

**Background:**

Nurse alarm fatigue in the intensive care unit (ICU) garners considerable attention as a national patient safety priority. A viable solution for decreasing the frequency of alarms and unnecessary noise is ICU alarm monitor customization.

**Local Problem:**

A 24-bed cardiovascular and thoracic surgery ICU in a large academic medical center identified a high rate of alarms and noise as a problem contributing to nurse alarm fatigue.

**Methods:**

An ICU alarm monitor quality improvement project used both alarm frequency and nurse surveys with pre-and post-implementation comparisons to determine effectiveness of interventions. Unexpected results inspired an extensive *post hoc* investigation to ascertain the reasons why which included examining the data-capturing capabilities of the ICU alarm monitor and impact of relevant context factors on project results.

**Interventions:**

Multimodal interventions included nurse training sessions, informational flyers, organization policies, and an alarm monitor training video.

**Results:**

ICU alarm frequencies unexpectedly increased post-intervention. The software data-capturing features of the alarm monitor for counting frequency did not accurately measure nurse interactions with monitors. Quantified increases in patient census, nurse staffing, and data input from medical devices in pre-and post-intervention measurement periods significantly impacted project results.

**Conclusions:**

Alarm frequencies proved an unreliable measure of nurse skills and practices in alarm customization. Documented changes in context factors provided strong anecdotal evidence of changed circumstances that provided clarity to project results, and underscored the critical importance of contemporaneous collection of context data. Designs and methods used in QI projects must include reliable outcome measures to achieve meaningful results.