

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

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

*August 13, 2015*



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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



## 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?
<b>YES</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>

**then the resident has a CAUTI!**

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

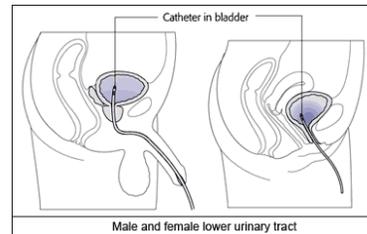
### An Indwelling Urinary Catheter **IS**:

- 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.

### Indwelling Urinary Catheter



Photograph from NHSN LTC

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## 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

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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 NO alternative diagnosis AND leukocytosis)

New suprapubic pain or 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

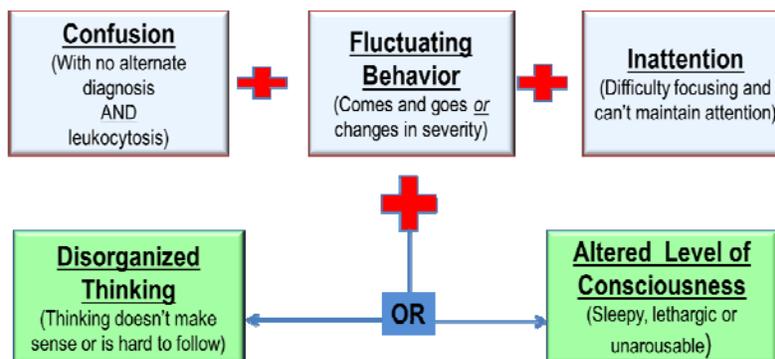
## Rigors

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



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## New Onset of Confusion



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

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## Step 1: New Onset Functional Decline

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

ADL	Functional Level
<ul style="list-style-type: none"> <li>Dressing</li> <li>Personal Hygiene</li> <li>Eating</li> <li>Transfer</li> <li>Bed mobility</li> <li>Toilet use</li> <li>Walk in room /corridor</li> <li>Locomotion on/off unit</li> <li><b>*Bathing</b></li> </ul>	<p>0 Independent</p> <p>1 *Supervision</p> <p>2 Limited Assistance <i>*Physical help limited to transfer</i></p> <p>3 Extensive Assistance <i>*Physical help in part of bathing</i></p> <p>4 *Total Dependence</p> <p><i>* = Levels that are used to determine bathing level of assistance</i></p>

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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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## Understanding ADL

**Which scenario fits the decline in activities of daily function (ADL) criteria? (Choose one.)**

- A resident, who was independent with bed mobility, transfers and locomotion last week, now needs extensive assistance with all 3 ADLs with no apparent cause.
- A resident who required supervision for eating, personal hygiene and toilet use now needs limited assistance with toilet use.

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# Leukocytosis

## White Blood Cell (WBC) Differential

### Normal values

WBC (x10 <sup>3</sup> )	Bands %	Neut/segs %	Eos %	Baso %	Lymph %	Mono %
5-10	3-6	50-62	0-3	0-1	25-40	3-7

### Shift to the left

WBC (x10 <sup>3</sup> )	Bands %	Neut/segs %	Eos %	Baso %	Lymph %	Mono %
15	10	65	1	1	20	3

Source: eHow. What is a shift to the left in blood testing? Table by WC Lockwood (replicated for 508 compliance) Accessed from [http://www.ehow.com/about\\_5172200\\_shift-left-blood-testing.html](http://www.ehow.com/about_5172200_shift-left-blood-testing.html) on 04/03/15.

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

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

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## Understanding Changes in Mental Status

**Which of the residents below has a change in mental status that fits the confusion criteria? (Choose one.)**

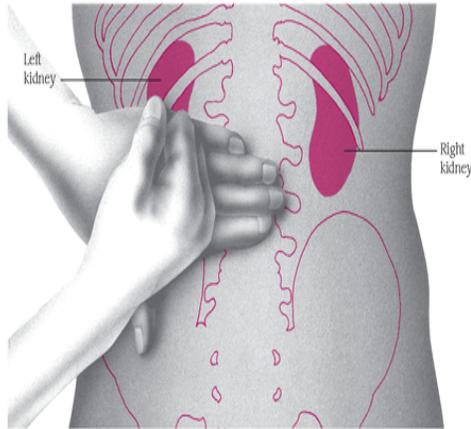
- A resident who is usually able to follow instructions has been unable to focus on activities of daily living or pay attention to instructions for the last couple of days and has a WBC count of more than 10,000 leukocytes.
- A resident suddenly has fluctuating difficulty paying attention and is not making sense during conversation, and has a WBC of greater than 14,000 leukocytes.

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## Suprapubic Pain or Costovertebral Angle Pain

New onset of:

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



Source: <http://hepatitiscnewdrugs.blogspot.com/2010/10/abdominal-pain-rightleft-upper-quadrant.html>

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## Question 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 ( $10^5$  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 ( $10^5$  CFU/ml) of no more than 2 species of microorganisms.

**OR**

- Positive culture with 100 or more colonies ( $10^2$  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, with no alternate source:**

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

**AND**

**Any of the following:**

*If catheter removed within past 2 calendar days:*

- Clean catch (voided) urine culture with 100,000 or more colonies ( $\geq 10^5$  CFU/ml) of no more than 2 species of microorganisms
- In/Out catheter urine culture with 100 or more colonies ( $\geq 10^2$  CFU/ml) of any number of microorganisms

*If indwelling urinary catheter in place:*

- Positive urine culture with 100,000 colonies or more ( $\geq 10^5$  CFU/ml) of any number of microorganisms

REV. 2015-Jul

### \*Constitutional Criteria for Long-term Care Residents

#### Fever

Must have one of the following:

- Single oral temperature  $>100^{\circ}\text{F}$  ( $37.8^{\circ}\text{C}$ )
- Repeated oral temperature  $>99^{\circ}\text{F}$  ( $37.2^{\circ}\text{C}$ ) OR rectal temperature  $>99.5^{\circ}\text{F}$  ( $37.5^{\circ}\text{C}$ )
- Repeated rectal temperatures  $>99.5^{\circ}\text{F}$
- Single temperature  $>2^{\circ}\text{F}$  ( $1.1^{\circ}\text{C}$ ) over baseline for oral or rectal

#### Leukocytosis

Must have one of the following:

- $>14,000$  white blood cells (leukocytes)/ $\text{mm}^3$
- Increase in immature white blood cells (Left Shift) with  $>6\%$  bands or  $>1,500$  bands/ $\text{mm}^3$

#### Acute Change in Mental Status (within last 7 days)

All components must be present:

- Confusion (with no alternate diagnosis and leukocytosis)
  - Fluctuating Behavior (comes and goes, or changes in severity)
  - Inattention (difficulty focusing and cannot maintain attention)
  - Disorganized thinking (thinking is incoherent or hard to follow)
- OR**
- Altered level of consciousness (change is different from baseline, may be sleepy, lethargic, difficult to arouse)

#### Acute Functional Decline

- New 3 point increase in total activities of daily living (ADL) score from baseline (range: 0-28)

Each ADL scored from 0 (independent) to 4 (totally dependent), including: bed mobility, transfer, locomotion within facility, dressing, toilet use, personal hygiene and eating

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## 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



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## Educate All Staff to Identify CAUTI Signs and Symptoms

AHRQ Safety Program for Long-term Care: HAIs/CAUTI

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

Ordering #2 for All Long-Term Care Staff

AHRQ Safety Program for Long-term Care: HAIs/CAUTI

Quiz

#### Ordering #2 CAUTI Definitions and Reporting

- Is the following an example of a CAUTI or a non-catheter symptomatic UTI?
  - Day 1:** The resident has an indwelling urinary catheter inserted in the LTC facility for a bladder outlet obstruction.
  - Day 2:** The indwelling urinary catheter remains in place.
  - Day 3:** The resident's indwelling urinary catheter remains in place. The resident has a single oral temp of 100.2°F. A urine culture is collected from an indwelling catheter specimen.
  - Day 4:** The indwelling urinary catheter remains in place. No symptoms are documented.
  - Day 5:** The urine culture is positive for *Staphylococcus aureus* 100,000 CFU/ml.
- Which of the following criteria would confirm a CAUTI?
  - a) The resident's oral temperature is 100.2°F and the indwelling catheter specimen is positive for  $\geq 100,000$  CFU (10<sup>5</sup>).
  - b) The resident has purulent discharge around the suprapubic catheter and the catheter specimen is positive for  $\geq 100,000$  CFU (10<sup>5</sup>).
  - c) The resident has a fluctuating change in mental status, and a urinal specimen positive for  $\geq 100,000$  CFU (10<sup>5</sup>) four days after the indwelling catheter was removed.
  - d) The resident has multiple oral temps of 99.2°F, chills, sweating, and the indwelling catheter specimen is positive for  $\geq 100,000$  CFU (10<sup>5</sup>).
- Which of the following scenarios fits the decline in activities of daily function (ADL) criteria?
  - a) A resident, who was independent with bed mobility, transfers and locomotion last week, now needs extensive assistance with all ADLs with no apparent cause.
  - b) A resident who required supervision for eating, personal hygiene and toilet use now needs limited assistance with toilet use.
- Which of the residents below has a change in mental status that fits the confusion criteria?
  - a) A resident who is usually able to follow instructions has been unable to focus on activities of daily living on the afternoon instructions for the last couple of days and has a WBC count of more than 10,000 leukocytes.
  - b) A resident suddenly has fluctuating difficulty paying attention and is not making sense during conversation, and has a WBC of greater than 14,000 leukocytes.

- 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

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## CAUTI or Not?

Is the following an example of a CAUTI or a non-catheter symptomatic UTI?

- **Day 1:** The resident has an indwelling urinary catheter inserted in the LTC facility for a bladder outlet obstruction.
- **Day 2:** The indwelling urinary catheter remains in place.
- **Day 3:** The resident's indwelling urinary catheter remains in place. The resident has a single oral temp of 100.2°F. A urine culture is collected from an indwelling catheter specimen.
- **Day 4:** The indwelling urinary catheter remains in place. No symptoms are documented.
- **Day 5:** The urine culture is positive for *Staphylococcus aureus* 100,000 CFU/ml.

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## Criteria for CAUTI

Which of the following criteria would confirm a CAUTI? (Select all that apply.)

- a) The resident's oral temperature is 100.2 °F and the indwelling catheter specimen is positive for *E. coli* 100,000 CFU ( $10^5$ ).
- b) The resident has purulent discharge around the suprapubic catheter and the catheter specimen is positive for *E. coli* 100,000 CFU ( $10^5$ ).
- c) The resident has a fluctuating change in mental status, and a voided specimen positive for *E. coli* 100 CFU ( $10^2$ ) four days after the indwelling catheter was removed.
- d) The resident has multiple oral temps of 99.2 °F, chills, sweating and the indwelling catheter specimen is positive for *E. coli* 100,000 CFU ( $10^5$ ).

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## Stay Updated with Useful Resources

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

Login information

**Username:** Itcsafety

**Password:** Itcsafety

[TeamSTEPPS® for Long-term Care](#)

[CAUTI Criteria NHSN Definitions Pocket Cards](#)

[LTC CAUTI Surveillance Worksheet](#)

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## 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 \[online\]](#).

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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/PDFs/pscManual/2PSC\\_IdentifyingHAIs\\_NHSNcurrent.pdf](http://www.cdc.gov/nhsn/PDFs/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.

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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**

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