# A Key to Fall Risk Reduction:

## Medication Reviews and Attention to Detail

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# Objectives

1. Recognize the importance of medication reviews as a key fall prevention strategy
2. Encourage patients to review medications with their local pharmacist
3. Improve overall quality of life for elderly patients

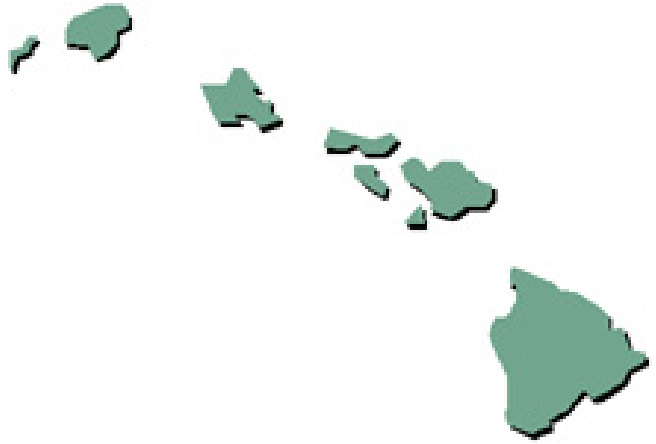
# Fall Injury Burden in Hawaii[1]

**8,000** fall-related injuries per year

Average 86 deaths and 1,912 hospitalizations *per year*

Number and rate of hospitalizations increase with age

From 2009 – 2013, hospital medical charges for fall-related injuries = $478.31 million



# What is a medication review?

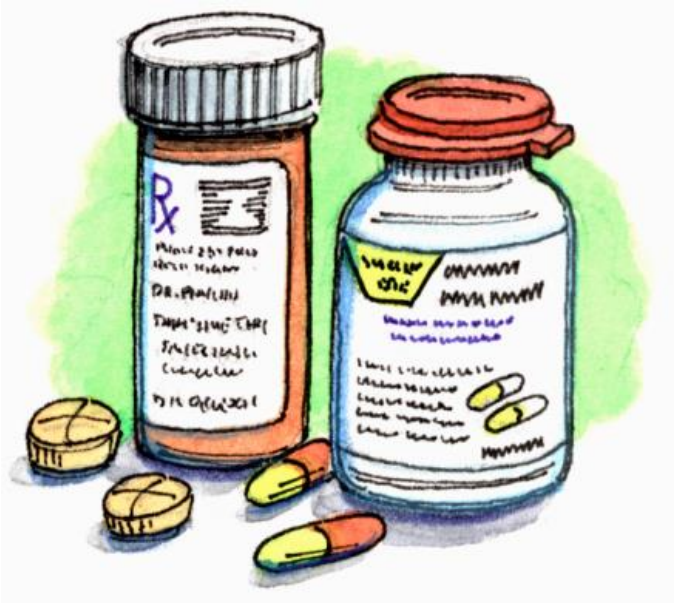
# Medication Review

5 Rights
- Patient
- Route
- Drug
- Dose
- Frequency

Appropriateness

Adherence

Side effects



# Drugs and the Elderly

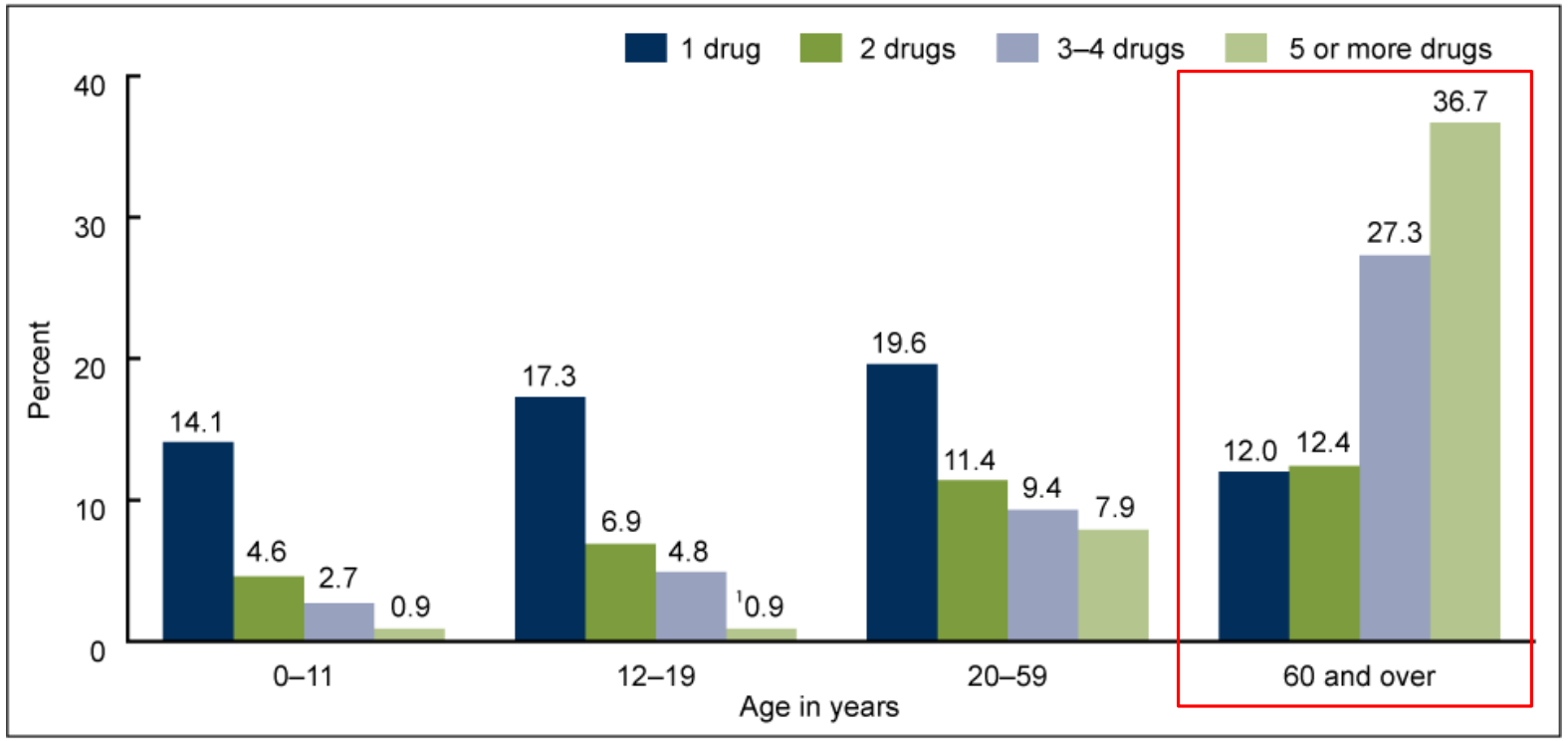
# Risks for the Elderly[2]

Polypharmacy

*"Taking five or more prescriptions simultaneously"*

# Polypharmacy and the Elderly[3]

Figure 2. Percentage of prescription drugs used in the past month, by age: United States, 2007–2008



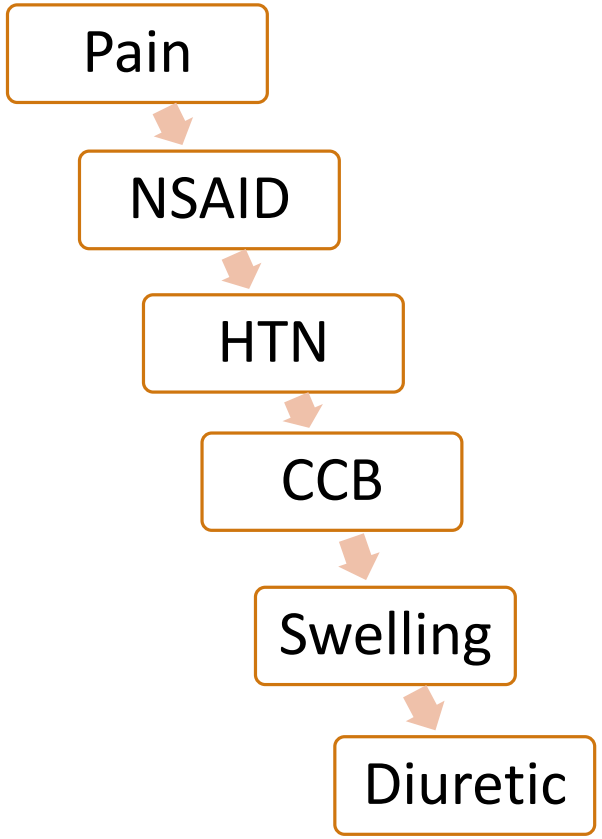

[1]Estimate is unstable; the relative standard error is greater than 30%.
SOURCE: CDC/NCHS, National Health and Nutrition Examination Survey.

# Reasons for Polypharmacy

Increase in chronic disease

Complicated health states

Prescribing cascade



# Risks for the Elderly

Pharmacology and aging

- Longer duration of action
- Increased risk for adverse effects
- Close monitoring required

# Risks for the Elderly

Anticholinergic burden

- Blurred vision
- Confusion
- Delirium
- Tachycardia
- Flushing
- Urinary retention
- Hyperthermia

# Inappropriate Prescribing

Antipsychotics

Benzodiazepines

No Indication

# Where to start?

# Department of Health of Hawaii

# NICE Guidelines: Fall Prevention[4]

National Institute for Health and Care Excellence– Falls: assessment and prevention of falls in older people (2004, updated 2013)

- Recommendations:
  - Case/risk identification
  - Individualized multifactorial risk assessment
  - Individualized multifactorial interventions

# NICE Guidelines

Multifactorial risk assessment may include the following:

- Identification of falls history
- Mobility
- Osteoporosis risk
- Vision
- Cognitive function
- Urinary incontinence
- Home Hazards
- Cardiovascular exam and med review

# NICE Guidelines

Multifactorial risk intervention may include the following:

- Strength and balance training
- Home hazard assessment and intervention
- Vision assessment and referral
- Medication review with modification/withdrawal

# Multifactorial Risk Assessment + Interventions

Conflicting evidence[1]

Ineffective or no difference

Complex and costly

# What Options Are Available for Fall Prevention?

# Risk of Falls After Withdrawal of Fall-risk-increasing Drugs (FRIDs)[5]

Objective: Identify difference in the incidence of falls after withdrawal (discontinuation or dose reduction) as single intervention

Study design: Prospective cohort study

Primary endpoint: Fall incidence

# Study Group (N = 139)

Age ≥ 65 years

History of falling

Mini-Mental State Examination score of ≥ 21

Able to walk 10 meters without an aid

# Results

**Table 2**
Use and withdrawal of fall-risk-increasing drugs ($n$ = 139)

| | Baseline use ($n$ = 126) | | Number of withdrawals ($n$ = 75) | |
|---|---|---|---|---|
| Psychotropic drugs | 33 | (26%) | 29 | (39%) |
| Sedatives | 26 | (21%) | 22 | (29%) |
| Antidepressants | 14 | (11%) | 8 | (11%) |
| Neuroleptics | 3 | (2%) | 2 | (3%) |
| Cardiovascular drugs | 62 | (50%) | 41 | (55%) |
| Antihypertensives | 51 | (41%) | 29 | (39%) |
| Nitrates | 15 | (12%) | 5 | (7%) |
| Anti-arrhythmics | 4 | (3%) | 3 | (4%) |
| Nicotinic acid | 1 | (1%) | 1 | (1%) |
| β-adrenoceptor blocker eye drops | 3 | (2%) | 3 | (4%) |
| Other drugs | 41 | (33%) | 18 | (24%) |
| Analgesics | 68 | (54%) | 9 | (12%) |
| Antivertigo preparations | 11 | (9%) | 7 | (9%) |
| Hypoglycaemics | 20 | (16%) | 1 | (1%) |
| Urinary antispasmodics | 4 | (3%) | 1 | (1%) |

*In the second column, the baseline usage of FRID for the total study population is shown. In total, 126 patients used 262 fall-risk-increasing drugs (FRID). In the third column, the 91 withdrawn FRID in 75 patients are given, clustered in psychotropic, cardiovascular and other drugs.*

# Results

Mean number of falls during follow up after adjustment (p-value 0.025):

- Intervention: 0.3
- No intervention: 3.6

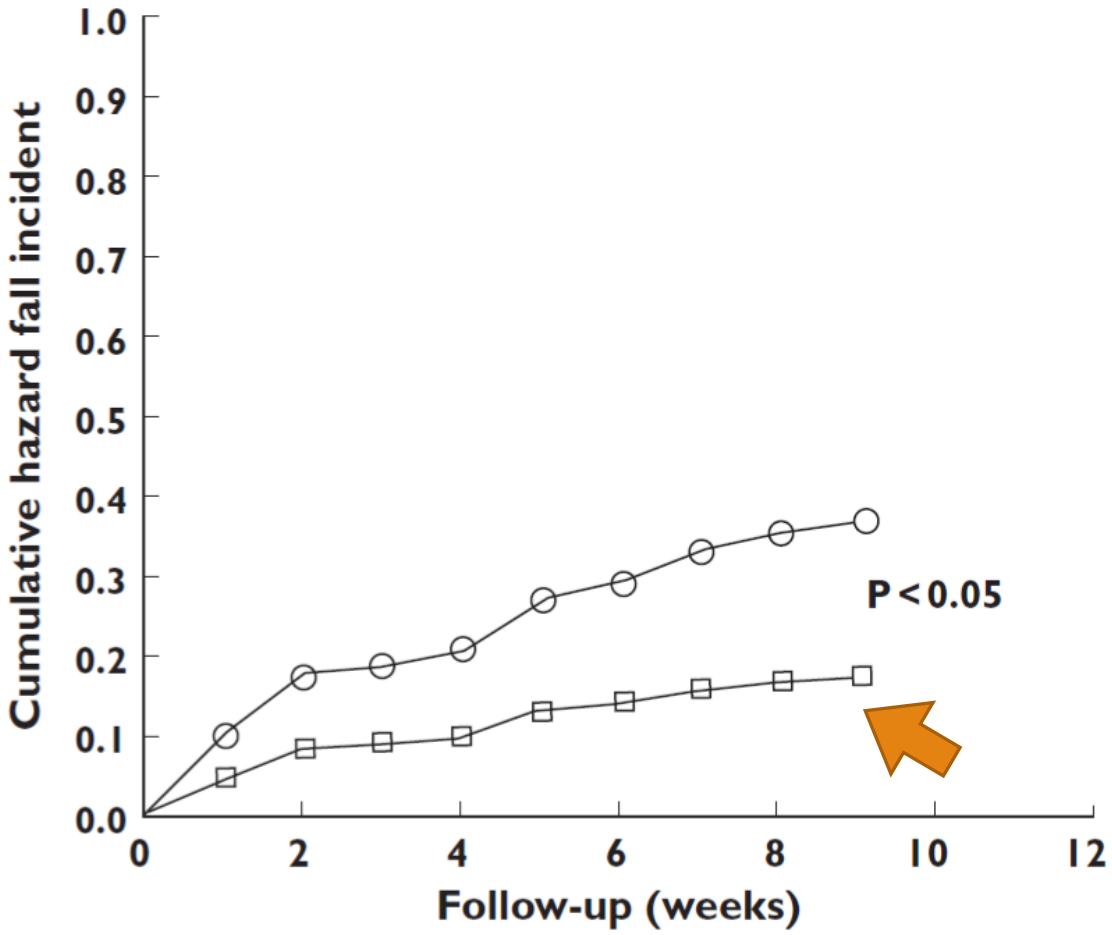



**Figure 1**
Cumulative hazard of a fall incident in 75 patients with FRID withdrawal (□) and 64 patients without FRID withdrawal (○)

# Study Limitations

Small sample size

Cohort study vs randomized controlled trial

Information bias

# From this study:

Recognizing FRIDs is the *first step* in fall prevention

# Ongoing Study[6]

IMPROveFALL study, 2012

- Objective: Compare medication assessment VS ‘care as usual’ in older adults
- Study design: Multi-center randomized control trial, N > 600
- Primary outcome: Fall incidence
- One year follow up

# Where do pharmacists fit in?

# Different Areas of Pharmacy

Hospital

Ambulatory

Administrative

Community/Retail

# Underutilized Resource…

Community pharmacy

# FREE Fall Prevention Screening

Seniors – Some meds can make you dizzy or contribute to a fall.

Make an appointment at any TIMES Pharmacy to have your medications checked.

Appointments will be from July 1st through July 22nd

- When you make an appointment with our pharmacist, we will review all your medications FREE.
- In Addition, our staff will be happy to assist you with a balance test... it only takes a couple of minutes and you can see if you are at risk for falling.

SUPERMARKETS times

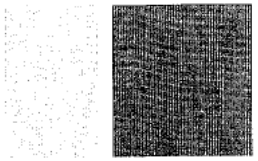
# Reaching Out to the Community

# Medication Review Skit

# Medication List Example

1. Furosemide 40 mg daily
2. Metoprolol succinate 50 mg daily
3. Lisinopril 40 mg daily
4. Warfarin 3 mg, one tab MWF
5. Aspirin 81 mg daily

# Hawaii Fall Prevention Awareness Program



Patient: _____ Date: _____ Time: _____ AM/PM

## The 30-Second Chair Stand Test

**Purpose:** To test leg strength and endurance

**Equipment:**

- A chair with a straight back without arm rests (seat 17" high)
- A stopwatch

**Instructions to the patient:**

1. Sit in the middle of the chair.
2. Place your hands on the opposite shoulder crossed at the wrists.
3. Keep your feet flat on the floor.
4. Keep your back straight and keep your arms against your chest.
5. On **"Go,"** rise to a full standing position and then sit back down again.
6. Repeat this for 30 seconds.

**CHAIR STAND —**
Below Average Scores

| Age | Men | Women |
|---|---|---|
| 60-64 | < 14 | < 12 |
| 65-69 | < 12 | < 11 |
| 70-74 | < 12 | < 10 |
| 75-79 | < 11 | < 10 |
| 80-84 | < 10 | < 9 |
| 85-89 | < 8 | < 8 |
| 90-94 | < 7 | < 4 |

On **"Go,"** begin timing.

If the patient must use his/her arms to stand, stop the test. Record "0" for the number and score.

Count the number of times the patient comes to a full standing position in 30 seconds.

If the patient is over halfway to a standing position when 30 seconds have elapsed, count it as a stand.

Record the number of times the patient stands in 30 seconds.

**Number:** _____ **Score** _____ **See next page.**

***A below average score indicates a high risk for falls.***

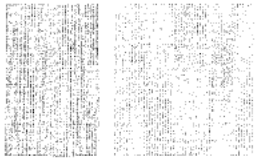
Notes:

For relevant articles, go to: **www.cdc.gov/injury/STEADI**

Centers for Disease Control and Prevention
National Center for Injury Prevention and Control

STEADI Stopping Elderly Accidents, Deaths & Injuries

# Hawaii Fall Prevention Awareness Program



Patient: _____ Date: _____ Time: _____ AM/PM

## The Timed Up and Go (TUG) Test

**Purpose:** To assess mobility

**Equipment:** A stopwatch

**Directions:** Patients wear their regular footwear and can use a walking aid if needed. Begin by having the patient sit back in a standard arm chair and identify a line 3 meters or 10 feet away on the floor.

**Instructions to the patient:**

When I say **"Go,"** I want you to:

1. Stand up from the chair
2. Walk to the line on the floor at your normal pace
3. Turn
4. Walk back to the chair at your normal pace
5. Sit down again

**TUG TEST —**
Average Scores

| Age | Men | Women |
|---|---|---|
| 60-64 | 10+ | 10+ |
| 65-69 | 12+ | 12+ |
| 70-74 | 12+ | 12+ |
| 75-79 | 12+ | 12+ |
| 80-84 | 12+ | 12+ |
| 85+ | 13+ | 13+ |
| TIME IN SECONDS | | |

On the word **"Go"** begin timing.

Stop timing after patient has sat back down and record.

**Time:** _____ **seconds**

***An older adult who takes ≥12 seconds to complete the TUG is at high risk for falling.***

Observe the patient's postural stability, gait, stride length, and sway.

**Circle all that apply:** ■ Slow tentative pace ■ Loss of balance ■ Short strides ■ Little or no arm swing ■ Steadying self on walls ■ Shuffling ■ En bloc turning ■ Not using assistive device properly

Notes:

For relevant articles, go to: **www.cdc.gov/injury/STEADI**

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# Hawaii Fall Prevention Awareness Program

Patient: _____ Date: _____ Time: _____ AM/PM

## Patient Referral Form

**Purpose:** To refer patient as part of statewide initiative in Fall Prevention

**Instructions to the patient:**

1. This form was completed as part of a statewide initiative to prevent fall injuries.
2. Take this form to your doctor or the physician that prescribed your medication.
3. The pharmacist was asked to review your medications, over-the-counter drugs and any supplements you are taking.
4. The pharmacist has found something that may contribute to dizziness which could contribute or cause a fall.
5. Ask your doctor to review your medications to make sure you do not get dizzy due to drug/supplement interaction.

**NOTE TO PHYSICIAN:**

The review of this patient's medications found no fault with the prescription. The Hawaii Department of Health's EMS and Injury Prevention Program is participating in a national program to reduce fall injuries. Research by CDC (Center for Disease Control and Prevention) and the National Council on Aging, have determined that certain prescription medications in combination with many of the common over-the-counter drugs on the market as well as supplements can contribute to dizziness in seniors which can contribute to a fall injury. Your patient may be taking medications that you did not prescribe, so all we ask is that you review meds with particular attention to any combination that may lead to dizziness. We are very grateful for your cooperation.

Notes:

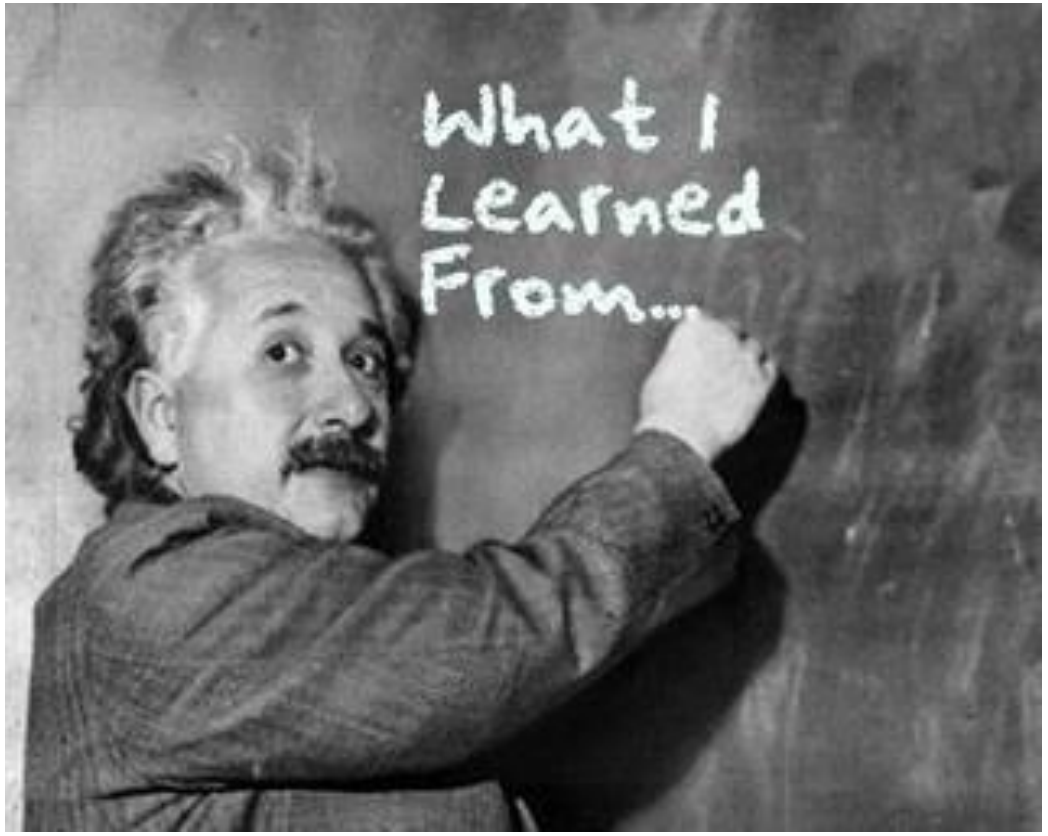
For relevant articles, go to **www.nogethurt.hawaii.gov** or call 733-9202

CDC Centers for Disease Control and Prevention National Center for Injury Prevention and Control

Hawaii State Department of Health

STEADI Stopping Elderly Accidents, Deaths & Injuries

# Take Home…




1. Medication review is an important tool for all seniors, especially those at high risk for falls
2. Identifying fall-risk-increasing drugs is a vital step in fall prevention

# References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3. Centers for Disease Control and Prevention. Older Adult Falls. http://www.cdc.gov/homeandrecreationalsafety/Falls/adultfalls.html. Published March 19, 2015. Accessed June 10, 2015.

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# Questions?