

Alarm Fatigue Plagues Hospitals

Alarm fatigue continues to be a pervasive problem at many hospitals. Alarm Hazards rank #2 in ECRI Institute's Top Ten List of Health Technology Hazards for 2011 and have been discussed in numerous ECRI Institute guidance articles. In Pennsylvania, where hospitals report alarm-related events and near-misses to the Patient Safety Authority, data reveals that 35 deaths were related to physiologic monitor alarms since June 2004, and nine of these events involved alarm fatigue.

In addition, device manufacturers filed 216 reports with the FDA on monitor-related deaths between January 2005 and June 2010. Further investigation into these reports revealed that alarm volume was often set low by nurses to minimize excessive alarm noise for staff and for patients. A recent front-page Boston Globe article, "Patient alarms often unheard, unheeded," provides examples of real events related to physiologic monitor events and alarm fatigue and presents findings from ECRI Institute studies.

Alarm fatigue occurs when the sheer number of alarms overwhelms staff and they become desensitized to the alarms resulting in delayed alarm response and missed alarms--often resulting in patient harm and even death. Nuisance alarms, which include false alarms caused by artifact, exacerbate the problem.

Underlying causes for nuisance alarms include:

- ▶ Alarm limits are not tailored to the individual patient, so the staff may be inundated with clinically-insignificant alarms.
- ▶ Poor skin prep and electrode placement when the patient is being set up on monitoring can lead to excessive artifact alarms and "leads fail" alarms. If the nurse does not troubleshoot frequent artifact alarms, the alarms continue to recur.
- ▶ No routine replacement of batteries in telemetry transmitters. Many hospitals simply wait for a "low battery alarm" to occur before changing the battery. This results in excessive "low battery alarms."

The best and only way to prevent alarm fatigue is to improve alarm management. Improving alarm management is really a complex issue. Each hospital and each care area has a unique set of circumstances and variations of common problems (e.g., alarm fatigue, leads-off apathy, communication breakdowns, competing priorities). For example, elements such as culture, patient population and clinical needs, staffing patterns and care model, architectural layout of the care area, alarm coverage model, and technology capabilities and configuration vary from place to place. Likewise underlying causes of alarm fatigue and other common problems may also vary. Therefore, hospitals need to develop alarm management strategies that address their vulnerabilities and are tailored to be realistically implementable under their unique circumstances.

ECRI Institute has worked with many hospitals to improve alarm management and prevent alarm fatigue by conducting alarm management reviews. ECRI Institute PSO is creating an alarm management library of resources.