

Enhancing Patient Safety In The Intensive Care Unit: A Comprehensive Study On Improving Critical Alert Documentation By Physicians at Medanta, The Medicity Hospital

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About the organisation

- Medanta, The Medicity multi- speciality tertiary care hospital located in Gurugram, Haryana.
- 1391 bedded, and 271 ICU beds
- With >45 specialties.
- The organisation has Joint Commission International (JCI) Accreditation, National Accreditation Board for Hospitals & Healthcare Providers (NABH), National Accreditation Board for Testing and Calibration Laboratories (NABL)
- Also has Telemedicine Services, Electronic Medical Records (EMR), Mobile Health Apps

Project- Background

- Intensive care units (ICUs) are high-risk environments where patients require complex and urgent care. Critical alert documentation by physicians is crucial for ensuring patient safety.
- This retrospective observational study aimed to evaluate and enhance compliance with documentation of critical alerts by physicians in the Intensive Care Unit (ICU).
- This study assessed current documentation practices, identified barriers to compliance, and implemented targeted interventions, primarily focusing on training and education initiatives.

Objectives

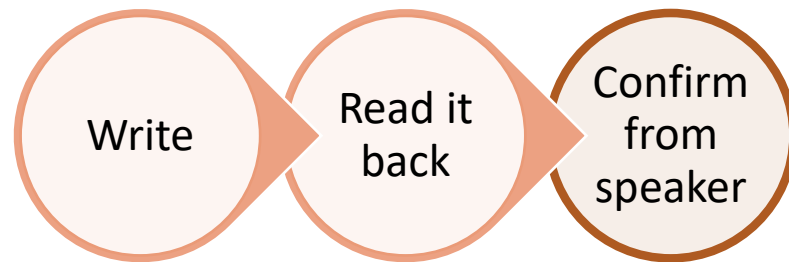
- Assess the current state of critical alert documentation by physicians in ICUs: Analyse existing documentation practices, identifying gaps and inefficiencies, and understanding the challenges faced by physicians in maintaining accurate records.
- To identify factors associated with non-compliance in critical alert documentation by ICU physicians.
- To explore the perceptions and attitudes of ICU physicians towards critical alert documentation.
- To develop and implement intervention in improving the physician compliance with critical alert documentation
- To evaluate the effectiveness of the intervention

Introduction

- The ICU environment is characterized by high-tech equipment, complex patient conditions, and a high volume of electronic health records. This setting demands exceptional teamwork, communication, and coordination among healthcare professionals to ensure optimal patient care. However, the dynamic nature of ICU care, along with the increasing demand for services, can lead to fragmented attention, miscommunications, and medical errors.
- Critical alerts are critical notifications that require immediate attention and action from healthcare professionals. Inadequate or delayed documentation of these alerts can result in delayed interventions, misdiagnosis, and adverse outcomes
- A significant problem observed in ICUs is the non-compliance in documentation of critical alerts by physicians, leading to inefficiency in following standard operating protocols towards the International Patient Safety Goals (IPSG) goal 2, which emphasizes effective communication. This non-compliance can result in delayed or missed interventions, compromising patient safety and outcomes.

Critical Alert Reporting

- The Medanta Hospital in Gurugram has implemented a comprehensive Critical Alert Management system across all departments to enhance patient safety. This system follows standardized operating protocols that must be adhered to by all healthcare providers.
- OCC INFORMS
 1. IPD: Treating Consultant and nursing TL. TL informs the doctor on duty
 2. OPD: Treating or prescribing doctor (if not available consultant on call) and connects doctor to patient or conveys doctors message to patients.



Literature Review

S.no	Author (year)	Study Location	Sample size	Sampling technique	Salient Features
1	Bhavin B, Adhyaru, Glenn Hilburn (2023)	GHS Hospital Trauma Center, US, Atlanta	1414	Selected all critical alerts reported in the span of three months (April-June)	This project aims improve TAT for critical lab results. Minimize workflow changes and reduce clinical laboratory staffing burden. By Implementing push notifications via EPIC mobile app. During the 3-month pilot period, monthly reinforced education sessions were provided to ICU treatment teams. These sessions included tip sheets and direct feedback on their compliance with electronic acknowledgment The push notification process generated 1,414 notifications for critical lab results, with 6% (82) being electronically acknowledged, each electronic acknowledgment reduced the need for a lab service technician to make a page or call.

Literature Review

S.no	Author (year)	Study Location	Sample size	Sampling technique	Salient Features
2	Wania Imtiaz, Khawaja Shehryar Nasir, Fareeha Kanwal (2021)	Internal Medicine Department, Shaukat Khanum Memorial Cancer Hospital and Research Centre, Lahore, Pakistan	128	Randomised Sampling Technique	1. The study examines the problem of inadequate documentation of critical alerts by physicians in patient medical records, a vital component of patient safety. 2. Utilizing a Continuous Quality Improvement (CQI) methodology, the research aims to identify and address the underlying causes of this issue. 3. Several interventions were introduced to enhance compliance, including hospital-wide educational sessions, daily audits, and the implementation of a new module in the hospital's electronic medical record system. 4. The study reports that the average compliance rate improved from 57% to 88% within a few months of implementing these changes, and this improvement was maintained for the subsequent eight months. (5)

Literature Review					
S.no	Author (year)	Study Location	Sample size	Sampling technique	Salient Features
3	Puja Kumari, Jha Rachna Agarwal (2022)	Institute of Human Behaviour and Allied Sciences teaching hospital, Delhi	811	Non-probability sampling method	- The study aims to enhance quality by reducing the turnaround time (TAT) for critical result notifications by at least 30% and ensuring timely communication of these notifications to the relevant caregivers or clinicians. - The project employed the DMAIC model (Define, Measure, Analyze, Improve, and Control) for process improvement, using various quality tools including fishbone analysis, process mapping, Pareto charts, and Failure Modes and Effects Analysis (FMEA). (4)

Methodology

- **Study Design:-** Retrospective Study
- **Study Duration:-** 1.04.2024 to 30.04.2024
- **Sample size:-** 56
- **Sampling Type:-** Random Sampling
- **Study Population:-** Patients who received critical alerts in Medical ICU at Medanta during their stay
- **Study Location:** Medical Intensive Care Unit, Medanta

Research Question

What is the level of compliance with documentation of critical alerts by nurses and doctors in the ICU?
What factors influence compliance with documentation of critical alerts?

• **Study Tools:-**

Medical Records Audit:- Designed to assess compliance with four parameters:

1. Critical alert informed by OCC to nurse is documented.
2. Name of doctor informed documented by nurse.
3. Critical alert acknowledged by doctor in the file.
4. Action plan documented by doctor on medical record within one hour.

Root Cause Analysis:-

1. Fishbone diagram constructed to visually represent the potential root causes of non-compliance in critical alert documentation by doctors

Data Collection Method

- Retrospective File Audit:
 1. A random sample of 58 patient medical records from the ICU will be reviewed pre- and post-intervention to assess critical alert documentation practices for completeness, timeliness, and accuracy.
 2. Each parameter was coded based on whether specific actions were documented:



3. Compliance rates for each parameter, measured as percentages of total cases audited

Findings

- The study commenced with an initial analysis of ICU data pertaining to patient admissions and critical alerts

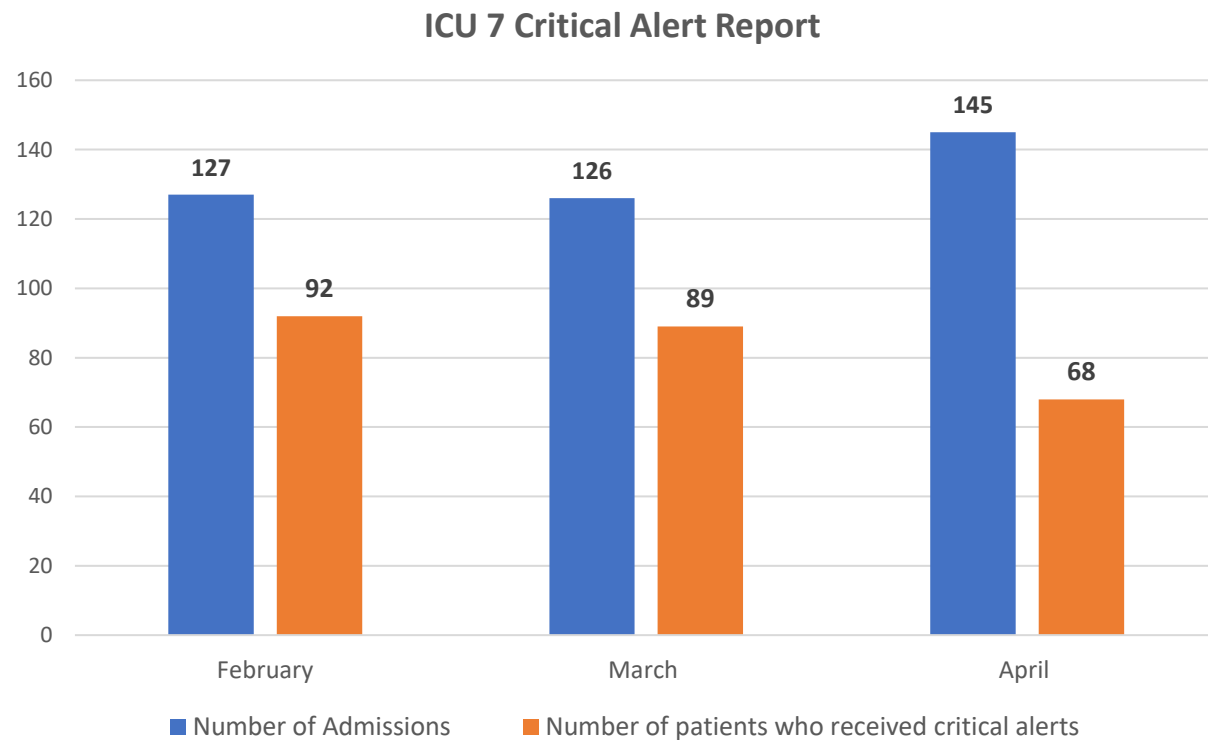


Figure a. Admissions in ICU 7 vs patients who received critical alerts in the month of February, March, and April

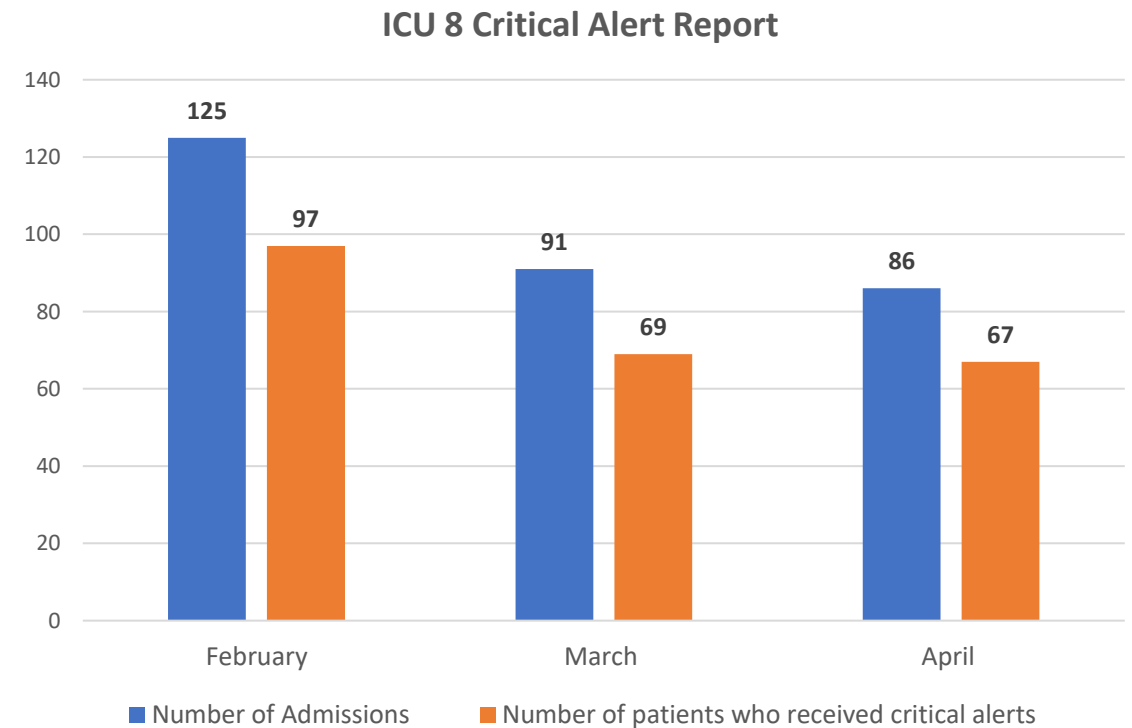


Figure b. Admissions in ICU 8 vs patients who received critical alerts in the month of February, March, and April

- The relationship between the number of patients receiving critical alerts and the critical alerts reported by OCC was also identified

ICU 7 Critical alerts reported vs patients

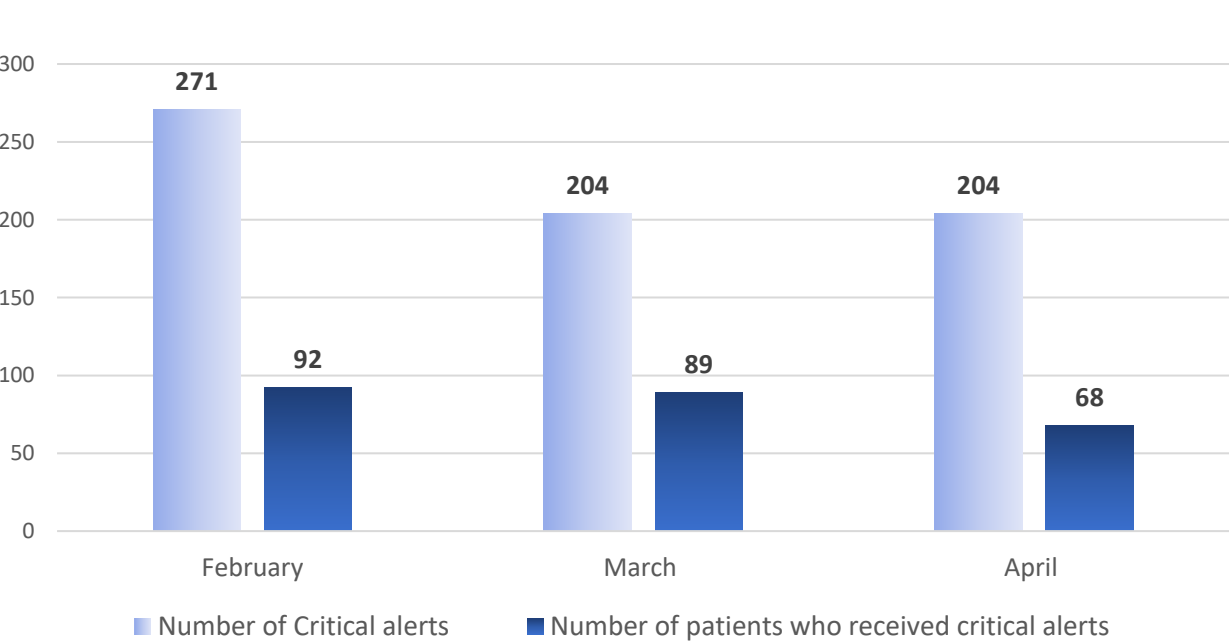


Figure c. Total Number of Critical Alerts Reported vs. Total Number of Patients Who Received Critical Alerts in ICU7

ICU 8 Critical Alerts reported vs patients

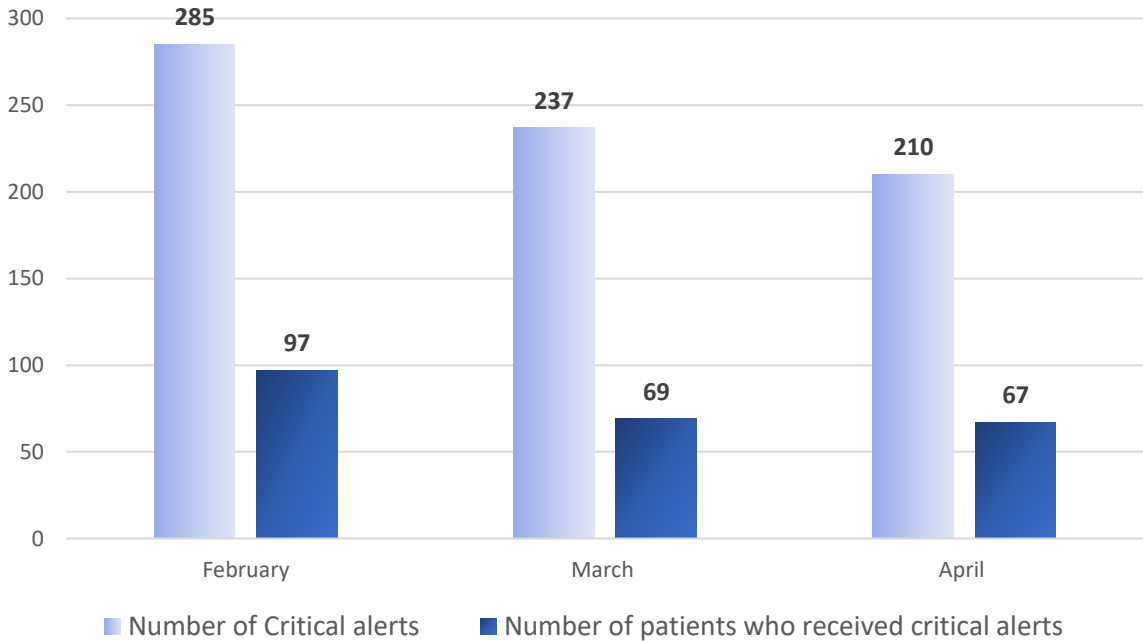


Figure 4. 4 Total Number of Critical Alerts Reported vs. Total Number of Patients Who Received Critical Alerts in ICU8

Result

- During the initial phase of the study, data collection involved auditing medical records of patients who received critical alerts in the ICU. This phase spanned 3-4 days and focused on assessing whether doctors documented critical alerts in the medical records along with their action plans. The compliance with documentation protocols during this phase was observed to be low.
- This preliminary investigation revealed concerning trends: a notable frequency of critical alerts occurring, yet a substantial portion were not being documented adequately in the medical records by attending doctors.
- Specifically, upon auditing, it was observed that only 9% (Figure e) of critical alerts were documented alongside corresponding action plans within the designated timeframe.
- Further Root Cause Analysis of Non-Compliance in ICU Critical Alert Documentation was done and presented by using fishbone diagram

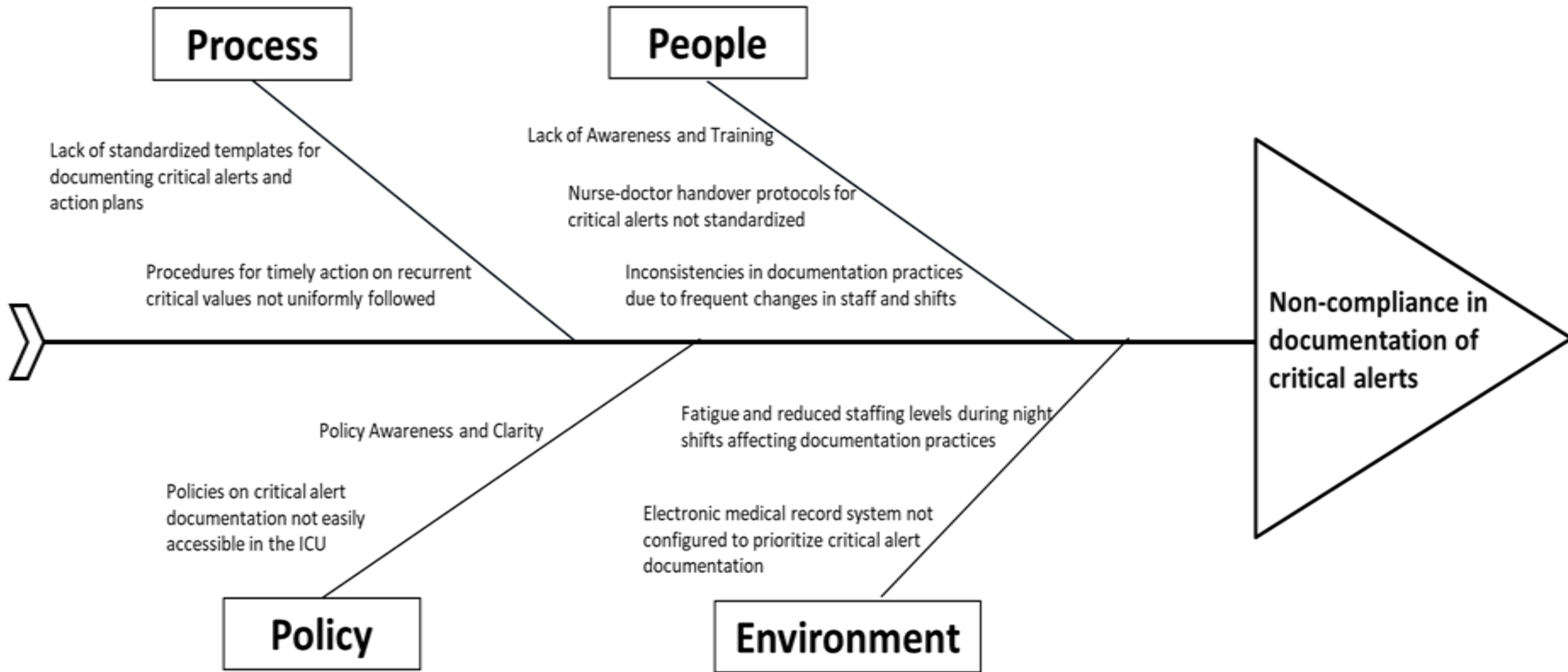


Figure d. Fishbone diagram Representing RCA of non-compliance in documentation of critical alerts

Intervention Implementation

- Following the baseline audit, an intervention was implemented to improve compliance with documentation of critical alerts. This intervention involved:
 1. Education and Training: Doctors and nurses were educated about the importance of documenting critical alerts and formulating action plans promptly.
 2. Protocol Reinforcement: Clear protocols and guidelines were communicated to ensure standardized practices.
 3. Team Meeting: A team meeting was conducted involving senior consultants from the ICU and the nursing in-charge to discuss the findings from the baseline audit and emphasize adherence to documentation protocols.
- Post Intervention Audit was conducted:- After the intervention phase, a follow-up audit was conducted to assess the impact of the intervention on compliance with documentation practices. The results indicated a significant improvement in compliance.

Intervention Implementation

Compliance of Critical Alert documentation in April

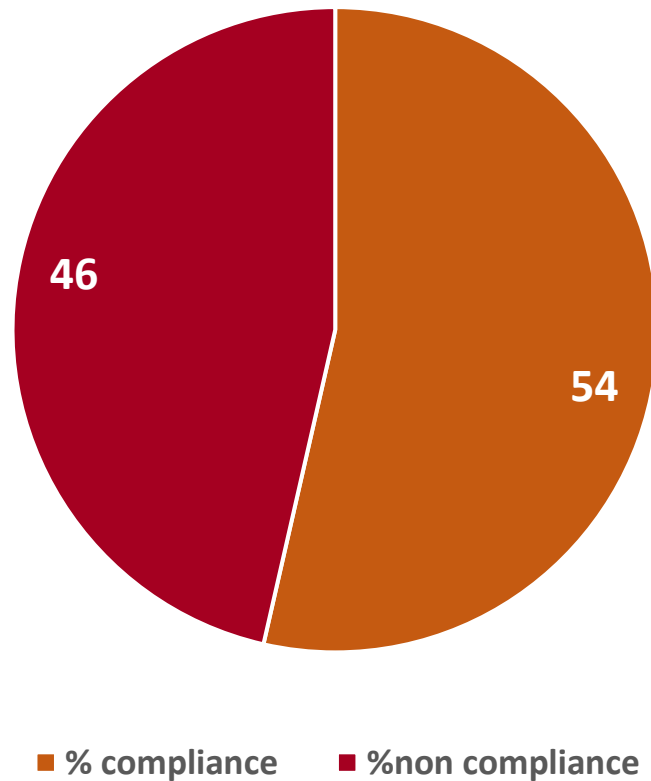


Figure 4. 6 Total percentage of compliance in documentation of critical alerts by physicians in ICU during the study

% Compliance in documentation of critical alerts

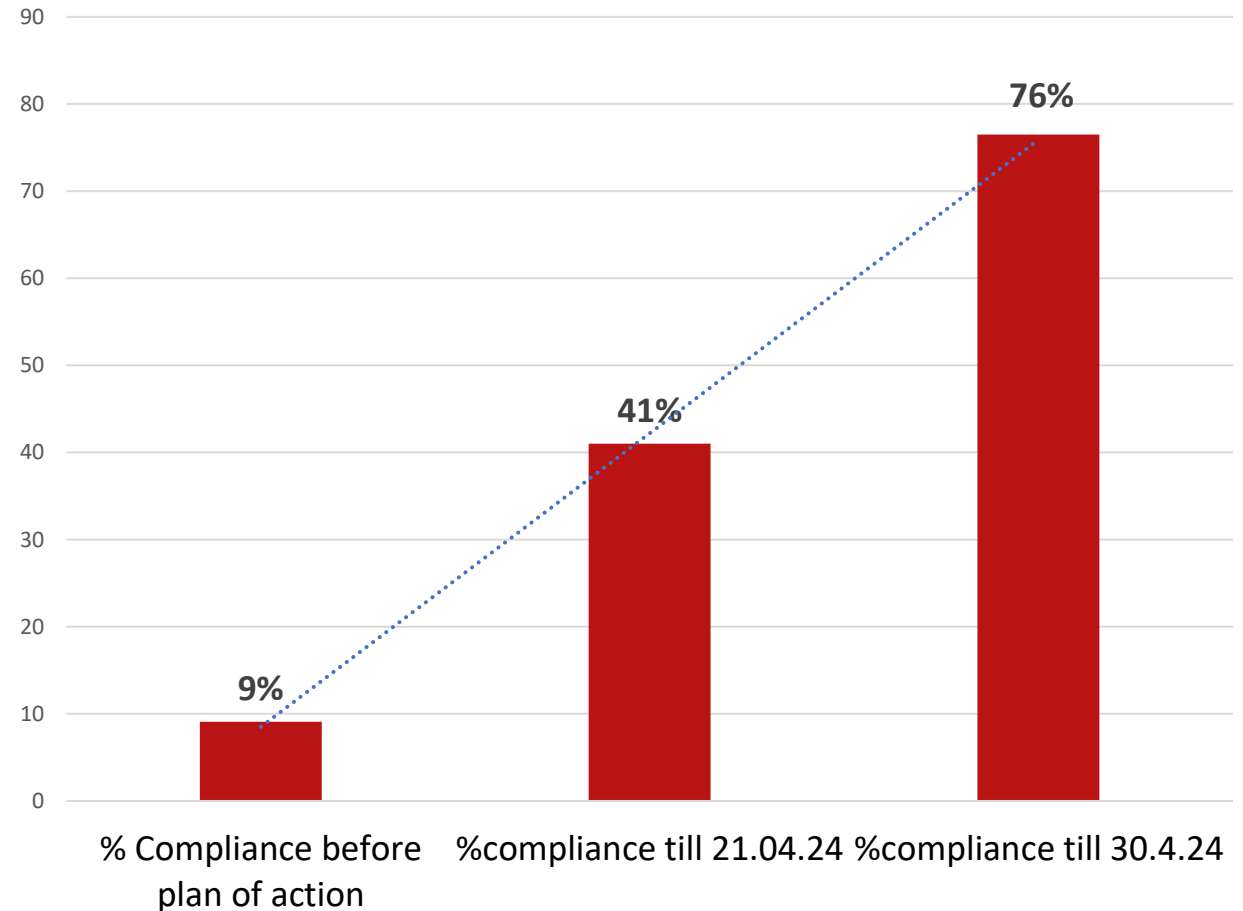


Figure 4. 7 Percentage compliance of physicians in documenting critical alerts in patient records during the study period showed significant improvement. Initially, the compliance rate was 9%. Following the interventions, it increased to 41% and eventually 76%

Recommendations

- Implementation of Pop-Up Alerts on EMR: Introduce pop-up alerts within the Electronic Medical Record (EMR) system to notify physicians of critical alerts. These alerts should be configured to appear prominently upon login, ensuring immediate visibility and prompting physicians to document critical alerts promptly
- Critical Alert Protocols Training for Doctors and Nurses: Conduct comprehensive training sessions for all healthcare providers involved in critical care, including doctors and nurses. Training should focus on the importance of timely documentation of critical alerts, specific protocols for documentation, and the impact on patient safety and care continuity.
- Training on Team Coordination for Patient Safety (IPSG 2: Effective Communication)
- Integration of Critical Alert Column in Progress Notes or ICU Sheets: Introduce a dedicated section within the progress notes or ICU sheets for doctors to document critical alerts received for each patient. Standardize this documentation process to ensure clarity and completeness, enabling subsequent review and follow-up actions.

Thank-you

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