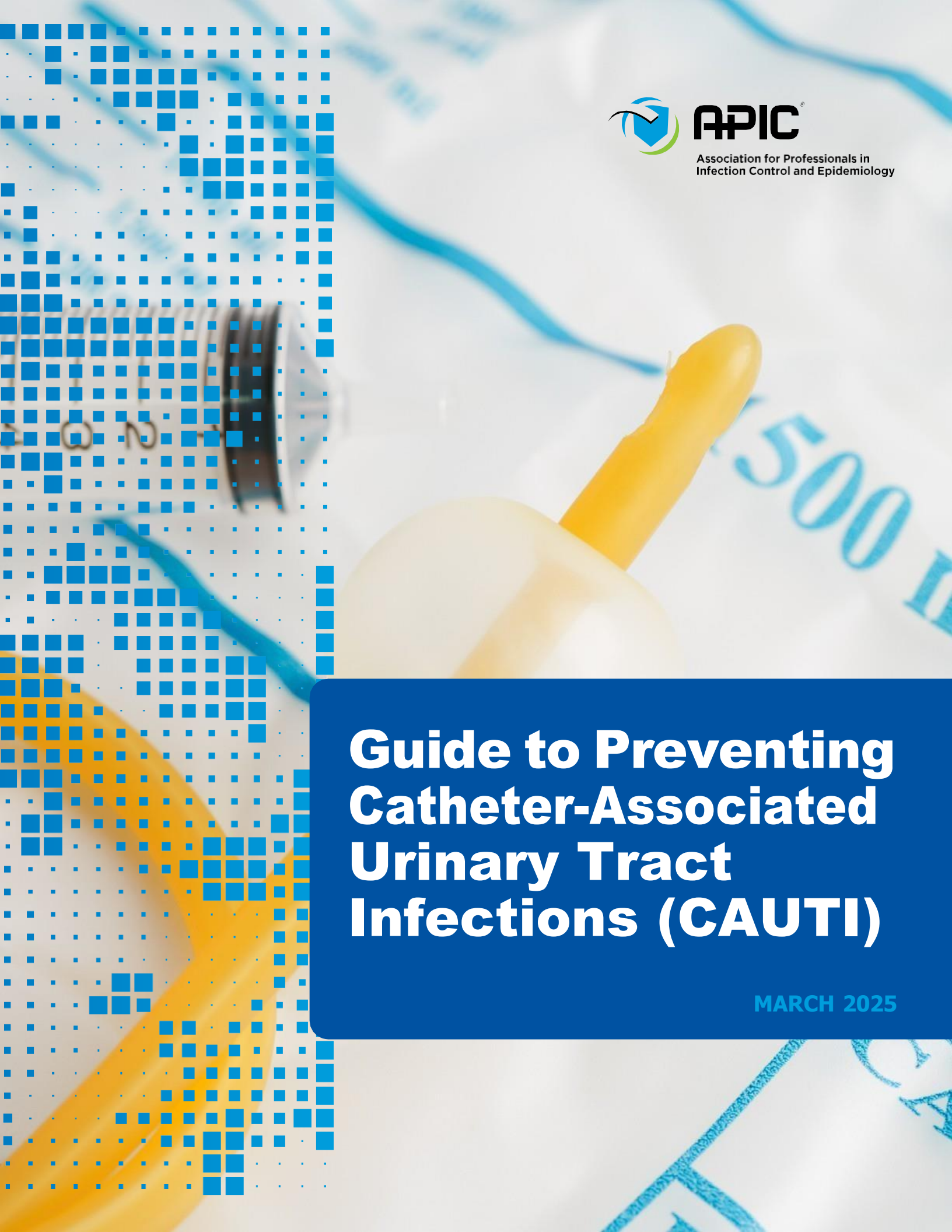

APIC
Association for Professionals in Infection Control and Epidemiology

Guide to Preventing Catheter-Associated Urinary Tract Infections (CAUTI)

MARCH 2025

About APIC

The Association for Professionals in Infection Control and Epidemiology (APIC) is the leading professional association for infection preventionists (IPs) with more than 15,000 members. Our mission is to advance the science and practice of infection prevention and control. APIC advances its mission through patient safety, education, implementation science, competencies and certification, advocacy, and data standardization. Visit us at **apic.org**.

About the Implementation Guide Series

APIC Implementation Guides help infection preventionists apply current scientific knowledge and best practices to achieve targeted outcomes and enhance patient safety. This series reflects APIC's commitment to implementation science and focus on the utilization of infection prevention research. Topic-specific information is presented in an easy-to-understand and use format that includes numerous examples and tools. Visit **www.apic.org/implementationguides** to learn more and to access all the titles in the Implementation Guide series.

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Purpose of Guide

The purpose of this implementation guide is to provide information and tools to reduce the risk of infection due to indwelling urinary catheters in various practice settings. It condenses evidence-based guidelines into key elements needed to mitigate risks and implement performance improvement processes. The implementation guide includes recommendations intended to be achievable and to represent what are believed to be effective strategies to prevent healthcare-associated infections. These recommendations may guide the development of policies, procedures, and protocols for promoting performance improvement in various practice settings.

Acknowledgments

Accomplishing this comprehensive update required input and expertise from a broad array of experts from practice and research settings. The Association for Professionals in Infection Control and Epidemiology gratefully acknowledges the following individuals for their valuable contributions.

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Overview of Catheter-Associated Urinary Tract Infections

The use of indwelling urinary catheters (IUCs), which are placed in up to 16% of patients during hospitalization, can result in the development of a catheter-associated urinary tract infection (CAUTI).[1] Each day that an IUC remains in place, the risk of acquiring a CAUTI increases.[1] The Centers for Disease Control and Prevention's (CDC) National Healthcare Safety Network (NHSN) is the nation's most widely used healthcare-associated infection (HAI) surveillance system with more than 38,000 active hospitals, long-term care (LTC) facilities, and other healthcare facilities reporting data regarding various HAI types.[2]

CAUTIs Reported through NHSN in 2023

SETTING	# OF FACILITIES REPORTING	# OF CAUTIs REPORTED
Acute care hospitals	3,774	17,370
Critical access hospitals	1,070	1,259
Inpatient rehabilitation facilities	1,218	1,415
Long-term acute care hospitals	390	1,481
Total	6,452	21,525

Although the number of CAUTIs reported specifically in acute care hospitals in 2023 represents an overall decline of 11% from 2022 data, CAUTI still represents a significant risk to patient safety across all care settings in which IUCs are utilized.[2] Complications associated with CAUTI include increased length of stay, patient discomfort, excess health care cost, and increased risk of death.[3] In 2017, the Agency for Healthcare Research and Quality (AHRQ) released an estimate of the additional cost and excess mortality associated with each CAUTI based on a review of six published studies. Estimated cost was reported at $13,793 (95% CI: $5,109 to $22,568) and excess mortality was estimated at 0.036 (95% CI: 0.004 to 0.079), meaning that for each 1,000 CAUTI there are 36 excess deaths.[4] As of October 2008, the Centers for Medicare & Medicaid Services (CMS) requires reporting of CAUTI in certain care settings and no longer reimburses excess associated costs.[5] Further, CAUTI data is reported publicly through CMS's Care Compare website, providing patients the ability to review a facility's ranking in comparison with other facilities.[6]

Risk Factors for CAUTI and Reduction Strategies

Risk factors for CAUTI include catheter duration, female anatomy, age related changes of the genitourinary tract, pregnancy, poor nutrition, fecal incontinence, illness severity, paraplegia, cerebrovascular disease, immunocompromised status, comorbid conditions resulting in neurogenic bladder, and equipment required to manage bladder voiding.[3] Effective methods to reduce risk include:

- Not inserting an IUC unless strict criteria are met (e.g., neurogenic bladder, obstructive uropathy)
- Using external urinary catheters when appropriate for the patient
- Limiting the duration of the IUC by using facility-specific removal criteria
- Following aseptic techniques for insertion and maintenance of IUC

Case Definitions

Surveillance definitions, clinical definitions, and claims-based definitions are intended for different purposes and should not be used interchangeably. Infection preventionists should be able to effectively explain the differences between these three types of definitions.

- **Clinical definitions:** These are intended to be used for diagnosis and treatment purposes. Diagnostic criteria for a urinary tract infection vary by care setting and patient population. Clinical diagnosis and treatment for a urinary tract infection should be rendered by a physician or advanced practice provider (APP).
- **Claims-based definitions:** Billing codes are used following an inpatient admission to collect data on healthcare-associated CAUTI incidence. These bill codes identify the patient's medical condition for the encounter to determine the appropriate reimbursement based on the services provided. Coding definitions do not utilize the same review process as surveillance definitions.
- **Surveillance definitions:** These are intended to define the incidence of a condition and are useful in the measurement and monitoring of performance improvement efforts.
    - NHSN provides standardized definitions and methodology for performing surveillance for CAUTIs through the Patient Safety Component and LTC Facilities Component. Facilities submitting to NHSN can obtain unit-specific infection rates as well as standardized infection ratios (SIR) that allow a facility to compare their actual number of infections to the expected number of infections for specific types of units and/or the facility. The system also allows tracking and comparison of IUC utilization. Published data summaries are available regardless of participation.
    - As of 2022, CMS requires hospitals, inpatient rehabilitation facilities, long-term care facilities (excluding skilled nursing facilities), and Prospective Payment System (PPS)-exempt cancer hospitals to report CAUTI data to the NHSN.[5]
    - Some skilled nursing facilities continue to use alternative surveillance definitions, making data comparison to other facilities difficult. The most common alternative surveillance definition is the Revised McGeer Criteria.

Key Regulatory and Accrediting Organizations

Key differences exist between regulatory and accrediting agencies. A regulatory organization sets mandatory rules and standards that must be followed by law, while an accrediting organization provides a seal of approval that certifies that a healthcare facility has met specific performance standards during a survey of the facility. Regulatory organizations can partner with accrediting organizations to provide "deemed status," meaning that the accrediting organization can determine during a survey that the healthcare facility meets or exceeds the requirements of the regulatory organization. The list below is not exhaustive but does include key organizations that provide guidance and standards regarding CAUTI:

Key Organizations Providing CAUTI Guidance and Standards

TYPE OF ORGANIZATION	KEY ORGANIZATIONS REGARDING CAUTI PREVENTION	REGULATION OR STANDARD
Regulatory	CMS	• Code of Federal Regulations (CFR) Part 482: Conditions of Participation for Hospitals: Section 482.42 Condition of Participation: Infection Prevention and Control and Antibiotic Stewardship Programs • Code of Federal Regulations (CFR) Part 483: Requirements for Long-Term Care Facilities: Section 483.80 Infection Control
	State Health Department	State-specific rules apply
Accrediting	The Joint Commission (TJC)	• TJC Standards, Infection Control Chapter • National Patient Safety Goals • Infection Prevention and Control Program Assessment Tool (Hospitals) • *Note: TJC standards and tools are specific to care setting*
	Det Norske Veritas (DNV)	DNV National Integrated Accreditation of Healthcare Organizations (NIAHO®) Accreditation Requirements, Interpretive Guidelines and Surveyor Guidance

Evidence-Based Guidelines and Expert Consensus Documents

Evidence-based guidelines (EBGs) are recommendations for clinical practice informed by a thorough review and ranking of the best scientific evidence available at the time. When there is a lack of evidence on a topic, an expert consensus document may exist to represent the collective opinions of experts in a topic area at the time. When a specific EBG is not required by a regulatory or accrediting organization, a risk assessment can be used to determine which EBG is most appropriate. If an EBG is not available, an expert consensus document can be utilized to help inform decision-making at the facility. For purposes of this implementation guide, the combined Society for Healthcare Epidemiologists of America (SHEA)/Infectious Disease Society of America (IDSA)/Association for Professionals in Infection Control and Epidemiology (APIC) document will be used as a primary reference to ensure the most up-to-date recommendations are used to prevent CAUTI.

Evidenced-Based Guidelines

ORGANIZATION	KEY RESOURCE
CDC	Guideline for Prevention of CAUTI, 2009[7]
SHEA/IDSA/ APIC	Strategies to Prevent Catheter-Associated Urinary Tract Infections in Acute-Care Hospitals: 2022 Update[3]

Supplemental Resources

APIC TEXT

For additional information on the topics above, refer to the following APIC Text Chapter:

APIC Text, Chapter 4: Accrediting and Regulatory Agencies
APIC Text, Chapter 11: Surveillance

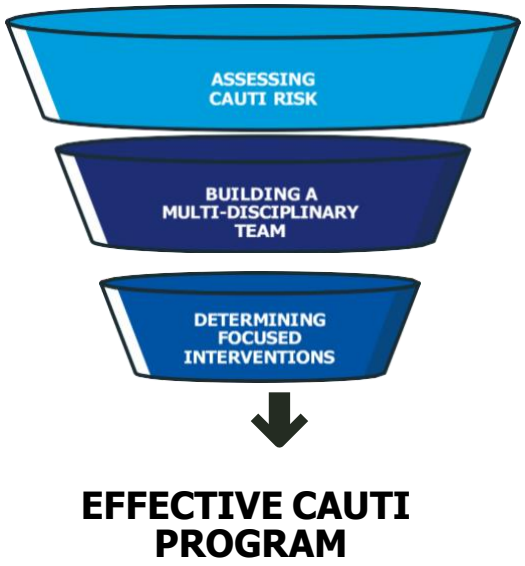
APIC Text, Chapter 34: Urinary Tract Infections

SECTION 2

Core Components of CAUTI Prevention Program

Infrastructure

A CAUTI prevention program should reflect the unique needs of the facility and patient population. To determine what those needs are, each facility should first identify the key stakeholders needed to participate in a multidisciplinary team. The multidisciplinary team should work together to conduct a risk assessment to determine the specific risks that will need to be considered when developing a CAUTI prevention program. After the risks are identified and assessed, the multidisciplinary team should work together to determine if interventions are needed, and if so, which focused interventions for the identified risks.



Key Stakeholders

An effective CAUTI prevention program requires multiple perspectives and skill sets. Key stakeholders facilitate and sustain performance improvement efforts for new and existing initiatives. A single or dyad lead should be identified, in addition to the role and scope of each member of the multidisciplinary team. While stakeholders might serve in various capacities depending on the facility's operational structure, there are several essential roles that every prevention program should include. Below are recommendations on how individuals in different roles can contribute as part of a multidisciplinary team. Note that additional positions and subject matter experts should be added to adequately represent the facility and the patient population served.

CAUTI Prevention Program Stakeholders	
POSITION	**ROLE ON MULTI-DISCIPLINARY TEAM**
Infection prevention	Primary (possible lead)
Nursing	Primary (possible lead)
Physician / APP	Primary (possible lead)
Clinical education	Participant
Patient care technicians/certified nursing assistants	Participant
Laboratory	Participant
Information technology	Participant
Environmental services	Participant
Supply chain	Participant
Ancillary healthcare personnel not listed above	Participant
Quality	Consult (as needed)
Risk management	Consult (as needed)
Clinical and/or operational leadership	Executive sponsorship (approval as needed or removal of barriers)

Risk Assessment

A risk assessment is intended to systematically identify and evaluate existing and potential risks so that a plan can be made to minimize those risks. Some factors to consider when conducting a CAUTI-specific risk assessment are listed below. Several of these considerations will be discussed in detail in other sections.

CAUTI-Specific Risk Assessment

RISK FACTOR	POTENTIAL CONSIDERATIONS
Current and historical CAUTI rates and standardized infection ratios (SIR)	Are CAUTI rates higher or lower than expected? Has this changed in comparison with previous years? If so, is the cause of the change known? Are there specific units with higher rates than expected?
Current and historical IUC standardized utilization ratios (SUR)	Is the facility and each unit's SUR higher or lower than expected? Where in the facility are catheters inserted (i.e., emergency department, surgery, inpatient unit)?
Root/apparent cause analyses or drill downs that have been conducted on previous CAUTIs	What are the known contributing factors to CAUTIs identified at the facility? Are the contributing factors different depending on the specific unit?
Process measures intended to provide insight into compliance with the existing CAUTI prevention program	What processes are currently in place to prevent CAUTI? Are the processes implemented in a highly reliable way? Are there defined metrics available that adequately assess compliance with the processes?
Risks that are specific to the patient population served by the facility	Does the facility routinely care for patients with neurogenic bladder or dementia? Does the facility perform genitourinary surgical procedures? Is the facility located in a geographic area with high incidence of certain multidrug-resistant organisms (MDROs)?
Availability of key resources and supplies	Are the right supplies available for aseptic catheter insertion and catheter maintenance? Are bladder scanners available and accessible? Are there alternatives to IUCs that meet the needs of the patient population served?
Organizational culture and leadership support	Does the CAUTI prevention program have strong leadership support? Has an executive sponsor been identified to assist with removing barriers?

Equipment and Supplies

Facilities must ensure the appropriate equipment and supplies are available to support CAUTI prevention practices. These supplies should be well organized and easily accessible, and staff should be trained on appropriate selection and use based on the needs of each patient. The information below outlines options for supplies and considerations for determining if they are appropriate for the facility:

CAUTI Equipment and Supplies

TYPE OF SUPPLY/ EQUIPMENT/	CATEGORIES	CONSIDERATIONS
IUC	Size	• In general, the smallest appropriate catheter size should be used to minimize urethral trauma while ensuring proper drainage. Consider catheter size and type when a difficult insertion is anticipated to reduce the risk of multiple attempts. • Ensure catheters of multiple sizes are made available in supply areas.
	Materials and coatings	A risk assessment should be used to determine the most appropriate catheter materials and whether antimicrobial coated catheters should be made available.
	Specialty catheters	Determine which types of specialty catheters (e.g., Coudé) might be needed for unique patient populations in specific units.
Insertion kits	Design	A multidisciplinary team should work together to select the insertion kit that works best with the facility's insertion protocols. Some considerations in kit selection include: • Ensuring that the packaging order of the kit matches the order of steps in the facility insertion protocol and that all necessary products are included. Stopping during insertion to retrieve a missing item can interfere with aseptic technique. • Ensuring kits with various catheter sizes and types are available and clearly labeled. • Ensure the securement device is appropriate and works reliably to secure the IUC.
	Maintaining a closed system	Utilizing a kit that is appropriate for the acuity of the patient population to reduce disconnection/reconnection to alternative specialty catheters and urometers.
Patient hygiene products	Bathing/ Perineal care	A risk assessment should be used to select the most appropriate bathing, pericare, and incontinence care products. Ease of use, availability of supplies, likelihood of compliance, and cost should be considered.
Alternatives to indwelling urinary catheters	Incontinence management supplies	Ensure a wide variety of appropriate incontinence management products are available, including male and female urinals, diapers/chux, scales for weight, bladder scanners, and skin protectants.
	External urinary catheters	Ensure a wide variety of external male and female urinary catheter options are available to account for different patient acuity, gender, and body habitus.
	Straight urinary catheters	Ensure straight urinary catheters are available in multiple sizes for intermittent catheterization use. Consider purchasing straight catheters as part of a kit.

Training and Education

Training and education are vital components of a CAUTI prevention program and should be addressed upon hire and at least annually with updates as needed. The facility should identify who will be responsible for each part of the education and competency process, including:

1. Identification of roles requiring education only versus both education and competency validation
2. Development of role-specific education and/or competency validation
3. Administration and documentation of education
4. Assessment and documentation of competency

A multidisciplinary team should oversee the entire process whenever possible to ensure targeted materials, educational methods, and the individuals identified receive it. To the right is a template that includes possible educational topics based on activity performed:

Education Topics by Activity

ACTIVITY PERFORMED	RECOMMENDED EDUCATION TOPICS
Requesting a catheter order/ Ordering a catheter	• Appropriate indications for catheter insertion (consider assessing competency) • Availability of alternative devices and appropriate scenarios for using each type (consider assessing competency) • Risk of CAUTI to a patient and impact to the organization
Catheter insertion	• Appropriate catheter size selection • Appropriate kit selection • Aseptic insertion technique (consider assessing competency) • Securement and documentation
Daily assessment of catheter indication	• Appropriate indications for continued catheter use (consider assessing competency) • Risk associated with extended catheter duration • Nurse-driven removal protocol for discontinuation of IUC (if used) • Urine retention algorithm (if used)
Urine culture ordering	Diagnostic stewardship and appropriate indications for placing a urine culture order (consider assessing competency)
Urine culture collection and storage	• Appropriate collection products and protocols • Ensuring urine does not remain at room temperature without preservative longer than the facility's protocol during storage or transport
Catheter maintenance	• Securement device application • Maintaining a closed system
Patient hygiene	• Fecal management products and protocols • Pericare products and protocols • Bathing and linen change products and protocols (consider assessing competency) • Catheter care products and protocols (consider assessing competency)
Patient ambulation or transport	• Maintaining a closed system • Checking securement prior to ambulation • Ensuring the drainage bag remains off the floor and below the bladder, and that tubing is free of kinks and coils

Policies and Procedures

A CAUTI prevention policy is a key tool in communicating expectations for CAUTI prevention practices across the facility. The foundation of a policy should be well-recognized EBGs, and care should be taken to avoid including elements that may routinely change over time (i.e., referencing product brand names). During regulatory and accreditation surveys, the facility should be in compliance with each element of its policy, therefore it is important to consider the wording and content included. Procedures provide more detailed information instructing the end-user on how to complete a task and can supplement a policy as needed. Below is one example of how each type of document might be leveraged to provide the right amount of detail for use. Checklists can also be created to summarize key steps for procedures.

Example from APIC's PolicyPro

TOPIC	POLICY STATEMENT	PROCEDURE
Indications for IUC insertion	Prior to insertion, patients must be assessed to determine if indications for an IUC are met and whether an alternative method for bladder management could be safely used.	Before the insertion of an IUC, the healthcare team must assess whether the patient is a candidate for other methods for bladder management, including intermittent catheterization or use of a male or female external catheter, bedside commode, or urinary incontinence pads. A physician or APP order for an IUC must be obtained. The urinary catheter will be inserted only when necessary, and will only be in place as long as indications are met. Indications for an IUC may include, but are not limited to, the following: • Perioperative use in selected surgeries (list the selected surgeries) • Acute urinary retention or obstruction • Hospice, comfort care, or palliative care • Accurate measurement of urinary output in critically ill patients • Required strict immobilization for trauma or surgery

At a minimum, CAUTI prevention policies and procedures should include the following topics:

- ☐ Patient assessment for use of external alternatives to IUC
- ☐ Appropriate indications for use of an IUC
- ☐ Frequency of review of indication/ necessity for continued catheterization
- ☐ Processes regarding ordering and documenting the insertion of an IUC
- ☐ Aseptic insertion practices
- ☐ Catheter maintenance practices and patient hygiene
- ☐ Monitoring and surveillance practices for CAUTI
- ☐ Specimen collection and storage practices
- ☐ Type and frequency of education
- ☐ Catheter removal practices and protocols with a focus on removal when no longer indicated
- ☐ Responsibilities for catheter insertion, maintenance, and CAUTI prevention which are organized by position and role

Information Technology

Electronic technologies can be leveraged as part of a CAUTI prevention program to enhance accuracy, efficiency, and reliability. Below are considerations for each type of technology as it relates to a prevention program:

- **Electronic medical record (EMR) software:** As EMR software continues to evolve, infection preventionists should routinely reassess ways the technology can be leveraged to promote compliance with best practice. When changes to the EMR are considered, collaborating with clinicians is critical before adopting the changes to workflows.

    - Providing decision support and guidance for clinicians
      Example: Modifying urinalysis and culture order workflows within the EMR to encourage use of the most appropriate laboratory test for patients with an IUC
    - Providing prompts and alerts for high-risk scenarios
      Example: Building alerts in the EMR that notify clinicians when pericare has not been documented within the required timeframe according to the facility policy
    - Monitoring compliance with documentation of prevention practices
      Example: Creating monthly reports that summarize the frequency in which patients with an IUC had pericare documented according to the facility policy

- **Infection prevention surveillance software:** Multiple surveillance software products are available, each with a focus on improving efficiency and reliability of data. Each facility should assess its internal needs and resources when determining which surveillance software is appropriate. A cost/benefit analysis can be useful in describing the potential time savings associated with introducing surveillance software and how that software could assist infection prevention and control (IPC) in reallocating time towards more effective workflows.

- **Dashboards and reporting software:** Many facilities utilize software to display the current status of key outcome and process measures. Infection preventionists should work closely with the information technology (IT) and quality departments to ensure that IPC metrics are accurate and communicated widely to all relevant stakeholders.

Supplemental Resources

For additional information on the topics above, refer to the following APIC Text Chapter or resource:

APIC Text, Chapter 3: Education and Training
APIC Text, Chapter 7: Product Evaluation
APIC Text, Chapter, Chapter 9: Staffing
APIC Text, Chapter, Chapter 16: Quality Concepts
APIC Text, Chapter, Chapter 36: Infections from Indwelling Medical Devices

APIC PolicyPro, Prevention of CAUTI
Agency for Health Research and Quality, Toolkit for Reducing CAUTI in Hospitals
Centers for Disease Control and Prevention, IUC Culture Steward

SECTION 3

Best Practices for Prevention

Essential Practices

This section is intended to summarize practices, which may be included within bundles, that are widely considered essential for preventing CAUTI.

Insertion Elements	
ESSENTIAL PRACTICE	**IMPLEMENTATION TASKS**
Use IUCs only when necessary and appropriately indicated	• Develop and utilize an approved list of indications for IUC insertion. • Use the EMR to require physicians and APPs to enter the indication prior to insertion and daily thereafter to promote assessments.
Consider lower risk methods for bladder management, such as external catheters or intermittent catheterization	• Ensure alternatives to IUCs are available. • Establish a process for voiding trials with documentation and/or bladder scanning for patients with urinary retention. • See Appendix A: Acute Urinary Retention Pathway for Adults.
Use appropriate insertion practices, including hand hygiene, aseptic and sterile technique, and sterile supplies	• Use a documented procedure for IUC insertion. • Use a checklist in the EMR to improve reliability of insertion protocols. • Use the appropriate size catheter and insertion experts (e.g., urology) for difficult insertion to limit repeat attempts and reduce traumatic injury. • Provide a table of ages/weights and recommended catheter sizes. • Ensure appropriate sterile supplies are available.
Secure IUC after insertion	Ensure securement devices are available and applied appropriately.

Maintenance Elements

ESSENTIAL PRACTICE	IMPLEMENTATION TASKS	RATIONALE
Maintain a sterile, continuously closed drainage system	• Ensure available supply for drainage bag tubing meets the need of the department/unit (i.e., can obtain a urine specimen aseptically without opening the system, can measure output, can maintain a drainage bag below the bladder). • Ensure healthcare personnel do not routinely flush catheters or leave the catheter open into a diaper/chux.	Maintaining a closed system decreases the risk of contamination from the environment.
Consider the replacement of the catheter and collection system if breaks in aseptic technique, disconnection, or leakage occur	• If switching an element of the collection system (e.g., drainage bag), discard after use or store in a way to prevent contamination. • Routine replacement of IUC is not recommended.	• A lapse in aseptic technique or disconnection in the system increases the risk of infection. • Leakage of a catheter indicates inadequate bladder drainage, a break in the system, or the incorrect catheter size.
Use proper technique when collecting urine for culture, including transport and storage practices	• Establish a urine specimen collection policy or procedure with clear steps. • Collect urine from drainage tubing/port and not the drainage bag. • Develop urine culture indications.	Urine collected from the drainage bag is likely contaminated from previous drainage and does not represent an appropriate specimen for a culture.
Ensure urine flow remains unobstructed	• Ensure no dependent loops or kinks in the drainage system. • Consider the use of a leg bag for ambulation. • Ensure drainage bag remains below the level of the bladder including during ambulation, wheelchair or transport. • Ensure medical equipment (e.g., beds, wheelchairs, IV poles) can keep the drainage bag off the floor and below the bladder (i.e., places to hang the drainage bag). • Empty the drainage bag regularly.	The backflow of urine into the tubing or bladder increases the risk of infection.
Perform routine patient hygiene using proper technique	• Ensure routine perineal care per policy. • Ensure catheter care after each episode of fecal incontinence. • Use the EMR to prompt documentation of daily process metrics.	Bacteria from stool may contaminate the IUC and cause an infection in the bladder.
Remove the IUC as soon as indications for continued use are no longer met	• Establish a process at the unit/department level to discuss the IUC daily on rounds (i.e., rounding checklist). • Utilize the EMR to prompt daily reviews of IUC and automatic stop orders when appropriate. • See Appendix B: Alternative to Indwelling Urinary Catheter Algorithm for Adults.	Each day that an IUC remains in place, the risk of acquiring a CAUTI increases.

Additional Practices

In complement to the essential practice for CAUTI prevention, prevention programs can consider additional practices in settings where the infection rates have remained above expected despite implementing the essential prevention strategies. Advanced practices tend to be focused on specific patient populations or specific practices with limited evidence to support their effectiveness. **Due to limited published evidence regarding the effectiveness of these advanced practices, key stakeholders at a facility need to review and discuss an advanced practice prior to implementation. Clear objectives, timeframes of project evaluation, and risks should be discussed with stakeholders prior to implementation.**

Advanced Practices

PRACTICE	DESCRIPTION	WHEN TO CONSIDER	SOURCE
Bladder scanning algorithms	Systematic and scheduled evaluation of post-residual urine volumes using bladder scanning for patients with acute retention. These algorithms aid in determining the need for insertion/re-insertion of IUC.	• For management of postoperative urinary retention. • If there is a pattern of re-insertion of IUC after removal within 24 hours. • Elevated mean duration of IUC compared to another facility or department.	SHEA Compendium Sample Bladder Scan Policy from the Agency for Healthcare Research and Quality
Monitoring catheter use and adverse events from catheter use	Develop a system for analysis and reporting on facility-defined adverse events, in addition to CAUTI, from catheter use, such as catheter obstruction, unintended removal, reinsertion within 24 hours of removal, and catheter trauma.	Implement in units identified as high risk based on cumulative attributable difference (CAD).	SHEA Compendium
Non-catheter-associated urinary tract infection surveillance	Develop a system for defining, analyzing and reporting non-catheter-associated urinary tract infections, particularly those associated with devices used as alternatives to IUC.	Determining when the benefit outweighs the risk of using newer alternatives to urinary catheters.	SHEA Compendium
Nurse-driven IUC removal	Implement a medical staff approved protocol/order set allowing nurses to remove IUCs not meeting the approved facility indication without requiring a removal order.	Review of process data shows indications of IUCs are not consistently addressed.	SHEA Compendium Don't Have a Doubt, Get the Catheter Out: A Nurse-Driven CAUTI Prevention Protocol

Advanced Practices

PRACTICE	DESCRIPTION	WHEN TO CONSIDER	SOURCE
Replacing IUC prior to collecting urine culture specimens	Replace IUC prior to collecting urine specimens for culture to reduce false-positive results based on colonization, not active infection.	Review CAUTI cases which indicate colonization might be contributing to increased rates.	Using Clinical Decision Support to Improve Urine Testing and Antibiotic Utilization 2414. Pulling the Cord: Removal of Urinary Catheters before Urine Culture in a Cardiothoracic-Surgery ICU
"Foley Free" emergency department	Reducing the insertion of IUCs during a patient's admission within emergency departments. Limiting access to IUC or creating an algorithmic approach using techniques such as straight catheterization or using external urinary catheters prior to IUC insertion.	Review of process data shows indication for IUC not following established facility policy and placement location is in the emergency department.	Reducing Inappropriate Urinary Catheter Use in the Emergency Department: Comparing Two Collaborative Structures
Chlorhexidine gluconate (CHG) use on urinary catheter tubing	Use of a CHG-impregnated cloth to cleanse a portion of the indwelling catheter to aid in the disruption of biological burden.	Review of CAUTI cases indicate that hygienic practices might be contributing to increased rates despite compliance.	Chlorhexidine for Meatal Cleaning in Reducing Catheter-Associated Urinary Tract Infections: A Multicentre Stepped-Wedge Randomised Controlled Trial

SECTION 4

Measuring a CAUTI Prevention Program

Outcome Metrics

Outcome metrics reflect the impact of a healthcare service or intervention on the health status of patients.[8] These measures result from numerous factors, some beyond the control of the healthcare facility. The following are commonly used outcome metrics for CAUTI:

Common Outcome Metrics for CAUTI

DESCRIPTION	NUMERATOR	DENOMINATOR	COMMENT(S)
CAUTI Rate	CAUTI event per NHSN surveillance definition	IUC days, patient days or resident days	Numerator/Denominator x 1000
CAUTI SIR	CAUTI observed event(s) per NHSN surveillance definition	CAUTI events(s) predicated per NHSN surveillance definition	SIR is a summary measure that compares the actual number of infections to the number predicted given the standard population, adjusting for several risk factors. It is calculated by NHSN.
SUR	Observed number of urinary catheters	Predicted number of urinary catheters per NHSN	SUR is a summary measure that compares the actual number of device days reported to what would be predicted, given the standard population, adjusting for several risk factors. It is calculated by NHSN.
CAD	Observed number of CAUTIs per NHSN	Prevention target (predicted × SIR goal)	CAD is the number of excess infections that need to be prevented to reach a goal SIR.
Targeted Assessments for Prevention (TAP) Reports	See above, TAP reports generate CAD metrics for specific inpatient units		TAP reports rank facilities or locations within those facilities by CAD to help facilities prioritize locations where the greatest prevention impact could be achieved.[9]

Process Metrics

When CAUTI rates exceed expectations or fail to meet facility goals, facilities should measure compliance with essential practices through process surveillance. Process measurement can occur through five methods which are often used in unison to provide the broadest viewpoint.

Five Methods of Process Measurement

METHOD	DETAILS	BENEFITS	CHALLENGES
Direct observation of practice	In this method, a competent observer watches a clinician perform a specific practice to determine if it is in compliance with the facility's policy and/or procedure. In regard to CAUTI, this method is often used to observe technique during IUC insertion, perineal care, and urine culture collection.	• Captures actual practice versus documentation • Encourages interactions between infection preventionists and healthcare personnel • Allows for just-in-time feedback	• Requires a skilled observer • Can result in discomfort on the part of the clinician being interviewed • Time-consuming and relies upon an observer being available when a procedure is occurring
Point prevalence rounding	In this method, a trained observer conducts rounds at a regular interval to document prevention practices for all patients at risk. In regard to CAUTI, this method is often used to identify patients with IUCs in which best practice is not being followed for site securement or drainage bag placement.	• Captures actual practice versus documentation • Allows for just-in-time feedback	• Requires a skilled observer • Time-consuming and bias can be introduced if all shifts are not observed
Staff interviews	In this method, a trained observer interviews clinicians to gain insight into opportunities for improvement. In regard to CAUTI, this method is often used in areas with higher-than-expected rates to identify potential causes.	• Encourages interactions between infection preventionists and healthcare personnel • If open-ended questions are used, this method might provide insights that would not be known otherwise	• Requires a skilled interviewer • Time-consuming and bias can be introduced if all shifts and roles are interviewed • Can result in discomfort on the part of the clinician being interviewed

Five Methods of Process Measurement

METHOD	DETAILS	BENEFITS	CHALLENGES
Automated metrics using the EMR	Some organizations have access to information technology tools that allow certain documentation elements in the EMR to be aggregated for use in a metric. In regard to CAUTI, this method is often used with discrete data elements that are reliably documented for every patient at a routine cadence (e.g., site securement was documented at least every 24 hours).	Automated process requiring limited labor on the part of the infection preventionists	• Only provides documentation data versus actual practice • Often requires a significant resource investment to set up and maintain the metrics, and the expertise might not be available with the IPC department
Manual chart review	In this method, a trained individual reviews those areas of the EMR that are not captured in discrete data fields (e.g., narrative sections) and abstracts relevant information.	Provides access to information that cannot be automated or otherwise observed	• Requires a skilled reviewer • Time-consuming • Often impossible to conduct multiple reviews at one time, limiting the capacity for analysis and comparison

The facility risk assessment can assist the multidisciplinary team in identifying the most appropriate metrics for the facility. Below is a list of possible metrics for each essential practice. Note that these metrics are intended to provide additional perspective and information into the CAUTI prevention program but that each metric has inherent limitations.

Metrics for Assessing Prevention Processes in Patients with IUCs

PROCESS STEP	ESSENTIAL PRACTICE	METRIC	DEFINITION	WHEN TO CONSIDER	DATA COLLECTION METHOD/S
Insertion	Utilize IUCs only when necessary and leave in place only when indicated	Indication type frequency	Distribution of the indication for IUCs at time of insertion	There is suspicion that catheters are being used when not appropriately indicated	Automated metric using the EMR
		Patient location at time of insertion frequency	Distribution of where catheters are inserted	There is suspicion that a location is inserting more IUCs than is necessary	Automated metric using the EMR
		Compliance with documentation of indication at insertion	% of patients with IUC insertion records in which an indication was documented at or prior to the time of insertion	There is suspicion that patients are having IUCs placed without appropriate indications	Automated metric using the EMR
	Consider lower risk methods for bladder management, such as external urinary catheters or intermittent catheterization	External device compliance	% of patients who had use of an external urinary catheter documented prior to IUC insertion	There is suspicion that alternative devices are not being considered before an IUC is placed. Note: This metric will never be 100%, as external urinary catheters are not appropriate for all patients	Automated metric using the EMR May need to supplement with chart review
	Utilize appropriate insertion practices, including hand hygiene, aseptic and sterile technique, and patient-appropriate sterile supplies	IUC size frequency	Distribution of insertions based on IUC size	There is suspicion that the smallest catheter possible is not being routinely used at your facility	Automated metric using the EMR
		IUC type frequency	Distribution of insertions based on IUC type	There is suspicion that specialty catheters are being used more often than is appropriate	Automated metric using the EMR
		Insertion bundle element frequency	% of IUC insertions in which all insertion bundle elements were documented as compliant	There is suspicion that some insertion bundle elements are not being performed	Automated metric using the EMR Direct observation
		Insertion attempt frequency	% of IUC insertions in which more than one attempt is made (stratified by number of attempts)	There is suspicion that multiple insertion attempts are happening more frequently than appropriate	Automated metric using the EMR May require chart review

Metrics for Assessing Prevention Processes in Patients with IUCs

PROCESS STEP	ESSENTIAL PRACTICE	METRIC	DEFINITION	WHEN TO CONSIDER	DATA COLLECTION METHOD/S
Maintenance	Utilize a securement device on IUCs after insertion	Securement device frequency at insertion	Distribution of the various securement devices at the time of insertion	There is suspicion that alternative securement types are being used	Automated metric using the EMR
		Compliance with appropriate securement	% of patients in which daily securement is documented and appropriate	There is suspicion that daily securement isn't being addressed or isn't being documented	Automated metric using the EMR Point prevalence rounding
	Maintain a sterile, continuously closed drainage system	Frequency of drainage bag below the bladder	% of patients in which the drainage bag is below the bladder	There is suspicion that drainage bags are often not in the preferred location to the bladder	Point prevalence rounding
	Replace catheter and collection system if breaks in aseptic technique, disconnection, or leakage occur	Frequency of catheter seal broken	% of patients in which the catheter seal is broken	There is suspicion that catheter seals might be broken more frequently than is appropriate	Automated metric using the EMR Point prevalence rounding
	Utilize proper technique when collecting fresh urine. Ensure urine specimen is delivered to the lab promptly or refrigerated if not feasible	Frequency of squamous cells in urinalysis	% of positive urine cultures ordered using urinalysis with reflex that have squamous cells on results	There is suspicion that contamination might be occurring during culture collection	Automated metric using the EMR May require chart review
		Frequency of positive growth in urine cultures	% of overall urine cultures with growth >100,000 colony forming units (CFU)/ml	There is suspicion that contamination might be occurring during culture collection	Automated metric using the EMR
		Urine culture collection source frequency	% of urine cultures documented as clean catch compared to catheter collection or neither method	There is suspicion either that documentation for urine culture collection type is incorrect or that an inappropriate collection method is being used	Automated metric using EMR
		Average travel time for urine cultures	% of urine cultures with travel time (e.g., time from collection to receipt in the lab) by category (e.g., 0-60 minutes, 61-120 minutes, 120+ minutes)	There is suspicion that urine cultures are being stored without preservatives or refrigeration on the unit, resulting in higher-than-expected growth	Automated metric using EMR May require chart review

Metrics for Assessing Prevention Processes in Patients with IUCs

PROCESS STEP	ESSENTIAL PRACTICE	METRIC	DEFINITION	WHEN TO CONSIDER	DATA COLLECTION METHOD/S
Maintenance	Ensure urine flow remains unobstructed	Frequency of dependent loop documentation	% of patients in which no dependent loops are identified	There is suspicion that dependent loops might be occurring	Point prevalence rounding
	Perform routine patient hygiene utilizing proper technique	Compliance with documenting patient bathing	% of IUC days in which patients have a bath charted	There is suspicion that patients are not being bathed per policy	Automated metric using EMR
	Remove the IUC when no longer indicated	Compliance with documenting indication daily	% of IUC days in which daily necessity is documented	There is suspicion that daily indication for continued catheter is not being documented	Automated metric using EMR
		Compliance with documented indication for continued use per care plan	% of patients reviewed in which the documented daily indication was confirmed by other EMR data	There is suspicion that the daily necessity for the catheter is not truly being assessed, even though it is documented	Chart review
		Average IUC dwell time by catheter type	Calculated average days of IUC from date of insertion to date of removal	There is suspicion that IUCs are not being removed as quickly as they should be	Automated metric using EMR
		Dwell time frequency	Calculated frequency of IUC dwell time-based on categories (e.g., less than 5 days, 5-10 days, 11-30 days, >30 days)	There is suspicion that the average IUC dwell time is being skewed by very quick or very delayed removal	Automated metric using EMR

A comprehensive chart review/drill down of patients with CAUTI can be a useful method for identifying trends and in turn identifying effective interventions. Below are some epidemiologic questions to consider when looking for trends in patients with CAUTI:

Epidemiologic Questions to Investigate
Are CAUTI rates higher in a specific sex, age group, race, or body mass index (BMI) category?
Are CAUTI rates higher on a specific unit?
Are CAUTI rates higher in patients who had their IUC inserted on a specific unit?
How many days elapsed from insertion to the date of the event for each CAUTI? Note: This can provide information as to whether infections may be related to insertion or maintenance practices
Are CAUTI rates higher in patients with a certain catheter type?
Are CAUTI rates higher in patients with larger IUC sizes?
Did patients with CAUTIs have multiple insertion attempts?
Did patients with CAUTIs have all insertion bundle elements documented?
Was the indication for insertion of the IUC appropriate?

Epidemiologic Questions to Investigate

Was the daily indication of the IUC appropriate in the days prior to the date of the event?
Were all maintenance elements (closed intact system, no dependent loops, bag below the bladder, catheter securement) documented in the days prior to the date of the event?
Were all hygiene elements (patient bathing, perineal care, catheter care, incontinence care) documented in the days prior to the date of the event?
Did the patient have documented fecal incontinence in the days prior to the date of the event? If so, was the stool consistency indicative of diarrhea?
Is there a trend in the organisms identified in patients with CAUTIs?
Is there an indication of contamination of the urine culture in patients with CAUTIs?
Is there an indication that the urine collection method was not appropriate in patients with CAUTIs?
Is there an indication that the urine culture order was not warranted in patients with CAUTIs?

SECTION 5

Setting-Based Case Studies

Scenario 1: Community Hospital

You are a new infection preventionist at a community hospital, and your medical/surgery unit has a higher-than-expected CAUTI rate. As you look more closely at your NHSN data, you realize that the standardized utilization ratio (SUR) is higher than expected. A review of the insertion locations indicates that most of the indwelling urinary catheters (IUCs) were placed in the emergency department.

Although there appears to be an issue with IUCs being placed in the emergency department, the infection preventionist should prioritize their investigation on the medical/surgical unit due to the high SUR. The first step is to determine if the hospital has criteria for the insertion and maintenance of IUCs. If there are no criteria, assemble a stakeholder group that includes nursing leadership, clinicians (physicians, advanced practice providers, and nurses), and urology specialists to develop and implement criteria. If there are criteria, determine if staff are in compliance with the insertion and maintenance criteria. Perform a retrospective review of the medical records of patients who had IUCs inserted to determine if the patient met insertion criteria and if the IUC was removed when criteria for the IUC to remain in place were no longer met. Follow-up would depend on the results of that surveillance.

Scenario 2: Medical Center

You are a new infection preventionist at a large academic medical center. Leadership is concerned about high CAUTI rates. You review data that has been reported into NHSN using CDC criteria to validate the CAUTI data. You verify the data is correct for your facility and begin to review the patient's medical records to determine possible root causes. You create a line list and populate it with the patient's information from the charts. One of the first trends you notice is the indication for the specimen order was the same for all patients. The second trend you notice is the specimen ordering for a urinalysis with reflex to culture was the same for all patients. The final trend you notice is that four patients received treatment for their positive urine culture, but two did not receive treatment. You summarize your findings from the medical chart reviews and share your initial findings with your medical director.

The infection preventionist shares there may be a problem with the urine culturing practices, and you recommend a clinician team to review this possible contributing factor. The medical director, pharmacist, and clinical laboratory director review the laboratory results and any antibiotics administered for the treatment of each patient. The team of clinicians determined the ordering practices for ordering urine cultures could be improved. The infection preventionist begins to gain support to standardize ordering practices for a program. The initial goal of the program is to educate on the appropriate indications for ordering urine cultures.

SECTION 6

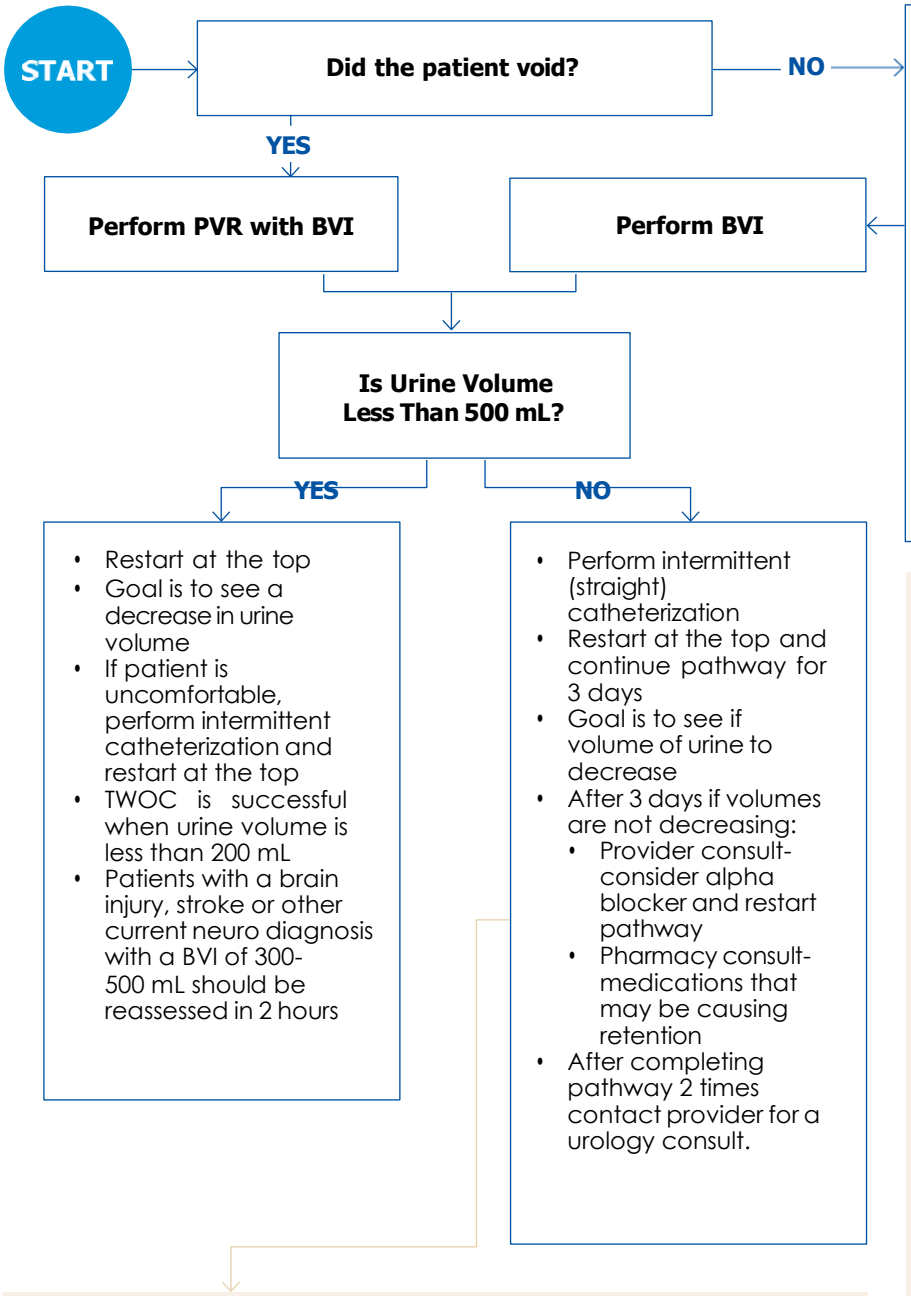
Samples of Associated Tools

The following appendices are samples of associated tools used to prevent CAUTI. These examples may be adapted after performing a risk assessment. This will ensure that specific criteria are utilized in these pathways based on patient population and/or facility protocols.

APPENDIX A:

Acute Urinary Retention (AUR) Pathway (Adult)

- Do not use with obstetric or pediatric patients
- Algorithm can be used on adult patients experiencing urinary retention:
  - With no history and/or no disease that would casue urinary retention (UR)
  - After a trial without catheter (TWOC)
- Not for patients with surgery on the contiguous structure of the urinary tract
- Continue with straight catheterizations as long as there are no signs of urethral trauma or patient distress



- Offer oral fluids unless contraindicated
- Assess patient every 4 hours and as needed
- Increase mobility
- Encourage patient to walk/stand
- Get patient up to toilet/ commode
- Run water, use an approved warm compress, use Valsalva manuever, minimize narcotics and medication with sedative properties, assess and manage constipation

- Restart at the top
- Goal is to see a decrease in urine volume
- If patient is uncomfortable, perform intermittent catheterization and restart at the top
- TWOC is successful when urine volume is less than 200 mL
- Patients with a brain injury, stroke or other current neuro diagnosis with a BVI of 300-500 mL should be reassessed in 2 hours

- Perform intermittent (straight) catheterization
- Restart at the top and continue pathway for 3 days
- Goal is to see if volume of urine to decrease
- After 3 days if volumes are not decreasing:
  - Provider consult- consider alpha blocker and restart pathway
  - Pharmacy consult- medications that may be causing retention
- After completing pathway 2 times contact provider for a urology consult.

ALPHA BLOCK CONSIDERATIONS

- Consider starting patients with BPH
- Consider with continued inability to void, residual volumes not decreaing and/or remaining greater than 400 mL
- Can be used in female patients to help relax the bladder outlet
- Use caution in patients with low blood pressure or risk of falls

α Adrenoceptor Antagonists (α blockers) Medications
Alfuzosin (Uroxtral), Doxazosin (Cardura), Prazosin (Minipres), Silodosin (Rappaflo), Tamsulosin (Flomax), Terzosin (Hytrin)

KEY DEFINITIONS AND FAQS

Acute Urinary Retention: Inability to voluntarily pass urine. Common urologic emergency. In men AUR is often secondary to benign prostatic hperplasia (BPH). It is rare in women.

Bladder Volume Indicator (BVI): Ultrasound measure of urine volume

Post Void Residual (PVR): Incomplete bladder emptying that is measured as the volume of urine left in the bladder after voiding

Chronic Urinary Retention (CUR): An elevated PVR of greater than 300 mL that has persisted for at least six months documented on two or more separate occasoins

Trial Without Catheter (TWOC): Removal of an indwelling urinary catheter to assess patient's ability to spontaneously urinate

Normal bladder capacity is 400-600 mL and the urge to void typically occurs at 150-300 mL
Successful void: PVR less than 200 mL

Causes of retention: immobility, constipation, medication, obstruction pain, anxiety, intestinal pathophysiology

APPENDIX B: Alternatives to Indwelling Urinary Catheter Algoritm- Insertion and Ongoing Assessment (Adult)

START → **Order for/or Indwelling Urinary Catheter (IUC) present**

YES

Assess patient to validate and verify clinical indication for IUC:

- ☐ Accurate I/O for **critically ill patients requiring hourly urine output measurement for clinical decisions** (must document I/O q1h)
- ☐ Continuous bladder irrigation
- ☐ Epidual or spinal anesthesia within the first 24-48 hours
- ☐ Order to maintain chronic long term urinary catheter
- ☐ Prolonged immobilization (unstable spine and pelvic fractures pre-stablization, prone patients)
- ☐ Specific surgical procedures—surgery on the contiguous structures of the genitourinary tract
- ☐ Stage 3 or 4 pressure injury health due to incontinence
- ☐ Urinary Obstruction
- ☐ End of Life—death expected within 48 hours and patient is in pain

YES

Valid Clinical Indication for IUC Present

- Place indwelling urinary catheter per order
- Asses for valid catheter indication at least daily
- Remove catheter as soon as possible (utilize Nurse Driven Removal Protocol)

NO

No valid clinical indication for IUC

- Catheter is present, utlize Nursing Driven Removal Protocol to remove IUC
- Order to place IUC, assess patient for use of an alternative urinary device and discuss with LIP

Accurate Intake and Output

- Develop plan for management of strict I/O considering current patient condition (mobility, patient prefernece, orientation, urgnecy, ability to communicate)
- Document I/O at least q1h
- If q1h documentation is not required, d/c strict I/O (order required)
- Foley catheter for accurate output is not indicated outside the ICU, OR, or ED
- Use anatomically situationally appropriate incontinence device
- Schedule straight catheterization
- Weigh bed padding (to maintain skin integrity, do not use diapers)
- Use urinal, bedpan or BSC/toilet with hat

- Frequent schedule toileting: before/after meals, upon awakening, and prior to bed

Urinary Retention

- Stop medications with side effects of urinary retention if able
- Start alpha-blocking agents if appropriate
- Refer to the urinary retention algorithm
- Voiding trial
- Regular bladder scans with straight catheterization
- Suprapubic catheterization

Stage3 or 4 Sacral Pressure Injury (particularly in individuals with male anatomy)

End of Life (greater than 48 hours)

- If death is not imminent assess end of life goals
- Imminent-death not expected in the next 48 hours

Decreased Mobility

- Assistance required with bed mobility
- Max assistance/ dependent with mobility
- R/T therapeutic intervention (i.e., femoral sheath, etc.)

Use anatomically and situationally appropriate external incontinence device: bedpan, and urinals

References:

1 Magill SS, O'Leary E, Janelle SJ, et al. Changes in Prevalence of Health Care–Associated Infections in U.S. Hospitals. *N Engl J Med.* 2018;379(18):1732-1744. doi:10.1056/NEJMoa1801550

2 Centers for Disease Control and Prevention (CDC). Current HAI Progress Report. November 25, 2024. https://www.cdc.gov/healthcare-associated-infections/php/data/progress-report.html

3 Patel PK, Advani SD, Kofman AD, et al. Strategies to Prevent Catheter-Associated Urinary Tract Infections in Acute-Care Hospitals: 2022 Update. *Infect Control Hosp Epidemiol.* 2023;44(8):1209-1231. doi:10.1017/ice.2023.137

4 Agency for Healthcare Research and Quality (AHRQ). Estimating the Additional Hospital Inpatient Cost and Mortality Associated with Selected Hospital-Acquired Conditions. 2017. https://www.ahrq.gov/hai/pfp/haccost2017-results.html

5 Centers for Medicare and Medicaid Services (CMS). Healthcare facility HAI reporting requirements to CMS via NHSN. 2022. https://www.cdc.gov/nhsn/pdfs/cms/cms-reporting-requirements.pdf

6 Centers for Medicare and Medicaid (CMS). Find Healthcare Providers: Compare Care Near You. https://www.medicare.gov/care-compare/?redirect=true&providerType=Hospital

7 Centers for Disease Control and Prevention (CDC). Catheter-Associated Urinary Tract Infections (CAUTI) Prevention Guideline. May 10, 2024. https://www.cdc.gov/infection-control/hcp/cauti/index.html

8 Agency for Healthcare Research and Quality (AHRQ). Types of Health Care Quality Measures. https://www.ahrq.gov/talkingquality/measures/types.html

9 Centers for Disease Control and Prevention (CDC). TAP Reports for the Facility User. https://www.cdc.gov/nhsn/pdfs/ps-analysis-resources/tapreports_facilities.pdf

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