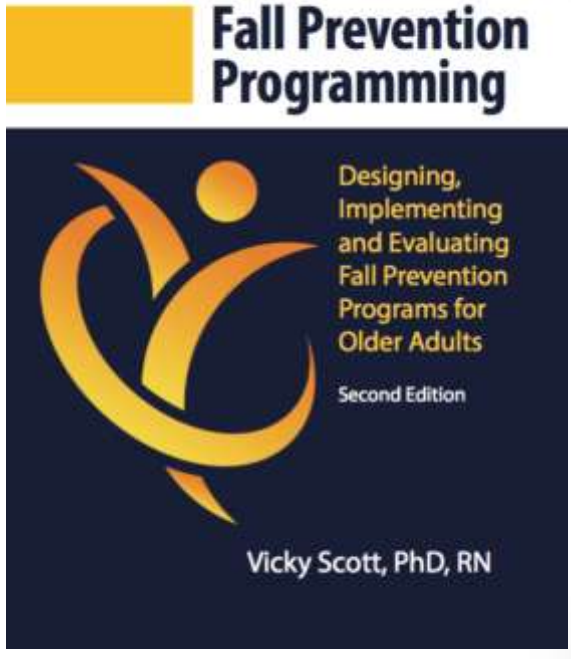
Primary Screening and Ongoing Assessment, Diagnosis and Interventions

Vicky Scott, RN, PhD
Clinical Professor, School of Population and Public Health
Faculty of Medicine, University of British Columbia



Interventions

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Best practices

Combine sound research evidence with practice experience and clinical judgment

Levels of Evidence

Categories of Evidence		Strength of Recommendation	
Class I:	Evidence from a systematic review and or meta-analysis of randomized, control trials.	**A:**	Directly based on Class I evidence.
Class II:	Evidence from at least one properly designed randomized controlled trial.	**B:**	Directly based on Class II evidence or extrapolated recommendation from Class I evidence.
Class III:	Evidence from comparative studies correlation studies and case-controlled studies.	**C:**	Directly based on Class III evidence or extrapolated recommendation from Class I or II evidence.
Class IV:	Evidence from case studies or expert committee reports or opinions.	**D:**	Directly based on Class IV evidence or extrapolated recommendation from Class I, II or III evidence.

Adapted from the Clinical practice guideline for the assessment and prevention of falls in older people, commissioned by the National Institute for Clinical Excellence (NICE)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Community Interventions

- **Multifactoria**l risk assessment and management (<u>for cognitively intact persons</u>) (A), including:
  - Environmental assessment and modification for at high risk of falling (A)
  - Exercise with balance training (A)
  - Appropriate use of assistive devices, especially an anti-slip shoe device worn in icy conditions (A)
  - Medication review and modification, particularly psychotropics (A)
  - Management of visual concerns (A)
  - Treatment of medical conditions, eye disease and cardiovascular disorders (A)
  - Treatment of postural hypotension (B)

Community Interventions cont.

- **Single** factor interventions:
  - Appropriate use of assistive devices (A)
  - Home hazard assessment and modification among individuals with **high risk of falling** (A)
  - Multiple component exercise: group or home-based (A)
  - Strength and balance training, such as Tai Chi (A)
  - Timely treatment of cataracts (A)
  - Review and modification of medications, particularly psychotropics (A)
  - Vitamin D supplements in people with low levels (A)
  - Cardiac pacing (A)
  - Treatment of medical conditions including visual problems, cardiovascular disorders (B)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Residential

- **Multifactoria**l interventions:
  - Environmental modification (B)
  - Appropriate use of assistive equipment B)
  - Review and modification of medications, particularly psychotropics (B)
  - Safer transferring techniques and ambulation (B)
  - Creation of a multidisciplinary team (B)
  - Completion of a general medical assessment (B)
  - Creation of an individual fall prevention plan (B)
  - Including a comprehensive program of interventions (B)
  - Staff committed to fall prevention (B)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Residential cont.

- **Single** interventions:
  - Vitamin D and calcium supplementation (B)
  - Review and modification of medications, particularly psychotropics (B)
  - Use of fall diaries kept by nursing staff to record falls, contributing factors and recommendations for preventing future falls (B)
  - Multidisciplinary assessment in the immediate post-fall period (e.g., 7 days) (B)
  - Increased supervision amongst frailest residents (B)
  - Volunteer Companions for those at highest fall risk (C)
  - Wearing shoes at all times (C)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Residential cont.

- Interventions to prevent fall-related injuries
  - Use of Hip protectors (A). Fracture rates are only successfully reduced when hip protectors with proven effectiveness are used and correct fitted.
  - Installation of compliant sub-floor materials and covering (C)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Acute Care

- Interventions targeting multiple risk factors and supervised exercise for long stay patients (A)
- Vitamin D and calcium supplements (B)
- Use of alternatives to restraints (B)
- Patient education (B)
- Review and modifications of medications (C)
- Hospital discharge risk assessment and planning (C)
- Delirium avoidance programs (C)
- Installation of compliant sub-floor materials and covering (C)
- Wearable sensors or chair and bed alarms (D)

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Overarching Recommendation

- The most effective fall prevention interventions are those that are tailored to specific populations and based on assessed risk of individuals or groups

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Defining a fall

"Unintentionally coming to rest on the ground, floor or other lower level with or without an injury."

Screening and Assessment

Fall Risk Screening & Assessment

There are two main goals when conducting a fall risk screening or assessment:

1. To identify who is at risk and why and, if needed, to refer them for further assessment and risk reduction
2. To tailor interventions to individual risk profiles with specific targets for prevention

When selecting a tool consider…

- Your purpose
- Reflects evidence of known risk factors
- Evidence of reliability and validity
- Potential for acceptance
- Training requirement
- Ease of use
- Cost

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Primary Screening Examples

- Quick Screening Tools
  - Staying Independent Screen
  - Scott Fall Risk Assessment
  - Post-fall Reports
  - Environmental Checklists

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Staying Independent

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

Are you at risk?

For more information on exercise and falls prevention programs, contact Champlain CCAC (613 310-2222 or champlainhealthline.ca)

This initiative is sponsored by the Champlain Local Health Integration Network and the four regional health units.

Ontario

EOHU BSEO HEALTH UNIT

Renfrew County and District Health Unit

Check Your Risk for Falling

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 practitioner.	

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°5. 2011. p. 493-499). Adapted with permission of the authors.

NOTES

Primary Care Providers: For more information about the Champlain Falls Prevention Strategy, the Staying Independent Checklist, and the clinical algorithm go to: stopfalls.ca

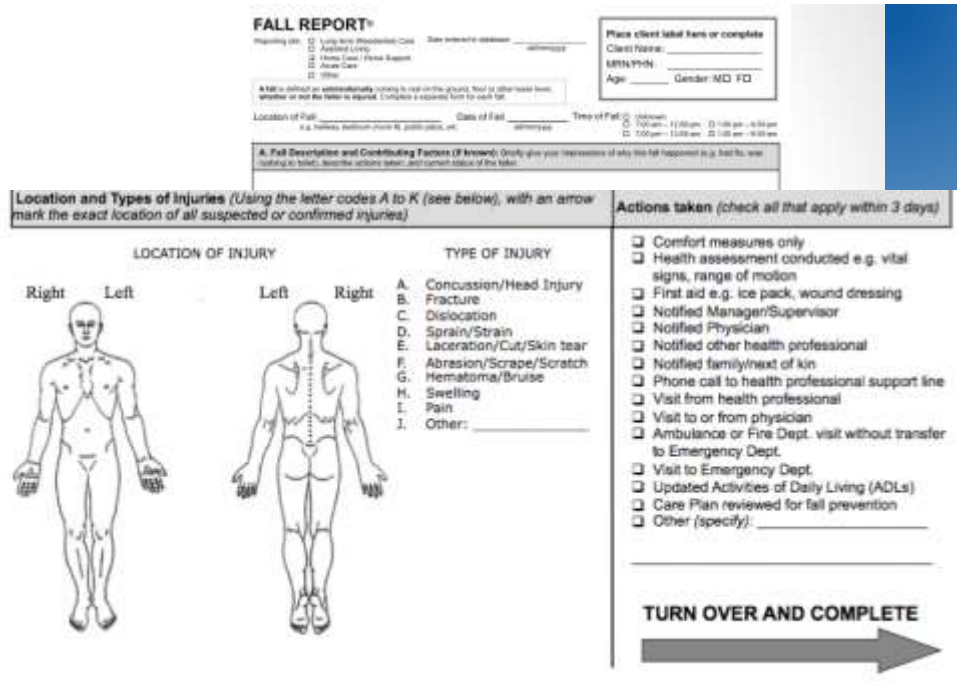
RISK FACTOR PRESENT	CIRCLE	POSSIBLE STRATEGIES
More than 2 falls in previous 6 months and/or clinical judgment of high risk	6	Review circumstances of prior falls from fall reports.
Attempts to unsafely get out of bed/chair due to lack of understanding, agitation or restlessness	3	If confused with impaired mobility, assess for bed alarm / mats / monitoring.
Impaired mobility, balance or gait	2	Refer for PT/OT assessment / recommend use of hip protectors.
Altered mental state (e.g., delirium, brain injury, dementia, depression)	2	Monitor daily for change in mental status and ability to remember and follow instructions.
Move to facility in past month	1	Assess for fall risk / assess for mobility.
Dizziness or vertigo	1	Check for orthostatic hypotension, dehydration and vestibular problems. Refer for medical assessment.
Generalized weakness (see back page for indicators)	1	Assess for insomnia, pain, malnutrition, hypoxia or disuse. Refer for medical assessment.
Alterations in urinary and bowel elimination (frequency, urgency, incontinence, etc.)	1	Bladder / bowel routine / bedside commode or light if unsafe at night.
More than 7 medications	1	Regular review of medications, especially for narcotics, anti-depressants, anti-psychotics, diuretics.
Any prescribed benzodiazepine or psychotropic medications	1	Refer to pharmacist/physician for reduced dose or alternatives to benzodiazepine or psychotropic meds.
Immobile (unable to walk or stand unaided)	-5	Precautions for falling from bed or chair. Plan for fracture risk related to osteoporosis.
TOTAL		

Risk Assessment Total Score **see reverse for instructions on how to complete each item and actions to reduce risk**

Score <7 – universal precautions for falls, plus a plan in place to reduce impact of each identified risk above

Score ≥ 7 – deemed to be at high risk for falls

Score >12 – deemed to be at high risk for falls and unsafe ambulation



FALL REPORT©

Place client label here or complete

Client Name: _____

MRN/PHN: _____

Age: _____ Gender: MD FD

Location of Fall: _____ Date of Fall: _____ Time of Fall:

A. Fall Description and Contributing Factors (if known): Briefly give your impressions of why this fall happened (e.g. bed fix, was nothing to blame), describe actions taken, and current status of the fallen

Location and Types of Injuries *(Using the letter codes A to K (see below), with an arrow mark the exact location of all suspected or confirmed injuries)*

LOCATION OF INJURY

Right Left Left Right

TYPE OF INJURY

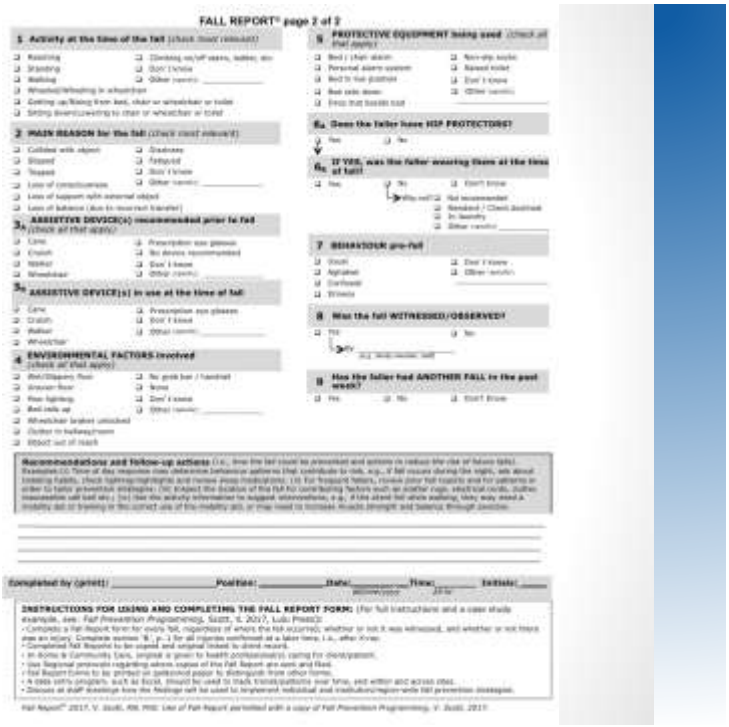
A. Concussion/Head Injury
B. Fracture
C. Dislocation
D. Sprain/Strain
E. Laceration/Cut/Skin tear
F. Abrasion/Scrape/Scratch
G. Hematoma/Bruise
H. Swelling
I. Pain
J. Other: _____

Actions taken *(check all that apply within 3 days)*

- ❑ Comfort measures only
- ❑ Health assessment conducted e.g. vital signs, range of motion
- ❑ First aid e.g. ice pack, wound dressing
- ❑ Notified Manager/Supervisor
- ❑ Notified Physician
- ❑ Notified other health professional
- ❑ Notified family/next of kin
- ❑ Phone call to health professional support line
- ❑ Visit from health professional
- ❑ Visit to or from physician
- ❑ Ambulance or Fire Dept. visit without transfer to Emergency Dept.
- ❑ Visit to Emergency Dept.
- ❑ Updated Activities of Daily Living (ADLs)
- ❑ Care Plan reviewed for fall prevention
- ❑ Other *(specify)*: _____

TURN OVER AND COMPLETE

Fall Report© 2017, Vicky Scott, RN, PhD. Use of Fall Report permitted with a copy of Fall Prevention Programming, 2017 by V. Scott.



FALL REPORT© page 2 of 3

1 Activity at the time of the fall (check most relevant)

2 MAIN REASON for the fall (check most relevant)

3a ASSISTIVE DEVICE(s) recommended prior to fall (check all that apply)

3b ASSISTIVE DEVICE(s) in use at the time of fall

4 ENVIRONMENTAL FACTORS involved (check all that apply)

5 PROTECTIVE EQUIPMENT being used (check all that apply)

6a Does the faller have HIP PROTECTORS?

6b IF YES, was the faller wearing them at the time of fall?

7 BEHAVIOUR pre-fall

8 Was the fall WITNESSED/OBSERVED?

9 Has the faller had ANOTHER FALL in the past week?

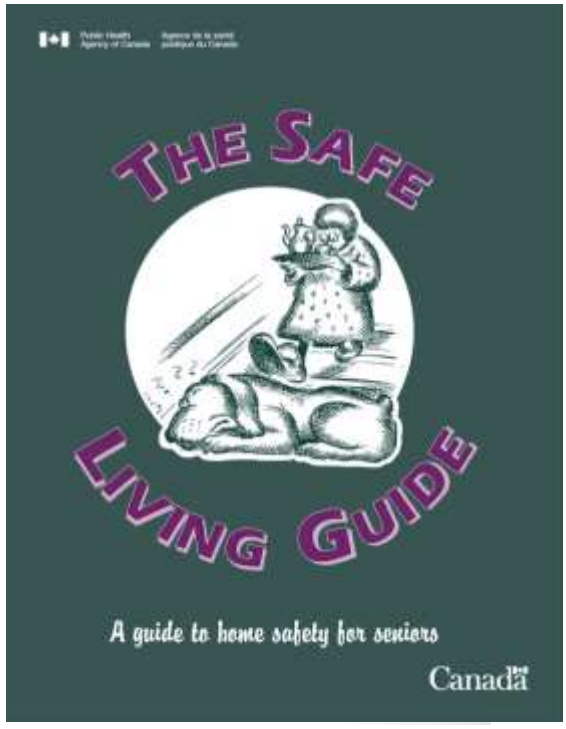
Recommendations and follow-up actions

Completed by (print): Position: Date: Time: Initials:

INSTRUCTIONS FOR USING AND COMPLETING THE FALL REPORT FORM: (For full instructions and a case study example, see: Fall Prevention Programming, Scott, V. 2017, Lulu Press):

Fall Report© 2017, V. Scott, RN, MSc. Use of Fall Report permitted with a copy of Fall Prevention Programming, V. Scott, 2017.

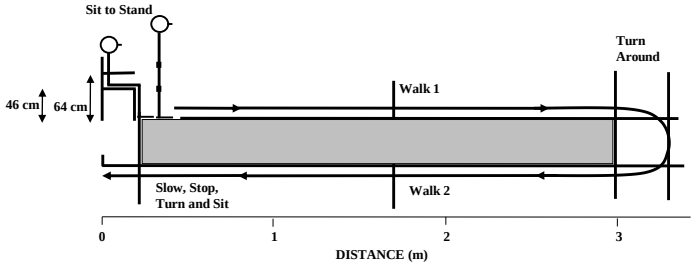
Environmental Checklist Example



Ongoing Assessment Examples

- Quick Mobility Assessments
- BERG Balance Test
- Physiological Profile Assessment

Timed-Up-And-Go (TUG)



30-Second Chair Stand test

- Sit in the middle of the chair
- Place you hands on the opposite upper chest crossed at the wrist
- Keep your feet flat on the floor and your back straight
- On "Ready begin", rise to a full standing position and then sit back down again without dropping
- Repeat this for 30 seconds

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

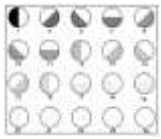
Four-Stage Balance Test

Hold each position for 10 seconds.

Only move on if successful at each stage.

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Physiological Profile Assessment (PPA)



Contrast Sensitivity

Lower Limb Strength

Proprioception

Reaction Time

Postural Sway

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

BERG Balance test

Name: _____ Date: _____
Location: _____ Rater: _____

ITEM DESCRIPTION - SCORE (0-4)

1. Sitting to standing _____
2. Standing unsupported _____
3. Sitting unsupported _____
4. Standing to sitting _____
5. Transfers _____
6. Standing with eyes closed _____
7. Standing with feet together _____
8. Reaching forward with outstretched arm _____
9. Retrieving object from floor _____
10. Turning to look behind _____
11. Turning 360 degrees _____
12. Placing alternate foot on stool _____
13. Standing with one foot in front _____
14. Standing on one foot _____

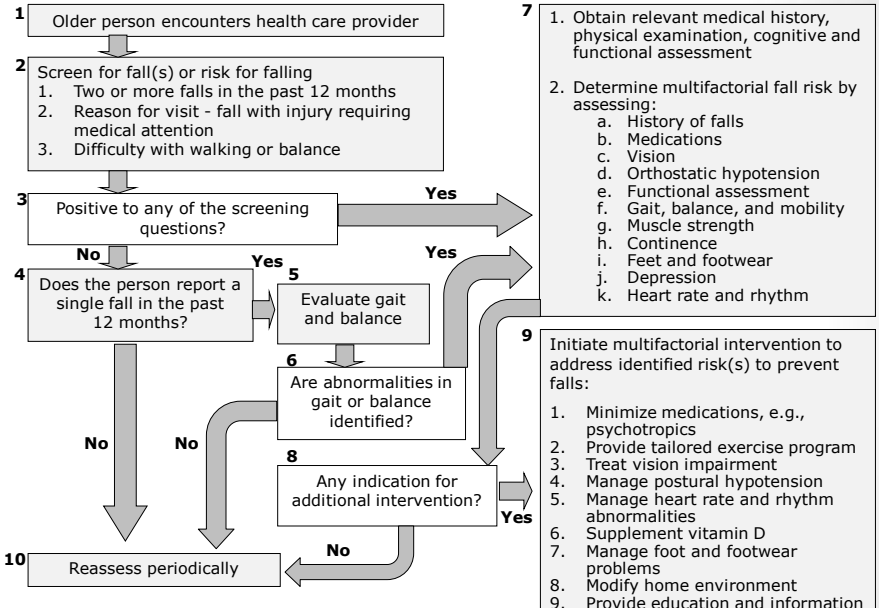
Total _____

Diagnosis and Interventions

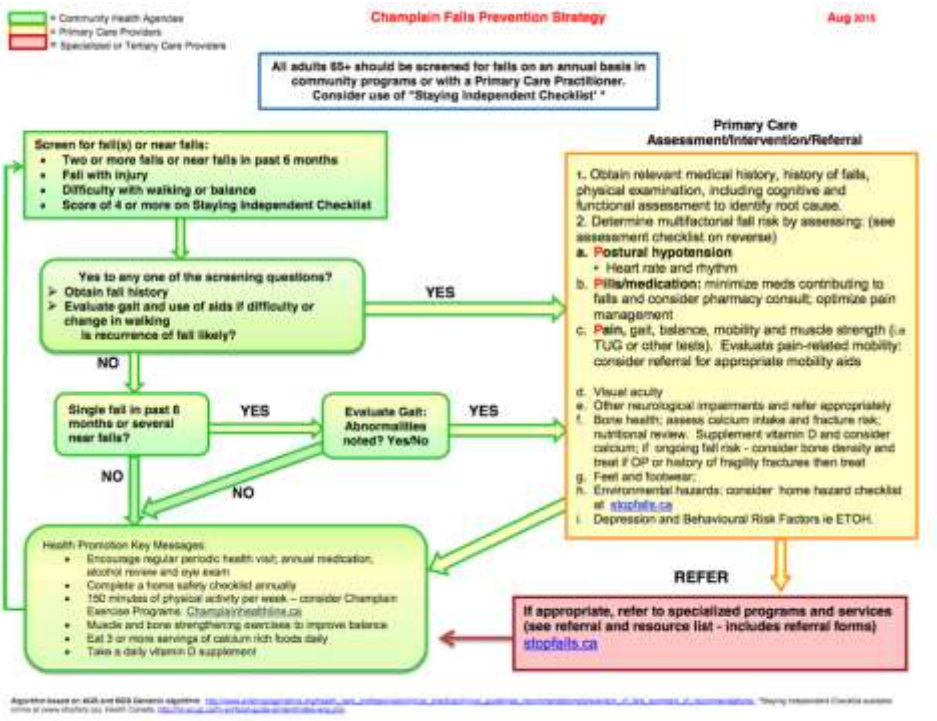
- American Geriatric Association Guidelines
- Fracture Prevention

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

ALGORITHM SUMMARIZING THE CLINICAL ASSESSMENT AND MANAGEMENT OF FALLS



[1]From: Fall Prevention Programming, V. Scott, 2017©. Reproduced with permission from the American Geriatrics Society, 2010.



Obtain medical history, physical examination, cognitive and functional assessment

- History of falls
- Medications
- Vision
- Orthostatic hypotension
- Functional assessment
- Gait, balance, and mobility
- Muscle strength
- Continence
- Feet and footwear
- Depression

Courtesy of Veterans Affairs Canada and John Sylvester

Initiate multifactorial intervention to address identified risk(s) to prevent falls:

- Minimize medications, e.g., psychotropics
- Provide tailored exercise program
- Treat vision impairment
- Manage postural hypotension
- Manage heart rate and rhythm abnormalities
- Supplement vitamin D
- Manage foot and footwear problems
- Modify home environment
- Provide education and information on fall prevention and chronic disease management

Medication Categories Associated with Fall Risk

- Psychotropics
- Sedative/Hypnotics
- Antidepressants
- Anti-psychotics
- Antihypertensive

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Promote Good Sleep Habits

- Regular schedule of bed and wake times
- Regular physical activity
- Exposure to bright light during the day
- Avoid heavy meals or large amount of liquid
- Avoid caffeine, nicotine and alcohol
- Create relaxing sleep environment
- Remove distractions, such as pets on the bed

"I probably shouldn't wake him. He needs the exercise."

8 Tai Chi Forms Shown to Reduce Falls


Hold the Ball


Pet the Wild Horse's Mane


Single Whip


Wave Hands Like Clouds


Repulse the Monkey


Brush the Knees


Fair Lady Works the Shuttles


Grab the Bird's Tail

Scott, V. (2015). SAIL Program. www.sailfallprevention.ca

Bone Health and Fracture Reduction

- Vitamin D and calcium supplements, avoiding smoking and caffeine
- Bone-enhancing medications for those with osteoporosis
- In facilities: compliant flooring
- Wearing hip protectors
- Exercise: Best exercises for osteoporosis are weight bearing, resistance, balance training and graded dynamic stresses on the bones

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Hip Protectors

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

41


JAMDA

journal homepage: www.jamda.com

Review Article

Facilitators of and Barriers to Hip Protector Acceptance and Adherence in Long-term Care Facilities: A Systematic Review

Alexandra M.B. Korall BSc[a,1], Fabio Feldman PhD[a,b,e,1], Vicky J. Scott RN, PhD[c,d], Michael Wasdell MA[e], Roslyn Gillan OT, MSc[f], Donna Ross RN, MA[f], Tracey Thompson-Franson OT, MRSc[f], Pet-Ming Leung PT, MSc[b], Lisa Lin BSc[a]

www.agingisacontactsport.com

Osteoporosis Canada

http://www.osteoporosis.ca/wp-content/uploads/FLS-TOOLKIT.pdf

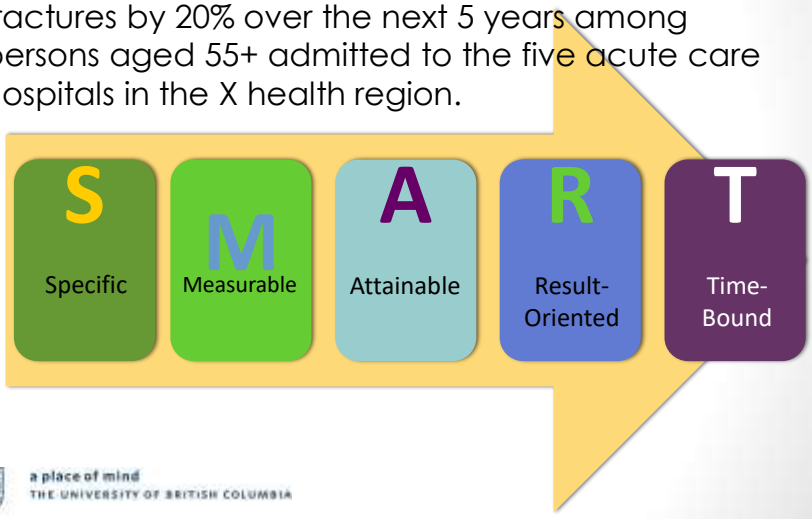
Compliant Flooring

BEEEACH Prevention Model

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

A SMART Objective

Example: To reduce the number of in-patient hip fractures by 20% over the next 5 years among persons aged 55+ admitted to the five acute care hospitals in the X health region.



a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Video of a fall

- !!Elderly woman in AL fall.wmv

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Systems Assessment Needed When:

- What is known is not what is adopted
- What is adopted is not used with fidelity
- What is adopted is not sustained for long enough
- What is adopted is not used on a scale that would have a broad impact

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Interventions Alone are Not Enough

		IMPLEMENTATION	
		Effective	NOT Effective
INTERVENTION	Effective	Actual Benefits	Inconsistent; Not Sustainable; Poor outcomes
	NOT Effective	Poor outcomes	Poor outcomes; Sometimes harmful

nirn

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Journal of Safety Research
Volume 42, Issue 6, December 2011, Pages 419-422

Theory

When evidence is not enough: The challenge of implementing fall prevention strategies ☆

Dean Fiasen [a, A, R], Vicky Scott [b], Karen Blase [a], Sandra Naoom [a], Lori Wagar [c]

Show more

https://doi.org/10.1016/j.jsr.2011.10.002

Get rights and content

Abstract

Problem

As the evidence-based movement has advanced in public health, changes in public health practices have lagged far behind creating a science to service gap. For example, science has produced effective falls prevention interventions for older adults. It now is clearer WHAT needs to be done to reduce injury and death related to falls. However, issues have arisen regarding HOW to assure the full and effective uses of evidence-based programs in practice.

Summary

Lessons learned from the science and practice of implementation provide guidance for how to change practices by developing new competencies, how to change organizations to support evidence-based practices, and how to change public health systems to align system functions with desired practices. The combination of practice, organization, and system change likely will produce the public health benefits that are the promise of evidence-based falls prevention interventions.

1. Need

- Significance of the issue to your organization
- Perception of need by management, staff and recipients
- Data indicating need

2. Fit with Current Initiatives

- Organization or community priorities
- Organizational structures
- Community values

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

3. Resources

- Staffing and training
- Coaching and supervision, with audits
- Equipment and technology
- Admin support
- Data systems

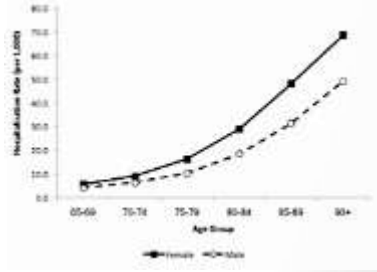
a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Human Resource Competency Drivers

- **Selection**: of staff with the required knowledge, basic skills and abilities
- **Training**: of staff on new skills and practices and when, how and with whom they will be used
- **Coaching**: of staff to oversee the practice and mastering of new skills on the job. Performance assessments are key.

4. Evidence

- Outcome – is it worth it?
- Fidelity of data
- Cost effectiveness
- Number/quality of studies
- Population similarities
- Efficacy or effectiveness



5. Readiness

- Qualified leader
- Subject expert
- Mature site to observe
- Operational definitions of essential functions
- Implementation operationalized

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

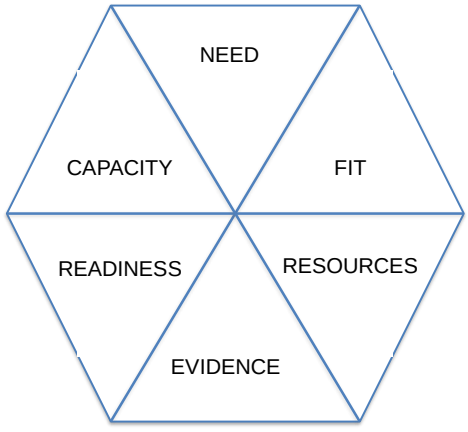
6. Capacity

- Staff meet minimum qualifications
- Sustainability steps in place
- Buy-in process operationalized with practitioners, seniors and family

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Assessment of Your Setting

	High =5-4	Med =3-2	Low =1
1. Need			
2. Fit			
3. Resources			
4. Evidence			
5. Readiness			
6. Capacity			
Sub-Total Scores			
Total Score=			



http://implementation.fpg.unc.edu

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Summary

- Know your fall prevention evidence
- Choose assessment tools with proven validity and fit for your purpose and setting
- Tailor interventions to assessed risk
- Set SMART objectives and amend as needed
- Address systems issues of:
  - Perceived need and fit with priorities
  - Readiness and resources
  - Leadership and competencies
  - Ability to determine success

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA

Thank you!

a place of mind
THE UNIVERSITY OF BRITISH COLUMBIA