RISK NOTE

Alarm Fatigue

OVERVIEW OF ISSUE

Medical device alarms and computer system warnings assist healthcare providers in making treatment decisions and providing appropriate patient care. However, there are several challenges with alarms and warnings such as similar sounding alarms, non-adjustable default settings, decreased vigilance, and normalization of the alarm or warning as it is not considered a true alarm. As a result, healthcare providers become desensitized and complacent to the constant noise of alarms and may not respond appropriately. Having a strategy in place to manage alarm fatigue is key to managing this risk and maintaining patient safety.

KEY POINTS

- Conducting an alarm audit assists with the identification of contributing conditions to alarm fatigue.
- Reducing the number of unnecessary alarms helps to ensure the most clinically significant alarms are acted on.

THINGS TO CONSIDER

Unsafe Practices

- There can be serious consequences for patient safety if any of the following occur due to alarm fatigue:
  - Turning down the volume of alarms;
  - Turning off alarms;
  - Ignoring alarms and/or text message alerts;
  - Adjusting alarm settings outside of appropriate limits for the patient;
  - Overriding warnings the healthcare provider feels must not be accurate.

Patients

- Patients may be concerned by a poorly managed alarm management system, i.e. constant noise.
- Patients may take it upon themselves to correct their own alarm fatigue (e.g. patient resets a pump before the healthcare provider has the opportunity to).

Healthcare Organization Risk Mitigation Strategies

- Organizational Support
  - Ensure there is designated leadership responsibility for safe alarm management and response.
    - Form an interprofessional team/committee (e.g. risk management, biomedical engineering, information technology, nursing, medical leadership, patient safety, vendors)

who can address alarm safety. The team can look at which alarms to focus on as identified through assessment(s), healthcare organization-specific data related to alarms including key metrics such as average number of alarm conditions per bed per day, the potential and actual impact of alarm fatigue, required education, and human factors principles to improve alarm safety. This team should meet regularly to provide leadership and oversight for alarm management and response.

- Alarm Audit
  - Conduct a baseline alarm assessment for medical devices and computer systems used in the healthcare organization; include default alarm settings and patient satisfaction. The assessment will assist with identification of contributing conditions to alarm fatigue. Reassess after implementation of improvement strategies.
  - Also include in the assessment an evaluation of the physical environment to determine whether the acoustics allow for clinically significant alarm signals to be audible (e.g. room doors/curtains closed for patient privacy may prevent alarms from being heard).

- Improvement Strategies
  - Develop guidelines for alarm settings for both high

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risk and non-high risk areas (e.g. intensive care unit, maternal/newborn, telemetry, wherever IV infusion pumps are used) and for high-risk clinical conditions (e.g. ventilator use) including when alarm signals may not be clinically necessary. As part of these guidelines, include direction on how to tailor alarm settings and limits for individual patients (e.g. ECG alarm parameters). Adjust parameters based on the demographics of the area by working with nursing leaders of each area to decide upon actionable alarms and tightening alarm ranges.

- Develop an organizational policy on alarm system management which speaks to standardization and customization where appropriate.
- Tier alarms according to severity. When a clinically significant alarm occurs, healthcare providers should immediately identify it as a priority.
- Ensure medical devices with alarms are inspected and maintained based on manufacturer's recommendations and risk levels.

- Education
  - Continually educate healthcare providers on the proper use and functioning of medical devices/ computer systems. Education should focus on how to interpret alarm signals, the response protocols including back-up coverage when staff are unable to respond to clinically significant alarms, information on alarm settings required during transfer of accountability, what to when equipment malfunctions, and who has authority to set or modify alarm parameters.

- Information Technology Planning

- Ensure the healthcare organization's alarm system management policy is considered when making purchasing choices of medical devices/ computer systems that assist with patient treatment decisions or when planning new/ renovated patient care areas. Work with vendors to ensure products will operate the way the program intends them to (e.g. product may have an inability to tailor warnings when the healthcare organization wants that functionality).

- Incident Management
  - Review trends in alarm-related incidents to identify potential opportunities for improvement and implement changes to address gaps.

Documentation
- Encourage healthcare providers to document their disagreement (and rationale for) with alarms, warnings, interpretations and/or recommendations (including overrides/bypasses).

Monitoring Performance
- Conduct audits to monitor healthcare provider alarm/warning overrides to optimize alarm sensitivity and safety.
- Utilize applications that integrate medical devices (e.g. pumps) with information technology to review retrospective data related to equipment function.
- Utilize software systems that log alarms (i.e. alarm type, bed number, duration of alarm) to facilitate data analysis; these systems are useful in determining which alarm types to target next.

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