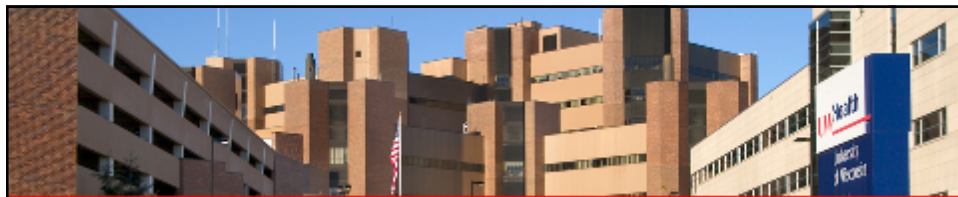




Data Abstraction from EHR for Performance Improvement

University of Wisconsin Hospital and Clinics
Madison, WI



Kristine Leahy-Gross, RN, BSN
Nursing Data Analyst

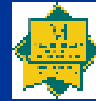
Linda Stevens, MS, RN-BC,
CPHQ
Clinical Nurse Specialist





UW Health

- Located in Madison, Wisconsin
- Academic medical center and health system for the University of Wisconsin
- Includes:
 - UW Hospital
 - 536 licensed beds
 - American Family Children's Hospital
 - UW Paul P. Carbone Comprehensive Cancer Center



1,667 RN FTE's (budgeted)

Inpatient admissions	25,450
Emergency Dept Visits	42,858
Clinic visits	566,439
OR cases	24,961
Home care visits	14,821



- Recipient of prestigious Magnet hospital designation by the American Nurses Credentialing Center, May 2009
- Named #1 academic medical center nationwide for outstanding nursing quality by American Nurses Association, based on NDNQI performance, January 2009
- University Healthsystem Consortium, Top 10 Performer Quality and Accountability Study
- Premier Award for Quality
- “100 Top Cardiovascular Hospitals” by Thomson Reuters
- HealthGrades Distinguished Hospital Award for Clinical Excellence
- Top 100 Companies to work for by *Working Mother Magazine*



Objectives

- Develop a process to assure abstracted EHR data is reliable and valid.
- Understand and recognize key data elements obtained in the EHR.



NDNQI Overview

- Member of NDNQI since 2003
- UWHC has participated in RN Satisfaction Survey for 7 years (2003-2009)
- Published monograph in ANA's publication "Transforming Nursing Data into Quality Care: Profiles of Quality Improvement in US Healthcare Facilities"
- Presented poster at the 2007 and 2008 NDNQI conferences
- Podium presentations 2009 and 2010 NDNQI conferences



- **Monthly Pressure Ulcer Audit**
 - Monthly audit
 - Electronic report developed
 - used to abstract data from EHR
 - Resources in Skin Care (RISC) nurses conduct head – toe skin assessment

Monthly Pressure Ulcer Audit Form

18370
 Pt Unit: / Pt Medical Record Number: / / / Pt Admit Date: / /
 Auditor's ID Number: Auditor's Cost Center: / / Auditor Date: / /

Primary Nursing, Patient ID Band and MD Name Posted Audit - Please complete for every patient

Is the Primary Nurse name posted (written on white board or blue card) in the pt room? Yes No
○ NA - Patient admitted within past 24 hours

Is the Attending MD name posted (written on white board or blue card) in the pt room? Yes No
○ Yes No

Does the pt have an identification band attached to wrist or ankle (Admin Policy 7.33)? Yes No

Physical Restraint Prevalence Audit - excludes reclusion - Please complete for every patient

Restraint In Use (required) Yes No

Restraint Type required, if restrained (fill in all that apply):
 Limb Acute Medical & Surgical Care Restraint Prevent from falling by getting out of bed without assistance
 Vest Behavioral Health Care Restraint Prevent from removing medical equipment/therapeutic modalities
 Other Reduce the potential for inflicting harm to self Reduce the potential for inflicting harm to others

ADULT Pressure Ulcer and Restraint Prevalence Audit - Please complete for every patient

Age: Gender Male Female

Was pressure ulcer(s) noted on admission? Yes No
Note: Locate this information in the "Burn/Flap/Replant/Wound Flap/cheer"

Was the Braden Scale Total Score (Calculated) documented on admission? Yes No
 What was the admission Braden Scale Total Score (Calculated)?
 What is today's Braden Scale Total Score (Calculated)?
(If today's Braden Scale not completed, please calculate)

Time since last Braden Scale Total Score (Calculated): <0 to 12 hrs >12 hrs to 1 wk
 >12 to 24 hrs >1 wk
Note: Check last filled value and lower over Braden Scale Total Score (Calculated)
 >24 to 48 hrs not assessed
 >48 to 72 hrs

Is patient on a pressure reduction surface (includes Atmos Air, First Step Advantage, Fluid Air Elite, Basimax II ETS). Also includes use of padding or position devices to protect from pressure, i.e. use of positioning devices or pillow to suspend heels off the bed?
 Yes No Documented Contraindication Unnecessary for pt Pt refused

Specialty Bed Start Date (if applicable) / /

Is there documentation which supports the patient was turned Q2 hr? Note: In the Activity/Exercise section of the Daily Care Flowcheer, scroll back to view documentation of patient positioning
 Yes No Documented Contraindication Unnecessary for pt Pt refused

Monthly Pressure Ulcer Audit Form

18370
 Is there documentation to support nutritional interventions are implemented (nutrition support has been implemented based on an individualized needs assessment or patient is receiving adequate parenteral or enteral nutrition)?
Note: Review I/OC for nutrition problem and nutrition notes
 Yes No Documented Contraindication Unnecessary for pt Pt refused

Is there documentation to support moisture management was implemented?
Note: Review flowcheer for management of body fluids (sweat, perspiration, urine, stool, etc.), skin folds, draining wounds, tube sites, etc. For example: Foley catheter, Flexical, Interdry AG, Dry Flow Pad.
 Yes No Documented Contraindication Unnecessary for pt Pt refused

Identification of Pressure Ulcers Does this patient have a pressure ulcer? Yes No

If this patient has a hospital acquired pressure ulcer, does your unit "own" it? Yes No
If the pressure ulcer did not start on your unit, identify the unit it did start on. Documentation must support your claim. /

Deep Tissue Injury (DTI) - Purple or maroon localized area of discolored intact skin or blood-filled blister due to damage of underlying soft tissue from pressure and/or shear. The area may be preceded by tissue that is painful, firm, mushy, boggy, warmer or cooler as compared to adjacent tissue.
Unstageable - Full thickness tissue loss in which the base of the ulcer is completely covered by slough (yellow, tan, gray, green or brown) and/or eschar (tan, brown or black) in the wound bed.
Indefinable/Mucous Membrane - This is not a pressure ulcer stage, but a category to be used for limited situations. For example, the patient has a pressure ulcer located under a non-removal dressing or device, the ulcer cannot be visualized at the time of the skin inspection and the ulcer stage is not documented in the patient's record, then it must be counted in this category. Pressure ulcers may develop on mucous membranes. Pressure exerted by a medical device can cause mucosal tissue ischemia and ulceration at the site. The staging system for pressure ulcers of the skin cannot be used to stage mucosal pressure ulcers because the histology of mucous membranes tissue is different than skin.

Ulcer Location	ADMISSION Pressure Ulcer Location & Stage Location Code (choose one stage per pressure ulcer)	TODAY'S Pressure Ulcer Location & Stage Location Code (choose one stage per pressure ulcer)
Location Code		
ANK		
ARM		
BUT		
CHK		
CHN		
EAR		
ELB		
FOO		
HEE		
HND		
ISH		
KNE		
LEG		
MOU		
NEC		
NOS		
OCC		
SAC		
SCP		
SHO		
SFI		
THI		
TOE		
TRO		
OTH		

Pressure Ulcer and Restraint Prevalence Data Collection Form, revised 9/09



Identification of Pressure Ulcers

Does this patient have a pressure ulcer? Yes No

If this patient has a hospital acquired pressure ulcer, does your unit "own" it? Yes No

If the pressure ulcer did not start on your unit, identify the unit it did start on. Documentation must support your claim.

/

Was pressure ulcer(s) noted on admission? Yes No

Note: Locate this information in the "Burn/Flap/Replant/Wound Flowsheet"

Active Wounds

Name	Insertion date	Insertion time	Site	Date
Wound: Pressure Ulcer 01/17/10 1225 Nose	01/17/10	1225		2

Events

Date/Time	Event	Pt Class	Unit	Room/Bed	Service
01/15/10 2111	Admission	Inpatient	B6S3	B6S310/1	CRITICAL CARE
01/15/10 2341	Patient Update	Inpatient	B6S3	B6S310/1	CRITICAL CARE
01/18/10 1110	Patient Update	Inpatient	B6S3	B6S310/1	CRITICAL CARE



Was the Braden Scale Total Score (Calculated) documented on admission? Yes No

What was the admission Braden Scale Total Score (Calculated)?

What is today's Braden Scale Total Score (Calculated)?
(if today's Braden Score not completed, please calculate)

Time since last Braden Scale Total Score (Calculated) >0 to 12 hrs >72 hrs to 1 wk

>12 to 24 hrs >1 wk

Note: Click last filed value and hover over Braden Scale Total Score (Calculated)

>24 to 48 hrs not assessed

>48 to 72 hrs

Flowsheet Data By Column (all recorded)

Date/Time	Braden Scale Total Score (Calculated)	Braden Scale Total Score
01/19/10 0000	11	
01/18/10 0000	8	
01/17/10 0000	8	
01/16/10 0000	8	
01/15/10 2200	8	

Is patient on a pressure redistribution surface (includes Atmos Air, First Step Advantage, Fluid Air Elite, Basimax II ETS). Also includes use of padding or position devices to protect from pressure, i.e. use of positioning devices or pillow to suspend heels off the bed?

Yes No Documented Contraindication Unnecessary for pt Pt refused

Specialty Bed Start Date (if applicable) / /

Is there documentation which supports the patient was turned Q2 hrs? *Note: In the Activity/Exercise section of the Daily Care Flowsheet, scroll back to view documentation of patient positioning*

Yes No Documented Contraindication Unnecessary for pt Pt refused

Is there documentation to support nutritional interventions are implemented (nutrition support has been implemented based on an individualized needs assessment or patient is receiving adequate parenteral or enteral nutrition)?

Note: Review POC for nutrition problem and nutrition notes

Yes No Documented Contraindication Unnecessary for pt Pt refused

Is there documentation to support moisture management was implemented?

Note: Review flowsheet for management of body fluids (sputum, perspiration, urine, stool, etc.), skin folds, draining wounds, tube sites, etc. For example, Foley catheter, Flexizeal Intensity AG, Dry Flow Pad.

Yes No Documented Contraindication Unnecessary for pt Pt refused

Flowsheet Data By Column (all recorded)

Date/Time	Bed Type	Specialty Bed
01/19/10 1200	Pressure relief alternating air surface with pump (Atmos Air)	
01/19/10 1000	Pressure relief alternating air surface with pump (Atmos Air)	
01/19/10 0800	Pressure relief alternating air surface with pump (Atmos Air)	
01/19/10 0600	Pressure relief alternating air surface with pump (Atmos Air)	

Date/Time	Patient Position
01/19/10 1200	Up in chair
01/19/10 1000	Up in chair
01/19/10 0800	Sitting in bed
01/19/10 0600	Supine

Multi-Disciplinary Problems [Add/Edit comment]

Problem: **INADEQUATE ORAL FOOD/BEVERAGE INTAKE - CLINICAL NUTRITION**

Goal: Pt to receive designated % of EN or PN goal volume

Priority: **Discontinues:** CLINICAL NUTRITION

Details:

See Clinical Nutrition notes for details

UWHealth
University of Wisconsin
Hospital and Clinics

Braden Score Documentation

- Skin assessment on admission standard states:
 - Braden score will be documented within 4 hours of admission
 - Compliance allows for documentation of the Braden score prior to admission (within the same encounter) and 4 hours past arrival on the unit

BRADEN_TIME_TAKEN	Unit_Arrive_dt	Braden_Time_span	Unit_Name	Braden_Compliance
11/14/09 9:15 PM	11/14/09 9:00 PM	0.3 B4/6	Compliant	
11/20/09 9:50 AM	11/20/09 7:30 AM	2.3 B4/6	Compliant	
11/26/09 6:51 AM	11/26/09 6:30 AM	0.4 B4/6	Compliant	
11/14/09 4:00 PM	11/14/09 6:38 AM	9.4 B4/6	Non-Compliant	
11/7/09 6:39 AM	11/7/09 1:34 AM	5.1 B4/6	Non-Compliant	
11/25/09 10:17 PM	11/25/09 10:00 AM	12.3 B4/6	Non-Compliant	

- Overall compliance per unit per month
 - Scorecards
 - Variance

Unit_Name	Braden_Compliance	COUNT	PERCENT
B4/6	Compliant	120	90.9
B4/6	Non-Compliant	12	9.1



- Include variety of measures from 5 different categories
 - Patient Satisfaction
 - Clinical Effectiveness, Quality, and Safety
 - Hospital Acquired Pressure Ulcer Rate
 - Operational Efficiency
 - Employee Growth and Management

HOSPITAL ACQUIRED PRESSURE ULCER (HAPU)

Details: Full View

This measure is a rate based on patients with hospital-acquired pressure ulcers, calculated as a total number of patients with a hospital-acquired pressure ulcer on the acute care unit. The numerator is the number of patients with hospital-acquired pressure ulcers, and the denominator is the total number of patients on the unit. The measure is reported as a percentage of patients with hospital-acquired pressure ulcers. The measure is reported as a percentage of patients with hospital-acquired pressure ulcers. The measure is reported as a percentage of patients with hospital-acquired pressure ulcers.

	total	total	red line	target	unit
UW Health	100.0%	100.0%	100.0%	100.0%	UW Health
UW Health - Hospital Acquired Pressure Ulcer (HAPU)	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU)
UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Medical	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Medical
UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Surgical	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Surgical
UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Intensive Care	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Intensive Care
UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Trauma	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Trauma
UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Critical Care	100.0%	100.0%	100.0%	100.0%	UW Health - Hospital Acquired Pressure Ulcer (HAPU) - Critical Care



- Central Line-Associated Bloodstream Infection (CLABSI) Indicator
- Centers for Disease Control and Prevention (CDC) National Healthcare Safety Network (NHSN)
- Device-days are the total number of days of exposure to the central line by all of the patients in the selected population during the selected time period.



- Manual Method – RNs in Intensive Care Units record how many devices each patient has
- Electronically – RN adds a central line using a “Lines, Drains and Airway” function

Catheter: Central Venous, (PICC) Peripherally Inserted Single Lumen

Placement Date:

Placement Time:

Reason for Placement:

- Antibiotics
- Chemotherapy
- Continuous Medication Infusion
- Fluid/Blood Replacement
- Home Infusion Therapy
- Limited Venous Access
- Total Nutrient Admixture
- Vasoactive Support
- Other (Comment)

Catheter: Central Venous, (PICC) Peripherally Inserted Single Lumen

Removal Date:

Removal Time:

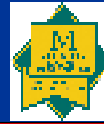
Removed By: NP | PA | Physician | RN | Other (Comment)

Catheter Tip Intact on Removal: Yes | No (Comment)

Length of Catheter at Removal:

Removal Reason:

- Catheter Size Change
- Dislodged
- End of Therapy
- Infection
- Infiltration
- Occlusion
- Phlebitis
- Removed Prior to Arrival
- Site Change
- Thrombosis
- Other (Comment)



Unit	Manual	EHR	% Difference
1	11	10	-9%
2	560	428	-24%
3	121	96	-21%
4	210	192	-9%
5	226	184	-19%
Overall	1128	910	-19%



- Daily report from EHR on active lines reviewed with Health Unit Coordinator (HUC)
- Discontinue line function on discharge navigator
- Discontinue line function on transfer navigator
- Report modifications



Unit	Manual	EHR	% Difference
1	25	47	-46.8%
2	495	487	1.6%
3	72	85	-15.3%
4	181	185	-2.2%
5	226	233	-3.0%
Overall	999	1037	-3.7%



Unit	Manual	EHR	% Difference
1	32	37	-13.5%
2	510	490	4.1%
3	70	76	-7.9%
4	273	270	1.1%
5	169	182	-7.1%
Overall	1054	1055	-0.1%



- Assessment/Intervention/Reassessment (AIR) Cycle
- 24 hour period after admission
- All Inpatients
- Require Timed Reassessments
- PRN Intervention
- Timing of reassessment



- Weekdays, auditors reviewed chart
- Used an electronic report to determine admission
- Review of paper medical record
- Approximately 6 hours per day



- Report generated from shadow electronic health record
- Review data pulled for each patient
- Summarize findings
- New process takes about 2 hours per day

<u>Date/Time</u>	<u>Timed re-assessments of PRN interventions required?</u>	<u>PRN Intervention</u>	<u>Pain relief from intervention</u>
01/19/10 0845	--	--	Moderate -RW
01/19/10 0830	Yes -RW	Med - IV -RW	Slight -RW
01/19/10 0825	Yes -RW	Med - Enteral -RW	Slight -RW
01/19/10 0820	Yes -RW	Med - Enteral -RW	--

Flowsheet Data By Column (last 48 hours)

Date/Time	Timed re-assessments of PRN interventions required?	PRN Intervention	Pain relief from intervention
01/19/10 0000	Yes -RM	Med - IV -RM	--
01/18/10 2316	--	--	--
01/18/10 2218	--	--	--
01/18/10 2200	Yes -SK	Med - IV -SK	--
01/18/10 2025	--	--	--
01/18/10 2000	Yes -SK	Med - IV -SK	--
01/18/10 1810	Yes -SK	Med - IV -SK	--
01/18/10 1720	--	--	--
01/18/10 1710	Yes -SK	Med - IV -SK	--



- Suicide assessment
- Oral care
- Coordinated patient education
- Learning assessment
- Education based on assessed needs
- Height
- Weight
- Fall risk assessment on admission and transfer
- Skin risk assessment
- Restraint prevalence
- Verbal orders
- Primary nurse assigned
- Narcotic documentation
- Medication doses



- Larger Sample Size
- Build impact of data abstraction
- Nurse sensitive measures are easily abstracted when clinicians work closely with the reporting team
- Data abstraction from EHR requires rigorous validation



- Develop a data dictionary
- Refinement of data variables to measure compliance
- Process improvement is readily demonstrated with use of reporting workbench and aggregate reports from the data base



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