

# Clinical Alarm Fatigue: A Study to Improve Patient Care and Outcomes

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## Background

- Alarm fatigue is defined as desensitization to clinical alarms that can lead to a lack of response from bedside nurses due to the sensory overload (Cvach, 2012).
- Hospital environments are polluted with noise from various medical equipment and devices, such as but not limited to, cardiac monitors, infusion pumps, and bed alarms (Funk, Clark, Bauld, Ott, & Coss, 2014).
- There is a "cry wolf effect" from numerous false alarms from medical devices. Frequent alarms can become distracting, causing interruptions in workflow and negatively impacts patient care (Cvach, 2010).
- Frequent and numerous alarms can lead to alarms being disabled, ignored, and silenced with critical events not being acted upon (Graham & Cvach, 2010).
- Excessive amounts of noise in the hospital setting can be a heavy burden for the patients because it can cause causing anxiety and insomnia. In addition, bedside nurses are at a high risk for increased alarm fatigue which can potentially negatively affect patient outcomes.

## Aim of EBP Project

To determine if registered nurses (RN's) on a cardiac telemetry floor experience less clinical alarm fatigue if they adjust the sensitivity of alarms/parameters to fit the patient condition in comparison to using the default settings.

## Methods

1. **Pre-education survey;** staff nurses will be provided an anonymous interactive survey for registered nurses to complete.
2. **Provide education to staff;** educational materials regarding patient specific parameters and clinical alarm fatigue will be distributed to staff nurses in the break room and in huddles.
3. **Post-education survey;** the survey will be used to evaluate effectiveness of teaching and perceptions of alarm fatigue.

## Study Results

<b>Pre- Education Survey Results</b>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Do you as a healthcare provider feel that you experience alarm fatigue from telemetry monitors in patient rooms?	0%	12.5%	0%	0%	12.5%
Do you adjust your telemetry monitors to patient specific parameters on a regular basis?	0%	37.5%	12.5%	0%	0%
Do you feel as though adjusting parameters for patient specific measures would reduce alarm fatigue?	0%	0%	0%	0%	0%
Do you feel that decreasing alarms in patient rooms would increase patient satisfaction and comfort?	0%	12.5%	12.5%	37.5%	0%
Do you ever experience a delay in response from staff related to false alarms from telemetry monitors?	0%	0%	0%	12.5%	12.5%
In the past year have you witnessed any patient harm related to alarm fatigue from monitors or other alarms?	0%	0%	0%	0%	0%
Do you often advocate for patients who no longer need continuous pulse-ox or telemetry to decrease alarm fatigue?	37.5%	0%	12.5%	0%	0%
Do you feel as though adjusting parameters according to patient specificity will add to the workload of your assignment?	0%	0%	12.5%	0%	0%

<b>Post- Education Survey Results</b>	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Do you as a healthcare provider feel that you experience alarm fatigue from telemetry monitors in patient rooms?	0%	12.5%	25%	25%	37.5%
Do you adjust your telemetry monitors to patient specific parameters on a regular basis?	12.5%	37.5%	25%	12.5%	12.5%
Do you feel as though adjusting parameters for patient specific measures would reduce alarm fatigue?	12.5%	0%	25%	25%	25%
Do you feel that decreasing alarms in patient rooms would increase patient satisfaction and comfort?	0%	0%	0%	62.5%	37.5%
Do you ever experience a delay in response from staff related to false alarms from telemetry monitors?	0%	12.5%	12.5%	37.5%	25%
In the past year have you witnessed any patient harm related to alarm fatigue from monitors or other alarms?	0%	50%	12.5%	25%	0%
Do you often advocate for patients who no longer need continuous pulse-ox or telemetry to decrease alarm fatigue?	0%	25%	37.5%	37.5%	0%
Do you feel as though adjusting parameters according to patient specificity will add to the workload of your assignment?	0%	37.5%	25%	12.5%	0%

## References

- Cvach, M. (2012). Monitor alarm fatigue: An integrative review. *Biomedical Instrumentation & Technology*, 46(4), 268-277.
- Funk, M., Clark, J.T., Bauld, T.J., Ott, J.C., & Coss, P. (2014). Attitudes and practices related to clinical alarms. *American Journal of Critical Care*, 23(3), 9-18.
- Graham, K.C., & Cvach, M. (2010). Monitor alarm fatigue: Standardizing use of physiological monitors and decreasing nuisance alarms. *American Journal of Critical Care*, 19(1), 28-34.

## Discussion

- 37.5% of survey participants strongly agree that they experience from telemetry monitors in patient rooms, in addition to 37.5% of survey participants disagreeing to adjusting the monitors to patient specific parameters.
- 25% of survey participants strongly agree & agree that adjusting telemetry parameters would reduce alarm fatigue.
- 62.5% of survey participants agree that decreasing alarms in patient rooms would increase patient satisfaction and comfort.

## Conclusion

The results of the survey display that survey participants experience alarm fatigue on a day to day basis. Less than half of the survey participants adjust the parameters of their patient's telemetry settings. With continued education, more nurses can be aware of the positive effects of patient specific parameters on patient safety and staff satisfaction.

## Limitations & Barriers

- A major limitation to this study is the lack of participants leading to a small sample size. Due to the small sample size, the reliability of the results may be affected and a bias may occur.
- The results of this study cannot be applied to all areas of patient care. These results are mainly relevant to floors with continuous telemetry monitoring, however a future study can investigate methods to address other sources of alarm fatigue, such as bed alarms and IV pumps.