

Electronic health record integration

8 Risk factors that matter

Assessment and care plans

# Hendrich II

FALL RISK MODEL®



## Should Zero Falls be the Goal? A New Era for Reducing Injurious Falls and Healthy Aging

*Featuring Hackensack Meridian Health using the Hendrich II Fall Risk Model®*

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September 10, 2020

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Hosted by The American Hospital Association

## Presenters



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Researcher, Hendrich II Fall Risk Model, \*Founding Co-Chair, and Advisor, Building Age-Friendly Health Systems, Mentor for AHA NextGen Leaders, \*An Initiative of John A. Hartford Foundation and IHI in partnership with American Hospital Association and Catholic Health Association of the United States



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## Questions to Think About...

1

Is your fall risk assessment part of your medical problem list or is it a “patient safety event and a nursing problem”?

2

Are the risk factors person-centered with evidence-based interventions and interprofessional practice?

3

What role does language play in your environment with desired behavior change?  
*“Safe Mobility Team” vs. “Fall Committee”*

4

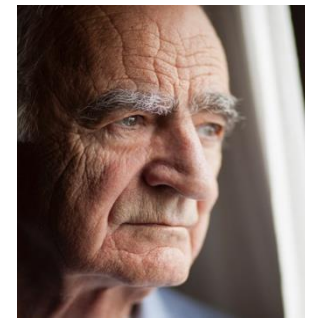
Does your culture and practice promote “only zero falls”?

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# One View of Aging...What is yours?



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# Age and Aging: Differing Views



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## Another View of Aging ...

2016, then **93-year-old Ernie** became the oldest person ever to run across America — from San Diego, California, all the way to Saint Simons Island, Georgia

“I was running three days a week, but it's the same old thing. And I just got a little bored,” he said. He recently got so restless, he decided to do something remarkable. On Saturday, at the age of 95, Ernie will return to the Georgia beach where his run ended — to start a new run back across the country. His last run took three years. He expects this one to take a little longer and hopes to reach San Diego sometime after his 100th birthday

### AUGUST 2020 UPDATE

Ernie Andrus, who turns 97 next week, still marching across America averaging 4 miles a day. He plans to reach Pacific on 101<sup>st</sup> birthday and he is “planning a coast to coast relay after that”



<https://www.cbsnews.com/news/ernie-andrus-96-year-old-trying-to-become-oldest->

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## Hendrich II Fall Risk Model<sup>®</sup> Risk Factors

Risk Factor	Risk Points
Confusion/Disorientation/Impulsivity	4
Symptomatic Depression	2
Altered Elimination	1
Dizziness/Vertigo	1
Gender (Identifies as Male)	1
Any Administered Antiepileptics (anticonvulsant)	2
Any Administered Benzodiazepines	1
Get-Up-and-Go Test: Rising from a chair ©2020 AHI of Indiana, Inc. All Rights Reserved. Reproduction, distribution or transmission prohibited except by prior written permission of AHI of Indiana, Inc.	0-4

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## Risk Factors



A focus on the cause of each risk factor can help the clinician reduce, stabilize, or eliminate modifiable risk factors.

\*Must be part of a comprehensive assessment

The **Hendrich II Fall Risk Model**<sup>®</sup> has **EIGHT** risk factors to help predict fall risk. They include:

**5 intrinsic risk factors**

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**2 classes of drugs**

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**1 simple gait and balance test to assess and score the patient's mobility**

\*Side effects of medications allowed many categories to be statistically eliminated without losing predictive validity-See 2019 Beer's List Criteria

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# Validation Study 2020

## Validation of the Hendrich II Fall Risk Model: The imperative to reduce modifiable risk factors

Ann L. Hendrich (PhD, RN, FAAN)<sup>a,c,\*</sup>,  
[Angelo Bufalino \(PhD\)<sup>b</sup>](#),  
[Clariencia Groves \(DEng, CHDA\)<sup>a</sup>](#)

<https://doi.org/10.1016/j.apnr.2020.151243>

- 36-month consecutive time period- large integrated healthcare system, 2,600 sites of care in 21 states and the District of Columbia, 151 hospitals, behavioral health, skilled, rehabilitation, and more than 50 senior care facilities
- Data abstracted from electronic record tested with the Hendrich II Model for psychometric analysis
- Fall and non-fall (control) populations for statistical tests
  - Non-falls=214,358 Falls=492
- Nine hospitals-consecutive admissions
  - 25 to 474 beds with all levels and types of care represented for the facilities included
- Pediatrics and zero scores (not scored) excluded from study

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## Deconditioning and Readmissions: Intrinsic Risk Factors and Immobility

We must shift our perspective to treat fall risk factors in the same way we assess, diagnosis, and evaluate disease states or the complications of a disease.

Fall risk factors should become part of their relational care plan and be addressed by an interprofessional team across the continuum. Falls are a leading cause of 30-day readmissions points to the lack of continuum of care coordination and follow-ups necessary to prevent fall-related injuries (Hoffman et al., 2019).

During a hospitalization, older adults spend upwards of 95% of their time immobile. 12% decline in aerobic capacity and a 16% decline in knee extensor strength.

At that rate, it takes precious little time for an older adult without much reserve to slip below the level of functional independence.

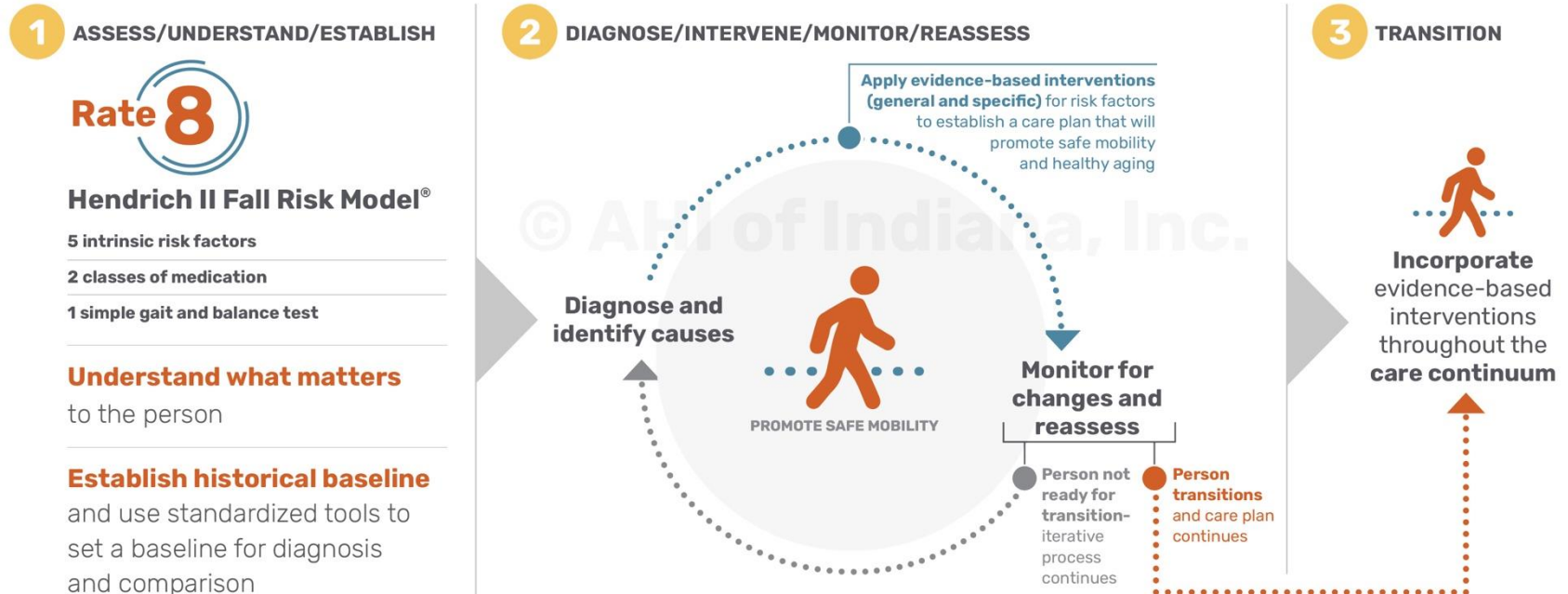
In practical terms, this means that many older adults who were living independently before they were hospitalized for a medical illness, like pneumonia or heart failure, are unable to return home.



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# A Continuum of Care Model

Using fall risk factors to promote safe mobility and healthy aging



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# Two Frameworks: High Reliability and the Age-Friendly 4Ms

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# Age-Friendly Health Systems

An initiative of The John A. Hartford Foundation and the Institute for Healthcare Improvement (IHI) in partnership with the American Hospital Association (AHA) and the Catholic Health Association of the United States (CHA).

## Overall Goal of Age-Friendly Health Systems:

Build a social movement so *all care* with older adults is *age-friendly care*:

- Guided by an essential set of evidence-based practices (4Ms);
- Causes no harms; and
- Is consistent with What Matters to the older adult and their family.

## Specific Aims:

**By end of 2020:** Reach 20% of US healthcare ~1000 hospitals & practices

\*More information can be found at [IHI.org/ AgeFriendly](https://IHI.org/AgeFriendly). To join the Age-Friendly Health Systems movement, email [AFHS@ihi.org](mailto:AFHS@ihi.org).

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# Age-Friendly Health Systems

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## The 4Ms Framework

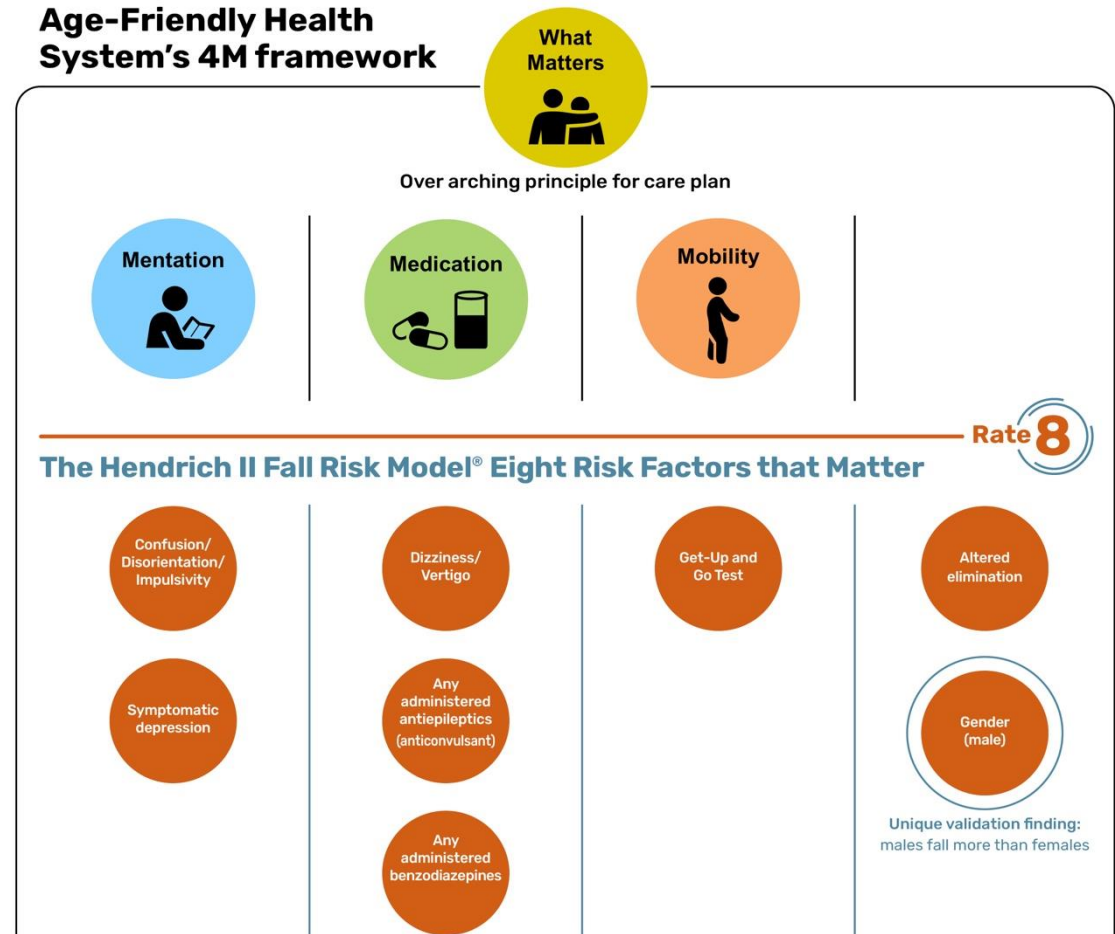
Age-Friendly care is the reliable implementation of a set of evidence-based geriatric best practice interventions across four core elements, known as the 4Ms, to all older adults in your system.

The 4Ms	Description
<b>What <u>M</u>atters</b>	Know and align care with each older adult’s specific health outcome goals and care preferences including, but not limited to end-of-life care, and across settings of care
<b><u>M</u>edication</b>	If medication is necessary, use Age-Friendly medications that do not interfere with What Matters to the older adult, Mobility, or Mentation across settings of care
<b><u>M</u>entation</b>	Prevent, identify, treat, and manage dementia, depression, and delirium across settings of care
<b><u>M</u>obility</b>	Ensure that older adults move safely every day to maintain function and do What Matters

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# Applying the 4Ms to Risk Factors that Matter

## Age-Friendly Health System's 4M framework



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THE NEXT  
**ERA**<sup>™</sup>  
in preventing  
**INJURIOUS FALLS**

**E**lectronic health  
record integration

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**8** Risk factors that matter

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**A**ssessment and care plans

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## Fall Risk Interventions

**Evidence-based interventions** that target individual risk factors for falling have been shown to **reduce injurious falls** and promote falls self-efficacy.

**Interventions targeting delirium reduction can reduce falls by 64%. (Hshieh et al 2015)**

**Nursing alone cannot reduce fall related injuries and support safe mobility.**

- Organizations that take a whole-house approach accelerate improvement. (Miake-Lye et al 2013)

**The term “non-compliant” is overused.**

- 50-88% of patients do not believe they are at risk for a fall in the hospital. (Twibell et al 2015, Sonnad et al 2014)
- Evidence supports that structured education about risk and consequences can reduce falls and injuries by 45-100% with cognitively intact patients. (li-Chi Huang 2015, Haines et al 2011)

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Rate **8**

## Risk Factor One-Confusion

- **Not a diagnosis** — Signals a need for cognitive screening and in-depth assessment.
- **Delirium** or **Dementia** or other pathophysiological condition?
  - **Delirium** – acute confusional state and encephalopathy (inability to redirect, focus, and sustain attention, “easily distracted”)
  - **Dementia** – slowly progressive over months to years with fewer fluctuations
- Those with cognitive impairment are highly susceptible to delirium during hospitalization, post-operatively, and after discharge from the hospital.
  - We now recognize one can be superimposed on the other and delirium may place the person at greater risk of dementia
- Recognition of the condition can help identify modifiable risk factors.
- Early diagnosis is a challenge due to the subtle nature.
- Individuals and families still prefer early diagnosis. (van den Dungen et al. 2014)

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# Confusion

Rate **8**

## Interprofessional Team Interventions

- Review history carefully for length of time and symptom origination.
  - Think Sepsis and rule it out with provider and interprofessional care team.
  - Has hearing and vision been fully evaluated?
- Review all medications for possible side effects, correct dosages and administration, and *efficacy*.
- Opioids and alcohol misuse and abuse should be part of the history.
- Consider using a standard tool to set baseline for comparison-the 2-item Ultabrief (UB) Delirium Screen<sup>®</sup>. (Fick et al, JHM 2015)
  1. Please tell me day of the week.
  2. Please tell me the months of the year backward, say December as your first month.

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# Symptomatic Depression

Rate **8**

## Interprofessional Team Interventions

- Assessment for depression and mistreatment
  - Patient Health Questionnaire (PHQ-9)
  - Beck Depression Inventory (21 items)
  - Geriatric Depression Scale (5 items)
  - Psychological, physical, sexual, neglect
- Medication review
  - Compliance and appropriateness
- Look and listen for somatic symptoms
  - Insomnia
  - Fatigue
  - Chronic pain
- Recognize risk taking and suicidal thoughts/plans
  - Environmental safety
  - Substances at bedside (Thick-It, hand cleansers, pain patches)
- Appropriate monitoring and discharge planning
- Community resources that match where they live
  - Activities
  - Groups
  - On-line resources for community and connection
  - Alexa and Siri

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## Differential Diagnoses: The 3 D's in the Older Adult

- Depression
- Delirium
- Dementia

Mini-Cog assessment to detect cognitive impairment in older adults, Saint Louis University Mental Status, (SLUMS) examination for detecting mild cognitive impairment and dementia, Montreal Cognitive Assessment (MOCA)

### Later in life depression (LLD)

- Depressive episodes after age 60
- Not a natural process of aging and age but associated with:
  - Chronic disease
  - Loss of friends and spouse
  - Financial challenges
  - Disparity in care (race, ethnicity, age)



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# Altered Elimination

Rate **8**

## Causes

- Bladder and bowel
  - Urgency
  - Urinary retention
  - Acute or chronic
  - Frequency
  - Incontinence
  - Diarrhea
  - Constipation

## Interprofessional Team Interventions

- History and duration
- Bladder scanner
- Dehydration
- Infection
- Stool softeners
- Nutrition
- Medication side effects
- Time of medication administration?

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# Dizziness and Vertigo

Rate **8**

## Causes

- Medication side effects
- Inner ear conditions
- Central Nervous System impairments
- Head injuries
- Infections
- Metabolic changes
- Anemia
- Generalized weakness secondary to a disease state or immediately following a surgical or interventional procedure outpatient areas, or in the hospitalized patient
- Postural changes



## Interprofessional Team Interventions

- Review medications and dosages.
- Check ear canals.
- Teach patient to sit at the side of the bed or chair for a moment to be sure they are not dizzy.
- Review lab values for possible dehydration, anemia, metabolic changes, orthostatic vital signs and check for arrhythmias, which can be masked in the older adult.
- Dehydration – fluids and ability to manage containers (opening, swallowing).

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## Gender (Identifies as Male)

Rate **8**

- The “go it alone” factor for **ambulation and toileting and being able to manage self at home.**
- The Hendrich study determined male gender to be an independent fall risk factor. Simply being male does not create an increased risk of falling.
- For example, some men may be more likely to take risks, do it alone, ignore instructions, or refuse assistance from a female nurse or any care provider.
- There can also be differences in cultures, race, and ethnicity.



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## Antiepileptics and Benzodiazepines

**Rate 8**

The two classes of drugs that are exceptions to this rule are **antiepileptics** and **benzodiazepines**. They always incrementally increase fall risk in hospitalized patients if present with other risk factors.

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Patients who take these two classes of drugs are more at risk for falling due to the impact on the central nervous system and drug side effects.

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In order for a benzodiazepine or antiepileptic medication to be scored, the medication must be administered not just ordered.

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# Things to Consider About Medications

Rate **8**

- Most common side effects of medications across all populations
  - Sedation or altered sensorium
  - Nausea, vomiting
  - Heart palpitations
  - Altered elimination
  - Dizziness or vertigo
  - Changes in gait and balance
- Medication adherence
  - Disparity impact
  - Depression
  - Cognitive status



- Polypharmacy
  - Multiple medications that may be unnecessary, ineffective, or not clinically indicated (Hamilton, Gallagher, Ryan, Byrne & O'Mahoney 2011)
- Deprescribing
  - Systematic removal of inappropriate medications supervised by a healthcare professional (Reeve, Gnjjidic, Long, and Hilmer 2015)

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# Things to Consider About Medications

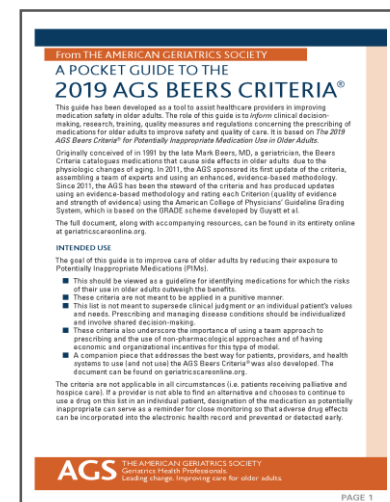
Rate **8**

## Interprofessional Team Interventions

- Medication assessment is an important strategy to identify and reduce polypharmacy in older adults.
  - “What matters most to you?”
- Over the counter medications, herbal, and dietary supplements must also be considered.
- Beers Criteria
  - Appropriateness
  - Drug to drug interactions
- STOP – Screening of Older People’s Prescriptions (O’Mahoney et al 2015)
- START – Screening Tool to Alert to Right Treatment (O’Mahoney et al 2015)

## American Geriatrics Society 2019 Updated AGS Beers Criteria<sup>®</sup> for Potentially Inappropriate Medication Use in Older Adults

By the 2019 American Geriatrics Society Beers Criteria<sup>®</sup> Update Expert Panel\*



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# Gait and Mobility

Rate **8**

## Get-Up-and-Go Test

- The study determined that just one portion of this entire test, rising from a sitting position and taking a few steps turning around and walking back to the seat, was sufficient to predict an increased fall risk.
- Scores range from 0-4
- A standardized mobility tool should be a minimum standard of care for a baseline and daily comparisons



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# Gait and Mobility

## Interprofessional Team Interventions

Rate **8**

- Vitamin D3 1000 IU per day (USPTF recommends against routine vitamin D supplementation in otherwise healthy community-dwelling older adults)
  - Go4Life Fitness Program (<https://go4life.nia.nih.gov/>)
  - Tai Chi
  - HELP-Hospital Elder Life Program  
<https://www.hospitalelderlifeprogram.org/> -Mobility Action Group Change Package and Toolkit
  - Otago Therapy Program  
([https://www.cdc.gov/homeandrecreationalafety/pdf/falls/CDC\\_Falls\\_Compndium-2015-a.pdf#nameddest=single-interventions-exercise](https://www.cdc.gov/homeandrecreationalafety/pdf/falls/CDC_Falls_Compndium-2015-a.pdf#nameddest=single-interventions-exercise))
  - Non-pharmacologic interventions for behavioral and psychological symptoms of dementia (BPSD) and deprescribing of high-risk drugs (e.g., benzodiazepines, antipsychotics, anti-seizure drugs)
- Evaluate for postural hypotension.
  - Correct for vision, hearing, sensory impairments.
  - Evaluate for and treat depression.
  - Assistive devices (poorly fitted or improper use may contribute to falls!)
  - At home consider environmental factors (e.g., footwear, rugs, electric cords, pets).
  - Evaluate for risky behaviors.

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# HIIFRM elements

The **HIIFRM** consists of a risk factors assessment, care pathways, and care plans specific for each risk factor, in addition to an electronic health record (EHR) map.

## HIIFRM assessment

Assesses person's risk factors

Hendrich    FALL RISK MODEL <sup>®</sup>		
Risk factor	Risk points	Score
Confusion/Disorientation/Impulsivity	4	
Symptomatic depression	2	
Altered elimination	1	
Dizziness/Vertigo	1	
Gender (male)	1	
Any administered antiepileptics (antiepileptants)?	2	
Any administered benzodiazepines?	1	
Get-Up and Go Test: Rising From a Chair		
NOTE: If unable to assess, monitor for change in activity level, assess other risk factors, and document both on patient chart with date and time.		
Ability to rise in a single movement—no loss of balance with steps	0	
Pushes up, successful in one attempt	1	
Multiple attempts, but successful	3	
Unable to rise without assistance during test	4	

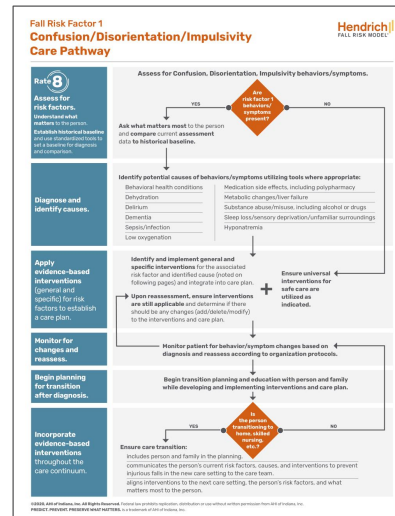
Ongoing Medication Review Update:	
NOTE: Medication review not completed during an inpatient admission is considered to result for "Review Not Done". As an antiepileptic, antiepileptic drug may have a side effect of drowsiness and dizziness which can contribute to fall risk and should be noted (Down 100). Other antiepileptics, such as gabapentin, pregabalin, and levetiracetam, have not been included in this review. Medication review not completed during an inpatient admission is considered to result for "Review Not Done".	
NOTE: Medication review not completed during an inpatient admission is considered to result for "Review Not Done".	
NOTE: Medication review not completed during an inpatient admission is considered to result for "Review Not Done".	

Version 2 - July 2020

HIIFRM assessment. [Click here for full version.](#)

## Care pathways

Step-by-step process for each HIIFRM risk factor.



Risk factor care pathways and care plans. [Click here for full versions.](#)

## Care plans

Process for identifying the potential cause and associated interventions for each risk factor.

Fall Risk Factor 1 Confusion/Disorientation/Impulsivity Care Plan		
The following are potential causes of acute and chronic confusion as well as specific interventions to modify their impact.		
<b>General Interventions:</b> Encourage interaction between the confused person and family, friends, or volunteers.		
<b>Specific Interventions:</b>		
Potential cause	Diagnosis	Apply evidence-based interventions (general and specific) as part of the care plan to manage/resolve risk factor
<b>Behavioral health conditions</b>	<ul style="list-style-type: none"> <li>Utilize tools and evidence-based assessment tools, clinical judgment, to confirm the diagnosis with the provider</li> </ul>	<ul style="list-style-type: none"> <li>Utilize an interdisciplinary care team to ensure appropriate interventions are undertaken</li> </ul>
<b>Dehydration</b>	<ul style="list-style-type: none"> <li>Assess for possible substance abuse/intoxication (see below)</li> <li>Assess for connection to depression (risk factor #2) and social isolation.</li> </ul>	<ul style="list-style-type: none"> <li>Review Unwired interventions for application to this risk factor</li> <li>Utilize local protocol for monitoring urinalysis behavior</li> <li>Consult with interdisciplinary care team regarding moving the person to a behavioral health care unit based on diagnosis</li> <li>Partner with discharge/transition planning team to identify community-based resources to prepare for transitions in care that support social connections and interactions.</li> </ul>
<b>Optional health</b>	<ul style="list-style-type: none"> <li>Paternal health</li> <li>Substituted (DNR, D)</li> <li>Black (ethnicity)</li> <li>Intoxication (L21, Intox)</li> <li>Genetic (diagnosis)</li> <li>Stroke (diagnosis)</li> </ul>	
<b>Delirium</b>	<ul style="list-style-type: none"> <li>Assess serum blood chemistry panel, including electrolytes</li> <li>Assess skin turgor</li> <li>Assess for food necessity</li> </ul>	<ul style="list-style-type: none"> <li>Set and follow an oral hydration/urine goal appropriate for the person and monitor it per protocol</li> <li>Check that person is sufficiently hydrated and monitor electrolytes</li> <li>Ensure water and other preferred, non-alcoholic fluids are available at the bedside and easily accessible</li> <li>Replenish fluids with oral water bottles (DNR) as desired for the person</li> <li>Focus on oral hydration to prevent an IV that may interfere with mobility (change IV fluids appropriately)</li> </ul>

## Critical thinking:

Identifying the reason(s) for the person's risk factor(s) is an important step that differentiates HIIFRM from other models and will assist your organization to successfully promote safe mobility and prevent

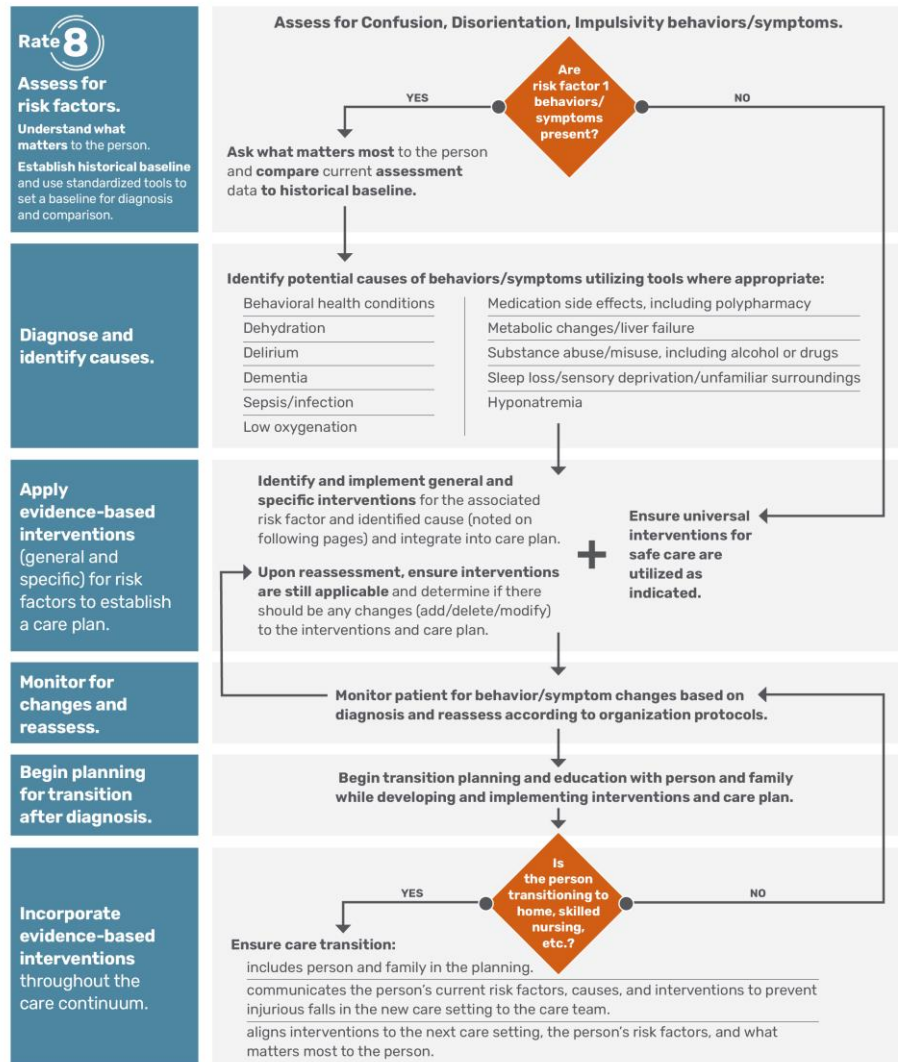
## EHR map

Designed to support utilization of care pathways and care plans.

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# Care Pathway for Confusion/ Disorientation/ Impulsivity

## Fall Risk Factor 1 Confusion/Disorientation/Impulsivity Care Pathway



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# Care Plan and Interventions for Confusion/Disorientation/Impulsivity

## Fall Risk Factor 1: Confusion/Disorientation/Impulsivity Care Plan

Potential cause Additional information	Diagnose Utilize tests and evidence-based assessment tools, where available, to confirm the diagnosis with the provider.	Apply evidence-based interventions (general and specific) as part of the care plan to manage/improve risk factor Utilize an interprofessional care team to ensure appropriate interventions are undertaken.
<p><b>Delirium</b></p> <p>An acute confusional state and encephalopathy, e.g., inability to redirect, focus, and sustain attention, "easily distracted."</p> <p>Onset is acute and usually occurs within hours or days, with fluctuations occurring during the day.</p> <p>Those with cognitive impairment (e.g., dementia) are highly susceptible to delirium during hospitalization, post-operatively, and after discharge from the hospital.</p>	<p><b>Optional tools:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <a href="#">Confusion Assessment Method (CAM)</a></li> <li><input type="checkbox"/> <a href="#">CAM for the Intensive Care Unit (CAM-ICU)</a></li> <li><input type="checkbox"/> <a href="#">2-Item Ultra-Brief (UB-2) Delirium Screen</a> (Fick et al., <i>Journal of Hospital Medicine</i>, 2015):             <ul style="list-style-type: none"> <li><input type="checkbox"/> Please tell me day of the week.</li> <li><input type="checkbox"/> Please tell me the months of the year backward, say December as your first month.</li> </ul> </li> <li><input type="checkbox"/> Check oxygen levels.</li> </ul> <p><i>Note: Recognition of the condition can help identify modifiable risk factors, but early diagnosis is a challenge due to its subtle nature.</i></p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Ensure sufficient oral hydration (see dehydration interventions).</li> <li><input type="checkbox"/> Reorient patient/resident to person, place, time, and situation:             <ul style="list-style-type: none"> <li><input type="checkbox"/> Make sure day of week and date are updated and visible in the room.</li> <li><input type="checkbox"/> Provide a working clock with large face visible to the person.</li> <li><input type="checkbox"/> Bring familiar items from home to keep room recognizable.</li> </ul> </li> <li><input type="checkbox"/> Ensure person has their personal adaptive equipment (e.g., glasses, hearing aids, dentures, walkers).</li> <li><input type="checkbox"/> Prevent sleep interruptions by avoiding overnight vital checks and blood draws unless necessary.</li> <li><input type="checkbox"/> Use nonpharmacological interventions to support sleep, e.g., earplugs, sleeping masks, muscle relaxation such as hand massage, posture and relaxation training, white noise and music, and educational strategies.</li> <li><input type="checkbox"/> Consult with team to avoid or minimize high-risk medications.</li> <li><input type="checkbox"/> Provide a consistent routine.</li> </ul>
<p><b>Dementia</b></p> <p>Like delirium, dementia limits an individual's ability to direct, focus, and sustain attention. However, dementia develops over a longer period (months/years) with fewer fluctuations and is irreversible.</p>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Complete a detailed history and physical (H&amp;P).</li> <li><input type="checkbox"/> Assess for Alzheimer's or cerebrovascular disease.</li> <li><input type="checkbox"/> Consider delirium added to dementia or Alzheimer's diagnosis. Utilize tools noted in delirium.</li> </ul> <p><b>Optional tools:</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <a href="#">Mini-Cog assessment</a> to detect cognitive impairment in older adults</li> <li><input type="checkbox"/> <a href="#">Saint Louis University Mental Status (SLUMS) examination</a> for detecting mild cognitive impairment and dementia</li> <li><input type="checkbox"/> <a href="#">Montreal Cognitive Assessment (MOCA)</a></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Administer medications as ordered.</li> <li><input type="checkbox"/> Utilize music therapy specific to the person's music interests.</li> <li><input type="checkbox"/> Consider gentle reorientation or use of orienting cues; avoid repeated testing about orientation if the person appears agitated.</li> <li><input type="checkbox"/> See delirium interventions.</li> </ul>

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# Care Plan and Interventions for Confusion/Disorientation/Impulsivity

## Fall Risk Factor 1: Confusion/Disorientation/Impulsivity Care Plan

<b>Potential cause</b> Additional information	<b>Diagnose</b> Utilize tests and evidence-based assessment tools, where available, to confirm the diagnosis with the provider.	<b>Apply evidence-based interventions (general and specific) as part of the care plan to manage/improve risk factor</b> Utilize an interprofessional care team to ensure appropriate interventions are undertaken.
<b>Sepsis/infection</b>	<b>Sepsis:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Temperature above 100.9°F or below 96.8°F</li> <li><input type="checkbox"/> Heart rate ≥ 111 bpm</li> <li><input type="checkbox"/> Respiration ≥ 23/min</li> <li><input type="checkbox"/> Shaking</li> </ul> <p>See <a href="#">the Surviving Sepsis Campaign of the Society of Critical Care Medicine</a> for additional guidelines and interventions.</p> <b>General infection:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> Assess for signs and symptoms of infection (temperature, increased white blood count [WBC], wound/surgical site with pus, etc.)</li> <li><input type="checkbox"/> Wound/surgical site culture.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Integrate confusion assessment into sepsis order sets and protocols.</li> <li><input type="checkbox"/> Monitor vital signs, WBC, wound/surgical sites for signs and symptoms of infection.</li> <li><input type="checkbox"/> Consult with interprofessional care team regarding use of antibiotics based upon signs and symptoms and culture results.</li> </ul>
<b>Medication side effects, including impact of polypharmacy</b> Older adults are more sensitive to medication side effects and may not take their medication consistently. Polypharmacy is described as taking five or more medications; most common in age 65+ and impacts 40% of older adults.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Review medications and dosage levels for possible side effects, especially some antidepressants.</li> </ul> <b>Optional tools:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> <a href="#">American Geriatrics Society Updated Beers Criteria for Potentially Inappropriate Medication Use in Older Adults</a></li> <li><input type="checkbox"/> <a href="#">STOPP/START criteria for potentially inappropriate prescribing in older people, version 2</a></li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Partner with interprofessional care team to identify opportunities to deprescribe medication and/or adjust medication dosage levels.</li> </ul> <b>Optional tool:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> <a href="#">www.deprescribing.org</a> guidelines for the algorithm on deprescribing benzodiazepines</li> <li><input type="checkbox"/> Consider use of nonpharmacologic/integrative treatment to support sleep and manage pain, such as aromatherapy, massage, music therapy, etc.</li> <li><input type="checkbox"/> Partner with interprofessional care team to avoid or minimize use of benzodiazepines for treatment of delirium based upon research evidence. <a href="https://deliriumnetwork.org">https://deliriumnetwork.org</a></li> </ul>
<b>Metabolic changes/liver failure</b> The aging nervous system is vulnerable to metabolic changes.	<ul style="list-style-type: none"> <li><input type="checkbox"/> Serum blood chemistry panel for electrolyte evaluation and liver function tests (LFTs).</li> <li><input type="checkbox"/> Complete detailed history and physical (H&amp;P).</li> <li><input type="checkbox"/> Assess sclera and skin for jaundice.</li> <li><input type="checkbox"/> Palpate abdomen for abdominal distention and right upper quadrant pain.</li> </ul>	<ul style="list-style-type: none"> <li><input type="checkbox"/> Monitor electrolytes and LFTs.</li> <li><input type="checkbox"/> Review primary care provider's initial evaluation and treatment.</li> <li><input type="checkbox"/> Consult endocrinologist or hepatologist as needed for further evaluation and treatment.</li> <li><input type="checkbox"/> If abdominal distention is present, monitor abdominal girth.</li> </ul>

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# Snapshot of Hackensack Meridian *Health*

*Not-for-profit health care organization that is the largest, most comprehensive and truly integrated health care network in New Jersey.*

- 34,100 employees
- 8,000+ nurses
- 6,500 physicians
- 17 hospitals, a behavioral health hospital, and 2 rehabilitation hospitals
- 500 other patient care locations, including 16 long-term care facilities and multiple homecare and hospice agencies







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# Appendix

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37 • date • Presentation title

## Questions to Run On...

1

Is your fall risk assessment part of your medical problem list or is it a “a patient safety event and a nursing problem”?

Does the assessment guide interventions that are person-centered?

2

Are the risk factors addressed with evidence-based interventions and interprofessional practice?

How do you use high reliability principles and event reporting data for analysis and continuous improvement?

3

Are there any unintended consequences of your “fall program”?

What role does language play in your environment with desired behavior change?

*“Safe Mobility Team” vs. “Fall Committee”*

4

What should the goal be for injurious falls?

Does your culture and practice promote “only zero falls”?

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# Injurious Fall Reduction

## Five questions that matter ...

Action Items	Notes
1. Do you deliver appropriate mobility, reduction, and injurious fall knowledge to care providers and targeted education to patients and persons?	
2. How do you evaluate injurious falls and 'true' root causes to measure your program's effectiveness? (knowledge, skills, rule-based behaviors)	
3. Is there a team approach to fall reduction? (pharmacy, clinicians, therapists, discharge planners, risk/clinical collaboration) and does the culture demonstrate this?	
4. Are fall interventions aligned with modifiable predictive risk factors ?	
5. Is there a continuous quality improvement approach, evaluations of interventions, changes in risk scores, rounding with the interdisciplinary team?	

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## FALLS

are the  
**second leading cause**  
of accidental or unintentional  
**INJURY DEATHS**  
worldwide.<sup>1</sup>



Approximately  
**one in four patients**   
who **fall in hospitals**  
**suffer an injury as a result of the fall<sup>2</sup>,**  
including **fractures, lacerations,**  
**excessive bleeding,** and **head trauma.**

Almost  
**50 million AMERICANS**  
are **65** and older,  
 comprising **15%** of  
total population<sup>3</sup> 

and, on average, **a 65 year old**  
can expect to live another **20 years.**<sup>4</sup>

**DEATH RATES**  
related to falls  
**increased by**  
**30%**

between 2007 and 2016  
**for older adults.**<sup>5</sup>

If rates continue to rise,  
we can expect  
**7 fall deaths every hour**  
by 2030.<sup>6</sup>

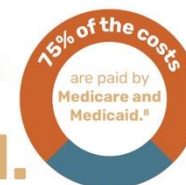


1. World Health Organization, 2018
2. Bouldin et al., 2013
3. Roberts et al., 2018
4. Arias & Xu, 2019
5. Burns & Kakara, 2018
6. Centers for Disease Control and Prevention, n.d.
7. Burns et al., 2016
8. Florence et al., 2018

The average hospital cost  
**FOR A FALL INJURY**   
is about **\$30,000,**

and the costs of treating  
**fall injuries**  
goes up  
with age.<sup>7</sup>

In 2015, the annual  
**DIRECT MEDICAL COSTS**  
for **fall injuries** was  
**\$50 BILLION.**



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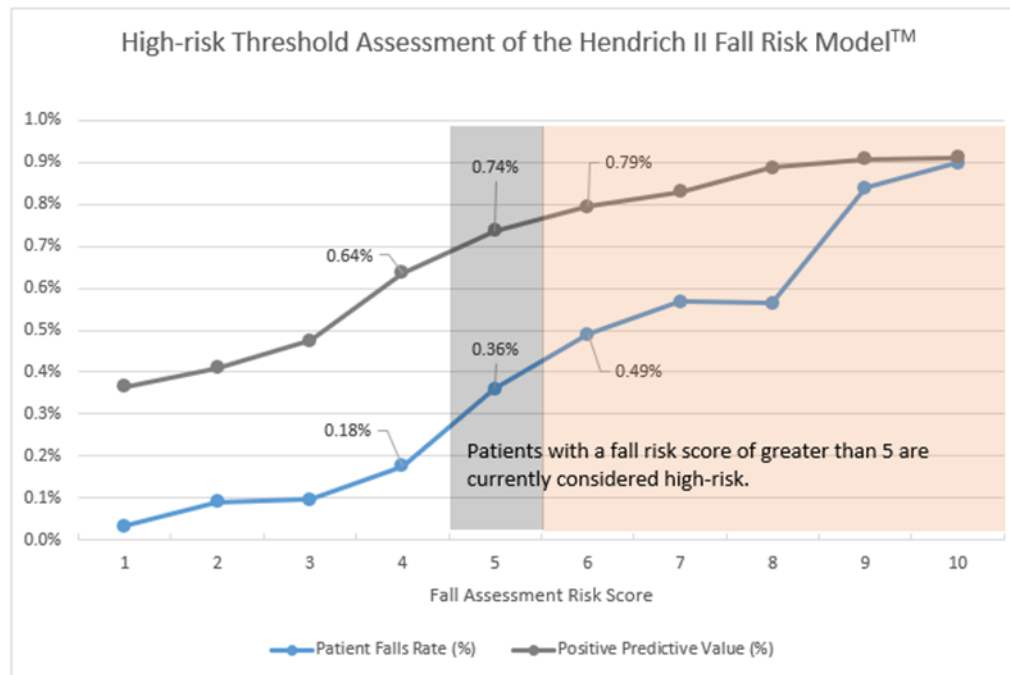


# Hendrich II Fall Risk Model<sup>®</sup>

- 25 years of research, validation, and replication studies for predicting risk factors.
- **Original study**
  - Fall and non-falls
  - The model is based on a rigorous study by the Hendrich research team conducted over a 2-year period with 1,232 adult fall and non-fall participants in a large tertiary hospital, Level I trauma center, with a long-term care center, rehabilitation and behavioral health.
  - 600 risk factors assessed concurrently with each patient by trained registered nurses using standardized instruments with each study participant.

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# High-Risk Threshold Assessment of the Hendrich II Fall Risk Model<sup>®</sup>



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# Fall Risk Assessment: Frequency and Reassessment

After the initial assessment, reassess all patients during each shift or visit whenever the patient condition changes.

In home and senior living – subtle changes can be a strong indicator of impending risk.

Assessing only once per shift may not be enough given the short length of stay and complexity of care in today's hospitals.

Include repeated observation and assessment in hourly rounding as a way to detect changes in condition(s) and meet elimination needs before they cause a fall.

For example, side effects may appear after medication administration and increase fall risk. Surgical and procedural patients that have sedation and/or analgesics risk factors can change frequently. Patients on anticoagulants or with osteoporosis may be at higher risk for injuries (bleeds and fractures) from any fall.

This should be done even if patients were not shown to be at high risk for falls, as patient conditions will fluctuate greatly throughout a hospital stay.



**The nurse always has the ability to place any patient on fall precautions if clinical judgment indicates the need to do so regardless of score.**

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# Gender (Identifies as Male)

Rate **8**

## Gender Validation

- In 2016, there were 103,864 unintentional deaths for men, including 39,810 from poisoning, including drugs; 27,447 from traffic crashes; and 17,370 from falls. That compares with 57,510 unintentional deaths for women, including 18,525 from poisoning, 11,301 from motor vehicle crashes and 17,303 from falls.
- Men are twice as likely to drink and drive as women, according to the AAA Foundation for Traffic Safety's 2017 Traffic Safety Culture Index, an annual survey that studies driver attitudes and behaviors.
- Not a simple explanation...but very measurable.

## Interprofessional Team Interventions

- Hendrich (2013) interviewed 100 male patients who fell and could measure risk taking, but when told "they might get injured and not be the same".
  - All said they would have not taken the risk.
- Speak clearly and directly about what could happen.
- Ask about gender preferences for toileting help.
- Explore fears openly...ask why?

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# Fall Risk Factors

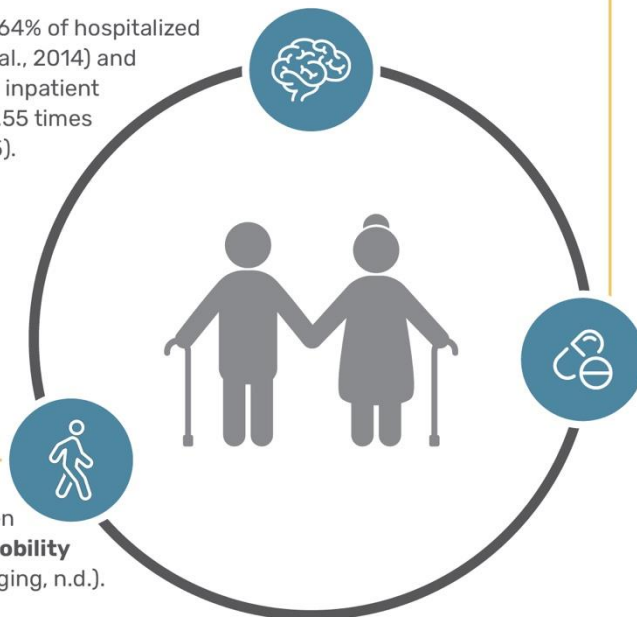
## Delirium

**Delirium** (acute confusion) is common in older adults and leads to poor outcomes, such as death, clinician and caregiver burden, and prolonged cognitive and functional decline (Witlox et al., 2010; Fick et al., 2013).

**Delirium** occurs in 29–64% of hospitalized older adults (Inouye et al., 2014) and increases the risk of an inpatient fall in this population 4.55 times (Pendlebury et al., 2015).

## Mobility

Older adults are vulnerable to falls when we don't encourage **mobility** (National Council on Aging, n.d.).



## Medication

**MEDICATION USE IS ONE OF THE MOST READILY MODIFIABLE FALL RISKS.**

Taking **multiple medications** of any type (called “polypharmacy” in the scientific literature), and psychotropic drugs in particular, is associated with an increased risk for falls.

### Most common side effects of medication across all populations:

- Sedation or altered sensorium
- Nausea, vomiting
- Heart palpitations
- Altered elimination
- Dizziness or vertigo
- Changes in gait and balance

Almost 40% of older adults in the US, 65 or older, use five or more drugs a day (National Center for Health Statistics, 2019). Every day, 750 older adults in the US are hospitalized because they experience serious side effects from one or more medications. Over the past decade, older adults sought medical treatment more than 35 million times for adverse drug events, resulting in more than 2 million hospital admissions. Older adults are hospitalized for adverse drug events at a higher rate than the population as a whole is hospitalized for adverse events related to opioids (Lown Institute, 2019).

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## What is a risk factor?

*A risk factor is a patient characteristic or medical diagnosis that can be objectively measured or assessed and predicts a fall potential or “degree of risk” for falling.*

## Why do people fall?

There are three categories of fall risk factors:

1

### Nonpredictable

Nonpredictable risk factors are responsible for a small percentage of patient falls. These include:

postural hypotension  
and fainting

cardiac arrhythmia

seizure

transient ischemic  
attack (TIA)

cerebrovascular  
accident (CVA)

2

### Extrinsic

Extrinsic risk factors are environmental conditions, such as wet or uneven surfaces, cords, IV poles, and stepstools. Also, people are more likely to fall if they are not wearing skidproof socks or shoes. Persons with vision or hearing deficits, which includes many older adults, are at even higher risk of falling in unsafe environments.

Bottom line—environmental safety is a priority in all areas. By keeping a person’s physical environment safe, falls caused by extrinsic risk factors are often prevented.

3

### Intrinsic

Intrinsic risk factors are a person’s characteristics, conditions, or medical diagnoses that can be objectively measured or evaluated. Such intrinsic factors “travel” with the individual and may include lower extremity weakness, impaired balance, and poor vision, as well as abnormal gait and mobility. An intrinsic fall can be complicated by unsafe environments or extrinsic/environmental factors. Some older adults are more at risk for intrinsic falls due to changes in mentation, impaired mobility, possible incontinence concerns, and polypharmacy. These intrinsic fall risk factors are predictable and preventable and are the focus of the **Hendrich II Fall Risk Model**.

Addressing both **extrinsic** and **intrinsic** fall risk factors is necessary to fully optimize healthy aging and personal safety.

## Categories of Safety Event Causes: Injurious Falls

### Knowledge Deficit

- Risk Factors that Matter
- Nursing and the healthcare team
- Cause and Effect relationships versus correlation
- Ageism and bias

### Skills

- “Know how”
- Management of cognitive changes or conditions in any environment
- Competency-the “what now” “time” based deficit

### Behavior or rule-based behaviors

- Assessment and reassessment parameters not followed
- Interventions not introduced
- Ageism and bias

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# High Reliability and a Framework for Injurious Fall Reduction

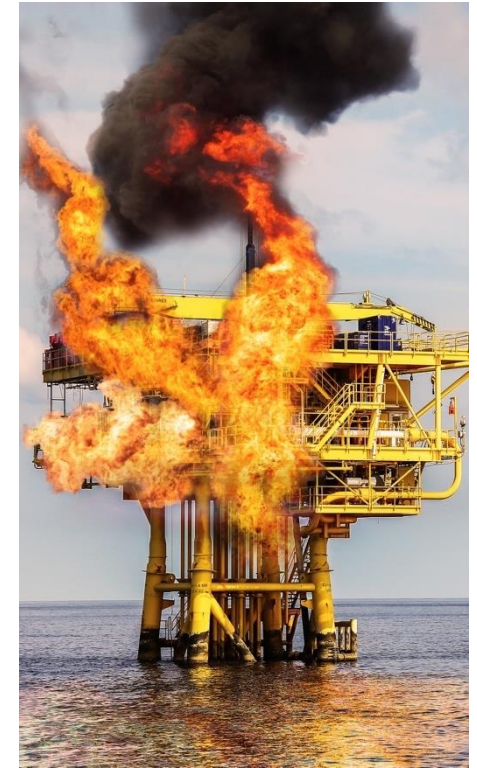
**1** Preoccupation with **failure**

**2** **Reluctance to simplify**  
explanations for operations, successes, and failures

**3** **Sensitivity to operations** (situation awareness)

**4** **Deference to frontline expertise**

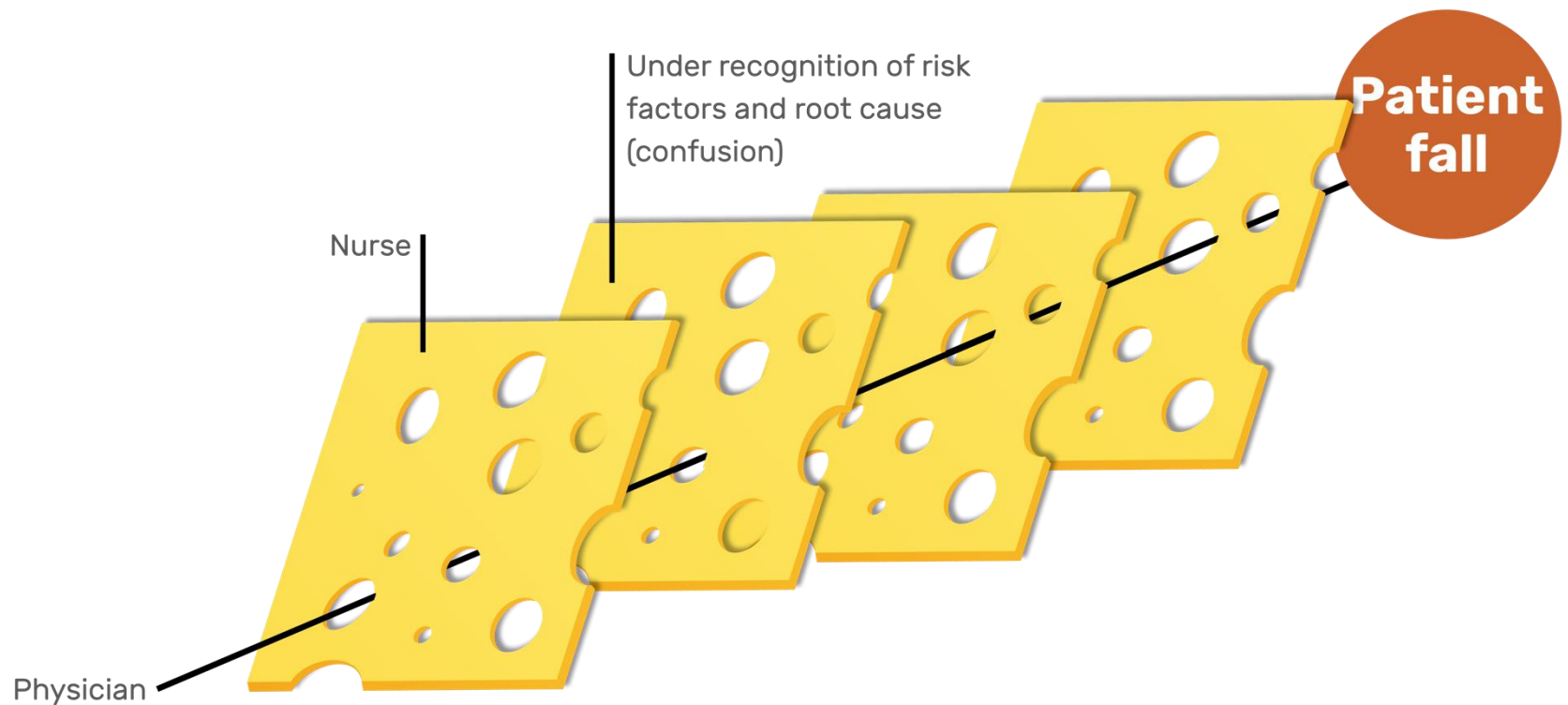
**5** **Commitment to resilience**



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# Risk Factors Normalized: Interventions for Modifiable Risk Factors Not Present

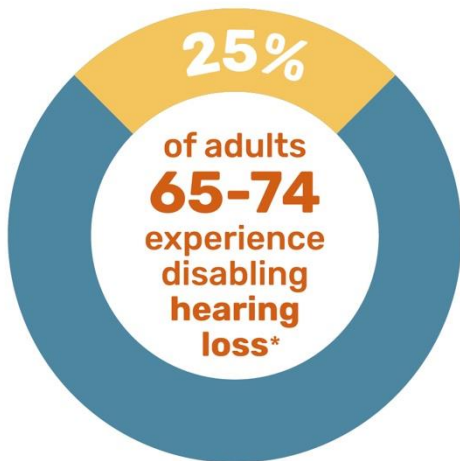


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# Hearing and Vision Loss

## Impact of hearing and vision loss in the US

Together or separately, hearing and vision loss contribute to dementia, increased mortality, and decreased quality of life and independence.

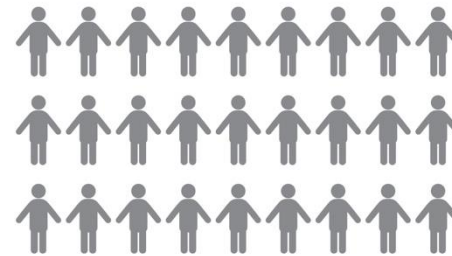


### Three themes in qualitative study<sup>†</sup>:

Passivity

Frustration with family

Health care communications difficulties



**1 in 28 adults over 40**

have low vision or blindness—cataracts, macular degeneration, diabetic retinopathy, glaucoma<sup>‡</sup>

\*National Institute on Deafness and Other Communication Disorders, 2016.

† Funk et al., 2018.

‡ Congdon et al, 2004.

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# Kotter Model of Change

There are many models that define and outline how managers can implement transformational change in their organizations. One model that has gained wide acceptance is Harvard professor John Kotter's 8-Step Process for Leading Change, first published in his 1996 book, *Leading Change*. It is a broad model that addresses how to:

**create the climate** for change, beginning in the design phase

**engage and enable** the organization in the transition/implementation phase

**implement and sustain** change over time

## Kotter's Accelerated 8-Step Process for Leading Change



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## Resources

- AGS/BGS Clinical Practice Guidelines
  - <https://geriatricsonline.org/ProductAbstract/updated-american-geriatrics-societybritish-geriatrics-society-clinical-practice-guideline-for-prevention-of-falls-in-older-persons-and-recommendations/CL014>
- John A Hartford Foundation: Building Age Friendly Healthcare Systems
  - <http://www.ihf.org/Engage/Initiatives/Age-Friendly-Health-Systems>
- STEADI (Stopping Elderly Accidents, Deaths, and Injuries)
  - <https://www.cdc.gov/steady/index.html>
- AGS Consensus Statement on vitamin D supplementation
  - <https://geriatricsonline.org/ProductAbstract/american-geriatrics-society-consensus-statement-vitamin-d-for-prevention-of-falls-and-their-consequences-in-older-adults/CL009>
- Handbook of Geriatric Assessment (5<sup>th</sup> Edition) Fulmer and Chernof 2018
- HEDP <http://www.hospitalelderlifeprogram.org/>  
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