

## **Alarm fatigue is a widely recognized safety and quality problem where exposure to high rates of clinical alarms results in desensitization leading to dismissal of or slowed response to alarms” Winters et al (2018).**

### Abstract:

Objective: Alarm fatigue is a widely recognized safety and quality problem where exposure to high rates of clinical alarms results in desensitization leading to dismissal of or slowed response to alarms. Nonactionable alarms are thought to be especially problematic. Despite these concerns, the number of clinical alarm signals has been increasing as an everincreasing number of medical technologies are added to the clinical care environment.

Data Sources: PubMed, SCOPUS, Embase, and CINAHL.

Study Selection: We performed a systematic review of the literature focused on clinical alarms. We asked a primary key question; “what interventions have been attempted and resulted in the success of reducing alarm fatigue?” and 3-secondary key questions; “what are the negative effects on patients/families; what are the balancing outcomes (unintended consequences of interventions); and what human factor approaches apply to making an effective alarm?”

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Data Extraction: Articles relevant to the Key Questions were selected through an iterative review process and relevant data was extracted using a standardized tool.

Data Synthesis: We found 62 articles that had relevant and usable data for at least one key question. We found that no study used/developed a clear definition of “alarm fatigue.” For our primary key question 1, the relevant studies focused on three main areas: quality improvement/bundled activities; intervention comparisons; and analysis of algorithm-based false and total alarm suppression. All sought to reduce the number of total alarms and/or false alarms to improve the positive predictive value. Most studies were successful to

varying degrees. None measured alarm fatigue directly.

Conclusions: There is no agreed upon valid metric(s) for alarm fatigue, and the current methods are mostly indirect. Assuming that reducing the number of alarms and/or improving positive predictive value can reduce alarm fatigue, there are promising avenues to address patient safety and quality problem. Further investment is warranted not only in interventions that may reduce alarm fatigue but also in defining how to best measure it.

Reference:

Winters, B.D., Cvach, M.M., Bonafide, C.P., Hu, X., Konkani, A., O'Connor, M.F., Rothschild, J.M., Selby, N.M., Pelter, M.M., McLean, B. and Kane-Gill, S.L. (2018) Technological Distractions (Part 2): A Summary of Approaches to Manage Clinical Alarms With Intent to Reduce Alarm Fatigue. *Critical Care Medicine*. 46(1), p.130-137.

doi: 10.1097/CCM.0000000000002803

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