

Fall Risk Evaluation & Management

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Disclosures

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Learning Objectives / Outline

- Understand the prevalence and financial burden of falls and fall-related injuries.
- Appreciate the comorbidities and factors that raise the fall risk among those aging with HIV.
- Learn how fall risk is assessed and managed in a Fall Prevention Clinic and how to apply those elements to your practice.
- Drop the idea that a “mechanical ground level fall” is “non-medical” or not worthy of further evaluation or preventative efforts.
- Identify the common extrinsic and intrinsic factors that cause falls and how to address those that are modifiable.

Falls: Magnitude of the Problem



Approximately 1 in 4 older adults (>65yo) report falling each year.

[Older Adult Falls Data \(cdc.gov\)](https://www.cdc.gov)

Moreland B, Kakara R, Henry A. Trends in Nonfatal Falls and Fall-Related Injuries Among Adults Aged ≥ 65 Years — United States, 2012–2018. MMWR Morb Mortal Wkly Rep 2020;69:875–881.

Falls: Magnitude of the Problem

- 1 out of 5 falls causes a serious injury (broken bones or head injury).
- 3 million older people are treated in ERs for fall injuries annually.
- >800,000 patients per year are hospitalized because of a fall injury, most often head injury or hip fracture.

Financial Burden of Falls

- \$50 billion per year is spent on medical costs related to non-fatal fall injuries
- \$754 million is spent related to fatal falls
- Medicare and Medicaid shoulder 75% of these costs

Aging with HIV Increases Fall Risk

- Persons aging with HIV manifest “accelerated aging” with an earlier than expected occurrence of many diseases of aging.
- Patients with HIV have a high prevalence of several comorbidities and physical impairments associated with an elevated fall risk:
 - Frailty
 - Sarcopenia
 - Low BMI
 - Neuropathy
 - Cognitive Impairment
- Approx 75% of patients with HIV take at least 1 other Rx in addition to ART, and the most common of these are in the high fall risk category (cardiovascular and psychoactive meds).

Guidelines for Fall Prevention

- All persons aged 65+ should be screened for falls and fall risk at least once a year.
 - → **50+ for those with HIV:**
 - “Assessment of mobility and frailty is recommended for patients aged 50 years or older...”
 - *2020 Recommendations of the International Antiviral Society–USA Panel*
- Anyone with **gait or balance difficulty**, **2 or more falls** in prior 12 months, or **history of seeking medical attention** for a fall needs further assessment.

Fall Prevention in Clinical Practice

- History of falls rarely elicited
- Fall risk factors not identified
- Most elders seen in ED for falls had no recommendation or appointment for follow-up beyond acute injury

Why do people fall?

- Interaction between an individual's risk factors and the environment
 - A combination of intrinsic & extrinsic factors

Intrinsic Factors

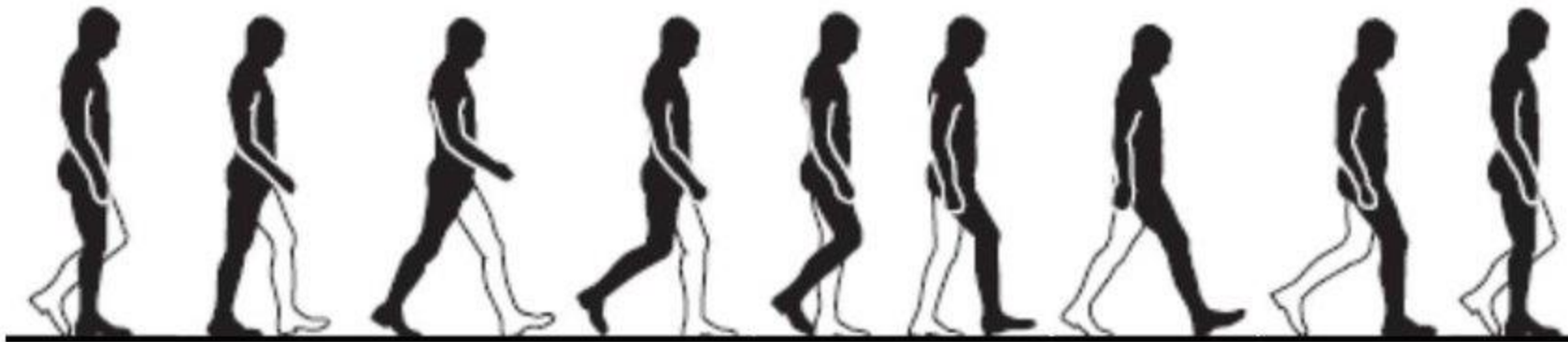
- Age-related changes
- Chronic conditions
- Leg weakness
- Balance impairment

Extrinsic Factors

- Medications, Alcohol
- Footwear
- Environmental Factors
- Assistive device

Intrinsic Factors: Age-Related Changes

- Gait & balance
 - Decreased step height
 - Decreased proprioception
 - Slowed righting reflexes
- Vision
 - Reduced pupillary response to light variation
 - Thickening and loss of elasticity of lens



Intrinsic Factors: Chronic Conditions

- Diseases of the eye (cataracts, macular degeneration, glaucoma)
- Cardiovascular (orthostasis, aortic stenosis, bradyarrhythmias)
- Musculoskeletal (arthritis, foot deformities, chronic pain, spinal stenosis)
- Urological (incontinence, nocturia)
- Insomnia, sleep deprivation
- Neurological (CVA, dementia, peripheral neuropathy, Parkinson's disease*)

Orthostasis and Postural Dizziness

- Affects 30% of community-dwelling elders
- Causes can be intrinsic or extrinsic:
 - Neurogenic (Parkinson's disease, autonomic neuropathy)
 - Non-neurogenic (aortic stenosis, volume depletion, vasodilation, deconditioning, postprandial)
 - Common med classes:
 - Diuretics
 - Antihypertensives
 - Alpha blockers: doxazosin, prazosin
 - Antidepressants: paxil, effexor, trazodone
 - Antipsychotics: seroquel



Extrinsic factors: Polypharmacy, High-Risk Meds

- ≥ 4 meds = fall risk
- Certain classes of meds:
 - Psychoactive meds (benzos, *high-dose* SSRIs, sedative-hypnotics, Trazodone, TCAs)
 - BP meds (esp vasodilators, any BP med in high dose)
 - Anticonvulsants (esp Gabapentin)
 - Anticholinergics (Meclizine, Oxybutynin, ...and ask about OTCs – Benadryl, Tylenol PM, & Dramamine)
 - Muscle relaxants
 - Opioids (in high doses), Tramadol aka “Trama-don’t”

Extrinsic factors: Footwear



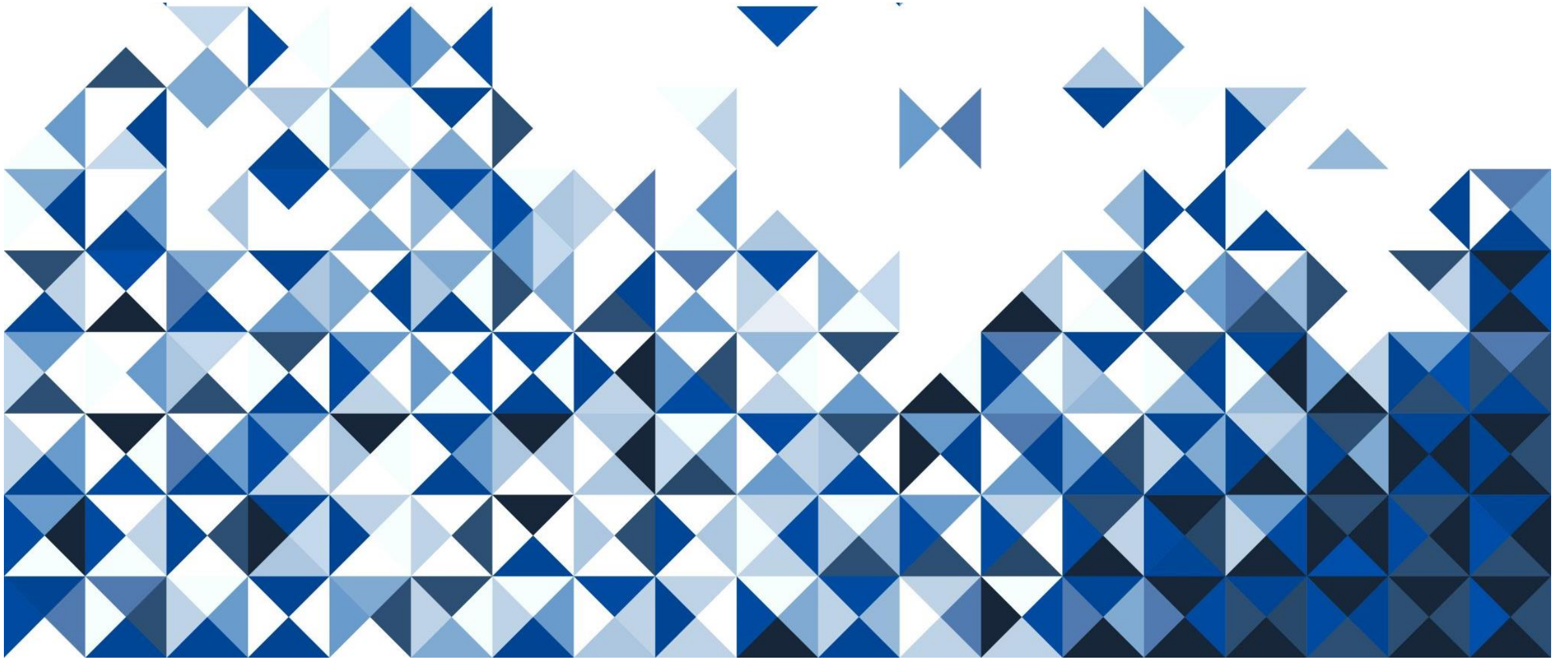
- The enemies:
 - Sandals
 - Bare feet
 - High Heels
 - Open-backed slippers
 - Smashed heels
 - Open-backed shoes (mules/slides)
 - Stocking Feet
 - Flip-Flops
 - Big shoes
- The allies:
 - Shoes with good sole contact area, closed-toe, covered heel are best
 - Athletic/canvas shoes associated with lowest risk.

Extrinsic factors: Environmental Factors

- Inadequate lighting
- Loose objects on floor (throw rugs, cords, junk, etc.)
- Unsafe steps (broken, no railings)
- Items in hard to reach places
- Slippery tub/shower, lack of grab bars by toilet/shower
- Step stools, ladders
- Pets underfoot



Putting this all together...



Harborview Fall Prevention Clinic

- Comprehensive fall risk assessment and management for those who have fallen or have gait and balance problems
 - Aged 65+ and <65 with referral review
 - Outpatients (or nearing SNF discharge)
- Interdisciplinary approach
 - Physical therapy
 - Geriatric medicine
 - Social work
 - Pharmacy
 - Nutrition
- Dedicated medical assistant
- In-person or telephonic interpreter services



Harborview Fall Prevention Clinic

- Comprehensive identification of fall risk factors
- Gait and balance assessments
- Assistive device assessment, fitting, and recommendations
- Medication adjustment recommendations
- Patient/caregiver education, including written materials
- Targeted laboratory tests and imaging
- ***...MOST of these elements can be done in the office of any PCP***

After the Fall: A Practical Approach

- History: Think **SPLAT!**
- (S) Symptoms preceding the fall
 - Dizziness, lightheadedness, vertigo, knee laxity, etc.
- (P) Previous falls or near falls
 - How frequent, in what setting, do they have a *fear of falling*
- (L) Location to identify environmental factors
 - At home or in community, on what surface, lighting, tripping hazards, on stairs, etc.
 - (A) Activity at the time
 - Multitasking? Hurrying? Turning? Reaching? Just stood up? Using walker/cane?
- (T) Time of fall
 - Time of day, ?cocktail hour, relationship to meds taken, meal eaten, etc.
 - How much time needed to get up from fall? >5min or required assistance → risk of long lie



After the Fall: A Practical Approach

- Key Physical Exam Components:
 - Orthostatics (can abbreviate to lying→standing, note postural dizziness regardless of BP)
 - Gait & balance evaluation:
 - Width of base
 - Step height, foot dorsiflexion, stride length
 - Truncal rotation, arm swing
 - Observe balance with turning
 - Assistive device: proper fit, proper use, adequate support
 - LE strength (“Can you stand up from this chair without pushing off with your arms?” – don’t worry about the TUG)
 - Feet sensation, proprioception, deformities
 - Look for tremor, rigidity, Parkinsonism (especially for backwards falls)

After the Fall: A Practical Approach

- Additional Physical Exam Components:
 - Visual acuity check if not done w/in 1yr
 - 20/40 or worse = fall risk
 - Bifocals/multifocal/transition lenses are a fall risk
 - Cardiac exam
 - Static balance testing
- Common lab studies, imaging:
 - B12 level, Vit D level, CK, TSH, Hct, BUN/Cr, DEXA



Go After the Modifiable Fall Risk Factors

Gait
abnormality

Lower
extremity
weakness

Impaired
balance

Medications

Orthostatic
hypotension

Vision

Feet /
footwear

Assistive
device

Home
environment

Treatment Plan – Frequent Components

- Exercise – strength and balance
- Medication reduction (“de-prescribing”)
 - Stop, taper with goal to stop, lower dose
- Home / environmental modifications (clutter, rugs, lighting, adaptive equipment)
- Behavioral modifications (avoid hurrying to answer phone / doorbell, no more step stools, arranging caregiver assistance for some tasks)
- Self-management of postural hypotension
- Footwear modification
- Vitamin D supplementation

Treatment Plan – Referrals

- Other healthcare providers:
 - Physical therapy
 - Cardiology
 - Memory and Brain Wellness Clinic
 - Ophthalmology
 - Neurology
 - Geriatric Medicine / SeniorCare
- Community-based programs:
 - Exercise:
 - Enhance Fitness®
 - Tai Chi – Tai Ji Quan: Moving for Better Balance®
 - Adult Day Health
 - Home Safety Evaluation:
 - One Step Ahead (King County) – other programs available via AAA
 - Home Health

Thank you

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- Questions? jenny5@uw.edu



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