



NHSN Catheter-Associated Urinary Tract Infection Surveillance in 2018

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Objectives

- 2018 UTI Protocol Updates
 - Fever, Age and Device Association
 - Data Collection Form & Table of Instructions
 - Summary Data Device Day Count
 - Key Concepts and Common Misconceptions
 - Apply UTI Protocol through Case Studies
- 

UTI Burden

- Morbidity-Estimated 93,300 UTIs in acute care hospitals resulting in discomfort to the patient, prolonged hospital stay, and increased cost and mortality⁴
- Mortality-Estimated that each year, more than 13,000 deaths are associated with UTIs.⁵
- For each day an indwelling urinary catheter remains, a patient has a 3%-7% increased risk of acquiring a catheter-associated urinary tract infection (CAUTI).²⁻³

²McGuckin M. The patient survival guide: 8 simple solutions to prevent hospital and healthcare-associated infections. New York, NY: Demos Medical Publishing; 2012.

³Lo E, Nicolle LE, Coffin SE, Gould C, Maragakis LL, Meddings J, et al. Strategies to prevent catheter-associated urinary tract infections in acute care hospitals: 2014 update. *Infect Control Hosp Epidemiol* 2014;35:464-79.

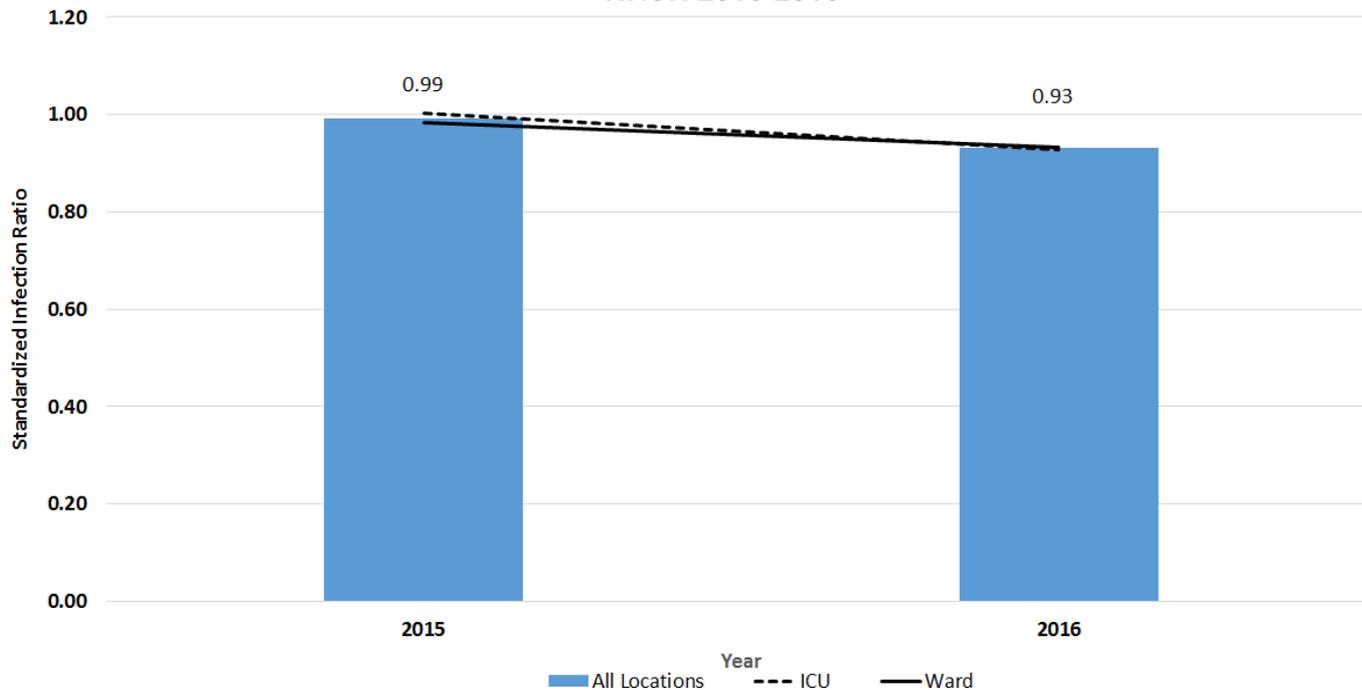
⁴Scott Rd. The Direct Medical Costs of Healthcare-Associated Infections in U.S.

Hospitals and the Benefits of Prevention, 2009. Division of Healthcare Quality Promotion, National Center for Preparedness, Detection, and Control of Infectious Diseases, Coordinating Center for Infectious Diseases, Centers for Disease Control and Prevention, February 2009.

⁵Klevens, RM., Edward, JR., et al. "Estimating Healthcare-associated Infections and Deaths in U.S. Hospitals". *Public Health Reports* 122: (2007):160-166.

Summary of HAI Prevention Progress in U.S. from 2006-2016

Figure 6. Changes over time in CAUTI SIR in US hospitals using 2015 baseline, NHSN 2015-2016



2018 UTI Protocol Updates

2018 UTI Protocol Update



Definitions removed
from UTI Chapter 7
to Chapter 2

Refer to the NHSN Patient Safety Manual, [Chapter 2 Identifying Healthcare Associated Infections in NHSN](#) and [Chapter 16 NHSN Key Terms](#) for definitions of the following universal concepts for conducting HAI surveillance.

- 
- I. Date of event (DOE)
 - II. Healthcare associated infection (HAI)
 - III. Infection window period (IWP)
 - IV. Present on admission (POA)
 - V. Repeat infection timeframe (RIT)
 - VI. Secondary BSI attribution period (SBAP)
 - VII. Location of Attribution (LOA)
 - VIII. Transfer rule

Definitions:

Urinary tract infections (UTI) are defined using Symptomatic Urinary Tract Infection (SUTI) criteria, Asymptomatic Bacteremic UTI (ABUTI), and Urinary System Infection (USI) criteria. (See [Table 1](#) and [2](#) and [Figure 2](#)).



Note: UTI is a primary site of infection and cannot be considered secondary to another site of infection.

New for 2018
Clarification
Page 7-2

2018 UTI Protocol Update

Added to CAUTI definition

Catheter-associated UTI (CAUTI): A UTI where an indwelling urinary catheter (IUC) was in place for >2 calendar days on the **date of event** with day of device placement being Day 1*.

AND

an indwelling urinary catheter was in place on the date of event or the day before. If an indwelling urinary catheter was in place for > 2 calendar days and then removed, the date of event for the UTI must be the day of discontinuation or the next day for the UTI to be catheter-associated.

*If the IUC was in place prior to inpatient admission, the catheter day count that determines device –association begins with the admission date to the first inpatient location. This allows for consistency with device denominator count (see [Table 3 Denominator Data Collection Methods](#))

2018 UTI Protocol Update



Table 1. Urinary Tract Infection Criteria

Criterion	Urinary Tract Infection (UTI)
	Symptomatic UTI (SUTI) Must meet at least <i>one</i> of the following criteria:
SUTI 1a Catheter-associated Urinary Tract Infection (CAUTI) in any age patient	<p>Patient must meet 1, 2, and 3 below:</p> <ol style="list-style-type: none">1. Patient had an indwelling urinary catheter that had been in place for > 2 days on the date of event AND was either:<ul style="list-style-type: none">• Present for any portion of the calendar day on the date of event[†], OR• Removed the day before the date of event[‡]2. Patient has at least <i>one</i> of the following signs or symptoms:<ul style="list-style-type: none">• fever (>38.0°C): To use fever in a patient > 65 years of age, the indwelling urinary catheter needs to be in place > 2 calendar days on date of event.• suprapubic tenderness*• costovertebral angle pain or tenderness*• urinary urgency ^• urinary frequency ^• dysuria ^3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml (See Comments). All elements of the SUTI criterion must occur during the IWP (See IWP Definition Chapter 2 Identifying HAIs in NHSN).

Clarification:
SUTI 1a
Use of fever in a
patient > 65

2018 Protocol Update



	Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)
Catheter – associated ABUTI or Non-catheter associated ABUTI in any age patient	<p>Patient must meet 1, 2, <u>and</u> 3 below:</p> <ol style="list-style-type: none">1. Patient with* or without an indwelling urinary catheter has <u>no</u> signs or symptoms of SUTI 1 or 2 according to age (Note: Patients > 65 years of age with a non-catheter-associated ABUTI <u>may</u> have a fever and still meet the ABUTI criterion)2. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml (see Comment section below)3. Patient has organism identified** from blood specimen with at least <u>one</u> matching bacterium to the bacterium identified in the urine specimen, OR meets LCBI criterion 2 (without fever) and matching common commensal(s) in the urine. All elements of the ABUTI criterion must occur during the IWP (See IWP Definition Chapter 2 Identifying HAIs in NHSN). <p>*Patient had an indwelling urinary catheter in place for >2 calendar days on the date of event, and the indwelling urinary catheter was in place on the date of event or the day before. <i>Catheter - associated ABUTI is reportable if the location is in the facility's reporting plan.</i></p> <p>** Organisms identified by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (for example, not Active Surveillance Culture/Testing (ASC/AST)).</p>

Refresher

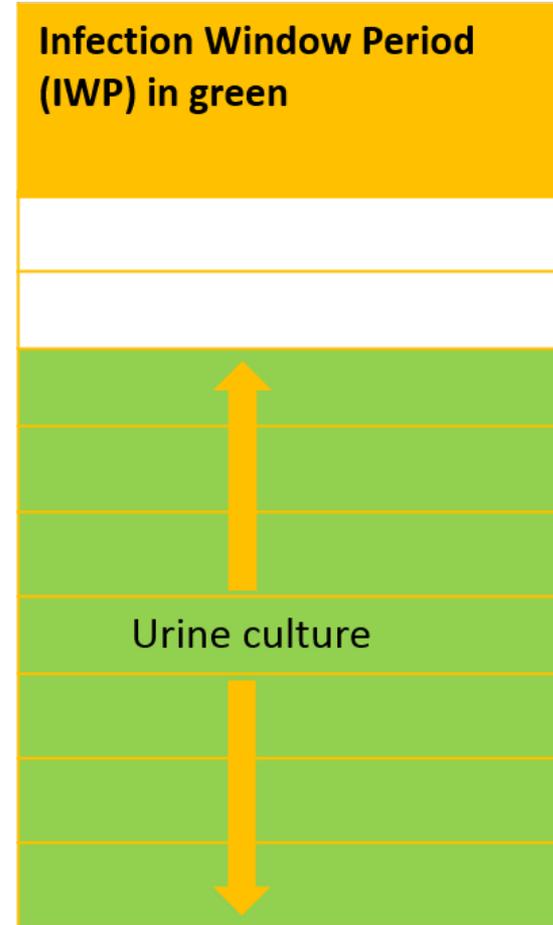
**NHSN Chapter 2 Rules and Definitions
applied to UTI**

Definition Refresher applied to UTI

- 7-day Infection Window Period (IWP)
- Date of Event (DOE)
- UTI Repeat Infection Timeframe (RIT)

Infection Window Period

The first positive urine that is used to meet the definition always sets the IWP

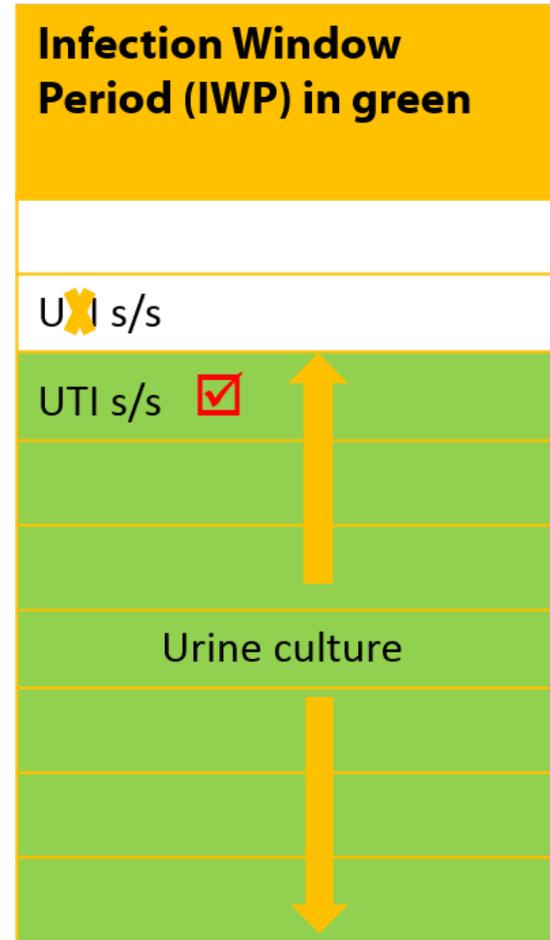


Infection Window Period

Use only eligible UTI elements within the IWP

UTI Elements:

- Urine culture
- UTI signs/symptoms (s/s) **OR** matching blood organism



UTI Date of Event (DOE)

The DOE is the date the first element used to meet an NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period



UTI s/s
OR
urine culture

UTI Repeat Infection Timeframe (RIT)

- 14-day timeframe; **Date of event** = Day 1
- No new UTIs are reported (specifically, SUTI, ABUTI)
- Additional eligible pathogens from urine cultures are added to the event
- Do not change device association during the RIT
- **Any UTI criterion sets an RIT and SBAP including POA events and non-catheter-associated events**

Key Concepts

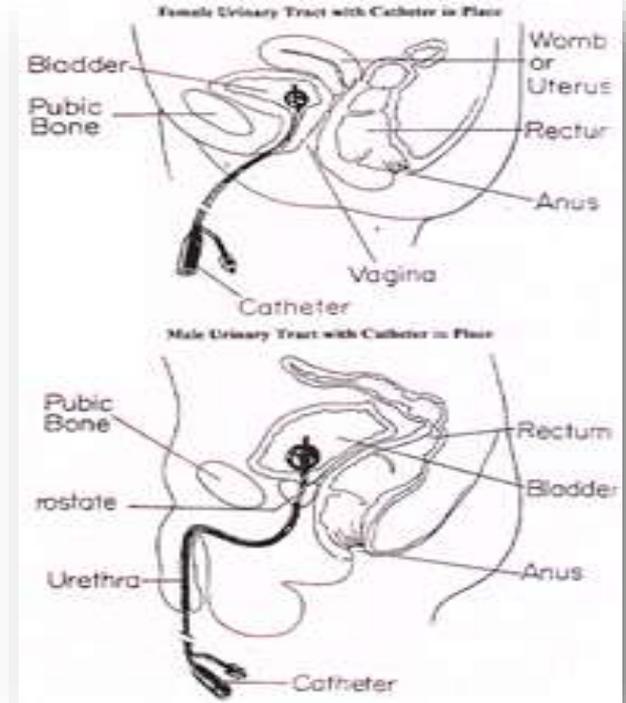
NHSN Chapter 7 UTI Definitions

Indwelling Urinary Catheter

Key Concept

A drainage tube that is **inserted into the urinary bladder** (includes neobladder) **through the urethra, is left in place**, and is connected to a collection system. This includes a collection system that is used for irrigation of any type or duration (e.g., intermittent, continuous).

- Also called a Foley catheter



Does not qualify as Indwelling Urinary Catheter

- Straight catheterization
- In and Out catheterization
- Condom catheter (Texas catheter)

Unless an indwelling urethral catheter is also present, the following do not qualify:

- Suprapubic catheter
- Nephrostomy tubes
- Urostomy
- Ileal conduit

Urine from any of these sites should be used in the determination

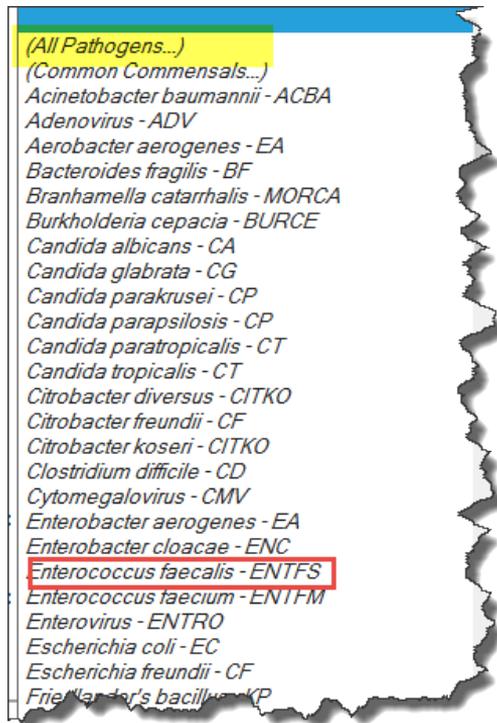
Urine Culture Clarification

- *Candida* species or yeast not otherwise specified, mold, dimorphic fungi or parasites are excluded as organisms in the UTI definition therefore blood with these organisms cannot be secondary to UTI
- Urine culture with yeast can be used as long as there is at least one bacterium with $\geq 10^5$ CFU/ml and no more than 2 organisms (for example, $> 10^5$ CFU/ml of *E. coli* and $> 10^5$ CFU/ml of *C. albicans*)
- Urine cultures with > 2 organisms are regarded as contaminated cultures and not used for NHSN UTI surveillance (for example, $> 10^5$ CFU/ml *E. coli*, *S. aureus* and *C. albicans* = 3 organisms)
- Urine culture including “mixed flora” or equivalent such as “perineal flora”, “vaginal flora”, “normal flora” cannot be used (for example, $> 10^5$ CFU/ml of *E. coli* and perineal flora)

Urine Culture Clarification

- Urine culture 75,000 – 100,000 CFU/ml is not eligible
- Organisms of same genus but different species = 2 organisms (for example, *Pseudomonas aeruginosa* and *Pseudomonas stutzeri*)
- The same organism with different antimicrobial susceptibilities = 1 organism (for example, MRSA and MSSA)
- IWP is set on the urine specimen **collection date** not specimen result date
- Do not add multiple urine cultures together (for example, Feb 1 urine positive for 2 organisms and Feb 2 urine positive for 1 organism would not be combined to make this an excluded culture due to > 2 organisms)
- Use urine collected from any body location (for example, nephrostomy, suprapubic catheter)

Can't find the organism in the NHSN application?



(All Pathogens...)

(Common Commensals...)

Acinetobacter baumannii - ACBA

Adenovirus - ADV

Aerobacter aerogenes - EA

Bacteroides fragilis - BF

Branhamella catarrhalis - MORCA

Burkholderia cepacia - BURCE

Candida albicans - CA

Candida glabrata - CG

Candida parakrusei - CP

Candida parapsilosis - CP

Candida paratropicalis - CT

Candida tropicalis - CT

Citrobacter diversus - CITKO

Citrobacter freundii - CF

Citrobacter koseri - CITKO

Clostridium difficile - CD

Cytomegalovirus - CMV

Enterobacter aerogenes - EA

Enterobacter cloacae - ENC

Enterococcus faecalis - ENTFS

Enterococcus faecium - ENTFM

Enterovirus - ENTRO

Escherichia coli - EC

Escherichia freundii - CF

Friedlander's bacillus - KP

NHSN Chapter 7 UTI Protocol/Criterion

Urinary Tract Infection Definitions

There are **two specific types** of UTI:

- Symptomatic UTI (SUTI)
- Asymptomatic Bacteremic UTI (ABUTI)

Both types, if catheter-associated, must be reported as part of any CMS CAUTI reporting requirements!

SUTI 1a: Catheter-associated Urinary Tract Infection (CAUTI) Criteria

(Any Age) Patient must meet **1, 2, and 3** below:

1. Patient had an indwelling urinary catheter that had been in place for > 2 calendar days (in the inpatient location) on the **date of event** AND was either:

- Present for any portion of the calendar day on the **date of event**
- OR
- Removed the day before the **date of event**

2. Patient has at least **one** of the following signs or symptoms:

- Fever (>38.0°C): To use fever in a patient > 65 years of age, the indwelling urinary catheter needs to be in place > 2 calendar days on **date of event**
- Suprapubic tenderness*
- Costovertebral angle pain or tenderness*
- Urinary urgency ^
- Urinary frequency^
- Dysuria ^

***No other recognized cause**

^These symptoms cannot be used when catheter is in place

3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

All elements of the UTI criterion must occur during the IWP

SUTI 1a Example

Date	Details
1/25	Patient admitted to Acute Care hospital for CVA Foley catheter (FC) inserted
1/26	FC in place
1/27	FC in place
1/28	FC discontinued early morning, @ noon complaint of urinary frequency
1/29	No fever
1/30	Elevated wbc's
1/31	Positive urine culture with 10^5 CFU/ml <i>E coli</i>

SUTI 1a CAUTI Example

The patient's complaint of urinary frequency on 1/28 after FC was removed, can be used to meet SUTI.

-  A. True
- B. False

Even though the Foley was in place for part of the 1/28 calendar day, the urinary frequency is used to meet the SUTI because the symptom occurred within the IWP and while the Foley was not in place.

SUTI 1a Example

Patient has an CAUTI

- ✓ A. True
- B. False

- 1/31 Positive urine culture sets the (IWP): 1/28 – 2/3.
- The 1/28 urinary frequency is first element to occur within the IWP therefore is the **date of event**.
- The FC was in place > 2 days on the date of event = CAUTI, HAI.

DATE	SUTI Criterion	FC day
1/25 Admit	CVA, Foley catheter inserted	1
1/26	FC in place	2
1/27	FC in place	3
1/28	FC discontinued urinary frequency	4
1/29	No fever	
1/30	Elevated wbc's	
1/31 	urine culture >100,000 CFU/ml <i>E.coli</i>	
2/1		
2/2		
2/3		

Risk Factor Alert

Ethnicity:

Race: American Indian/Alaska Native Asian
 Black or African American Native Hawaiian/Other Pacific Islander
 White

Event Information

Event Type *: UTI - Urinary Tract Infection Date of Event *: 01/28/2017

Post-procedure:

MDRO Infection Surveillance *: No, this infection's pathogen/location are not in-plan for Infection Surveillance in the MD

Location *: MICU - MEDICAL ICU

Date Admitted to Facility >:

Alert

Urgency, Frequency or Dysuria has been selected. These should only be selected if the urinary catheter was not in place at the time of the symptom.

Risk Factors

Urinary Catheter *: INPLACE - Urinary catheter in place > 2 days on the date of event

Event Details

Specific Event >: SUTI - Symptomatic UTI

Specify Criteria Used *

Signs & Symptoms

Any patient

<input type="checkbox"/> Fever	<u><=1 year old</u>	<input type="checkbox"/> 1 positive culture with $\geq 10^5$ CFU/ml with no more than 2 species of bacteria
<input type="checkbox"/> Urgency	<input type="checkbox"/> Hypothermia	<input type="checkbox"/> Organism(s) identified
<input checked="" type="checkbox"/> Frequency	<input type="checkbox"/> Apnea	<input type="checkbox"/> Organism(s) identified from blood specimen
<input type="checkbox"/> Dysuria	<input type="checkbox"/> Bradycardia	<input type="checkbox"/> Imaging test evidence of infection
<input type="checkbox"/> Suprapubic tenderness	<input type="checkbox"/> Lethargy	
<input type="checkbox"/> Costovertebral angle pain or tenderness	<input type="checkbox"/> Vomiting	
<input type="checkbox"/> Abscess		
<input type="checkbox"/> Pain or tenderness		
<input type="checkbox"/> Purulent drainage from affected area		
<input type="checkbox"/> Other evidence of infection found on invasive procedure, gross anatomic exam, or histopathologic exam		

SUTI 1b: Non-Catheter-associated Urinary Tract Infection (Non-CAUTI) (Any Age) Patient must meet **1, 2, and 3** below:

1. One of the following is true:

- Patient has/had an indwelling urinary catheter but it has/had not been in place >2 calendar days on the **date of event**

OR

- Patient did not have a urinary catheter in place on the date of event nor the day before the **date of event**

2. Patient has at least one of the following signs or symptoms:

- **Fever (>38°C) in a patient that is ≤ 65 years of age**
- Suprapubic tenderness*
- Costovertebral angle pain or tenderness*
- Urinary urgency ^
- Urinary frequency^
- Dysuria ^

***No other recognized cause**

^These symptoms cannot be used when catheter is in place

3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

All elements of the UTI criterion must occur during the IWP

SUTI 1b Example

Date	Details
2/11	Patient age 47 admitted with fever of 101.7° F, history of <i>P. aeruginosa</i> in wound on previous admission a month earlier.
2/13	Urine culture 50,000 CFU/ml of <i>P. aeruginosa</i> , and 100,000 CFU/ml <i>C. albicans</i> , no fever.
2/15	Patient spikes fever of 101.3° F and urine culture is collected which results in > 100,000 CFU/ml of <i>P. aeruginosa</i> and > 100,000 CFU/ml <i>C. albicans</i>

SUTI 1b Example

The 2/13 Urine culture with 50,000 CFU/ml of *P. aeruginosa*, and 100,000 CFU/ml *C. albicans* is used to set the IWP

- A. True
-  B. False

This urine culture is **not** eligible because there is not at least one bacterium with $\geq 10^5$ CFU/ml; yeast is an excluded organism.

SUTI 1b Example

The 2/15 Urine culture with 100,000 CFU/ml of *P. aeruginosa*, and 100,000 CFU/ml *C. albicans* is used to set the IWP

-  A. True
- B. False

This urine culture is eligible because there is at least one bacterium with $\geq 10^5$ CFU/ml.

SUTI 1b Example

This meets SUTI 1b: Non-Catheter-Associated Urinary Tract Infection
(Non-CAUTI)

- ✓ A. True
B. False

DATE	
2/11 Admit	Fever 101.7 ⁰ F
2/12	
2/13	Urine culture 50,000 CFU/ml of <i>P. aeruginosa</i> , + 100,000 CFU/ml <i>C. Albicans</i> , no fever
2/14	
2/15	Fever 101.3 ⁰ F urine culture: >10 ⁵ CFU/ml of <i>P. aeruginosa</i> and >10 ⁵ CFU/ml <i>C. Albicans</i>
2/16	
2/17	
2/18	

SUTI 1b Example

Meets SUTI 1b: Non-Catheter-Associated UTI and sets an RIT and SBAP

- The 2/15 urine culture sets the IWP: 2/12 – 2/18.
- The 2/15 fever is in the IWP and is an acceptable element to meet SUTI, **DOE** 2/15.
- There was no Foley in place on the **DOE** nor the day before.
- Meets SUTI 1b: Non-Catheter-Associated UTI and sets an **RIT** and **SBAP**.

DATE	SBAP	RIT	Infection Window Period
2/11 Admit			Fever 101.7° F
2/12			
2/13			Urine culture 50,000 CFU/ml of <i>P. aeruginosa</i>, + 100,000 CFU/ml <i>C. Albicans</i>, no fever
2/14			
2/15 DOE			Fever 101.3° F urine culture: >10 ⁵ CFU/ml of <i>P. aeruginosa</i> and >10 ⁵ CFU/ml <i>C. albicans</i>
2/16			
2/17			
2/18			

SUTI 2: CAUTI or Non-CAUTI in patients 1 year of age or less

Patient must meet **1, 2, and 3** below:

1. Patient is ≤ 1 year of age (with or without an indwelling urinary catheter)

2. Patient has at least one of the following signs or symptoms:

- Fever ($>38^{\circ}\text{C}$)
- **Hypothermia ($<36.0^{\circ}\text{C}$)**
- **Apnea***
- **Bradycardia***
- **Lethargy***
- **Vomiting***
- Suprapubic tenderness*

***No other recognized cause**

3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

All elements of the UTI criterion must occur during the IWP

SUTI 2 Example

Date	Details
1/23	2 month-old admitted for diarrhea; Foley catheter inserted
1/27	Patient vomits x 2
1/28	Urine culture is positive for <i>E. coli</i> 10 ⁵ CFU/ml

This meets catheter-associated SUTI 2,
date of event 1/27, pathogen *E coli*

Asymptomatic Bacteremic Urinary Tract Infection (ABUTI) (Any Age) Patient must meet **1, 2, and 3** below:

1. Patient with or without an indwelling urinary catheter has **no signs or symptoms** of SUTI 1 or 2 according to age (**Note:** Patients > 65 years of age with a non-catheter-associated ABUTI may have a fever and still meet the ABUTI criterion)
2. Patient has a urine culture with no more than two species of organisms identified, **at least one of which is a bacterium of $\geq 10^5$ CFU/ml**
3. Patient has organism identified from blood specimen with at least **one matching bacterium** to the bacterium identified in the urine specimen, OR meets LCBI criterion 2 (without fever) and matching common commensal(s) in the urine.

All elements of the UTI criterion must occur during the IWP

ABUTI

Note: Catheter-associated ABUTI is reportable IF CAUTI is selected in the monthly reporting plan for this location.

Asymptomatic Bacteremic UTI (ABUTI) Example

Date	Details
2/20	Patient admit for MI, Foley inserted
2/21-23	No UTI signs/symptoms (s/s)
2/24	Elevated wbc's, No UTI s/s, Positive blood with <i>Staph aureus</i> and positive urine culture with $> 10^5$ CFU/ml <i>Staph aureus</i>
2/25-27	No UTI s/s
2/28	Foley removed, Discharged to home

ABUTI Example

- 2/24 urine culture sets the IWP: 2/21 – 2/27.
- No UTI s/s however matching blood organism within IWP.
- Meets ABUTI, DOE 2/24.
- FC in place > 2 days on DOE therefore catheter-associated. The matching blood organism is secondary.

Date	SBAP	RIT	Infection Window Period
Feb 20 Admit			Foley inserted 
Feb 21			no UTI signs/symptoms
Feb 22			no UTI signs/symptoms
Feb 23			no UTI signs/symptoms
Feb 24		1	Blood culture: <i>Staph Aureus</i> , Urine culture 10 ⁵ CFU/ml <i>Staph Aureus</i>
DOE			no UTI signs/symptoms Foley catheter removed
Feb 25		2	no UTI signs/symptoms
Feb 26		3	no UTI signs/symptoms
Feb 27		4	no UTI signs/symptoms
Feb 28		5	Foley removed, Discharged to home

Catheter-associated ABUTI is reportable if the location is in the facility reporting plan

Data Collection Form and Table of Instructions for UTI Surveillance

NHSN

NHSN Login

About NHSN

Enroll Here

Materials for Enrolled Facilities

Ambulatory Surgery Centers

Acute Care Hospitals/Facilities

Surveillance for Antimicrobial Use and Antimicrobial Resistance Options

Surveillance for UTI (CAUTI)

Surveillance for C. difficile, MRSA, and other Drug-resistant Infections

Surveillance for BSI (CLABSI)

Surveillance for CLIP

Surveillance for SSI Events

Surveillance for VAE

Surveillance for PNEU (pedVAP)

Surveillance for Healthcare Personnel Exposure

Surveillance for Healthcare Personnel Vaccination

[CDC](#) > [NHSN](#) > [Materials for Enrolled Facilities](#) > [Acute Care Hospitals/Facilities](#)

Surveillance for Urinary Tract Infections



Catheter-Associated Urinary Tract Infection (CAUTI) and non-catheter-associated Urinary Tract Infection (UTI) and Other Urinary System Infection (USI)

Resources for NHSN Users Already Enrolled

> **Training**

> **Protocols**

> **Frequently Asked Questions**

> **Data Collection Forms**



> **CMS Supporting Materials**

> **Supporting Material**

> **Analysis Resources**

Resources to Help Prevent Infections

- [Resources for Patients and Healthcare Providers](#)
- [HHS Action Plan to Prevent Healthcare-associated Infections](#)
- [Guideline for Prevention of Catheter-associated Urinary Tract Infections, 2009](#)
- [Guideline for Hand Hygiene in Healthcare Settings](#) 

New Users - Start Enrollment Here



- Step 1: Enroll into NHSN
- Step 2: Set up NHSN
- Step 3: Report

[Click here to enroll](#)



NHSN
NHSN Login
About NHSN +
Enroll Here +
Materials for Enrolled Facilities -
Ambulatory Surgery Centers +
Acute Care Hospitals/Facilities -
Surveillance for Antimicrobial Use and Antimicrobial Resistance Options
Surveillance for UTI (CAUTI)
Surveillance for C. difficile, MRSA, and other Drug-resistant Infections
Surveillance for BSI (CLABSI)
Surveillance for CLIP
Surveillance for SSI Events
Surveillance for VAE
Surveillance for PNEU (pedVAP)

CDC > NHSN > Materials for Enrolled Facilities > Acute Care Hospitals/Facilities

Surveillance for Urinary Tract Infections



Catheter-Associated Urinary Tract Infection (CAUTI) and non-catheter-associated Urinary Tract Infection (UTI) and Other Urinary System Infection (USI)

Resources for NHSN Users Already Enrolled

> **Training**

> **Protocols**

> **Frequently Asked Questions**

▼ **Data Collection Forms**

- [57.114 Urinary Tract infection \(UTI\) form January 2017](#) [PDF - 110 KB] 
 - Customizable form [DOCX - 41 KB]
 - [Table of Instructions for UTI form 57.114](#) [PDF - 201 KB] 
- [57.116 Denominators for Neonatal Intensive Care Unit \(NICU\) form January 2017](#) [PDF - 74 KB]
 - Customizable form [DOCX - 34 KB]
 - [Table of Instructions for Denominators for NICU form 57.116](#) [PDF - 135 KB]
- [57.117 Denominators for Specialty Care Area \(SCA\) form January 2017](#) [PDF - 43 KB]
 - Customizable form [DOCX - 29 KB]
 - [Table of Instructions for Denominators for SCA form 57.117](#) [PDF - 192 KB]

New Users - Start Enrollment Here



- Step 1: Enroll into NHSN
 - Step 2: Set up NHSN
 - Step 3: Report
- [Click here to enroll](#)



Data Collection Form (57.114)



Urinary Tract infection (UTI)

Form Approved
OMB No. 0920-0086
Exp. Date: 01/31/2021
www.cdc.gov/nhsn

Page 1 of 4

*required for saving **required for completion

Facility ID:	Event #:																															
*Patient ID:	Social Security #:																															
Secondary ID:	Medicare #:																															
Patient Name, Last:	First:	Middle:																														
*Gender: F M Other	*Date of Birth:																															
Ethnicity (Specify):	Race (Specify):																															
*Event Type: UTI	*Date of Event:																															
Post-procedure UTI: Yes No	Date of Procedure:																															
NHSN Procedure Code:	ICD-10-PCS or CPT Procedure Code:																															
*MDRO Infection Surveillance:																																
<input type="checkbox"/> Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module <input type="checkbox"/> No, this infection's pathogen & location are not in-plan for Infection Surveillance in the MDRO/CDI Module																																
*Date Admitted to Facility:	*Location:																															
Risk Factors																																
*Urinary Catheter status:																																
<input type="checkbox"/> In place – Urinary catheter in place > 2 days on the date of event or present for any portion of the calendar day <input type="checkbox"/> Removed – Urinary catheter in place > 2 days and removed the day before the date of event <input type="checkbox"/> Neither – Not catheter associated – Neither in place nor removed																																
Location of Device Insertion: _____ Date of Device Insertion: ____/____/____																																
If NICU, birth weight (gms): _____																																
Event Details																																
*Specific Event: <input type="checkbox"/> Symptomatic UTI (SUTI) <input type="checkbox"/> Asymptomatic Bacteremic UTI (ABUTI) <input type="checkbox"/> Urinary System Infection (USI)																																
*Specify Criteria Used: (check all that apply)																																
Signs & Symptoms																																
<table border="0"> <tr> <td><u>Any Patient</u></td> <td><u>≤ 1 year old</u></td> <td><u>Laboratory & Diagnostic Testing</u></td> </tr> <tr> <td><input type="checkbox"/> Fever</td> <td><input type="checkbox"/> Fever</td> <td><input type="checkbox"/> Positive culture with no more than 2 species of organisms, at least one of which is a bacterium of $\geq 10^5$ CFU/ml</td> </tr> <tr> <td><input type="checkbox"/> Urgency</td> <td><input type="checkbox"/> Hypothermia</td> <td><input type="checkbox"/> Organism(s) identified from fluid or tissue from affected site (excluding urine)</td> </tr> <tr> <td><input type="checkbox"/> Frequency</td> <td><input type="checkbox"/> Dysuria</td> <td><input type="checkbox"/> Organism(s) identified from blood specimen</td> </tr> <tr> <td><input type="checkbox"/> Pain or tenderness</td> <td><input type="checkbox"/> Abscess</td> <td><input type="checkbox"/> Imaging test evidence of infection</td> </tr> <tr> <td><input type="checkbox"/> Acute pain, swelling, or tenderness of testes, epididymis, or prostate</td> <td><input type="checkbox"/> Apnea</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Suprapubic tenderness</td> <td><input type="checkbox"/> Bradycardia</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Costovertebral angle pain or tenderness</td> <td><input type="checkbox"/> Lethargy</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Purulent drainage from affected site</td> <td><input type="checkbox"/> Vomiting</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other evidence of infection found on invasive procedure, gross anatomic exam, or histopathologic exam[‡]</td> <td><input type="checkbox"/> Suprapubic tenderness</td> <td></td> </tr> </table>			<u>Any Patient</u>	<u>≤ 1 year old</u>	<u>Laboratory & Diagnostic Testing</u>	<input type="checkbox"/> Fever	<input type="checkbox"/> Fever	<input type="checkbox"/> Positive culture with no more than 2 species of organisms, at least one of which is a bacterium of $\geq 10^5$ CFU/ml	<input type="checkbox"/> Urgency	<input type="checkbox"/> Hypothermia	<input type="checkbox"/> Organism(s) identified from fluid or tissue from affected site (excluding urine)	<input type="checkbox"/> Frequency	<input type="checkbox"/> Dysuria	<input type="checkbox"/> Organism(s) identified from blood specimen	<input type="checkbox"/> Pain or tenderness	<input type="checkbox"/> Abscess	<input type="checkbox"/> Imaging test evidence of infection	<input type="checkbox"/> Acute pain, swelling, or tenderness of testes, epididymis, or prostate	<input type="checkbox"/> Apnea		<input type="checkbox"/> Suprapubic tenderness	<input type="checkbox"/> Bradycardia		<input type="checkbox"/> Costovertebral angle pain or tenderness	<input type="checkbox"/> Lethargy		<input type="checkbox"/> Purulent drainage from affected site	<input type="checkbox"/> Vomiting		<input type="checkbox"/> Other evidence of infection found on invasive procedure, gross anatomic exam, or histopathologic exam [‡]	<input type="checkbox"/> Suprapubic tenderness	
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[‡] per specific site criteria																																
*Secondary Bloodstream Infection: Yes No																																
*Died: Yes No	UTI Contributed to Death: Yes No																															
Discharge Date:	*Pathogens Identified: Yes No	*If Yes, specify on pages 2-4.																														

Data Collection Form (57.114)

Urinary Tract infection (UTI)

Page 3 of 4

Pathogen #	Gram-negative Organisms (continued)									
_____	Pseudomonas aeruginosa	AMK	AZT	CEFEP	CEFTAZ	CIPROLEVO	COL/PB	GENT		
		S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N
_____		IMI	MERO/DORI	PIPIPIPTAZ	TOBRA					
		S I R N	S I R N	S I R N	S I R N					
Pathogen #	Fungal Organisms									
_____	Candida (specify species if available)	ANID	CASPO	FLUCO	FLUCY	ITRA	MICA	VORI		
		S I R N	S NS N	S S-DD R N	S I R N	S S-DD R N	S NS N	S S-DD R N	S I R N	S I R N
Pathogen #	Other Organisms									
_____	Organism 1 (specify)	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	Drug 7	Drug 8	Drug 9
		S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N
_____	Organism 1 (specify)	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	Drug 7	Drug 8	Drug 9
		S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N
_____	Organism 1 (specify)	Drug 1	Drug 2	Drug 3	Drug 4	Drug 5	Drug 6	Drug 7	Drug 8	Drug 9
		S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N	S I R N

Result Codes

S = Susceptible I = Intermediate R = Resistant NS = Non-susceptible S-DD = Susceptible-dose dependent
N = Not tested

§ GENTHL results: S = Susceptible/Synergistic and R = Resistant/Not Synergistic

† Clinical breakpoints have not been set by FDA or CLSI, Sensitive and Resistant designations should be based upon epidemiological cutoffs of Sensitive MIC ≤ 2 and Resistant MIC ≥ 4

Drug Codes:

Result Codes

S = Susceptible I = Intermediate R = Resistant NS = Non-susceptible S-DD = Susceptible-dose dependent

N = Not tested

§ GENTHL results: S = Susceptible/Synergistic and R = Resistant/Not Synergistic

† Clinical breakpoints have not been set by FDA or CLSI, Sensitive and Resistant designations should be based upon epidemiological cutoffs of Sensitive MIC ≤ 2 and Resistant MIC ≥ 4

Table of Instruction Form (57.114)



Instructions for Completion of Urinary Tract Infection (UTI) Form (CDC 57.114)

Data Field	Instructions for Data Collection/Entry
Facility ID	The NHSN-assigned facility ID will be auto-entered by the computer.
Event #	Event ID number will be auto-entered by the computer.
Patient ID	Required. Enter the alphanumeric patient ID number. This is the patient identifier assigned by the hospital and may consist of any combination of numbers and/or letters.
Social Security #	Optional. Enter the 9-digit numeric patient Social Security Number.
Secondary ID	Optional. Enter the alphanumeric ID number assigned by the facility.
Medicare #	Conditionally required. Enter the patient's Medicare number for all events reported as part of a CMS Quality Reporting Program.
Patient name	Optional. Enter the last, first, and middle name of the patient.
Gender	Required. Check Female, Male, or Other to indicate the gender of the patient.
Date of birth	Required. Record the date of the patient birth using this format: MM/DD/YYYY.
Ethnicity	Optional. Specify if the patient is either Hispanic or Latino, or Not Hispanic or Not Latino.
Race	Optional. Specify one or more of the choices below to identify the patient's race: American Indian/Alaska Native Asian Black or African American Native Hawaiian/Other Pacific Islander White
Event type	Required. UTI.
Date of event	Required. The date when the <i>first</i> element used to meet the UTI infection criterion occurred for the first time, during the Infection Window Period. Enter date of this event using this format: MM/DD/YYYY. NOTE: If a device has been pulled on the first day of the month in a location where there are no other device days in that month, and a device-associated infection develops after the device is pulled, use the last day of the previous month as the Date of Event.
Post-procedure UTI	Optional. Check Y if this event occurred after procedure but before discharge from the facility.
Date of procedure	Conditionally required. If Post-procedure UTI, the NHSN procedure started.

Entering CAUTI Events into NHSN (Numerator and Summary Data)

Risk Factors

CAUTI

Required Field: Three options:

INPLACE- Urinary catheter in place >2 days on the date of event

REMOVE- Urinary catheter in place >2 calendar days but was removed the day before the date of event

NEITHER- If no urinary catheter was in place on the day of or the day before the date of event OR not in place >2 calendar days on the date of event

Risk Factors

Urinary Catheter *:

Location of Device Insertion:

Date of Device Insertion: 

Optional: Date indwelling urinary catheter inserted.

Optional: Patient location where indwelling urinary catheter inserted.

Collecting Summary Denominator Data

Manual Collection

For all locations, count **at the same time each day**

- Number of patients on the inpatient unit
- Number of patients with an indwelling urinary catheter



Form Approved
OMB No. 0920-0666
Exp. Date: 01/31/2021
www.cdc.gov/nhsn

Denominators for Intensive Care Unit (ICU)/Other Locations (not NICU or SCA)

Page 1 of 1

*required for saving						
Facility ID: 1000		*Location Code: Medical	*Month: February	*Year: 2018		
Date	*Number of Patients	**Number of patients with 1 or more central lines	**Number of patients with a urinary catheter	**Number of total patients on a ventilator	Number of patients on APRV	Number of Episodes of Mechanical Ventilation
1	23		8			
2						
3						
4						
5						

Screen snag for denominator data



Denominators for Intensive Care Unit (ICU)/Other locations (not NICU or SCA)

Mandatory fields marked with *

Facility ID *: Decennial Medical Center (ID 15331) ▼

Location Code *: MICU - MEDICAL ICU ▼

Month *: February ▼

Year *: 2018

Sample Values For Estimating Denominator Data

	Report No Events		Check Box(es) if Sampling Used
Total Patient Days *: <input type="text"/>		Sample Patient Days: <input type="text"/>	
Central Line Days *: <input type="text"/>	CLABSI: <input type="checkbox"/>	Sample Central Line Days: <input type="text"/>	<input type="checkbox"/>
Urinary Catheter Days *: <input type="text" value="23"/>	CAUTI: <input type="checkbox"/>	Sample Urinary Catheter Days: <input type="text"/>	<input type="checkbox"/>
Ventilator Days: <input type="text"/>			
APRV Days: <input type="text"/>	VAE: <input type="checkbox"/>		
Episodes of Mechanical Ventilation: <input type="text"/>	PedVAP: <input type="checkbox"/>		

Collecting Summary Denominator Data

Optional alternatives:

- Electronically collected
 - Following validation of the electronic method against the manual method
 - 3 months concurrent data collection with both methods
 - Difference between methods must be within +/- 5% of each other
- Weekly Sampling
 - Reduce staff time-estimate indwelling urinary catheter days (IUC)
 - ICU and ward locations with average of ≥ 75 IUC days per month
 - Saturday or Sunday - least accurate estimates of denominator data, therefore, these days should not be selected



Denominators for Intensive Care Unit (ICU)/Other locations (not NICU or SCA)

Mandatory fields marked with *

Facility ID *: DHQP Memorial Hospital (ID 10000) ▾

Location Code *: 3W - BURN UNIT ▾

Month *: January ▾

Year *: 2018 ▾

Report No Events

Total Patient Days *:

Central Line Days *:

Urinary Catheter Days *:

Ventilator Days *:

APRV Days:

Episodes of Mechanical Ventilation:

CLABSI:

CAUTI:

VAE:

PedVAP:

Sample Values For Estimating Denominator Data

Check Box(es) if Sampling Used

Sample Patient Days *:

Sample Central Line Days:

Sample Urinary Catheter Days *:

Custom Fields [Help](#)

↑
Sampling data
sum for month

Common Misconceptions

Common Misconceptions

1. UTI as secondary infection



2. Positive culture on admission automatically = Present on Admission (POA)



3. UTI signs or symptoms such as fever on admission automatically = POA



Misconception #1:



UTI as secondary Infection

NOTE: UTI is a primary site of infection and cannot be considered secondary to another site of infection

When a patient meets CAUTI and the same organism is identified in a burn wound culture these are considered 2 sites of infection

When a patient meets PNEU event, a CAUTI cannot be classified as a secondary infection even though the same organism is identified

A patient can have 2 sites of infection

Misconception #2:

Positive culture on admission = Present on Admission (POA)

Misconception #2

Positive urine culture on admit = POA

- 1/2 Positive urine culture during the POA timeframe without UTI signs or symptoms nor matching blood organism in the IWP is not an event; **therefore this does not meet POA.**
- 1/9 Positive urine culture sets the IWP: 1/6– 1/12.
- 1/10 fever occurs in the IWP, and is used to meet SUTI, **DOE 1/9.**
- The Foley was in place > 2 days on the DOE therefore meets SUTI 1a: CAUTI which is HAI.

DATE	SUTI Criterion	
12/30	No UTI s/s	No UTI Event
12/31	No UTI s/s	
1/1 Admit	No UTI s/s Foley inserted	
1/2	Positive urine culture <i>Ecoli</i> >100,000 CFU/ml;	
1/3	No UTI s/s	
1/4	No UTI s/s	
1/5	No UTI s/s	
1/6		
1/7		
1/8		HAI
1/9	Positive urine culture <i>Ecoli</i> >100,000 CFU/ml Foley catheter in place	CAUTI date of event 1/9
1/10	Fever >38.0°C	
1/11		
1/12		
1/13		
1/14		
1/15		

Misconception #3

UTI signs or symptoms on admission = POA

- UTI s/s must be accompanied by a positive urine culture and must occur **within the IWP**
- **Date of event** must occur within the POA time period

Rationale Misconception #3

UTI signs or symptoms on admission = POA

- The 3/11 urine culture sets the IWP: 3/8 – 3/14
- The 3/10 fever > 38°C can be used because it occurs in the IWP
- This meets CAUTI, **DOE 3/10**
- Cannot use the 3/1 fever > 38°C because it does not occur in the IWP

DATE	SUTI Criterion	Hospital Day
3/1 Admit	Admit with Foley catheter in place Fever > 38°C	1
3/2	Fever > 38°C	2
3/3	Fever > 38°C	3
3/4		4
3/5		5
3/6		6
3/7		7
3/8		8
3/9		9
3/10	Fever > 38°C	10
3/11 IWP	positive urine culture > 100,000 CFU/ml <i>E. coli</i>	11
3/12		12
3/13		13
3/14		14

UTI criteria not met POA; requires positive urine culture

CAUTI date of event 3/10

HAI

IWP

Case Studies

Submit UTI case review questions to nhsn@cdc.gov

Sample of Complete NHSN Case review request:

- Date of Admission
- Date(s) of Foley insertion/removal if applicable
- Is patient >65 years of age?
- Date(s) and results of urine cultures including colony count
- Date(s) and types of UTI sign/symptoms
- Date(s) and results of any positive blood cultures
- Include your determination
- **Do not include confidential Personal Identifiable Information**

National Healthcare Safety Network (NHSN)

[CDC](#) > [NHSN](#) > [Materials for Enrolled Facilities](#) > [Acute Care Hospitals/Facilities](#)

Surveillance for Urinary Tract Infections



Catheter-Associated Urinary Tract Infection (CAUTI) and non-catheter-associated Urinary Tract Infection (UTI) and Other Urinary System Infection (USI)

Resources for NHSN Users Already Enrolled

- > **Training**
- > **Protocols**
- > **Frequently Asked Questions**
- > **Data Collection Forms**
- > **CMS Supporting Materials**
- > **Supporting Material**



New Users - Start Enrollment Here



- Step 1: Enroll into NHSN
- Step 2: Set up NHSN
- Step 3: Report

[Click here to enroll](#)

FAQs: Urinary Tract Infection (UTI) Events



Catheter-Associated Urinary Tract Infection [CAUTI] and Non-Catheter-Associated Urinary Tract Infection [UTI] and Other Urinary System Infection [USI]

On This Page

- Spinal cord injury, heavily sedated, or ventilated patients
- 100,000 CFU/ml included in more than 1 laboratory category
- Mixed flora
- Morphology determining what equates to > 2 organisms
- Number of organisms in cultures
- Identifying single vs multiple UTIs
- Patient reported fever
- Fever, age and device association
- UTI Symptom: dysuria
- UTI Symptoms: urinary urgency, urinary frequency and dysuria
- Costovertebral angle (CVA) pain or tenderness
- Suprapubic tenderness
- "With No other recognized cause"
- Leg bags/attaching urometers
- ABUTI and CMS
- Patients with colovesical fistula
- Submitting UTI case review to NHSN

Spinal cord injury, heavily sedated, or ventilated patients

Q1: My location cares for patients who may not be able to verbalize or sense suprapubic tenderness or costovertebral angle (CVA) pain or tenderness. e.g., patients with spinal cord injury, heavily sedated or ventilated patients. How can I report CAUTI in these patients?

Surveillance criteria may not be equally sensitive for all patient populations. Patient populations in which the UTI criteria may not be as sensitive include spinal cord injury patients, those with brain injuries, and heavily sedated patients. NHSN Surveillance definitions were developed to balance sensitivity and specificity along with feasibility. A set of criteria that covered every subpopulation with high

Steps in Investigating a Positive Urine Culture as Possible CAUTI

1.	Determine the date of the urine culture.
2.	From the date of the urine culture determine the 7-day IWP: 3 days before the urine culture, the day of the urine culture and 3 days after for a total of 7 days.
3.	Determine if all of the elements of the UTI are met during the IWP. If yes, there is an infection event. If no, there is no event.
4.	Next determine the DOE : the date that the <u>first element</u> occurs for the first time within the IWP.
5.	Is the DOE in the POA time period? If yes, the infection is POA, if no, it is an HAI. (POA time period is defined as the day of admission to an inpatient location, the 2 days before admission, and the calendar day after admission)
6.	Next (if appropriate) determine if the HAI is device-associated, i.e. CAUTI. If the DOE occurred on or after calendar day 3 of device use in an inpatient location, and the device was in place on that day or the day before, the HAI is device-associated.

Case 1 Patient ≤ 65 years of age

Less
than or
equal to

Date	Details
2/2	Patient age 57 seen in ED, Foley inserted
2/3	Admitted to ICU Temperature 100.9°F
2/4	Temperature 100.8°F
2/5	Urine culture collected and positive for 100,000 CFU/ml coagulase negative <i>Staphylococcus</i>

Case 1 Patient \leq 65 years of age

The 2/3 fever can be used as an element in this age patient

- ✓ A. True
- B. False

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	Fever 100.9° F FC day #1
2/4	Fever 100.8° F FC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml FC day #3
2/6	
2/7	
2/8	
2/9	

Case 1 Patient \leq 65 years of age

What is the correct determination in this case?

- ✓ A. This patient has SUTI 1b: Non-CAUTI
- B. This patient has SUTI 1a: CAUTI
- C. This patient has Non-Catheter-Associated ABUTI
- D. This patient does not meet UTI event

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	Fever 100.9 ⁰ F FC day #1
2/4	Fever 100.8 ⁰ F FC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml FC day #3
2/6	
2/7	
2/8	
2/9	

Rationale: Case 1 Patient \leq 65 years of age

Meets SUTI 1b: Non-Catheter-Associated UTI

- The **2/5 positive urine culture** sets the **IWP: 2/2- 2/8**.
- The **2/3 fever** is eligible in this age patient and is the **first element** to occur within the IWP therefore is the **DOE** and is **POA**.
- The Foley was **not** in place > 2 days in the **inpatient location** on the **DOE** therefore meets **SUTI 1b: Non-Catheter-Associated UTI**, and a UTI RIT and SBAP is set

DATE	SBAP	RIT	Infection Window Period
2/2 ED			Foley Catheter (FC) inserted
2/3 ADMIT		1	Fever 100.9 ⁰ F FC day #1
2/4		2	Fever 100.8 ⁰ F FC day #2
2/5		3	urine culture: <i>CNS</i> 10 ⁵ CFU/ml FC day #3
2/6		4	
2/7		5	
2/8		6	
2/9		7	

Case 2 Patient > 65 years of age Same Scenario

greater
than

Date	Details
2/2	Patient age 75 seen in ED, Foley inserted
2/3	Admitted to ICU Temperature 100.9°F
2/4	Temperature 100.8°F
2/5	Urine culture collected and positive for 100,000 CFU/ml coagulase negative <i>Staphylococcus</i>
2/28	Foley removed, Discharged to home

Case 2 Patient > 65 years of age

The 2/3 fever can be used as an element in this age patient

A. True

 B. False

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	Fever 100.9° F FC day #1
2/4	Fever 100.8° F FC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml
2/6	
2/7	
2/8	
2/9	

Case 2 Patient > 65 years of age

The 2/4 fever can be used as an element in this age patient

- A. True
-  B. False

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	Fever 100.9° F FC day #1
2/4	Fever 100.8° F FC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml
2/6	
2/7	
2/8	
2/9	

Case 2 Patient > 65 years of age

What is the correct determination in this case

- A. This patient has SUTI 1b: Non-CAUTI
- B. This patient has SUTI 1a: CAUTI
- C. This patient has Non-Catheter-Associated ABUTI
- ✓ D. This patient does not meet UTI event

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	Fever 100.9° F FC day #1
2/4	Fever 100.8° F FC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml
2/6	
2/7	
2/8	
2/9	

Rationale Case 2 Patient > 65 years of age

- The 2/5 positive urine culture sets IWP: 2/2 – 2/8.
- The **2/3 and 2/4 fevers cannot be used** as an element in this age patient because the **Foley was not in place in the inpatient location** > 2 days on the **DOE**.
- There are no UTI elements within the IWP so there is **no event**. No RIT is set.
- **SUTI 1b cannot be met in a patient > 65 years of age with fever alone.**
- Consider other UTI s/s.

DATE	Infection Window Period
2/2 ED	Foley Catheter (FC) inserted
2/3 ADMIT	 Fever 100.9° F FC day #1
2/4	 Fever 100.8° F FC day #2
2/5	 urine culture: CNS 10 ⁵ CFU/ml FC day #3
2/6	
2/7	
2/8	
2/9	

Case 3

Date	Details:
1/10	Patient admitted to med/surg for influenza. C/O headache, body aches and nausea.
1/12	Urine culture was positive for >100k CFU/ml <i>E. faecium</i> and 20K CFU/ml <i>Pseudomonas aeruginosa</i> (PA), and a blood culture collected the same day grew PA.

The blood culture is secondary to ABUTI

- A. True
-  B. False

Rationale Case 3

- To use blood as an element in ABUTI, the blood organism must match the urine organism with $\geq 100,000$ CFU/ml and occur within the IWP.
- The *PA* organism in the urine is 20,000 CFU/ml, therefore the *PA* blood cannot be used as an element for ABUTI.
- There are no UTI s/s nor matching blood within the IWP of the urine culture with *E. faecium* therefore there is no event and no RIT nor SBAP is set.

Case 4

Date	Details: Prolonged hospital stay for colon mass; several weeks into the stay:
1/30	Foley catheter placed
2/11	Positive wound culture: <i>Staphylococcus</i> spp. and <i>Enterococcus faecalis</i>
2/14	Urine culture $>10^5$ CFU/ml <i>Staphylococcus epidermidis</i> (SE) Blood culture SE in 2 of 2 culture bottles drawn on separate occasions
2/15	Hypotension
2/11- 2/17	No fever $>38^{\circ}\text{C}$, no UTI signs/symptoms

Case 4

What is the correct determination in this case?

- A. This patient meets SUTI 1a: CAUTI
- ✓ B. This patient meets Catheter-Associated ABUTI
- C. This patient does not meet UTI event because it is secondary to wound infection
- D. This patient meets primary LCBI 2: BSI

Date	SBAP	RIT	Infection Window Period
Admit Jan 28			
Jan 30			Foley inserted
Feb 11			no UTI signs/symptoms Wound culture with PA
Feb 12			no UTI signs/symptoms
Feb 13			no UTI signs/symptoms
Feb 14		1	Urine culture $>10^5$ CFU/ml <i>Staphylococcus epidermidis</i> (SE) Blood culture SE in 2 of 2 culture bottles drawn on separate occasions no UTI signs/symptoms
Feb 15		2	no UTI signs/symptoms, hypotension
Feb 16		3	no UTI signs/symptoms
Feb 17		4	no UTI signs/symptoms
Feb 18		5	Foley removed, Discharged to home

Rationale Case 4

- 2/14 positive urine culture sets the IWP: 2/11 – 2/17
- No UTI s/s within IWP
- Matching common commensals and hypotension within IWP meets LCBI 2, DOE 2/14
- Foley in place > 2 days on DOE
- This meets catheter-associated ABUTI and the matching blood culture is secondary
- Reportable if location is in reporting plan

Date	SBAP	RIT	Infection Window Period
Admit Jan 28			
Jan 30			Foley inserted
Feb 11			no UTI signs/symptoms Wound culture with PA
Feb 12			no UTI signs/symptoms
Feb 13			no UTI signs/symptoms
Feb 14		1	Urine culture >10 ⁵ CFU/ml <i>Staphylococcus epidermidis</i> (SE)
DOE			Blood culture SE in 2 of 2 culture bottles drawn on separate occasions
			no UTI signs/symptoms
Feb 15		2	no UTI signs/symptoms, hypotension
Feb 16		3	no UTI signs/symptoms
Feb 17		4	no UTI signs/symptoms
Feb 18		5	Foley removed, Discharged to home

Case 5

Date	Details:
1/6	Admit to ICU, Foley catheter placed, temp 100.3°F
1/7	Temperature 100.7°F
1/8	Temperature 100.8°F
1/9	Foley discontinued , Tmax 100°F
1/10	Tmax 99.6°F
1/11	Urine culture >100,000 CFU/mL <i>Proteus mirabilis</i> & 50,000 CFU/mL <i>E. coli</i> , Tmax 99.6°F
1/12	Tmax 99.6°F
1/13	Discharged to rehab

Case 5

This patient cannot meet CAUTI because the urine culture occurs 2 days after the FC was removed.

- A. True
-  B. False

Date	Foley	Tmax	Notes
1/6 Admit	Yes	100.3	Foley catheter in place.
1/7	Yes	100.7	
1/8	Yes	100.8	
1/9	Foley dc'd	100	
1/10	No	99.6	
1/11	No	99.4	Urine culture >100,000 CFU/mL <i>Proteus mirabilis</i> & 50,000 CFU/mL <i>E. coli</i>
1/12	No	99.6	
1/13	No	98.7	Patient discharged to rehab.

Rationale Case 5

Meets SUTI 1a: Catheter-Associated UTI, date of event 1/8

- Even though the positive urine culture occurred 2 days after Foley catheter was removed, the 1/8 fever was the first element in the 7-day IWP therefore is the **date of event**.
- On the date of event, the Foley catheter was in place > 2 days.
- This meets SUTI 1a: Catheter-Associated UTI, date of event 1/8 pathogen *Proteus mirabilis*.

Date	Foley	Tmax	Notes
1/6 Admit	Yes	100.3	Foley catheter inserted
1/7	Yes	100.7	
1/8	Yes	100.8	DOE
1/9	Foley dc'd	100	
1/10	No	99.6	
1/11	No	99.4	Urine culture >100,000 CFU/mL <i>Proteus mirabilis</i> & 50,000 CFU/mL <i>E. coli</i>
1/12	No	99.6	
1/13	No	98.7	Patient discharged to rehab.

Summary

- Reviewed the **2018 UTI Protocol Updates, key concepts and common misconceptions** in the NHSN UTI protocol
 - Do not change device association during the UTI RIT
 - Positive urine culture OR UTI s/s on admission does not automatically meet POA
 - UTI is a primary site of infection; cannot be secondary to another site of infection
- Identified how to count urinary catheter days to determine infection association
 - Catheter count begins on day of insertion and if FC in place prior to admission, begins with admission date to the first inpatient location

Summary

- Reviewed the **data collection form** and **table of instructions for UTI surveillance**
- Made correct UTI determinations through **case studies**
 - Reviewed fever, age and device association
 - Reviewed Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)

For More Information.....

Please see the following for additional training:

<http://www.cdc.gov/nhsn/acute-care-hospital/CAUTI/index.html>

UTI protocol available at

<http://www.cdc.gov/nhsn/PDFs/pscManual/7pscCAUTIcurrent.pdf>

Available Training

- NHSN Enrollment & Facility Set-up
- Overview of the Patient Safety Component, Device-associated module
- Data Entry, Surveillance, Analysis, Import, and Customization
- Introduction to the Device-associated Module (Training Course with quiz)
- Catheter-associated Urinary Tract Infection (CAUTI) (Training Course with quiz)
- <http://www.cdc.gov/nhsn/training/>

American Journal of Infection Control

NHSN Case-Study Series

- Additional educational tool
 - Perfect for reliability testing of ICP teams, APIC chapters, etc.
- Target: quarterly publication
- Address common surveillance scenarios
 - CLABSI, CAUTI, VAE, SSI, MDRO/CDI
- Test your knowledge
- Quiz and answers via web link
- Pursuing other access opportunities

Give it a Try!!

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journal homepage: www.ajicjournal.org

Clinical case study

Health Care-Associated Infections Studies Project Case #1: A 2015 American Journal of Infection Control and National Healthcare Safety Network data quality collaboration 

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.





Case Studies for NHSN Catheter-Associated Urinary Tract Infections - 2018

**Eileen Scalise, MSN, RN, Infection Prevention Nurse
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2018 NHSN Annual Training

February 28, 2018

UTI Case Study #1

Mr. Peabody Jr. and Mr. Peabody Sr.

UTI Case 1 Mr. Peabody Jr.

1/19/18	Mr. Peabody Jr. age 47 admitted to ICU
1/19/18	Triple lumen left Subclavian CL catheter placed
2/1/18	Fever 100.5 ⁰ F
2/3/18	Subclavian CL catheter removed, PICC placed
2/3/18	Foley placed
2/3/18	Urine culture <i>E.coli</i> >100,000 CFU/ml
2/3/18	BC positive for <i>E.coli</i>
2/3/18	BP 77/62

Could the BSI be considered secondary to a UTI?

Or is this a primary CLABSI? Identify IWP, DOE, RIT and SBAP.

UTI Case 1 Mr. Peabody Jr. ≤ 65 years of age Answer

Admit date: 1/19/2018

Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
13. - 1/31/2018		<input type="checkbox"/>	-		
14. - 2/1/2018		<input checked="" type="checkbox"/> Fever > 38 C	- HAI		
15. - 2/2/2018		<input type="checkbox"/>			
16. - 2/3/2018	✓	<input checked="" type="checkbox"/> Positive urine culture <input checked="" type="checkbox"/> Ecoli > 100,000 CFU/ml			Positive blood culture Ecoli
17. - 2/4/2018		<input type="checkbox"/>			
18. - 2/5/2018		<input type="checkbox"/>			
19. - 2/6/2018		<input type="checkbox"/>			
20. - 2/7/2018					
21. - 2/8/2018					
22. - 2/9/2018					
23. - 2/10/2018					
24. - 2/11/2018					
25. - 2/12/2018					
26. - 2/13/2018					
27. - 2/14/2018					

Meets SUTI 1b: non-CAUTI, DOE 2/1 (HAI); matching blood is secondary

UTI Case 1 Mr. Peabody Jr. \leq 65 years of age Answer

- The 2/3/18 – Urine culture *E.coli* >100,000 CFU/ml sets the IWP: 1/31 – 2/5.
- Mr. Peabody Jr. is \leq 65 years of age, so the 2/1 fever is used to meet SUTI, **date of event** 2/1 which is HAI.
- The Foley was **not** in place > 2 days on the **DOE** therefore this meets SUTI 1b: Non-CAUTI. SUTI RIT: 2/1 – 2/14, SBAP: 1/31 – 2/14
- The 2/3 matching blood pathogen occurs within the Secondary BSI attribution period therefore is considered secondary.
- **Teaching Point** SUTI 1b sets an RIT and SBAP.

UTI Case 1 What if Mr. Peabody is > 65 years of age?

1/19/18	Mr. Peabody Sr. age 77 is admitted to ICU
1/19/18	Triple lumen left Subclavian CL catheter placed
2/1/18	Fever 100.5° F
2/3/18	Subclavian CL catheter removed, PICC placed
2/3/18	Foley placed
2/3/18	Urine culture <i>E.coli</i> >100,000 CFU/ml
2/3/18	BC positive for <i>E.coli</i>
2/3/18	BP 77/62

Could the BSI be considered secondary to a UTI?

Or is this a primary CLABSI? Identify IWP, DOE, RIT and SBAP.

UTI Case 1 Mr. Peabody Sr. \geq 65 years of age Answer

Admit date: 1/19/2018

Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
13. - 1/31/2018		<input type="checkbox"/>	-		
14. - 2/1/2018		<input type="checkbox"/> Fever > 38 C	-		
15. - 2/2/2018		<input type="checkbox"/>	-		
16. - 2/3/2018	✓	<input checked="" type="checkbox"/> positive urine culture Ecoli > 100,000 CFU/ml and positive blood culture Ecoli	- HAI		blood culture Ecoli
17. - 2/4/2018		<input type="checkbox"/>	-		
18. - 2/5/2018		<input type="checkbox"/>	-		
19. - 2/6/2018		<input type="checkbox"/>	-		
20. - 2/7/2018			-		
21. - 2/8/2018			-		
22. - 2/9/2018			-		
23. - 2/10/2018			-		
24. - 2/11/2018			-		
25. - 2/12/2018			-		
26. - 2/13/2018			-		
27. - 2/14/2018			-		
28. - 2/15/2018			-		
29. - 2/16/2018			-		

Meets non-catheter-associated ABUTI, DOE 2/3 (HAI), matching blood is secondary

UTI Case 1 Mr. Peabody Sr. \geq 65 years of age Answer

- Because Mr. Peabody Sr. is $>$ 65 years of age, the 2/1 fever is **not** eligible because the Foley was not in place $>$ 2 days on the date of event.
- There are no UTI signs/symptoms within the IWP however there is a matching blood organism within the IWP therefore this meets Asymptomatic Bacteremic Urinary Tract Infection (ABUTI), date of event 2/3 which is HAI.
- The Foley was **not** in place $>$ 2 days on the DOE, therefore this meets non-catheter-associated ABUTI and the blood is considered secondary. (2ndary BSI Scenario 2: matching blood is an element used to meet ABUTI)
- (**Teaching Point:** Patients $>$ 65 years of age with a non-catheter-associated ABUTI **may** have a fever and still meet the ABUTI criterion)

UTI Case Study #2

Ms. Urea

UTI Case 2 Ms. Urea

- 1/27 Ms. Urea, age 77 was admitted with hematuria x 1 week and dysuria yesterday which is documented in the medical record
- 1/28 Positive urine culture *P. mirabilis* >100,000 CFU/ml, fever 100.5⁰ F
- 1/30 Fever 101⁰ F
- 2/2 Foley catheter inserted by urology due to gross hematuria and clots.
- 2/3 Febrile 100.7⁰ F
- 2/3 Documented hematuria
- 2/8 Positive urine culture *ESBL E. coli* >100,000 CFU/ml, fever 100.8⁰ F

What is Ms. Urea's determination (include IWP, DOE, RIT and SBAP)?

Admit date: 1/27/2018

Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
1/25/2018		<input type="checkbox"/>	-		
1/26/2018		<input checked="" type="checkbox"/> dysuria	-		
1. - 1/27/2018 - Admit Date		<input type="checkbox"/>	-		
2. - 1/28/2018	✓	<input checked="" type="checkbox"/> positive urine culture Fever	-		
3. - 1/29/2018		<input type="checkbox"/>	-		
4. - 1/30/2018					
5. - 1/31/2018					
6. - 2/1/2018					
7. - 2/2/2018					
8. - 2/3/2018					
9. - 2/4/2018					
10. - 2/5/2018					
11. - 2/6/2018					
12. - 2/7/2018					
13. - 2/8/2018					
14. - 2/9/2018					

Message from webpage



You have selected a calendar day that occurs in the POA time period defined as two days before and one day after inpatient admission. For purposes of NHSN surveillance and determination of Repeat Infection Timeframe, if the date of event is determined to be either of the two days prior to admit date, then the date of event will be hospital day 1. Likewise, the first day of the RIT will be hospital day 1.

OK

UTI Case 2 Ms. Urea Answer

Admit date: 1/27/2018

Hospital Day/Date	First Diagnostic Test	Infection Window Period (*)	Date of Event	Repeat Infection Timeframe (*)	Secondary BSI Attribution Period (*)
1/25/2018		<input type="checkbox"/>	-		
1/26/2018		<input checked="" type="checkbox"/> dysuria	-		
1. - 1/27/2018 - Admit Date		<input type="checkbox"/>	- POA		
2. - 1/28/2018	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> positive urine culture Fever	-		
3. - 1/29/2018		<input type="checkbox"/>	-		
4. - 1/30/2018		<input type="checkbox"/> Fever	-		
5. - 1/31/2018		<input type="checkbox"/>	-		
6. - 2/1/2018			-		
7. - 2/2/2018			-		
8. - 2/3/2018			-		
9. - 2/4/2018			-		
10. - 2/5/2018			-		
11. - 2/6/2018			-		
12. - 2/7/2018			-		
13. - 2/8/2018			-	positive urine culture Fever	
14. - 2/9/2018			-		

Meets SUTI 1b:
non-CAUTI, DOE
1/27 (POA)

The 2/8 positive urine culture and fever occur within the RIT; does not become catheter associated

UTI Case 2 Ms. Urea Answer

- The 1/26 dysuria and 1/28 positive urine culture meet **SUTI 1b: Non-CAUTI**, DOE 1/27 which is POA. The RIT is 1/27 – 2/9. The SBAP is 1/25 – 2/9.
- The 2/8 fever and positive urine culture occur within the RIT therefore this is **not a new event**; additional pathogen is considered part of the POA event. Even though Foley is in place > 2 days on 2/8 this does not become CAUTI.

Teaching points:

- Can meet SUTI 1b: POA in patient > 65 years of age by using additional symptoms besides fever.
- When symptoms occur prior to admission, if documented in the medical record and symptom occurs within the IWP the DOE becomes day 1 of admission.
- Do not change device association during the RIT.

UTI Case Study #3

Ms. Waters

UTI Case 3 Ms. Waters

Identify Determination (include IWP, DOE, RIT and SBAP)

- ❑ Ms. Waters was admitted on 1/14/2018 from a LTC facility with a Foley catheter in place. The patient was found to have a UTI at the LTC facility for which the patient was started on antibiotics prior to admission.
- ❑ A urine culture was collected 1/14/2018 at our facility and was positive for *Klebsiella pneumoniae* MDRO >100,000 CFU/ml. No UTI s/s and no blood culture.
- ❑ A second urine culture was collected 1/26/2018 with the same organism and colony count. No UTI s/s and no blood culture.
- ❑ The patient spiked a fever of 102.9 on 2/7/2018 and blood and urine cultures were collected. The urine culture collected on 2/7/2018 was positive again for *Klebsiella pneumoniae* MDRO >100,000 CFU/ml. Blood culture is negative.
- ❑ Indwelling Foley catheter was in place 1/14/2018 - 1/26/2018, 1/26/2018 - 2/7/2018.
- ❑ The physician documented that the urinary system was colonized with *K. pneumoniae*, and that no antimicrobial therapy was necessary at that time.

UTI Case 3 Ms. Waters Answer

- The 1/14 urine culture sets the IWP: 1/12 – 1/17.
- There were no UTI s/s nor matching blood organism within the IWP therefore there is no event and no RIT is set.

Teaching Points:

- IWP 2 days PTA in keeping with the POA timeframe.
- Acceptable documentation includes patient-reported signs or symptoms that occurred on either 1/12 or 1/13 prior to admission and documented in the medical record by a healthcare professional. Information communicated verbally from facility to facility, or information found in another facility's medical record cannot be used unless also documented in the current facility's medical record.

UTI Case 3 Ms. Waters Answer

- Moving to the next eligible urine culture the 1/26 positive urine culture sets the IWP: 1/23 – 1/29. There are no UTI s/s nor matching blood organism within the IWP therefore there is **no event and no RIT is set.**
- The 2/7 positive urine culture with >100,000 CFU/ml *Klebsiella pneumoniae* sets the IWP: 2/4 -2/10. The 2/7 fever occurs within the IWP and is used to meet SUTI, **date of event 2/7 HAI.**
- The Foley was in place > 2 days on the date of event therefore this meets **SUTI 1a: CAUTI.** An RIT and SBAP is set.