April 17, 2017
12pm to 1pm

From the National Coalition for Alarm Management
Safety
A case study from Rush Medical Center

Obtaining Baseline Alarm Data and Reducing Non-Actionable Alarms

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Neuroscience Intensive Care Unit
Rush University Medical Center
AAMI Foundation

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- Compendium: Opioid Safety & Patient Monitoring
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Speaker Introduction

Stephanie Orr DNP, RN, CCRN
Rush University
Neuroscience Intensive Care Unit
Rush University Medical Center
Objectives

- Review benchmarks and recommendations for alarm safety surveillance program
- Describe methods of obtaining baseline alarm data in absence of middleware technology
- Discuss elements of alarm safety surveillance
- Describe Staff education: utilizing EBP to reduce excessive alarms
- Discuss evaluation of alarm safety project
Exposing clinicians to an excessive alarms desensitizes them to the alarms and can cause them to miss alarms. (Sendelbach, 2013)

Current evidence supports specific nursing practices to improve alarm safety and reduce alarm burden. (AACN, practice alert 2013)

Alarm safety experts report that daily lead changes reduce alarm burden in ICUs by 46%. (Cvach, 2012)

Alarm reports and staff education are fundamental to quality improvement related to alarm safety. (Cosper, 2017)
Chicago, Illinois
Environmental survey

- Rush University Medical Center
- Stakeholders
- Pilot project area
- Strengths
- Weaknesses
- Interdisciplinary committee
- Competing projects
Stakeholders in alarm safety

- Patients
- Nursing leadership
- Clinicians
- Clinical Engineering
- Information Services/Technology
- Risk Management
- Technology representatives/Equipment vendors
Baseline data

- 2014 aggregate alarm data was collected from servers via one-time middleware consult.
- Alarm burden in the pilot ICU was 80 alarms/patient/day.
- The most frequent alarms were artifact and leads off.
- Default settings for arrhythmia and basic parameters determined by hospital leadership.
- Policy defines terminology, responsibilities, and expectations for alarm safety.
- Nursing Standards of Care.
Alarms in the adult ICUs, 2014

Alarms per bed per 24hr
What is our current alarm burden?

- This Joint Commission educational poster (2013) asserts that alarm burdens in excess of 100 per patient/day contribute to patient safety events. Alarms should be meaningful and signal an appropriate response.
Alarm Safety Surveillance Metrics

- Alarm burden: obtain # alarms/patient/day
- % of monitored patients with identifiers
- Frequency and types of customized limits
- Frequency of types of disabled alarms
- % of alarm safety documentation of leads changed q 24hr
- % monitoring identified in EHR
### RUMC Basic Parameter Settings

**January 2016 Appendix A**

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Data collection

- 8 Random shifts including nights and weekends
- Reviewed central station monitor event reports and EHR documentation for every patient on the unit during the data collection period
- Data points focused on measuring organizational policy points and basic alarm metrics
- Average census 25
- Avg time 12 hr per 100 cases
- Data collection occurred 1x/weekly over course 2 months
Method of obtaining alarm data

- Central station
- Each patient file reviewed for elements of alarm safety pertaining to organizational policy and procedure
- Customized limits are noted by level and type
- Surveillance included any disabled alarms
- Review number of alarms/patient/day via the stored alarm events for previous 24 hours to determine alarm burden
- EMR was audited for documentation of monitoring, alarms on, and lead changes
## Alarm Safety Surveillance Tool

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Alarm safety practice
Staff Education: Key Points

- Introduce evidence based practice
- Highlight organizational policy
- Time and content for staff education is kept brief
- Utilize visual reminders of alarm safety in staff areas
- Evidence of learning is evaluated by quiz and alarm safety surveillance data
AACN Alarm Management Guidelines

- **Collect alarm data** including: alarm type, frequency, and reasons why alarm sounded
- Conduct observations of how alarms are managed on individual units, **identify trends and safety concerns.**
- Identify the goal or outcome measures that will guide quality improvement.
- **Implement proactive strategies** that include: proper skin prep & lead placement, daily lead changes, customize limits for individual patient parameters as determined by patient condition and treatment goals.
- Provide ongoing staff education and support about alarm enabled patient care equipment and alarm safety.
- Develop patient care unit policies and protocols that address acceptable alarm safety strategies for clinical monitors.
Alarm Safety Staff Education
## Evaluation: pilot project practice metrics

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Pilot project outcomes and conclusions

- The pilot project improved alarm safety practice trends.
- 97% of cases had the correct setting.
- 84% of cases had customized limits.
- 20% decrease in disabled alarms.
- 27% decrease in alarm burden.
- 30% increase in documentation for changing leads.
- The pilot project identified practice trends that inspired further discussion and future quality initiatives.
Recommendations

- Include alarm burden and surveillance of practice trends as part of the organizational alarm safety strategy.
- Include review of alarm safety policy and practice expectations in annual staff training requirements.
- Include basic alarm safety metrics in unit based quality reports as feedback to staff.
- Promote alarm safety as part of the general culture of safety and reinforce with visual reminders.
Implications for advancing alarm safety

- Policy & default parameters
- Defining customization
- Analyzing alarm floods
- Establishing an alarm safety routine for QI
- Enhancing culture of safety: rounds and bedside report
- Noise levels and the evidence for “quiet time”
References


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