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Department of Medicine; Cardiovascular and Geriatric Medicine Divisions
Associate Director, UW Faint and Fall Clinic
• Meet Gloria, Robert and Alfred
• So, you live in Wisconsin?!
• Fall Risk Equation
• Treatment/Prevention
  • what works and what doesn’t!
• Their stories....
• Bottom Line
Did you know?

- Age 65+: 1 out of 3 people fall each year
- Age 72+: Fall every two years
- Age 80+: Fall every year
Did you also know?

• A fall usually represents the initial event in an adults life that can possibly lead to:
  • Beginning of serious decline
  • New or worsening medical illness

So, you live in Wisconsin?

3 things you may want to know:

1) Are we falling?
2) Are we aging?
3) Are you at risk?
Figure 1. Five leading causes of injury-related death in Wisconsin residents with corresponding counts, by age group, 2008.*

<table>
<thead>
<tr>
<th>RANK</th>
<th>0-14</th>
<th>15-44</th>
<th>45-64</th>
<th>65+</th>
<th>ALL AGES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Suffocation 27</td>
<td>Suicide 340</td>
<td>Suicide 302</td>
<td>Falls 789</td>
<td>Falls 918</td>
</tr>
<tr>
<td>2</td>
<td>Motor Vehicle Crash 22</td>
<td>Motor Vehicle Crash 296</td>
<td>Poisoning 210</td>
<td>Motor Vehicle Crash 106</td>
<td>Suicide 737</td>
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<tr>
<td>3</td>
<td>Homicide 19</td>
<td>Poisoning 259</td>
<td>Motor Vehicle Crash 157</td>
<td>Suicide 93</td>
<td>Motor Vehicle Crash 581</td>
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<tr>
<td>4</td>
<td>Drowning 13</td>
<td>Homicide 97</td>
<td>Falls 105</td>
<td>Suffocation 48</td>
<td>Poisoning 481</td>
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<tr>
<td>5</td>
<td>Fire 9</td>
<td>Falls 23</td>
<td>Homicide 24</td>
<td>Poisoning 11</td>
<td>Homicide 11</td>
</tr>
</tbody>
</table>

*All causes are unintentional unless categorized as suicide or homicide.
Fall Related Hospitalizations in WI for those 65+
Aging Population in WI

Percent Age 65+ in 2015

- 12% or less
- 12 - 15%
- 15 - 18%
- 18 - 21%
- 21 - 24%
- 24 - 27%
- More than 27%
Percent Age 65+ in 2030
- Green: 15% - 21%
- Blue: 21% - 24%
- Dark Blue: 24% - 27%
- Darker Blue: More than 27%
HIGH RISK AREA
### Fall Risk Screening

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have fallen in the past year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I use or have been advised to use a cane or walker to get around safely</td>
<td>Yes (2)</td>
<td>No (0)</td>
</tr>
<tr>
<td>3. Sometimes I feel unsteady when I am walking</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>4. I steady myself by holding onto furniture when walking at home</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>5. I am worried about falling</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>6. I need to push with my hands to stand up from a chair</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>7. I have some trouble stepping up onto a curb</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>8. I often have to rush to the toilet</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>9. I have lost some feeling in my feet</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>10. I take medicine that sometimes makes me feel light-headed or more tired than usual</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>11. I take medicine to help me sleep or improve my mood</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
<tr>
<td>12. I often feel sad or depressed</td>
<td>Yes (1)</td>
<td>No (0)</td>
</tr>
</tbody>
</table>

**Fall Risk Screening Total**

6
UW Family Medicine Clinics
2014 Screening for Falls

• 8498 - Patients Screened

• 70% - Response Rate

• 3046 - Positive for Falls!
Falls...
Facts, Risks & Solutions
Why Do Some People Fall More Than Others?

Because of the increase in risk factors contributing to poor... BALANCE!
Our “Senses” & Balance

Vision

Inner ear

Proprioceptive: the ability to sense stimuli from our bodies regarding position, movement and equilibrium
You fell...

It is time to investigate....
Falls Assessment: Questions we ask....

- Where did you fall?
- Time of day?
- What were you doing?
- How were you feeling?
- What were you wearing?
- Carrying anything

- Shoes, slippers
- Using walker or cane
- Recent illness, new medications
- Heavy meal, hydration, alcohol
- Any witnesses trauma
- Seek medical attention; any injuries
Falls Assessment Continued...

Office Exam
- Orthostatic Vital Signs
- Visual Acuity, Hearing Evaluation
- Walking Test (timed 3 meter walk)
- Physical Exam (including feet!)
- Mental Status Exam (Cognitive Screen)
- Labs, Imaging (if needed)
- Medication Review
- Spouse or family input
Traditional Risk Factors Categories

**Intrinsic**
- Medical Conditions
- Lifestyle Choices
- Cognition

**Extrinsic**
- Internal & External environment

**Modifiable**
- risk factors YOU CAN change

**Non-modifiable**
- risk factors YOU CAN’T change
Falls “The Equation”

FALL = Intrinsic + Extrinsic Factors
Falls As We Age...

**INTRINSIC CAUSES**

* Physiologic changes of aging
* Medical Illnesses
* Multiple medications “Polypharmacy”
* Social factors
* Mental status function
Risk Factors: Age-Related

**Medical Conditions**

- Glaucoma, Macular Degeneration
- Hearing Loss
- Diabetes
- Peripheral Neuropathy
- Arthritis
- Osteoporosis

- Heart Disease
- Stroke
- Incontinence
- Musculoskeletal stiffness and weakness
So, when you combine “age related” physiological changes and....

= FALL RISK!
“Multiple Medication Madness”

“HIGH RISK” Medications

Most Common Medications that Contribute to Falls

• Benzodiazepines (e.g. Lorazepam, Alprazolam, Clonazepam)
• Non-benzodiazepine hypnotics (Zolpidem = Ambien)
• Antidepressants
• Diuretics (water pill)
• Vasodilators (blood pressure medications)
• Pain Pills
• Muscle Relaxers
• Herbals – interfere with medications, common side effects

A common scenario....
Low Back Strain

NSAIDS

Hypertension

Calcium Channel Blocker

Lower Extremity Edema

Diuretic “water pill”
Herbals – be careful!

**Prescription drug: Herbal Interactions**

Anticoagulants, nonsteroidal anti-inflammatory medications, antiplatelet agents:
- garlic, ginkgo, St. John’s wort, ginseng, saw palmetto, ginger, cranberry

Anticonvulsants:
- ginkgo, St. John’s wort, valerian

Digoxin:
- St. John's wort, ginseng, ginger

**Herbal supplements and common side effects:**

Echinacea: fatigue, dizziness, headache and gastrointestinal symptoms

Garlic: nausea, burning sensation in mouth, throat, halitosis and body odor

Ginkgo biloba: nausea, dyspepsia, headache and heart palpitations

Ginseng: anorexia, rash, changes in blood pressure and headache

St. John's Wort: photosensitivity, dry mouth, dizziness and confusion
Medications
“Start LOW Go SLOW”

- Low dose and titrate slowly
- Start only one new medication at a time
- Frequent medication reconciliation
  - Review your medications with your doctor! Are there any medications you do not absolutely need?
- Know why are you taking the medication? Not just the “pink or white pill
Intrinsic Risk Factors: *Lifestyle & Behavior*

- Exercise
- Alcohol use
- Nutrition
- Hydration
Fear of Falling: “Warning Signs”

• Need to touch or hold onto things or people
• Walks very slowly
• Takes small steps
• Limited movement
• Expresses a fear of falling

“Cycle of Fear”
Social Factors Contributing to Falls

1) Role Strain
   • Bereavement, Depression
   • Caring for ill partner
   • Widowed, Single, Retirement

2) Individual Capacity
   • Coping Ability, Fear of Falling

3) Support Systems
   • Family, Community
Falls As We Age...

“EXTRINSIC” FACTORS
Home Extrinsic Factors

Furnishings too low or too high
Slick or Irregular Floor Surfaces
Poor Floor patterns
Loose Carpeting, Rugs
Clutter! Avoid it!!
Lack of grab bars (bathroom) and handrails (stairs)
Poor illumination and/or glare

Remember - Use Nightlights!
Footwear

Not so good

Better Choice!
Eyeglasses
Single, Bifocal, Trifocal, Progressive Lens!
FALLS

Intervention and Prevention
What Works and What Doesn’t
What works in falls prevention in the Community
The more ✔ the stronger the evidence

<table>
<thead>
<tr>
<th>Intervention</th>
<th>Evidence effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise with <strong>BALANCE</strong> training</td>
<td>✔✔✔</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>✔✔✔</td>
</tr>
<tr>
<td><em>(people with low vitamin D blood levels)</em></td>
<td></td>
</tr>
<tr>
<td>Occupational therapy interventions</td>
<td>✔✔</td>
</tr>
<tr>
<td>Multidisciplinary assessment with individualized/targeted interventions</td>
<td>✔✔</td>
</tr>
</tbody>
</table>

What works in falls prevention in the **Community**
The more ✔ the stronger the evidence

<table>
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<tr>
<th>Intervention</th>
<th>Evidence effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expedited first cataract surgery</td>
<td>✔</td>
</tr>
<tr>
<td>Restricted use of multifocal eyeglasses</td>
<td>✔</td>
</tr>
<tr>
<td>(particularly for mobile, active individuals)</td>
<td></td>
</tr>
<tr>
<td>Podiatry Intervention</td>
<td>✔</td>
</tr>
<tr>
<td>(treatment of corns, bunions, nail trimming)</td>
<td></td>
</tr>
<tr>
<td>Insertion of Pacemaker</td>
<td>✔</td>
</tr>
<tr>
<td>(when medically indicated)</td>
<td></td>
</tr>
<tr>
<td>Withdrawal of ”high risk” medications</td>
<td>✔</td>
</tr>
</tbody>
</table>
Intervention & Prevention:

Lifestyle & Behavioral Risk Factors

• Mental activity and focus training “think/concentrate” before and after you stand, step, turn, reach, etc.

• Exercise!!

• BALANCE classes
  - “Stepping On”
  - Tai Chi
  - Yoga
Assistive Devices – just a few tips...
Intervention & Prevention: *Assistive Devices*

- **Reachers**
- **Pole (for standing)**
Canes – a few facts

- 10% of >65 use canes
- Carry cane opposite to weak leg
- Size to middle of wrist
- Look forward, not down
- Pivot on stronger leg
- Stairs
  - “Good” leg goes first UP stairs
  - “Bad” leg goes first DOWN stairs
- Wear backpack or shoulder bag
Walkers –
“they are not all the same”

“USTEP” Walker
Movement Disorders
Walking Sticks!!
(Trekking Poles)
Falls: The “Bottom Line”

• Falls are the result of complex multifactorial interactions between intrinsic and extrinsic factors.
• A good history and focused physical can tease out many of these conditions.
• “Start Low Go Slow” with medications
• Talk to your doctor if you have had any near falls or falls
• Balance, Balance, Balance - keep working on it!
Resources: Fitness, Balance Classes

Wisconsin Institute for Healthy Aging:
• https://wihealthyaging.org/

UW Health Research Park Fitness Classes:
• http://www.uwhealth.org/exercise-fitness-aquatic/fitness-center-exercise-classes/11877
Thank you!