University of Nebraska Medical Center

CAPTURE Falls

Collaboration and Proactive Teamwork Used to Reduce

Falls, Frailty and Geriatric Syndromes

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Acknowledgement

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Advancing Excellence in Health Care

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Background: from 2010 baseline survey

Hospital Size	Total Falls/1000 Pt Days	Injurious Falls/1000 Pt Days
Non-CAHs (n=14)	4.2	0.9
CAHs (n=56)	6.3	1.8

- 55% of pts discharged from CAHs are ≥ 65 compared to 37% of all discharges
- Proportion of county population ≥ 65
  - Mean = 18.9% for 16 CAHs in project
  - Mean = 13.0% for 3 non-CAHs in project
- Greater prevalence of older adults in CAHs contributes to higher fall rates in CAHs as compared to non-CAHs

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Objectives

- Identify frailty as a geriatric syndrome
- Explain relationship between frailty and fall risk
- Use established criteria to identify frail individuals
- Manage frailty and commonly associated syndromes to decrease fall risk
- Recognize how frailty may be integrated with existing fall risk reduction assessments

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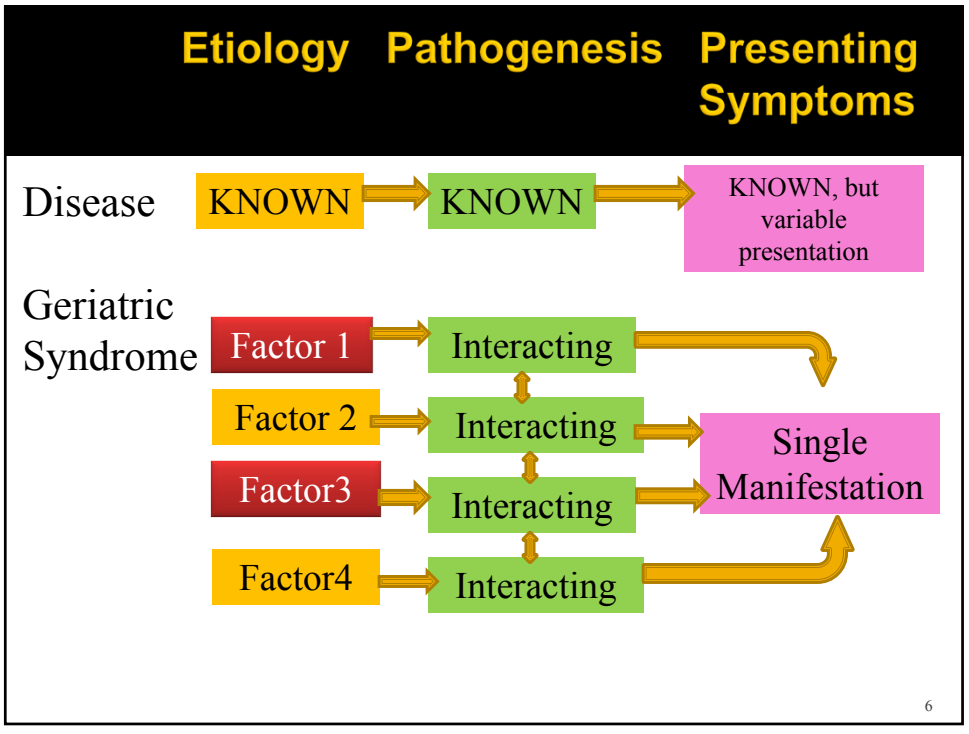
"a clinical condition in older persons that does not fit into a discrete disease category." (Inouye et al, 2008)

What is a Geriatric Syndrome?



Geriatric Syndromes

Incontinence, cognitive or sensory impairment, dizziness, falls, frailty

- High impact on QOL
- Predict outcomes for patients
- There are many factors that contribute to these syndromes, **some** of which are treatable

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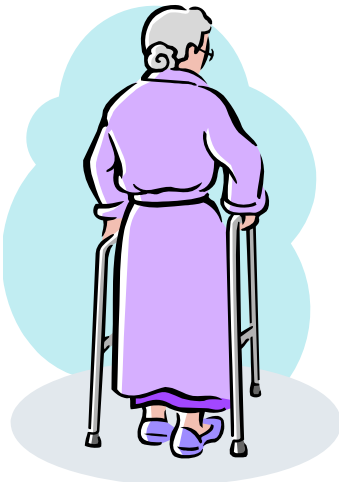
Background: Frailty

High Prevalence

- 20–30% over 75 years
- 30% after 80 years
- Twice as common in women
- 28% of moderately-severely disabled women ≥65



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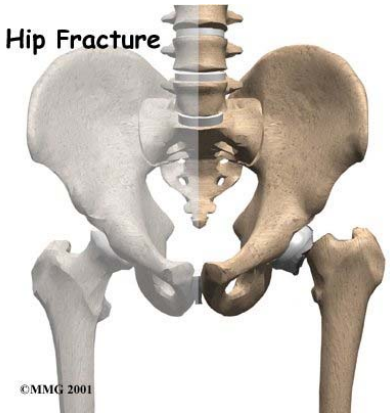
Frailty: Predicts outcomes

- Falls, fractures
- Hospitalization
- Mortality
- Institutionalization



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FRAILTY AS A CORE CONCEPT

- Frail older adults are at high risk from stressors such as extremes of heat/cold, acute infection, or injury
- As a group, frail older adults are more likely to:
  - Have delayed recovery from illness and/or to fall
  - Develop greater functional impairment, including becoming disabled or dependent
  - Be hospitalized, with worse outcomes once hospitalized, including functional decline
  - Die

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FRAILTY AS A PHYSIOLOGIC PROCESS

- Frailty is viewed as a distinct physiologic process, its clinical manifestations are seen in:
  - **Strength**
  - **Balance**
  - **Motor processing**
  - **Nutrition**
  - **Endurance**
  - **Physical activity**
  - **Mobility**
  - **Cognition (possibly)**

A phenotype has been developed and validated that links all but the last in this list

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FRAILTY AS A PHYSIOLOGIC PROCESS

- Research has shown that this definition of frailty is consistent with that of **a clinical syndrome that is primarily chronic and progressive**
  - Early stages predict progression to more severe frailty
  - **But frailty can improve**
- **Early stages are likely most amenable to intervention**
- Earliest presentations tend to be weakness, slowed walking speed, and/or decreased physical activity

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EVIDENCE AS TO CAUSE: PRIMARY FRAILTY

- **Sarcopenia (loss of lean body mass) is a central component of frailty** and a key predictor of the other clinical manifestations
- **Predictors of sarcopenia and loss of strength with aging** include:
  - Anabolic factors such as testosterone and IGF-1
  - Amount of physical activity
  - Nutritional intake (eg, protein, energy, vitamin D, and other micronutrients)
  - Age itself

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Objective 3

Learn how to identify frail patients

Many Definitions & Tools Have Been Proposed

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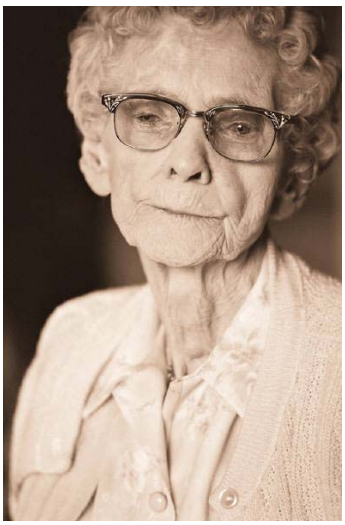
Identifying Frailty Chin 1999

Frailty= inactivity combined with:

- low energy intake
  or
- weight loss
  or
- low body mass index



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Identifying Frailty

- Gait speed alone & with chair stands, & tandem balance test
- Predicts 12-mo rates of hospitalization, ↓ health, and ↓ function
- Proposed: "vital signs" to screen older adults

Medicare HMO & VA, 2003

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Cardiovascular Health Study, 2001

- Frailty= a syndrome with a critical mass of signs and symptoms.

Three out of five:

- Slow walking speed
- Poor hand grip
- Exhaustion
- Weight loss
- Low energy expenditure

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CHS FRAILTY Criteria





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Study of Osteoporotic Fracture (SOF)

- CHS criteria are unrealistic for clinical use
- SOF tested simpler criteria in both men & women.
- **Exclusion** inability to walk without the assistance of another person
- CHS and SOF were concordant in 71%
- SOF is easily evaluated in a few minutes

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Comparison Of Frailty Indexes

	SOF	CHS ≥ 3
Shrinking	Wt loss ≥ 5% over 3 years	Unintentional wt loss >10 lb in last year
Weakness	Unable to do 5 chair stands	Grip strength in lowest quartile
Poor energy	"Do you feel full of energy"= no	"Do you feel full of energy"= no
Slowness		Walking speed in lowest quartile
Low physical activity		Physical Activity Scale for the Elderly

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Study of Osteoporotic Fracture (SOF) Criteria for Frailty

Frailty Criteria	Data Collection	Score
Weight loss ≥ 5% over 3 yrs	Weight 3 years ago Weight today Change in weight/ Weight 3 years ago= % loss	Score=1 if weight loss ≥ 5% Otherwise, Score=0
Inability to do 5 chair stands	Sit in chair, do not use arms, rise 5 times	Score=1, if unable Otherwise, Score=0
"Do you feel full of energy?"	Ask the question, must answer yes or no	Score=1, if no Otherwise, Score=0
		Sum above scores

If summed score is 2 or 3, patient is frail;
If score is 1 patient is prefrail;
If score=0 the patient is robust

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Objective 4

Manage frailty and commonly associated geriatric syndromes to decrease fall risk

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STRATEGIES FOR MANAGING FRAILTY

The focus of care should be to:

- **Exclude any modifiable precipitating causes of frailty,** including causes that are treatable or environmental
- **Improve the core manifestations of frailty,** especially physical activity, strength, exercise tolerance, and nutrition
- **Minimize the consequences of vulnerability,** whether in terms of **environmental risks**, risks from low social support, or risks from stressors such as acute illness or injury, hospitalization, or surgery

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STRATEGIES FOR MANAGING FRAILTY

- The approaches that older adults use to adapt to age-related losses can also be applied to frailty:
  - **Carefully choose goals**
  - **Optimize the abilities needed to reach these goals**
  - **Compensate for diminished competencies by increased reliance on other functions or by replacement**
- Clinical management needs to include these approaches for frail older adults, as well as more standard medical care.

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Interventions for Sarcopenia

Randomized, placebo-controlled trial progressive resistance **exercise training**, multinutrient **supplement**, both, and neither in 100 frail NH residents over 10-wks

Nursing Home (NH) Residents

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Outcomes for Resistance Training

NH Residents, Age ≈ 87 yrs
Resistance training:

- ↑muscle strength >100%
- ↑ LE muscle size 3%
- ↑ gait velocity 12%
- ↑ mobility
- ↑spontaneous activity

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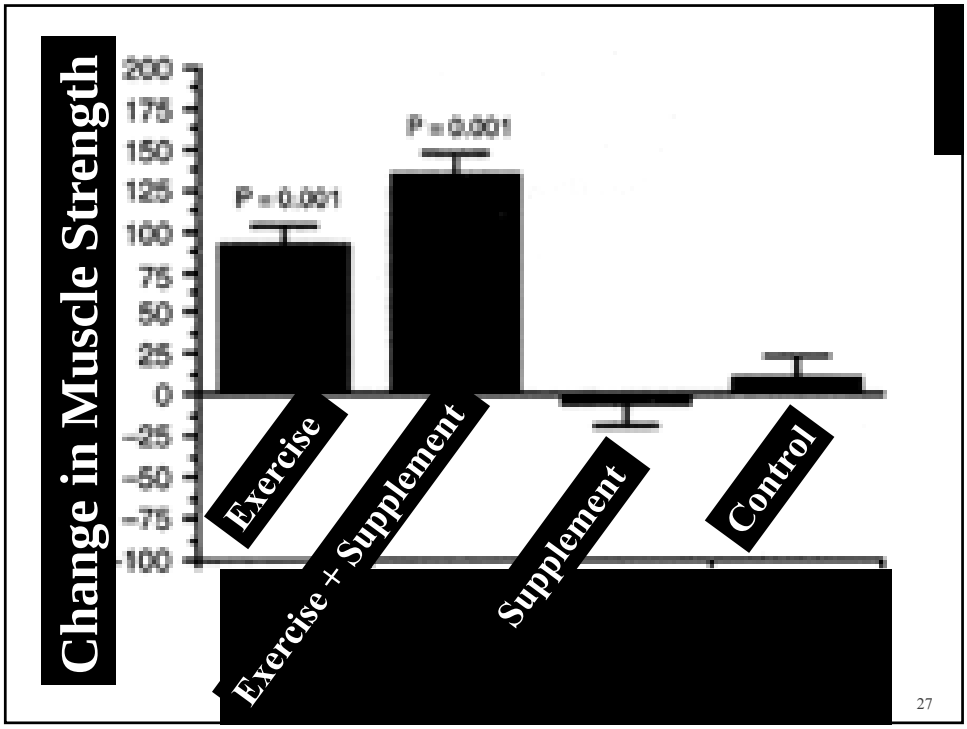

Recommendation:

Frail patients need* referrals to dietary and physical therapy

* If consistent with goals

Sarcopenia and Hip Fracture Study:

- 5-yr prospective cohort study admitted to hospitals for hip fracture.
- 193 participants enrolled
- 71% were sarcopenic, 58% undernourished, and **55% vitamin D deficient**.
- Poorer nutrition & walking endurance, greater pre-fracture disability and inactivity predicted ↑ length of hospital stay

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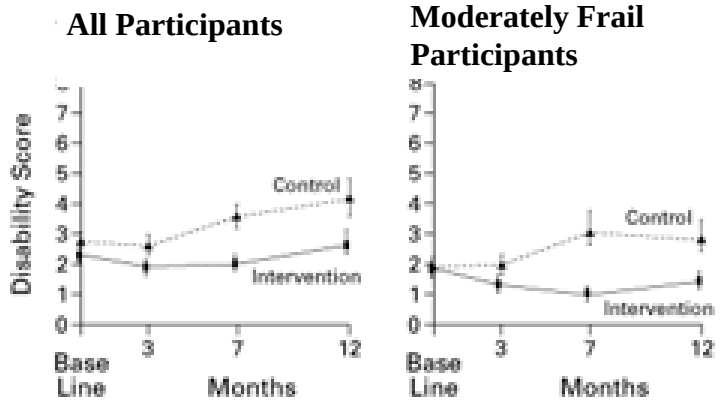
Recommendation:

Screen Frail patients for Vitamin D deficiency and treat

Therapy for Functional Decline

- **Frail patients**
- **Intervention:** 6 mo home-based PT to improve function, balance, muscle strength, transfers and mobility vs control education program.
- **Outcome**: change in function score at 3, 7 & 12 months. Intervention significantly slowed functional decline

Home Based Frail Gill 31



	All Participants				Moderately Frail Participants			
No. of participants								
Intervention group	94	91	91	88	60	58	58	58
Control group	94	91	90	90	56	55	54	54
Disability score								
Intervention group	2.3	1.9	2.0	2.7	1.9	1.3	1.0	1.4
Control group	2.8	2.6	3.6	4.2	1.9	2.0	3.0	2.8
Change (%)	—	15	45	37	—	25	66	53
P value	—	0.48	0.008	0.02	—	0.40	<0.001	0.005

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Exercise Reducing Disability

Systematic Review: What works?

- **Multicomponent**: endurance, flexibility, balance, strength
- **Duration**: 3, 9, 12 mos.
- **Intensity**: 2-3 supervised/week, with/without daily home program

www.biomedcentral.com/1472-6963/8/278

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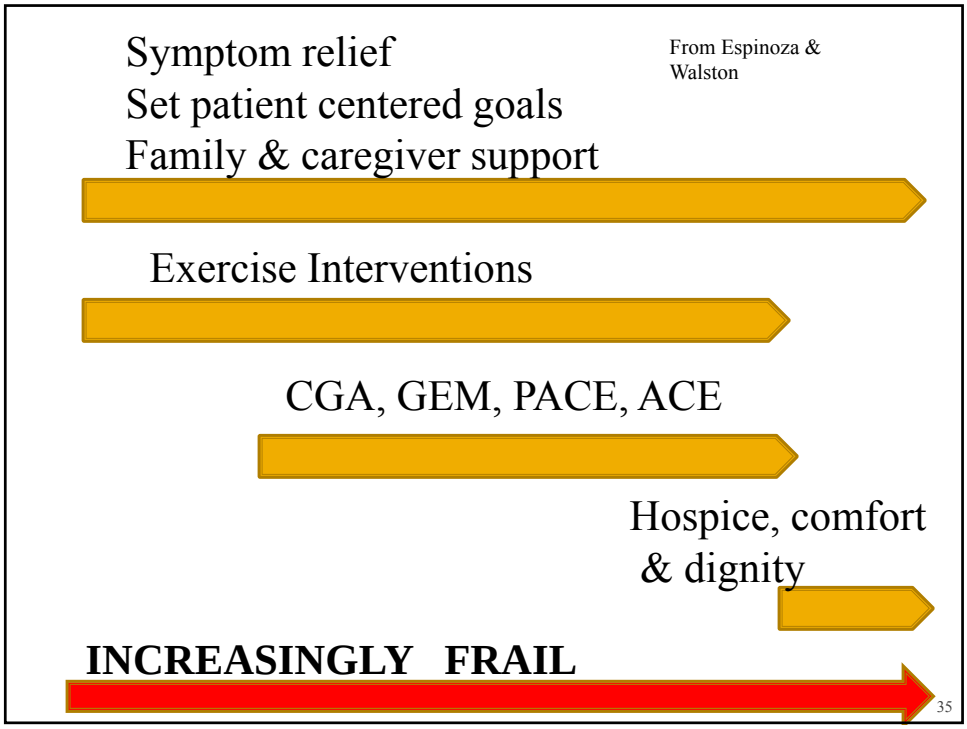
Recommendation:

Frail patients should be discharged with home physical therapy *

* When D/C from home PT, ongoing exercise is critical



STRATEGIES FOR MANAGING FRAILTY

- **Comprehensive geriatric assessment and management** is designed to optimize outcomes for frail older adults, particularly to prevent loss of independence
  - This **team-based approach** has positive effects on **polypharmacy, falls, functional status**, nursing-home admission, and mortality

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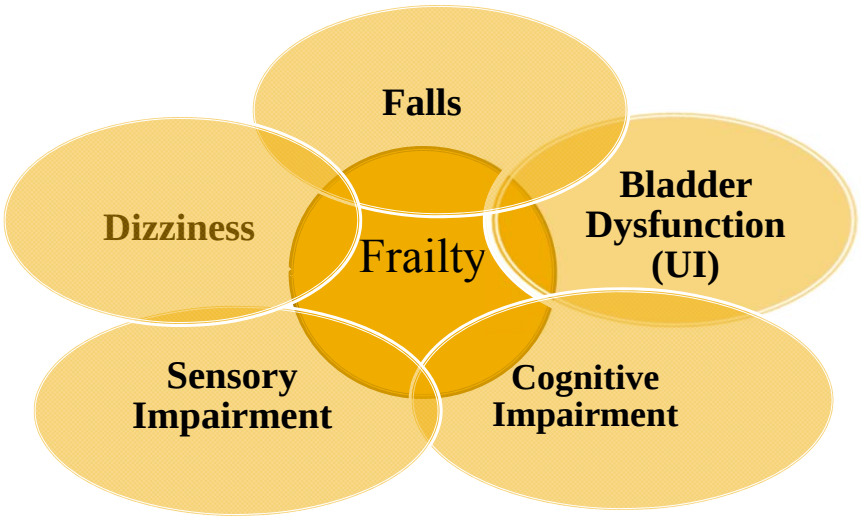
Interventions: Assessment

- Medication evaluation with focus on simplification, medication debridement
- Diagnosis and management of cognitive impairment
- Diagnosis and treatment of other geriatric syndromes.

Syndromes Overlap

treatment for one is treatment for the others



Cognitive Impairment

- Is common: up to 50% of people 85 years and older affected.
- Is easily and quickly detected
- Changes how we treat patients

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Detection: the Mini Cog

- 3 item recall
- "I am going to give you 3 things to remember, I want you to repeat those after me and remember them, because I'll ask you to repeat them in a few minutes. Ready: apple, table, penny"
- Clock drawing
- "Now, I want you to draw a circle and make the face of a clock with the hands set at 10 minutes after 11.

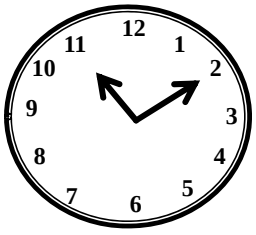

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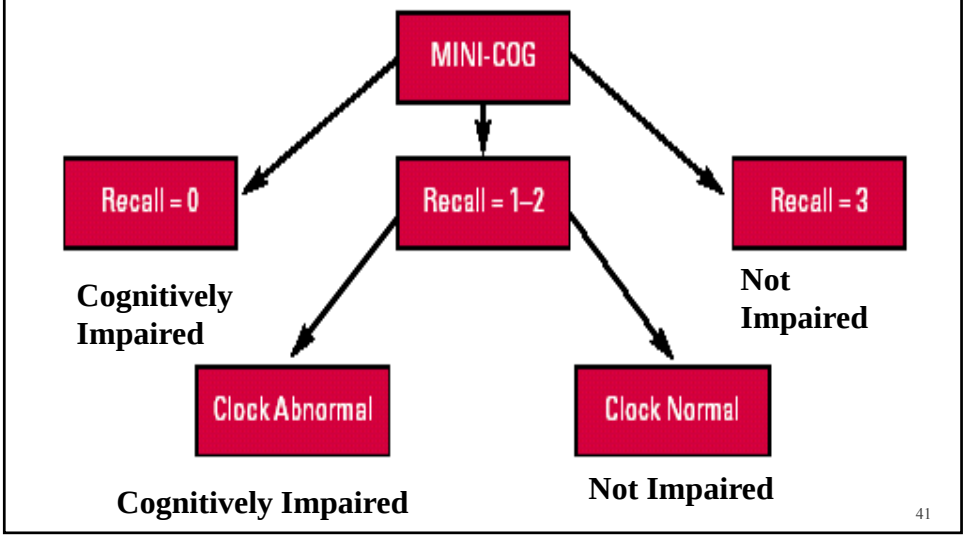
Figure 1. The Mini-Cog scoring algorithm. The Mini-Cog uses a three-item recall test for memory and the intuitive clock-drawing test. The latter serves as an "informative distractor," helping to clarify scores when the memory recall score is intermediate.



Recommendation:

If the patient fails Mini Cog do not rely on the patient's memory when developing your treatment plan.

Bladder dysfunction

- Urgency with/without incontinence.
- History: what is the usual voiding pattern? Has there been a change with this illness/hospital stay?
- A change should prompt evaluation for infection, retention, post-catheter urethritis.

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Evaluation for Change in Bladder Function

- UA, if positive C&S
- Post voiding residual urine, further evaluation if over 200
- Check for constipation/fecal impaction
- If recent history of indwelling foley, and UA is negative for infection, treat for presumed post catheter urethritis with topical vaginal estrogen

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Chronic Urgency/Frequency: Adapt the environment

- Bedside commode and OT or PT to work on safe transfers
- Protective garment and reassurance
- Bedside sitter
- Family at bedside

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Chronic Urgency/Frequency

- May respond to bladder training:
  - frequent voluntary voiding to keep bladder volume low
  - urgency suppression using CNS and pelvic mechanisms
- May respond to antimuscarinic agents
  - oxybutynin, tolterodine, fesoterodine, trospium, darifenacin, and solifenacin
  - increase bladder capacity

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Prompted toileting for Frail or Cognitively impaired

- Monitor and encourage patient to report any need to void
- Prompt patient to toilet every 2–3 hours during the day; lead patient to the bathroom, and gives the patient positive feedback when he/she toilets.
- Patients most likely to improve void ≤4 times during the day (12 hours) and are able to accept and follow the prompt to toilet at least 75% of the time in an initial 3-day trial

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Objective 5

Integrating frailty into fall risk reduction

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How Fall Risk Links with Frailty

Tool	Age	Mobility Subjective	Mobility Objective	Sensory Impairment	Cognition	Elimination	Prior Fall History	Meds
FRASS	1	1		1	1	1	1	1
Hendrichs II			1		1	1		1
Morse		1			1		1	
Schmid		1			1	1	1	1
Total	1	3	1	1	4	3	3	3

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How Fall Risk Links with Frailty

Tool	Dizziness Vertigo	Male Gender	Secondary Diagnosis	IV/Heparin Lock
FRASS				
Hendrichs II	1	1		
Morse			1	1
Schmid				
Total	1	1	1	1

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Summary

- Frail people have 2 or more of the following:
  - weight loss,
  - fatigue,
  - inability to do 5 chair stands
- Falls and fractures are important outcomes of untreated frailty

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Summary (2)

- Managing frailty and associated geriatric syndromes is key to fall risk reduction.
- Not everything contributing to falls and frailty will be modifiable; BUT WE TREAT THE TREATABLE.
- Because frailty is linked to other geriatric syndromes, they share common risk factors, and treatment of one often improves some of the others.

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Summary (3)

- **Global Considerations**:
  - Carefully set goals
  - Optimize abilities to achieve those goals
  - Compensate for diminished competencies often by replacement (e.g. environmental modification).

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Summary (4)

- **Specific Considerations:**
  - Improve mobility with long-term exercise
  - Improve nutrition
  - Replace Vitamin D
  - Screen for/manage cognitive disorders, bladder dysfunction, dizziness, and sensory impairment.

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Questions?

Thank You

Please complete the course evaluation located at the link below:

https://www.research.net/s/capturefalls-eval4

We value your input!

Upcoming Events

Date (Time 10 – 11 am CST)	Event	Presenter
Monthly Call March 26, 2013	Review of Fall Event Reports and Communication Between Hospitals	Katherine Jones, PT, PhD
Webinar April 2, 2013	Webinar: Best Practices in Conducting Effective Meetings to Support Fall Risk Reduction	Victoria Kennel, MA
Webinar May 14, 2013	Best Practices in Teamwork to Support Fall Risk Reduction	Katherine Jones, PT, PhD
Webinar June 11, 2013	Best Practices in Using Data to Reduce Fall Risk	Katherine Jones, PT, PhD Anne Skinner, RHIA
Webinar July 9, 2013	Best Practices in Mobility Assessment to Reduce Fall Risk	Dawn Venema, PT, PhD
Webinar August 20, 2013	Best Practices in Mobility Interventions to Reduce Fall Risk	Dawn Venema, PT, PhD

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