

SYNOPSIS

1. TITLE:

A multi-departmental risk evaluation using heat mapping and score matrix in a cardiac care setting

2. INTRODUCTION:

Patient safety is a cornerstone of hospital quality management, especially in super-specialty settings like cardiac hospitals where the margin for error is minimal. Risk assessment is a proactive tool used to identify potential hazards and system vulnerabilities that may compromise safety and efficiency.

This study focuses on the Asian Heart Institute, a 240-bedded NABH and JCI-accredited cardiac hospital in Mumbai. The goal is to systematically identify, score, and analyze operational risks across six departments—ICU, OT, Cath Lab, Emergency/Day Care, Pharmacy, and Cafeteria—using standardized tools such as risk matrices and heat maps.

The findings aim to support hospital-wide decision-making, strengthen compliance with NABH and JCI standards, and contribute to a culture of safety and continuous quality improvement.

3. RESEARCH QUESTION:

What are the department-specific operational and patient safety risks in a single-specialty cardiac hospital, and how can they be measured, visualized, and mitigated using structured risk assessment tools?

4. OBJECTIVES:

Primary Objective:

- To identify and assess department-wise risks in a cardiac hospital using a 5×5 risk matrix and heat maps.

Secondary Objectives:

- To prioritize risks based on likelihood and severity scores.
- To recommend mitigation strategies in alignment with NABH/JCI standards.
- To support hospital leadership in developing a risk-based quality improvement plan.

5. HYPOTHESIS:

Departments handling high-risk procedures, such as ICU and Cath Lab, are more likely to report critical risk scores compared to non-clinical areas like Cafeteria or Administration.

6. MATERIAL AND METHODS:

Study Design:

Descriptive observational study

Setting:

Asian Heart Institute, Mumbai – a NABH-accredited 300-bed cardiac super-specialty hospital

Study Population:

Healthcare professionals and administrative staff involved in clinical and support services

Inclusion Criteria:

- Departmental heads or designated quality representatives
- Staff with ≥ 1 year of experience in the hospital

Exclusion Criteria:

- Interns or staff with less than 3 months of association
- Departments unrelated to direct or indirect patient care

Study Tools:

- Observation checklists
- Interview schedules (semi-structured)
- SOP audit forms
- Risk matrix template
- Incident and near-miss report data

Duration of Study:

3 months – from March 10, 2025, to June 10, 2025

Sample Size:

Minimum 4–5 risks assessed per department, totaling 24 risks across 6 departments

Sampling Technique:

Purposive sampling for staff interviews

Complete enumeration of risks through observation and document review

Data Collection Procedure:

Data were collected using direct observation, staff interviews, audit of SOPs and incident reports. Each identified risk was scored based on its likelihood (1–5) and severity (1–5), creating a risk matrix score ranging from 1 to 25. The data were then visualized using color-coded heat maps.

Operational Definitions:

- Risk: Any potential event or condition that could negatively affect patient safety or hospital operations.
- Risk Score: A numerical value derived by multiplying the likelihood and severity of a particular risk.
- High-Risk Department: A unit where ≥ 1 risk scores in the critical range (15–25).

7. DATA ANALYSIS PLAN:

Data will be analyzed using Microsoft Excel for score compilation and heat map generation.

- Descriptive statistics will be used to summarize risk levels
- Comparative analysis across departments
- Risks will be color-coded as per scoring thresholds:
 - 1–5 = Low
 - 6–10 = Moderate
 - 11–14 = High
 - 15–25 = Critical

8. ETHICAL CONSIDERATIONS:

- Institutional permission was obtained from Asian Heart Institute.
- No patient identifiers were used.
- Staff feedback and observations were kept confidential.
- All data were anonymized and used solely for academic purposes.
- Informed verbal consent was taken from all staff participants.

9. IMPLICATIONS OF RESEARCH:

This research provides a practical, data-driven framework for hospital administrators to identify and address risks proactively. The study's recommendations support accreditation readiness, enhance patient safety, and encourage the adoption of systematic risk monitoring practices in healthcare organizations.

10. REFERENCES (Vancouver Style):

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