

**Successful Aging:  
The Intersection of Physical and Behavioral Health**



**Falls: Reducing the human and  
financial consequences**

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## Objectives:

Attendees will be expected to identify:

1. Epidemiology of falls and fall-related injury
2. The evidence-based, multifactorial approach known to reduce the rate of falling
3. Practical strategies in use across CT to decrease the rate of falls and consequent use of health services

# Definition

Fall: sudden unintentional change in position causing one to land on a lower level

Not included: “near falls,” incidents due to an overwhelming external force, or loss of consciousness

# Falling: Prevalence and Costs

National CDC survey: 28.5% adults >65 fall q year  
Rate increases with age to  
36% those aged 80+

Among those who fell, 37% required medical tx

Bergen G, MMWR Wkly Rep 2016;65:993–998

Average cost /fall injury hospitalization: > \$30,000

Burns, Stevens, Lee. J Safety Res 2016:58

# Where are these falls happening?

Community: 25-35% fall

50% of fallers will fall 2+ times

CT ED: 3.2 falls/month (2008)

Hospital: 1 million/year (2013)

Nsing homes: 10-20% of patients per quarter (2018)

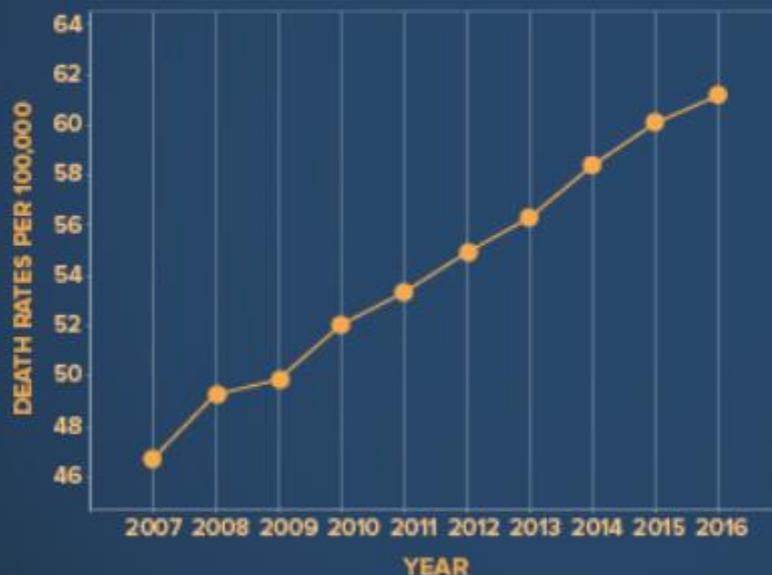
Home Care: 20% of home care patients fall first month

# What are the human consequences?

- Fear/Loss of confidence
- Functional decline
- Injury: soft tissue, bone & skull fractures
- Permanent disability especially after hip fx and TBI
- Nursing home placement: 1 fall increases risk X 3  
1 injurious fall increases risk X 10
- Leading cause of fatal injury
- Complications if unable to get up unassisted  
dehydration, skin breakdown, rhabdomyolysis, hypothermia

# Fall Death Rates in the U.S. **INCREASED 30%**

FROM 2007 TO 2016 FOR OLDER ADULTS



If rates continue to rise,  
we can anticipate

**7 FALL  
DEATHS**

EVERY HOUR

BY 2030

Learn more at [www.cdc.gov/HomeandRecreationalSafety](http://www.cdc.gov/HomeandRecreationalSafety).



# What are the financial consequences?

Centers for Disease Control:

~~2013~~      2015

Direct medical costs of falls: ~~\$34~~      \$50 billion

includes hospital and nursing home care, doctors and other professional services, rehabilitation, community-based services, use of medical equipment, prescription drugs, changes made to the home, and insurance processing.

# A Longitudinal Analysis of Total 3-Year Healthcare Costs\* for Older Adults Who Experience a Fall Requiring Medical Care

Annual costs attributable to falling:

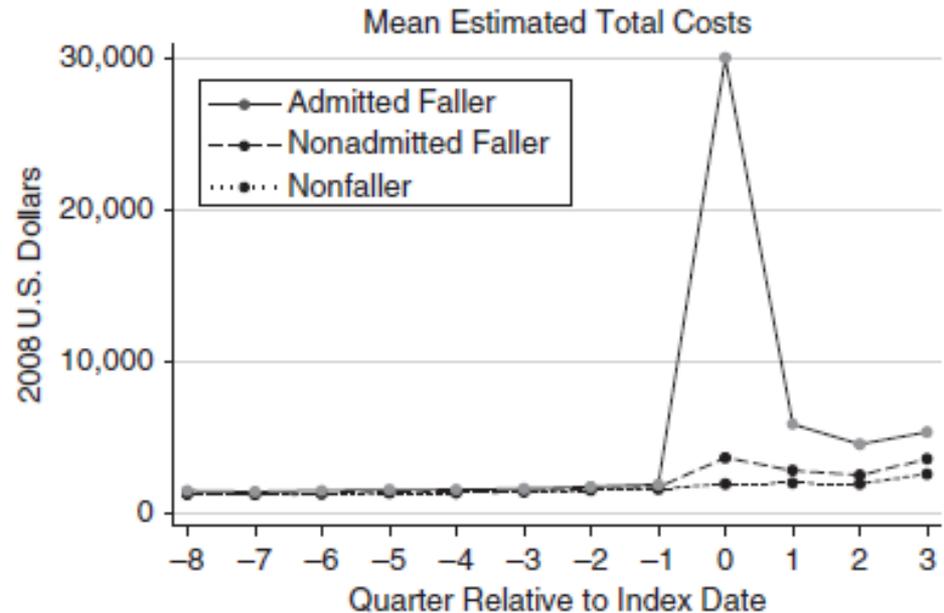
\$35,144 if admitted faller

\$ 3,408 if nonadmitted

In the quarter immediately after the fall, admitted faller costs were 15.5 times greater than non-fallers. (P<.001).

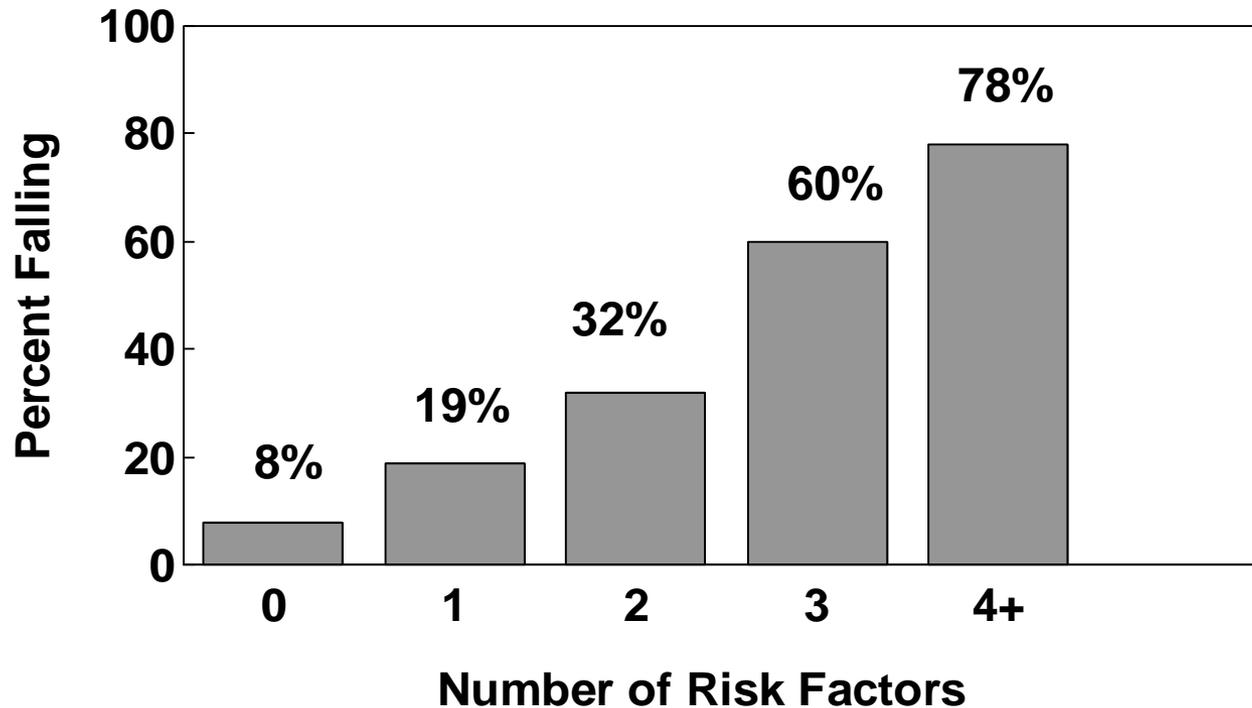
In all periods after the index date, admitted and nonadmitted faller costs were significantly greater than nonfaller costs. (P<.001).

JAGS MAY 2010-VOL. 58, NO. 5



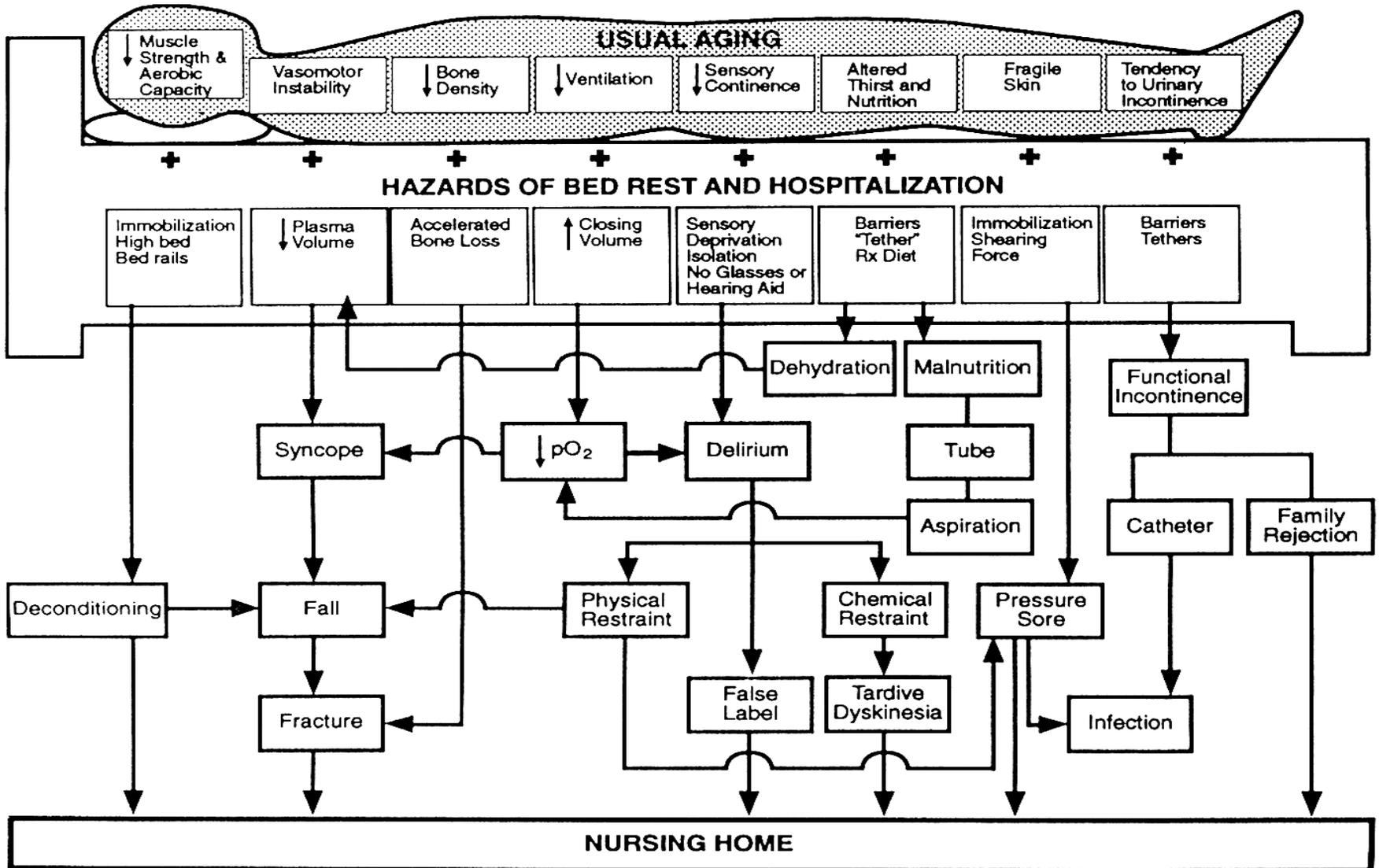
\*primary & specialty care office visits (incl. mental health), inpatient hospitalizations, ambulatory surgery, outpatient medications & supplies, long-term care consults, radiology & laboratory tests, home health services, emergency care, and skilled nsg.

# Percent falling by number of factors



<u>No. Falling</u>	<b>4</b>	<b>20</b>	<b>30</b>	<b>35</b>	<b>18</b>
<b>No. Subjects</b>	<b>51</b>	<b>106</b>	<b>94</b>	<b>58</b>	<b>23</b>

# THE CASCADE TO DEPENDENCY



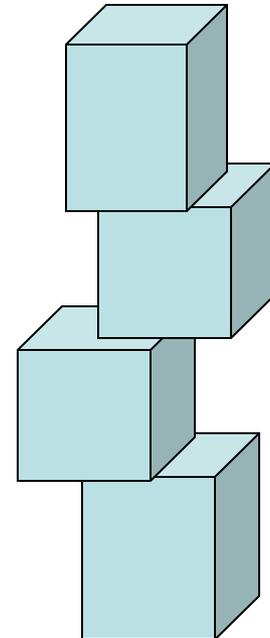
# Multifactorial Etiology

Risks accumulate like a tower of blocks.

The more risk factors the greater the instability

A common set of risk factors contributes to other geriatric syndromes:

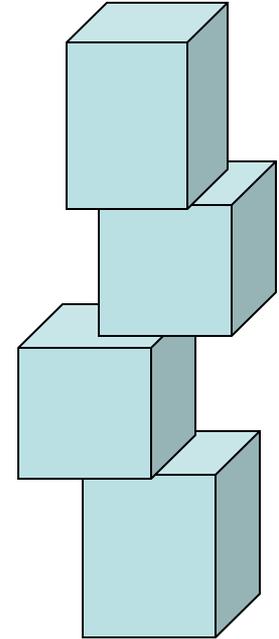
- Falls
- Delirium
- Functional decline
- Incontinence



# Multifactorial Etiology

## Fall risk factors

- Sedentary or immobilized → deconditioned → deficits balance, gait and transfers
- Polypharmacy = 4+ scripts on regular basis
- Postural hypotension
- Sensory deficits: vision, hearing, feet, cognitive
- Environmental factors → hazards including inappropriate footwear, unsafe fit, use or repair of assistive device



# Test: Balance, Gait and Transfers

- Balance:
  - unilateral stance on each leg of at least 5 sec
- Gait observations:
  - unequal or shortened step length
  - shuffle
  - loss of balance on turns
- Transfers:
  - pulling or rocking to rise
  - “drop sitting”



## Exercise!

- In a standing position
- Challenge balance, thereby
- Increases strength so safely sit-to-stand and reverse lift feet when walk have forward momentum

## Exercise:

# Tai Ji Quan: Moving for Better Balance

Slow, *relaxed*, movements which challenge balance, practice weight shifting & require mental concentration

Can be done progressing from sitting to standing.

Novel: Well received by many older adults.

Effective in reducing falls even among older adults with Parkinson's.

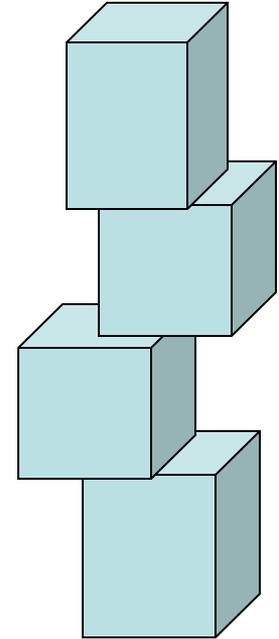
*Li et al. 2012 NEJM 366;6*



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# Risk Factors & Intervention

## Polypharmacy

4+ meds (script and OTC) = high risk



### Interventions:

- Caution: over-the-counters and “natural” remedies
- Before taking, check side effects (impaired balance, weakness, dizziness, gastrointestinal problems).
- Discuss w/ PCP or pharmacist
- Check if any med is on Beers List/ Med Rec. software
- Carry up to date medication list/card at all times
- Check postural blood pressures  
Just asking if dizzy is not adequate.

# Checking Postural Blood Pressure



Rest supine 5 minutes.  
Check BP and 10  
second pulse



Stand



Recheck immediately and 2 minutes later.  
Positive if systole drops 20 mm Hg between supine  
and either standing read, or drops below 90

# Postural Hypotension Intervention

Could be a side effect of individual medication or combinations, dehydration, chronic diseases (e.g. diabetes, Parkinson's).

Recommend:

Slow transfers supine to sit to stand.

Arm and leg exercise prior to standing,

Never walk when dizzy

Hydration: unless restricted, eight 8 oz glasses/day

Timed toileting every 2 hours. "Just do it"

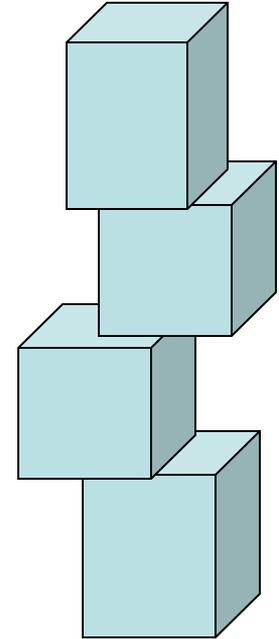
Med review with pharmacist

Report to PCP

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# Sensory Deficits:

Feet: Footwear: Shoes correct size, don't leave marks.  
enclosed heel No high heels.  
Remove slip/trip hazards

Vision: Regular exams; glasses clean & straight on  
face. Avoid multi-focal lenses. Proper lighting.

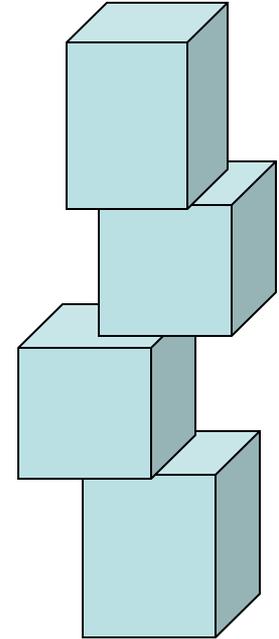
Hearing: Regular exams to check for cerumen & have  
a hearing test

Cognition: Simplify routines, remove environmental  
hazards, teach caregivers

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# Modify Environment

OT &/or Certified Aging in Place Specialist

- Wide, well lit, clutter free walking paths  
(-Pet bowls/leash/toys)
- Grab bars/handrails for transfers
- Frequently used items to within easy reach; avoid climbing
- Gloves in winter; don't walk with hands in pockets



If you fell tonight, would you know how to get up.  
If you can't get up, how will you call for help?



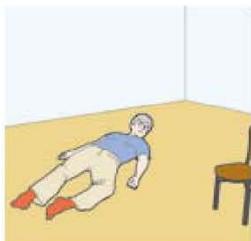
“If nothing else, roll.  
Don't just lay there!”

# How to get up from a fall

## 1. Prepare



Getting up quickly or the wrong way could make an injury worse. If you are hurt, call for help using a medical alert service or a telephone.

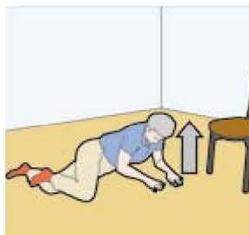


Look around for a sturdy piece of furniture, or the bottom of a staircase. Don't try and stand up on your own.

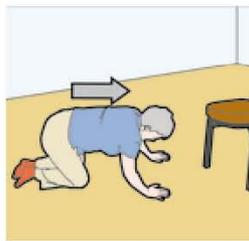


Roll over onto your side by turning your head in the direction you are trying to roll, then move your shoulders, arm, hips, and finally your leg over.

## 2. Rise



Push your upper body up. Lift your head and pause for a few moments to steady yourself.



Slowly get up on your hands and knees and crawl to a sturdy chair.



Place your hands on the seat of the chair and slide one foot forward so it is flat on the floor.

## 3. Sit



Keep the other leg bent with the knee on the floor.



From this kneeling position, slowly rise and turn your body to sit in the chair.



Sit for a few minutes before you try to do anything else.

Talk to your primary care provider about having a fall-risk evaluation. The fact that you have fallen once means you have a high risk of falling again.

Philips Lifeline. Sharing your concern for falls safety.

Source: Baker, Dorothy, Ph.D., RNCS, Research Scientist, Yale University School of Medicine New Haven, Connecticut; Connecticut Collaboration for Fall Prevention.

**PHILIPS**  
Lifeline



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