



CDC/NHSN Cather-associated Urinary Tract Infection Case Definitions

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*all information is directly from the NHSN site @ www.cdc.gov/nhsn

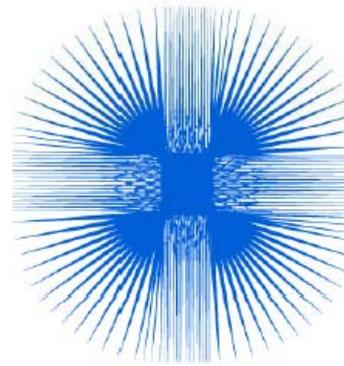
Target Audience

- This training session is designed for those who will collect and analyze Catheter-Associated UTIs using NHSN (acute care) or the FDOH excel spreadsheet (SNF).
- This may include the following:
 - NHSN Facility Administrator
 - Infection Control Professional
 - Epidemiologist
 - Microbiologist

Objectives

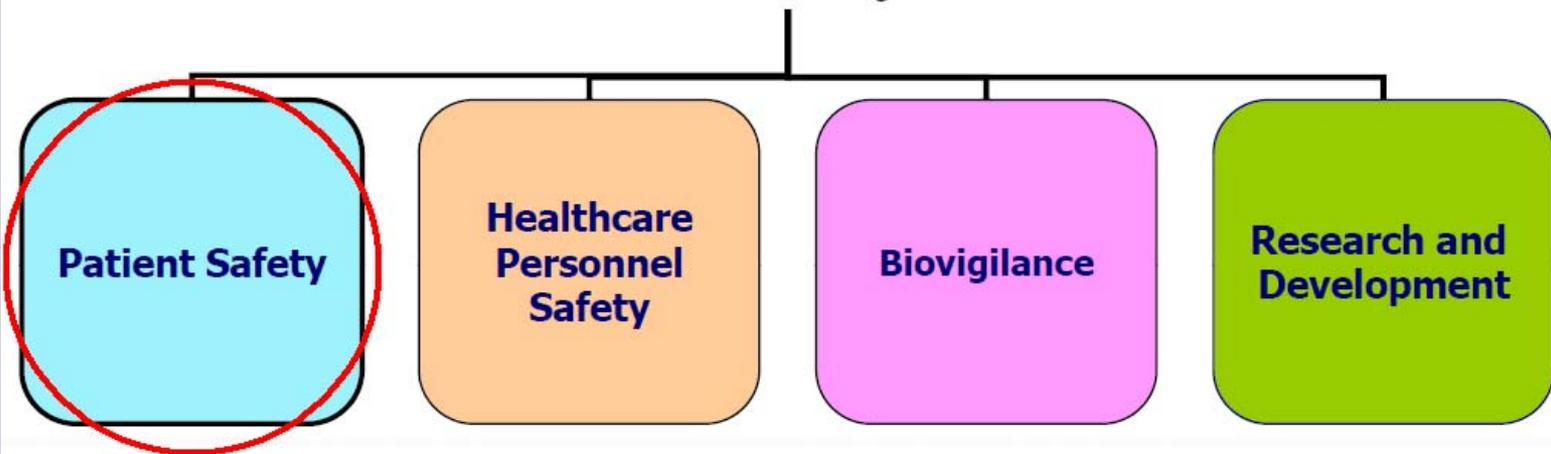
- Describe the CDC NHSN CAUTI event protocols and definitions with the goal of standardizing surveillance for the FDOH CAUTI Collaborative.

National Healthcare Safety Network



NHSN

National Healthcare
Safety Network



Patient Safety Component

- Device-associated Module
 - Central line-associated bloodstream infection
 - Catheter-associated urinary tract infection
 - Ventilator-associated pneumonia
 - Dialysis incident

Catheter-associated Urinary Tract Infections

- UTIs are the most common healthcare-associated infection with 80% attributed to an indwelling catheter. ¹
- 12%-16% of hospital inpatients will have a urinary catheter at some time during their hospital stay. ²
- 13,000 deaths per year are attributable to UTI (mortality rate 2.3%). ³
- Each CAUTI is estimated to cost \$758 with >560,000 occurring per year. ($\$758 \times 560,000 = \text{approx. } \425 million) ⁴
- An estimated 17%-69% of CAUTI may be preventable which translates to 380,000 infections and 9,000 deaths prevented per year. ⁵

CDC NHSN Definitions

- CAUTI
- Indwelling Catheter
- Symptomatic Urinary Tract Infection (SUTI)
- Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)
 - **NOTE: Asymptomatic Bacteremia (ASB) is no longer a CDC/NHSN infection type**

Definition: CAUTI

- UTI that occurs in a patient who had an indwelling urinary catheter in place within the 48-hour period **before the onset of UTI.**
 - **Specifically the date when the first clinical evidence appeared or the date the specimen used to meet the criterion was collected, whichever came first.**
 - NOTE: There is no minimum period of time that the catheter must be in place in order for the UTI to be considered catheter-associated.

CAUTI Example

- Patient has a Foley catheter in place on an inpatient unit. It is discontinued, and 4 days later patient meets the criteria for a UTI.
 - This is not reported as a CAUTI because the time since Foley discontinuation exceeds 48 hours.

Transfer Rule

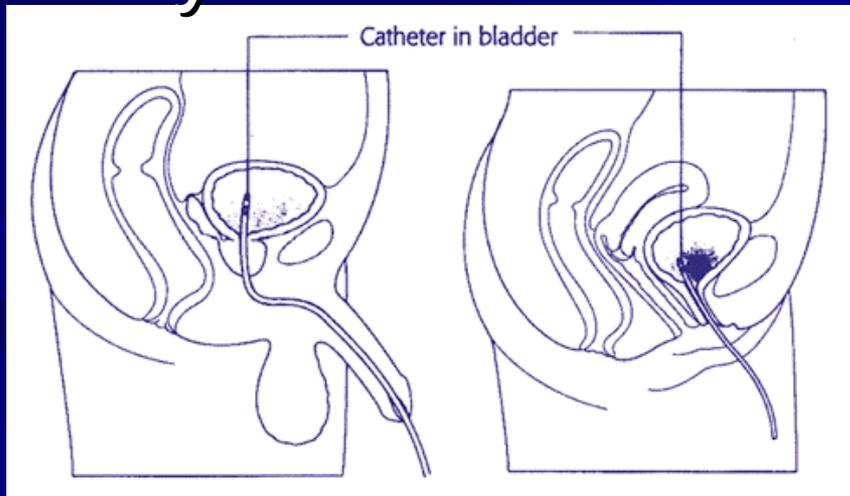
- If the UTI develops in the patient within 48 hours of discharge from a unit/facility, the infection is attributed to the discharging location not the current one.
 - **date when the first clinical evidence appeared or the date the specimen used to meet the criterion was collected, whichever came first.**

Transfer Rule Examples

- Patient with a Foley catheter in place in the SICU is transferred to the surgical ward. Thirty six (36) hours later, the patient meets the criteria for UTI. This is reported as a CAUTI for the SICU.
- Patient is transferred to the medical ward from the MSICU after having the Foley catheter removed. Within 24 hours, patient meets criteria for a UTI. This is reported as a CAUTI for the MSICU.

Definition: Indwelling Catheter

■ A drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a closed collection system.



- Also called a Foley Catheter
- Does not include straight in and out catheters or urinary catheters that are not placed in the urethra (suprapubic catheter)

UTI Specific Infection Types

■ Symptomatic UTI (SUTI)

– Criterion 1

- a (catheter in place 48 hours prior to onset)

- b (no catheter in place 48 hours prior to onset)

– Criterion 2

- a (catheter in place 48 hours prior to onset)

- B (no catheter in place 48 hours prior to onset)

– Criterion 3 (with or without catheter in place 48 hours prior to specimen collection)

– Criterion 4 (with or without catheter in place 48 hours prior to specimen collection)

■ Asymptomatic Bacteremic UTI (ABUTI)

CAUTI Infection Data

- Catheter-associated UTI (CAUTI) specific events must, by definition, involve an indwelling catheter. Therefore only the following specific event types can be CAUTI:
 - SUTI Criteria:
 - 1a
 - 2a
 - 3
 - 4
 - ABUTI

Catheter Associated SUTI

Patients of any age:

- Criterion 1a ($\geq 10^5$ CFU/ml)*
- Criterion 2a ($\geq 10^3$ and $<10^5$ CFU/ml)*

Patients ≤ 1 year of age (only where a catheter is involved):

- Criterion 3 ($\geq 10^5$ CFU/ml)*
- Criterion 4 ($\geq 10^3$ and $<10^5$ CFU/ml)*

– Urine culture must have no more than 2 microorganism species.

Symptomatic UTI (SUTI) – Any Patient



Criterion

Symptomatic Urinary Tract Infection (SUTI)

Must meet at least 1 of the following criteria:

1a

Patient **had an indwelling urinary catheter in place at the time of specimen collection**
and

at least 1 of the following signs or symptoms with no other recognized cause:
fever ($>38^{\circ}\text{C}$), suprapubic tenderness, or costovertebral angle pain or tenderness
and

a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms.

-----OR-----

Patient **had indwelling urinary catheter removed within the 48 hours prior to specimen collection**
and

at least 1 of the following signs or symptoms with no other recognized cause:
fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness
and

a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms.

Note differing acceptable symptoms

Symptomatic UTI (SUTI) – Any Patient (cont'd.)

2a

Patient had an indwelling urinary catheter **in place at the time of specimen collection** and at least 1 of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), suprapubic tenderness, or costovertebral angle pain or tenderness and a positive urinalysis demonstrated by at least 1 of the following findings:

- positive dipstick for leukocyte esterase and/or nitrite
- pyuria (urine specimen with ≥ 10 white blood cells [WBC]/ mm^3 or ≥ 3 WBC/high power field of unspun urine)
- microorganisms seen on Gram stain of unspun urine

and a positive urine culture of $\geq 10^3$ and $< 10^5$ CFU/ml with no more than 2 species of microorganisms.

-----OR-----

Patient had indwelling urinary catheter **removed within the 48 hours prior to specimen collection** and at least 1 of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$), urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness and a positive urinalysis demonstrated by at least 1 of the following findings:

- positive dipstick for leukocyte esterase and/or nitrite
- pyuria (urine specimen with > 10 white blood cells [WBC]/ mm^3 or > 3 WBC/high power field of unspun urine)
- microorganisms seen on Gram stain of unspun urine

and a positive urine culture of $\geq 10^3$ and $< 10^5$ CFU/ml with no more than 2 species of microorganisms.

Symptomatic UTI (SUTI) Patient ≤ 1 year of age

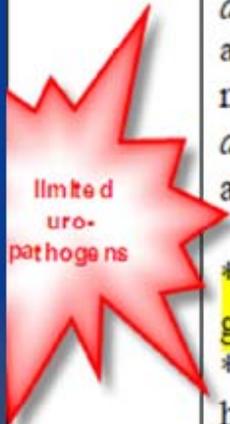


3	<p>Patient ≤ 1 year of age with or without an indwelling urinary catheter has at least 1 of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$ core), hypothermia ($<36^{\circ}\text{C}$ core), apnea, bradycardia, dysuria, lethargy, or vomiting <i>and</i> a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of microorganisms.</p>
4	<p>Patient ≤ 1 year of age with or without an indwelling urinary catheter has at least 1 of the following signs or symptoms with no other recognized cause: fever ($>38^{\circ}\text{C}$ core), hypothermia ($<36^{\circ}\text{C}$ core), apnea, bradycardia, dysuria, lethargy, or vomiting <i>and</i> a positive urinalysis demonstrated by at least one of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥ 10 WBC/mm^3 or ≥ 3 WBC/high power field of unspun urine) c. microorganisms seen on Gram's stain of unspun urine <i>and</i> a positive urine culture of between $\geq 10^3$ and $< 10^5$ CFU/ml with no more than two species of microorganisms.</p>

ABUTI



	a positive urine culture of $\geq 10^5$ and $< 10^5$ CFU with no more than 2 species of microorganisms
Criterion	Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)
	<p>Patient with or without an indwelling urinary catheter has <u>no</u> signs or symptoms (i.e., <u>no</u> fever ($>38^\circ\text{C}$) for patients ≤ 65 years of age*; and for any age patient <u>no</u> urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness, <u>OR</u> for a patient ≤ 1 year of age, <u>no</u> fever ($>38^\circ\text{C}$ core), hypothermia ($<36^\circ\text{C}$ core), apnea, bradycardia, dysuria, lethargy, or vomiting)</p> <p><i>and</i></p> <p>a positive urine culture of $\geq 10^5$ CFU/ml with no more than 2 species of uropathogen microorganisms**</p> <p><i>and</i></p> <p>a positive blood culture with at least 1 matching uropathogen microorganism to the urine culture.</p> <p>Urine and Blood cultures must have matching uropathogen(s)</p> <p>*Fever is not diagnostic for UTI in the elderly (>65 years of age) and therefore fever in this age group does not disqualify from meeting the criteria of an ABUTI.</p> <p>**Uropathogen microorganisms are: Gram-negative bacilli, <i>Staphylococcus</i> spp., yeasts, beta-hemolytic <i>Streptococcus</i> spp., <i>Enterococcus</i> spp., <i>G. vaginalis</i>, <i>Aerococcus urinae</i>, and <i>Corynebacterium</i> (urease positive).</p>
Comments	Urinary catheter tips should not be cultured and are not acceptable for the diagnosis of a urinary tract infection



limited uropathogens

Example

- Post op day 3: 66yo patient in the ICU with Foley catheter s/p exploratory laparotomy; patient noted to be febrile (38.9 C) and complained of diffuse abdominal pain.
- WBC increased to 19,000. He had cloudy, foul-smelling urine and urinalysis showed 2+ protein, +nitrate, and 2+LE, WBC = TNTC, and 3+ bacteria. Culture was 10,000 CFU/ml E. coli. The abdominal pain was secondary to surgery.

Is this a CAUTI?? Yes – SUTI 2a

Example

- 84 y/o patient is hospitalized with GI bleed
- Day 3: patient has catheter in place with no signs or symptoms of infection.
- Day 9: patient becomes unresponsive, is intubated and CBC shows WBC of 15,000. Afebrile. Patient is pan cultured, blood culture and urine both grow *Strep. pyogenes* - urine $\geq 10^5$ CFU/ml

Is this a CAUTI? Yes - ABUTI

Questions or Comments?



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HAI Program Website:

http://www.doh.state.fl.us/disease_ctrl/epi/HAI/HAI.html

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