

## Catheter-Associated Urinary Tract Infection (CAUTI) Definitions and Reporting

Onboarding Webinar #2 for LTC Facility Team Leads and Core Team

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## Learning Objectives

Upon completion of the webinar, core team members will be able to:

- demonstrate a working knowledge of the signs, symptoms, and lab tests appropriate for diagnosing a CAUTI using the NHSN criteria;
- use the train-the-trainer materials to cascade content to facility front-line staff;
- provide specific examples of how every team member can help reduce healthcare-associated infections and provide safe care; and
- understand the importance of their role in connecting CAUTI identification to their facility's overall safety plan for residents and staff.

## What is a Catheter-Associated Urinary Tract Infection (CAUTI)?

An infection occurs when a resident with an indwelling urinary catheter:

- Manifests one or more symptoms localized to the urinary tract
- AND**
- Symptoms have no alternative source
- AND**
- Clinical signs and symptoms are combined with laboratory verification of an infection



NHSN LTC

## Finding a CAUTI—4 Easy Questions to Ask

### Four Questions to Identify a CAUTI

Question 1	Question 2	Question 3	Question 4
Does the resident have an indwelling urinary catheter connected to a drainage device?	Does the resident have <u>one or more</u> CAUTI symptoms?	There is no other explanation for this resident's symptoms?	Does the resident have a urine culture that fits the criteria?

**YES YES YES YES**

**then the resident has a CAUTI!**

## Why Focus on Reducing and Preventing CAUTIs?

- Increases morbidity and mortality
- Increases resident and family suffering
- Cystitis, pyelonephritis, bacteremia and septic shock
- Decline in resident function and mobility
- Acute-care hospitalizations and re-hospitalization
- Increased risk of colonization/infections with MDROs
- Inappropriate antimicrobial use
- Operational costs of increased care and treatment

Healthcare Infection Control Practices Advisory Committee

## Question 1: What is an Indwelling Urinary Catheter?

An Indwelling Urinary Catheter IS:

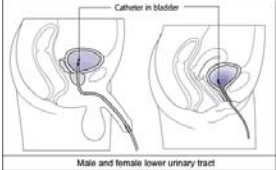
- a drainage tube inserted into the urinary bladder through the urethra;
- left in place and connected to a closed collection system; and
- sometimes called a "Foley" catheter.

An Indwelling Urinary Catheter is NOT:

- an in-and-out catheter;
- a suprapubic catheter, nor
- a nephrostomy tube.

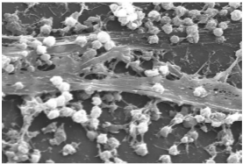
### Question 1: Increased Risk of Infection with an Indwelling Urinary Catheter

**Indwelling Urinary Catheter**



Male and female lower urinary tract

Scanning electron micrograph of *S. aureus* bacteria on the luminal surface of an indwelling catheter known as a biofilm.



Photograph from NHSN LTC

Photograph from CDC Public Health Image Library. ID number 7488. Photograph by Janice Haney Carr in 2005. Accessible: <http://phil.cdc.gov/phil/details.asp>

### Question 1: Recent Catheter Removal and CAUTI

If the indwelling urinary catheter was removed within 2 calendar days prior to the development of CAUTI signs and symptoms, then it's a CAUTI as long as the urine culture criteria is met

- Day of catheter removal = day 1
- All signs/symptoms + positive urine culture must be available within a close timeframe (NHSN Infection Window Period is defined as the 7-days)

NHSN LTCF; CDC-NHSN

### Question 2: What are the Signs and Symptoms of CAUTI?

ONE or MORE of the following:

CAUTI Signs and Symptoms
Fever
Rigors
New confusion or functional decline (with <b>NO</b> alternate diagnosis <b>AND</b> leukocytosis)
New suprapubic pain <u>or</u> costovertebral angle pain or tenderness
New onset hypotension (with no alternate site of infection)
Acute pain, swelling or tenderness of the testes, epididymis or prostate
Purulent (pus) discharge from around the catheter

### Fever

Single oral temperature greater than 100 °F

OR

Repeated oral temperatures greater than 99 °F

OR


Repeated rectal temperatures greater than 99.5 °F

OR

Single temperature greater than 2 °F over baseline for either oral or rectal

### Rigors

- Sudden, paroxysmal chill with high temperature.
- Followed by a sense of heat and profuse perspiration.
- Commonly called "fever and chills."



### New Onset of Confusion

**Confusion**  
(With no alternate diagnosis **AND** leukocytosis)

+

**Fluctuating Behavior**  
(Comes and goes or changes in severity)

+

**Inattention**  
(Difficulty focusing and can't maintain attention)

+

OR

**Disorganized Thinking**  
(Thinking doesn't make sense or is hard to follow)

**Altered Level of Consciousness**  
(Sleepy, lethargic or unarousable)

Has the resident had an acute change in their mental status over the last 7 days?

### Step 1: New Onset Functional Decline

Observe each Activity of Daily Living (ADL) for most dependent episode in last 7 days:

ADL	Functional Level
• Dressing	0 Independent
• Personal Hygiene	1 *Supervision
• Eating	2 Limited Assistance <i>*Physical help limited to transfer</i>
• Transfer	3 Extensive Assistance <i>*Physical help in part of bathing</i>
• Bed mobility	4 *Total Dependence
• Toilet use	
• Walk in room /corridor	
• Locomotion on/off unit	
• *Bathing	

\* = levels that are used to determine bathing level of assistance

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### Step 2: New Onset Functional Decline

Did activity occur 3 or more times in a 7 day period?

Assistance	Explanation	Score
Independent	No help or staff oversight any time	0
Supervision	Needs oversight, encouragement, cueing	1
Limited Assistance	Resident highly involved in activity Staff provide guided maneuvering of limbs or other non-weight bearing assistance	2
Extensive Assistance	Resident involved in activity Staff provide weight bearing support	3
Total Dependence	Full staff performance every time during entire 7 day period	4

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### Step 3: New Onset Functional Decline

Monitor for NEW 3-point increase in total ADLs from BASELINE

ADL	Baseline	Code	Now	Code
Bed Mobility	Independent	0	Supervision	1
Transfer	Supervision	1	Limited assist	2
Walk in room/ corridor	Supervision	1	Limited assist	2
Locomotion on/off unit	Supervision	1	Limited assist	2
Dressing	Supervision	1	Limited assist	2
Eating	Independent	0	Independent	0
Toilet use	Supervision	1	Limited assist	2
Personal hygiene	Supervision	1	Limited assist	2
Bathing	Supervision	1	Help with transfer	2
<b>Total ADL score</b>		<b>7</b>		<b>15</b>

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### Leukocytosis

#### White Blood Cell (WBC) Differential

Leukocytosis is an elevation in the total white blood cell (WBC) count found in the complete blood count (CBC) and differential blood test.

#### Normal values

WBC (x10 <sup>9</sup> )	Bands %	NeutSegs %	Eos %	Baso %	Lymph %	Mono %
6-10	1-6	50-65	0-5	0-4	20-40	1-8

#### Shift to the left

WBC (x10 <sup>9</sup> )	Bands %	NeutSegs %	Eos %	Baso %	Lymph %	Mono %
15	10	80	0	0	10	0

Source: eHow. What is a shift to the left in blood testing? Table by WC Lockwood (reprinted for 508 compliance) Accessed from [http://www.ehow.com/about\\_6172209\\_shift-left-blood-testing.html](http://www.ehow.com/about_6172209_shift-left-blood-testing.html) on 04/03/15.

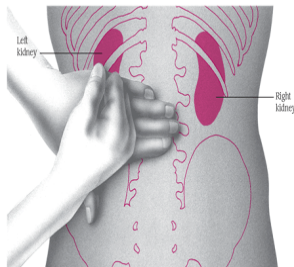
- Neutrophilia
  - Greater than 14,000 leukocytes OR
- Left shift (>6% bands or ≥1,500 bands/mm<sup>3</sup>)
- Elevation in immature WBC (bands)

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### Suprapubic Pain or Costovertebral Angle Pain

New onset of:

- Suprapubic pain
- OR**
- Costovertebral angle pain or tenderness



Source: <http://thehealthsciencesgroup.blogspot.com/2010/10/abdominal-pain-right-left-upper-quadrant.html>

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### Questions 3: Could Something Else Cause These Signs and Symptoms?

The signs and symptoms just described are only indicative of a CAUTI if there are no other explanations for the signs and symptoms.

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### Question 4: What Lab Tests Indicate a CAUTI?

**If a urinary catheter is in place:**

- Positive urine culture with 100,000 colonies or more (10<sup>5</sup> CFU/ml) of any number of microorganisms indicates a CAUTI.

**If a urinary catheter is not in place, but was removed in the past 2 days:**

- Voided urine culture with 100,000 or more colonies (10<sup>5</sup> CFU/ml) of no more than 2 species of microorganisms.

**OR**

- Positive culture with 100 or more colonies (10<sup>2</sup> CFU/ml) of any number of microorganisms from a straight in/out catheter specimen.

## KNOWLEDGE & SKILLS TRANSFER

### Materials and Training Aids

#### CAUTI Criteria - NHSN Definitions Pocket Cards

**Catheter-associated Urinary Tract Infection (CAUTI)**

Criteria for defining CAUTI in long-term care residents:

**One or more of the following:**

- Fever\*
- Rigors (shaking chills)
- New onset hypotension
- New onset confusion/functional decline AND increased white blood cell count\*
- New costovertebral angle pain or tenderness
- New or increased suprapubic pain or tenderness
- Acute pain, tenderness, or swelling of the testes, epididymis, or prostate
- Pain around the catheter site

**AND**

**Any of the following:**

- Catheter removed in last 2 calendar days:
  - Voided urine culture positive for ≥100,000 colony forming units (CFU)/ml of no more than 2 species of microorganisms
  - In/Out catheter urine culture positive for ≥100 colony forming units (CFU)/ml of any number of microorganisms
- If catheter in place:
  - Indwelling catheter urine culture positive for ≥100,000 colony forming units (CFU)/ml of any number of microorganisms

**Constitutional Criteria for Long-Term Care Residents**

**Fever**

Must have one of the following:

- Single oral temperature ≥100°F (37.8°C)
- Repeated oral temperature ≥99°F (37.2°C) OR
- Rectal temperature ≥98.5°F (37.5°C)
- Single temperature ≥78 (1.7°C) lower baseline from any site (oral, tympanic, axillary)

**Increased White Blood Cell Count (Leukocytosis)**

Must have one of the following:

- ≥14,000 white blood cells (leukocytes)/mm<sup>3</sup>
- Increase in immature white blood cells (left shift) with **not** bands or ≥1,500 bandforms/mm<sup>3</sup>

**Acute Change in Mental Status**

All components must be present:


- Acute onset (a new change)
- Fluctuating course (behavior change coming and going, or changing in severity)
- Inattention (difficulty focusing, attention) or disorganized thinking (thinking is incoherent or hard to follow) OR
- Altered level of consciousness (change is different from baseline, may be: sleeps, lethargic, difficult to arouse)

**Acute Functional Decline**

- New 3 point increase in Total Activities of Daily Living (ADL) score from baseline (range 0-20)
- Each ADL scored from 0 (independent) to 4 (totally dependent), including: bed mobility, transfer, locomotion within facility, dressing, toilet use, personal hygiene, and eating

### Your Role in Engaging Staff in CAUTI Prevention

- Share information with all staff/teammates
  - Include physicians and non-physician providers in the education
- Use the CAUTI definition tools to build, encourage and support staff to correctly identify CAUTI signs and symptoms
- Explain the signs and symptoms of UTI to residents/families
- Monitor and report small changes in a resident's conditions
- Recognize staff who accurately observe, report, document and monitor signs and symptoms



### Educate All Staff to Identify CAUTI Signs and Symptoms

**CAUTI Training Program for Long-Term Care (LTCF) Staff**

**Catheter-Associated Urinary Tract Infection (CAUTI) Definitions and Reporting**

Downloaded by Long-Term Care Staff

**CAUTI Training Program for Long-Term Care (LTCF) Staff**

**Introduction 2**

1. In the following, check all that apply to each question:

1.1. I understand the importance of preventing CAUTI in long-term care residents.

1.2. I know how to identify the signs and symptoms of CAUTI in long-term care residents.

1.3. I know how to report CAUTI to the appropriate staff member.

1.4. I know how to prevent CAUTI in long-term care residents.

1.5. I know how to prevent CAUTI in long-term care residents.

1.6. I know how to prevent CAUTI in long-term care residents.

1.7. I know how to prevent CAUTI in long-term care residents.

1.8. I know how to prevent CAUTI in long-term care residents.

1.9. I know how to prevent CAUTI in long-term care residents.

1.10. I know how to prevent CAUTI in long-term care residents.

- Use slide set with facilitator's notes
- Share recorded session for all staff who interact with residents
- Use quiz to assess knowledge gained and encourage team discussion
- Provide copies of tools to guide CAUTI identification
- Provide Evaluation Form and Certificate of Completion

### References

National Healthcare Safety Network (NHSN). [Long-Term Care Facility \(LTCF\) Component Healthcare Associated Infection Surveillance Module: UTI Event Reporting \[online\]](#).

National Healthcare Safety Network (NHSN). [Urinary Tract Infection \(UTI\) Event for Long-Term Care Facilities \[online\]](#).

National Healthcare Safety Network (NHSN). [Catheter-Associated Urinary Tract Infection \(CAUTI\) Event](#).

Centers for Disease Control and Prevention. Healthcare Infection Control Practices Advisory Committee (HICPAC) approved guidelines for the Prevention of catheter-associated urinary tract infections, 2009. Available at <http://www.cdc.gov/hicpac/pdf/CAUTI/CAUTIguideline2009final.pdf>.

Centers for Disease Control and Prevention. Identifying Healthcare-associated Infections (HAI) for NHSN Surveillance (online). Accessible at: [http://www.cdc.gov/nhsn/PDF/pscManual/2PSC\\_IdentifyingHAIs\\_NHSNcurrent.pdf](http://www.cdc.gov/nhsn/PDF/pscManual/2PSC_IdentifyingHAIs_NHSNcurrent.pdf).

Stone ND, Ashraf MS, Calder J. Surveillance Definitions of Infections in Long-Term Care Facilities: Revisiting the McGeer Criteria. *Infect Control Hosp Epidemiol* 2012;33(10):965-977.

George-Gay B, Katherine Parker K. Understanding the Complete Blood Count With Differential. *Journal of PeriAnesthesia Nursing*, Vol 18, No 2 (April), 2003; pp 96-117.

## Stay Updated with Useful Resources

[AHRQ Safety Program for Long-term Care: HAIs/CAUTI Project Website](#)

Login information

Username: Itcsafety

Password: Itcsafety

[TeamSTEPS® for Long-term Care](#)

[CAUTI Criteria NHSN Definitions Pocket Cards](#)

[LTC CAUTI Surveillance Worksheet](#)

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## Your Feedback is Important

Please take a moment to complete the evaluation for today's event.

[Evaluate Event Now](#)

**Remember to Download the Onboarding 2  
Training Materials Designed for All Facility  
Staff**



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