Management of Alarm Fatigue in the Neonatal Intensive Care Unit
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Neonatal Intensive Care Unit (NICU)

Introduction
The Joint Commission recognizes alarm management as a National Patient Safety Goal. NICU nurses are predisposed to monitor alarm fatigue in relation to the NICU environment. Our purpose is to reevaluate current monitor alarm policy and procedure at HMC and attempt to reduce alarm fatigue in our NICU based on our findings.

PICO Question
Population: NICU nurses
Intervention: Reevaluate current policy and procedure regarding alarm limits as well as increased education about alarm management
Comparison: Current EBP for monitor alarms in place for NICU
Outcome: Decreased alarm burden and desensitization

Methods
A literature search was conducted using the PubMed database.

Keywords: Alarm fatigue, nursing, intensive care, neonatal

Inclusion Criteria: Articles within 5 years; Article types include clinical trial, journal article, review, systematic review, and practice guidelines

The initial search yielded 29 articles, 5 were included for this project

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<tr>
<th>Article</th>
<th>Methods</th>
<th>Results</th>
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<tr>
<td>AACN practice alert addresses alarm fatigue in ICU (2013).</td>
<td>Level 7 Clinical practice guideline AACN uses the latest evidence to standardize practice and update nurses and other healthcare providers on new health care advances and trends.</td>
<td>Proper skin preparation for ECG electrodes and changing them daily. Customizing alarm parameters and delay settings, as well as education about proper alarm settings and devices with alarms. Education for parents regarding alarms should be considered. AACN also suggests interdisciplinary teams address alarm management.</td>
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<td>Cvach, M. (2012).</td>
<td>Level 5 Integrative review of research and non-research studies Articles were reviewed between 2000 and 2011. 72 articles were included in the final review.</td>
<td>Eliminate duplicate alarms and set alarm limits to attainable levels. Wireless technologies and visual and vibrating alarm systems may be more useful than traditional monitors. Adding short delays to alarms or audible alarm tone changes may decrease the number of ignored or ineffective alarms.</td>
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<td>Pul, C.V., Dijkman, W., Mortel, H., Bogaart, J., Mohns, T., &amp; Andriessen, P. (2014).</td>
<td>Level 3 Controlled trial, quasi experimental study The alarm management system was implemented in a 14-bed level II adult ICU and an 18-bed level III neonatal ICU Alarm logs were analyzed over a 5-month period.</td>
<td>This study used handheld devices in an alarm management system. Alarms were sent to an Ascom phone held by the nurse responsible for the alarm. The study also compared alarms in an adult ICU vs NICU. Researches found the NICU generated 5 alarms per hour per patient. The adult ICU generated 4 alarms per hour per patient.</td>
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<td>Tanner, T. (2013).</td>
<td>Level 5 Integrative review of research and non-research studies Studies from the Association for the Advancement of Medical Instrumentation, the ECRI Institute, the Joint Commission, and the U.S. Food and Drug Administration</td>
<td>Nurses must ensure that appropriate and individualized alarm settings are set. Care must be taken to attend to alarms and not simply tune out persistent sounds that may signal danger to the patient. It is important to consider the whole environment; equipment, staffing, and other specific unit features that affect the overall setting</td>
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Discussion
The majority of our alarms in our unit, when quantified after our observation were 68% pulse oximetry alarms. The basis for the revision of our unit’s policy will be focused on this aspect specifically. Additionally, based on our online survey results, education will need to be implemented unit-wide focusing on alarm limit parameters and target oxygen saturation based on gestational age as well as strategies to reduce the amount of alarms in the unit. We do acknowledge that there is a need for more NICU-specific research studies on this topic.

Conclusions
To date, our findings demonstrate several opportunities for practice improvements. There has not been enough NICU-specific definitive research conducted. However, our unit has recognized that this is an issue and our U-ACT interdisciplinary team plans to revise our current policy/procedure regarding monitor alarms.

Our findings have the potential to impact practice directly in our unit. The Joint Commission is involved and has implemented a patient safety goal beginning in January of 2016.

Audits will be performed in the future on staff response to alarms and proper alarm limits per patient. We will also reevaluate nurse understanding of alarm limits and alarm fatigue, post-intervention.

References


