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# Knowledge and attitude of nursing officers regarding Catheter-associated Urinary Tract Infection (CAUTI) Care Bundle: A Narrative Review

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**Abstract**
One of the common cause of prolonged hospitalization, is hospital acquired infection (HAI), which is evident of 30 to 40% prevalence. Among all kind of HAI, the commonest type is urinary tract infection and that is also catheter associated urinary tract infection (CAUTI). One of important strategy to prevent this infection is known as CAUTI care bundle. This is a group of evidence-based intervention implemented together to prevent CAUTI. Hence, this is very essential that the nurses caring catheter patients then they must be well aware about such evidenced based preventive strategy to prevent happening of CAUTI. To address this concern, this review aimed to knowledge and attitude of nursing officers regarding Catheter-associated Urinary Tract Infection (CAUTI) Care Bundle. This was a narrative review, here we have gathered information in a very systematic way. The electronic data base such as ProQuest, Embase, PubMed, PsycARTICLES, EBSCO, ResearchGate, EORTC, Scopus, Educational Resources Information Centre (ERIC), and Allied Health Literature (CINHAL) were searched and article published in between from 2010 to 2024 were identified. A total 977 articles were received from these search engines and based on systematic scrutinizing process a total of 9 articles were included in the review. Reviewed study's findings suggested that staff nurses are having inadequate level of knowledge and neutral attitude towards adopting such CAUTI care bundle practice. The study concluded with that there is huge need to develop some evidence based intervention which will enhance knowledge and attitude of staff nurses regarding CAUTI care bundle.

**Keywords:** CAUTI, CAUTI care bundle, nursing officers, HAI

## Introduction

Catheter-associated urinary tract infection (CAUTI) is one of the most prevalent healthcare-associated infections (HAIs), accounting for nearly 40% of all nosocomial infections worldwide. It is strongly linked to the use of indwelling urinary catheters, which, although necessary in many clinical situations, significantly increase the risk of infection [1]. CAUTI not only prolongs hospital stays and increases healthcare costs but also contributes to patient morbidity and, in some cases, mortality. As a result, effective prevention of CAUTI has become a global priority for healthcare systems, particularly in high-dependency and critical care settings [2, 3].

The incidence of CAUTI is influenced by factors such as duration of catheterization, adherence to aseptic techniques, and the quality of nursing care. Studies have reported that inappropriate catheter use, poor maintenance practices, and lack of timely removal are major contributors to infection rates [5]. In resource-limited settings, the burden is even higher due to limited surveillance, inadequate staff training, and lack of standard infection prevention protocols. This makes CAUTI prevention an essential aspect of patient safety and quality care initiatives across healthcare institutions [5, 6].

In recent years, evidence-based "care bundles" have been introduced as a systematic approach to infection prevention. A CAUTI care bundle typically includes a set of evidence-based practices such as strict hand hygiene, aseptic catheter insertion, daily review of catheter necessity, securement techniques, and timely removal [7, 8]. The success of such bundles depends largely on consistent adherence by nursing staff, who play a central role in the insertion, maintenance, and monitoring of urinary catheters. Effective implementation of the CAUTI bundle has been shown to substantially reduce infection rates when combined with surveillance and regular audits [9].

Nursing officers are at the frontline of catheter care and are directly responsible for implementing CAUTI prevention measures [10]. Their level of knowledge regarding infection prevention practices and their attitudes toward patient safety significantly influence adherence to the CAUTI care bundle [11]. Inadequate awareness or negative attitudes can result in non-compliance with protocols, increasing the risk of infection. Conversely, well-informed and motivated nursing officers are more likely to adopt preventive strategies consistently, thereby improving patient outcomes and reducing healthcare-associated infection rates [12-15].

While numerous studies have documented the clinical

effectiveness of CAUTI care bundles, fewer have examined the knowledge and attitudes of nursing officers, particularly in the context of developing countries. The existing evidence suggests variability in awareness levels and differences in compliance with standard guidelines across institutions. Moreover, factors such as workload, staffing shortages, and lack of continuous training have been identified as barriers to effective implementation. A comprehensive narrative review focusing on the knowledge and attitudes of nursing officers can therefore help highlight gaps and guide future interventions.

This narrative review aims to synthesize the available literature on nursing officers' knowledge and attitudes regarding CAUTI care bundles. By analyzing trends, challenges, and opportunities in this area, the review seeks to provide a deeper understanding of the human factors influencing bundle adherence. Ultimately, the findings are expected to inform policymakers, educators, and hospital administrators in designing targeted educational programs, developing supportive policies, and strengthening infection control practices to reduce CAUTI incidence and improve patient safety outcomes.

## Materials and Methods

The literature review was designed as a narrative study. The articles were included from various countries. A systematic electronic search was used to identify number of studies carried out on knowledge and attitude of nursing officers regarding CAUTI care bundle. The original research papers were only included in study. The following electronic databases are searched: ProQuest, Embase, PubMed, PsycARTICLES, EBSCO, ResearchGate, EORTC, Scopus, Educational Resources Information Centre (ERIC), and Allied Health Literature (CINHAL). The existing literatures were very systematically opted to recruit into this narrative review.

### Inclusion Criteria

1. The research paper only which directly belongs to knowledge or attitude of nursing officers regarding CAUTI care bundle.
2. The paper which is easily accessible online and full text available.
3. The studies which are completed in English language.
4. Articles included from the year 2010 to 2024.

### Exclusion Criteria

1. The study concerns to with any other HAI.
2. Poor quality journal publications.
3. The research study which is published in without ISSN number journals.
4. The research studies which are not available on journal database.
5. The research studies in which only abstract is available.
6. The studies which is published in local language.

### Search Strategy

MeSH terminology used for PubMed and ERIC(((((((((knowledge of nursing officers regarding CAUTI care bundle) OR (knowledge of nurses regarding CAUTI care bundle)) OR (knowledge of staff nurses regarding CAUTI care bundle)) OR (knowledge of nursing officers about CAUTI care bundle)) OR (knowledge of nurses about CAUTI care bundle)) AND (attitude of nursing officers regarding CAUTI care bundle)) OR (attitude of nurses regarding CAUTI care bundle)) OR (attitude of staff nurses regarding CAUTI care bundle)) AND (attitude and knowledge of nurses about CAUTI care bundle)) OR (knowledge and attitude of staff nurses regarding CAUTI care bundle).

## Results and Discussion

A total 977 articles were received from search engines from that 676 articles were excluded bases on exclusion criteria. So total retrieved articles were 305 among all 75 duplicate articles, 69 No full text available, 58 not relevant and 51 abstracts were excluded. Final retrieved articles were 52; among them 39 full articles were excluded based on inclusion criteria. Finally, 9 articles were included in the review.

There were many researches organized in view to knowledge and attitude of nursing officers regarding CAUTI care bundle, where they included many dimensions of health. Based on this narrative review, the researcher opted best suited article.

| Author | Objective | Methodology | Result | Conclusion |
|---|---|---|---|---|
| Tobin EA *et al.* (2020) [16] | To assess knowledge and practices of nurses towards CAUTI prevention in Nigeria. | Cross-sectional study among 200 nurses using questionnaires and observation checklists. | 76.7% had fair knowledge, 23.3% poor knowledge; 71% had good practice; gaps in catheter indication and care identified. | Urgent need for educational interventions to improve nurses' knowledge and practices of CAUTI prevention. |
| Harita S *et al.* (2025) [17] | To evaluate nurse-led interventions for optimal urinary catheter use in Japan. | Before-after trial across ICU and general wards with nurse-led feedback interventions. | Reduced inappropriate catheter use, but no significant reduction in CAUTI incidence. | Nurse-led intervention reduced inappropriate catheter use but was insufficient alone to lower CAUTI incidence. |
| Jones AE *et al.* (2023) [18] | To review evidence for nurse-led catheter removal protocols in acute care settings. | Scoping review of 13 studies from multiple databases. | Most studies showed reductions in CAUTI with nurse-led removal; evidence quality varied. | Nurse-led protocols are promising but need more robust evidence before wide policy adoption. |
| Su L (2025) [19] | To evaluate nurse-driven protocols in reducing catheter utilization and CAUTI rates. | Systematic review and meta-analysis of 10 studies involving >58,000 patients. | NDPs lowered catheter utilization by ~29% and reduced CAUTI risk by ~56%. | Nurse-driven protocols significantly reduce catheter use and CAUTI incidence. |
| Jain M *et al.* (2015) [20] | To assess knowledge and attitude of doctors and nurses regarding catheterization and | Questionnaire survey of 159 participants (54 doctors, 105 nurses). | 57% identified all preventive measures; doctors had better knowledge than nurses. | Knowledge regarding indications and prevention was suboptimal, highlighting need |

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|---|---|---|---|---|
| | CAUTI prevention. | | | for education interventions. |
| Teshager T *et al*. (2022) [21] | To assess knowledge, practices, and associated factors of ICU nurses regarding CAUTI prevention in Ethiopia. | Cross-sectional survey of 204 ICU nurses with self-administered questionnaire. | 63% had poor knowledge; 48% had poor practices; work experience associated with better knowledge. | Nurses' knowledge and practice were poor; training programs needed to improve CAUTI prevention. |
| Dessie Z *et al*. (2024) [22] | To evaluate knowledge, attitude, and practice toward CAUTI prevention among Ethiopian nurses. | Cross-sectional study of 344 nurses with structured questionnaires. | 42.7% had good knowledge, 48% positive attitude, 54.9% good practice; guidelines and income influenced KAP. | Low knowledge and practice levels indicate a need for guideline-based training and institutional support. |
| Huang A *et al*. (2022) [23] | To synthesize healthcare workers' KAP regarding CAUTI prevention globally. | Mixed-methods systematic review of 34 studies. | Knowledge and practices were inconsistent; barriers included workload, staffing, and poor documentation. | Improved leadership, training, teamwork, and nurse-driven protocols are needed to strengthen CAUTI prevention. |
| Abdelmoaty AM *et al*. (2022) [24] | To improve ICU nurses' knowledge of CAUTI prevention through education intervention. | Pre-test-post-test design with 42 ICU nurses in Egypt; on-the-job training provided. | Knowledge scores improved significantly post-training; satisfactory knowledge increased from 13.3% to >90%. | Training and education strategies effectively improved ICU nurses' knowledge regarding CAUTI prevention. |

## Conclusion

The researcher made every effort to collect and analyze relevant literature related to the knowledge and attitude of nursing officers toward the CAUTI care bundle.Based on the evidence reviewed, it is clear that nursing officers often demonstrate limited knowledge and suboptimal attitudes toward CAUTI care bundle practices, which directly impacts patient safety. This gap highlights the urgent need for improvement through structured, nurse-led initiatives such as regular training programs, continuous professional development, and practice-based audits. Strengthening nurses' competence and fostering positive attitudes through these interventions can significantly enhance adherence to evidence-based CAUTI prevention protocols, ultimately reducing infection rates and improving overall quality of care.

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