

Audit of Hospital-Acquired Infections

Assessing Compliance in CLABSI, CAUTI, VAP and SSI Prevention

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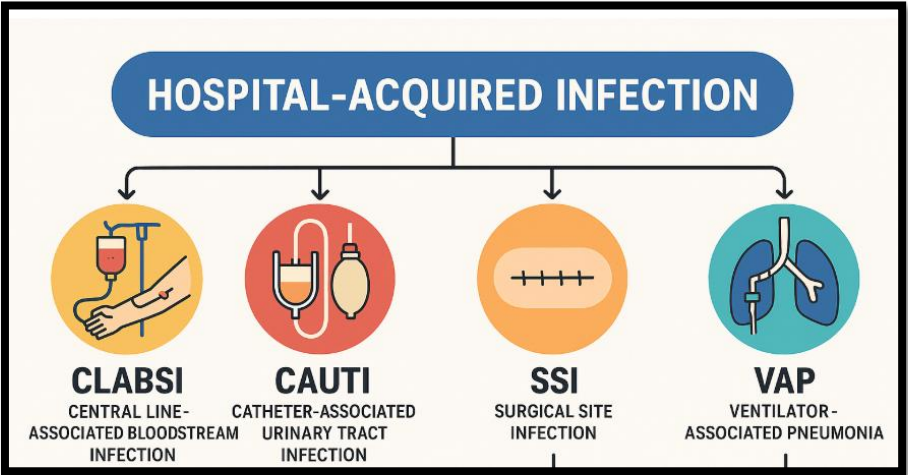
INTRODUCTION

Hospital-acquired infections (HAIs) pose a serious threat to patient safety, especially in ICUs where invasive devices increase infection risk. This study at Mahatma Gandhi Medical College and Hospital, Jaipur, evaluates compliance with prevention protocols for CLABSI, CAUTI, VAP, and SSI, and analyzes compliance and infection rates over three months. The goal is to identify gaps and recommend strategies to improve adherence and reduce infections, enhancing patient outcomes and hospital safety culture.

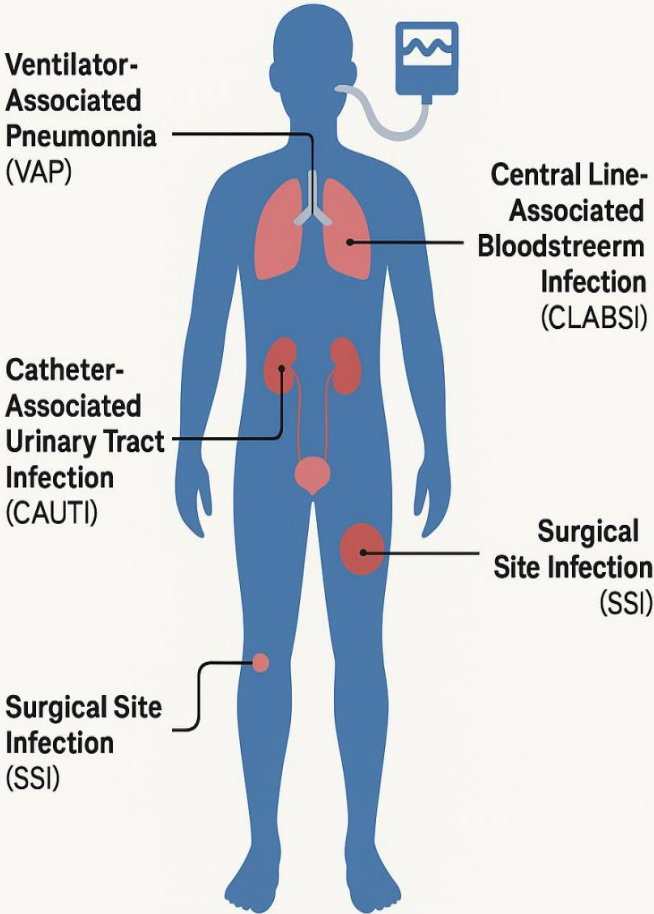
UNDERSTANDING HOSPITAL-ACQUIRED INFECTIONS

Definition and Impact

HAIs develop during medical care, often after 48 hours of admission. They cause longer stays, complications, and higher costs, affecting over 1.4 million people globally at any time.

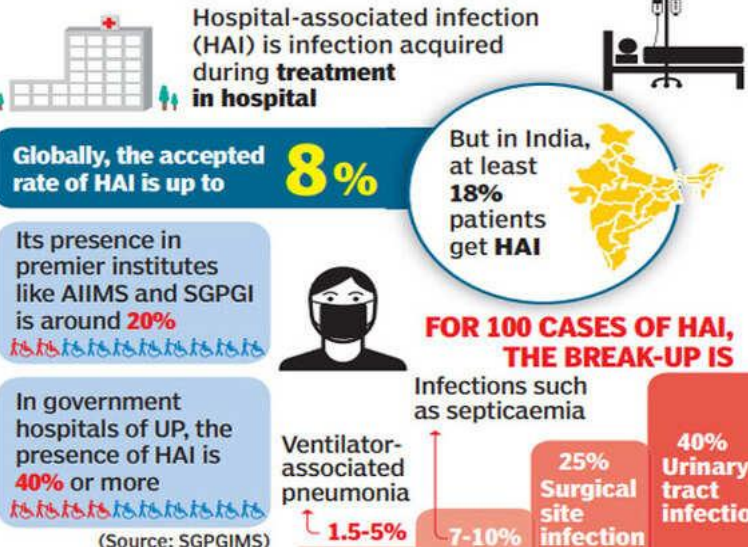


COMMON SITES AND TYPES OF HOSPITAL-ACQUIRED INFECTIONS (HAIs)

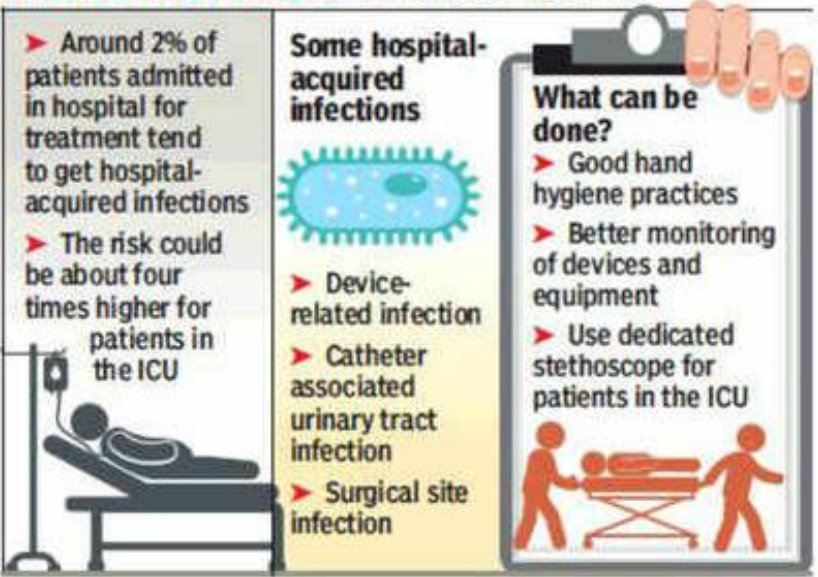


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INFECTED IN HOSPITAL



MORE RISK FOR THOSE IN ICU



AIMS AND OBJECTIVES

Aim:

To evaluate adherence to HAI prevention protocols and assess infection trends within the surgical units of the hospital.

Objectives:

- To assess the compliance rate of healthcare staff with standard infection prevention protocols.
- To calculate and analyse the infection rates of these HAIs over a 3-month period (March–May 2025).
- To suggest evidence-based strategies for improving adherence and reducing the incidence of HAIs.

METHODOLOGY

Study Design

- ✓ **Type of Study:** Observational, hospital-based study
- ✓ **Approach:** Quantitative assessment using structured checklists and patient records

Study Setting: Mahatma Gandhi Medical College and Hospital, Jaipur

Study Population

- ✓ **Inclusion Criteria:**
 - ✓ Healthcare workers (doctors, nurses, and technicians) involved in patient care.
 - ✓ Patients admitted with central lines, urinary catheters, or ventilators.
- ✓ **Exclusion Criteria:**
 - ✓ Healthcare workers not directly involved in infection control practices.
 - ✓ Patients admitted for less than 24 hours.

METHODOLOGY

Procedure and Approach

Quantitative Assessment

- ✓ Compliance rate calculated as: $(\text{Number of checklists fully complied with} / \text{Total number of audits conducted}) \times 100$
- ✓ Infection rate calculated as: $(\text{Number of infections} / \text{Total device days or procedures}) \times 1000$

Study Instruments

- CLABSI Audit Checklist
- CAUTI Audit Checklist
- VAP Audit Checklist
- SSI Audit Checklist
- Patient medical records for infection tracking



ANALYSIS AND FINDINGS

Measuring Infection and Compliance Rates

1

Infection Rate

Infection rate calculated as: $\text{Number of infections} / \text{Total device days or procedures} \times 1000$

2

Compliance Rate

Compliance rate calculated as: $\text{Number of checklists fully complied with} / \text{Total number of audits conducted} \times 100$

3

Importance

High compliance reduces HAIs, hospital stays, and costs, making continuous monitoring essential for quality improvement.

Infection rate (March 2025 – May 2025)

CAUTI Infection Rate			
Month & Year	Mar-25	Apr-25	May-25
No of Urinary Catheter associated UTI's in a month	4	3	4
No of Urinary Catheter days in that month	3708	3647	2974
Actual	1.08	0.82	1.34

VAP Infection Rate			
Month & Year:	Mar-25	Apr-25	May-25
No of ventilator associated pneumonia in a month	2	3	2
No of ventilator days in that month	1010	1414	964
Actual	2.0	2.1	2.1

CLABSI Infection Rate			
Month & Year	Mar-25	Apr-25	May-25
No of central line-associated blood stream infections in a month	4	4	3
No of central line days in that month	1381	1548	932
Actual	2.9	2.6	3.2

SSI Infection Rate			
Month & Year:	Mar-25	Apr-25	May-25
Number of surgical site infections in a given month	7	8	9
Total number of surgeries performed in that month	1252	1070	1090
Actual	0.56	0.75	0.83

Compliance Rate (March 2025 – May 2025)

Compliance Rates of CAUTI Checklist (March 2025 - May 2025)			
MEASURE	Mar-25	Apr-25	May-25
Number of CAUTI checklists compiled	98	105	108
Total CAUTI Checklists Audited	102	110	112
Rate	96%	95%	96%

Compliance Rates of CLABSI Checklist (March 2025 - May 2025)			
MEASURE	Mar-25	Apr-25	May-25
Number of CLABSI checklists compiled	50	53	61
Total CLABSI Checklists Audited	60	62	70
Rate	83%	85%	87%

Compliance Rates of SSI Checklist (March 2025 - May 2025)			
MEASURE	Mar-25	Apr-25	May-25
Number of SSI checklist compiled	59	80	90
Total SSI Checklists Audited	60	83	92
Rate	98%	96%	98%

Compliance Rates of VAP Checklist (March 2025 - May 2025)			
MEASURE	Mar-25	Apr-25	May-25
Number of VAP checklist compiled	56	58	61
Total VAP Checklists Audited	62	65	68
Rate	90.32%	89.23%	89.71%

Average Rates vs Targets

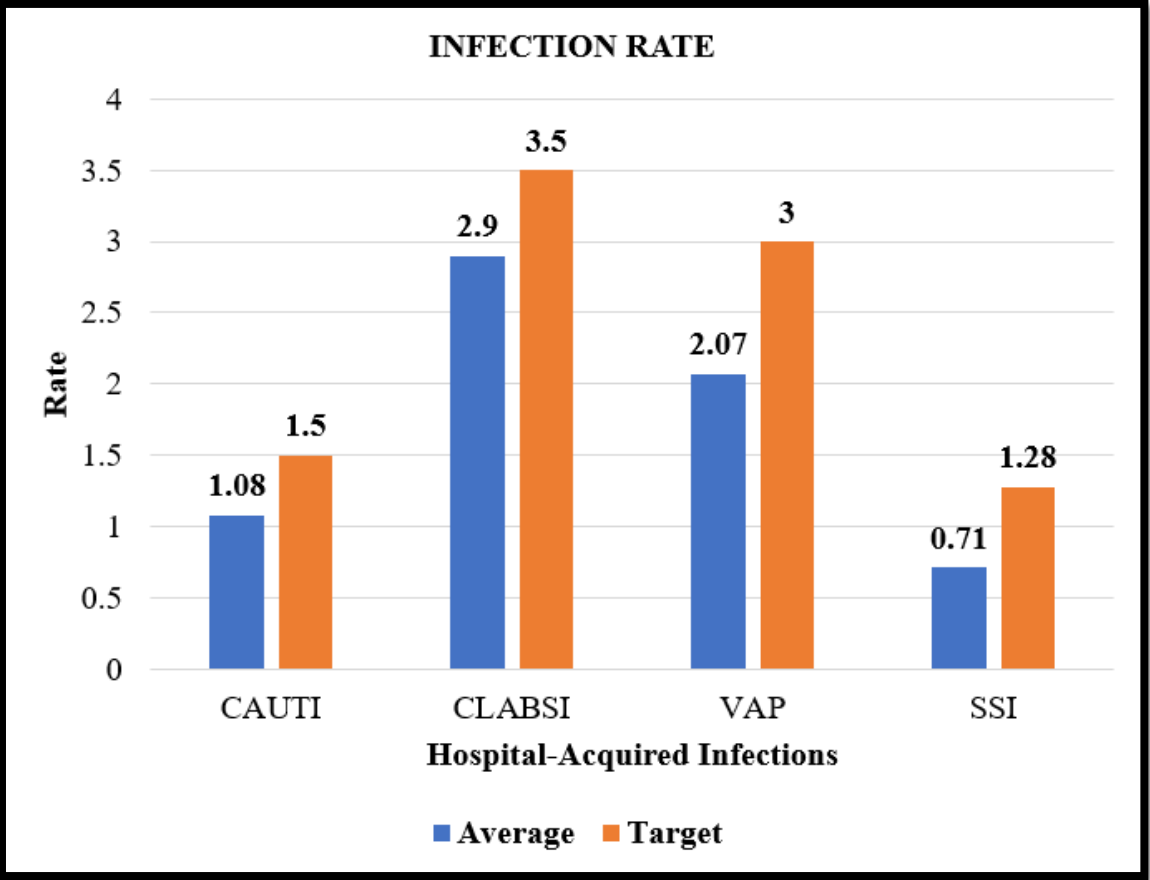
Average HAIs Infection Rates vs Target Benchmarks (Mar – May 2025)					
Infection Type	Mar-25	Apr-25	May-25	Average	Target
CAUTI	1.08	0.82	1.34	1.08	1.5
CLABSI	2.9	2.6	3.2	2.9	3.5
VAP	2	2.1	2.1	2.07	3
SSI	0.56	0.75	0.83	0.71	1.28

Average HAI Compliance Rates vs. Target Benchmarks (Mar–May 2025)					
Infection Type	Mar-25	Apr-25	May-25	3-Month Average (%)	Target
CAUTI	96%	95%	96%	95.67%	≥ 95%
CLABSI	83%	85%	87%	85%	≥ 95%
SSI	98%	96%	98%	97.33%	≥ 95%
VAP	90.32%	89.23%	89.71%	89.42%	≥ 95%

GAP ANALYSIS

Gap Analysis of HAI Infection Rates (Mar–May 2025)			
Infection Type	Avg. Infection Rate	Target Rate	Gap
CAUTI	1.08	≤ 1.5	✓ Within target
CLABSI	2.9	≤ 3.5	✓ Within target
VAP	2.07	≤ 3.0	✓ Within target
SSI	0.71	≤ 1.28	✓ Within target

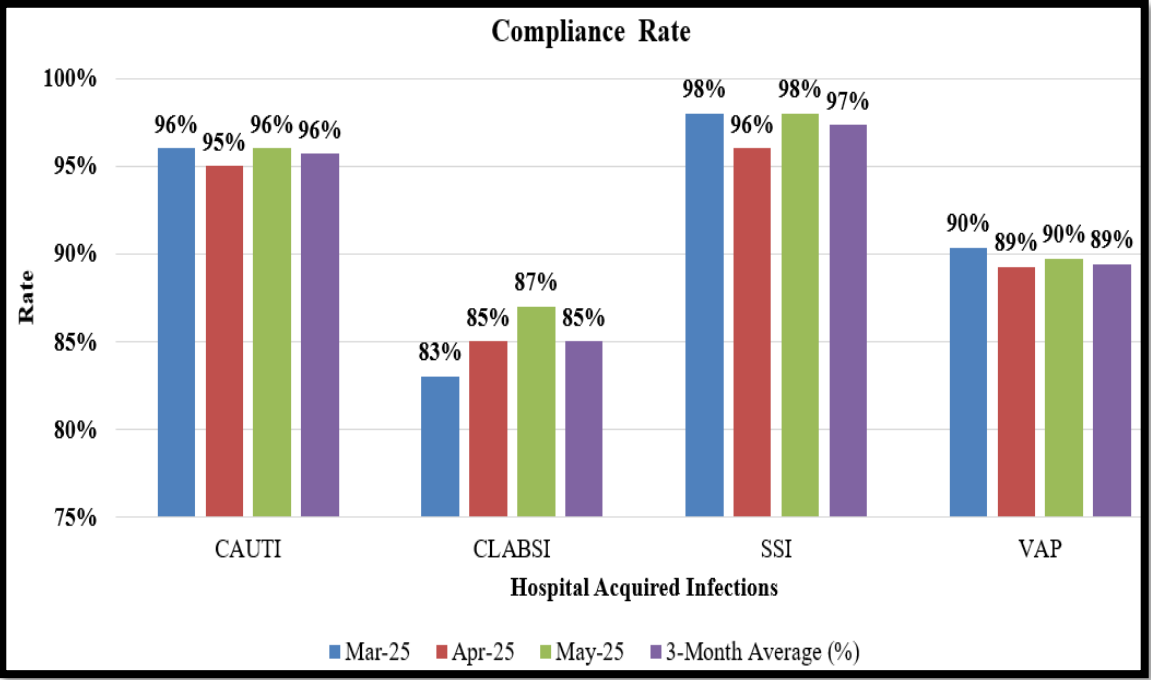
All infection rates remained below national benchmarks, reflecting effective infection control measures across the hospital’s ICUs and surgical units.



Graph 1: HAI Infection Rates and Target Benchmarks (Mar–May 2025)

GAP ANALYSIS

Gap Analysis of HAI Compliance Rates (Mar–May 2025)			
Infection Type	Avg. Compliance (%)	Ideal Compliance Benchmark (%)	Gap
CAUTI	95.67%	≥ 95%	✓ Met
CLABSI	85.00%	≥ 95%	Gap: 10%
VAP	89.75%	≥ 95%	Gap: 5.25%
SSI	97.33%	≥ 95%	✓ Met



Graph 2: HAI Compliance Rates (Mar–May 2025)

While infection rates are controlled, improving compliance in CLABSI and VAP is crucial for sustained patient safety.



Key Findings

Infection Rates

All rates below targets, showing strong infection control.

Compliance Rates

SSI highest compliance at 97.33%, CLABSI lowest at 85%.

Areas for Improvement

VAP and CLABSI compliance need more focus and reinforcement



Conclusions and Key Recommendations

Strengthen CLABSI and VAP Compliance

Implement focused training, real-time monitoring, and peer supervision for high-risk procedures.

Sustain CAUTI and SSI Success

Recognize high-performing units and ensure periodic retraining to maintain standards.

Enhance Surveillance and Feedback

Develop dashboards, conduct root cause analyses, and use compliance heat maps for targeted improvements.

Promote Safety Culture

Launch awareness campaigns and integrate infection control into staff evaluations to foster accountability.

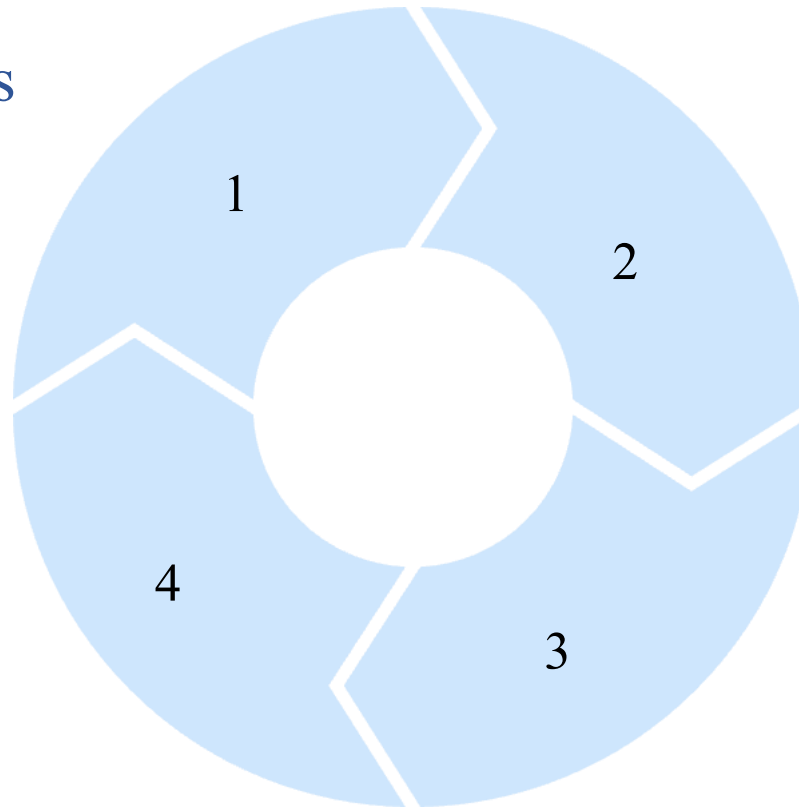
Enhancing Surveillance and Feedback Systems

Real-Time Dashboards

Integrate infection rates, compliance, and antibiotic use data for leadership oversight.

Audit and Feedback

Use heat maps and quarterly reviews to target underperforming areas and set improvement goals.



Monthly Trend Reports

Identify patterns and emerging issues at the department level for proactive action.

Root Cause Analysis

Investigate each confirmed HAI to address protocol or system breakdowns.

Fostering a Culture of Safety and Infrastructure Support

- Awareness Campaigns
Hospital-wide initiatives with posters, videos, and testimonials to reinforce compliance importance.
- Reporting
Encourage staff to report lapses without fear, promoting transparency and accountability.
- Resource Availability
Ensure consistent access to sterile supplies, PPE, and disinfectants in high-volume areas.
- Policy and Task Force
Form a dedicated HAI Task Force and integrate infection control data into electronic medical records.





Future Directions for Infection Control Excellence

Organizational Support

Ensure resource availability and integrate infection data into electronic medical records for accuracy.

Multidisciplinary Collaboration

Combine antimicrobial stewardship with infection control audits and conduct joint rounds for comprehensive care.

Education on Resistance

Enhance staff understanding of antibiotic resistance and its impact on infection prevention.

By implementing these recommendations, the hospital can enhance compliance, reduce infection rates, and set a benchmark for quality care in healthcare institutions.

Thank you...