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Development of a Clinical Practice Guideline for the Prevention of Catheter-Associated Urinary Tract Infections (CAUTIs) in a Skilled Nursing Facility

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Walden University

College of Nursing

This is to certify that the doctoral study by

Marford Okoye

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee

Dr. Jill Walsh, Committee Chairperson, Nursing Faculty

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Walden University
2025

Executive Summary: Clinical Practice Guideline
Development of a Clinical Practice Guideline for the Prevention of Catheter-Associated
Urinary Tract Infections (CAUTIs) in a Skilled Nursing Facility
by
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MS, Western Governors University, 2023

BS, Western Governors University, 2016

Executive Summary Submitted in Partial Fulfillment
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Doctor of Nursing Practice

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Summary

This Doctor of Nursing Practice (DNP) project focused on developing a clinical practice guideline (CPG) and accompanying checklist to prevent catheter-associated urinary tract infections (CAUTIs) in adult inpatients within a skilled nursing facility. CAUTIs represent the most prevalent healthcare-associated infections in both acute and long-term care environments, contributing to increased patient morbidity, prolonged hospitalization, and elevated healthcare costs. A key issue identified was inconsistent adherence to evidence-based practices related to catheter insertion, maintenance, and timely removal—posing a significant threat to patient safety. The guiding practice question for this project was: Will a clinical practice guideline on preventing catheter-associated urinary tract infections be approved by an expert panel of subject matter experts using the AGREE II tool? The primary purpose was to create a standardized, evidence-based CPG and checklist aligned with national recommendations and organizational priorities to enhance patient outcomes. To ensure methodological rigor and relevance, the AGREE II instrument was used to evaluate the quality of the CPG. Feedback was obtained from a panel of experts and end-users. Findings strongly supported the use of the CAUTI prevention CPG, with implementation of staff education, and continuous monitoring. Successful implementation was found to depend on stakeholder engagement, leadership support, and organizational readiness. The expert panel recommended implementing the CPG with minor local adaptations. Its adoption is anticipated to standardize nursing practices, reduce infection rates, and foster positive social change by advancing patient safety and promoting equitable care delivery.

Background

Catheter-associated urinary tract infections (CAUTIs) remain a leading cause of HAIs in the United States. They account for 70–80% of hospital-acquired urinary tract infections and affect an estimated 15–25% of hospitalized patients requiring catheterization during their stay (Patel et al., 2023). In skilled nursing facilities, CAUTIs are a major contributor to infection-related hospital transfers, sepsis, and mortality (Chenoweth et al., 2023). Beyond clinical harm, CAUTIs lead to increased length of stay, antimicrobial resistance, and higher healthcare costs (Durant et al., 2022).

Financially, catheter-associated urinary tract infections (CAUTIs) are classified as “never events” by the Centers for Medicare & Medicaid Services (CMS), meaning that treatment costs associated with their occurrence are not reimbursed. Both the Centers for Disease Control and Prevention (CDC, 2019) and the Joint Commission (2023) identify CAUTI prevention as a top national patient safety priority. Therefore, enhancing adherence to CAUTI prevention protocols is not only a clinical obligation but also a regulatory and financial imperative.

The practice gap was identified during infection prevention audits and quality monitoring in the skilled nursing facility. Staff demonstrated inconsistent adherence to CAUTI prevention strategies, including documentation of catheter necessity, adherence to aseptic insertion techniques, and timely catheter removal. These gaps indicated the lack of a standardized, evidence-based CPG. Addressing this issue is critical to ensuring patient safety, improving outcomes, and aligning with national benchmarks for infection prevention. The practice-focused question guiding this project was: Will a clinical

practice guideline for the prevention of catheter-associated urinary tract infections be approved by a panel of subject-matter experts using the AGREE II tool? The purpose of the project was to develop and evaluate an evidence-based CPG and checklist tailored to the skilled nursing facility setting. By standardizing practices and promoting staff education, the project sought to close the identified practice gap, enhance patient outcomes, and align facility practices with national standards.

This project was guided by evidence-based recommendations from the CDC (2019), the Association for Professionals in Infection Control and Epidemiology (APIC, 2025), and the Infectious Diseases Society of America (IDSA) update (Patel et al., 2023). Key recommendations include minimizing catheter use, maintaining closed drainage systems, using aseptic insertion techniques, and promptly removing catheters to prevent complications. Multifaceted interventions, such as prevention bundles, staff education, and nurse-driven protocols, have been proven to reduce CAUTI incidence; however, they remain inconsistently implemented in skilled nursing facilities. Evidence demonstrates the urgency of addressing CAUTIs. Martin et al. (2023) found that CAUTI rates rose during the COVID-19 pandemic due to staffing shortages and interruptions in infection control practices. Reynolds et al. (2022) demonstrated that nurse-driven protocols embedded in the electronic health record (EHR) significantly reduced catheter days and CAUTI incidence. Similarly, Durant et al. (2022) synthesized evidence in an integrative review, concluding that nurse-led interventions—particularly catheter removal protocols—consistently reduced infection rates. Greene et al. (2021) reported that adherence to protocol-driven catheter care in long-term care settings led to measurable

declines in CAUTI incidence, underscoring the need for standardized guideline use. Chenoweth et al. (2023) emphasized the effectiveness of the CDC's Targeted Assessment for Prevention (TAP) strategy and Guide to Patient Safety (GPS) tool, which assists organizations in identifying barriers and tailoring interventions. The evidence base for this CPG is robust, drawing from systematic reviews, expert consensus, and high-quality studies, thereby ensuring its validity and applicability across various settings.

Clinical Practice Guideline Development

The CPG was developed through a multi-phase process (see Appendix A). A systematic review of the literature (2019–2025) informed the initial draft, which synthesized evidence from guidelines by the CDC, APIC, and IDSA. The draft CPG emphasized minimizing catheter use, ensuring aseptic insertion, maintaining closed systems, and timely removal.

A multidisciplinary expert panel, including a clinical nurse specialist, an infection preventionist, a urologist, and a nurse manager, evaluated the draft using the AGREE II instrument. Each of the six AGREE II domains—Scope and Purpose, Stakeholder Involvement, Rigor of Development, Clarity of Presentation, Applicability, and Editorial Independence—was scored, and narrative feedback was collected. The CPG and AGREE II tools were distributed electronically via email, and reviewers returned completed evaluations via a secure platform.

Following revisions, frontline nurses and departmental leaders served as end-users, providing feedback on clarity, feasibility, and workflow integration. Their input

informed final adjustments to ensure usability and alignment with organizational practices.

Results

The expert panel rated the CPG highly across all six AGREE II domains, with an overall mean score of 5.96/7, reflecting intense methodological rigor and clarity (see Table 1). The highest scores were given in *Clarity of Presentation* and *Rigor of Development*. Reviewers suggested strengthening the implementation strategies and including additional guidance on resource allocation, which were incorporated into the final version.

Table 1

AGREE II Domain Scores for the Clinical Practice Guideline

| Domain | Reviewer 1 | Reviewer 2 | Reviewer 3 | Reviewer 4 | Likert scale (1 – 7) <i>M Score</i> |
|-------------------------|------------|------------|------------|------------|---|
| Scope and Purpose | 6 | 6 | 6 | 7 | 6.2 |
| Stakeholder Involvement | 5 | 6 | 6 | 6 | 5.7 |
| Rigor of Development | 6 | 6 | 6 | 6 | 6.0 |
| Clarity of Presentation | 6 | 6 | 7 | 6 | 6.2 |
| Applicability | 5 | 6 | 6 | 5 | 5.5 |
| Editorial Independence | 6 | 6 | 6 | 6 | 6.0 |

Revisions were made based on reviewer comments, particularly regarding implementation strategies and resource considerations. End-users, including bedside nurses and departmental leadership, confirmed that the CPG was practical, evidence-

based, and aligned with organizational goals. They emphasized that the checklist improved clarity of daily tasks and supported workflow integration. Their endorsement reinforced the guideline's feasibility for adoption in the skilled nursing facility.

While designed for one facility, the implications of this CPG extend beyond the local level. Adoption of evidence-based CAUTI prevention guidelines in long-term care facilities nationwide has the potential to reduce infection-related hospitalizations, minimize healthcare costs, and improve patient safety on a broader scale. Standardization of practice also supports equity in care delivery, ensuring that all patients, regardless of the resources available at their facility, benefit from best practices.

The potential impact of adopting this CPG includes standardizing CAUTI prevention practices, improving patient safety, reducing infection rates, and aligning with quality-improvement metrics. Limitations included variability in staff engagement and potential resource constraints for implementation. Lessons learned underscore the importance of early stakeholder engagement and the necessity of ongoing monitoring and evaluation.

Conclusions

The development of this evidence-based CPG addressed a critical gap in nursing practice for CAUTI prevention in skilled nursing facilities. Adoption of the guideline has the potential to enhance patient outcomes, reduce healthcare costs, and align organizational practices with national quality standards. Further recommendations include:

- Staff education and ongoing competency assessments.

- Continuous monitoring of CAUTI rates and adherence to the guideline.
- Expansion of the CPG to other units and facilities to promote consistency of care.
- Integration of DEI principles to ensure equitable patient care.

This project demonstrates the value of evidence-based practice in improving nursing outcomes and promoting positive social change. The structured development process, rigorous evidence appraisal, and stakeholder engagement provide a model for similar quality improvement initiatives across healthcare settings.

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Appendix A: Clinical Practice Guideline

Clinical Practice Guideline (CPG) Project Materials

I. CPG Approved by Preceptor

Title of CPG: Prevention of Catheter-Associated Urinary Tract Infections (CAUTI) in Adult Inpatients

Date of Approval: July 28, 2025

Clinical Practice Guideline Title:

Prevention and Management of Catheter-Associated Urinary Tract Infections (CAUTIs) in Skilled Nursing Facilities

Introduction

Catheter-associated urinary tract infections (CAUTIs) are among the most prevalent healthcare-associated infections, especially in skilled nursing facilities (SNFs). These infections increase patient morbidity, prolong hospital stays, and add significant costs to healthcare systems. Despite the existence of evidence-based guidelines, high CAUTI rates persist due to inconsistent adherence, improper catheter insertion, and inadequate maintenance techniques.

This Clinical Practice Guideline (CPG) aims to close the gap between evidence and practice by offering standardized, evidence-based interventions to reduce CAUTIs in SNFs.

The **practice-focused question** is:

"In residents of skilled nursing facilities with indwelling urinary catheters, what evidence-based practices reduce the incidence of CAUTIs?"

The CPG was developed by a multidisciplinary panel that included a nurse practitioner, two CIC-certified infection preventionists, a urologist, and a clinical nurse educator.

Target users include registered nurses (RNs), licensed practical nurses (LPNs), certified nursing assistants (CNAs), and clinical leaders working in SNFs.

The CPG is intended for implementation in a 100-bed skilled nursing facility with limited on-site physician coverage and part-time infection control staff. Key implementation constraints include staffing shortages, restricted access to electronic documentation, and insufficient time for staff training.

AGREE II Domains Incorporated

1. Scope and Purpose

Objective: Reduce CAUTI incidence and related complications through consistent use of evidence-based interventions.

Target Population: Skilled nursing facility residents with indwelling urinary catheters.

2. Stakeholder Involvement

Developed by a multidisciplinary team of infection preventionists, a urologist, bedside nurses, and educators.

Input obtained from staff and patient representatives regarding the feasibility of implementation.

3. Rigor of Development

Systematic literature review via PubMed, Cochrane, CDC, and APIC sources.

Evidence appraised using the GRADE methodology.

Reviewed externally by an infectious disease specialist.

Scheduled for updates every three years or following central CDC or APIC updates.

4. Clarity of Presentation

Recommendations are clearly defined and accompanied by rationales, evidence levels, and quality ratings.

Key points and decision steps are emphasized.

5. Applicability

Appendix A provides a daily checklist and flowsheet.

Mitigation strategies for common barriers (e.g., staff education, infection prevention champions) are included.

Emphasizes potential cost savings from infection reduction.

6. Editorial Independence

No external funding influenced CPG.

All contributors disclosed conflicts of interest; none affected the guideline's content.

7. Monitoring and Auditing Criteria (21)

CAUTI rates will be monitored monthly and reported to nursing leadership on a regular basis.

Compliance audits using the Daily CAUTI Checklist will be conducted biweekly.

Audit results will inform ongoing training needs and QAPI initiatives.

CPG Recommendations

Recommendation 1: Avoid Unnecessary Catheterization

Statement: Use indwelling urinary catheters only when medically necessary.

Evidence suggests that limiting catheter use is the most effective single strategy for preventing CAUTIs.

Level of Evidence: Level IV – Consensus Panel, Clinical Practice Guideline

Quality Rating: High

Source: Patel et al., 2023; APIC, 2025

Recommendation 2: Use Aseptic Technique for Catheter Insertion

Statement: Only trained personnel should insert catheters using aseptic technique and proper hand hygiene.

Evidence: Standardized aseptic insertion significantly reduces CAUTI risk.

Level of Evidence: Level IV – Consensus Panel

Quality Rating: High

Source: APIC, 2025; Patel et al., 2023

Recommendation 3: Maintain a Closed Drainage System

Statement: Maintain a sterile, closed system with tubing free of kinks and bag positioned below bladder level.

Evidence suggests that proper drainage systems prevent retrograde bacterial migration.

Level of Evidence: Level IV – Clinical Practice Guideline

Quality Rating: High

Source: APIC, 2025

Recommendation 4: Daily Assessment of Catheter Necessity and Prompt Removal

Statement: Assess the necessity at least once per shift and remove it as soon as it is no longer needed.

Evidence suggests that routine assessments are associated with timely removal and a reduced risk of infection.

Level of Evidence: Level IV – Consensus Panel

Quality Rating: High

Source: Patel et al., 2023

Recommendation 5: Implement Ongoing Staff Education and Training

Statement: Provide initial and annual competency-based CAUTI prevention training.

Evidence: Education enhances adherence to evidence-based CAUTI protocols.

Level of Evidence: Level IV – Clinical Practice Guideline

Quality Rating: Moderate

Source: APIC, 2025

Clinical Practice Guideline References

Association for Professionals in Infection Control and Epidemiology. (2025). *Guide to prevent catheter-associated urinary tract infections (CAUTI)*. Arlington, VA:

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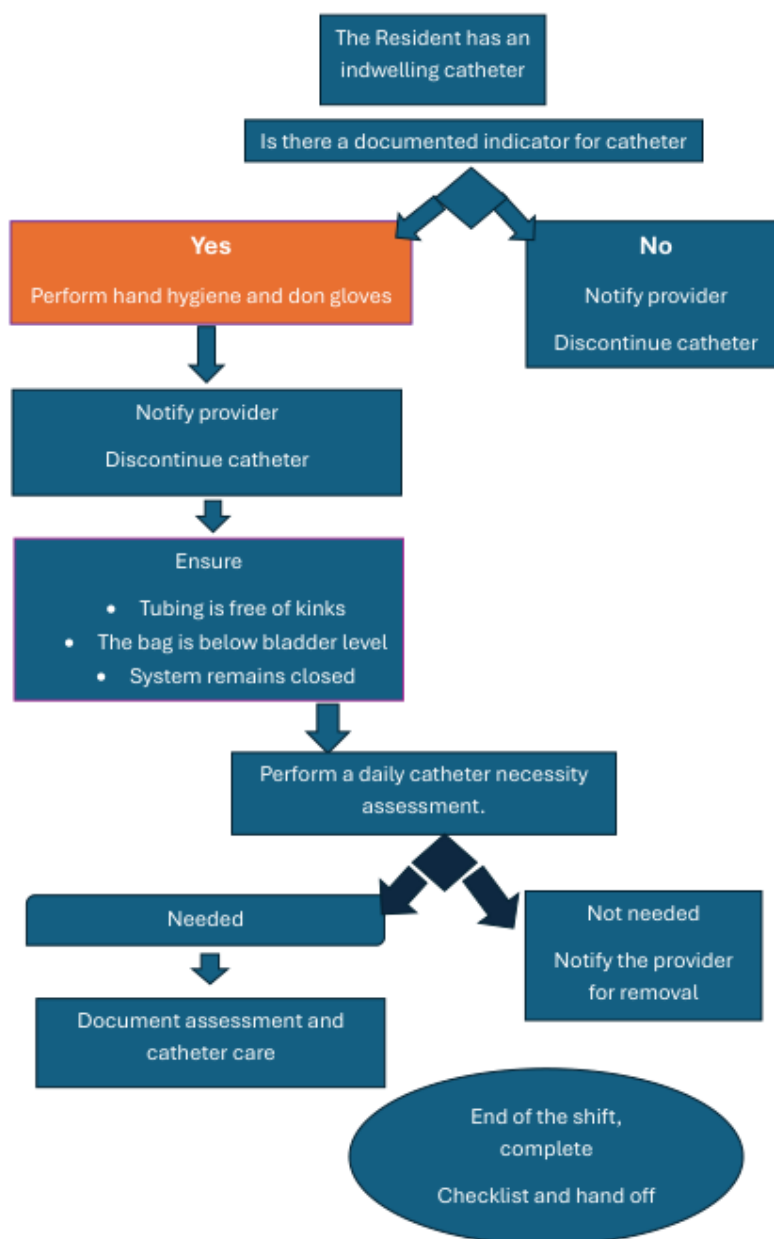
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CAUTI Prevention Flowsheet

CAUTI Prevention Flowsheet



Legend for Catheter Indications (CDC)

Use a urinary catheter **only if one of the following is present:**

Acute urinary retention or blockage of the bladder outlet

Accurate measurement of urinary output in critically ill patients

Perioperative considerations for selecting surgical procedures

Assist with healing open sacral and perineal wounds in incontinent patients.

Extended immobilization resulting from trauma or surgery

Comfort care for end-of-life support

CAUTI Prevention Daily Checklist

| <i>TASK</i> | <i>YES</i> | <i>NO</i> | <i>N/A</i> | <i>INITIALS/COMMENTS</i> |
|---|------------|-----------|------------|--------------------------|
| 1. Indication for catheter documented. | | | | |
| 2. Daily assessment for catheter necessity? | | | | |
| 3. Catheter removal is ordered if there is no sign of its retention. | | | | |
| 4. Hand hygiene is performed before and after care. | | | | |
| 5. Is perineal hygiene performed on each shift? | | | | |
| 6. Is the catheter tubing and bag properly secured? | | | | |
| 7. Is the drainage bag always kept below bladder level? | | | | |

| | | | | |
|--|--|--|--|--|
| 8. Are there any kinks or loops in the tubing? | | | | |
| 9. Closed drainage system intact? | | | | |
| 10. Empty the drainage bag at the end of every shift? | | | | |
| 11. Is the catheter and bag labeled with the date of insertion? | | | | |
| 12. Staff trained in aseptic techniques. | | | | |

Instructions for Use of the Checklist:

Complete this checklist for every resident with an indwelling urinary catheter at the beginning of each shift.

Document any "No" answers and notify the charge nurse for follow-up.

Use this checklist to guide daily rounding and compliance monitoring.