



**Don't Roll the Dice:
Preventing Falls in Older Adults
Sunday, December 4, 2016**



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Disclosure

- The program chair and presenters for this continuing education activity have reported no relevant financial relationships.

Goals and Objectives

- Choose a therapeutic plan to decrease the risk of falls using recommendations from the 2015 American Geriatrics Society Beers Criteria.
- Evaluate clinical trials that examine the relationships between vitamin D and falls in high risk geriatric patients.
- Compare screening tools that identify seniors who are at risk for falls.
- Describe workflow strategies for incorporating falls reduction strategies into the Annual Wellness Visit for Medicare recipients.

Falls in Older Adults

- Falls are the leading cause of death and emergency room visits from unintentional injuries in adults over 65
- 30% of community dwellers and up to 50% of nursing home patients fall each year
- Up to 1 million hospitalized patients fall each year
- The most serious injury associated with falls is hip fracture
- The US Preventive Task Force recommends exercise or physical therapy, and vitamin D supplementation to prevent falls (Grade B)
- AGS recommends withdrawal of psychoactive medications (Grade B) and withdrawal of other medications (Grade C)

2015 National Action Plan

- Physical mobility
- Medication management
- Home safety
- Environmental safety in the community





2015 American Geriatrics Society Beers Criteria Update

Michelle A. Fritsch, Pharm.D., CGP, BCACP
Founder & CEO, Meds MASH, LLC
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Patient Case

- LL 80 year old woman
 - Diabetes
 - Osteoarthritis
 - Hypertension
 - Generalized anxiety
- BP: sitting 150/80 mmHg, standing 126/70 mmHg
- HR 80 bpm; Wt. 55 kg; Ht. 5'1"
- BUN/SCr 17/1.01, potassium 4.0 mEq/L, fasting glucose 109 mg/dL, A1c 7.2%
- Glipizide XL 10 mg po qam
- Glargine (Lantus) insulin 10 units SQ qpm
- Hydrochlorothiazide 25 mg po qam
- Lisinopril 40 mg po qam
- Clonidine 0.2 mg po tid
- Hydrocodone/Acetaminophen 5/325 1 tab po q4h prn pain
- Diazepam 5 mg po tid
- Vitamin D 400 IU qam
- Vitamin C 1 g qday
- Multivitamin 1 tab po qam

How many of LL's medications can increase her falls risk?

- A 1-3
- B 4-5
- C 6-7
- D All of them

How will you
IDENTIFY
& MINIMIZE
LL's fall risks?

American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults

2015 Update (prior versions 1991, 1997, 2003, 2012)

NOT FALLS SPECIFIC...

... but principles will help reduce falls

What is New in the 2015 Beers Criteria?

- A Medications to avoid or adjust based on kidney function
- B List of highly anticholinergic medications to avoid
- C History of falls as a risk factor for falls
- D Agents to use with caution (vs the agents to avoid)

Beers Criteria 2015 Update

- Two new components –

lists of select drugs that should be avoided or have their dose adjusted based on the individual's kidney function

select drug–drug interactions documented to be associated with harms in older adult

- How to use guide
- Alternative therapies

Usual Beers Criteria Information

- Highly anticholinergic agents
- Antiparkinson agents (especially the anticholinergic ones)
- Antispasmodics
- Antithrombotics (dipyridamole and ticlopidine)
- Antiinfective – nitrofurantoin with CrCl <30mL/min
- Cardiovascular
- CNS depressants
- Endocrine
- Gastrointestinal
- Pain

Table 2

Usual Beers Criteria Information

Drug-Disease Interactions

- Cardiovascular
 - Heart failure
 - Syncope
- CNS
 - Chronic seizures or epilepsy
 - Delirium
 - Dementia or cognitive impairment
 - History of falls or fractures
 - Insomnia
 - Parkinson's Disease
- Gastrointestinal
 - History of gastric or duodenal ulcers
- Kidney and urinary tract
 - Chronic kidney disease
 - Urinary incontinence
 - Lower urinary tract symptoms, BPH

Table 3

Beers Criteria Information

- Medications to use with caution – Table 4
 - Vasodilators can exacerbate episodes of syncope
- Non-anti-infective drug-drug interactions to avoid – Table 5
 - Antidepressants
 - Antipsychotics
 - Benzodiazepines and hypnotics
 - Opioid receptor agonist analgesics
- Medications to avoid or reduce dose based on kidney function – Table 6
 - (Renal and hepatic function impact dosing, frequency, and selection of agents to reduce fall risk)

} with ≥ 2 other
CNS-active
drugs

How to Use the American Geriatrics Society 2015 Beers Criteria—A Guide for Patients, Clinicians, Health Systems, and Payers

Key Principles

- Potentially inappropriate, not definitely inappropriate
- Read the rationale and recommendations
- Understand why medications were included
- Offer safer nonpharmacologic and pharmacologic options when appropriate
- Starting point for a comprehensive assessment
- No unnecessary restriction of medication access
- Not equally applicable to all countries

Alternative Medications for Medications in the Use of High-Risk Medications in the Elderly and Potentially Harmful Drug–Disease Interactions in the Elderly Quality Measures

- Newer generation options with fewer side effects
- Avoid benzodiazepines and “Z drugs”
- Avoid tricyclic antidepressants, paroxetine
- Topical in place of systemic
- Acetaminophen in place of skeletal muscle relaxants, NSAIDs, or opioids whenever possible
- Short-acting over long-acting options (e.g. hypoglycemics, opiates)

What do you do now to identify and address risks in a patient like LL?

- A Systemized assessment tool applied to all patients
- B Systemized assessment tool when it seems appropriate
- C Clinical judgment when assessing patients
- D No process currently in place

What do you do now to identify and address risks in a patient like LL?

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- C Clinical judgment when assessing patients
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Falls Risk Assessment Resources

- STOPP has criteria similar to Beers Criteria
- AHRQ has some falls risk screening tools
- Fall Risk Assessment Tool (FRAT)
 - Used in several countries and adapted for some specific institutions
- Key components
 - History of falls
 - Fear of falls
- Most use number of medications or limited risk-inducing medications
- Lack the **DEEP DIVE**

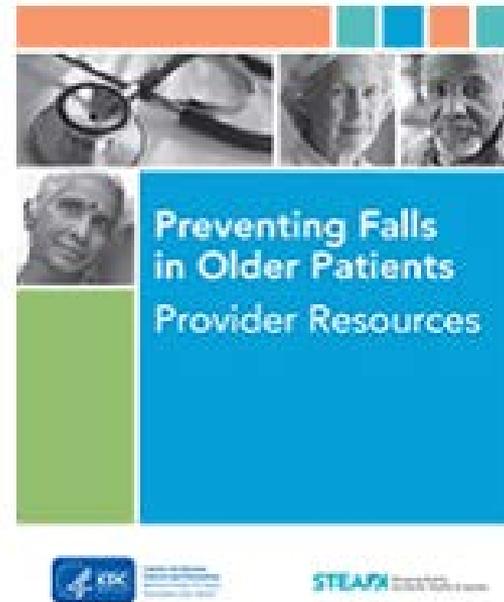


Centers for Disease Control

Stopping Elderly Accidents, Death, and Injuries

CDC STEADI Toolkit

- For providers
 - Algorithm for fall risk assessment and intervention
 - Preventing Falls in Older Patients: Provider Pocket Guide
 - Checklist
 - Assessments
 - Fact sheets
- For patients
 - Stay Independent assessment
 - Check for Safety assessment
 - Educational information



American Society of Consultant Pharmacists/National Council on Aging Falls Risk Reduction Toolkit

- Unveiled October 18, 2016
- Companion to the CDC STEADI toolkit
 - More in-depth clinical assessment of medications and medical conditions
- Toolkit components:
 - Falls Risk Checklist
 - Falls Application Cases
 - Communications Documents
 - Build Your Referral Network
 - Bibliography

Get to Know your Patient

- Age
- Transition Status
- Living Arrangements
- Substance Use
- Vital Signs
- Ambulation Status
- Sensory Function
- Lower Extremities
- Simple Gait Assessment
- Medication Self Management
- Falls History

Falls Risk Checklist		
Check all that apply:		
General Patient Factors		
<input type="checkbox"/> Age over 65	<input type="checkbox"/> Age over 80	<input type="checkbox"/> Frail
Transition Status		
<input type="checkbox"/> Pending transition	<input type="checkbox"/> Recent transition	
Living Arrangements		
<input type="checkbox"/> Lives alone	<input type="checkbox"/> In home care, full-time	<input type="checkbox"/> In home care, part-time
<input type="checkbox"/> Lives with spouse or other	<input type="checkbox"/> Assisted living facility	<input type="checkbox"/> Skilled care facility
Substance Use		
<input type="checkbox"/> Alcohol, ___ drinks per day	<input type="checkbox"/> Marijuana	<input type="checkbox"/> Other illicit substances
Vital Signs		
Postural hypotension:		Pulse:
<input type="checkbox"/> Systolic BP falls \geq -20 mm Hg	<input type="checkbox"/> Irregular	<input type="checkbox"/> Complaint of pain
<input type="checkbox"/> Diastolic BP falls \geq -10 mm Hg	<input type="checkbox"/> < 50bpm	Pain location(s): _____
<input type="checkbox"/> Dizzy or lightheaded with standing	Temperature:	Pain score ___ (0-10)
	<input type="checkbox"/> Over 98.6° F	
Ambulation Status		
<input type="checkbox"/> Cane	<input type="checkbox"/> Crutches	<input type="checkbox"/> Standard walker
<input type="checkbox"/> Front wheel walker	<input type="checkbox"/> Rollator	<input type="checkbox"/> Wheelchair
Use appears correct: <input type="checkbox"/> Yes <input type="checkbox"/> No Correction provided: _____		
Referral planned: _____		
Sensory Function		
Vision:		Hearing:
<input type="checkbox"/> Acuity < 20/40	<input type="checkbox"/> Hearing deficit	<input type="checkbox"/> Altered lower extremity sensation
<input type="checkbox"/> Blurred vision	<input type="checkbox"/> Regular use hearing aid	<input type="checkbox"/> Foot pain
<input type="checkbox"/> No eye exam in last year	<input type="checkbox"/> Sporadic use hearing aid	<input type="checkbox"/> Bunion
<input type="checkbox"/> Corrected vision		<input type="checkbox"/> Hammer toe
<input type="checkbox"/> Regular use of glasses/contacts	Taste/smell:	<input type="checkbox"/> Plantar fasciitis
<input type="checkbox"/> Sporadic use glasses/contacts	<input type="checkbox"/> Changes in taste	<input type="checkbox"/> Heel spur
	<input type="checkbox"/> Changes in smell	<input type="checkbox"/> Ingrown toenail
Medication Self Management		
<input type="checkbox"/> Medications disorganized	<input type="checkbox"/> Evidence of adherence issues	If yes, explain: _____
Falls History		
<input type="checkbox"/> Any falls in past year	<input type="checkbox"/> Number of falls in past year _____	Injury? _____
<input type="checkbox"/> Expresses worry about falling	<input type="checkbox"/> Feels unsteady standing or walking	
Medical Conditions		
<input type="checkbox"/> Arrhythmia (e.g. a fib)	<input type="checkbox"/> Arthritis (osteo, rheumatoid)	<input type="checkbox"/> Cardiovascular disease/MI
<input type="checkbox"/> Cerebellar ataxia	<input type="checkbox"/> CVA/Stroke	<input type="checkbox"/> Dementia
<input type="checkbox"/> Depression	<input type="checkbox"/> Hemophilia	<input type="checkbox"/> Impaired hepatic function
<input type="checkbox"/> Impaired renal function	<input type="checkbox"/> Incontinence	<input type="checkbox"/> Infection (e.g. UTI)
<input type="checkbox"/> Lower extremity arthroplasty	<input type="checkbox"/> Lower extremity (LE) injury/pain	<input type="checkbox"/> LE neuropathy - <input type="checkbox"/> monofilament
<input type="checkbox"/> Malnutrition, dehydration	<input type="checkbox"/> Multiple sclerosis	<input type="checkbox"/> Obesity
<input type="checkbox"/> Pain	<input type="checkbox"/> Parkinson's disease	<input type="checkbox"/> Seizures
Medication Assessment		
Number of medications (Rx, pm, OTC, vitamin, supplement, herbal)		<input type="checkbox"/> \geq 5 <input type="checkbox"/> \geq 10
Recent medication regimen change <input type="checkbox"/> within last week		<input type="checkbox"/> within last month
<i>Falls risk Medication-Related-Problems detected:</i>		
<input type="checkbox"/> Suboptimal dose*	<input type="checkbox"/> Dose too high**	<input type="checkbox"/> Safe evidence-based therapy available
<input type="checkbox"/> Interactions between medications, food, medical conditions	<input type="checkbox"/> Lacking medication therapy for all medication-requiring indications	<input type="checkbox"/> Difficulty administering any medication (eye drops, inhalers, large dosage forms)
<input type="checkbox"/> Allergies and intolerances within current regimen	<input type="checkbox"/> Unnecessary medication	
* suboptimal dose - check doses based on renal and hepatic function		
** dose too high - causing adverse effects and/or unnecessary risk		

Medical Conditions

- Gait and Balance Altering
- Pain Related Gait and Balance Changes
- Central Nervous System
- Organ Function
- Vascular Related Conditions
- Obesity
- Malnutrition
- Urinary Incontinence
- Infections

Medication Assessment

- Medication Regimen Overview
- Lab Values
- Medication Related Problems
- Geriatric Appropriate Medications

Falls Risk Inducing Drugs (FRIDs)

- CNS Depressants
- Anticholinergics
- Pain Therapy
- Anticonvulsants
- Antihypertensives
- Hypoglycemic Agents
- Over-The-Counter

Falls Risk Checklist

Check all that apply:

Medications

<input type="checkbox"/> Anticholinergics (e.g. oxybutinin, trihexiphenidyl, amitypiptiline)	<input type="checkbox"/> Anticonvulsants	<input type="checkbox"/> Antidepressants
<input type="checkbox"/> Antihypertensives/CV meds (especially α -blockers, nitrates)	<input type="checkbox"/> Antipsychotics/neuroleptics - typical or atypical	<input type="checkbox"/> Benzodiazepines (short or long t 1/2)
<input type="checkbox"/> Dopaminergic agents	<input type="checkbox"/> Hypoglycemia agents	<input type="checkbox"/> Muscle relaxants
<input type="checkbox"/> Opioids	<input type="checkbox"/> Sedative/hypnotics	<input type="checkbox"/> Over-the-counter: diphenhydramine, doxylamine

Gait, Strength, & Balance

Timed Up and Go (TUG) Test \geq 12 seconds	Score: _____ seconds
30-Second Chair Stand Test Below Average Score	Score: _____ number
4-Stage Balance Test <10 seconds	Score: _____ seconds
Parallel Stance	Score: _____ seconds
Semi-Tandem Stance	Score: _____ seconds
Tandem Stance	Score: _____ seconds
One-legged Stance	Score: _____ seconds
Observed gait problems or difficulty standing	<input type="checkbox"/> Yes <input type="checkbox"/> No

(See STEADI for instructions for the above functional assessments)

Fall Prevention Recommendations (prioritized)

Key Takeaways

- Key Takeaway #1
 - There are many medications that can increase a patient's fall risk. The more in the regimen, the greater the risk.
- Key Takeaway #2
 - Tools such as the AGS Beers Criteria can help a pharmacist identify those medications posing the greatest risk.
- Key Takeaway #3
 - Utilize a designated process to screen for fall risk, and if risk is elevated, dive deep into medication and medical condition risk factors.



Vitamin D and Falls: A Complex Relationship



Mollie Ashe Scott, Pharm.D., BCACP, CPP, FASHP
Regional Associate Dean and Clinical Associate Professor
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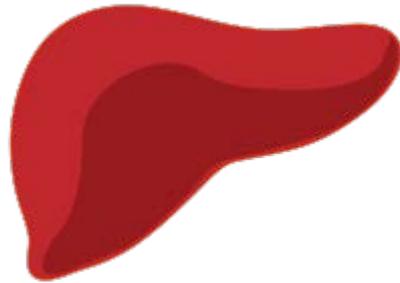
What is the 25(OH)D concentration that is considered to decrease the risk of falls?

- A 10 ng/mL
- B 20 ng/mL
- C 30 ng/mL
- D There is not an association between concentration and falls

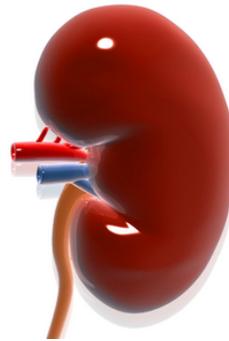
Vitamin D

- Vitamin D is important for bone and muscle development, function, and preservation
- Cholecalciferol (D3) is produced in the skin, or obtained from a few foods in the diet
- Ergocalciferol (D2) is found in some plants and is produced commercially
- Factors that influence vitamin D levels include race, vitamin D intake, sun exposure, obesity, age, and activity

Vitamin D



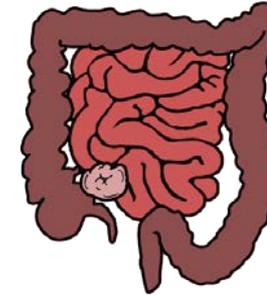
25(OH)D



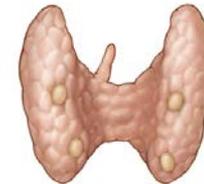
1,25(OH)D



↑ calcium mobilization



↑ calcium absorption



↓ PTH secretion



Adapted from Thacher TD et al. Mayo Clin Proc 2001;86(1):50-60

Classification of Vitamin D Status

25(OH) Vitamin D Concentration	Classification
< 10 ng/mL	Deficient
11-29 ng/mL	Insufficient
\geq 30 ng/mL	Optimal

- The International Osteoporosis Foundation recommends 30 ng/mL as the appropriate target for older adults
- 30 ng/mL is associated with maximal PTH suppression
- More than 75% of older adults fall below 30ng/mL

Rosen, C. N Engl J Med 2011; 364:248-254

Hawdon-Hughes et al. Osteoporos Int 2010;21:1151-1154

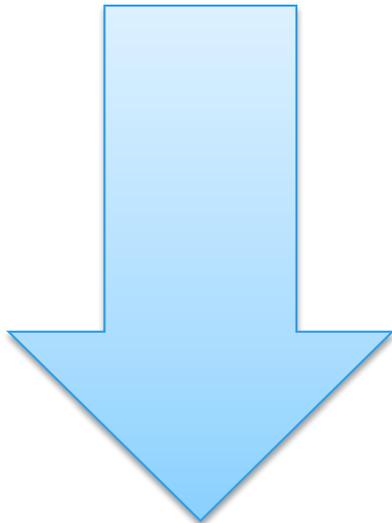
Fall Prevention with Vitamin D: a Meta-Analysis of Randomized Controlled Trials

- Objective: to test the efficacy of supplemental vitamin D with or without calcium in preventing falls in older adults
- Meta-analysis of 8 RCTs (n=2426 patients) of older adults who received vitamin D supplements with specified falls assessment
- Heterogeneity among trials was observed for vitamin D dose and vitamin D concentration
 - 200 – 600 IU vs 700 – 1000 IU
 - < 24 ng/mL vs \geq 24 ng/mL

Fall Prevention with Vitamin D: a Meta-Analysis of Randomized Controlled Trials

High Dose Vitamin D

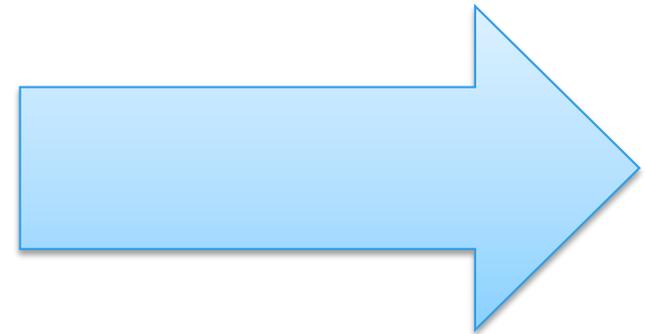
700 - 1000 IU



Decreased fall risk by 19%
RR 0.81, 95% CI 0.71-0.92
n = 1921

Low Dose Vitamin D

200 IU – 600 IU



No reduction
RR 1.0
95% CI 0.89-1.35
n = 505

Fall Prevention with Vitamin D: a Meta-Analysis of Randomized Controlled Trials

25(OH) D
< 24 ng/mL

- Did not reduce falls
- RR 1.35, 95% CI 0.98-1.84

25(OH)D
≥ 24 ng/mL

- Reduced falls by 23%
- RR 0.77, 95% CI 0.65-0.90

Vital D Study

- Single center, double blind, RCT of 2317 community-dwelling women age 70 and over in Australia
- Randomized to receive a single oral dose of cholecalciferol 500,000 IU or matched placebo in autumn or winter for 3-5 years
- Falls were defined as “an event reported by the faller or a witness, resulting in a person inadvertently coming to rest on the ground or another lower level, with or without loss of consciousness or injury”

Sanders KM et al. JAMA 2010; 18:1815-1822

Vital D Summary of Falls and Fractures

- There were more falls in the vitamin D group compared to placebo (2892 vs 2512 falls)
- 279 (24%) vitamin D users had at least one fall compared to 246 (21.9%) placebo users
- Incidence Rate Ratio for falls: 1.15 (95% CI 1.02 – 1.30), p value = 0.03
- Vitamin D users had the highest risk of falls in the first 3 months: RR 1.31 (95% CI 1.12-1.54)
- There was no difference in fractures or nonvertebral fractures
- There was an increase in soft tissue injury in vitamin D users

American Geriatrics Society Guidelines on Vitamin D and Falls

Minimum of 1000 IU daily for older adults

Target 25(OH)D level above 30 ng/mL

Vitamin D 4000 IU will ensure 92% of older adults will achieve a 25(OH) D above 30 ng/mL

Dietary Sources of Vitamin D

Source	Amount of Vitamin D
Salmon	100 – 250 IU
Sardines, canned	300 IU
Tuna	230 IU
Fortified milk, yogurt, and orange juice	100 IU
Fortified cheeses	100 IU
Fortified cereal	100 IU

Vitamin D and Falls: A Complex Relationship

< 600 IU of
vitamin D

- Does not decrease risk of falls

> 30 ng/mL of
25(OH)D

- Decreases the risk of falls

500, 000 IU of
vitamin D annually

- Increases the risk of falls



Patient Case

- LL 80 year old woman
 - Diabetes
 - Osteoarthritis
 - Hypertension
 - Generalized anxiety
- BP: sitting 150/80 mmHg, standing 126/70 mmHg
- HR 80 bpm; Wt. 55 kg; Ht. 5'1"
- BUN/SCr 17/1.01, potassium 4.0 mEq/L, fasting glucose 109 mg/dL, A1c 7.2%
- Glipizide XL 10 mg po qam
- Glargine (Lantus) insulin 10 units SQ qpm
- Hydrochlorothiazide 25 mg po qam
- Lisinopril 40 mg po qam
- Clonidine 0.2 mg po tid
- Hydrocodone/Acetaminophen 5/325 1 tab po q4h prn pain
- Diazepam 5 mg po tid
- Vitamin D 400 IU qam
- Vitamin C 1 g qday
- Multivitamin 1 tab po qam

What would an appropriate recommendation for LL's vitamin D dose be?

- A Continue vitamin D 400 IU and MVI daily
- B Increase vitamin D to 1000 IU daily
- C Increase vitamin D to 3000 IU daily
- D Increase vitamin D to 500,000 IU annually

Key Takeaways

- Key Takeaway #1
 - Vitamin D 1000 IU is the minimum dose for older adults
- Key Takeaway #2
 - The American Geriatrics Society recommends a dose of 4000 IU from all sources
- Key Takeaway #3
 - Use of an annual dose of 500,000 IU increases the risk of falls and soft tissue injury



Screening for Falls: Tools for the Pharmacist



Melanie A. Dodd, Pharm.D., Ph.C., BCACP
Department Vice Chair and Associate Professor
The University of New Mexico College of Pharmacy

Which one of the following fall tests helps determine safety in tight spaces?

- A TUG
- B 30-second sit-to-stand
- C 4-stage balance
- D Turn around test

Fall Risk Assessments

Tests to perform:

- Clinical balance assessment
- 4-Stage Balance
- Timed Up-and-Go (TUG)
- Get Up-and-Go
- Five Times Sit-to-Stand or 30-second Sit-to-Stand
- Functional Reach Test
- Turn Around Test

Clinical Balance Assessment Survey

How confident are you doing the following activities without falling?

1. Cleaning house
2. Getting dressed and undressed
3. Preparing simple meals
4. Taking a bath or shower
5. Simple shopping
6. Getting in and out of chair
7. Going up and down stairs
8. Walking around the neighborhood
9. Reaching into cabinets and closets
10. Hurrying to answer the phone/door

- Rate on 10-point scale: “0”=not at all; “10”=completely
- Tinetti Falls Efficacy Scale (J Am Ger Soc 1993)

4-Stage Balance

1. Stand with feet side by side
2. Place the instep of one foot so it is touching the big toe of the other foot
3. Place one foot in front of the other
4. Stand on one foot
 - 10 seconds in each stage

Purpose: Assess static balance

Resource: Centers for Disease Control. Stopping Elderly Accidents, Deaths and Injuries (STEADI).

Single Leg Stance (SLS)

Normals for SLS (eyes open):

- 60-69 years: 27.0 sec
- 70-79 years: 17.2 sec
- 80-99 years: 8.5 sec

If person unable to balance 5 seconds=high fall risk

Bohannon RW. *Top Geriatric Rehabilitation*, 2006; 22(1): 70-7.

Vellas, et al. One-leg balance is an important predictor of injurious falls in older persons. *JAGS*. 1997;45(6):735-738.

Timed Up-and-Go (TUG)

- Stand up from a chair with arms, walk 3 meters (to a line), turn around, walk back to chair, and sit down. Walk at a comfortable speed.
- Instruct participant to walk at a comfortable pace
- One practice trial
- Time begins with the verbal instruction “go” and stops when participant returns to seated position
- Allowed to use walking aid
- No physical assistance is given, good idea to conceal stop watch

Purpose: To assess mobility

TUG Interpretation

Time	Interpretation
<10 seconds	“Freely mobile”
10-19 seconds	“Mostly independent”
20-29 seconds	“Impaired mobility”
≥ 30 seconds	“Assisted mobility”

TUG

- TUG associated with history of falls but predictive ability limited by population
- Cutoff score for high fall risk: **>13.5 seconds**, sensitivity 87%, specificity 87%
- Indicator of ADL difficulty: > 30 seconds

Morten et al. *Physical Therapy*. 2007;87(1):24-30.

Podsiadlo, D., Richardson, S. *JAGS*. 1991; 39(2):142-148.

Shumway-Cook, et al. *Physical Therapy*. 2000;80(9):896-903.

Get Up-and-Go

1. Sit comfortably in a straight-backed chair **with no arms**
2. Rise from the chair
3. Walk a short distance (3 meters)
4. Turn around
5. Walk back to the chair
6. Turn around
7. Sit down in the chair without using arms for support

Scoring:

- 1 = Normal
- 2 = Very slightly abnormal
- 3 = Mildly abnormal
- 4 = Moderately abnormal
- 5 = Severely abnormal

- "Normal" patient gave no evidence of being at risk of falling
- "Severely abnormal" indicates that the patient appeared at risk of falling during the test
- Intermediate grades: presence of any of the following as indicators of the possibility of falling; undue slowness, hesitancy, abnormal movements of the trunk or upper limbs, staggering, stumbling

3+ indicates fall risk

Mathias et al. (1986). *Arch Phys Med Rehabil.* 1986;67:387-389.

Five Times Sit-to-Stand or 30-Second Sit-to-Stand

- Armless chair with seat height 35.5-46 cm
- Cross arms against chest
- Sitting against back of chair

Timing:

- Begin timing on the word “go” and stop timing when patient sits after the 5th stand

OR

- Count number of times patient comes to full standing position in 30-seconds

Purpose: To test leg strength and endurance

Sit-to-Stand Average Scores

- 30-seconds

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

- Centers for Disease Control. Stopping Elderly Accidents, Deaths and Injuries (STEADI).

Functional Reach Test

- Reach as far as you can forward without taking a step, do not raise/lower arm more than 1 inch from yard stick
- Measure difference
- If only 90 degrees shoulder flexion, test not reliable
- Guard from the front and prepare to catch

Purpose: To reach outside base of support

Functional Reach Test

- Normal Limits

Age	Inches
20-40	14-17
41-69	13-15
70-87	10-13

< 6 inches=high risk

6-10 inches=moderate risk

>10= low risk

<6 inches predicts fall in next 6 months

Duncan et al. *J Gerontol.* 1990;45:M192–M197.

Duncan et al. *J Gerontol.* 1992;47:M93–M98.

Turn Around test

Points	Result
4	Turn 360° safely both directions in ≤ 8 seconds
3	Turn 360° safely one side at a time in ≤ 4 seconds
2	Turn 360° safely, but slowly
1	Unsteady, needs close supervision or verbal cueing
0	Unable, or needs assistance while turning

- Record time and score

Purpose:

- Determine safety in tight spaces
- Tests vestibular influences

Which one of the following fall tests helps determine safety in tight spaces?

- A TUG
- B 30-second sit-to-stand
- C 4-stage balance
- D Turn around test

Key Takeaways

- Key Takeaway #1
 - Incorporate a standard fall risk assessment into patient visits.
- Key Takeaway #2
 - Establish fall risk baselines for all patients.



Incorporating Falls Risk Assessment into the Annual Wellness Visit



Mollie Ashe Scott, Pharm.D., BCACP, CPP, FASHP
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UNC Eshelman School of Pharmacy
Clinical Associate Professor
UNC School of Medicine

Annual Wellness Visit

- Created in 2011 as a component of the Affordable Care Act
- Available for Medicare recipients annually with no copay
- Only 11% of patients received an annual wellness visit in 2013
- Goal is to develop a personalized prevention plan
- Elements include:
 - Medical and family history
 - List of providers and medications
 - Vitals
 - Screening for cognitive impairment
 - Personalized health advice **including referral for falls prevention**
 - Assessments of health risk factors
 - Screening schedule

<https://www.medicare.gov/coverage/preventive-visit-and-yearly-wellness-exams.html>

https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/AWV_chart_ICN905706.pdf

Pharmacist-Led Annual Wellness Visit

- Assessment of patient and provider satisfaction with annual wellness visits was performed in a family medicine residency program
- The pharmacist made 247 medication interventions and 342 non-medication interventions for 69 patients
- Patients strongly agreed that the visit was important for their health
- Patients strongly agreed that they would like to see the same provider for the next annual wellness visit
- Physicians in the practice strongly disagreed that they would prefer to do the visit themselves
- Physicians strongly agreed that their patients benefitted from a pharmacist-led annual wellness visit

Example of an Annual Wellness Visit Workflow

- Pre-visit planning by the pharmacist
- Completion of forms by the patient while waiting
- Falls assessment
- Vitals
- Medication review
- Immunization review
- Screening review
- Clock test for dementia
- Final review of forms with the patient
- Adjust vitamin D dose
- Advice about falls prevention programs
- Patient checks out



Patient Case

- LL 80 year old woman
 - Diabetes
 - Osteoarthritis
 - Hypertension
 - Generalized anxiety
- BP: sitting 150/80 mmHg, standing 126/70 mmHg
- HR 80 bpm; Wt. 55 kg; Ht. 5'1"
- BUN/SCr 17/1.01, potassium 4.0 mEq/L, fasting glucose 109 mg/dL, A1c 7.2%
- Glipizide XL 10 mg po qam
- Glargine (Lantus) insulin 10 units SQ qpm
- Hydrochlorothiazide 25 mg po qam
- Lisinopril 40 mg po qam
- Clonidine 0.2 mg po tid
- Hydrocodone/Acetaminophen 5/325 1 tab po q4h prn pain
- Diazepam 5 mg po tid
- Vitamin D 400 IU qam
- Vitamin C 1 g qday
- Multivitamin 1 tab po qam

Take Home Teaching Points

- Our patient is taking many medications that increase her risk for falls
- Adjusting her regimen will take teamwork and time
- Her vitamin D dose does not decrease risk of falls and should be increased to maximize efficacy
- There are many assessments that can assess her risk of falls...choose one that works for your own practice

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Question and Answer

