outreach Teams (GAOT)

Geriatric Day Hospitals

Champlain (eastern Ontario in or near Ottawa) Region

Geriatric Assessment Outreach Teams (GAOT) at www.rgpeo.com

Select Health Care Practitioners – RGPEO Specialized Geriatric Services – in the Community (Outpatient) www.rgpeo.com/en/health-care-practitioners/rgpeo-specialized-geriatric-services/in-the-community-(out-patient).aspx

In other areas of Ontario

Regional Geriatric Programs (RGPs) of Ontario www.rgps.on.ca

Areas where RGPs are not available – search *falls, geriatrics, city*

Learn more

STOPFALLS.CA

POSTURALHYPOTENSION.CA

GERIATRICSJOURNAL.CA