

**Audit of Hospital-Acquired Infections: Assessing Compliance in CLABSI, CAUTI,
VAP and SSI Prevention**

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Introduction

Hospital-acquired infections (HAIs) remain a major challenge in healthcare, increasing patient morbidity, mortality, and costs. Among these, Ventilator-associated pneumonia, Central line-associated bloodstream infections, Surgical site infections, and Catheter-associated urinary tract infections are prevalent in intensive care units (ICUs) and postoperative wards (Magill et al., 2022). Regular audits of infection control practices are essential for improving compliance with preventive measures and reducing HAI incidence (Berenholtz et al., 2023).

Recent studies highlight the effectiveness of bundle interventions in reducing these infections. Klompas et al. (2023) reported a 40% reduction in VAP incidence with standardised prevention protocols. Similarly, Calegari et al. (2024) found that adherence to catheter care bundles significantly lowered CAUTI and CLABSI rates. Surgical site infection reduction has also been achieved through preoperative antibiotic prophylaxis, sterile surgical practices, and postoperative wound care (Chakraverty & Kundu, 2025).

Active surveillance, staff education, and compliance monitoring are key strategies for sustaining infection prevention efforts (Avadhani et al., 2024). Despite progress, challenges such as inconsistent adherence, antimicrobial resistance, and resource constraints persist. Addressing these requires a structured audit framework to evaluate infection control measures, ensure policy compliance, and improve patient safety.

Research Question

What is the level of compliance with CLABSI, CAUTI, VAP and SSI prevention guidelines among healthcare workers.

Objectives

- To assess the Infection and compliance rate of healthcare workers with infection prevention protocols for CLABSI, CAUTI, VAP and SSI.
- To recommend strategies to improve infection prevention compliance.

Methods and Materials

Study Design

This Study employs a cross-sectional observational approach conducted over a duration of three months.

Setting

The study takes place within the Intensive Care Units (ICUs) at 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.

Study Tools

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

Duration Of Study

Three months (11 March – 11 June)

Sample Size

n = 3 months per infection type. (The study analysed monthly infection and compliance rates for CAUTI, CLABSI, SSI, and VAP over 3 months (11 March– 11 June 2025), with a total of 3 data points per infection type)

Sampling Technique

- Convenience sampling will be used for patient record audits.

Data Collection Procedure

- Infection and compliance data were extracted monthly for each type: CLABSI, CAUTI, SSI, and VAP, using study tools.
- Patient Records are reviewed.
- Compliance rate and infection rate are calculated based on data obtained
- Average Rate calculated for each Hospital-Acquired infection type
- A graph is developed for the analysis of the data obtained.

Operational Definitions

- **CLABSI:** Laboratory-confirmed bloodstream infection in a patient
- **CAUTI:** UTI in a catheterized patient
- **VAP:** Pneumonia, confirmed by clinical and microbiological criteria.
- **SSI:** Infection occurring within 30 days post-surgery (or 90 days for implants), involving skin, tissue, or organ at the surgical site.
- **Compliance Rate:** Percentage of observed practices adhering to infection control protocols.

Data Analysis Plan

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

1. Infection Rate Analysis

- Monthly infection rates for each infection type (CAUTI, CLABSI, VAP, SSI) over 3 months (Mar - May 2025) were calculated.
- These were compared against established benchmark targets:
 - ✓ CAUTI ≤ 1.5
 - ✓ CLABSI ≤ 3.5
 - ✓ VAP ≤ 3.0
 - ✓ SSI ≤ 1.28

2. Compliance Rate Analysis

- 3-month average compliance rates were computed for each infection type.
- Benchmarked against the ideal target of 100% adherence.

Ethical Considerations

- Consent will be taken from all HCWs participating in surveys.
- Patient confidentiality will be maintained
- All procedures will comply with ethical standards

Implications Of Research

This study will provide critical insights into infection prevention compliance among healthcare workers. Identifying gaps in adherence will help hospital administrators design targeted interventions such as staff training programs, policy revisions, and reinforcement of infection control measures. The findings will contribute to:

- Reducing hospital-acquired infections (HAIs).
- Enhancing patient safety and quality of care.
- Optimizing hospital infection control strategies.

References

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