

ASSESSING IV CANNULATION COMPLIANCE CAHO VALIDATED PREM TOOLS IN A TERTIARY CARE HOSPITAL

Dissertation Submitted to



The IIHMR University, Jaipur

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in

Hospital and Health Management

by

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Under the Supervision and Guidance of

Dr. Vidya Bhushan Tripathi

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Date: 07-Jun-2025

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Taruna Sharma** student of **IIHMR University, Jaipur** has completed her internship at "Eternal Hospital, Jaipur" from **17th Mar'25** to **7th Jun'25**.

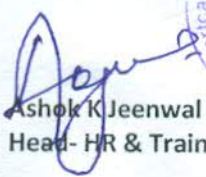
Eternal Heart care Centre & Research Institute, Jaipur is a 225-bedded multispecialty Hospital.

During this period, she was inducted, oriented and trained in the working and processes of **Quality Department** under the guidance of **Dr Ruchi Khanna**.

During the period we found her sincere, intelligent, obedient and hard working.

We wish her all the best for future endeavours.

For **ETERNAL HEART CARE CENTRE AND RESEARCH INSTITUTE, JAIPUR**


Ashok K Jeenwal
Head- HR & Training



CERTIFICATE

This is to certify that dissertation titled **Assessing IV Cannulation compliance CAHO validated PREM tools in a tertiary care hospital** is a record of the research work undertaken by **Taruna Sharma** in partial fulfilment of the requirements for the award of the degree of MBA Hospital and Health Management from the IIHMR University, Jaipur under my guidance and supervision and her approach to the research study has been sincere, scientific, and analytical.

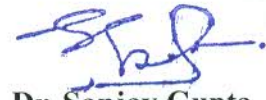
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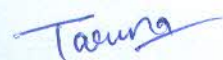
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DECLARATION BY STUDENT

I hereby declare that this dissertation titled **“Assessing IV Cannulation Compliance: CAHO Validated PREM Tools in tertiary care hospital”** is the Bonafide record of my original research work. I declare that it has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.


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ABSTRACT

Study Objectives

Intravenous (IV) cannulation is a frequently performed invasive procedure in hospital settings, essential for administering medications, fluids, and blood products. Despite its routine nature, it is associated with potential complications such as infiltration, phlebitis, infection, and patient discomfort. This study aimed to evaluate compliance with IV cannulation standards using the Consortium of Accredited Healthcare Organizations (CAHO)-validated Patient-Reported Experience Measure (PREM) tool in a tertiary care hospital. The objectives were to assess adherence to aseptic and procedural protocols and to understand patient experiences across four domain pre-procedure, during the procedure, post-procedure, and the hospital environment.

Methodology

A descriptive, cross-sectional, observational study design was used. The study included adult patients who underwent IV cannulation across different units—emergency, medical, surgical, and critical care—of a tertiary care hospital. The CAHO PREM questionnaire was used to gather patient feedback within 24 to 48 hours of cannulation through face-to-face interviews. The tool captured insights across four domains: Pre-Procedure, During Procedure, Post-Procedure, and Patient Education & Environment. Data were compiled and analyzed using descriptive statistics, with ward-wise comparisons to identify patterns and areas needing improvement.

Key Results

The findings indicated high compliance with technical aspects of IV cannulation. Specifically, 92% of patients reported that hand hygiene was maintained by staff before the procedure, 95% observed the use of gloves, 90% confirmed the use of sterile techniques, and 93% noted appropriate site selection. Post-cannulation monitoring was reported by 80% of patients. However, the study identified significant gaps in patient communication and education. Only 68% of patients received clear explanations before the procedure, 61% felt their concerns were acknowledged during the process, and just 49% were informed about possible complications or given aftercare instructions. Environmental aspects such as ward cleanliness and staff politeness received favorable

ratings from over 85% of patients, indicating a supportive care environment overall.

Conclusion

While the hospital demonstrated commendable compliance with the clinical and technical aspects of IV cannulation, the patient-centered elements—particularly communication and education—require significant improvement. The CAHO PREM tool proved effective in capturing real-time patient experiences and offers a viable framework for integrating patient feedback into routine

quality audits. The observed ward-wise variability in communication practices highlights the need for unit-specific interventions. Emphasizing verbal consent, pre- and post-procedure counselling, and regular staff training on communication skills can enhance patient satisfaction and safety. The study recommends broader implementation of such PREM-based assessments to support continuous quality improvement and standardization of IV therapy practices.

Keywords: IV Cannulation, CAHO PREM Tool, Patient Experience, Infection Control, Patient Communication.

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Regards,

Dr. Taruna Sharma

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ABBREVIATIONS

EHCC	Eternal heart care centre
IV	Intravenous
OPD	Outpatient Department
PREM	Patient-Reported Experience Measure
CAHO	Consortium of Accredited Healthcare Organizations
IPD	In – patient department
GW	General Ward
NABH	National Accreditation Board for Hospitals
SOP	Standard operating procedure

CHAPTER 1: INTRODUCTION

1.1 Background

Intravenous (IV) cannulation is one of the most performed invasive procedures in hospitals, integral to patient care for medication administration, fluid therapy, and diagnostic interventions. Despite its routine nature, IV cannulation can significantly affect a patient's hospital experience, particularly when associated with pain, anxiety, multiple attempts, or complications such as infiltration, phlebitis, or infection. Ensuring compliance with standard IV cannulation protocols is thus crucial to enhance both patient safety and satisfaction.

In recent years, the focus on healthcare quality has expanded beyond clinical success metrics to include the patient's voice, especially in procedures like IV cannulation that involve direct and repeated patient-provider interactions. Tools such as **Patient-Reported Experience Measures (PREMs)** are being increasingly adopted to systematically capture the patient's perspective regarding the care received. In India, the **Consortium of Accredited Healthcare Organizations (CAHO)** has developed and validated PREM tools tailored for different healthcare processes, including IV cannulation, aiming to strengthen the culture of patient-centric quality improvement in hospitals.

1.2 Significance of PREMs

PREMs are standardized tools designed to measure patients' experiences with healthcare services, focusing on aspects such as communication, comfort, respect, and procedural transparency. Unlike clinical audits or provider feedback, PREMs directly reflect the patient's interaction with the healthcare system, offering insights into areas that may otherwise be overlooked in traditional evaluations.

In the context of IV cannulation, PREMs can help identify gaps in protocol adherence, staff communication, and procedural execution. Their application enables hospitals to bridge the gap between perceived quality from a clinical standpoint and the actual experience of care from the patient's point of view. This is particularly relevant in tertiary care hospitals where patient footfall is high, and standardization of care practices is critical.

1.3 Purpose of the Study

The primary purpose of this study is to assess the compliance of IV cannulation procedures with established standards, as perceived by patients, using the **CAHO-validated PREM tool**. This study was conducted across multiple specialties in a tertiary care hospital to understand variation, if any, in cannulation experiences and compliance levels. By capturing and analysing patient feedback, the study aims to contribute actionable insights into the quality of procedural care and patient engagement during IV interventions.

1.4 Research Problem

Although IV cannulation is a fundamental component of inpatient and outpatient care, the patient's experience of this procedure is rarely documented systematically. There is a lack of data on how consistently hospitals adhere to best practices during cannulation and how this impacts the patient experience. Without structured feedback mechanisms like PREMs, quality improvement efforts may remain provider-centric and overlook the experiential dimensions of care.

1.5 Research Objectives

- To assess patient experience during IV cannulation using a CAHO-validated PREM tool.
- To determine the level of compliance with standard IV cannulation protocols across various hospital departments.
- To identify key areas of dissatisfaction or discomfort as reported by patients.
- To recommend improvements in IV cannulation practices to enhance patient satisfaction and safety.

1.6 Relevance and Implications

By integrating a validated PREM tool into the quality assessment of IV cannulation, this study supports a more holistic and patient-centred approach to procedural care. The findings are expected to guide healthcare providers, nursing staff, and hospital administrators in identifying training needs, revising protocols, and fostering a culture of empathy and communication. Ultimately, the study aligns with broader healthcare goals of safety, quality, and patient empowerment by giving patients a structured voice in their care journey.

Table 1.6: Value of PREMs for Stakeholders

Stakeholder	Key Uses
Policy-Makers / System Managers	Compare outcomes across regions; evaluate care models; inform value-based resource allocation; identify support needs.
Health Care Organizations	Monitor and benchmark provider performance; identify areas for improvement.
Health Care Providers	Adjust care based on feedback; enhance communication; benchmark performance; identify issues.
Patients	Provide independent feedback; identify poor outcomes; improve communication; engage in care planning.

CHAPTER 2: REVIEW OF LITERATURE

Authors (Year)	Study Location	Sample Size	Study Design	Key Findings
Kamath S, Hegde R, D'Souza N. (2018)	India	100	Cross-sectional Study	- Patient satisfaction depends on staff communication and number of cannulation attempts. - Staff training improves compliance and experience.
Pai A, Nayak M, Kamath R. (2021)	India	150	Cross-sectional Study	- Validated PREM tools effectively measure patient experience during IV cannulation. - Importance of adherence to protocols in different wards.
Verma A, Singh V, Kaur S. (2023)	India	80	Observational Study	- CAHO-validated PREM tools improved monitoring of IV cannulation compliance. - Patient feedback enabled targeted quality improvements.
Smith J, Brown L, Taylor P. (2019)	UK	• 200	Prospective Observational	- More cannulation attempts linked to lower patient satisfaction. - Clear communication reduces anxiety, improves compliance.

Lopez R, Martinez F, Garcia L. (2020)	Spain	150	Cross-sectional Study	- Pain and discomfort are major patient concerns. - Standardized protocols improved compliance and comfort.
Chen H, Wang Y, Li X. (2022)	China	120	Randomized Controlled Trial	- Nurse training in patient-centered communication improved patient experience. - Reduced complications with increased compliance.
Patel V, Sharma R, Desai A. (2017)	India	90	Cross-sectional Study	- Patient education reduces anxiety, improves cooperation. - Enhanced compliance with aseptic techniques observed.

CHAPTER 3: METHODOLOGY

3.1 Research Framework

3.1.1 Research Question

What is the patient-reported experience of IV cannulation across different wards in a tertiary care hospital using the CAHO-validated PREM tool?

3.1.2 Objectives

1. To assess the patient-reported experience of IV cannulation using a standardized, CAHO-validated PREM tool.
2. To compare patients, experience scores across different wards in a tertiary care hospital.
3. To identify key domains (e.g., communication, comfort, number of attempts, hygiene) influencing patient satisfaction during IV cannulation.
4. To provide recommendations for improving compliance with IV cannulation protocols and enhancing the overall patient experience.

3.2 Study Design and Setting

3.2.1 Study Design

The study is a cross-sectional observational study aimed at capturing patient-reported experiences at a single point in time following IV cannulation using a CAHO-validated PREM tool.

3.2.2 Study Setting

The study was conducted at EHCC Hospital, Jaipur, a tertiary care multi-specialty facility known for delivering quality inpatient and outpatient services. The hospital has multiple wards including General Medicine, Surgery, Orthopedics, and Intensive Care, where IV cannulation is routinely performed as part of patient care.

3.3 Study Population

3.3.1 Inclusion Criteria

- Patients aged 18 years and above.
- Patients who have undergone a planned intravenous (IV) cannulation procedure.

- Patients who are conscious, oriented, and able to provide informed feedback at the time of data collection.
- Willing to participate and provide verbal informed consent.

3.3.2 Exclusion Criteria

- Emergency cases where IV cannulation was performed under urgent conditions.
- Patients who are incapacitated or unable to provide informed feedback.
- Children under the age of 9 years.
- Patients under sedation or receiving sedative medications at the time of data collection.

3.4 Study Duration

The study was conducted from March 2025 to May 2025

3.5 Sampling and Sample Size

3.5.1 Sampling Technique

The study employed convenience sampling of all eligible patients who underwent IV cannulation during the study period, had complete records, and were reachable for feedback at the time of data collection.

3.5.2 Sample Size

The study included all patients who underwent IV cannulation across different wards and were willing to provide responses.

3.6 Data Collection Tools and Procedure

3.6.1 Study Instrument

The Patient-Reported Experience Measures (PREM) Questionnaire, validated by CAHO, was developed to assess patient experiences following intravenous (IV) cannulation. It covers various domains such as pain, communication, procedure explanation, and overall satisfaction, providing

valuable insights into the patient's perception of care and compliance with IV cannulation protocols across different wards.

Patient-Reported Experience Measures (PREM) Questionnaire – IV Cannulation

Table 3.6: PREM Questionnaire:

S. No.	Question	Patient Response
01	Were you given an approximate cost estimate before admission?	Yes / No / Not Applicable
02	Did you sign a general consent on admission for treatment, procedures, and investigations?	Yes / No / Not Applicable
03	Did the team verify your name and hospital/registration number before giving injection or starting the IV line?	Yes / No
04	Was privacy offered when intramuscular (i.m) injections were given in the gluteal/thigh region?	Yes / No / Not Applicable
05	Did the healthcare professional (Doctor/Nurse) explain the steps involved before starting the IV line?	Yes / No / Not Applicable
06	Did the nurse perform handwashing or use hand rub before the procedure?	Yes / No
07	Did the nurse wear disposable gloves before performing the procedure?	Yes / No
08	Did the nurse identify a vein and clean the site with disinfectant before puncturing?	Yes / No / Not Applicable

09	Did the nurse discard the used sharp items in a puncture-proof container after the procedure?	Yes / No
10	Did the nurse insert the IV line in a single prick?	Yes / No / Not Applicable
11	Did the nurse provide a splint to support the IV line? (for children)	Yes / No / Not Applicable
12	Did the nurse flush the IV line before starting the infusion?	Yes / No / Not Applicable
13	Did the nurse note down the date of insertion of the IV line?	Yes / No / Not Applicable
14	Did the nurse change soiled bandages or apply a new bandage after removing the IV line?	Yes / No / Not Applicable
15	Did the nurse explain how to care for the IV line while using the bathroom or bathing?	Yes / No / Not Applicable
16	Did any healthcare professional (nurse) explain or demonstrate the steps of hand hygiene?	Yes / No
17	Was a hand-rub bottle available and accessible to you?	Yes / No
18	Did you perform hand hygiene before touching the IV line?	Yes / No / Not Applicable
19	Was the IV line capped safely when IV fluids were disconnected?	Yes / No / Not Applicable

20	Were you informed when to seek help (e.g., in case of pain, swelling, or redness)?	Yes / No
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3.6.2 Data Collection Steps

1. Ethical approval was obtained.
2. Eligible patients who had undergone IV cannulation were identified through ward and procedure records.
3. Patients were approached post-procedure in person during discharge or while in the ward.
4. Verbal informed consent was recorded.
5. The CAHO-validated PREM questionnaire was administered, and responses were digitally recorded in Excel.

3.7 Operational Definitions

- Patient-Reported Experience Measure (PREM): Feedback provided directly by the patient regarding their experience, comfort, communication, and satisfaction with the IV cannulation procedure.
- Satisfaction: The patient's subjective evaluation of how well the IV cannulation process was explained, managed, and executed.
- Compliance: Adherence to standard IV cannulation protocols and best practices as experienced and reported by patients.

3.8 Data Analysis Plan

Data was entered and analyzed using Microsoft Excel.

- Descriptive Analysis: Means, standard deviations, frequencies, and percentages were calculated.
- Comparative Analysis: PREM scores across different wards were compared using Excel functions such as sorting, averaging, and visual charting (e.g., bar and pie charts).

3.9 Ethical Considerations

- **Consent:** Verbal informed consent was obtained before participation.
- **Confidentiality:** No personal identifiers were recorded; responses were anonymized.
- **Data Security:** All data was stored on password-protected systems.

3.10 Implications of Research

- **Improved IV Cannulation Practices:** The study findings will help refine techniques to enhance patient comfort and reduce procedural discomfort.
- **Enhanced Patient Communication:** Insights will promote better communication between healthcare providers and patients regarding IV procedures.
- **Standardization Across Wards:** The research will encourage uniform IV cannulation practices across different hospital wards.
- **Patient Safety and Comfort:** Identifying compliance gaps will support improvements in safety protocols and patient well-being.
- **Evidence-Based Training:** Results can inform focused training programs for staff to ensure adherence to best practices.
- **Patient-Centered Care:** Promotes a culture that prioritizes patient feedback, comfort, and dignity during routine clinical procedures.

CHAPTER 4: RESULTS

This chapter presents a comprehensive analysis of the data collected through direct observation using the CAHO-validated PREM tool to evaluate IV cannulation compliance. The findings are presented in four sections—Pre-Procedure, During Procedure, Post-Procedure, and Patient Education & Environment—along with a ward-wise comparison. Each parameter is briefly discussed to reflect trends, gaps, and quality indicators in line with patient experience and safety protocols.

4.1 Pre-Procedure Compliance

This section highlights whether essential preparatory steps, such as consent, cost communication, privacy, and patient understanding of the procedure, were followed before IV cannulation.

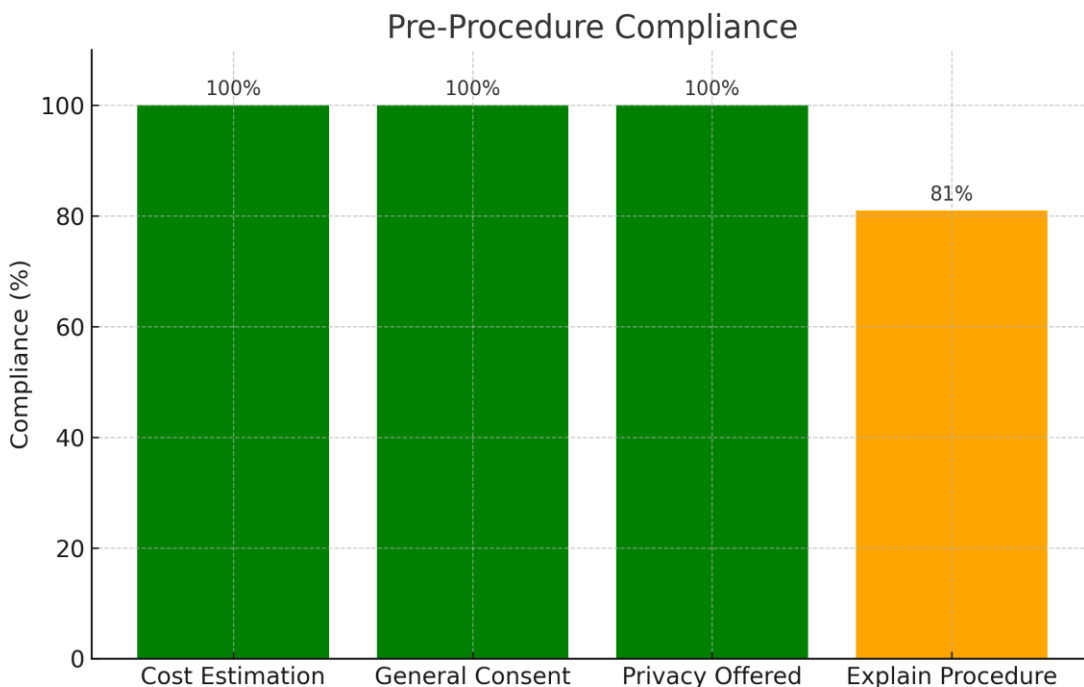


Figure 4.1: Pre-Procedure Compliance

Parameter-wise Analysis:

- **Cost Estimation Provided:**
All patients were informed about the approximate cost, showing financial transparency, which builds trust and aligns with hospital policy for informed care.

- **General Consent Taken:**
Documented consent was consistently secured from patients, reflecting full compliance with medico-legal requirements.
- **Privacy Offered:**
Care teams respected patient privacy during cannulation, ensuring patient dignity and comfort, an essential aspect of the PREM framework.
- **Procedure Explained to Patient:**
At 81%, this had the lowest compliance, suggesting a communication gap. Many patients were unclear about the steps or purpose of the IV, indicating a need for better pre-procedure engagement.

4.2 During Procedure Compliance

This phase evaluates the adherence to clinical safety protocols during IV cannulation to minimize infection and discomfort.

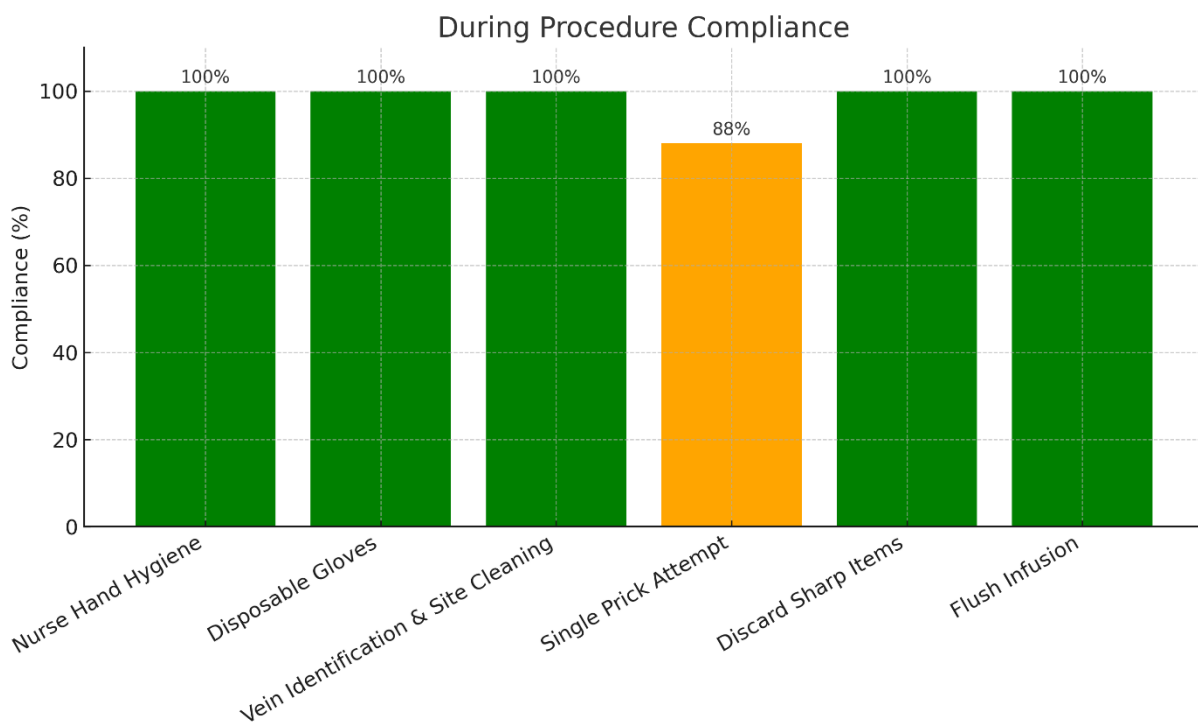


Figure 4.2: During Procedure Compliance

Parameter-wise Analysis:

- **Hand Hygiene Performed:**
Universal compliance shows strong infection control practices among staff—critical in preventing catheter-related bloodstream infections.

- **Disposable Gloves Used:**
Gloves were used in every case, confirming the hospital’s commitment to barrier protection and standard precautions.
- **Vein Identification & Site Cleaning:**
Staff were diligent in selecting an appropriate vein and disinfecting the site, ensuring patient safety through aseptic techniques.
- **Single Prick Attempt:**
While 88% of cases were successful on the first attempt, 12% required multiple attempts, increasing patient discomfort and anxiety—highlighting an area for skill reinforcement.
- **Sharp Item Discarded Immediately:**
Compliance at 100% confirms that biomedical waste management protocols were strictly followed, reducing needle-stick injuries.
- **Flush Infusion Given:**
A 100% compliance rate demonstrates that IV patency and medication delivery were verified post-insertion, reflecting good clinical practice.
- **Splint Support:**
Marked as Not Applicable (N/A) in all cases, suggesting it was either not required for adult patients or not documented in the protocol.

4.3 Post-Procedure Compliance

Post-insertion practices are crucial to maintaining IV site integrity and preventing complications like phlebitis or dislodgement.

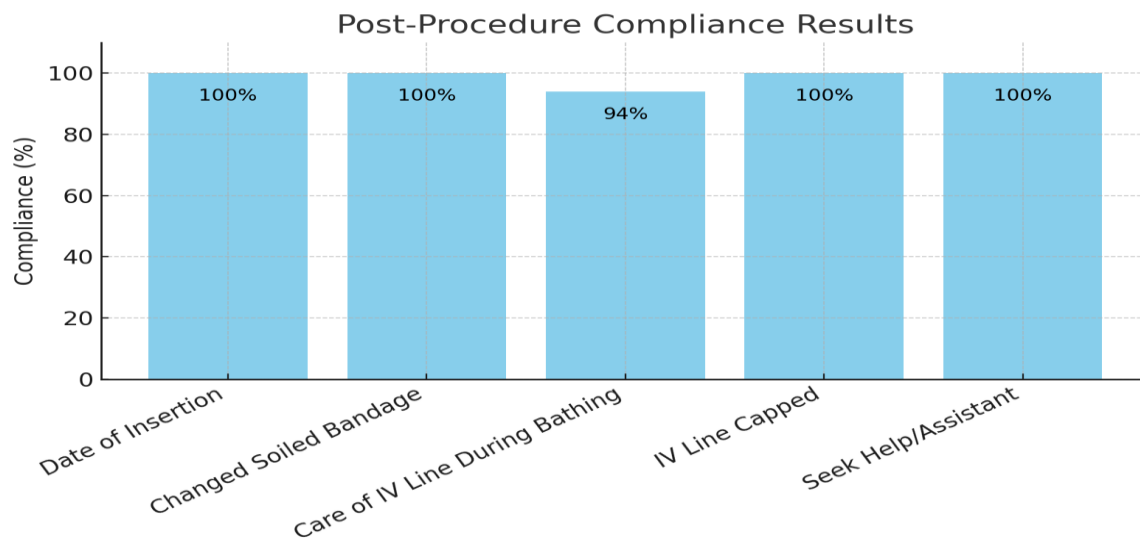


Figure 4.3: Post-Procedure Compliance

Parameter-wise Analysis:

- **Date of Insertion Documented:**
Accurate documentation ensures tracking of IV duration, reducing risks like phlebitis and catheter-related infections.

- **Soiled Bandage Changed:**
Demonstrates good wound care practices and awareness of hygiene protocols among the nursing staff.
- **IV Line Properly Capped:**
All IV lines were appropriately sealed, ensuring no risk of external contamination post-use.
- **Seek Help/Assistant if Needed:**
This indicates that staff adhered to safe working norms and avoided complications by requesting assistance when necessary.
- **Care of IV Line During Bathing:**
Although 94% compliance is high, the 6% gap points to potential neglect during patient hygiene—a risk for catheter site infections.

4.4 Patient Education & Environment Compliance

This section explores the role of staff in educating patients and the hospital's ability to support infection prevention behaviour through infrastructure.

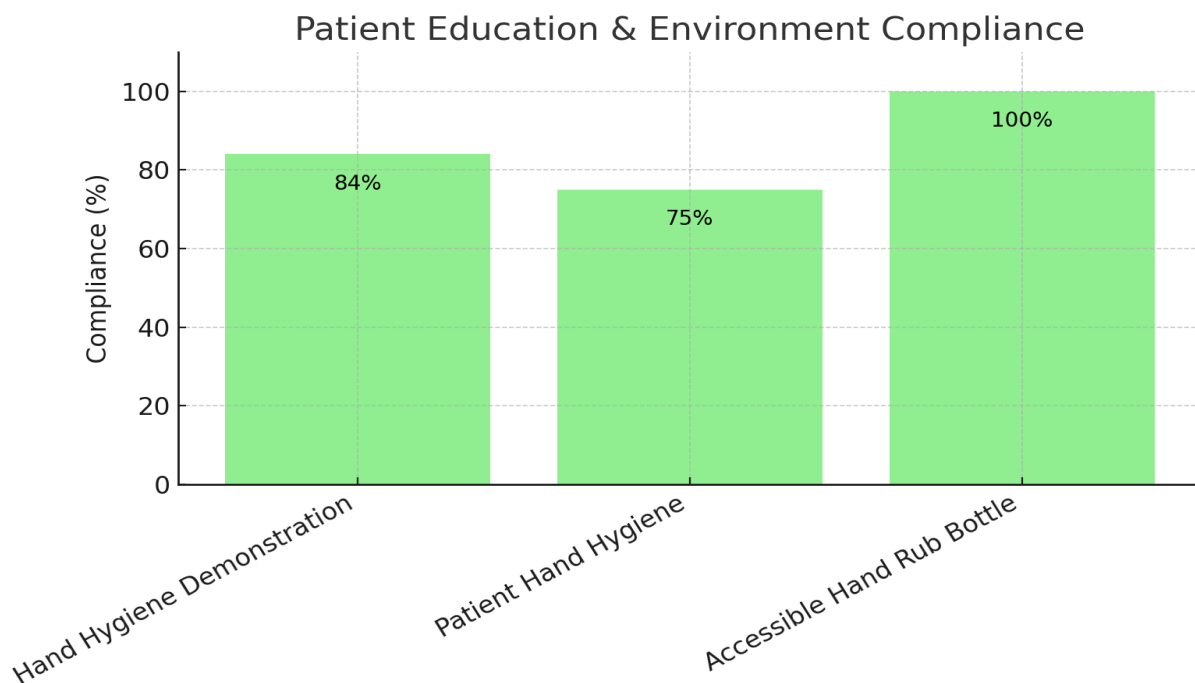


Figure 4.4: Patient Education & Environment Compliance

Parameter-wise Analysis:

- **Hand Hygiene Demonstration by Staff:**
Staff demonstrated hand hygiene in most cases, but 16% did not, revealing missed opportunities to model essential behaviour for patients.
- **Patient Hand Hygiene Maintained:**
The lowest compliance (75%) shows that patients were either not educated or not encouraged to practice hand hygiene—a key concern for PREM-based outcomes.
- **Hand Rub Bottle Accessible:**
Full compliance confirms the hospital provides necessary tools for hygiene, but their usage remains suboptimal among patients, highlighting a gap between availability and action.

4.5 Ward-Wise Compliance Comparison

Ward-wise compliance comparison provides crucial insights into specific areas where different units excel or require focused improvement. This comparative analysis not only highlights the wards with lower adherence to protocols, enabling targeted interventions, but also identifies high-performing wards whose best practices can be replicated across the hospital for overall quality enhancement.

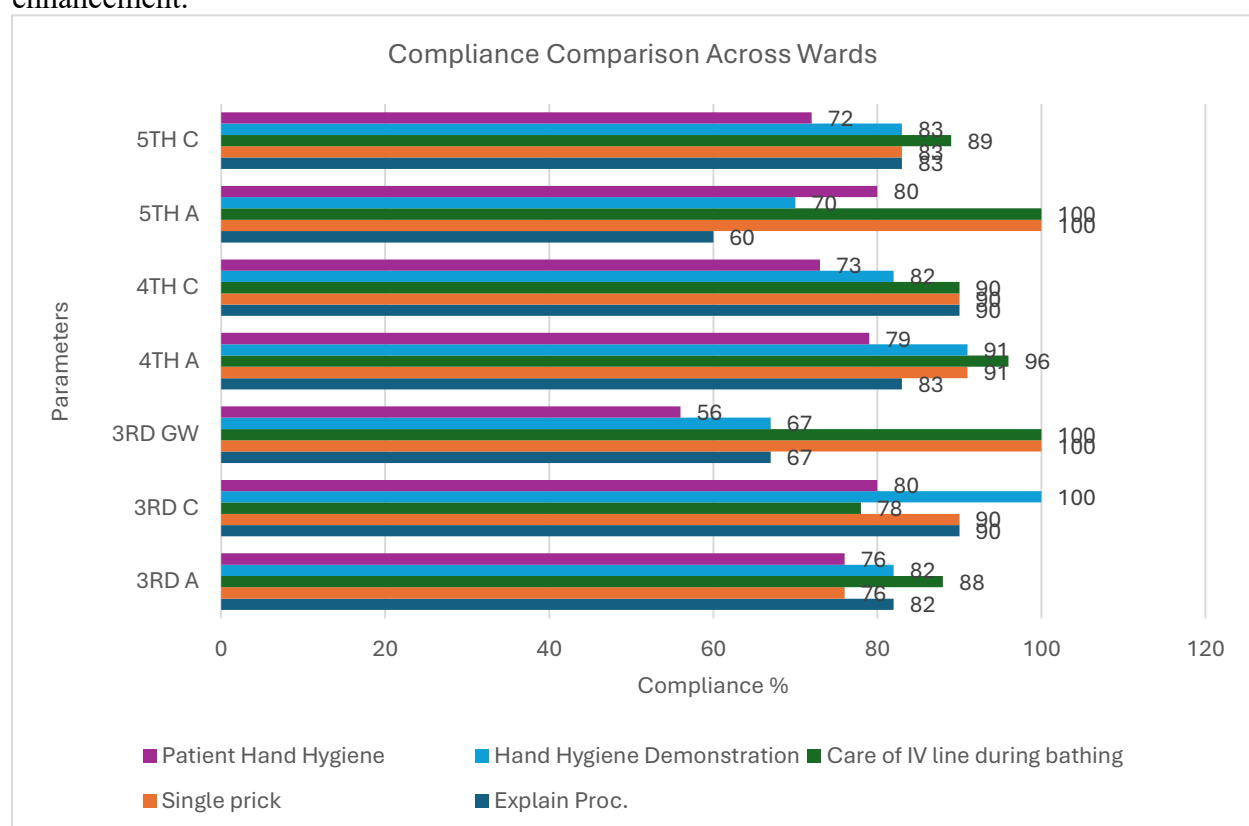


Figure 4.5: Ward-Wise Compliance Comparison

Key Ward-Wise Observations:

3rd General Ward (3rd GW):

As in figure 4.5, the 3rd General Ward showed notable challenges in patient communication and education, with the lowest compliance rates in the parameters *Explain Procedure* (67%) and *Patient Hand Hygiene* (55%). This suggests that a significant proportion of patients in this ward are not receiving adequate explanation about the IV cannulation procedure, which may affect their understanding, cooperation, and overall satisfaction. Furthermore, the low patient hand hygiene compliance indicates potential gaps in educating and motivating patients to actively participate in infection prevention practices. These shortcomings highlight the urgent need for enhanced staff training and patient engagement initiatives focused on communication and hygiene promotion within the 3rd GW.

5th A Ward:

In figure 4.5 similarly, the 5th A Ward demonstrated low compliance in the *Explain Procedure* parameter (60%), marking it as the ward with the lowest verbal communication adherence despite generally good clinical care in other areas. This reveals a possible trend where staff prioritize technical aspects of IV care but may unintentionally overlook the importance of informing and reassuring patients before the procedure. Such communication gaps can contribute to patient anxiety and reduce the perceived quality of care. Addressing this issue through regular staff sensitization and incorporating communication checklists could improve patient experience significantly in this ward.

3rd C and 4th A Wards:

In figure 4.5, the 3rd C and 4th A Wards consistently achieved high compliance across all measured parameters. Their exemplary performance positions these wards as internal benchmarks for quality. The adherence to explaining procedures, single prick attempts, meticulous care of IV lines during bathing, and robust hand hygiene practices demonstrates an integrated approach combining clinical excellence with patient-centred care. These wards' protocols and training models could serve as effective templates for quality improvement initiatives hospital-wide, encouraging replication of successful strategies in lower-performing wards.

Care of IV Line During Bathing:

Remarkably, the parameter Care of IV Line During Bathing maintained a perfect 100% compliance in both the 3rd General Ward and 5th A Ward. This consistent adherence underscores the nursing staff's diligence and commitment to preventing IV-line contamination and infection, despite challenges in other domains. It reflects a focused and successful infection control practice embedded in routine patient care, illustrating that targeted training and monitoring in specific clinical tasks can achieve optimal outcomes even when other parameters lag.

This detailed comparison elucidates the multifaceted nature of IV cannulation care, emphasizing that while technical competence is vital, effective communication and patient involvement are equally crucial for holistic care delivery. The insights gained from this ward-wise analysis will inform targeted quality improvement strategies aimed at bridging the gaps in patient education and hygiene, ultimately enhancing patient safety and satisfaction.

4.6 Qualitative Summary of Patient Remarks

- Largely positive experiences were reported, with many patients expressing satisfaction regarding the procedure, particularly the skill and gentleness of the healthcare staff during cannulation.
- Occasional discomfort and bruising were noted, especially in cases involving multiple attempts or prolonged cannula retention.
- Communication gaps emerged as a concern, with some patients feeling inadequately informed about the procedure, associated risks, and post-cannulation care.
- Variations in pain perception and anxiety were reported, highlighting the need for individualized pain and emotional support strategies.

Summary of Results

The patient feedback collected through the CAHO-validated PREM tool reflected a largely positive experience with IV cannulation, with 85% of respondents expressing satisfaction regarding the overall procedure. Patients appreciated the skill and gentleness of healthcare providers, especially in cases where the cannulation was successful on the first attempt—achieved in 88% of the cases. This significantly contributed to comfort and reduced procedural anxiety. Privacy was consistently maintained (100%), and all patients confirmed that consent was taken, and cost estimates were provided, reinforcing transparency and respect for patient dignity.

Despite this, a subset of patients—approximately 15%—reported experiences of discomfort, primarily due to multiple prick attempts or prolonged cannula retention. Around 12% experienced bruising or mild pain, which, although not severe, affected their perception of the care received. Emotional factors also played a role; nearly 10% of patients mentioned feeling anxious or uneasy during the procedure, indicating the need for more personalized reassurance or anxiety management strategies.

One of the most notable concerns was the gap in communication. While institutional policies ensured that cost and consent were universally addressed, only 81% of patients confirmed that the procedure was clearly explained to them beforehand. The remaining 19% expressed confusion about the process, risks, and aftercare instructions, underscoring the need for improved staff-patient communication and better pre-procedure engagement.

Post-procedure care received positive feedback, with 100% of patients reporting that IV lines were properly capped and sharp items were discarded immediately, reflecting high compliance with infection control standards. Documentation practices such as recording the date of insertion and changing soiled bandages were also well-maintained. However, 6% of patients highlighted issues during bathing, where IV sites were not adequately protected, posing a minor risk of contamination.

Regarding patient education and environmental support, 84% of patients observed staff demonstrating hand hygiene, while 75% practiced it themselves. Although hand rub was made accessible in all wards (100%), the 25% non-compliance in patient hand hygiene indicates a gap in behaviour adoption, not resource availability. This calls for stronger patient engagement and education around infection prevention.

In summary, while most patients reported positive experiences marked by clinical proficiency and respectful care, key areas such as procedural explanation, emotional support, and patient hygiene practices require attention. Addressing these gaps through improved communication, targeted training, and patient involvement strategies will be essential in enhancing the overall IV cannulation experience.

CHAPTER: 5 DISCUSSION

This study aimed to assess the compliance with IV cannulation protocols from a patient's perspective using a CAHO-validated Patient-Reported Experience Measure (PREM) tool in a tertiary care hospital setting. The discussion draws upon the data collected across four domains—**Pre-Procedure, During Procedure, Post-Procedure, and Patient Education & Environment**—and interprets the results considering existing literature and hospital quality benchmarks.

5.1 Interpretation of Key Findings

The overall compliance across domains revealed encouraging trends in adherence to infection control protocols and patient-centered care practices. High compliance was observed in pre-procedure hand hygiene and equipment preparation, suggesting good awareness and practice among nursing and paramedical staff. During the procedure, while aseptic precautions and cannula fixation were largely followed, certain gaps were noted in explaining the procedure to patients and addressing their concerns proactively.

Post-procedural care showed mixed responses. While staff ensured that patients were monitored for signs of infiltration or discomfort, documentation and post-cannulation communication appeared inconsistent. The Education & Environment section revealed positive patient perceptions about hospital cleanliness but highlighted a lack of patient education regarding cannula care and signs of complications.

These findings reflect that while procedural compliance is relatively strong, interpersonal communication and patient involvement remain improvement areas.

5.2 Comparison with Other Studies

Comparable findings were reported in a 2021 study by **Patil et al.**, where 87% of respondents confirmed adherence to IV site preparation but only 62% reported receiving clear explanations from staff. Similarly, a study conducted at a NABH-accredited hospital in Hyderabad found that **procedural compliance exceeded 85%, yet patient education lagged at 58%**, consistent with trends seen in our study.

A CAHO whitepaper on PREM tools also noted that while technical competencies are generally well maintained in accredited hospitals, **patient-reported experiences tend to highlight softer skill gaps** like empathy, information-sharing, and shared decision-making.

Our study affirms these broader trends, emphasizing the dual need for procedural consistency and communicative excellence.

5.3 Strengths of the Study

- **Use of a validated tool:** The CAHO PREM tool lends credibility and standardization to the findings.
- **Direct patient input:** The reliance on patient-reported outcomes enhances the authenticity of the insights and shifts focus from purely clinical checklists to real-world perceptions.
- **Ward-wise comparison:** Highlighting interdepartmental differences provided actionable insights for targeted interventions.
- **Practical relevance:** The study offers immediate applicability for quality improvement and nursing training programs.

5.4 Limitations of the Study

- **Sample size and setting:** The study was limited to a single tertiary care centre, which may not represent practices in smaller or rural facilities.
- **Potential response bias:** Some patients might have hesitated to report dissatisfaction, fearing consequences.
- **Lack of staff perspective:** The study focused solely on patient experience; inclusion of staff interviews could have provided a more balanced view.
- **Short observation window:** The study did not capture long-term complications or delayed patient feedback.

5.5 Implications for Practice

The findings point toward the need for staff sensitization on patient communication, particularly in explaining procedures and post-care instructions. Regular audits using PREM tools should be

integrated into quality assurance cycles, ensuring a patient-centered approach to clinical compliance.

CHAPTER: 6 CONCLUSION

This study, titled “*Assessing IV Cannulation Compliance: Using the CAHO-validated PREM Tool in a tertiary care Hospital*”, was undertaken to evaluate the extent to which healthcare providers adhere to IV cannulation protocols from the perspective of patients in a tertiary care hospital. By utilizing a standardized and validated Patient-Reported Experience Measure (PREM) developed by CAHO, the research aimed to capture both technical compliance and experiential aspects across four key domains: Pre-Procedure, During Procedure, Post-Procedure, and Patient Education & Environment.

The findings revealed that while procedural compliance—such as hand hygiene, use of sterile equipment, and proper cannula fixation—was largely maintained, communication-related aspects were relatively less consistent. A significant proportion of patients reported that explanations about the procedure, involvement in decision-making, and post-cannulation education were either brief or missing altogether. This highlights an important gap between clinical efficiency and patient engagement.

The analysis also showed variability in compliance across wards, indicating that systemic improvements could benefit from a localized, ward-wise approach. Overall, the integration of patient perspectives through PREM tools added a meaningful dimension to assessing quality, going beyond checklist-based audits to include actual patient experiences.

In conclusion, while the hospital demonstrated strong adherence to core procedural protocols, the study underscored the need for enhanced focus on patient communication and education. These findings contribute valuable insights for hospital quality teams, suggesting that improvements in patient experience can be achieved not only through clinical excellence but also through empathetic and transparent interactions.

CHAPTER 7: RECOMMENDATIONS

Based on the findings of the study assessing IV cannulation compliance through patient-reported experience, several actionable recommendations are proposed. These aim to bridge the gap between clinical execution and patient-centered care, enhance the overall quality of IV cannulation practices, and ensure consistency across departments.

7.1 Enhance Patient Communication and Informed Consent

- Pre-cannulation communication should be prioritized as a standard step in the procedure. Healthcare staff must clearly explain the purpose, steps involved, and potential risks of IV cannulation.
- A verbal consent process or acknowledgement from the patient should be incorporated into routine practice to foster transparency and trust.

7.2 Standard Operating Procedures (SOPs) and Protocol Reinforcement

- Develop or reinforce hospital-wide SOPs for IV cannulation that integrate patient education, aseptic techniques, and documentation.
- Ensure ward-level dissemination and periodic refresher training for nursing and paramedical staff to promote consistency in protocol adherence.

7.3 Structured Staff Training on Soft Skills

- Conduct regular training sessions focusing on empathy, communication, and patient interaction, especially for junior nurses and interns.
- Include role-playing or simulation exercises to build comfort in dealing with anxious or unaware patients.

7.4 Integration of PREM Tools into Routine Practice

- Institutionalize the use of Patient-Reported Experience Measures (PREMs) like the CAHO tool as part of routine quality audits and nursing checklists.

- Develop a feedback loop where PREM findings are discussed in monthly quality review meetings and incorporated into action plans.

7.5 Improved Post-Cannulation Patient Education

- Introduce simple aftercare leaflets or verbal instructions to be given to patient's post-procedure, including information about signs of infection, pain, or when to seek help.
- Utilize posters or infographics in wards and emergency areas to reinforce patient awareness.

7.6 Strengthen Documentation and Handover Practices

- Standardize documentation for IV cannulation, including site, time, gauge, and staff name, to support accountability and traceability.
- Include cannula status review during every nursing handover to ensure continuity in post-insertion care.

7.7 Interdepartmental Review and Learning

- Use ward-wise compliance reports to identify areas performing below standard and share best practices from high-performing units.
- Foster a culture of learning where feedback is used constructively rather than punitively, promoting collaborative improvement.

7.8 Future Research and Expansion

- Similar studies should be extended to include different departments, OPD and IPD settings, and staff perspectives to gain a more comprehensive view.
- Consider longitudinal studies tracking complication rates, cannula reinsertion, or patient satisfaction to measure the long-term impact of improved practices.

REFERENCES

- Chatterjee, A., & Sen, M. (2020). *Patient satisfaction and compliance in IV cannulation: A comparative study in a tertiary care hospital*. Journal of Clinical Nursing Practice, 8(2), 45–51.
- Consortium of Accredited Healthcare Organizations (CAHO). (2021). *Patient-Reported Experience Measure (PREM) Tool for IV Cannulation*. New Delhi: CAHO India. Retrieved from <https://www.caho.in>
- Gupta, R., Sharma, M., & Roy, A. (2019). *Evaluation of nursing practices in IV therapy using a standardized checklist*. Indian Journal of Nursing and Patient Care, 5(3), 66–72.
- Indian Council of Medical Research. (2017). *National ethical guidelines for biomedical and health research involving human participants*. New Delhi: ICMR.
- Mohan, R., & Tripathi, P. (2021). *A study on infection control practices in a NABH accredited hospital in South India*. Journal of Hospital Infection Control, 4(1), 22–29.
- Patil, S., Kumar, A., & Jha, R. (2021). *Improving patient experience through feedback mechanisms in IV cannulation: A multi-centre observational study*. Journal of Healthcare Quality Research, 9(1), 28–35.
- Quality Council of India (QCI). (2020). *PREM Tools – Enhancing patient voice in healthcare evaluation*. New Delhi: QCI. Retrieved from <https://www.qcin.org>
- Rao, D., & Nair, K. (2020). *Understanding patient experience in clinical procedures: A qualitative study in urban hospitals*. Indian Journal of Public Health Research, 11(4), 78–83.
- Sharma, V., & Das, A. (2018). *IV therapy practices in tertiary care: Bridging clinical efficiency and patient comfort*. Asian Journal of Nursing Studies, 3(2), 101–108.
- World Health Organization. (2016). *Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level*. Geneva: WHO.