

How Safe Are Your Patients? Creating a Meaningful & Actionable Medication Safety Dashboard

By: Helga Brake, PharmD, CPHQ
Patient Safety Leader
Northwestern Memorial Hospital

No Conflicts of Interest to Disclose



Northwestern Memorial HealthCare



- 873-bed Nationally Recognized Academic Medical Center
- Tertiary care center providing a full range of services for adults and neonates
- Nationally Ranked for Quality

Feinberg and Galter Pavilions Prentice Women's Hospital



How Do You Know Your Patients Are Safe?

- Adverse drug events result in more than 770,000 injuries and deaths each year and cost up to \$5.6 million per hospital, depending on size¹
- Hospitalized patients are subjected to an average of more than one medication error each day²
- Delivery of a single dose of a medication is the result of a process involving 30-40 steps. Using process steps as the denominator, medication error rate in hospitals may be as low as 1 in 1,000 to 1 in 10,000³

¹Reducing and preventing adverse drug events to decrease hospital costs. Agency for Healthcare Research Quality. Research in Action, Issue 1. Available at: <http://www.ahrq.gov/qual/aderia/aderia.htm>. Accessed on March 1, 2010.

²Aspden P, Wolcott J, Bootman JL, Cronenwett LR, editors. Preventing medication errors: crossing the quality chasm: committee on identifying and preventing medication errors. Washington, DC: National Academies Press; 2007.

³Cohen MR, editor. Medication errors. 2nd ed. Washington, DC: American Pharmacists Association; 2007



Poll Question

- How many of you are responsible for or have input into your organization's medication safety dashboard?
 - A. Yes, I am responsible and/or have input into the dashboard
 - B. No direct responsibility or input
 - C. Organization does not have a medication safety dashboard
 - D. Not applicable



Criteria For Well-Designed Dashboard Measures

Strategic

- High-risk, high-volume, highly-vulnerable, and problem prone areas
- Regulatory issues
- Support improvement activities

You Can't Fix
What You Don't
Know Is Broken!



Criteria For Well-Designed Dashboard Measures

Technical

- Meaningful and Accurate
- Available data from various sources
- Ability to identify opportunities
- Transformable



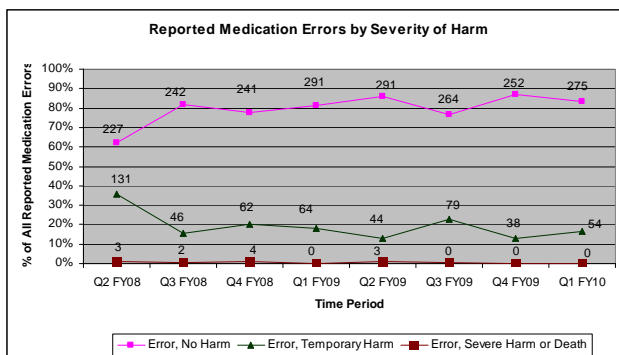
Additional Considerations...

- Who should see the dashboard?
- How frequently should the dashboard be updated?
- What actions should be taken in response to the information presented in the dashboard?



NMH Med Safety Dashboard Examples Reported Medication Incidents

Errors involving severe patient harm or death are reported to the Clinical Care Evaluation Committee for follow-up



Severity of Harm (NCC MERP Index Categories)
Error, No Harm (B-D): An error occurred that: 1. (B) did not reach the patient, or 2. (C) reached the patient but did not cause patient harm, or 3. (D) reached the patient and required monitoring to confirm no harm and/or required intervention to preclude harm
Error, Temporary Harm (E, F): An error occurred that (E) contributed to or resulted in temporary patient harm and required intervention or (F) required initial or prolonged hospitalization
Error, Severe Harm or Death (G-I) An error occurred that (G) contributed to or resulted in permanent patient harm, or (H) required life-sustaining intervention, or (I) death

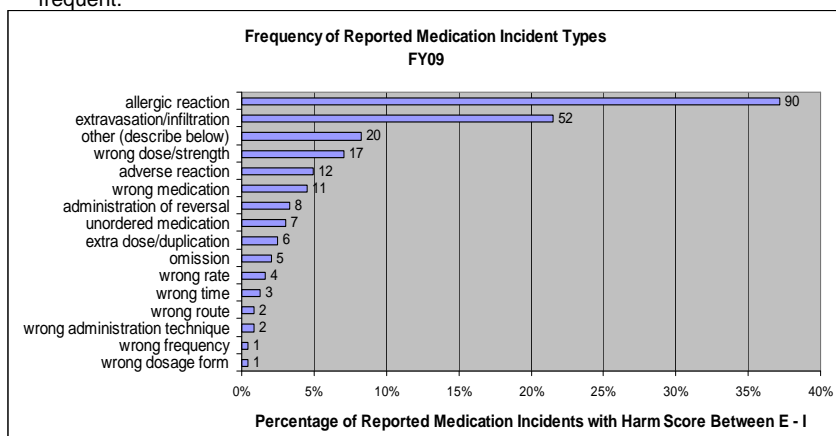
All Reported Medication Errors, Categories B - I							
Q2 FY08	Q3 FY08	Q4 FY08	Q1 FY09	Q2 FY09	Q3 FY09	Q4 FY09	Q1 FY10
361	290	307	355	338	344	290	329

Note: Numbers above bars represent the number of reported medication incidents. Data Source: NETS voluntarily-reported database



Medication Incidents By Type

Of the 242 reported E – I medication incidents that caused patient harm during the 2009 fiscal year, those due to allergic reactions and extravasations were most frequent.

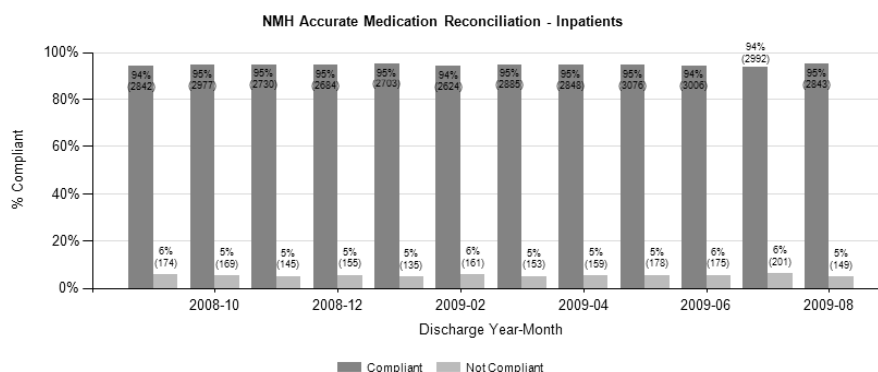


Note: Numbers to the right of the bars represent the number of reported medication incidents by category

Data Source: NETS voluntarily-reported database



NPSG: Medication Reconciliation Compliance



Numerator: Patients with Med Rec Completed at both Admission and Discharge
Denominator: All NMH inpatients discharged during the specified time period

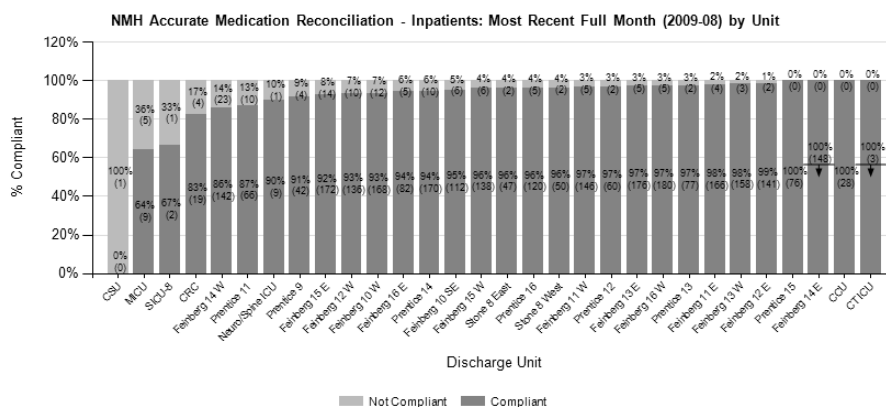
'Med Rec Completed on Admission': Medication Reconciliation form completed by physician or nurse or pharmacist
'Med Rec Completed on Discharge': Documented completion of Nursing Discharge Note

Patients are excluded if: Expired, Left AMA, Neonate, Newborn

Data Source: PowerChart, EDW report



Med Rec Drilldown Compliance By Nursing Unit



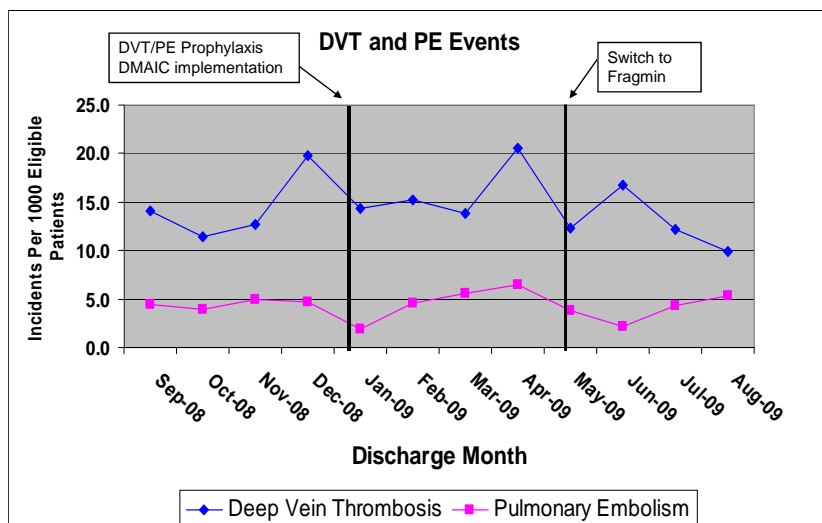
Numerator: Patients with Med Rec Completed at both Admission and Discharge

Denominator: All NMH inpatients discharged during the specified time period

Data Source: PowerChart, EDW report



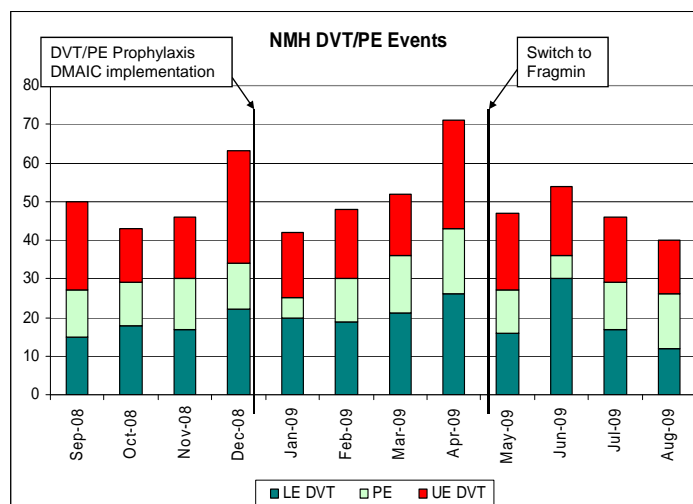
Anticoagulation: DVT and PE Events



Data Source: EPRI financial billing data, chart review



DVT/PE Events By Type



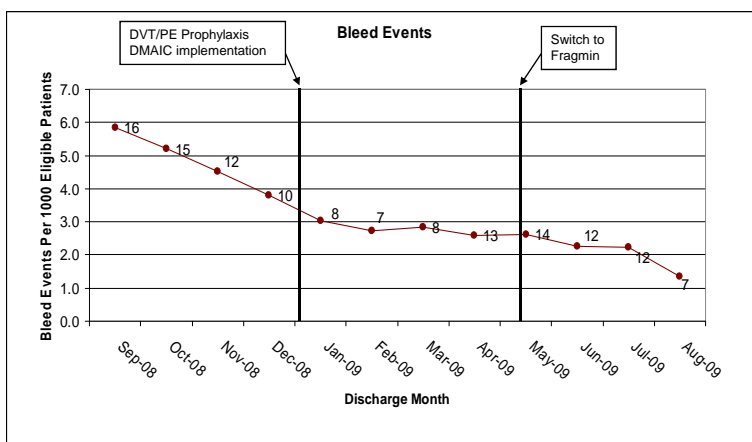
Lower Extremity (LE) DVT: Pts with Diagnosis Code of 451.11, 451.19, 451.2, 451.81, 451.9, 453.40, 453.41, 453.42; not POA
Pulmonary Embolism (PE) Events: Patients with a diagnosis code of 415.11 or 415.19; not Present on Admission (POA)
Upper Extremity (UE) DVT Events: Numerator: Patients with a Diagnosis Code of 453.8 or 453.9; not POA
 Denominator: Patients who did not have a DVT or PE diagnosis code; Exclusion: OB, Psych, and Pediatric patients

Data Source: EPSI financial billing data



Anticoagulation: Bleed Events

Anticoagulants (warfarin and heparin) causing adverse effects in therapeutic use



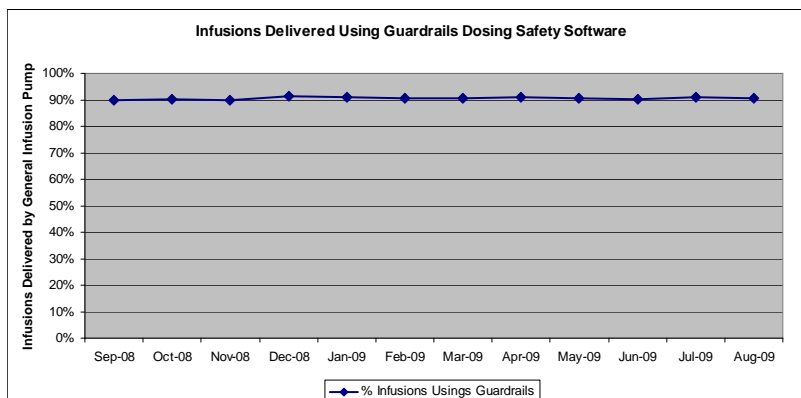
Numerator: Patients with a Diagnosis Code of E934.2 that was not Present on Admission
Denominator: Patients who did not have a Bleed Diagnosis code Present on Admission

Note: Numbers above bars represent the number of bleed events. Data Source: EPSI financial billing data; chart review



Devices: *Smart* Intravenous Infusion Pumps

Guardrails™ limits were used in over 90% of all infusions in FY09

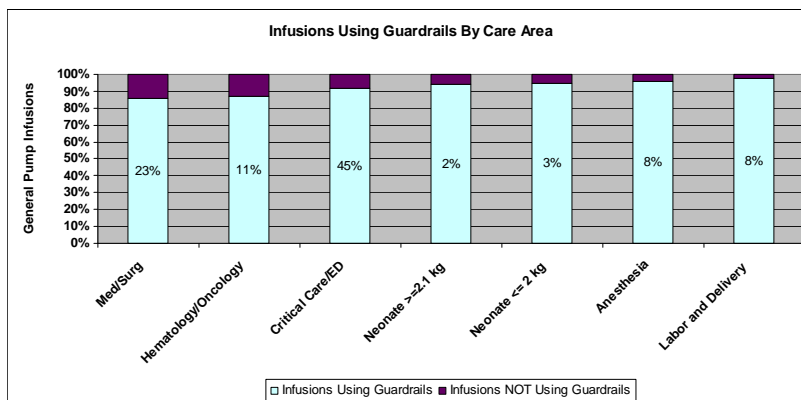


Data Source: Alaris pump Guardrails™ Continuous Quality Improvement pump data



Infusions by Care Area

14% of Med/Surg and 13% of Heme/Onc infusions were administered to patients outside of the safety of Guardrails limits in FY09.



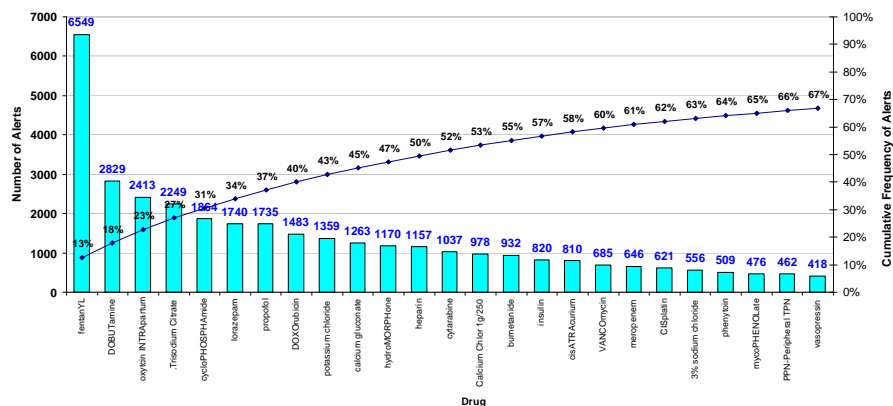
Note: Mid-column percentage represents the percent of total infusions for the specific care area

Time Period: September 2008 – August 2009 Data Source: Guardrails™ Alaris pump CQI data



Top Drugs Triggering Alerts

Fentanyl and dobutamine infusion programming generated the most Guardrail limit alerts during FY09.

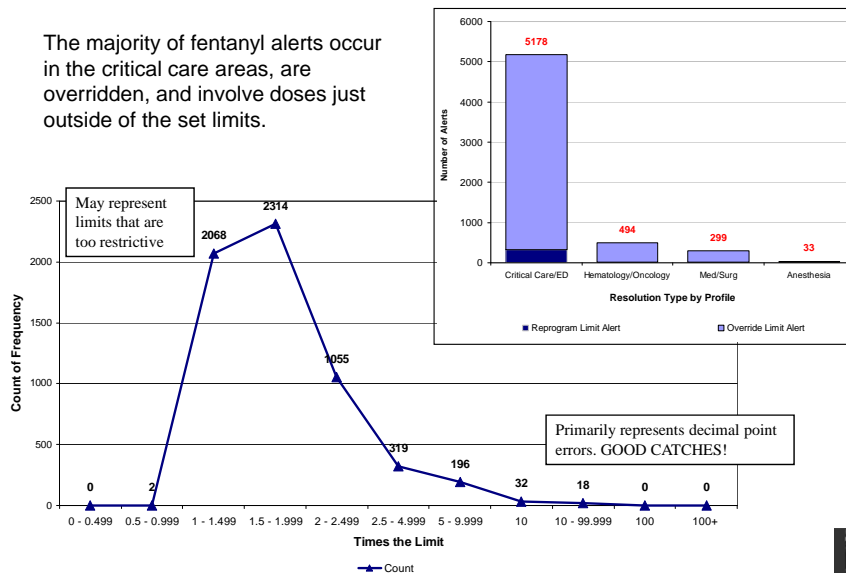


Time Period: Sep 2008 – Aug 2009 Data Source: Guardrails™ Alaris pump CQI data



High Alert Medication: Fentanyl

The majority of fentanyl alerts occur in the critical care areas, are overridden, and involve doses just outside of the set limits.



Time Period: Sep 2008 – Aug 2009 Data Source: Guardrails™ Alaris pump CQI data








Poll Question

- How many of you work for an organization that includes a medication error rate based on reported incidents on its dashboard
- A. Yes
- B. No
- C. Not applicable



And Finally.....What DOESN'T Belong on Your Dashboard

-  Medication error rates based on reported incidents
 - least effective and least reliable determinant of the true error rate
-  Provider-specific cases
-  “Nice to Know” information
-  Unavoidable events
-  Unreliable data





Helga Brake, PharmD, CPHQ
Patient Safety Leader
Northwestern Memorial Hospital
Chicago IL 60611
312.926.2034
hbrake@nmh.org

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Privileged and confidential under the IL Medical Studies Act



Post-test Questions

1. Which of the following items do not belong on a medication safety dashboard?
 - A. Medication processes that are high-risk
 - B. Medication processes that are problem prone
 - C. Avoidable medication-related events
 - D. Unavoidable medication-related events
 - E. Medication related regulatory issues

2. Medication error rates based on reported incidents is the most effective and reliable determinant of a true error rate.

True or False