# Evaluation Of Code Blue System And its Outcome in Non-Critical Areas: A One-Year Analysis from a Tertiary Care Center

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## Introduction

Code Blue, universally signaling immediate medical attention, denotes a critical emergency, linked to cardiopulmonary arrest. Activating the emergency system prompts Advanced Life Support (ACLS) procedures, encompassing cardiopulmonary resuscitation (CPR) and defibrillation. CPR's goal is to reinstate organ perfusion until the cardiac arrest cause is identified and treated. Despite dedicated efforts, survival rates hinge on demographics, age, gender, arrest nature, and comorbidities. Factors such as response time, CPR quality, and initial rhythm significantly influence outcomes. Successful CPR result in the return of spontaneous circulation (ROSC).

## Aim

This study aims to assess the performance and analyze the outcome of the Code Blue system in the non-critical area in a tertiary healthcare facility over one year.

## Methodology

A retrospective observational study done at Aster Medcity, Kochi, focusing on Code Blue events in non-critical areas in the year 2023. Data from the hospital information system and Code Blue Reports were compiled in a Microsoft Excel Worksheet and analyzed using SPSS software.

## Results and Discussion

Within our study, covering 50,759 admissions, 45 Code Blue instances occurred in non-clinical areas. Average response time of the code blue team was 1.02 mins (ranging from 1 minute to 3 minutes) which was comparable to international standards of 2.8 +/- 1.30 mins (1) , 67% achieved return of spontaneous circulation (ROSC) as compared to international standards of 61 % (2), while survival-to-discharge reached 16%, surpassing the international reported rate of 12%(3). All Code Blue cases underwent ACLS audits, demonstrating 100% adherence to American Heart Association protocols, affirming rigorous resuscitation standards.

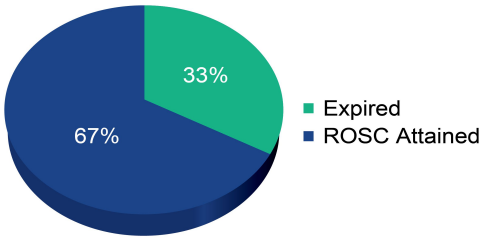
Clinical issues, including challenges in securing IV access, and enhancing inadequate team communication, comprised 20% of gaps identified. Operational challenges, such as malfunctioning suction apparatus and unavailability of a lift to transfer patients to the ICU, dominated in 64.4% of gaps identified.

Post CPR debriefing was done to the Chief of Medical Services by the Team Leader which helped us to identify the gaps and make appropriate interventions that helped us improve the overall adherence to code blue protocol and resolve the operational issues.

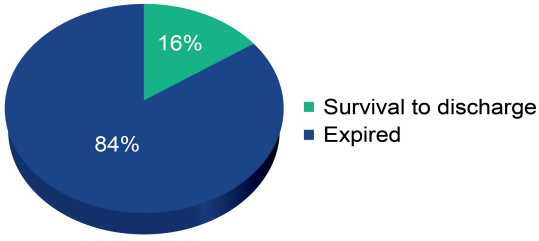
**Table 3: Issues identified with proper functioning of Code Blue**

| Issues associated with Code Blue functioning | Frequency (N=45) | % |
|---|---|---|
| Operational issues | 29 | 64.4 |
| Clinical issues | 9 | 20 |
| ACLS protocol deviation | 0 | 0 |

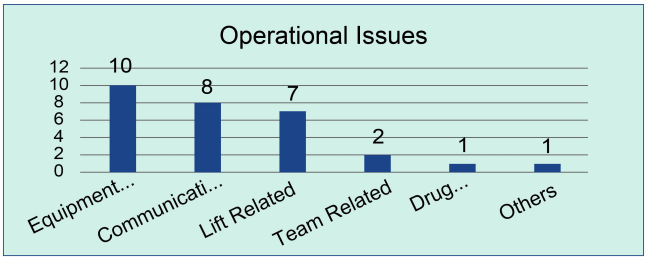
**Graph 1: Immediate Outcome**




**Graph 2: Final Outcome**




**Graph 3: Categorization of Operational Issues**




## Conclusion

Despite facing clinical and operational challenges in non-critical areas, achieving a 67% return of spontaneous circulation (ROSC)(2) with a 1.02-minute average response time (1) and a 16.5% survival-to-discharge rate, surpassing international averages (3), reflects high-quality resuscitation. Though Post CPR debriefing is done on daily basis, there is scope for improvement by addressing operational challenges, upgrading equipment, and improving communication which can boost efficiency.

## References

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