

Disclosures: The speaker, Lorena Carlson, M.S.P.H., and the members of the planning committee do not have a conflict of interest in this topic. There is no commercial support for this program.

## Falls in the Elderly Population

Risk Factors, Assessment,  
& Prevention

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## Epidemiology of Falls in the Elderly

- Approximately 30% to 50% of persons over the age of 65 report falling within a one-year period.
- Half of those are repeat fallers.
- Risk of falling increases with each decade of life.
- 20-30% of seniors falling suffer moderate to severe injuries.
- Falling increases risk of early death.

## Why focus on falls in the elderly?

- Leading cause of morbidity/mortality in those over 65 years of age
- Associated with increased use of the health care system/increased health costs
- Tendency to develop a "fear of falling" and result in social isolation
- Associated with loss of independence

## Associated Trauma and Injury

- Traumatic brain injury
- Soft tissue damage/contusions
- Bone fracture (hip, spine, forearm, leg, ankle, pelvis, upper arm, hand)
- Increased likelihood of subsequent falls

## "Found Down Syndrome"

- Inability to get up after falling
- Anxiety
- Confusion
- Dehydration
- Hypothermia
- Unattended Injury

## Extrinsic Risk Factors for Falling

- Seasonal snow, ice, or wet surfaces
- Uneven floor surfaces, throw rugs
- Poor interior lighting
- Cords or wires on floor
- Household pet(s)
- Steps
- Clutter

### Extrinsic factors continued:

- Awkward placement of switches and light fixtures
- Lack of hand rails
- Lack of appropriate bathroom modifications for elderly safety
- Inconvenient placement of telephone
- Social conditions/living alone

### Behavioral Risk Factors

- Previous falls
- Cane or walker use
- Poor eating habits/malnutrition
- Incorrect following of prescription instructions
- Recent hospitalization/illness
- Risky behaviors
- Inactivity and lack of exercise

### Intrinsic Risk Factors for Falling

- Aging process:
  1. Reduced reaction time
  2. Decrease in visual acuity
  3. Reduction in overall strength and flexibility
  4. Decrease in auditory function
  5. Changes in gait and balance

### Age-related Gait and Balance Changes:

- Men:
  1. Forward flexion of upper trunk
  2. Flexion of arms and knees
  3. Decreased arm swing
  4. Shortened step length
  5. Postural instability/increased lateral sway

### Age-related Gait and Balance Changes:

- Women:
  1. Waddling gait
  2. Kyphosis
  3. Shortened step length
  4. Postural instability/increased lateral sway

### Intrinsic factors continued:

- Polypharmacy (especially >4, also any new)
  1. Sedatives/hypnotics, anti-anxiety
  2. Tricyclic antidepressants
  3. Major tranquilizers
  4. Anti-hypertensives
  5. Corticosteroids and non-steroidal anti-inflammatories
  6. Anticholinergic drugs
  7. Cardiac medications

### Intrinsic factors continued:

- Medical conditions/chronic disease processes (comorbidity)
  1. Diabetes
  2. Cardiovascular disease
  3. Cerebrovascular disease
  4. Central nervous system disorders, Parkinson's Disease
  5. Macular degeneration/Cataracts
  6. Osteoarthritis, Rheumatoid Arthritis

### Medical conditions continued:

7. Irritable bowel syndrome
8. Overactive bladder syndrome
9. Dementias
10. Depression
11. Vertigo
12. Hypertension/hypotension
13. Cancers
14. Renal Disease
15. Drug/Alcohol addiction

### Medical Assessment

- Medical history
- Physical exam
- Vital signs
- Vision/hearing status
- Neurological exam
- Functional evaluation
- Medication review
- Laboratory tests
- Social support?
- Home safety?
- Fall history
- Gait/balance evaluation ("Get-up and Go" Test)

### "Get-up and Go" Test

- Patient is seated in an armless chair.
- Patient is instructed to stand, walk 8 feet, turn, return to chair, turn, and sit.
- While observing, take note of gait and balance problems.
- Timing is not necessary.
- A walking aid may be used if typical.

### Interventions for Fall Prevention

- Control existing disease
- Review current prescriptions (adjust dosage, eliminate medications, change to different formulary, instruct as to correct use)
- Schedule vision/hearing screening
- Arrange balance clinic/exercise program
- Instruct patient in standing slowly from lying or sitting position
- Prescribe walker or cane

### Fall prevention continued:

- Suggest installation of handrails, grab bars, elevated toilet seat, improved lighting, etc.
- Suggest shoes with good support, non-slip tread, broad heel
- Encourage hydration/ home temperature control
- Discuss home monitor device/medical alarm
- Encourage family involvement
- Provide follow-up

**Mrs. B., an Elderly Woman:  
Her Case Study and Fall History**

- 87 years of age, widow, lives alone, one level home
- General health status: moderate hypertension, osteoarthritis, overactive bladder syndrome, bifocal glasses, foot pain (corns, arthritis), healthy appetite, no digestive problems, positive outlook, mobile with walker, active, orthopedic right shoe

**Mrs. B. case study continued:**

- Medication: Folic acid, calcium w/vitamin D, one low dose aspirin, 2.5 mg tablet Lisinopril (ACE inhibitor), Vesicare (unfilled), Lortab (acetaminophen/hydrocodone), Aleve
- Recent surgical history: Cystoscopic surgery to remove benign tumor, one open and one arthroscopic hip debridement, bunionectomy, cataract and laser eye surgery

**Mrs. B. case study continued:**

- Fall history:
  1. Two years ago, in her home, bent down to remove lint from carpet, lost balance, significant soft tissue injury, no breaks
  2. One year ago, front yard of her home, bent over to pull weed from grass, lost balance, minor bruising, no breaks

**Mrs. B. fall history continued:**

3. Six months ago, attempting to return dish to kitchen, admitted lack of grip strength, dropped dish in hallway, bent over to retrieve dish, fell down, walker knocked aside, admitted twisting to avoid injuring hip, knee pain diagnosed as arthritic, wears spandex knee support for comfort
4. One week ago, fell from bed, bruising, no memory of "why" she fell, able to return

**References:**

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- Leslie, M., Pierre, R., "An Integrated Risk Assessment Approach to Fall Prevention Among Community-Dwelling Elderly," *American Journal of Health Studies*, 15, 1999, 57-62.
- Rogers, M.E., et. al., "Methods to assess and improve the physical parameters associated with fall risk in older adults," *Preventive Medicine*, 36, 2003, 255-264.
- [www.cdc.gov](http://www.cdc.gov)

## **Personal Fall Assessment for Seniors:**

YES/NO

I live alone.

I have had a recent fall.

I have had surgery lately.

I have been hospitalized lately.

I have had a recent illness.

I have bladder/bowel control problems.

I have been diagnosed with a chronic disease.

I am on several medications.

I get dizzy or light-headed sometimes.

I often lose my balance.

I often feel weak.

I move more slowly lately.

I have trouble rising from a chair.

I use a walker or cane.

I have joint pain.

I have foot problems.

I have blood pressure problems.

I have trouble seeing, even with glasses.

I have stairs in my home.

I use throw rugs in my house.

I have handrails in my house.

I use an elevated toilet seat.

I have grip bars in my bathtub.

I have good lighting in my home.

I exercise regularly.

I see my doctor regularly.

Falling is a serious concern! Take a moment to discuss any falls with your health care provider.