Alarm fatigue results from the large number of inaccurate and non-actionable alarms produced by monitoring devices in a critical care setting.

Alarm fatigue is recognized by The Joint Commission as a patient safety concern.

When nurses experience alarm fatigue, critical patient events may go unnoticed and patient harm may occur.

Physiological monitoring delivers the largest number of alarms in a critical care unit.

Studies have shown that 80 to 99% of ECG monitor alarms are false or clinically insignificant.

The Clinical Alarm Management Compendium recommends targeting low hanging fruit to focus on making immediate improvements in the volume of alarms.

**Background**

- Alarm fatigue results from the large number of inaccurate and non-actionable alarms produced by monitoring devices in a critical care setting.
- Alarm fatigue is recognized by The Joint Commission as a patient safety concern.
- When nurses experience alarm fatigue, critical patient events may go unnoticed and patient harm may occur.
- Physiological monitoring delivers the largest number of alarms in a critical care unit.
- Studies have shown that 80 to 99% of ECG monitor alarms are false or clinically insignificant.
- The Clinical Alarm Management Compendium recommends targeting low hanging fruit to focus on making immediate improvements in the volume of alarms.

**Purpose**

To decrease false alarms by setting the alarms limits at actionable levels.

**Methods**

- An 8-day audit of all alarms in a 20-bed cardiac intensive care unit was completed using an alarm reporting tool.
- Results indicated that highest number of alarms were generated from pulse oximeters.
- The audit results and suggested alarm settings were presented to the hospital wide clinical alarm committee and the Critical Care Quality committee.
- Default changes were agreed upon.

**Results**

**Between the first 8-day audit and the second 8-day audit:**

- The cardiac intensive care unit consolidated and added 4 more beds.
- The GE Monitoring system was updated, and default changes were made.

**Initial results found:**

- 14,822 low level alarms for low SPO2 occurring over an 8-day period in 20 beds.
- After the default changes, the follow up alarm audit found a reduction in low SPO2 parameter alarm to 2,414 medium priority alarms in 24 beds with no patient safety concerns or untoward events related to SPO2 monitoring.

**Changes**

- The low parameter alarm for SPO2 was changed from 90% with a 6 second delay to 88% with a 16 second delay.
- The low parameter alarm was changed from a low priority alarm to a medium priority alarm to generate attention in a timely manner.
- Nurse education on the new default changes was provided.

**Discussion**

- Alarms are distracting and interfere with nurses’ ability to perform other critical work in a timely manner.
- Frequent unactionable alarms contribute to alarm fatigue so that alarms for true events are less likely to draw the attention of the nurse.
- Alarm fatigue can be dangerous because staff may not intervene quickly enough to alarms that occur when a patient’s condition has changed, risking patient safety with the potential to result in adverse events and even death.
- A large number of audible alarms can disturb patients and prevent sleep/rest and patients’ recovery.
  - Lack of sleep/rest during hospitalization is a major dissatisfier for patients.
  - Adjusting the defaults is one way to reduce alarm noise.

**Conclusion**

- Alarm default adjustments is a simple way to decrease the number of unactionable alarms.
- Work continues throughout the hospital on adjusting default settings.

**References**