

You rang? Researchers address 'alarm fatigue' among staff and the rate of false alarms

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In the ICU, it's uncommon to hear silence—buzzing, beeping, and ringing of alarms are part of the hum of the ICU environment. The Joint Commission attributes many alarm-related incidents and deaths to the "alarm fatigue" hospital workers face. Alarm fatigue happens when staff "tune out" the background sounds and can negatively impact patient safety and potentially lead to life-threatening events. Two studies from researchers in New York aim to decrease alarm rates, tackle alarm fatigue, and assess alarm accuracy in the ICU.

Researchers from Harlem Hospital Center embarked on a quality improvement project with the main aim of improving response time to alarms by reducing alarm frequency. The project was designed to address alarm setting strategies institution wide, decrease the frequency of alarms in the critical care units and to ultimately improve patient safety by decreasing alarm response time to less than 60 seconds.

The project took place in the 20-bed adult intensive and coronary care units. All clinical alarm-sounding devices were audited and the three devices with the highest alarm frequencies and greatest impact: bedside cardiac monitors, infusion-pumps, and mechanical ventilators were targeted for alarm reduction interventions. Data on the frequency of alarms and response-time were gathered through 20-minute observation intervals pre-and post-intervention. Average alarm rates decreased significantly by over 70% from 4.5 to 1.3 alarms/patient/hour at

4-months postintervention. However, there was no improvement in response time. This important outcome challenges the presumption that reducing alarm frequency will necessarily lead to a decrease in [alarm fatigue](#) and an improvement in response time.

In the second study, researchers from Maimonides Medical Center analyzed the accuracy of cardiac monitor alarms in the intensive care unit (ICU) using the hospital's standard protocol. This project took place in the ICU of a teaching hospital for one year with a total of 2,408 alarms that occurred among 350 patients. Each alarm was studied retrospectively for the occurrence of an actual cardiac event suggested by the alarm. Results found that a large number of alarms in the ICU are false without any clinical significance despite following the standard protocol to reduce false-positive alarms.

Further results from the first study will be shared at CHEST Annual Meeting 2017 in Toronto on Tuesday, October 31, from 8:45 AM-9:00 AM at the Metro Toronto Convention Centre, Room 601A. The study abstract can be viewed on the journal *CHEST* website. Further results from the second study will be shared at CHEST Annual Meeting 2017 in Toronto on Wednesday, November 1, from 1:30 PM-2:30 PM at the Metro Toronto Convention Centre, Exhibit Hall, Poster Number 141. The study abstract can be viewed on the journal *CHEST* website.

More information: Parita Soni et al, Authenticity and Reliability of the Cardiac Monitor Alarms in the ICU: A Patient Safety Concern Due to Alarm Fatigue, *Chest* (2017). [DOI: 10.1016/j.chest.2017.08.596](https://doi.org/10.1016/j.chest.2017.08.596)

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