

CAPTURE Falls Virtual Educational Series

Session 2: Fall Risk Assessment

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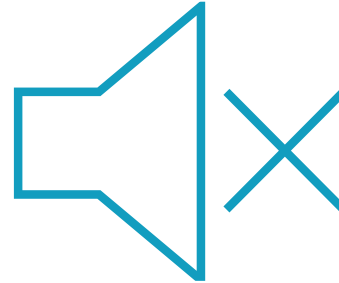
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The content is solely the responsibility of the presenters and does not necessarily represent the views of any funding source.



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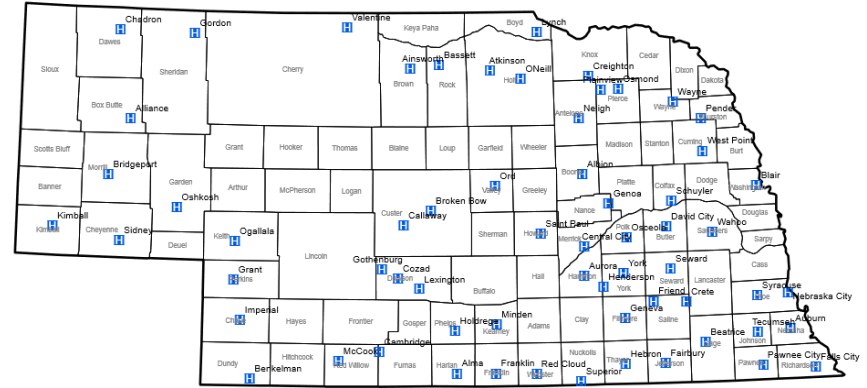


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What is the CAPTURE Falls Virtual Educational Series?

- 6-month education series on fall risk reduction in Critical Access and rural hospitals led by the University of Nebraska Medical Center's CAPTURE Falls program
- Invited by Wanda Hilton, the Rural Hospital Flex/SHIP Program Coordinator for the Iowa Department of Health and Human Services to provide this series.
- All sessions will be held on the 3rd Wednesday of the month, 1-2pm CT via Zoom.
- All session recordings are posted under the Quality Improvement tab on the following website: [Rural Hospital Programs | Health & Human Services \(iowa.gov\)](https://www.iodhs.gov/rural-hospital-programs-health-human-services)

Date	Fall Risk Reduction Topic
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CAPTURE Falls Roadmap



Establish Readiness for Change

Explore the resolve of members of an organization to implement change to improve fall risk reduction practices, and their collective belief in their capacity



Interprofessional Fall Risk Reduction Team

Create an inter-professional fall risk reduction team responsible for managing and implementing the facility's fall risk reduction program.



Gap Analysis

Conduct an assessment of the current state of fall risk reduction practices in your facility compared to evidence-based best practices.



Action Plan

Document and monitor the steps your team needs to take to reach your program goals.



Fall Risk Reduction Policies and Procedures

Set expectations and influence decisions, actions, and activities necessary for your fall risk reduction program.



Fall Definition

Specify what "counts" as a fall, and differentiate various types of falls (e.g. assisted vs. unassisted) as well as injuries.



Fall Risk Assessment

Identify patients who are at risk for falls and recognize their respective risk factors.



Fall Risk Reduction Interventions

Implement interventions to reduce the influence of patient risk factors for falls and fall-related injury.



Auditing Fall Risk Reduction Practices

Identify if fall risk reduction practices are being implemented as intended in your facility.



Post-Fall Clinical Assessment

Establish a protocol to guide staff in the assessment of patients for potential injury after a fall occurs.



Post-Fall Huddle

Create a safe environment to understand the 'story' behind a fall in order to learn and take action to prevent a future fall.



Fall Event and Rate Reporting

Report and monitor falls and fall rates to track progress within your organization and allow for external benchmarking.



Learning from Data

Use data to understand how well your fall risk reduction program is working to reduce fall risk in your facility.



Sustainment Strategies

Maintain an effective fall risk reduction program over time.



Session 2 Objectives

1

Describe the purpose of fall risk assessment for hospitalized adult patients

2

Discuss factors related to selection of a fall risk assessment tool for hospitalized adult patients

3

Determine strategies for education of staff on the use of fall risk assessment tools

4

Identify fall risk assessment tools for populations other than hospitalized adult patients



Objective 1: Describe the purpose of fall risk assessment for hospitalized adult patients



Fall Risk Assessment: Purpose

CAPTURE Falls Roadmap Fall Risk Assessment



Fall risk factors for hospitalized adult patients are often multiple and variable

- Patients often have multiple intrinsic risk factors for falls
- Risk factors vary among patients
- Risk can vary over the course of a hospitalization for an individual patient



Fall Risk Assessment: Purpose

CAPTURE Falls Roadmap Fall Risk Assessment



Are all hospitalized patients at risk?

- Health has been negatively impacted in some way
- Unfamiliar environment
- Extrinsic risk factors



Fall Risk Assessment: Purpose

CAPTURE Falls Roadmap Fall Risk Assessment



Use a tool to allow for a standardized process



Identify patients at risk and their specific risk factors



Support clinical decision making for care planning interventions



Facilitate communication among care team members



Fall Risk Assessment: Purpose

CAPTURE Falls Roadmap Fall Risk Assessment



- Identifying patients at risk or not
- Intended to be quick

**Fall Risk
Screening**



- The identification of specific risk factors to guide intervention
- Tends to be more thorough and therefore more time-consuming

**Fall Risk
Assessment**



Fall Risk Assessment: Purpose – Use of a Standardized Tool



CAPTURE Falls Roadmap Fall Risk Assessment

Dichotomized Outcome

- e.g. “At Risk” vs. “Not At Risk” based on a cut-off score
- Direct interventions to those “At Risk”
- + Attractive for its simplicity
- ! Patients can be “At Risk” for different reasons so interventions may not match risk factors

Ordered Categories of Risk

- e.g. “High” vs. “Moderate” vs. “Low” Risk based on cut-off scores
- Direct tiered interventions to “High” and “Moderate” Risk Categories
- + Attractive for its simplicity
- ! Patients can be “High” or “Moderate” for different reasons so interventions may not match risk factors

Consider Individual Items on the Tool

- Less focus on the cut-off scores
- Use the tool to systematically identify specific risk factors for an individual patient and match interventions accordingly
- + Individualizes the care plan
- ! Less simple; can require more clinical judgment

Most experts recommend not focusing solely on the score!



Fall Risk Assessment: Purpose

CAPTURE Falls Roadmap Fall Risk Assessment



**Risk Factors Typically Addressed by Many Tools:
Assessed by Self-Report, Chart Review, or Observation of Patient**



History

- Fall prior to or during current admission
- Medical history (neurological, cardiovascular, orthopedic, etc)

Cognition and Emotion

- Memory Impairment
- Dementia
- Delirium
- Impulsivity or agitation
- Overestimation of ability
- Anxiety

Movement and Mobility

- Weakness
- Poor balance
- Need for assistive device
- Need for physical assistance

Medications

- Polypharmacy
- Drug Interactions
- Side effects

Risk of Injury

- Age
- Osteoporosis
- Recent surgery
- Coagulation

Sensory Impairments

- Vision
- Vestibular
- Peripheral Neuropathy
- Hearing

Continence

- Bladder or Bowel
- Urgency
- Frequency

Fall Risk Assessment: Purpose – Frequency of Fall Risk Assessment



[CAPTURE Falls Roadmap Fall Risk Assessment](#)



Risk can vary over the course of a hospitalization for an individual patient
Most resources suggest the following frequency:

- At admission
- Every shift or at least daily
- When a patient's status has changed (including after a fall)
- Upon transfer to a different unit



Objective 2: Discuss factors related to selection of a fall risk assessment tool for hospitalized adult patients



**There is no perfect fall risk
assessment tool!**



Fall Risk Assessment: Selecting a Tool – Factors to Consider



CAPTURE Falls Roadmap Fall Risk Assessment

Ease of completion

Integration into workflow/EMR

Requirements of EMR

Staff input

Training needed

Potential cost

Comprehensiveness of the tool

Reliability of the tool

Population for/setting in which the tool was validated

Predictive validity of the tool



Fall Risk Assessment: Selecting a Tool – Comprehensiveness of Tools

CAPTURE Falls Roadmap Fall Risk Assessment



Tool	Cognition/ Emotion	Movement/ Mobility	History of falls	Contenance	Meds	Sensory Impairment	Age	Injury Risk	Tethered to Equipment	Other
Fall Risk Assessment Scoring Systems	x	x	x	x	x	x	x	(age)		
Hendrich II	x	x		x	x	x				Gender (male)
Hester-Davis	x	x	x	x	x	x	x	(age)		Volume/ electrolyte status
Johns Hopkins Fall Risk Assessment Tool	x	x	x	x	x		x	(age)	x	
Morse	x	x	x						x	Multiple comorbidities
Schmid	x	x	x	x	x					
STRATIFY	x	x	x	x		x				

Fall Risk Assessment: Selecting a Tool – Predictive Validity



CAPTURE Falls Roadmap Fall Risk Assessment



Fall Risk Assessment: Selecting a Tool – Predictive Validity

[CAPTURE Falls Roadmap Fall Risk Assessment](#)



		Is the patient really a faller?	
		Faller	Non-Faller
Result per Assessment Tool Result	At Risk (Positive)	True Positive	False Positive
	Not At Risk (Negative)	False Negative	True Negative



Fall Risk Assessment: Selecting a Tool – Predictive Validity

CAPTURE Falls Roadmap Fall Risk Assessment



True Positive

- Patient is identified at risk by our tool and truly is at risk to fall
- Interventions* are appropriate to use

False Positive

- Patient is identified at risk by our tool but truly is not at risk to fall
- Interventions* being used needlessly

True Negative

- Patient is identified not at risk by our tool and truly is not at risk to fall
- Interventions* are not necessary

False Negative

- Patient is identified not at risk by our tool but is truly at risk to fall
- Interventions* needed but aren't being delivered

*Beyond Universal Interventions

		Is the patient really a faller?	
		Faller	Non-Faller
Result per Assessment Tool Result	At Risk (Positive)	True Positive	False Positive
	Not At Risk (Negative)	False Negative	True Negative



Fall Risk Assessment: Selecting a Tool – Predictive Validity

CAPTURE Falls Roadmap Fall Risk Assessment



- Ideally a tool will maximize the number of True Positive and True Negatives
- However, all tools will result in False Positive and False Negatives
- Various statistics exist that establish how good a tool is at identifying fallers
- To further complicate things, different cut-off scores result in different values of these statistics!

Result per
Assessment
Tool Result

Is the patient really a faller?

	Is the patient really a faller?	
	Faller	Non-Faller
At Risk (Positive)	True Positive	False Positive
Not At Risk (Negative)	False Negative	True Negative

- Sensitivity
- Specificity
- Positive Predictive Value
- Negative Predictive Value
- Positive Likelihood Ratio
- Negative Likelihood Ratio
- Area Under the Curve (Receiver Operating Characteristic Curves)



Fall Risk Assessment: Selecting a Tool – Predictive Validity

CAPTURE Falls Roadmap Fall Risk Assessment



Sensitivity

- What percentage of fallers were accurately identified by your tool?
- true positives/all fallers

Specificity

- What percentage of non-fallers were accurately identified by your tool?
- true negatives/all non-fallers

Positive Predictive Value

- What percentage of those who test positive will fall?
- true positives/all those who test positive

Negative Predictive Value

- What percentage of those who test negative will not fall?
- true negatives/all those who test negative

Result per
Assessment Tool
Result

		Is the Patient Really a Faller?		
		Faller	Non-Faller	
At Risk (Positive)	True Positive	False Positive	All those who test Positive	
Not At Risk (Negative)	False Negative	True Negative	All those who test Negative	
		All Fallers	All Non-Fallers	



Fall Risk Assessment: Selecting a Tool – Predictive Validity

CAPTURE Falls Roadmap Fall Risk Assessment



Sensitivity

- What percentage of fallers were accurately identified by your tool?
- true positives/all fallers

Specificity

- What percentage of non-fallers were accurately identified by your tool?
- true negatives/all non-fallers

Positive Predictive Value

- What percentage of those who test positive will fall?
- true positives/all those who test positive

Negative Predictive Value

- What percentage of those who test negative will not fall?
- true negatives/all those who test negative

- Values range from 0.0 – 1.0 or 0% - 100%
- Higher values are better for sensitivity, specificity, positive predictive value, and negative predictive value
- Use of different cut-off scores will cause relative changes in these values



Fall Risk Assessment: Selecting a Tool – Predictive Validity

CAPTURE Falls Roadmap Fall Risk Assessment



Tool	Score Range	Typically Recommended Cut-Off Scores	Sensitivity	Specificity	Negative Predictive Value	Positive Predictive Value
Fall Risk Assessment Scoring Systems ¹⁶	0 - 30	8-14 high risk ≥ 15 “super high” risk	Not found	Not found	Not found	Not found
Hendrich II ⁹	0 - 16	≥ 5 at risk	64.1%	78.7%	100%	64%
Hester-Davis ¹⁰	0 - 77	≥ 10 at risk	90.9%	47.1%	99.5%	3.9%
Johns Hopkins Fall Risk Assessment Tool ¹²	0 - 35	< 6 low risk 6-13 medium risk ≥ 14 high risk*	67.8%	80.4%	99.9%	0%
Morse ¹²	0 – 125	< 25 low risk 25-45 mod risk > 45 high risk*	88.1%	57%	100%	0%
Schmid ¹⁴	0 - 6	≥ 3 at risk	78.7%	46.9%	Not found	Not found
STRATIFY ¹³	0 - 5	≥ 2 at risk	90%	59%	99%	11%

**Statistical values in table are based on “high risk” cut-off score.*

Note that statistical values vary from study to study. These values are from selected research listed on Slides 41-42 References and Resources.



Fall Risk Assessment: Selecting a Tool – Predictive Validity

[CAPTURE Falls Roadmap Fall Risk Assessment](#)



- Calculation of predictive validity with your own data is relatively simple!
 - Select retrospective samples of 30-50 fallers and non-fallers within a given time frame
 - Use data from medical records to complete your risk assessment tool
 - Tally each patient in the appropriate cell in the 2x2 table
 - Calculate values for predictive validity using our [worksheet](#)
 - Can experiment with various cut-points if desired.

		Is the Patient Really a Faller?		
		Faller	Non-Faller	
Result per Assessment Tool Result	At Risk (Positive)	True Positive	False Positive	All those who test Positive
	Not At Risk (Negative)	False Negative	True Negative	All those who test Negative
		All Fallers	All Non-Fallers	



Fall Risk Assessment: Use of a Standardized Tool



CAPTURE Falls Roadmap Fall Risk Assessment

Dichotomized Outcome

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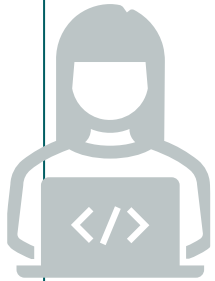


Objective 3: Determine strategies for education of staff on the use of fall risk assessment tools



Staff Education about Fall Risk Assessment

CAPTURE Falls Roadmap Fall Risk Assessment



Describe the purpose of and process for fall risk assessment

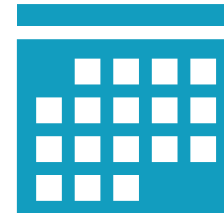
- **Who** is assessed?
- **What** fall risk assessment tool is used?
- **Where** in the EMR can staff find the tool?
- **When/How often** should patients be assessed per policy?
- **How** do fall risk assessment results impact selection of interventions?



New employee orientation



Annual education



Fall Prevention Awareness Week (September)



Patient Safety Awareness Week (March)



Staff Education about Fall Risk Assessment

CAPTURE Falls Roadmap Fall Risk Assessment



Reliably score a patient's fall risk using the fall risk assessment tool

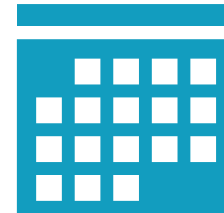
- Use patient cases to allow staff to practice scoring your tool; select a few different cases that present some variability
- Have staff score, compare results, and discuss rationale
- Discuss how staff could also incorporate clinical judgement for risk factors not present on the tool



New employee orientation



Annual education



Fall Prevention Awareness Week (September)



Patient Safety Awareness Week (March)



**Objective 4: Identify fall risk
assessment tools for populations
other than hospitalized adult
patients**



Fall Risk Assessment: “Other” Populations/Settings



Pediatrics^{7,11}

- CHAMPS
- Cummings
- General Risk Assessment for Pediatric Inpatient Falls (GRAF-PIF)
- Humpty Dumpty Fall Scale
- I'M SAFE
- Little Schmidy Pediatric Hospital Fall Risk Assessment Index

Emergency Department^{2,8}

- KINDER 1
- Memorial Emergency Department Fall Risk Assessment Tool (MEDFRAT)

Outpatient⁶

- Centers for Disease Control Stay Independent Questionnaire
- Any report of unsteadiness, worry about falling, or history of fall in the past year can be considered at risk for falls (CDC STEADI toolkit)

Rehabilitation Therapy¹⁵

- Berg Balance Scale
- Dynamic Gait Index
- Mini BESTest
- Timed Up and Go
- and many others....



Fall Risk Assessment

CAPTURE Falls Roadmap Interprofessional Fall Risk Reduction Team

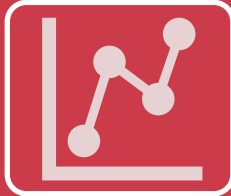


Lessons learned
and anecdotes from
our work



Choice of fall risk assessment tool is important, but don't stress *too* much about it

- All tools have strengths and weaknesses
- Consider factors on slide 20: Selecting a Tool – Factors to Consider
- It's *what you do* with the information to inform actions to reduce fall risk that is really important



Consider conducting a local validation study with your own data

- See slide 29 - Fall Risk Assessment: Selecting a Tool – Predictive Validity and [worksheet](#)
- If a change in tools is desired, your own data could be used to support the change.



Staff education ideally includes actual practice

- See slide 33 – Staff Education about Fall Risk Assessment

Resources: Fall Risk Reduction Team



[CAPTURE Falls Roadmap Fall Risk Assessment](#)

- ✓ Fall Risk Assessment Performance Tool Worksheet
- ✓ Case Study: Choosing a Fall Risk Assessment
- ✓ AHRQ Toolkit Section 3.3. What is a standardized assessment of risk factors for falls, and how should this assessment be conducted?



Summary

1

Fall risk assessment is intended to identify patients at risk and their individual risk factors

2

Numerous factors go into selecting a tool; but there is no “perfect” tool!

3

For staff education: review policies for desired use of fall risk assessment tool and practice scoring the tool

4

Various tools exist for other populations – use one specific to your population and setting if able



Post-Education Evaluation

Evaluation survey link:

<https://redcap.link/strk4wtp>

QR code:



- Responses are anonymous
- Feedback will be used to inform future improvements to this education



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References and Resources

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References and Resources

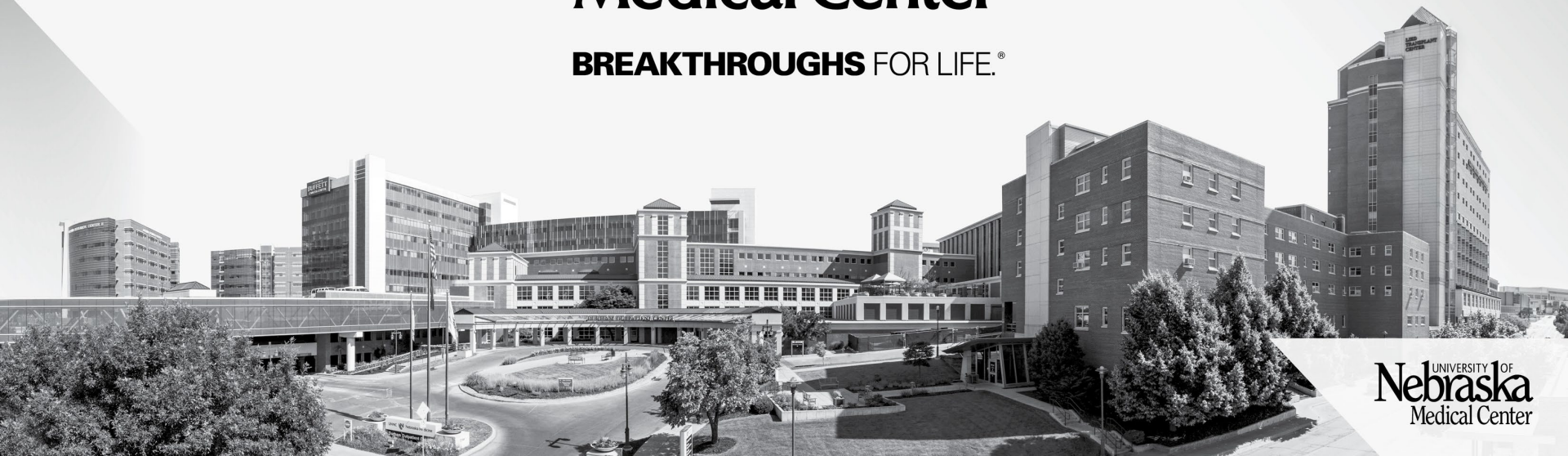
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