

Alarm Fatigue Management: Implications in an Acute Pediatric Care Unit

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Introduction & Background

- Alarm Fatigue contributes to poor patient outcomes
- Literature suggests that 85%-95% of alarms are non-actionable, insignificant or false, contributing to increased rates of bedside nursing alarm fatigue
- Pulse oximetry (SpO₂) are the most prevalent non-actionable alarms in pediatric inpatient units
- Gaps in knowledge on pediatric inpatient alarm management and practices are well-documented in the literature
- Over the last decade, alarm fatigue has received increased attention due to reports of sentinel events
- Following the 2013 Joint Commission Sentinel Event Advisory, hospitals nationwide have implemented alarm safety efforts to improve patient outcomes
- Studies suggest educational interventions aimed at customizing alarm parameters as the most effective method to decrease alarm fatigue

Purpose

The purpose of this quality improvement project was to develop and implement an educational tool to increase nurse's compliance to SpO₂ alarm parameter customization, and modification to consequently decrease non-actionable SpO₂ alarms

Aims

1. Assess nurse's knowledge of alarm fatigue and alarm management
2. Increase nurse's attention to customizing alarm limits
3. Decrease the total number of SpO₂ alarms by 20%

Methods

Setting & Design: One-sample pre-posttest design set at a top-ranked nursing school located in the northeastern region of the US

Sample Criteria: Pediatric unit bedside RN's

Table 1.
Participant characteristics (N=41)

	n(%)
Sex	
Male	3(7.1)
Female	38(90.5)
Age in years	
22-30	31(73.8)
31-40	8(19)
41-50	2(4.8)
Highest RN degree	
Associates	2(4.8)
BSN	32(76.2)
MSN	7(16.7)

Measurement Tool:

- Torabizadeh's Nurse's Alarm Fatigue Questionnaire
- Clinical Engineering Daily/Weekly Flood Report

Intervention:

- Educational Bundle
- 15-minute virtual presentation tailored to meet the needs of the project unit based on information gathered during the pre-survey
- Incorporation of EBP alarm customization practices, current hospital alarm policy, literature review, guidance from stakeholders and field experts
- Pre- and post-survey delivered through Qualtrics

Results & Analysis

Analysis:

Independent t-test and Mann Whitney U

Results:

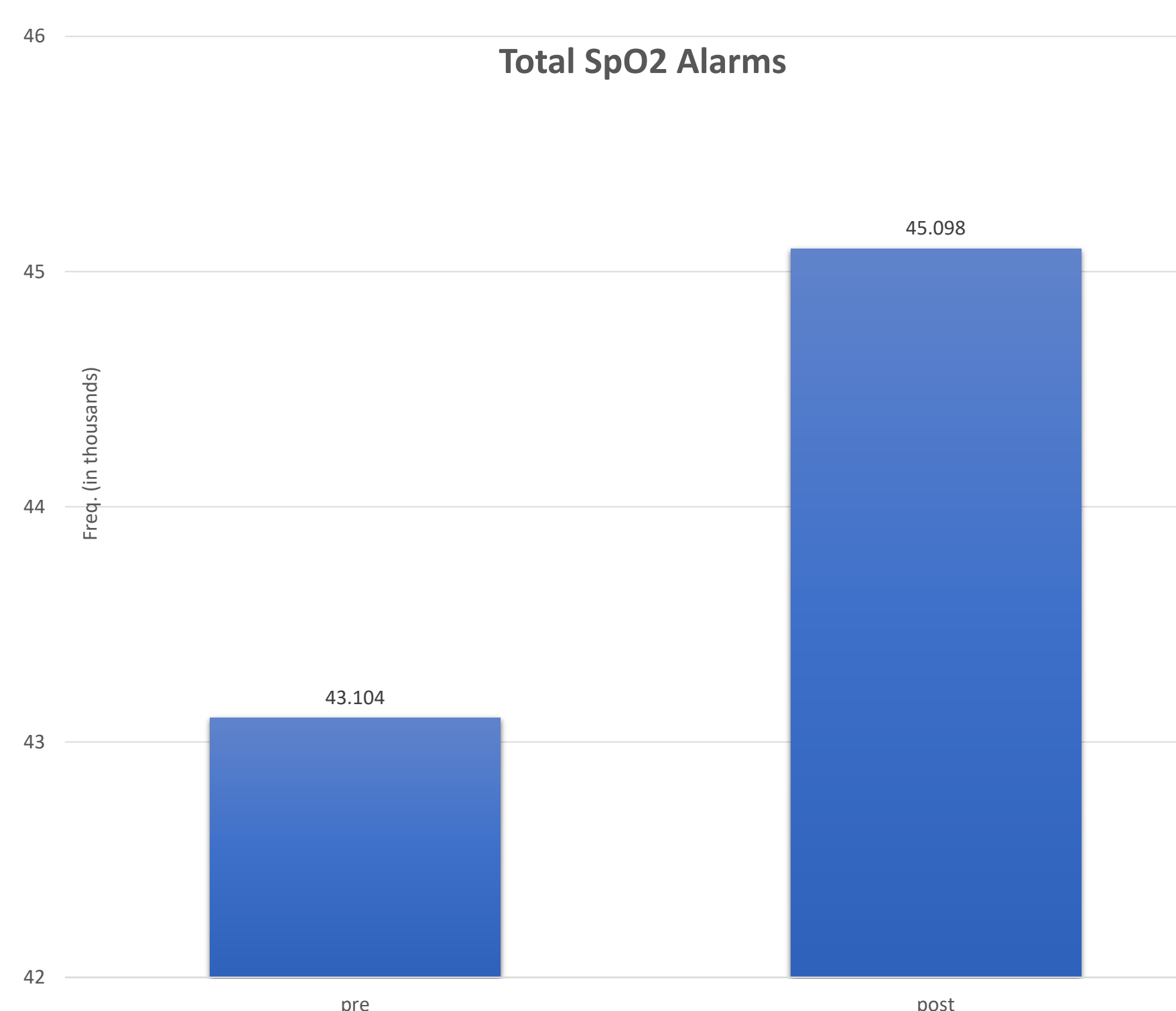
Aim 1 & 2

- Two-point decrease in median alarm fatigue scores

Aim 3

- Increase in SpO₂ alarm frequencies (*Figure 1*)

Figure 1.



Dissemination

- Submission of project to peer reviewed journals
- Share findings with organizational stakeholders and project unit
- Utilize social media to disseminate results to other pediatric inpatient units
- Advocate for continued efforts to bridge the gap in pediatric alarm practices

Conclusion

- Nonactionable pediatric inpatient alarms contribute significantly to alarm fatigue
- The educational intervention focused on bridging a knowledge gap by aiming to increase nurse's awareness of alarm fatigue and alarm management practices
- The educational bundle clinically improved bedside nurse's perception of alarm fatigue
- The intervention was not associated with a decrease in SpO₂ frequency
- Future projects should focus on bringing awareness to bedside nurses regarding hospital alarm policy and alarm management practices

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