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ENHANCING PATIENT SAFETY THROUGH STANDARDIZED IDENTIFICATION PROTOCOLS: A MIXED-METHOD STUDY ON IPSG-1 COMPLIANCE IN APOLLO HOSPITALS

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ABSTRACT Ensuring accurate patient identification is a cornerstone of safe healthcare delivery. The International Patient Safety Goal 1 (IPSG 1), established by the Joint Commission International (JCI), requires the use of two unique identifiers to prevent serious errors such as wrong-patient medication, procedures, and surgeries. Apollo Hospitals, a prominent healthcare network in India, has implemented these protocols across its accredited sites to enhance patient safety. This study evaluates compliance with IPSG 1, examines the awareness of healthcare professionals, and assesses the effectiveness of interventions aimed at minimizing identification-related errors. Conducted from January to April 2025, this mixed-method study audited 500 inpatient records and surveyed 150 healthcare workers, including nurses, physicians, and technicians. Findings revealed a 96.4% overall compliance with IPSG 1, with key challenges including absent ID bands and verbal confirmations without validation. Nurses showed the highest awareness levels (94%). The integration of barcode scanning and regular training led to a 43% reduction in near-miss events. These results affirm that standardized identification protocols, when consistently applied, significantly enhance patient safety in clinical environments.

KEYWORDS : IPSG 1, Patient Safety, Identification Protocols, JCI Compliance, Apollo Hospitals, Healthcare Quality, Mixed-Method Study

INTRODUCTION

Patient identification accuracy is a foundational aspect of delivering high-quality and safe healthcare. Misidentification can lead to severe adverse events, including medication errors, misdiagnoses, incorrect procedures, and treatment delays. According to the **World Health Organization (WHO),** errors in patient identification remain a primary cause of avoidable harm in healthcare systems globally, regardless of resource setting (WHO, 2022).

To mitigate such risks, the **Joint Commission International (JCI)** developed the **International Patient Safety Goals (IPSGs),** with the **first goal (IPSG 1)** specifically addressing patient identification. This standard requires the consistent use of **two distinct identifiers**-commonly the patient's full name and unique hospital ID (UHID)-prior to any medical intervention. The use of non-specific identifiers like bed or room numbers is explicitly discouraged to prevent confusion and ensure that every patient receives appropriate care (JCI, 2021).

Despite international endorsement, many healthcare settings continue to struggle with uniform implementation. In India, studies have highlighted frequent occurrences of patient misidentification, including mislabelled laboratory samples, incorrect admissions, and erroneous medication administration. A recent audit revealed that only 85% of hospitals routinely used two identifiers, and 10–15% relied on improper identifiers such as bed numbers (Joshi & Saini, 2022). The consequences of such lapses can range from minor delays to life-threatening harm, and the associated litigation and loss of public trust further underscore the urgency of this issue.

Apollo Hospitals, recognized for clinical excellence and JCI-accredited facilities, has institutionalized IPSG 1 practices through strategies such as wristband protocols, barcode scanning, digital records integration, and staff education. **This study was undertaken to evaluate the implementation of IPSG 1 in selected JCI-accredited Apollo Hospitals across India.** Specifically, it aimed to (1) measure the level of compliance with IPSG 1 protocols, (2) assess the awareness of healthcare professionals regarding patient identification practices, and (3) analyse the impact of quality improvement interventions-such as training and technology integration-on reducing patient misidentification-related incidents.

By analysing IPSG 1 execution across selected Apollo hospitals, the study aims to contribute to the national discourse on patient safety and support the development of best practices for accurate patient identification.

METHODOLOGY

This study adopted a **mixed-method** research design to **evaluate adherence to IPSG 1** standards and to explore the perceptions and knowledge of healthcare professionals regarding patient identification protocols. The research was carried out at three **JCI-accredited tertiary hospitals** within the Apollo network, situated in Delhi, Chennai, and Hyderabad. Data collection took place across a variety of clinical departments, including **Intensive Care Units (ICUs), Operating Theatres (OTs), Emergency Departments, and General Wards**.

Duration of Study: January to April 2025 (4 months)

Study Population: Healthcare professionals directly involved in patient care, including:
- o **Nurses** (n = 60)
- o **Doctors** (n = 50)
- o **Technicians** (n = 40)

Patient records of inpatients admitted during the study period (n = 500)

Sample Population

- **Quantitative Component**: A total of 500 inpatient records were selected using random sampling from admission logs across wards, ICUs, emergency departments, and operating rooms.
- A structured awareness questionnaire—including 15 multiple-choice questions (MCQs) and 5 clinical scenarios—was administered to 150 healthcare professionals (60 nurses, 50 doctors, 40 technicians) to evaluate their understanding of patient identification procedures.
- **Qualitative Component**: In-depth, semi-structured interviews were conducted with 15 healthcare personnel, including 6 nurses, 5 doctors, and 4 representatives from the quality and safety teams.
- Interview topics covered familiarity with IPSG 1 standards, observed barriers to compliance, leadership support, training effectiveness, and the role of technology in enhancing identification accuracy.

Data Collection Tools

1. IPSG-1 Compliance Audit Checklist (JCI-aligned)

2. Staff Awareness Questionnaire (MCQs and scenario-based)

3. Review of Incident Reports (2024 vs. 2025 comparison)

Inclusion Criteria:

- Inpatients undergoing acute medical or surgical care
- Clinical staff with responsibilities in direct patient management

Exclusion Criteria

- Outpatients

Data Analysis
- Chi-square tests to compare awareness levels
- Year-wise comparison of incident reports

Quantitative Methods

Data Collection Tools:

To assess compliance with IPSG 1 protocols, a structured audit checklist-developed in alignment with JCI standards-was employed to review 500 inpatient records randomly selected across various hospital units. Additionally, a validated awareness assessment tool was used to evaluate the knowledge of 150 healthcare workers. This tool included 15 multiple-choice questions and 5 clinical scenario-based items to gauge practical understanding and decision-making regarding patient identification procedures.

Sampling Technique:
- **Patient Records:** Selected through random sampling from hospital admission logs in intensive care units, wards, emergency rooms, and operating theatres to ensure diversity.
- **Healthcare Professionals:** Participants were chosen using stratified sampling to achieve balanced representation from different professional groups, including nurses, physicians, and technicians.

Qualitative Methods

Data Collection Approach:

To gather deeper insights into real-world practices and challenges, semi-structured interviews were conducted with 15 healthcare personnel. This group comprised 6 nurses, 5 physicians, and 4 members of the quality and safety teams. The interviews were guided by a flexible framework to allow open dialogue while maintaining consistency in core topics across participants.

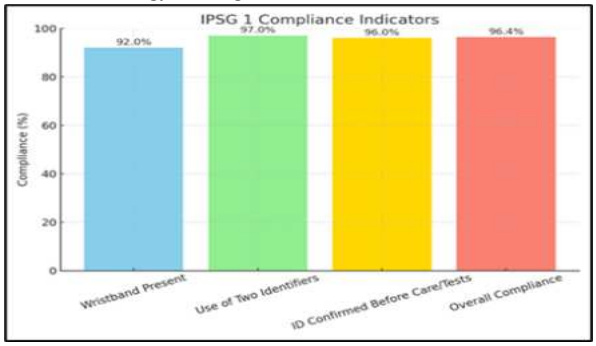
Interview Guide Topics:
- Familiarity with and interpretation of IPSG 1 standards
- Perceived influence of identification protocols on overall patient safety
- Operational barriers to consistent compliance
- Leadership involvement and the effectiveness of training initiatives
- Experiences with technology tools, such as barcode scanners, in patient identification workflows

RESULTS

Audit Findings:

An audit of 500 inpatient records across critical care areas, general wards, and operating rooms revealed high levels of compliance with IPSG 1 standards:

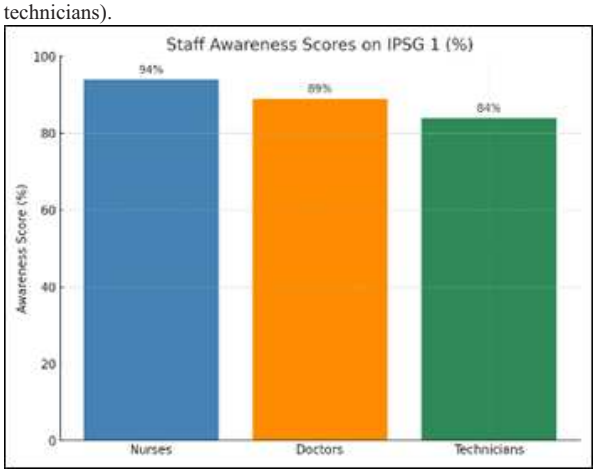
1. Wristband Present – 92% Compliance: While 92% of patients were found wearing identification wristbands, the 8% non-compliance suggests lapses due to patient refusal, missing bands post-transfer, or oversight in emergency settings.
2. Use of Two Identifiers – 97% Compliance - Nearly all audited records showed adherence to using two patient identifiers (e.g., name and UHID), especially before procedures, medication, and diagnostic testing.
3. ID Confirmed Before Care/Tests – 96% Compliance- Audit results showed that 96% of patients had their ID confirmed before diagnostic tests and treatments. This includes visual verification and verbal confirmation using two identifiers.
4. Overall IPSG 1 Compliance – 96.4%- The overall compliance rate reflects strong institutional enforcement of IPSG 1, supported by barcode technology, training, and continuous audits.



Graph 1: IPSG 1 Compliance Indicators
- The high compliance rates reflect institutional commitment to safe patient identification practices.
- Most non-compliance was linked to missing wristbands or verbal confirmation without cross-verification.

Awareness Scores:

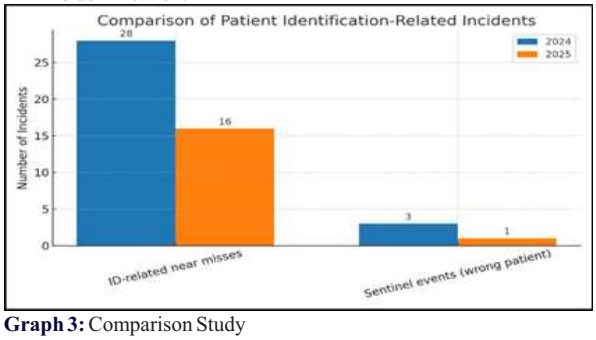
Structured knowledge and scenario-based questionnaires were administered to 150 healthcare workers (60 nurses, 50 doctors, and 40 technicians).



Graph 2: Staff Awareness Score
- 97% of staff accurately identified correct and incorrect methods of patient identification.
- In scenario-based questions, over 90% demonstrated appropriate clinical judgment when faced with case-based identification dilemmas-particularly in situations involving patients with similar names or missing ID bands.
- Awareness was highest among nurses (94%), followed by doctors (89%) and technicians (84%).

Incident Comparison (2024 vs. 2025):

A comparative analysis of incident reports showed
- A 43% reduction in identification-related near misses.
- A 66% decline in sentinel events involving patient misidentification.



Graph 3: Comparison Study

Semi-structured interviews were conducted with 150 healthcare professionals, Responses were grouped under four major themes: Awareness & Understanding, Challenges & Barriers, Systemic Support, and Recommendations

1. Awareness & Understanding:
- Most respondents were **aware that IPSG 1 requires the use of at least two unique patient identifiers** (e.g., name and UHID) before providing any treatment, test, or medication.
- All participants acknowledged **receiving structured training**, either during onboarding or through monthly safety sessions. However, a technician added: "I was trained when I joined, but no refreshers since. Some casual staff may miss this."

2. Challenges & Barriers: Several respondents mentioned operational constraints such as:
- Damaged or missing ID bands
- Time pressure during emergencies
- Over-reliance on memory or familiarity with regular patients. A nurse said "Sometimes patients remove their bands, or they fall

off, especially in night. It causes delay or confusion."

3. Systemic Support:

- A nurse noted: "Barcode scanners help a lot. Once we scan, it confirms everything. But not all units have working scanners."
- A doctor added: "The systems are good, but the problem is availability and consistency. Some areas don't have working scanners, or they are shared."

4. Recommendations:

Common suggestions included:

- Expand barcode technology to all wards and ensure proper maintenance.
- Frequent hands-on training, especially scenario-based refreshers.
- Visible reminders (e.g., posters, checklists) in high-pressure areas like ER and OTs.
- Include patient and family education, particularly for pediatrics and elderly patients.

DISCUSSION

The study outcomes reveal that patient identification protocols aligned with IPSG 1 have been successfully embedded into routine clinical workflows across Apollo Hospitals. The overall compliance rate of 96.4% reflects a strong institutional commitment to safety standards. Several factors contributed to this success, including regular staff education, proactive leadership support, and the deployment of barcode scanning systems for verification.

Nurses exhibited the highest awareness levels, which can be attributed to their consistent involvement in patient-facing activities and targeted training initiatives. The substantial reduction in misidentification-related events, including sentinel events, between 2024 and 2025 underscores the effectiveness of these quality improvement strategies. Incorporating IPSG 1 practices into routine procedures-such as during medication administration and patient handovers-has fostered greater accountability and vigilance among staff.

CONCLUSION

The integration of IPSG 1 standards has led to a marked improvement in the precision of patient identification practices across Apollo Hospitals. Through the strategic application of technology, structured staff education and regular performance monitoring, the healthcare system has enhanced the safety of its clinical environment and minimized preventable errors.

Measured outcomes, such as a 43% decline in identification-related incidents and increased staff competence, highlight the success of these initiatives. These findings reinforce the critical role of consistently applying IPSG 1 protocols in daily clinical operations to ensure patient safety and uphold high standards of care.

Recommendations

1. Maintain Regular Training Initiatives: Continue providing structured training and periodic refresher sessions to ensure all healthcare personnel remain proficient in IPSG 1 protocols.

2. Ensure Widespread Adoption of Barcode Technology: Standardize the use of barcode scanning systems in all patient care areas to support accurate and consistent identification practices.

3. Implement Routine Audits with Transparent Reporting: Conduct monthly compliance audits and share the results with clinical teams to promote accountability and continuous improvement.

4. Link Compliance to Staff Performance Metrics: Integrate IPSG 1 adherence indicators into individual performance appraisals to reinforce the importance of patient safety behaviors.

5. Strengthen Leadership Engagement: Encourage regular safety walk rounds by leadership teams to visibly support patient safety goals and promptly address systemic gaps.

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