Objectives
(We have no conflicts of interest)

• Review evidence-based guidelines
• Describe elements of falls risk assessment and management
• Discuss the challenges of fall risk assessment in the context of clinical practice
• Ultimately, to decrease falls!
Evidence-Based Guidelines

• USPSTF and AGS/BGS recommends yearly screening over 75 years
  – NNS to prevent one fall over 1 year is 20
  – USPSTF also recommends screening 70-74 if:
    • Benzo use, > than 4 meds, cognitive impairment, decreased strength/balance
• Annual screening recommended by:
  – AGS/BGS guidelines, 2010 update
  – American Academy of Orthopedic Surgeons
  – National Institute of Clinical Excellence
• History of falls in last 12 months/acute fall

Tinetti, 1994, 2006; AGS/BGS, 2011

National/Regional Falls-Prevention Initiatives

• Stopping Elderly Accident, Deaths, and Injuries, STEADI (OR, CO, NY)
  – Provider toolkit and clinic workflow developed by CDC to help PCPs screen for and address fall risk
  – Fact sheets and patient education brochures
  – Network of community-based programs/classes
  – Approved for ABIM/ABFM MOC
• CPCi 2014, PCPCH
  – Some individual insurance plan incentives (Providence)
• PQRS, MOC credits (ABIM/ABFM)
• Requirement of Medicare Wellness Visit
Falls by the Numbers

<table>
<thead>
<tr>
<th>2.4 million</th>
<th># of 65+ patients seen in ED for falls in 2012 (CDC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Falls as leading cause of injurious deaths for 65+ (CDC, 2011)</td>
<td></td>
</tr>
<tr>
<td>22,900</td>
<td>Fall-related deaths in 65+ patients (CDC, 2011)</td>
</tr>
<tr>
<td></td>
<td>(next highest was 6,200 MV traffic-related deaths)</td>
</tr>
<tr>
<td>600</td>
<td>Oregon seniors who died of a fall (OR, 2012)</td>
</tr>
<tr>
<td>3rd Most costly hospitalized condition after cancer, heart disease; by</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2020, $55 billion/yr</td>
</tr>
<tr>
<td>8,600</td>
<td>Oregon seniors hospitalized due to a fall (OR, 2012)</td>
</tr>
<tr>
<td>60%</td>
<td>Oregon seniors who are discharged into LTC after falling (OR, 2012)</td>
</tr>
<tr>
<td>26x</td>
<td>Rate of fatal falls for seniors 85+ (vs 65-74)</td>
</tr>
<tr>
<td>100-200</td>
<td># of falls reported by typical nursing home/year (100-bed)</td>
</tr>
<tr>
<td>50-75%</td>
<td>Nursing home residents who fall/year;</td>
</tr>
<tr>
<td></td>
<td>2x rate of community living older adults</td>
</tr>
</tbody>
</table>

The Cost of Falls

- Fractures and sequelae
- Fear of falling
- Immobility
- Deconditioning
- ADL dependence
- Placement needs
- ↑ Caregiving
- ↓ QOL

The New Old Age

The cost to society of falls among the elderly exceeds billions of

↑ Caregiving

↓ QOL
Risk Factors for Falls

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Mean RR or OR*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Muscle weakness</td>
<td>4.4</td>
</tr>
<tr>
<td>History of falls</td>
<td>3.0</td>
</tr>
<tr>
<td>Gait deficit</td>
<td>2.9</td>
</tr>
<tr>
<td>Balance deficit</td>
<td>2.9</td>
</tr>
<tr>
<td>Use of assistive device</td>
<td>2.6</td>
</tr>
<tr>
<td>Arthritis</td>
<td>2.4</td>
</tr>
<tr>
<td>Impaired ADL</td>
<td>2.3</td>
</tr>
<tr>
<td>Depression</td>
<td>2.2</td>
</tr>
<tr>
<td>Cognitive Impairment</td>
<td>1.8</td>
</tr>
<tr>
<td>Age &gt; 80 years</td>
<td>1.7</td>
</tr>
<tr>
<td>Visual deficit</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*RR=relative risk; OR=odds ratio

Remember: 40% of community dwelling elderly fall annually, 50% LTC, 60% if had fall in last year, 10-15% result in fracture.

Score:
- ≤3, low risk
- ≥4, high risk

Developed by Greater Los Angeles VA Geriatric Research Education Clinical Center and affiliates and is a validated fall risk self-assessment tool (Rubenstein, 2011)
Identify main fall risk factors
Waiting room: Patient completes Stay Independent brochure
Clinical visit: Clinician identifies patients at risk
• Patient scored >4 on Stay Independent brochure or
• Fell in past year
• Feels unsteady when standing or walking
• Worries about falling

Evaluate gait, strength & balance
• Timed Up & Go (recommended)
• 30 Second Chair Stand (optional)
• 4 Stage Balance Test (optional)

Gait, strength or balance problem
2+ falls → Injury
1 fall → No injury
0 falls

Conduct multifactorial risk assessment
• Review Stay Independent brochure
• Falls history
• Physical exam
• Postural dizziness/ postural hypotension
• Cognitive screening
• Medication review
• Feet & footwear
• Use of mobility aids
• Visual acuity check

Recommend
LOW RISK fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to community exercise or fall prevention program

Moderate risk

Follow-up with patient
• Review patient education
• Assess & encourage adherence with recommendations
• Discuss & address barriers to adherence

High risk

Recommend
MEDIUM RISK fall interventions
• Educate patient
• Vitamin D +/- calcium
• Refer to PT (gait and/or balance retraining)
• a community fall prevention program

If the Patient Screens Positive for Fall Risk

– Further assessment: gait, orthostasis, cardiac problems, vision, cognitive screen
– Exercise program to prevent falls: Tai Chi is best
  • Motivational interviewing can help
– Vitamin D, calcium supplementation
– Reduction of risky medications and total medications
– Environmental modifications
  • Eyewear, footwear, gait aids
  • Home safety, fear of falls
Tests for Gait, Strength, and Balance

- The Timed Up and Go (TUG)
  - Stand up from chair without using arms
  - Walk 10 feet*
  - Turn around
  - Go back to chair
  - Sit down
  - At risk for falls if > 15 seconds

- Other possible performance tests:
  - 30-Second Chair Stand Test
  - 4-Stage Balance Test (4 steps, 10 seconds each)
  - Tinetti Gait and Balance

*May use cane/walker if normally uses it

How Much Do these Things Help to Reduce the Risk of Falls?

- Tai Chi- 49% reduced risk for falls
- Muscle strengthening/ balance retraining- 17% reduced risk
- Vitamin D supplementation- 26% reduced risk
- Withdrawal of psychotropic meds- 66% reduced risk
- Home safety assessment for person with history of falls- 34% reduced risk

Frick, J Am Geriatr Soc, 2010
Cost Effectiveness of Falls Prevention Interventions

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Relative Risk (Confidence Interval)</th>
<th>Cost (2007 $)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychotropic withdrawal</td>
<td>0.34 (0.16-0.74)</td>
<td>160</td>
</tr>
<tr>
<td>Group Tai Chi</td>
<td>0.51 (0.36-0.73)</td>
<td>104</td>
</tr>
<tr>
<td>Home modification</td>
<td>0.66 (0.54-0.81)</td>
<td>326</td>
</tr>
<tr>
<td>Vitamin D supplementation</td>
<td>0.74 (0.61-0.88)</td>
<td>99</td>
</tr>
<tr>
<td>Muscle and balance training</td>
<td>0.83 (0.66-0.98)</td>
<td>371</td>
</tr>
</tbody>
</table>

If focus only on cost, Vitamin D has highest net benefit
Frick, J Am Geriatr Soc, 2010

Tai Chi and Falls Reduction in Older Adults

✗ 6-month RCT in Oregon of 3x/wk Tai Chi vs. stretching
✗ 256 inactive, home-living elders (age 72-92)
✓ 6 month study

<table>
<thead>
<tr>
<th></th>
<th>Tai Chi</th>
<th>Stretching</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falls</td>
<td>38%</td>
<td>73%</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>Fallers</td>
<td>28%</td>
<td>46%</td>
<td>0.01</td>
</tr>
<tr>
<td>Inj. falls</td>
<td>7%</td>
<td>18%</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Tai-chi group also significantly better in balance, physical performance & fear of falling
Li, 2005
Tai Chi


Falls Prevention Website (STEADI/OHA)

http://healthoregon.org/fallprevention

- Maintained by the Oregon Health Authority
- Falls prevention information
- Program descriptions and updates
- Tai Chi and other class locations and times
- List of Otago providers
- Instructor resources: trainings, class material
- Falls workgroup information

To help determine the right class for you, please go to healthoregon.org/fallprevention or call 971-673-1101
### Overview of Balance Classes

<table>
<thead>
<tr>
<th>PROGRAM NAME</th>
<th>TAI CHI MOVING FOR BETTER BALANCE</th>
<th>MATTER OF BALANCE</th>
<th>STEPPING ON</th>
<th>OTAGO</th>
</tr>
</thead>
<tbody>
<tr>
<td>TARGET POPULATION</td>
<td>≥ 60 years Community, 'healthy'</td>
<td>≥ 60 years</td>
<td>≥60 years</td>
<td>&gt;80 or high risk ≥ 65, Homebound</td>
</tr>
<tr>
<td>KEY ASPECTS</td>
<td>Simplified Tai Chi forms (chair also)</td>
<td>Balance exercises and education</td>
<td>Balance exercises and education</td>
<td>Individually tailored balance exercises</td>
</tr>
<tr>
<td>INSTRUCTOR</td>
<td>ORI certified instructors</td>
<td>Trained lay instructors</td>
<td>Physical Therapists</td>
<td>Physical Therapists</td>
</tr>
<tr>
<td>PROGRAM FORMAT</td>
<td>2x’s/week for 12 weeks, 1 hr group sessions</td>
<td>1x/week for 8 weeks, 2 hr group sessions</td>
<td>1x/week for 7 weeks, 2 hour group</td>
<td>4 PT home visits, 3 booster sessions/yr Monthly phone f/u x 1 yr</td>
</tr>
<tr>
<td>LOCATION</td>
<td>Various locations</td>
<td>OHSU Think First Program</td>
<td>Multiple Legacy, Providence, and PVAMC locations</td>
<td>Patient’s home</td>
</tr>
<tr>
<td>REGISTRATION INFORMATION</td>
<td>Current listings through OR Senior Falls Prevention Program</td>
<td>Kayt Zundel 503-494-5353</td>
<td>Current listings through OR Senior Falls Prevention Program</td>
<td>Beyond the Clinic 503-496-0385; contact OR Senior Falls Prevention Program</td>
</tr>
</tbody>
</table>

*Oregon Senior Falls Prevention Program (Oregon Health Authority) website, healthoregon.org/fallprevention or call 971-673-1101. For generic class listing, use dotphrase.gerofallsclassgeneric or gerofallstaichi*
Home Safety Modifications

- Remove clutter!
- Remove throw rugs, mats, electrical cords
- Mark surfaces, stair edges
- Rearrange furniture
- Keep frequently used items within reach
- Install grab bars inside and outside the tub or shower and next to the toilet
- Use non-slip mats in the bathtub and on shower floors
- Improve home lighting (non-glare)
- Handrails and lights on all staircases; nightlights
- Wear shoes inside and outside the house. Avoid going barefoot or wearing slippers/flipflops

Patient Education thanks to STEADI

- Patient Education on all fronts
  - Leg strengthening exercises
  - Home safety checklist
  - Hypotension/orthostasis management
  - Fall risk and fear of falling
  - Realistic goals for increasing activity, strength and balance
  - Tai Chi classes, falls prevention classes
    - Videos also available
Vitamin D Decreases Falls and Fractures

- Quickly increases muscle strength (via Ca transport and protein synthesis)
- Fall reduction can be observed within months
- Achieve levels > 30 (NNT 15)
  - ~50% of >65 yr. have inadequate Vit D levels
- Dosage protocols (‘Chole is cool,’ bigger is better; 3>2)
  - Loading dose
    - Vitamin D\textsubscript{2} 50,000 IU weekly x 8-12 wks
  - Maintenance dose
    - Minimum of 1,000 – 2,000 IU D3 daily
    - 4,000 IU from all sources would lead to 92% of older adults with adequate levels
- Calcium- 1,200 mg b/w diet and supplement

Bordelon, 2009; AGS, 2014

Other Falls Prevention Interventions

- Foot and footwear
  - Athletic and canvas shoes are safest
  - Not barefoot!
- Glasses/Vision
  - Consider single lens in active older adults
  - At least annual eye exam
- Cognition
  - Even mildly impaired can have instability; impaired more likely to be fallers (8xs)
- Address Fear of Falls
- Address hypotension and hydration

Koepsell, 2004; Haran, 2010; Allan, 2009; Vassallo, 2009; Zijlstra, 2009
Medication Reduction: The Challenge

• >50% of all Medicare beneficiaries are treated for ≥ 5 chronic conditions/yr
• A typical Medicare beneficiary sees:
  – 2 PCPs, 5 specialists, across 4 practices

Drugs and Falls: Meta-analysis

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>Pooled Odds Ratio (OR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychotropics, any</td>
<td>1.73</td>
</tr>
<tr>
<td>Sedative/hypnotics</td>
<td>1.54</td>
</tr>
<tr>
<td>Antidepressants</td>
<td>1.66</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>1.48</td>
</tr>
<tr>
<td>Diuretics</td>
<td>1.8</td>
</tr>
<tr>
<td>Anti-arrhythmics (class 1a)</td>
<td>1.59</td>
</tr>
<tr>
<td>Digoxin</td>
<td>1.22</td>
</tr>
</tbody>
</table>

In persons 60 and over, with ≥ 1 fall

Leipzig, 1999
High-Risk Medications

- Psychoactive medications
  - Antipsychotics (e.g., Haldol, Risperdal)
  - Antianxiety drugs (e.g., Xanax, Ativan)
  - Hypnotics (e.g., Ambien, Sonata)
  - Antidepressants (TCAs > SSRI/SNRI)
- Opioids (e.g., hydrocodone, oxycodone, morphine, tramadol)
- Antiparkinson (e.g., Sinemet)
- Antiepileptics (e.g., Tegretol, Dilantin, Neurontin)
- Anticholinergics (e.g., Ditropan, Detrol)
  - Think anticholinergic burden (memory, confusion, constipation, urinary retention, dizziness)
- Cardiovascular (e.g., diuretics, antihypertensives, antiarrhythmics [class 1a], digoxin)
- Avoid: all PM products, diphenhydramine, H2 blockers

Lifestyle Modification for HTN-No Drugs?

<table>
<thead>
<tr>
<th>Modification</th>
<th>Recommendation</th>
<th>Approx SBP drop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight reduction</td>
<td>Normal BMI (19-25 kg/m2)</td>
<td>5-20 mmHg per 10 kg loss</td>
</tr>
<tr>
<td>DASH Diet</td>
<td>Rich in fruit &amp; veggies, low in fat</td>
<td>8-14 mm Hg</td>
</tr>
<tr>
<td>Sodium restriction</td>
<td>&lt;2.4 gm sodium</td>
<td>2-8 mm Hg</td>
</tr>
<tr>
<td>Exercise</td>
<td>Aerobic, at least 30 min, 5-6 x/wk</td>
<td>4-9 mm Hg</td>
</tr>
<tr>
<td>Moderate ETOH</td>
<td>&lt;=2 drinks/day</td>
<td>2-4 mm Hg</td>
</tr>
</tbody>
</table>
Selected GDR Study Outcomes

• Hypnotic Rx >2 x/week DECREASED 64%
• Anxiolytics & Antipsychotic Rx DECREASED 54%
• Psychiatric discharge to hospital DECREASED 72%
• Pressure ulcers DECREASED 66%
• Decline in ADLs DECREASED 59%
• Untreated Depression DECREASED 47%
• Falls (highest risk) DECREASED 25%
• Falls resulting in hospitalization DECREASED 23%
• Fractures DECREASED 17%

Coggins, 2010

---

Multi-Component Falls Prevention Interventions

<table>
<thead>
<tr>
<th>Rec</th>
<th>Problem</th>
<th>Interventions</th>
<th>Referral prn</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Function, fear of falling, and unsafe home environment</td>
<td>Home safety eval (OT); PT; mobility/gait aid eval (PT); Tai Chi; Otago</td>
<td>PT, OT, ST (if MCI); pelvic floor PT, MSW</td>
</tr>
<tr>
<td>A</td>
<td>Vitamin D/ Calcium</td>
<td>Recommend 4000 units D3 &amp; 1200-1500 Ca from all sources; goal D&gt;30</td>
<td>NA</td>
</tr>
<tr>
<td>B</td>
<td>Visual impairment</td>
<td>Review meds affecting vision, switch bifocals to single focal distance lenses (NNT=2!)</td>
<td>Optometry; Ophthalmology</td>
</tr>
<tr>
<td>B</td>
<td>Manage HR/rhythm abnormalities</td>
<td>Holter monitoring, medication optimization, hydration, pacer</td>
<td>Cardiology</td>
</tr>
<tr>
<td>B</td>
<td>Medication/ Polypharmacy</td>
<td>Med optimization &amp; minimization; gradual dose reduction</td>
<td>NCM/PharmD; psych MD; geri consult</td>
</tr>
<tr>
<td>C</td>
<td>Hypotension, Orthostasis, Dizziness</td>
<td>Establish right goal; Med titration; hydration; compression stockings; warm up exercises</td>
<td>Neurovestibular rehab; PT/OT</td>
</tr>
<tr>
<td>C</td>
<td>Feet/footwear</td>
<td>Avoid barefoot, slippers, flip flops</td>
<td>Podiatry</td>
</tr>
<tr>
<td></td>
<td>Morbidities (in addition to above)</td>
<td>Optimize treatment of PD, UI, COPD, DM2, OA/pain, MCI, MS, CHF, mood</td>
<td>As needed</td>
</tr>
</tbody>
</table>
# The STEADI Workflow

- **Annual Falls Risk Assessment (FRA), if score of ≥ 4:**

<table>
<thead>
<tr>
<th>Components</th>
<th>Role</th>
<th>EHR Documentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRA</td>
<td>Patient/MA</td>
<td>Docflowsheet, Check in Note, Provider Note</td>
</tr>
<tr>
<td>Timed Up and Go</td>
<td>MA</td>
<td>Docflowsheet, Provider Note</td>
</tr>
<tr>
<td>Vision Screen</td>
<td>MA</td>
<td>Docflowsheet, Provider Note</td>
</tr>
<tr>
<td>Orthostatics</td>
<td>MA</td>
<td>Docflowsheet, Provider Note</td>
</tr>
<tr>
<td>Review of Medical Conditions</td>
<td>Provider</td>
<td>Provider Note</td>
</tr>
<tr>
<td>Medication Review</td>
<td>Provider</td>
<td>Provider Note</td>
</tr>
<tr>
<td>Falls Plan</td>
<td>Provider</td>
<td>Provider Note, Patient AVS</td>
</tr>
<tr>
<td>Orders, Dx, CPT codes</td>
<td>Provider</td>
<td>STEADI Smartset</td>
</tr>
</tbody>
</table>

## STEADI Protocol

- **Fell in past year?**
  - Advised to use cane/walker
  - Unsteady when walks
  - Holds onto furniture/walls
  - Worried about falling
  - Uses hands to stand up from a chair
  - Trouble stepping onto curb
  - Rushes to toilet
  - Last feeling in feet
  - Medicine makes me light-headed
  - Medicine for sleep or mood
  - Often feel sad/depressed

## Visual Acuity

- **Eye Exam**

## Other Assessments

- **TUG (Up and Go)**
- **EP**
- **BP**

## EHR Falls Tools

### STEAFALLS — Required

<table>
<thead>
<tr>
<th>Reason for Visit</th>
<th>Reason for Visit</th>
<th>Chart Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Risk Screening</td>
<td>fall</td>
<td>eHR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date to Chart Note:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Check box and then click &quot;edit&quot;. Use F2 to complete fields in the popup screen.</td>
</tr>
<tr>
<td>2) Check box and then press enter/return and use F2 to complete fields in the Visit 4.</td>
</tr>
<tr>
<td>3) Use one of the following dot phrases within the Visit Navigator.</td>
</tr>
</tbody>
</table>

**Falls Assessment Chart Note**

- STEAFALLS HIGH RISK CHART NOTE (FRA score ≤ 4)
- STEAFALLS LOW RISK CHART NOTE (FRA score < 2)

**Order**

- **PHYSICAL THERAPY REFERRAL (REHAB0001)**
- **PHYSICAL THERAPY REFERRAL (REHAB0001)**
- **CONSULT TO HOME HEALTH (CNLPH2001)**
- **CONSULT TO PHYSICIAN (CNLPH1001)**
- **CONSULT TO PHYSICIAN (CNLPH1001)**
- **CONSULT TO PHYSICIAN (CNLPH1001)**
- **CONSULT TO PHYSICIAN (CNLPH1001)**

**CPT Codes — Required**

- **CPT CODES — YOU MUST PICK ONE OF THESE — Required**
  - F1 104 falls without injury in the past year
  - F1 105 falls and injury in the past year

## Patient Instructions - Handouts

- **Home Safety Checklist-CDC site**
- **Check for Safety Handbook-brochure version**
- **Pulmonary Rehabilitation brochures**
- **Pharmacotherapies for Falls**
- **Physical Therapy for Falls**
- **Osteoporosis Prevention**
- **Exercise**

## Patient Instructions - Fall Prevention Classes (see Overview of Balance Class)

- **Choose from any of the following to add patient instructions for the sake of balance**
  - Tai Chi Classes: CTC, BDC, DDC
  - Tai Chi: Beginner and advanced
  - Tai Chi: Balance (3 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (6 weeks, 1 hour, twice/week, exercise only)
  - Tai Chi: Balance (12 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (18 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (24 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (30 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (36 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (42 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (48 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (54 weeks, 1 hour, 2 times/week, exercise only)
  - Tai Chi: Balance (60 weeks, 1 hour, 2 times/week, exercise only)

## Other**

- **AVS Patient Instructions**
  - Low Risk AVS Patient Instructions
  - High Risk AVS Patient Instructions

**AVS Patient Instructions**

- **AVS Patient Instructions**
- **Low Risk AVS Patient Instructions**
- **High Risk AVS Patient Instructions**

**AVS Patient Instructions**

- **AVS Patient Instructions**
- **Low Risk AVS Patient Instructions**
- **High Risk AVS Patient Instructions**
High Risk Visit (FRA ≥ 4)-Provider Template

Healthy Risk Visit:
- Falls twice a year
- No use of cane or walker
- No loss of balance
- No loss of vision
- No fear of falling
- No history of prior falls
- No use of medications that cause sedation
- No use of alcohol
- No history of falls

Number of falls per year: 1

Medical Conditions contributing to fall risk include: stroke, arthritis, cough
Medications contributing to fall risk include: antihypertensives and anti-epileptics

Medication Review:
- Omeprazole 20mg PO daily
- Warfarin 5mg PO daily
- Lisinopril 20mg PO daily
- Hydrochlorothiazide 50mg PO daily
- Metformin 1000mg PO daily
- Amlodipine 5mg PO daily
- Albuterol 4mg PO daily
- Phenytoin 50mg PO daily

Characteristics of High Risk Patients

- Patients with Vitamin D deficiency: 27%
- Patients with orthostatic hypotension: 48%
- Patients who fell ≥ 1 in the past year: 68%
- Patients with documented fear of falling: 72%
- Patients with vision impairment: 68%
- Patients with high risk medications: 91%
- Patients with musculoskeletal issues: 100%
The Surprises

• “I had a very interesting STEADI patient last week. He is interesting not because he had a very high STEADI score—which I was sure would be the case but because I thought I knew the reasons he was so unsteady (deconditioning, severe vestibular problems, and neuropathy). The reasons are all true but the surprise was that he was orthostatic and that his “dizziness” has more than one component and that one of them is fixable with better hydration.”
The Challenges

- Inconsistent definition of ‘fall’
- Geriatric conditions don’t fit traditional disease-based model
- Management of competing morbidities
- Multiple providers and settings
- Time constraints
- EHR and workflow issues
- Sustainability issues

Zecevic, 2006; Jones, 2011

The Opportunities

- The role of the geriatric champion
- Falls as an exemplar for comprehensive geriatric care
- Clinical relevance for providers, staff, system
- Interdisciplinary model of care
- Community/state and health care collaboration