Patient Falls
Defining the Scope of the Problem

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Patient Falls

• **Scope of the problem**
  – #1 cause of ED and hospital visits for unintentional injury in NH
  – Leading cause of deaths from injury in seniors
    • 1/3 to 1/2 of people over 65 will fall each year
    • ½ to ¾ over 85 and those in nursing homes
    • 30-55% result in minor injury
    • 4-6% result in fractures (as high as 25% in SNF)
      – 1-2% hip
      – 2-4% other (shoulder, wrist)
    • 3-5% lacerations, head injury, internal injury, joint dislocations
    • 2.5% result in death (27/100,000 in NH)
Patient Falls

• Hospitalized patients
  – Young and old patients (average age 63.4 years)
  – Often associated with toileting activity
  – Over half (in one study) were confused at the time of the fall
  – Muscle weakness, diabetes, urinary frequency, risky medications were involved
  – Many did not have their usual assistive device with them
  – Wet floors, problem equipment – contributed to 16% of falls

» Hitcho, Krauss and Birge, Washington University School of Medicine, 2004
Cost of Falls

- Lifetime costs for those older than 65
  - This does not account for disability, decreased productivity or diminished QOL
    - $27.3 billion in 1994
    - $43.8 billion by 2020
      » Average cost of each fall: $19,449

- 8% of those over 70 go to the ED

- Increased likelihood of going to a NH
  - King and Tinetti, 1994
Complications of falling

Hip Fracture
- 340,000 hip fractures per year
  25% die, 25% recover completely
  - the rest unable to perform independent ADL’s and/or ambulation after one year.
  - The cost is $31,000 to $38,000 per hip fracture
Complications of Falling

• Other fractures
  – Shoulder/humerus
    • Esp. problematic if dominant side
    • Often slow to heal
    • Decline in ability to perform ADL’s
  – Wrist
    • All wrists are fractured until proven otherwise
  – Vertebral compression fracture
    • Severe pain
    • Inability to walk, care for self
Complications of Falling

DVT: Hip Fx. and THR: 41-85%
25% get PE
10% of those die
requires prolonged anticoagulation
(expensive/
requires monitoring)
Complications of Falling

Head injury
  More common in old people than any other age group!
    #1 falls, #2 MVA
Concussion
Subdural hematoma: more likely high mortality esp. in very old
Complications of falling

- **Long Lies**
  - 50% unable to get up without help
  - 3% lay on the floor for 3 or more hours
  - Inability to get up associated with frailty as well as:
    - 80 years or greater
    - Decreased upper body strength
    - Poor balance
    - Arthritis
    - Dependency
Complications of Falling

• Long Lies can result in:
  – Dehydration
    • Further complications
  – Pressure sores
  – Pneumonia
  – Subsequent decrease in activity r/t pain, injury, fear of falling
Complications of falling

- Fear of Falling
  - A risk factor independent of others.
  - Associated with poor performance on balance testing.
  - Loss of confidence leads to increased falling.
  - Leads to decreased activity, increased weakness, increased risk of falling.
The Cycle

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Falls, The scope of the problem

Fall → Fear of falling

Increased risk of falling → Weakness

Decreased activity
Why are older people more vulnerable?

- Deterioration of physiologic system
  - Universal
  - Varies according to individual health and genetics
  - Decreased functional reserve makes “tipping over the edge” more likely.
  - Recovery is slower
Physiologic Changes of Ageing

- Chronologic age not as important as biologic age.
- Older people more vulnerable to injury
  - Poor judgment, diminished cognitive capacity
    - Increased difficulty processing new information
  - Decreased muscle strength
  - Decreased bone density
  - Decreased reflexes, balance, coordination
  - Decreased vascular compliance
  - Decreased renal and liver clearance of toxins
JCAHO National Safety Goals for Hospitals

• Reduce the risk of patient harm resulting from falls

• 2005 - 2006
  – Assess & reassess risk
  – Include risk associated with medications
  – Take action to address identified risk
  – Implement a falls reduction program by 2007
What is a Fall?

• Sudden uncontrolled, unintentional downward displacement of the body to the ground or other object

• Near Fall: sudden loss of balance that does not result in a fall

• Un-witnessed: patient is found, no one saw the fall

» DHMC patient falls and management policy
Causes of Falls

• Usually no single cause
• Interactions between long term and acute factors interacting with environment
• Multiple risk factors increase the risk
Who falls?
Determining risk factors

• Rubenstein et al. 2312 falls in community living older people
  – 13% weakness, balance or gait disorder

  – 41% environment related
    • Poor lighting, uneven floors, unsafe footwear, throw rugs….

  – 46% dizziness, syncope, confusion, visual disturbance, orthostasis and unknown
    • Likely related to very old age, chronic illness, delirium, and/or medications

  – Rubenstein, 1994

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Falls, The scope of the problem
Who Falls in Hospital?

- Delirious/confused
  - Fever, illness, meds, strange environment
  - Sleep deprived
- Demented
- Neurologically impaired
- Frail
- Poor judgment
Characteristics of Fallers

- Oldest age
- Fall with fracture within past year
- Poor LE strength/gait disorder
- Impaired cognition/judgment
- Polypharmacy
Other Risk Factors

• History of Multiple falls
  – Frequent fallers fall frequently
• Visual/hearing deficit
• Use of assistive devices
• Older age
• Recent hospitalization (risk highest in the month after discharge)
• Certain chronic diseases

  • J Am Geriatr Soc. 49(5):665
Specific diseases associated with falls

- Parkinson’s Disease
- Alzheimer’s and other dementias
- Arthritis
- Stroke, MS, other neurologic disease
- Foot problems
- Neuropathy
- Balance and gait disorders
- Visual disturbance
- Postural Hypotension
Polypharmacy

- Old people get 2-3 times as many prescriptions - 40% of prescriptions may be inappropriate!
Categories of medications associated with falling

- Psychotropics
  - Sedative/hypnotics
  - Any antidepressant (esp. tricyclics)
  - Benzodiazepines
- Neuroleptics
- Diuretics
- Digoxin
- Class IA antiarrhythmics
- Four or more medications
Don’t forget about Alcohol

– Interacts negatively with almost everything
– An independent fall risk hazard
– Not uncommon for elderly to drink
– Reduced tolerance even small amounts
Environmental Hazards

- Low light
- Clutter/pets, pet toys
- Throw rugs
- Bath tubs/ wet floors
- Poor footwear
- Stairs, esp. without railing/ ice/ snow
- Ladders/step stools
- Ambulatory assistive devices, not used or tripped over
Who is at Risk to Fall?

- Low to moderate risk – everyone admitted to hospital or nursing home
- High Risk to fall
  - Those who score the highest on the assessment

» DHMC patient falls and management policy
When to assess

- On admission and quarterly in LTC
- Daily in acute care
- Anytime a change in clinical condition occurs

- Don’t forget to document!!
Assessment

- Standard info:
  - Mental status
  - Hx of falls
  - Ambulation status
  - Vision
  - Gait/balance
  - B/P
  - Meds/
  - Predisposing diseases
  - Score: higher score, higher risk

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DHMC Fall risk Scoring method*

- History of falls: 2
- First 24 hours post op: 1
- Anesthesia/substance use: 2
- Diuretics, laxatives, sedatives, tranquilizers: 1
- Confused, disoriented, unable to make decisions: 3
- Uses assistive devices, unsteady gait, unable to ambulate: 3
- Impaired hearing, vision or tactile sensation: 1
- Age >70: 1

Score >3, RN to initiate falls prevention.
Even < 3, admitting diagnosis may indicate risk.

*Tool based on review of current literature

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Fall Prevention Strategy

- Interdisciplinary effort targeting the identified risk factors
  - Administrative buy in
  - Medical/Nursing/ Rehab
  - Maintenance
  - Housekeeping
  - Patient and family
Preventing Falls

• Starts with AWARENESS of RISK
• Assessment
  – Interdisciplinary Team Fall evaluation
    • Evaluate those most likely to fall
      – Postural B/P measurement (nursing)
      – Balance and gait evaluations (rehab)
        “get up and go”
      – Medication review (medicine and nursing)
    • Post fall eval. (to identify cause and modify risk)
      – Injuries
      – Environment (housekeeping)
      – Meds, esp. those most recently administered
      – Footwear (patient and family)
      – Cognitive status
      – Musculoskeletal status (medicine, nursing, rehab)
Preventing Falls in low to moderate risk patients

- Familiarize patient with environment
- Call bell within reach
- Determine appropriate side rail position
  - (side rails are considered a restraint in LTC)
  - Avoid full side rails where possible
  - Bed in lowest position
  - Pad on floor
  - Swim noodles, scoop mattresses
Preventing falls in low to moderate risk patients

- Bed in low position
- Personal care items, call bell and meal trays within reach
- Ambulatory assistive device within reach
- Wipe spills immediately
- Appropriate lighting
- Clear pathways to bathroom
- Remove clutter that presents trip hazard
Preventing falls in low to moderate risk patients

• Safe mobility
  – Sit a few minutes before standing
  – Call for help if weak, dizzy
  – Avoid hurrying to bathroom
  – Use handrails, grab bars, assistive device
  – Bed exercises
  – Non skid footwear
  – Educate family: activity limits and precautions
  – Assist with elimination when appropriate
  – Bedside commode where appropriate
Preventing falls in high risk patients

• All of the preceding plus:
  – A written care plan with targeted interventions
  – Signage
  – Bracelets (specific color can indicate falls risk)
  – Bed alarms, Tab alarms
  – Strongly consider PT/OT referral
    • Exercise prevents falls even in the very old
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At risk to fall bracelet for patients at **High Risk to Fall**.

“Please wear this to allow us to know to give you extra help”

At Risk to Fall sign for patient’s room door for those at **High Risk to Fall**.

Allows all staff and visitors to know to help patient

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AT RISK TO FALL TODAY?  Y___ N___ (Use Admission Assessment or Fall Risk Tool to re-assess) If Yes, complete interventions below:

**PLAN: Environmental Modifications**  Signage __
Reduce Clutter ___ Nightlight ___

**Cognitive Deficit:**  Bed alarm___ Exit (Tab) alarm___
Time void: Q2h (day)___ Q4h (night)___
Diversional activity ___ At nurse’s station when up in chair ___

Review of meds___
Instruct pt. to call nurse when getting OOB___

**OTHER:**

**Impaired Mobility:**  TABS___ Bed alarm___ Assistive device___
Shoes when up / non skid slippers ___ PT ___ OT___

**Where to document? Example:** DHMC documentation sheet
Do restraints prevent Falls?

- No evidence that restraints reduce fall injuries
- Restraints increase morbidity and may cause death
  - Reported strangulation deaths from restraints every year
  - Risk factor for delirium, decubitus ulcers, malnutrition, aspiration pneumonia

- Bed rails not used as enablers are considered a restraint
- Restraints used only by protocol
Restraints and falls

Restraint Reduction *Decreases* Injuries
816 bed Jewish Home for the Aged
Restraints decreased from 39% to 4% over 3 years
No change in falls, injuries, psychotropic use

2 year educational intervention covering 2000+ beds
- Restraint reduction 41% to 4%
- Decrease in serious injuries from 7.5% to 4.4%

UCSF Division of Geriatrics Primary Care Lecture series, May 2001

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Restraints and falls

• Alternatives to Restraints For Patients with Lines and Tubes
  – Sedation (especially in ICU)
  – Reducing delirium risk factors (drugs, dehydration)
  – Does the benefit of tubes and lines (or hospitalization) outweigh the risks of restraints?
  – Sometimes restraints may be unavoidable in this setting

• UCSF Division of Geriatrics Primary Care Lecture series, May 2001

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Restraints and Falls

• Alternatives to Restraints for Patients Who Fall or Wander
  – Accept the risk of falling
  – Hip protectors
  – Environmental modifications, day rooms, low beds, scoop mattresses
  – Least restrictive alternatives
  – Alarms
  – Sitters or family

• UCSF Division of Geriatrics Primary Care Lecture series, May 2001
Post fall evaluation

- RN to assess for injury
- Assess all factors contributing to fall
  - Mental status, medication, environment, shoes, use of adaptive equipment
- Document interventions in place at time of fall
- Review plan of care
- Report fall to physician and unit leadership
- Incident reporting as per facility protocol and state regulation
Preventing fractures and other serious injury

- Look for and Treat osteoporosis
- Vitamin D (800 to 1000 IU) improves muscle strength and bone density
- Adequate amounts of calcium (1200 – 1500 mgs per day)
- Hip Protectors reduce the incidence of hip fracture by 1/3 and may prevent pelvic fractures.* (recent data less certain)

- Exercise programs: individual, group, and Community.
  Strength training,
  Tai Chi (for balance)
  Yoga

* Parker, Gillespie and Gillespie, 2001
Preventing falls at home

– Home environment changes
  • OT home safety evaluation (VNA)
  • Fall prevention check list

– Medication review
  • Eliminate as many as feasible, esp. benzo, SSRI, psychotropics

– Education classes
  • NH falls risk reduction task force
  • CDC (on line info sheets)

– Exercise classes
  • Physical therapy, balance and gait training
  • Strength training
Patient and family education

- Stand slowly, drink plenty of fluids, avoid risky behaviors.
- Critically examine your environment for fall hazards.
- Exercise everyday to maintain strength and balance.
- Use your adaptive equipment as prescribed
- Make sure you have good shoes
- Always have a list of medications with you for every doctor’s appointment and on the refrigerator at home.
- Know the potential side effects of your medications.
- Never hesitate to question the need for a new drug.
- Ask before taking OTCs and herbal preparations.
Patient falls
Summary

- **Summary**
  - Falls are common in the elderly & may lead to injuries, decline in function and death.
  - Evaluation should included risk factor assessment, gait assessment, and home assessment
  - Exercise can improve outcomes
  - We have no evidence that restraints reduce fall related injuries
# References


- Tufts University Health and Nutrition Letter, special supplement, Too many drugs can create problems…..August 2004.

- DHMC Patient Falls and Management, policy and procedure, revised 2/28/06

- DHMC Restraint use, policy and procedure, revised, 2006

- UCSF Division of Geriatrics Primary Care Lecture series, May 2001

- Shelkey M. Module 12. Falls of Older Adults: The John A Hartford Foundation Institute for Geriatric Nursing
Web based References

- National Institute on Aging (http://www.nia.nih.gov)
- Centers for Disease Control and Prevention (http://www.cdc.gov/ncipc)
- American Geriatrics Society (http://www.americangeriatrics.org/education/forum)
- www.nihseniorhealth.gov.
SAFE HOUSE Tour

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Thank-you all for coming!

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