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Frontiers of Health Innovations and Medical Advances

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# Effectiveness of Structured Teaching on Catheter-Associated Urinary Tract Infection (CAUTI) Prevention among Nurses at NMCH

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## Articalinfo

**Article history:** Received 22 June 2025, Revised 18 Aug 2025, Accepted 20 Aug 2025, Published Sept 2025

**Keywords:** Structured teaching program, catheter-associated urinary tract infection, indwelling catheter, staff nurses, NMCH

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**Citation:** Kant Krishna, Kumar Raju, Tiwari Vivek, Kumari Rajlaxmi, Gupta Shivanand, Patel Sajjan, Latha. 2025. Effectiveness of Structured Teaching on Catheter-Associated Urinary Tract Infection (CAUTI) Prevention among Nurses at NMCH, Frontiers of Health Innovations and Medical Advances.1,1,1-6.  
<https://doi.org/10.1000/002>

**Publisher:** Curecita Research Pvt Ltd

## Abstract

Catheter-Associated Urinary Tract Infection (CAUTI) is one of the most prevalent and preventable healthcare-associated infections (HAIs), posing a serious challenge to patient safety worldwide. Urinary tract infections (UTIs) linked to indwelling catheter use account for approximately 40% of all hospital-acquired infections (CDC, 2019). The risk of developing CAUTI increases significantly with the duration of catheterization, improper insertion techniques, lack of hand hygiene, and non-compliance with catheter care protocols. Indwelling urinary catheters are frequently used in hospitals to manage acute urinary retention, during surgery, or for critically ill patients.

## Introduction

CAUTIs are one of the most common HAIs, with an estimated 62,700 UTIs in



acute care hospitals in 2015. About 75% of UTIs developed in hospitals are associated with a urinary catheter. 15-25% of hospitalized patients use urinary catheters. CAUTIs are associated with increased morbidity, mortality, healthcare costs, and length of stay (Berman et al., 2022). All healthcare-associated UTIs are caused by instrumentation of the urinary tract. UTIs are common infections that happen when bacteria, often from the skin or rectum, enter the urethra and infect the urinary tract (Black, al., 2021). The infections can affect several parts of the urinary tract, but the most common type is a bladder infection (cystitis). Catheter-Associated Urinary Tract Infection (CAUTI) is one of the most prevalent and preventable healthcare-associated infections (HAIs), posing a serious challenge to patient safety worldwide. Urinary tract infections (UTIs) linked to indwelling catheter use account for approximately 40% of all hospital-acquired infections (CDC, 2019). The risk of developing CAUTI increases significantly with the duration of catheterization, improper insertion techniques, lack of hand hygiene, and non-compliance with catheter care protocols. Indwelling urinary catheters are frequently used in hospitals to manage acute urinary retention, during surgery, or for critically ill patients.

However, prolonged or unnecessary catheter use can introduce bacteria into the urinary tract, leading to infections such as cystitis, pyelonephritis, and even sepsis. Studies have shown that nearly 17–69% of CAUTIs can be prevented with the implementation of evidence-based guidelines and proper nursing care. Objectives: To assess the pre-test knowledge and post-test knowledge of prevention of urinary tract infection among staff nurses working at NMCH, Sasaram, Rohtas. To assess the baseline knowledge and practice of staff nurses regarding CAUTI prevention. To determine the impact of the structured teaching program on reducing CAUTI rates. To identify barriers and facilitators to implementing CAUTI prevention guidelines. To evaluate the retention of knowledge and practice changes among staff nurses post-intervention.

Hypothesis: H1: There will be no significant difference between the mean pre-test and mean post-test knowledge regarding the prevention of UTI. H2: There will be a significant difference between the mean pre-test and mean post-test knowledge regarding the prevention of UTI. H3: There will be a significant association between pretest knowledge score with their selected demographic variables.

## **Methodology:**



The research approach was descriptive, and the research design was a one-group design. The study was conducted on staff Nurses at NMCH Jamuhar, Sasaram, Rohtas (Alexander., 20200). Randomized sample technique adopted. The number of samples was 60, which gives care to the indwelling catheter patient. Data collection was done by the survey through the researcher. Data was analyzed with descriptive and inferential statistics.

### **Result:**

The results of the study there are 60 samples in the level of knowledge on pre-test 37% have poor knowledge, 50% have fair knowledge, and 13.3% have good knowledge. After the structured teaching program 10% have poor knowledge, 20% have fair knowledge, and 70% have good knowledge among staff Nurses found. Depicts that the result of aspects-wise mean knowledge regarding risk factor and prevention of UTI associated with indwelling catheter found to be 82.73% with SD value 5.10% among the respondents. The highest mean knowledge was found in the general aspect, 84.58%, 83.75% urinary catheterisation, 85.14% urinary tract infection associated with indwelling urinary catheterisation, and 81.46% prevention of urinary tract infection. Compares the pretest and posttest

knowledge level. Among the respondents, thirty-three (82.5%) had inadequate knowledge in the pretest, and none in the posttest. With regard to moderate knowledge level, 7(17.5%) in pretest, 8(20%) in the posttest. With regard to adequate knowledge level, none in the pretest and 32(80%) of them in the posttest. This chapter presents a detailed discussion of the findings based on the stated objectives of the study. The study was conducted among 60 Staff Nurses at Narayan Medical College and Hospital, Jamuhar, Sasaram, Rohtas , Bihar, to evaluate the effectiveness of a Structured Teaching Programme on the prevention of catheter-associated urinary tract infection among Staff Nurses.

Table-1: Aspect-wise Posttest mean knowledge regarding urinary tract infection associated with an indwelling urinary catheter.



*N = 60*

S. No	Aspects	Max Score	Range Score	Response to Knowledge		
				Mean	Mean (%)	SD (%)
A1	General aspect	6	4-6	5.07	84.58	1.98
A2	Indwelling Urinary catheter	6	3-6	5.02	83.75	0.96
A3	UTI associated with urinary catheterization	17	10-17	14.47	85.14	1.74
A4	Prevention of urinary tract infections infection	46	31.44	37.47	81.46	2.76
Over all		75	52-71	62.05	82.73	5.10



### COMPARISON OF the KNOWLEDGE LEVEL OF PATIENTS BEFORE AND AFTER GIVING STP

Table 2: Pre and post-test knowledge level of patients

N = 60

S.No	Knowledge level	Respondents			
		Pre-Test		Post - Test	
		Number	Percentage	Number	Percentage
1	Inadequate (<50%)	53	82.5	-	-
2	Moderate (50-75%)	7	17.5	8	20
3	Adequate (>75%)	-	-	52	80
Over all		60	100	60	100

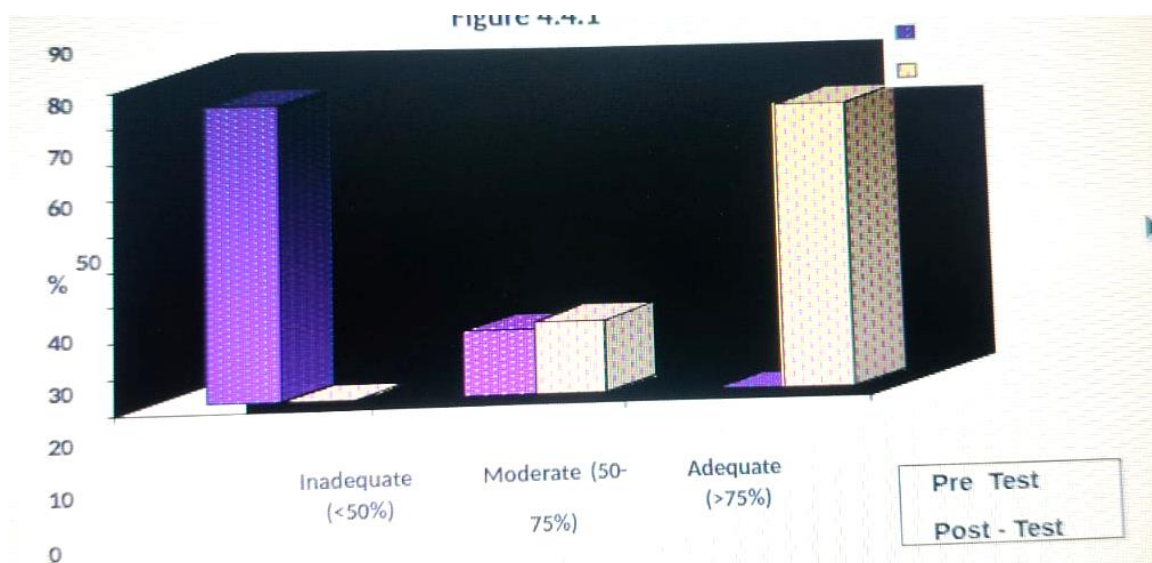


Figure -1: Pre and post-test knowledge level of patients



## Conclusion:

The present study was aimed at assessing the effectiveness of a structured teaching program among Staff Nurses and its consequences. This shows that variables had an influence level of knowledge among CAUTI patients in the study. The study highlights that Catheter-Associated Urinary Tract Infections (CAUTIs) remain a major yet preventable concern in hospital settings, often resulting from lapses in adherence to evidence-based catheter care practices. The implementation of a structured teaching program significantly enhanced the knowledge and awareness of staff nurses regarding CAUTI prevention, emphasizing the importance of hand hygiene, aseptic catheter insertion, and strict compliance with care protocols. Improved nursing competency directly contributes to reducing infection risks, thereby promoting patient safety and quality of care. The findings reinforce that continuous education and training interventions are essential to strengthen infection control practices and minimize healthcare-associated infections in clinical settings.

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