

Assessment & Management of Falls in Clinical Practice – Falls Prevention Clinics

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Faculty/Presenter Disclosure

- **Faculty:** David B. Hogan
- **Relationships with financial sponsors:** None to Declare

Objectives

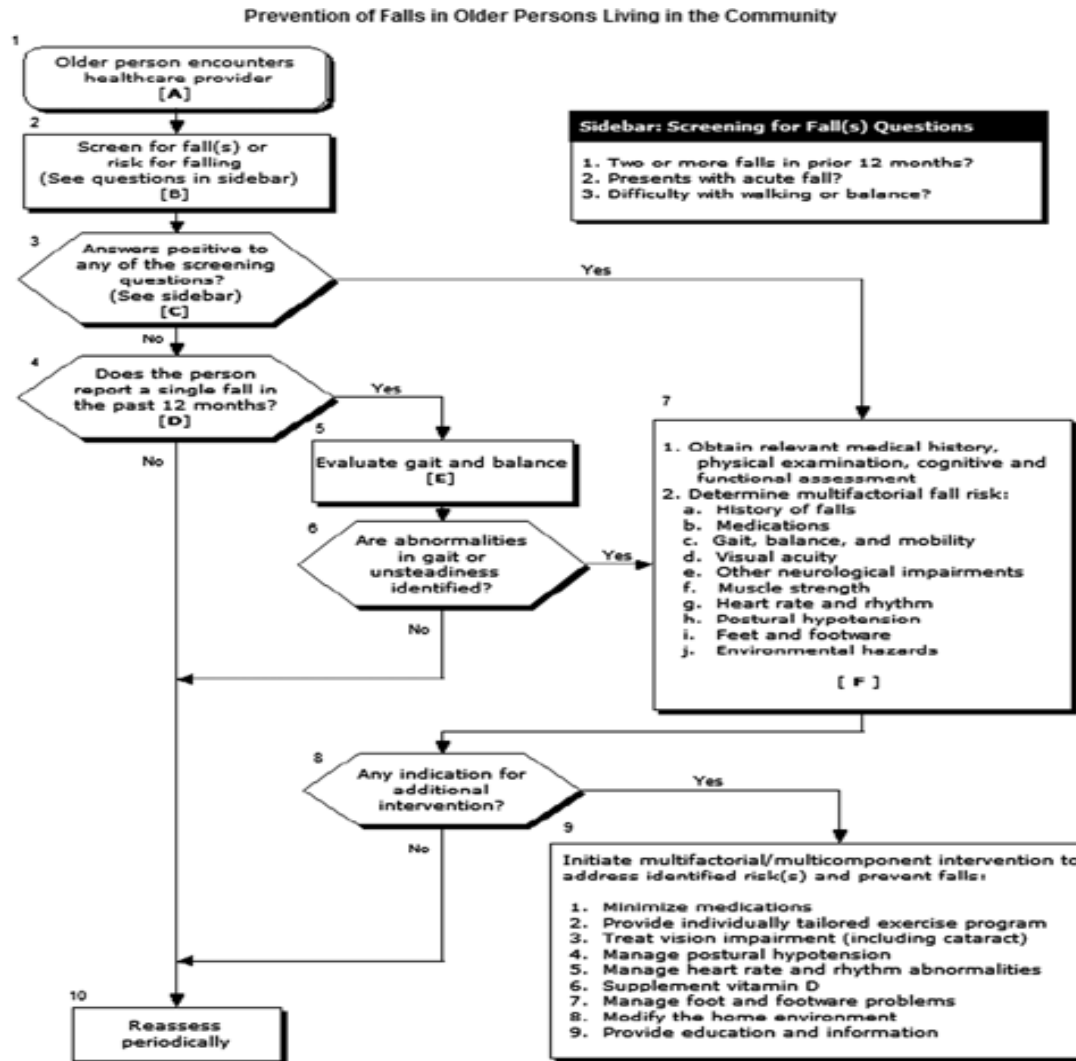
- At the end of the session participants will be able to:
 - Describe evidence-based guidelines for assessment & management of fall risk (DH)
 - Outline the results of a scoping review on fall prevention clinics
 - Models found in Canada (KM, DH)
 - Based on the above/ general discussion, describe the characteristics of an effective & sustainable fall prevention clinic (all)

Evidence-based Approach

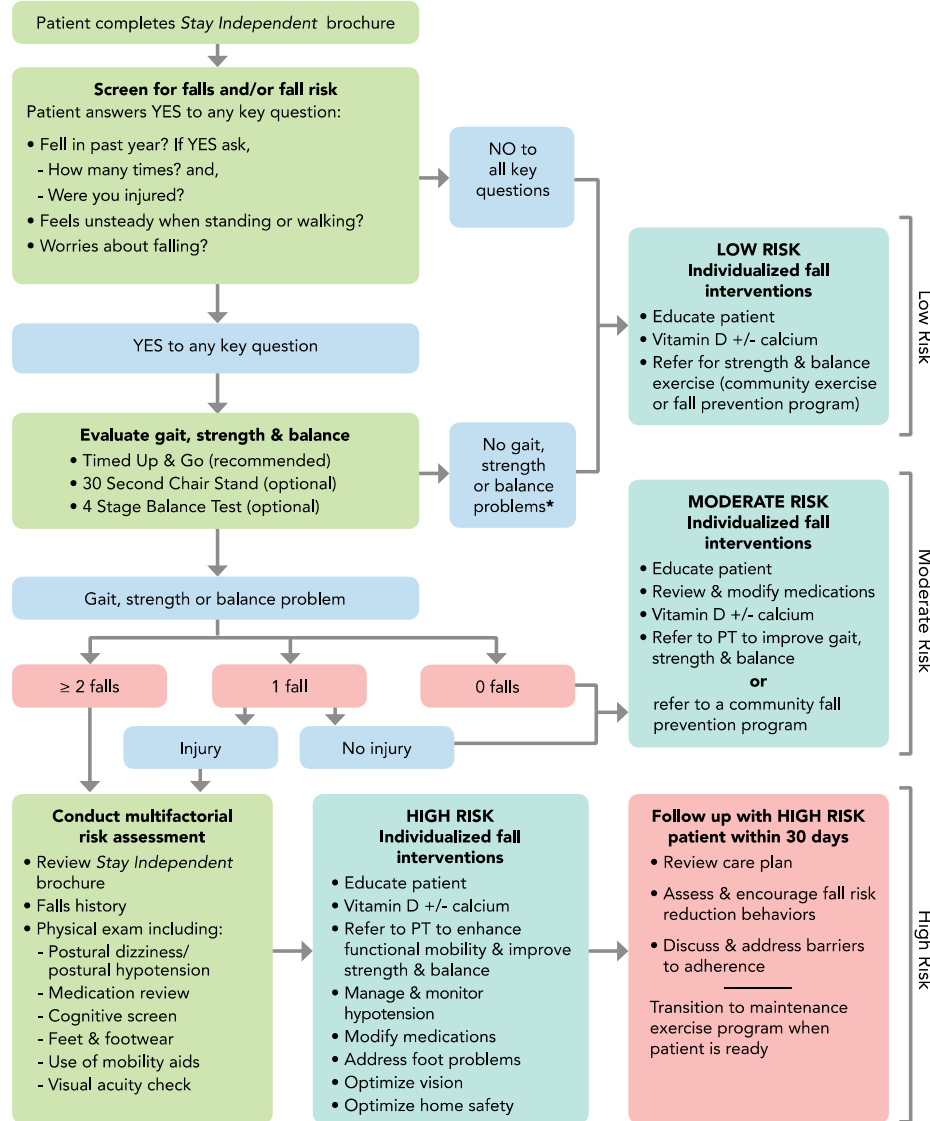
Fall Prevention

- Examples of guidance
 - AGS/BGS Guidelines 2010 – J Am Geriatr Soc 2011, 59: 148-57
 - US Preventive Services Task Force recommendations 2012 – Ann Intern Med 2012, 157: 197-204
 - Cochrane Systematic Review 2012 – Cochrane Database of Systematic Reviews 2012, Issue 9
 - Stop Elderly Accidents, Deaths, and Injuries (STEADI) Toolkit 2013 – Health Promot Pract 2013, 14(5): 706-14; HIS Prim Care Provid 2013, 39: 162-66
 - RNAO - Preventing Falls and Reducing Injury from Falls (4th Edition) 2017 - <http://rnao.ca/bpg/guidelines/prevention-falls-and-fall-injuries>

Summary of the Updated American Geriatrics Society/British Geriatrics Society Clinical Practice Guideline for Prevention of Falls in Older Persons



Algorithm for Fall Risk Assessment & Interventions



*For these patients, consider additional risk assessment (e.g., medication review, cognitive screen, syncope)



Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

Approaches - Single and Multiple Component

- With single or multiple component interventions the same treatment is offered to all people
- No tailoring – when multiple could include, as an example, the following
 - Supervised exercise
 - Education
 - Home-hazard identification

Multifactorial Approach

- Based on beliefs that
 - Presence of multiple fall risk factors that appear in various combinations
 - Multifactorial fall risk assessment with interventions tailored to identified factors would be effective
- Components always included
 - Patient engagement/ education
 - Exercise program – balance, gait, &/or strength training (+/- endurance & flexibility training) in groups or individualized program

Multifactorial Approach

- Other component if identified risk factor – an incomplete list of other interventions for identified risk factors would include:
 - Withdraw/ minimize psychoactive & total number of meds
 - Vitamin D (+/- calcium) if proven/ suspected deficiency
 - Home hazard modifications for select patients (i.e., higher risk)
 - Management of postural hypotension
 - Management of foot problems & advice re footwear
 - Vision - expedited cataract surgery, avoid multifocal lenses while walking (especially on stairs)
 - Dual chamber cardiac pacing for older patients with cardioinhibitory carotid sinus hypersensitivity with syncope/ falls

Comparison

- Single interventions (e.g., exercise – most common) as effective in reducing falls as interventions with multiple components (both decrease falls by 20-30%)
 - Multifactorial fall prevention interventions effective for high risk individual patients
 - For lower risk populations in the community, targeted single interventions are as effective, may be more acceptable, and more cost-effective – Age Ageing 2007, 36: 656-62

Scoping Review

Most Don't Receive Recommended Post-fall Care

- Fall prevention activities post ED visit for fall-related injury
 - 71% talked to HCP about fall-related ED visit
 - Only 37% talked re what to do to reduce fall risk
 - 2% contacted a fall prevention program and none attended
 - 14% fell again within 60 days – Injury Epidemiology 2017, 4:18
- 3.7% received post-discharge care consistent with AGS/BGS guidelines – Osteoporosis International 2006, 17: 672-83

Causes of Research-Practice Gap

- Patient/ client
 - Access, cost, and time
 - Beliefs and attitudes (priority given to falls)
- Practitioner
 - Usually reactive rather than proactive
 - Attitudes, knowledge (clinical, available services), skills (clinical, coordinating services, teamwork), and available time
 - Interaction with patient/ client (motivating)

Causes of Research-Practice Gap

- System

- Challenges linking components (detection, assessment, care plan, implementation) and ensuring they are actually done

- Availability of programs - ? “turnkey” option

- Reimbursement (practitioners)/ funding (programs)

- Fidelity and flexibility in translating research findings to practice

– Am J Prev Med 2008, 35: S381-89; BMC Public Health 2008, 8: 322; J Am Geriatr Soc 2008, 56: 1409-16; Implementation Sci 2012, 7: 91; Gerontologist 2014, 54: 550-58; BMC Geriatrics 2015, 15: 169; J Am Geriatr Soc 2016, 64: 425-31; BMC Health Serv Res 2017, 17: 141.

Fall Prevention Clinics

- Definition – Multidisciplinary/ interdisciplinary/ interprofessional ambulatory program for community-dwelling, fall-prone older persons
 - Primary aim of service is to reduce falls & fall injuries
 - Clients assessed for risk factors with interventions implemented for those identified (multifactorial approach)
- Scoping review (n = 24); other than Close (1999) strongest evidence from Chaos RCT (Finland)
 - 2 clinics (nurse, PT, MD); 70+ & increased fall/ # risk (n = 1314); all seen by 3 disciplines; randomization (control – brochure vs. intervention – individually tailored measures based on clinic assessment and HV supervised by clinic personnel [~5]) – Injury 2014, 45: 265-71.

Chaos Clinic Outcomes

Intervention

- Falls – 95 per 100 PY
- Fallers – 63
- Fall-induced injuries – 55
- Fractures – 5

Control

- Falls – 131 per 100 PY (RR 0.72, 95% CI 0.61-0.86; $p < 0.001$)
- Fallers 81 (0.78, 0.67-0.91; $p = 0.001$)
- Fall-induced injuries – 75 (0.74, 0.61-0.89; $p = 0.002$)
- Fractures – 7 (0.77, 0.48-1.23; $p = 0.276$)

Australian Falls Clinics

- Australia (15 clinics)
 - Mixed funding
 - Core staff most commonly PT, geriatrician, & OT
 - 8 new referrals/month with most referred by GPs
 - Multidisciplinary assessment (130 min); most did in-home assessment; no universally applied instruments
 - Most provided interventions (gait aid/ home hazard modifications, home exercise) + used existing services
 - Limited follow-up or evaluation of effectiveness - Aust Health Review 2001, 24: 163-74.

UK Falls Clinics

- UK (231 services)
 - Hospital-based; on referral; eligibility based on falls/ near falls/ fear of falling/ FRAT – J Public Health 2004, 26:138-43
 - Multidisciplinary team (full – PT, nurse, OT, MD); 180/ year
 - Multi-factorial assessments (228, 99%) – gait & balance, home hazard assessment, medication review (all three 72%+), cardiovascular (69% - self-report, auscultation, postural vitals), vision (58% - most self-report), bone health (13%)
 - Interventions – education (94%), exercise (clinic 79%, home 45%, referred 21%), home hazard (60%), medication changes (43% usually done directly), incontinence (42%), vision (35%), foot health (29%), bone health (24%), hearing (19%), CV (16%)
 - Limited follow-up; issues with how vision, meds, home hazard, & bone health managed – BMC Health Serv Res 2008, 8: 233

Canadian Falls Prevention Clinics

Models of Falls Prevention Clinics

- Often not clear distinction between approaches
- Stand-alone (Vancouver & Calgary Clinics)
- Integrated within other components of SGS
 - Based in geriatric day hospitals (note: geriatric assessment clinics not discussed; bidirectional flow)
- Mobile clinics
- Non-geriatric specialty clinics (not discussed)
 - Balance & dizziness (e.g., neurovestibular, ENT/otolaryngology, PT vertigo & dizziness centres), syncope (e.g., syncope & autonomic function)

Calgary Fall Prevention Clinic

- Founded 2001; based on RCT/ 5 yr. before & after study - 70%+ decline in falls/ injurious falls
- Aim – prevent falls in high risk older individuals; referral-based (e.g., FP); transdisciplinary team
 - 65+, fallen within the last 12 months, & cognitively able to follow through with recommendations
 - Multifactorial, standardized, evidence-based in-home assessment of client & environment (PTs, OT)
 - Pharmacist (meds) & dietician (nutrition, Ca, vit D) review all
 - Multidisciplinary full team meeting (risks/ Rx plan)
 - Plan shared with client/ referring source/ FP (if differ); interventions – partially clinic/ partially others; f/u 2-4 wks.

Clinical Service

- Staff: 2.35 PTs (includes Clinic Coordinator 0.4), 0.7 OT, SW 0.6, 0.3 pharmacist, 0.3 dietician, 0.2 GM
- Volume: new in-home assessments 134 (2017)
- Fall-specific interventions offered (+ scope of practice):
 - Client education (all disciplines)
 - MD: assessments (selected based on MD review; ~ 20%)
 - PT: balance training (FallProof™), vestibular assessment & Rx, LSVT BIG (Parkinson disease), walking aids (~ half seen per year, with even split between balance training & vestibular)
 - OT: lower leg vascular assessments, complex home &/or equipment assessments, cognition
 - Pharmacist: review complex regimens, deprescribing
 - SW: fear of falling counselling (position vacant)

Research & Training

- Published & unpublished research/ evaluation projects
 - Hogan DB, et al: A randomized controlled trial of a community-based consultation service to prevent falls. CMAJ 2001, 165: 537-43.
 - Calgary Fall Prevention Clinic 5 Year Review (Sept. 7, 2006).
 - Wong C, et al: The Value of Patient Narratives in the Assessment of Older Patients Presenting with Falls. Can Geriatr J 2013, 16: 43-48
- Presentations (regional, national)
- Training site for postgraduate medical + rehab students
 - Proposal - 1-month ambulatory rotation in geriatric medicine residency program focusing on falls, fractures, ambulation (or mobility), and balance (or dizziness) tentatively called the FFAB rotation

Integrated Model #1

- Falls Clinic/ Capital Health Geriatric Day Hospital
 - Persons 65+, 1+ falls or mobility/balance difficulties & able to participate in exercise (2 hr. sessions/ 2x wkly. for 6-8 wks.); ~90% GDH referrals (350+/ yr.)
 - Goal – prevent further falls
 - Staff – nursing, PT, OT, SW, & geriatrician; process:
 - See upon referral from family physician or other HCP
 - Comprehensive assessment including OT home visit
 - Interventions – education/ counseling, modification of risks for falling, medication review, exercise program, equipment prescription, home adaptation suggestions, foot care, links to community resources – Sources: Dr. Chris MacKnight/
<https://www.cdha.nshealth.ca/geriatric-medicine/geriatric-day-hospital-and-falls-clinic/about-falls-clinic>

Integrated Model #2

- Champlain – Falls Assessment and Streamlined Treatment Clinic (C-FAST) – Dr. Shirley Huang/
<http://www.rgpeo.com/en/health-care-practitioners/falls-prevention-program.aspx>
 - On-site based in geriatric day hospital, OHC campus
 - Objectives – specialized falls prevention (comprehensive assessment + multifactorial intervention); target high risk seniors; and, build local capacity through mobile clinic model (retirement home/ FHT)
 - Referral source – 62% Geriatric Emergency Management teams/ 16% primary care MDs/ 22% mobile clinic
 - On-site assessment – geriatrician/APN/ PT +/- pharmacist
 - Two half-days/wk. (2 patients/half-day); multifactorial assessment based on AGS/BGS guidelines; use community resources; telephone follow-up
 - Mobile clinic – APN/ PT plus case reviewed with geriatrician at later date (+/- in-person assessment)

Mobile Clinic

- **Fraser Health Falls Prevention Mobile Clinic** - Ashley Kwon, Coordinator, Patient Safety and Injury Prevention, Fraser Health; <https://www.fraserhealth.ca/health-info/health-topics/falls-preventions/seniors-resources/falls-risk-assessment/>
- **Founded in 2007**
 - Improve access in rural and remote areas to standardized fall risk assessment (i.e., instruments/tools) and interventions for their prevention
 - Utilize local resources through partnerships with community/ municipal services (i.e., space, recruit clients, utilize appropriate exercise programs locally offered)

Structure/ Process

- Fraser Health Authority
- Part-time staff (0.2-0.4 FTE)
- Referrals – HCPs (estimated 75%; esp. FPs) & self
- 25 minute/station x 5 (registration, kinesiologist, pharmacist, physiotherapist, & summary stations; n = 5)
- 1-4 clinics per month; 13/clinic; circuit of communities (1x a year to every 2-3 months); community/ seniors centre or place of worship
- Kinesiologist (falls risk assessment - falls/pain history, postural BP, strength/balance, vision, sensation, reaction time), pharmacist (bone health - calcium & vitamin D & medication review), PT (review fall risks, personalized activity program provided), & summary station (action plan & referrals, provision of summary)
- Written report client & FP
- Implement locally
- Follow-up call (3-4 months)

Outcomes

- CIHR Demonstration Project
 - Prospective cohort study, economic analysis, qualitative focus groups
- Interim results
 - 83% F, avg. age 83, 57% fall last 6 m., 85% mobility aid, 66% moderate to very marked fall risk (n = 416)
 - Uptake/ outcomes – 72% Ca, 61% vit D, 33% exercise, 24% increased activities; 58% better PPA, 60% better TUG, 55% had 1+ fall/12 months (n = 113)
- Pending publication - Can J Aging 2018, Vol. 37, No. 4

Questions/ Comments/ Discussion

- Do falls clinics have a role?
 - Where do they fit in the range of assessment/ management services for the prevention of falls? Who should they see?
- What are the key characteristics of an effective & sustainable falls prevention clinic?
 - Should they solely assess & refer or also provide interventions?

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Falls Clinic Bibliography

- Wolf-Klein GP, et al: Prevention of falls in the elderly population. Arch Phys Med Rehabil 1988, 69: 689-91.
- Hill KD, et al: A falls and balance clinic for the elderly. Physiother Can 1994, 46: 20-27.
- Dey AB, et al: The impact of a dedicated “syncope and falls” clinic on pacing practice in northeastern England. Pacing Clin Electrophysiol 1997, 20: 815-17.
- Close J, et al: Prevention of falls in the elderly trial (PROFET): a randomised controlled trial. Lancet 1999, 353: 93-97.
- Hill K, et al: Falls Clinics in Australia: a survey of current practice, and recommendations for future development. Aust Health Rev 2001, 24: 163-74.
- Houghton S, et al: Experience of falls and injuries risk assessment clinic. Aust Health Rev 2004, 28: 374-81.

Falls Clinic Bibliography

- Hart-Hughes S, et al: An interdisciplinary approach to reducing fall risks and falls. *J Rehabil* 2004, 70: 46-51.
- Lord SR, et al: The Effect of an Individualized Fall Prevention Program on Fall Risk and Falls in Older People: A Randomized, Controlled Trial. *J Am Geriatr Soc* 2005, 53: 1296-1304.
- Perell KL, et al: Outcomes of a Consult Fall Prevention Screening Clinic. *Am J Phys Med Rehabil* 2006, 85: 882-88.
- Hill KD, et al: Effectiveness of Falls Clinics: An Evaluation of Outcomes and Client Adherence to Recommended Interventions. *J Am Geriatr Soc* 2008, 56: 600-608.
- Lamb SE, et al: A national survey of services for the prevention and management of falls in the UK. *BMC Health Serv Res* 2008, 8: 233.
- Sze Pc, et al: The efficacy of a multidisciplinary falls prevention clinic with an extended step-down community program. *Arch Phys Med Rehabil* 2008, 89: 1329-34.

Falls Clinic Bibliography

- Banez, C, et al: Development, Implementation, and Evaluation of an Interprofessional Falls Prevention Program for Older Adults. *Journal of the American Geriatrics Society* 2008, 56: 1549-55.
- Evron L, et al: Barriers to participation in a hospital-based falls assessment clinic programme: an interview with older people. *Scand J Pub Health* 2009, 37: 728-35.
- Evron L, et al: Establishing a new falls clinic – conflicting attitudes and inter-sectoral competition affecting the outcome. *Scand J Caring Sci* 2009, 23: 473-81.
- Moore M, et al: Translating a multifactorial Fall Prevention Intervention into Practice: A Controlled Evaluation of a Fall Prevention Clinic. *J Am Geriatr Soc* 2010, 58: 357-63.
- Bauer C, et al: First Results of Evaluation of a Falls Clinic. *Int J Gerontol* 2010, 4: 130-36.

Falls Clinic Bibliography

- Thomas S, et al: Falls Clinics: an opportunity to address frailty and improve health outcomes (preliminary evidence). *Aging Clin Exp Res* 2010, 22: 170-74.
- Formosa DP, et al: Effectiveness of an evidence-based multidisciplinary falls prevention program in reducing falls in high-risk older people. *J Am Geriatr Soc* 2014, 62: 778-79.
- Smebye KL, et al: Medical findings in an interdisciplinary geriatric outpatient clinic specialising in falls. *Tidsskr Nor Legeforen* 2014, 134: 705-9.
- Hill KD, et al: What factors influence community-dwelling older people's intent to undertake multifactorial fall prevention programs? *Clin Interv Aging* 2014, 9: 2045-53.
- Palvanen M, et al: Effectiveness of the Chaos Falls Clinic in preventing falls and injuries in home-dwelling older adults: A randomised controlled trial. *Injury* 2014, 45: 265-71.

Falls Clinic Bibliography

- Jansen S, et al: Effectiveness of a cardiovascular evaluation and intervention in older fallers: a pilot study. J Am Geriatr Soc 2015, 63: 2192-93.
- Liu-Ambrose T, et al: Action Seniors! - secondary falls prevention in community-dwelling senior fallers: study protocol for a randomized controlled trial. Trials 2015;16:144.