THE RIPPLE EFFECT IN CLINICAL INFORMATICS

2018 Clinical Informatics Conference

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PREDICTING AND PREVENTING FALLS USING THE HESTER-DAVIS FALL PROGRAM

UTSouthwestern Medical Center

Dallas-Fort Worth Chapter
ANIA
Where caring and technology meet

CONFLICT OF INTEREST DISCLOSURE

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have no real or apparent conflicts of interest to disclose.

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OBJECTIVES

- Identify which types of falls are predictable and/or preventable
- Describe Hester-Davis Fall program
- Describe care plan build approach
- Lessons learned/next steps for implementation

WHY FOCUS ON FALLS?

- **30% to 51% of falls result in some injury[1]**
- **CMS (Medicare) classifies a fall as a HAC (hospital acquired condition) and will not reimburse hospitals for this type of care**
- **Most important reason: keeping our patients safe**

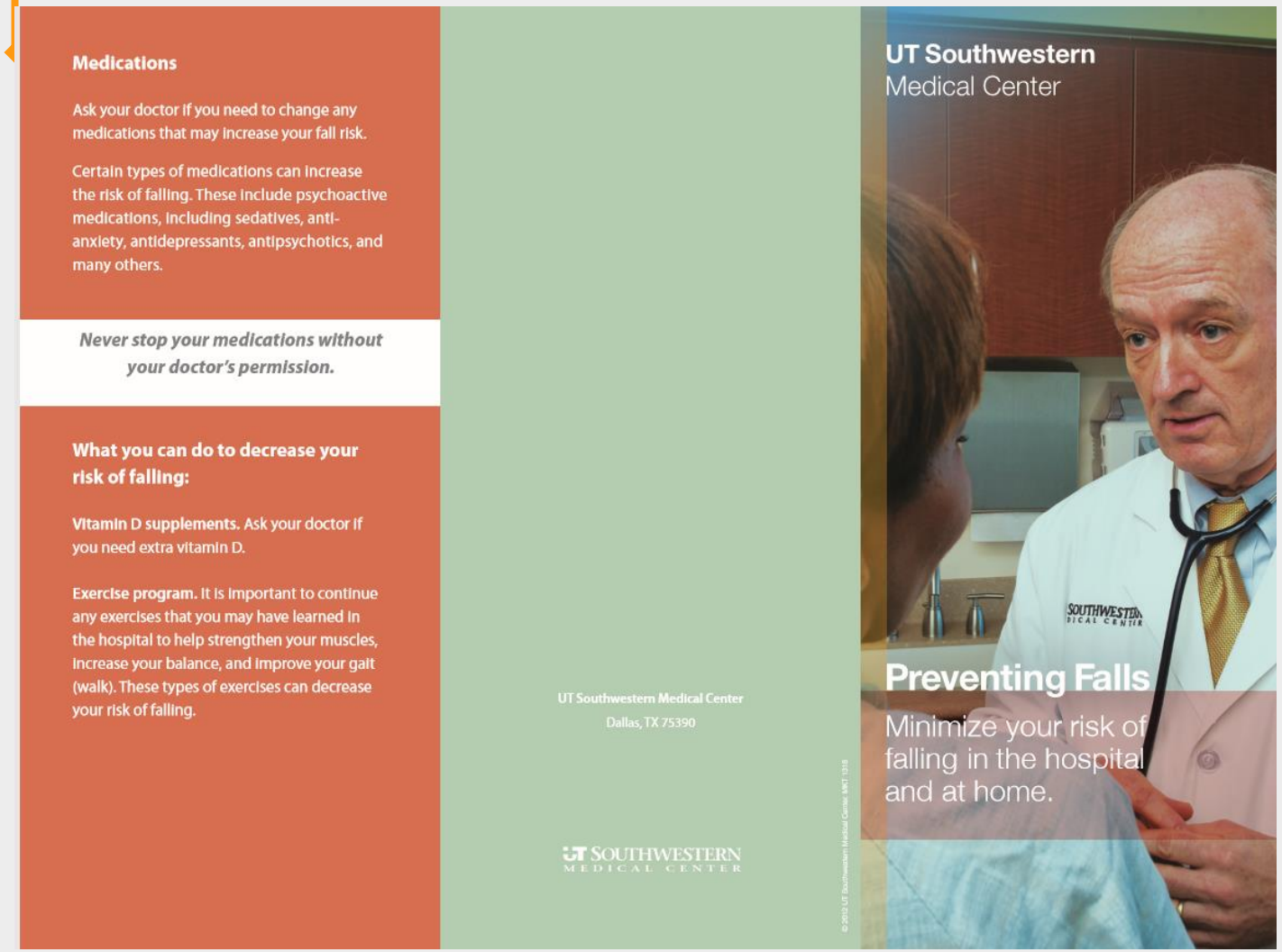
D. Oliver, et al. *Falls and fall related injuries in hospitals.* (2010, Nov). Clinics in Geriatric Medicine.

SENTINEL EVENT ALERT 55

Analysis of falls with injury in the Sentinel Event database reveals the most common contributing factors pertain to:

- Inadequate assessment
- Communication failures
- Lack of adherence to protocols and safety practices
- Inadequate staff orientation, supervision, staffing levels or skill mix
- Deficiencies in the physical environment
- Lack of leadership

IMPROVING FALLS AT UTSW



Medications

Ask your doctor if you need to change any medications that may increase your fall risk.

Certain types of medications can increase the risk of falling. These include psychoactive medications, including sedatives, anti-anxiety, antidepressants, antipsychotics, and many others.

Never stop your medications without your doctor's permission.

What you can do to decrease your risk of falling:

Vitamin D supplements. Ask your doctor if you need extra vitamin D.

Exercise program. It is important to continue any exercises that you may have learned in the hospital to help strengthen your muscles, increase your balance, and improve your gait (walk). These types of exercises can decrease your risk of falling.

UT Southwestern Medical Center
Dallas, TX 75390

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Preventing Falls

Minimize your risk of falling in the hospital and at home.

- UTSW Fall Committee leadership identified an increase in falls with move into William P. Clements University Jr. Hospital
- Monitored fall rate and implemented interventions with minimal improvement in fall rate
- HIT intervention targeting underlying areas of risk can prevent patient falls in older patients in acute care hospitals[1]

1. Dykes PC, Carroll DL, Hurley A, et al. *Fall Prevention in Acute Care Hospitals: A Randomized Trial. JAMA*

SCREENING VS. ASSESSING

Screening Vs. Assessing	Screening	Assessing
Identifies patients at fall risk	Yes	Yes
Completion time under 3 minutes	Yes	Yes
Targeted questions	No	Yes
Stratifies risk level	No	Yes
Tells you why patient is at risk	No	Yes
Identifies modifiable risk factors	No	Yes

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UNIVERSITY OF ARKANSAS MEDICAL SCHOOL (UAMS) HESTER DAVIS CASE STUDY

2013 Top Performer in Falls and Injury Prevention (University Healthsystem Consortium)

One year after implementing (2011) the HD Falls Program™ at UAMS:

Experienced a **60% reduction** in injurious falls

Improved from **98th to 11th percentile in falls injury ranking** on NDNQI

Saved $1.27 million on falls related costs the 1st year [1]

Saved an additional **$330k by eliminating "patient sitters"** – an ineffective and costly intervention

Saw an **overall savings of $1.6M** per year

All occurring during a time when the hospital was significantly reducing staff.

2014 Top Hospital Saving Money in Innovative Ways (Becker's Healthcare)

In 2013, UAMS achieved the **lowest falls and falls injury rates in its history** and is a recognized national leader.

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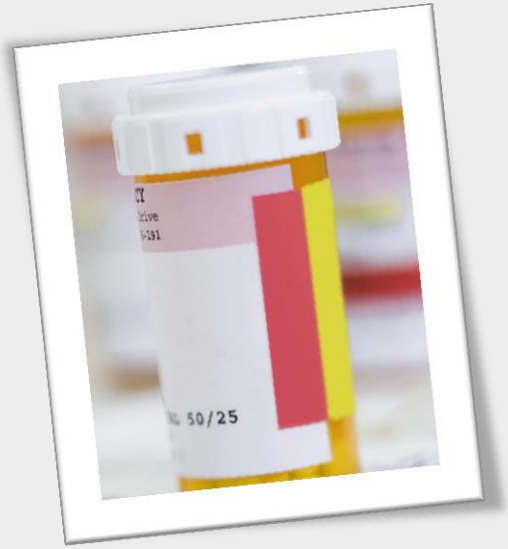
TYPES OF FALLS

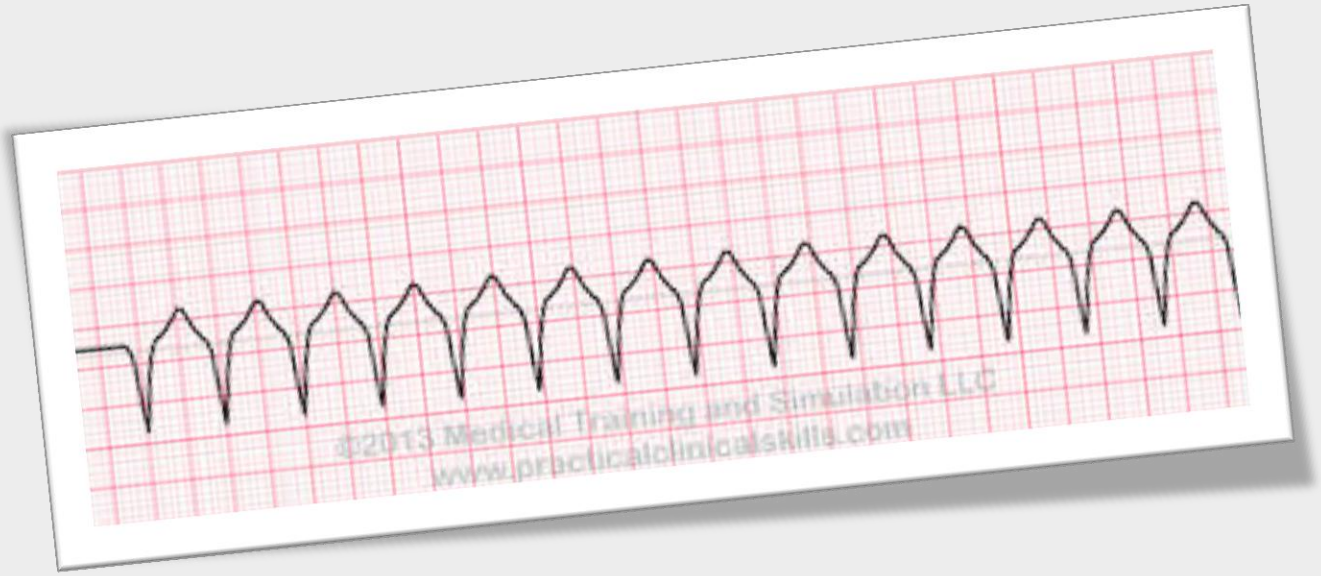
ANTICIPATED PHYSIOLOGIC FALL

- most common type of falls that occur in hospitals
- related to known risk factors such as mobility limitations, toileting needs, mental status changes, or high risk medications
- can be identified with a falls risk tool



UNANTICIPATED PHYSIOLOGIC FALL

- occur when the patient has some <u>unknown</u> physiological event such as a seizure, syncopal episode, or cardiac arrhythmia



ACCIDENTAL FALL

- include slips and trips
- implementing Universal Fall Precautions with ALL patients is the best defense against accidental falls

BEHAVIORAL FALL

- Occur when a patient is having a behavioral episode and chooses to put themselves on the floor

DEVELOPMENTAL FALL

- Occur in children and are part of normal growth and development

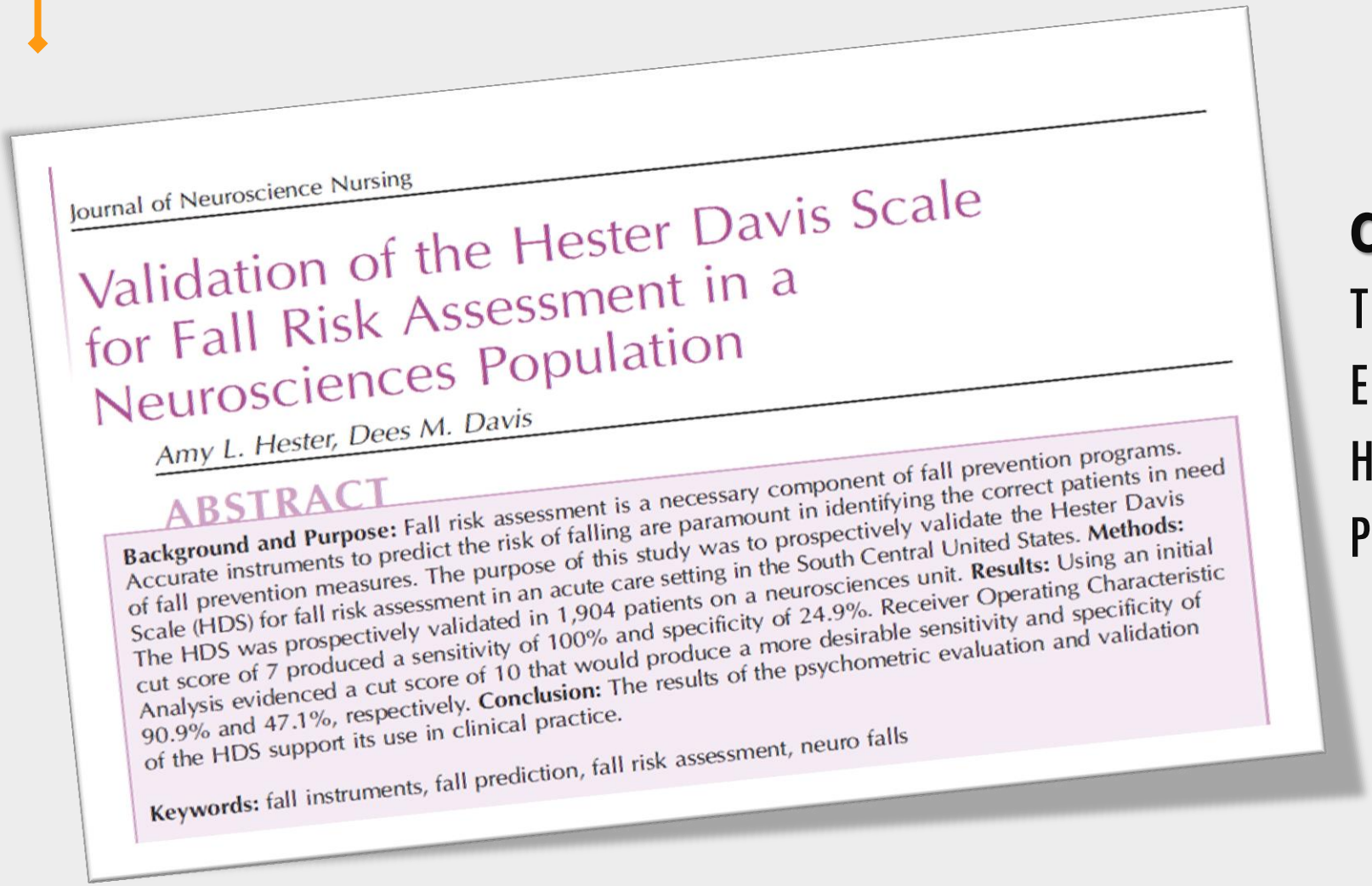
SUMMARY BY TYPE OF FALL

Type of Fall	Predictable	Preventable
Anticipated Physiologic	YES	YES
Unanticipated Physiologic	NO	NO
Accidental	NO	YES
Behavioral	NO	NO
Development	NO	NO

WHY THE HD FALL PREVENTION PROGRAM ©?

UTSW Fall Tool	HDS©
Developed at UTSW (not validated)	Validated in literature
Sensitivity not assessed	91% sensitivity
Only identifies if the patient is at risk	Identifies why a patient is at risk
Does not identify modifiable risk factors	Identifies specific modifiable risk factors
Does not generate an individualized plan of care	Risk factors are mapped to specific interventions in the HD Care Plan ©
No stratification of risk	Stratifies the level of risk by low, moderate or high

WHY THE HD FALL PREVENTION PROGRAM ©?



Journal of Neuroscience Nursing

Validation of the Hester Davis Scale for Fall Risk Assessment in a Neurosciences Population

Amy L. Hester, Dees M. Davis

ABSTRACT

Background and Purpose: Fall risk assessment is a necessary component of fall prevention programs. Accurate instruments to predict the risk of falling are paramount in identifying the correct patients in need of fall prevention measures. The purpose of this study was to prospectively validate the Hester Davis Scale (HDS) for fall risk assessment in an acute care setting in the South Central United States. **Methods:** The HDS was prospectively validated in 1,904 patients on a neurosciences unit. **Results:** Using an initial cut score of 7 produced a sensitivity of 100% and specificity of 24.9%. Receiver Operating Characteristic Analysis evidenced a cut score of 10 that would produce a more desirable sensitivity and specificity of 90.9% and 47.1%, respectively. **Conclusion:** The results of the psychometric evaluation and validation of the HDS support its use in clinical practice.

Keywords: fall instruments, fall prediction, fall risk assessment, neuro falls

CONCLUSION:

THE RESULTS OF THE PSYCHOMETRIC EVALUATION AND VALIDATION OF THE HDS SUPPORT ITS USE IN CLINICAL PRACTICE[2]

Hester AL, Davis DM, J *Validation of the Hester Davis Scale for fall risk assessment in a neurosciences population.* Neuroscience Nursing. 2013 Oct

HOW DOES HDS© COMPARE TO OTHER TOOLS?

Psychometric Statistics of Commonly Used Adult Inpatient Fall Risk Prediction Tools				
	Screening Tools			Assessment Tools
	MORSE[a]	Johns Hopkins[b]	HENDRICH II[c]	HDS[c d, e]
Sensitivity	73%	58%	75%	91% paper 90% EMR

HDS© identifies the RIGHT at-risk patients.

15-33% more sensitive than other commonly used validated tools!

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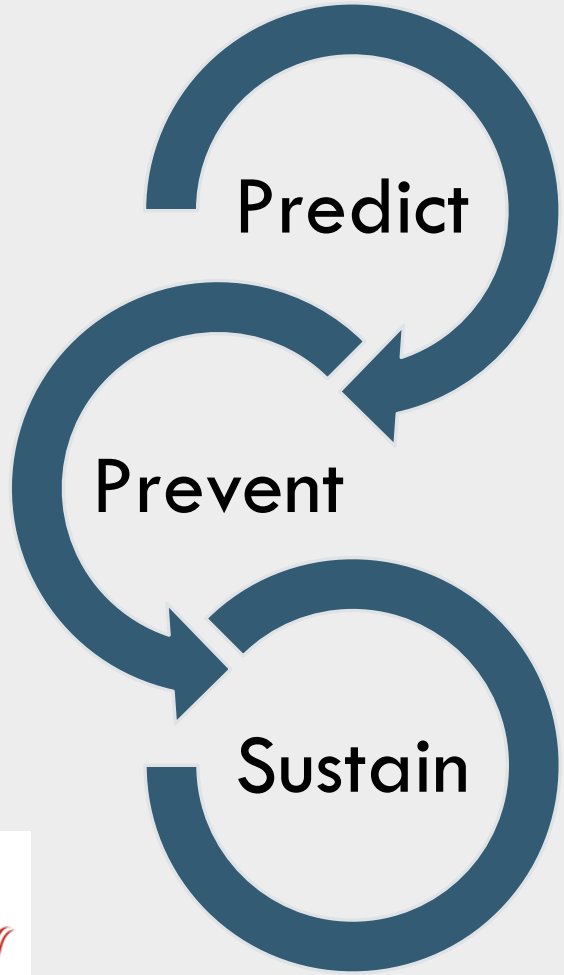
HD FALLS PROGRAM



HD FALL RISK ASSESSMENT SCALE© (HDS)

HD FALLS CARE PLAN©

HD FALLS TOOLKIT©

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HD SCIENCE BEHIND FALLS MANAGEMENT

HDS©	HD Care Plans©	HD Tool Kit ©	Units
• HDS • mHDS • eHDS	• Acute Care/ICU • Maternal • Behavioral • ED	• Education • Signage • Audit Tools • Compliance • Reporting	• Med/Surg • ICU • Maternal • Behavioral • Rehab • ED

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HDS© SCORING TOOL

Hester Davis Fall Risk Assessment	
Last Known Fall (Adult)	
Mobility	
Medications	
Mental Status/LOC/Awareness	
Toileting Needs	
Volume/Electrolyte Status	
Communication/Sensory	
Behavior	
Hester Davis Fall Risk Total	

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HDS© SCORING TOOL-BUILD CONSIDERATIONS

Nursing I/O | Adult Patient Profile | Adult PCS Body System | IV Assess

Accordion | Expanded | View All

1m | 5m | 10m | 15m | 30m | 1h | 2h | 4h | 8h | 24h

Based On: 0700 | Reset | Now

Admission (Current) from 1...

10/15/18

1400

Hester Davis Fall Risk Assessment		
Last Known Fall (Adult)		0
Mobility		1
Medications	!	2
Mental Status/LOC/Awareness		0
Toileting Needs		0
Volume/Electrolyte Status	!	1;2
Communication/Sensory		0
Behavior	!	4;2
Hester Davis Fall Risk Total		13

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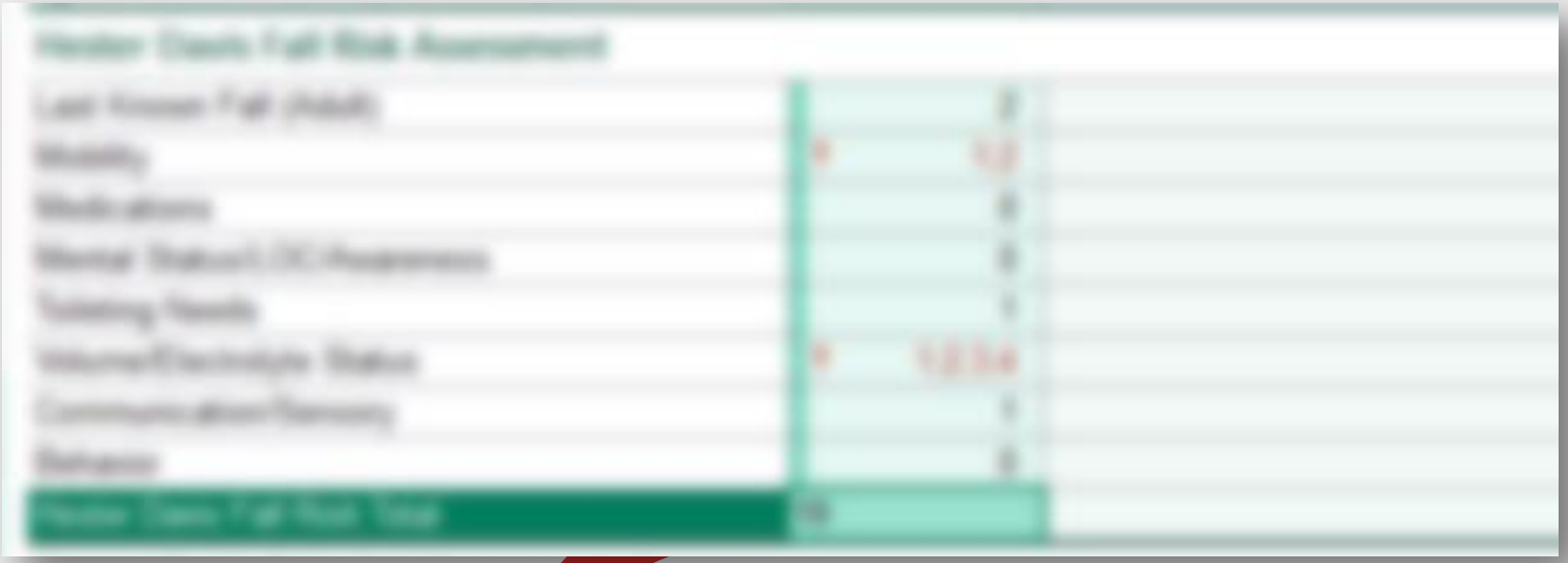
HD FALLS CARE PLAN



The patient is identified as Fall Risk. Click the link to individualize the Hester Davis Care Plan (Adult) for the patient.

Care Plan

The following actions have been applied:

- Care Plan Added: UTSW UH HD Fall Risk (Adult)
- Added: Hester Davis Fall Risk Adult Interventions and HD Education

Dismiss

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HD CARE PLAN

Interventions by Level of Risk

- Low
- Moderate
- High
- Comatose/sedated

Interventions by Risk Factor

- Mobility
- Medications
- Mental Status
- Toileting Needs
- Volume/ Electrolyte Status
- Communication/ Sensory
- Behavior

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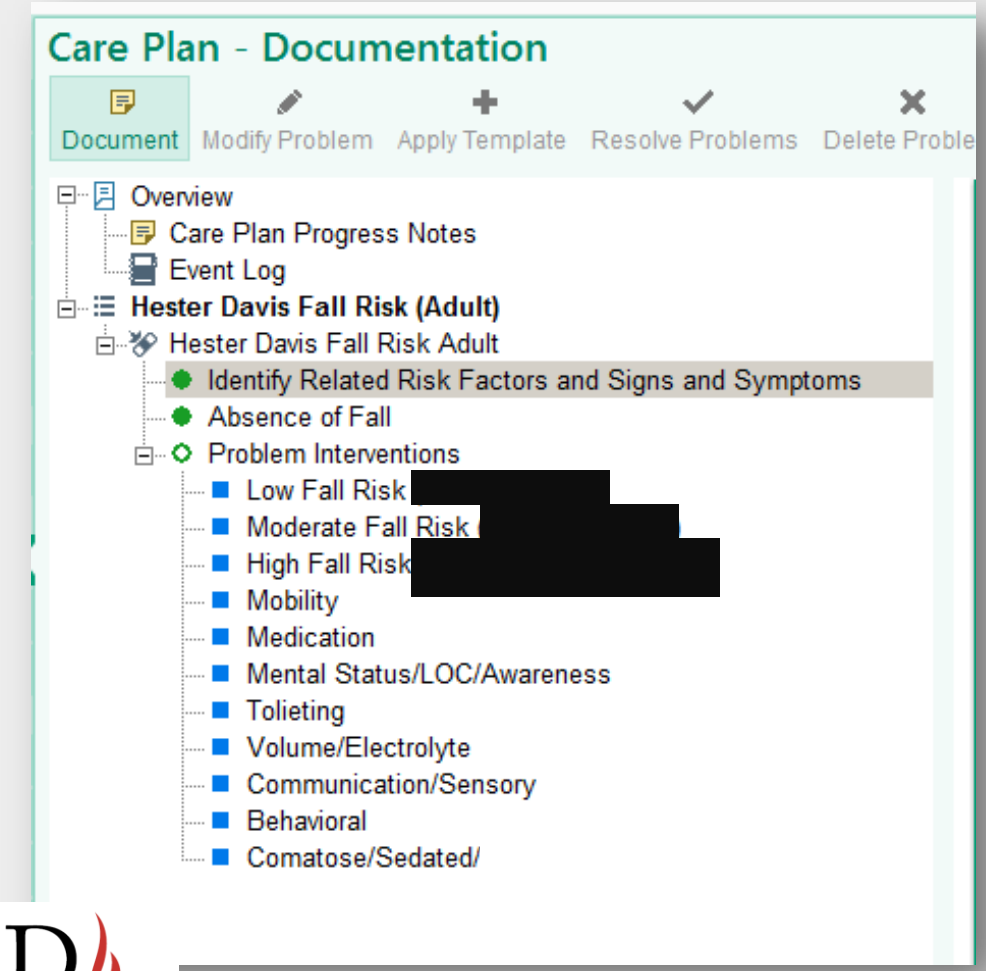
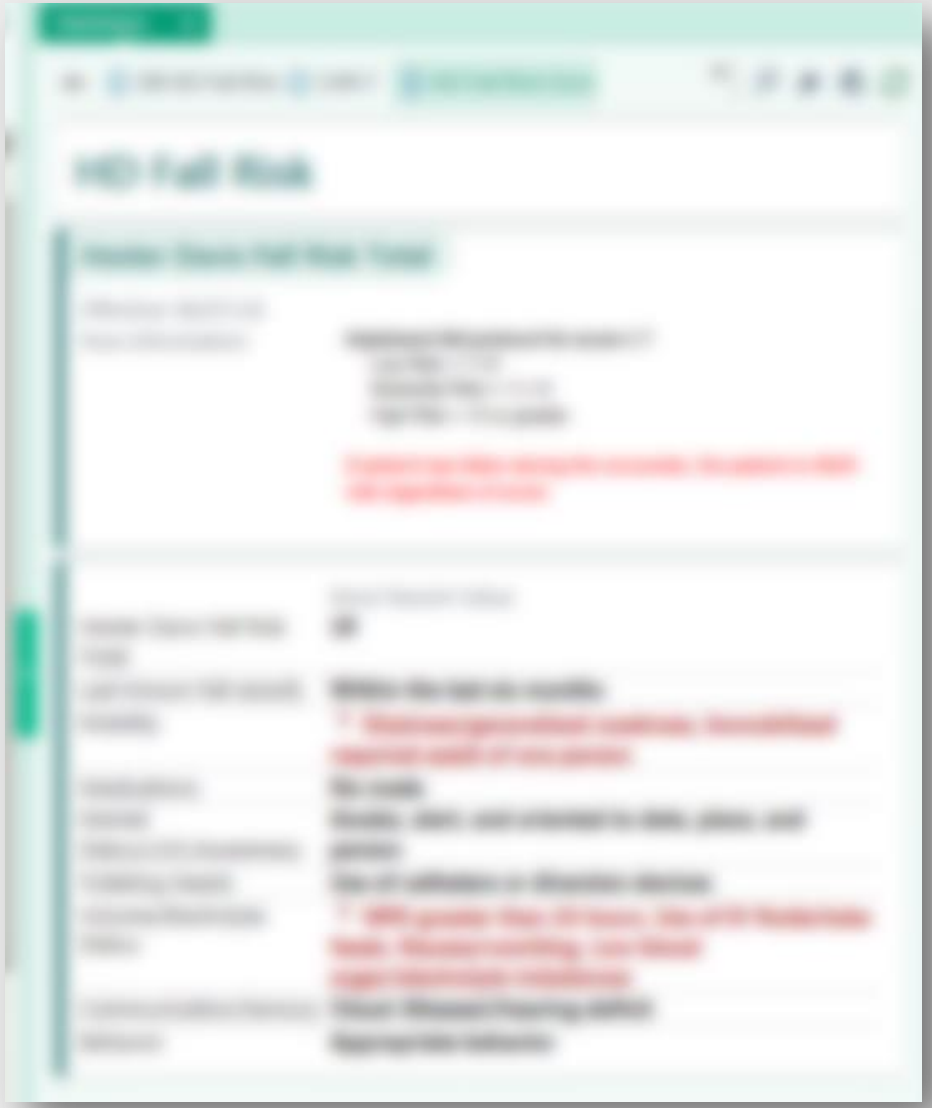
INDIVIDUALIZING THE HD CARE PLAN





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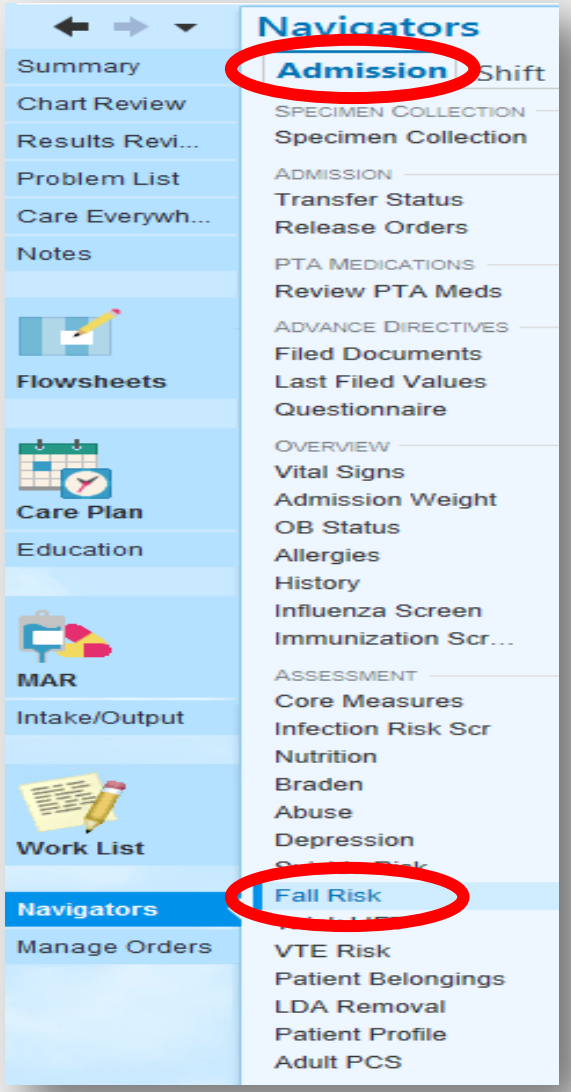
BUILD CONSIDERATIONS FOR SPECIALTY AREAS



- Needed to create rules to display different HD tools (mHDS vs. HDS)
- Same rules used for assessments and care plan alerts

PLAN OF CARE-INTERVENTIONS

Interventions are implemented based on **risk factors** unique to each patient as well as the patient's **overall level of risk** to fall.

Universal fall precautions (UFPs) are observed with **ALL** patients regardless of their risk to fall.

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CARE PLANNING IN ACTION

Nurses complete an assessment upon admission and at the start of each shift to generate the care plan

The care plan is **individualized** for each patient

Based on the patient's **level of risk** and **specific risk factors,** certain interventions will be implemented

It is critical to success that staff providing direct patient care are **aware of the patient's care plan**

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COMMUNICATION TOOLS WITHIN EHR

POC SYSTEM

Inpatient Lists

Edit List | Properties | Sign In | Sign Out | Sign In Others | Remove | Add Patient | Copy | Paste | Open Chart | Work List | More

My Lists

- Blood Administration
- DJS testing
  - ZzzTest, BMI Hi
- HD Fall risk
  - Zzztest, Chlodovech
  - Zzztest, InfcOne
  - ZZZTest, JEP Pt B Safe Demo
  - Zzztest, Maggie
  - Zzztest, Rellre
  - Zzztest, Rflx Multone
  - Zzztest, Tnp
- JDT Test
- Norma

HD Fall risk 7 Patients

Refreshed just now | Search All Hosp

Room	Patient Name	Age/Sex	MRN	Hester Davis Score	Fall Risk (HD)	Fall Risk CP (Adult)
UH0501	*Zzztest, Rellre*	30y/o / F	97000117	5	—	✓
UH0601	*Zzztest, InfcOne*	28y/o / M	97015844	—	—	✗
UH0602	*Zzztest, Rflx Multone*	28y/o / F	97014939	5	●	≡
UH1033	*ZZZTest, JEP Pt B Safe Demo*	41y/o / M	97000201	11	●	≡
UH1035	*Zzztest, Chlodovech*	34y/o / M	92379135	9	●	≡
UH1048	*Zzztest, Tnp*	19y/o / M	97014926	15	●	≡
ZL615	*Zzztest, Maggie*	48y/o / F	92378964	—	—	✗

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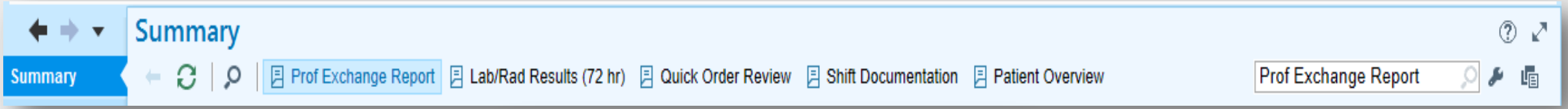
COMMUNICATION TOOLS WITHIN EHR



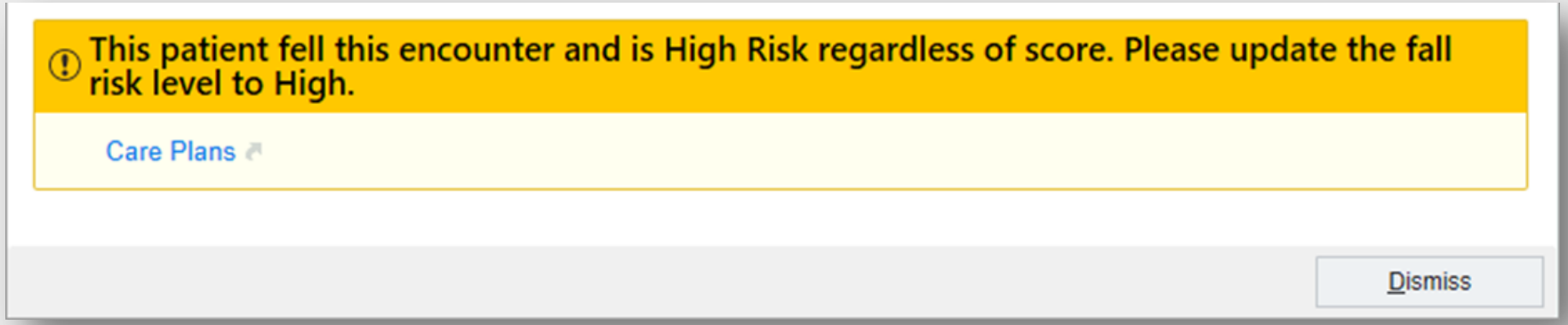
Low Fall Risk

Moderate Fall Risk

High Fall Risk

Banners display on various reports to notify the interprofessional team about the latest fall risk status. This is coupled with visual aides in the patient's room.

BUILD CONSIDERATION FOR FALLS DURING CURRENT ADMISSION



High Fall Risk (patient fell during current hospitalization)

- If a patient has **any** type of fall during the hospital stay, the high risk interventions must be implemented
- Rules were created using the post fall documentation to address this scenario

POST FALL PLAN

Hester-Davis Post-Fall Documentation	
Date of Fall	
Time of fall	
Type of Fall	
Patient description of fall	
Rapid Response Team (RRT) notified	
Name of provider notified	
Family/care giver notified	
Location of fall	
Physical factors	
Visible injuries	
Post fall interventions	

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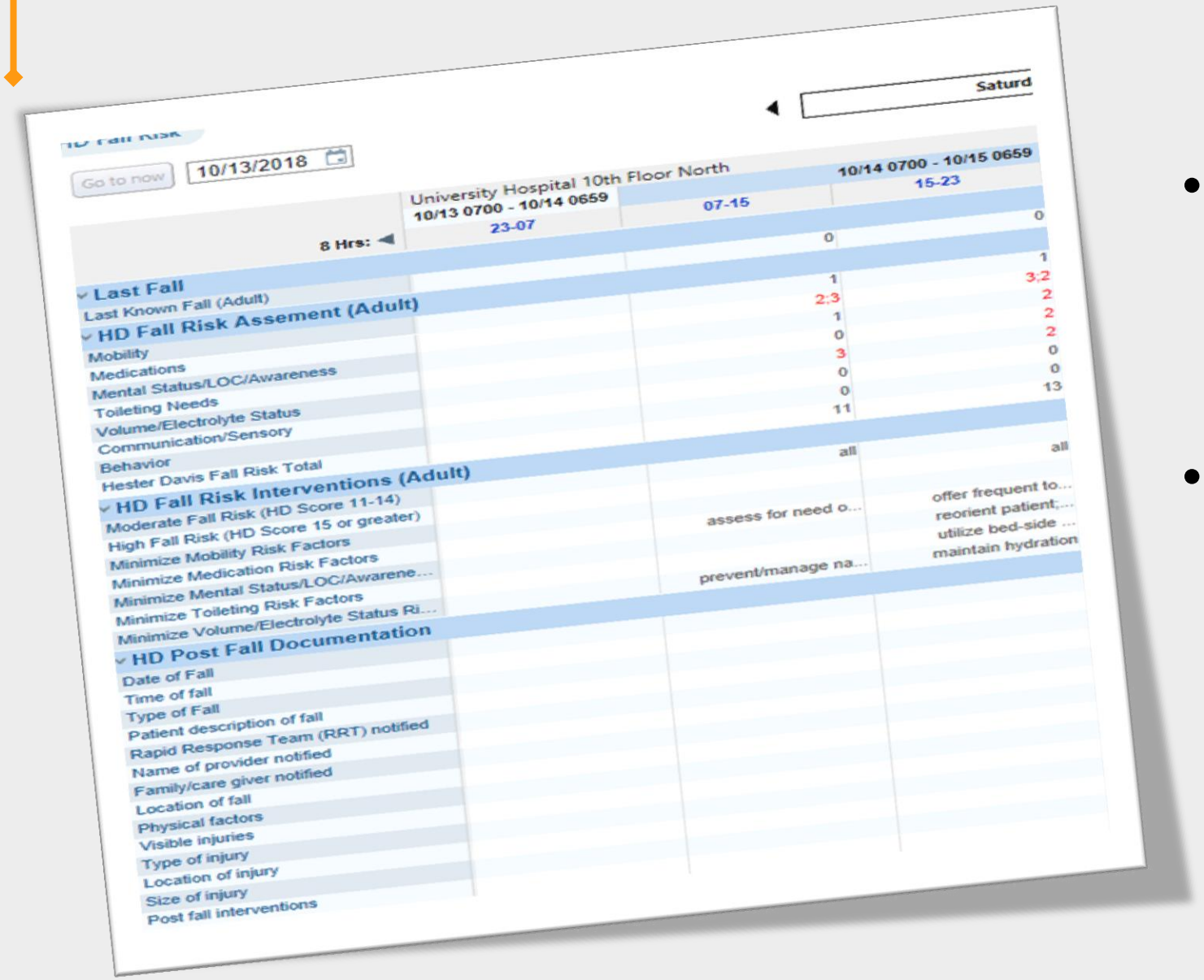
FALL ACCORDION REPORT CREATED FOR DEBRIEF

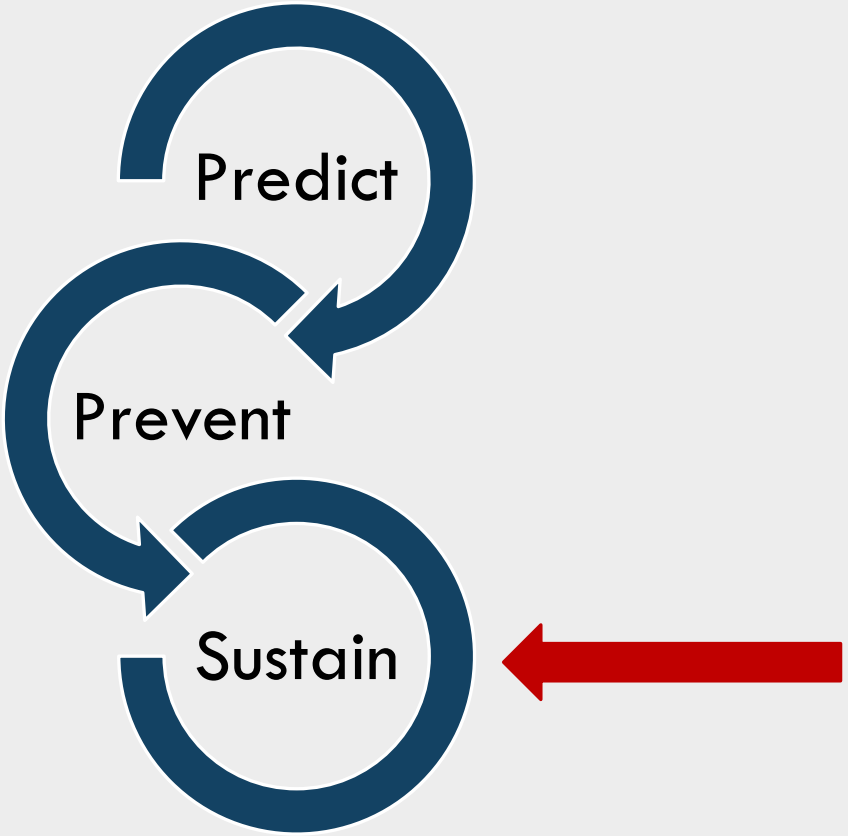


Go to now | 10/13/2018 | Saturd

8 Hrs:	University Hospital 10th Floor North 10/13 0700 - 10/14 0659 23-07	07-15	10/14 0700 - 10/15 0659 15-23
Last Fall			
Last Known Fall (Adult)		0	0
HD Fall Risk Assement (Adult)			
Mobility		1	1
Medications		2;3	3;2
Mental Status/LOC/Awareness		1	2
Toileting Needs		0	2
Volume/Electrolyte Status		3	2
Communication/Sensory		0	0
Behavior		0	0
Hester Davis Fall Risk Total		11	13
HD Fall Risk Interventions (Adult)			
Moderate Fall Risk (HD Score 11-14)		all	all
High Fall Risk (HD Score 15 or greater)			
Minimize Mobility Risk Factors		assess for need o...	offer frequent to...
Minimize Medication Risk Factors			reorient patient;...
Minimize Mental Status/LOC/Awarene...			utilize bed-side ...
Minimize Toileting Risk Factors		prevent/manage na...	maintain hydration
Minimize Volume/Electrolyte Status Ri...			
HD Post Fall Documentation			
Date of Fall			
Time of fall			
Type of Fall			
Patient description of fall			
Rapid Response Team (RRT) notified			
Name of provider notified			
Family/care giver notified			
Location of fall			
Physical factors			
Visible injuries			
Type of injury			
Location of injury			
Size of injury			
Post fall interventions			

- Fall debriefing consists of reviewing multiple factors related to the fall
- Accordion report was created to reduce the time staff spent mining the chart for falls related documentation

HD FALLS TOOLKIT ©



Tools to provide:

- Auditing
- Training
- Remediation
- QI Documentation
- Staff Recognition
- Staff Communication

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LESSONS LEARNED & NEXT STEPS FOR IMPLEMENTATION

- It takes an interprofessional village
- Fall practice champions
- Scenario based training
- PRACTICE, PRACTICE, PRACTICE

INTERPROFESSIONAL TEAM

- Patient Care Technicians (PCT's), Therapists, Transport and Guest and Patient Services are key team members when it comes to preventing falls and fall related injury.
- Various communication tools where created within the EHR to assist with making this information visible for all disciplines.

ROLE OF THE PRACTICE CHAMPION

- Serve as change agent
- Act as a fall practice champion (including the ability to explain evidence-based practice to peers)
- Role model and teach best practice
- Assist in ~~auditing~~ monitoring
- Provide support during implementation
- Identify issues on units

ADDITIONAL SUCCESS

HDNursing
The Science Behind Falls Management

Success Story

WHITE RIVER MEDICAL CENTER

Batesville, AR

Staff Comments:

"The HDS is a risk assessment tool the clinicians believe in and trust." - Progressive Care Nurse Manager

The HD Falls Program provides "a more accurate reflection of the true fall risk in our patients that makes the volume of patients needing intervention more manageable and doable" - Senior Haven Nurse Manager

"The HDS impacts have been two fold. . .staff have a scale that appropriately guides care interventions which has created the biggest impact of all. . . increased patient safety. Senior Haven's Fall's with injury rate decreased by more than 50% after implementing the HDS."

"The culture of safety for PCU has significantly improved utilizing evidence-based fall prevention tools. The key to success is proper identification of high fall risk patients, focus on injury prevention, hold each other accountable, and transparency of data."

"Staff appreciated the ability stratify patients fall risk based on functional ability AND cognitive ability."

"Nurses soon identified the value of the more specific risk score in aiding with the maintaining a safe environment and organization of care by getting the appropriate interventions to the appropriate patient."

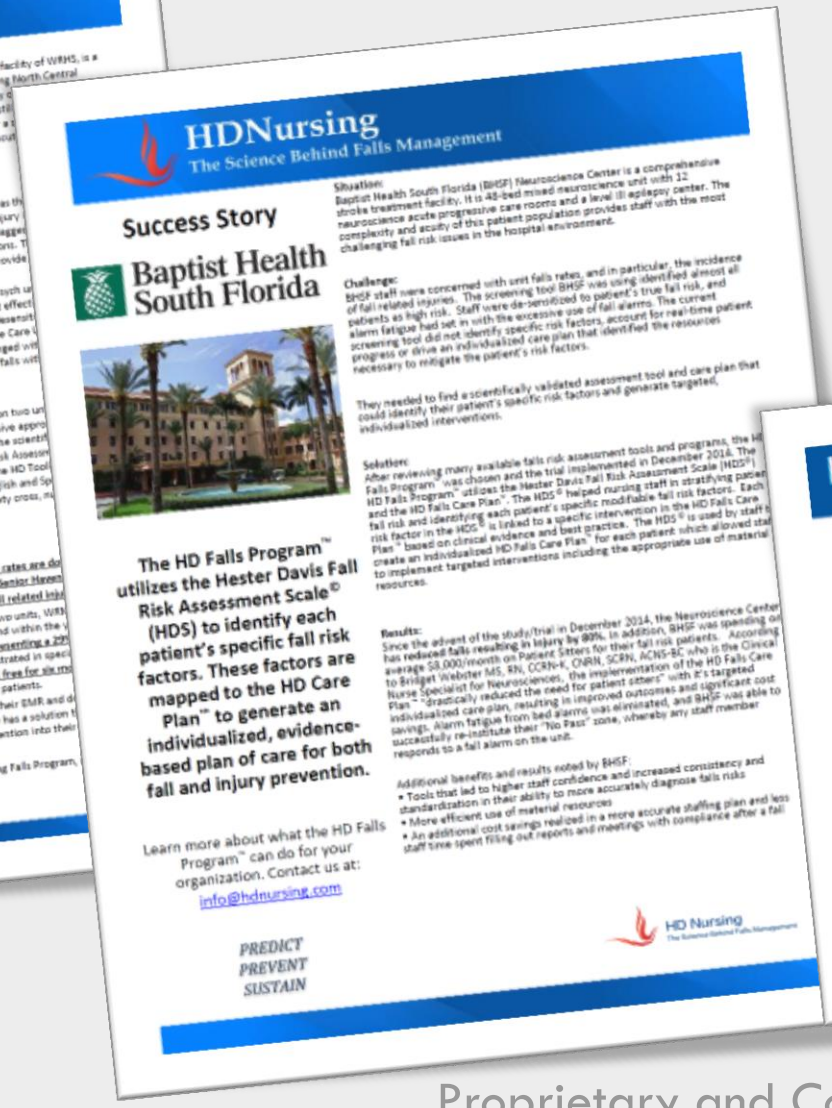
Situation:
White River Medical Center (WRMC), the cornerstone facility of WRHS, is a 235-bed, private, not-for-profit regional hospital serving North Central Arkansas since 1976. Although WRMC has traditionally ... national mean in various quality metrics, there were ... falls and how to reduce them. WRMC was looking for a ... benefit all their patient populations including more acu... those in their geriatric behavioral health unit.

Challenge:
The major challenge for fall prevention at WRMC was th... patients that are truly a high fall risk and prevent injury ... WRMC utilized a fall scale that was outdated and flagge... fall risk. The previous tool did not guide interventions. T... not have processes in place to prevent injury or provide ... family education for falls.
On some units, like Senior Haven, a 16 bed Geri Psych u... patients as a high fall risk. Ultimately this was not effect... patients truly at fall risk which resulted in staff desensit... interventions and alarm fatigue. The Progressive Care ... unit specializing in cardiac disorders was challenged wi... despite best efforts, was seeing an average of 2 falls wit...

Solution:
The HD Falls Program was introduced for trial on two un... and Senior Haven. Composed of a comprehensive appro... management, the HD Falls Program includes the scientif... published Hester Davis Scale (HDS) for Falls Risk Assessm... Care Plan that integrates with the HDS, and the HD Tool... patient and family education materials in English and Sp... tool, quality reporting tools, monthly fall safety cross, m... tools, and Program auditing tools.

Results:
PCU fall rates have declined and fall injury rates are do... implementation of the HD Falls Program. Senior Haven ... improvement with a 56% reduction in fall related inju...
Recognizing significant progress in these two units, WRM... Falls Program to the rest of the hospital and within the ... lowest rates of falls in over 10 years representing a 29... fall rates. Significant success was demonstrated in speci... Recuperative Care unit who has been fall free for six mo... for large number of cognitively impaired patients.
The Program was easily integrated into their EMR and d... Using the HD Falls Program, WRMC now has a solution t... only fall prevention but also injury prevention into their

For more information on the HD Nursing Falls Program,
info@hdnursing.com



HDNursing
The Science Behind Falls Management

Success Story

Baptist Health South Florida

The HD Falls Program™ utilizes the Hester Davis Fall Risk Assessment Scale© (HDS) to identify each patient's specific fall risk factors. These factors are mapped to the HD Care Plan™ to generate an individualized, evidence-based plan of care for both fall and injury prevention.

Learn more about what the HD Falls Program™ can do for your organization. Contact us at:
info@hdnursing.com

PREDICT
PREVENT
SUSTAIN

Situation:
Baptist Health South Florida (BHSF) Neuroscience Center is a comprehensive stroke treatment facility. It is 40-bed mixed neuroscience unit with 12 neuroscience acute progressive care rooms and a level III epilepsy center. The complexity and acuity of this patient population provides staff with the most challenging fall risk issues in the hospital environment.

Challenge:
BHSF staff were concerned with unit falls rates, and in particular, the incidence of fall-related injuries. The screening tool BHSF was using identified almost all patients as high risk. Staff were de-sensitized to patient's true fall risk, and alarm fatigue had set in with the excessive use of fall alarms. The current screening tool did not identify specific risk factors, account for real-time patient progress or drive an individualized care plan that identified the resources necessary to mitigate the patient's risk factors.

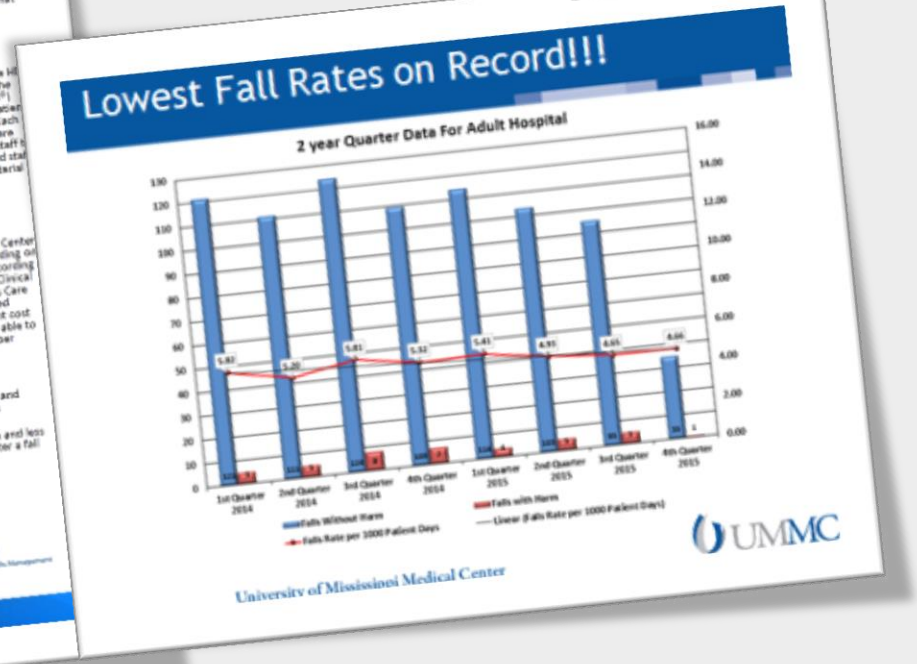
They needed to find a scientifically validated assessment tool and care plan that could identify their patient's specific risk factors and generate targeted, individualized interventions.

Solution:
After reviewing many available falls risk assessment tools and programs, the H... Falls Program™ was chosen and the trial implemented in December 2014. The HD Falls Program™ utilizes the Hester Davis Fall Risk Assessment Scale (HDS©) and the HD Falls Care Plan™. The HDS© helped nursing staff in stratifying patient fall risk and identifying each patient's specific modifiable fall risk factors. Each risk factor in the HDS© is linked to a specific intervention in the HD Falls Care Plan™ based on clinical evidence and best practice. The HDS© is used by staff t... create an individualized HD Falls Care Plan™ for each patient which allowed sta... to implement targeted interventions including the appropriate use of material resources.

Results:
Since the advent of the study/trial in December 2014, the Neuroscience Center has reduced falls resulting in injury by 80%. In addition, BHSF was spending o... average $8,000/month on Patient Sitters for their fall risk patients. According to Bridget Webster MS, RN, CCRN-K, CNRN, SCRN, ACNS-BC who is the Clinical Nurse Specialist for Neurosciences, the implementation of the HD Falls Care Plan™ "drastically reduced the need for patient sitters" with it's targeted individualized care plan, resulting in improved outcomes and significant cost savings. Alarm fatigue from bed alarms was eliminated, and BHSF was able to successfully re-institute their "No Pass" zone, whereby any staff member responds to a fall alarm on the unit.

Additional benefits and results noted by BHSF:
- Tools that led to higher staff confidence and increased consistency and standardization in their ability to more accurately diagnose falls risks
- More efficient use of material resources
- An additional cost savings realized in a more accurate staffing plan and less staff time spent filling out reports and meetings with compliance after a fall

HD Nursing



"The HD Falls Program impacts have been twofold. . .staff have a scale that appropriately guides care interventions which has created the biggest impact of all. . .increased patient safety.

Senior Haven's Fall's with Injury rate decreased by more than 50% after implementing the HD Program."

KARA WILSON, NURSE MANAGER
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HD NURSING

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RESULTS

HD Nursing
Success stories

stryker

The HD Nursing Falls Management System is a predictive analytic program to predict and prevent falls and injuries across the continuum of care.

Hospital	Number of beds	Facility type	Location Type	Outcomes
1	400+	Tertiary Academic	Urban	Reduced Fall rates from 6.46 to 2.8 in year one (43.3% decrease). Current rates 1.3 for falls and 0.16 falls with injury. Hospital saw savings of $1.6M in first year.*
2	200+	Tertiary Care	Urban	27% reduction in overall falls and 44% reduction in falls with injury at this Leap Frog Top 10 hospital. Elimination of moderate or greater injury falls for five consecutive quarters.*
3	500+	Quaternary Academic	Urban	Reduced fall rates to the lowest in organizational history. Reduced injurious falls by 90%.**
4	150	Regional	Suburban	Rates per 1000 patient days reduced from 6 to 2 (67% decrease) with a sustained reduction of 62% after two years of Program Implementation.***
5	450	Tertiary care	Urban	Reduced standardized score from 0.4 to 0.29 in the last three quarters with an improvement of >35% in overall falls. NDNQI standardized score for injury falls reduced from -.26 to -.58 (from 25th to 5th percentile change).*
6	Varies	Large hospital system	Multiple types and states	Historical low fall rates achieved across the system within 3 months of full system implementation of the HD Falls Program and reached an all time low again in Q2 2018 with system wide fall rates less than 2 per 1000 patient days and sustaining injury rates at 0.01 per 1000 pt days.*

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QUESTIONS?

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