



ATTITUDE OF NURSING STAFF TOWARDS INTENSIVE CARE UNITS ALARM SETTINGS IN RURAL TERTIARY CARE HOSPITAL, LONI, AHMEDNAGAR

Anesthesiology

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ABSTRACT

The clinical environment contains a plethora of bells, beeps, and buzzers. Alarms are expected to monitor vital organ function, essential device function, and to increase patient safety and quality of care by early detection of any abnormality [1]. Intensive care unit (ICU) monitors have alarm options to intimate the staff of critical incidents. [2] Nursing is a holistic, scientific and deeply passionate branch of medical science that provides quality care to patients. According to the underlying diagnosed condition, the medical equipment devices used for a critical patient can be adjusted with appropriate settings in order to detect abnormality. Aims and objectives: To study the attitude of nursing staff towards intensive care unit alarm settings in pravara rural tertiary care Hospital, Loni. Settings and Design: This is an observational prospective cross sectional study done at rural tertiary care hospital. Methods and Material: After approval of IEC, this study will be started with printed Questionnaire will be distributed among critical care units nursing staffs. Statistical analysis used: The sample size was done based on working nursing staff in ICU. **RESULTS:** This study involves 60 nursing staff of Critical care unit of pravara rural tertiary care hospital, Loni. Of which 24 nursing staff are in SICU, 25 nursing staff in MICU, 6 nursing staff in CCU and 5 nursing staff in RICU. All nursing staff are aware of and routinely use the multipara monitors like Electrocardiogram (ECG), pulse oximetry, Non invasive blood pressure (NIBP), Ventilators. All of them are able to differentiate between the different alarm tones of ventilator and the multipara monitors. 100% nursing staff believe alarm system is necessary for critical care setup. 91.7% nursing staff are aware that every alarm has a limit which can be changed. 83% nursing staff start looking for cause yourself when the alarm sounds for the first time (fig 1). 95% nursing staff agree for having different color coding for different parameters in alarm settings as well as different alarm tone should be there for different parameter. As seen in (fig. 2) 60% of the nursing staff find it a necessity to install alarm system in critical care setup. **CONCLUSION:** From our study we can conclude that even though alarms are important and lifesaving features they can be neglected as well can compromise quality and safety due to false alarms

KEYWORDS

Nursing Staff, alarm Settings, intensive Care Unit

INTRODUCTION:

The clinical environment contains a plethora of bells, beeps, and buzzers. Alarms are expected to monitor vital organ function, essential device function, and to increase patient safety and quality of care by early detection of any abnormality [1]. Intensive care unit (ICU) monitors have alarm options to intimate the staff of critical incidents. [2] Nursing is a holistic, scientific and deeply passionate branch of medical science that provides quality care to patients. Various medical equipments used in ICU having alarms like ventilators, cardiac monitors, infusion pump, pressure relieving device, Patient controlled analgesia, oxygen saturation devices. According to the underlying diagnosed condition, the medical equipment devices used for a critical patient can be adjusted with appropriate settings in order to detect abnormality. This study is planned to evaluate critical care nurses regarding their existing attitude towards the ICU alarm settings.

SUBJECTS AND METHODS:

After approval of institutional ethical committee, this study will be started with printed Questionnaire will be distributed among critical care units nursing staffs. **Inclusion criteria:** Critical care nursing staff willing to give consent to be a part of the study. **Exclusion criteria:** Non critical care unit staff and nurses who have joined ICU within last 1 month.

RESULTS: This study involves 60 nursing staff of Critical care unit of pravara rural tertiary care hospital, Loni. Of which 24 nursing staff are in SICU, 25 nursing staff in MICU, 6 nursing staff in CCU and 5 nursing staff in RICU. All nursing staff are aware of and routinely use the multipara monitors like Electrocardiogram (ECG), pulse oximetry, Non invasive blood pressure (NIBP), Ventilators. All of them are able to differentiate between the different alarm tones of ventilator and the multipara monitors. 100% nursing staff believe alarm system is necessary for critical care setup. 91.7% nursing staff are aware that every alarm has a limit which can be changed. 68.3% nursing staff knows how to set alarm limits and 70% of the staff changes the limits of parameter according to patients clinical criteria. 83% (Fig 1) nursing staff start looking for cause yourself when the alarm sounds for the first time. 95% nursing staff agree for having different color coding for

different parameters in alarm settings as well as different alarm tone should be there for different parameter. As seen in (fig 2) 60% of the nursing staff find it a necessity to install alarm system in critical care setup.

DISCUSSION:

In accordance with the clinical status of the patient monitoring parameters differ. Multipara monitors and as well as the ventilators and different devices used in critical care setup are designed accordingly in view of safety requirements with alarming systems. Due to change in baseline parameters of the patient according to patients condition default parameter settings are not applicable for all the patients and thus alarm settings need to be changed. Monitoring the physiological condition of critically ill patient is a complex task where the use of multiple monitoring devices per patient is the norm and an essential component in treatment process. Nurses are the key professionals responding to alarms and managing the multiple monitoring devices. [3] In our study, we find that the nursing staff were in full agreement regarding the need of basic monitoring parameters for patients in the ICU but varied response was observed regarding specific parameters and also for the alarm settings. Many of the alarms are spurious due to patient movement, artefact, problems with the sensor, algorithms or the patient-equipment contact. [2] Appropriate setting of alarms for each patient is essential. Various studies have concluded that over 90% of alarm sounds may not be clinically important. [2-4] In a study, 72% of all alarms resulted in no medical action. [1] ICU alarms produce sound intensities above 80 decibel (dB). False alarms in the ICU can lead to a disruption of care, impacting both the patient and the clinical staff through noise disturbances, desensitisation to warnings and slowing of response times, leading to decreased quality of care. [2] Also, sleep deprivation and depressed immune systems have been reported. [2] Seibeg and others suggested combining of several alarms into a new one and the addition of trend alarms to allow narrower threshold alarm limits. [5] Regarding alarm limit settings, it was revealed that they would set systolic arterial pressure alarms at ± 30 mmHg, heart rate alarms at ± 30 bpm and the oxygen saturation lower alarm limit to 90%. [6] In an interventional study, there was a statistically significant improvement in the alarms' reading as their limits were adjusted according to

patient's real value.^[7]

LIMITATION OF THE STUDY:

CONCLUSION:

From our study we can conclude that even though alarms are important and lifesaving features they can be neglected as well can compromise quality and safety due to false alarms. So it is essential to be familiar with the alarm modes, and regularized checking and resetting of alarm in context to patients clinical status is to be practiced

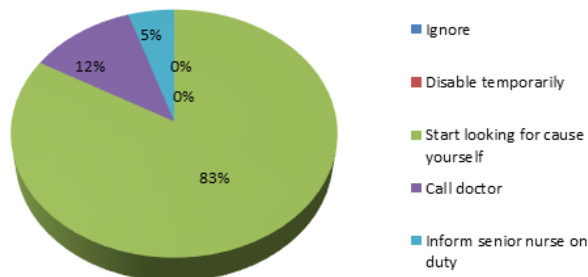


Figure 1 :How would you react when alarm sounds for the first time?

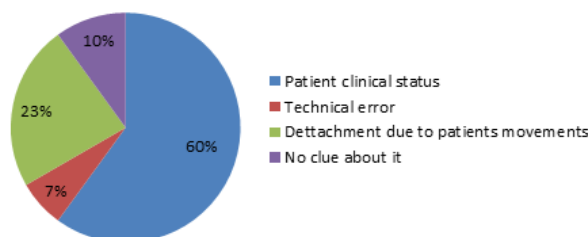


Figure : What would you think might be the necessity of installing alarm system in ICU ?

Following printed questionnaire:

A. SOCIO-DEMOGRAPHIC DETAILS:

1. What is your gender?
2. How old are you?
3. What is the highest degree of nursing education you attained?
4. What is your schedule of shift at work?
5. What is your current place of work?
6. How many years of work experience do you have as nursing staff?

B. KNOWLEDGE:

1. What monitoring parameters are you aware of ,that are routinely used in ICU?(spo2/Heart rate/ blood pressure/ECG)
2. Are you able to differentiate between alarms of ventilator and monitor?(Y/N)
3. Are you aware that every alarm has a limit which can be changed?(Y/N)
4. Do you know how to set the limit of alarm?(Y/N)
5. Do you change the limit parameter according with patient criteria?(Y/N)
6. How would you react when the alarm sound for the first time?(ignore/Disable temporarily/Start looking for cause by yourself/Call doctor/Inform senior nurse on duty)
7. Do you think alarm system is important in ICU?(Y/N)
8. Do you know the different colour coding for different parameter Alarm setting?(Y/N)
9. Do you think different alarm tone should be there for different parameter?(Y/N)
10. What would you think might be the necessity of installing alarm sysytem in ICU ? (Patient clinical status/Technical error/ Dettachment due to patients movements /No clue about it)

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