Tiers of Interventions to Prevent CAUTI\*

# Detailed Tier 1 Interventions

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| **Tier 1** |  **Implement the Following Tier 1 Interventions** |
| Place indwelling urinary catheter only for appropriate reasons. | * Use evidence-based catheter indications to determine appropriate need for insertion of urinary catheters.1
* Engage team members in reducing unnecessary catheter use with strategies like multi-disciplinary rounds to create a “shared mental model” for catheter appropriateness.
* Require a physician order for catheter placement.
* Require staff to document the indication for catheter placement.

Resource(s): [The Ann Arbor Criteria for Appropriate Urinary Catheter Use in Hospitalized Medical Patients](http://annals.org/article.aspx?articleid=2280677) |
| Encourage use of alternatives to indwelling urinary catheters. | * Consider using catheter alternatives based on a patient’s individual assessment and needs.2 Alternatives include:
	+ Condom catheters for cooperative adult male patients without urinary retention or obstruction.
	+ Female urinals.
	+ Incontinence products like absorbent pads (consider calculating volume of urine by converting weight of pad).
	+ Daily patient weights.
	+ Toileting.
	+ One time or short-term intermittent use of “straight catheters” using a bladder ultrasound to assess bladder volume.
* Use decision-making tools to the guide use of bladder ultrasound.

Resource(s): [The American Nurses Association Streamlined Evidence-Based RN Tool for CAUTI Prevention](http://nursingworld.org/CAUTI-Tool), [Catheterout.org sample bladder scanner algorithm](http://www.catheterout.org/sites/webservices.itcs.umich.edu.drupal.Bladder%20Bundle/files/bladder%20scanning_0.pdf) |
| Ensure proper aseptic insertion technique and maintenance procedures. | * Provide routine competency-based training and monitor staff to ensure proper insertion technique and use of supplies including: 2
	+ Use of a closed system catheter insertion kit.
	+ Set up a sterile field.
	+ Perform hand hygiene immediately before and after insertion.
	+ Use sterile gloves, drapes and sponges.
	+ Use appropriate antiseptic or sterile solution for peri-urethral cleaning, and a single-use packet of lubricant jelly for catheter tip.
	+ Use a new sterile catheter if the first is accidently contaminated.
* Provide routine competency-based training and monitor staff to ensure they are following proper maintenance procedures including: 2
	+ Maintain a closed sterile catheter drainage system.
	+ Use of a catheter securement device.
	+ Maintain unobstructed urine flow.
	+ Maintain the urine collection bag below the level of the patient bladder.
	+ Ensure urine culture samples are collected aseptically.

Resource(s): [CDC CAUTI Targeted Assessment for Prevention (TAP) Implementation Guide](https://www.cdc.gov/hai/prevent/tap/resources.html) (see insertion and maintenance sections), [AHRQ Catheter Care Pocket Card](http://www.ahrq.gov/professionals/quality-patient-safety/hais/cauti-tools/impl-guide/implementation-guide-appendix-i.html) |
| Optimize prompt removal of unneeded catheters. | * Conduct daily review using evidence-based catheter indications to determine ongoing need for catheter use.2
* Use strategies like multi-disciplinary rounds to create a “shared mental model” for catheter appropriateness.
* Implement nurse-led reminder and stop order strategies for removal of unnecessary catheters.
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| Urine culture stewardship: only if symptoms of UTI are present. | * Promote urine culture stewardship with the following interventions:3
	+ Evaluate current processes for obtaining urine cultures.
		- Avoid automatic triggers or screening cultures with no appropriate indication.
	+ Evaluate practice patterns.
		- Avoid PAN culturing.
	+ Provide education on when it is appropriate to obtain urine cultures.
	+ Conduct periodic audits on urine culture use in the intensive care units to look for trends.
	+ Promote appropriate urinary catheter use to reduce risk of bacteriuria/funguria.
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|  |  Review and audit compliance with Tier 1 measures before moving to Tier 2. |

# Detailed Tier 2 Interventions

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| **Tier 2** | **Implement the Following Tier 2 Interventions if CAUTI Incidence Remains Elevated** |
| Perform needs assessment with CAUTI Guide to Patient Safety (GPS). | * Perform needs assessment using the [CAUTI Guide to Patient Safety](http://www.ncbi.nlm.nih.gov/pubmed/24576604) (GPS).4 The CAUTI GPS is a [validated](http://www.ajicjournal.org/article/S0196-6553%2816%2930293-0/abstract#.V2wC1ECYjy4.twitter)5 brief trouble-shooting guide for hospitals, designed to identify the key reasons why hospitals or units may not be successful in preventing CAUTIs.
* Use the GPS results to engage health care personnel in the process of developing next steps to prevent CAUTI.
* CAUTI GPS questions:
1. Do you currently have a well-functioning team (or work group) focusing on CAUTI prevention?
2. Do you have a project manager with dedicated time to coordinate your CAUTI prevention activities?
3. Do you have an effective nurse champion for your CAUTI prevention activities?
4. Do bedside nurses assess, at least daily, whether their catheterized patients still need a urinary catheter?
5. Do bedside nurses take initiative to ensure the indwelling urinary catheter is removed when the catheter is no longer needed (e.g., by contacting the physician or removing the catheter per protocol)?
6. Do you have an effective physician champion for your CAUTI prevention activities?
7. Is senior leadership supportive of CAUTI prevention activities?
8. Do you currently collect CAUTI-related data (e.g., urinary catheter prevalence, urinary catheter appropriateness, and infection rates) in the unit(s) in which you are intervening?
9. Do you routinely feedback CAUTI-related data to frontline staff (e.g., urinary catheter prevalence, urinary catheter appropriateness, and infection rates)?
10. Have you experienced any of the following barriers?
	1. Substantial nursing resistance.
	2. Substantial physician resistance.
	3. Patient and family requests for an indwelling urinary catheter.
	4. Indwelling urinary catheters commonly being inserted in the emergency department without an appropriate indication.

Resource(s): Visit <https://catheterout.org/?q=gps> to access the online tool, which links responses to trouble- shooting tips. |
| Conduct catheter rounds with targeted education to optimize appropriate use. | * Conduct daily catheter rounds to audit and assess patients for continued need of urinary catheter use.
* Nursing personnel with knowledge of catheter indications and hospital policy, who have dedicated time to commit to the rounding process, should lead rounds. Examples include:
	+ Nurse manager,
	+ CAUTI nurse champion,
	+ Nurse educator, and/or
	+ Clinical nurse specialist.
* Include targeted education about appropriate catheter use in the rounding process when opportunities for improvement arise.
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| Feed back infection and catheter use to frontline staff in "real time” | * Nurse and physician leaders should work with infection preventionists to share feedback about individual infections, as they are identified “real time” with the health care personnel.
* Share urinary catheter infection data trends, urinary catheter use data trends, CAUTI rates and device utilization, on an ongoing basis with frontline staff.
* Consider posting unit specific and hospital wide rates for comparison and benchmarking in highly visible areas for health care personnel to review.
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| Observe and document competency of catheter insertion: education and observed behavior. | * Health care personnel should demonstrate their competency for catheter insertion while being observed and documented by an expert clinician.
* Health care personnel should receive constructive feedback about their insertion technique.
* Teach health care personnel to use “mindfulness” as a technique to think critically about their actions and consequences of urinary catheter insertion.6
* Use training tools, like checklists, to guide proper steps of catheter insertion technique.
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| Perform full root-cause analysis or focused review of infections. | * Conduct in-depth review of infections to identify contributing factors and root-causes.
* Analyze results to determine improvement steps.
* Share results of analysis with health care personnel and hospital leadership.

Resource(s): [AHRQ CUSP Learning from Defect tool](http://www.ahrq.gov/professionals/education/curriculum-tools/cusptoolkit/toolkit/learndefects.html) |

# Resource(s)

* AHRQ Toolkit for Reducing Catheter-Associated Urinary Tract Infections in Hospital Units: Implementation Guide. AHRQ Pub No. 15-0073-2-EF. September 2015. Available at <https://www.ahrq.gov/sites/default/files/publications/files/implementation-guide_0.pdf>
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* TAP Catheter-Associated Urinary Tract Infection (CAUTI) Toolkit Implementation Guide: Links to Example Resources. Centers for Disease Control and Prevention, CDC. Available at <https://www.cdc.gov/hai/prevent/tap/resources.html>.

# References

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2. Saint S, Greene T, Krein SL, et al. A Program to Prevent Catheter-Associated Urinary Tract Infection in Acute Care. *N Engl J Med*. 2016; 374:2111-19.
3. Fakih M. Urine Culture Practices in the ICU; Antibiotic Stewardship; Practical ICU Tools; Using Results from the Safety Culture Surveys. Agency for Healthcare Research and Quality, AHRQ. Reviewed December 2015. Available at <http://www.ahrq.gov/professionals/quality-patient-safety/hais/cauti-tools/archived-webinars/urine-culture-practices-icu-slides.html>.
4. Saint S, Gaies E, Fowler KE, Harrod M, Krein S. Introducing a catheter-associated urinary tract infection (CAUTI) prevention guide to patient safety (GPS). *Am J Infect Control*. 2014; 42(5):548-550.
5. Fletcher KE, Tyszka JT, Harrod M, et al. Qualitative validation of the CAUTI Guide to Patient Safety assessment tool. *Am J Infect Control*. 2016; 44(10): 1102-9.
6. Kiyoshi-Teo H, Krein SL, Saint S. Applying Mindful Evidence-Based Practice at the Bedside Using Catheter-Associated Urinary Tract Infection as a Model. *Infect Control Hosp Epidemiol*. 2013; 34(10): 1099-1101.