



# Patient Safety Component Annual Training 2021 Urinary Tract Infection Protocol Change

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# Objectives

By the end of this lesson, you will be able to:

- Accurately identify Symptomatic Urinary Tract Infection (SUTI) and Asymptomatic Bacteremic Urinary Tract Infections (ABUTI) events
- Discuss the removal of Urinary System Infection (USI) specific event from the major event type UTI
- Provide answers to Frequently Asked Questions

# 2021 Urinary Tract Infection Protocol Changes\*

- Change in SUTI Criterion:
  - Fever that is documented within the IWP is eligible for use to meet SUTI for all patient ages with or without an Indwelling Urinary Catheter (IUC). This includes SUTI 1a, SUTI 1b and SUTI 2
- Change to ABUTI Criterion:
  - As a result of this change in use of fever, a patient > 65 years of age with fever in the IWP and without a catheter in place for > 2 days on the date of event no longer meets ABUTI but meets SUTI 1b.

\*Changes implemented for UTI and USI events with a date of event January 1, 2021 or later

# 2021 Urinary Tract Infection Protocol Changes\* (cont'd)

Removal of USI as a UTI specific type event:

- Urinary System Infection (USI) is no longer a specific type event within the major event UTI. USI is a major type event (See Patient Safety Component Chapter 17).
- USI will be available for secondary blood stream infection (BSI) assignment and as a specific surgical site infection (SSI) organ/space infection site.
- UTI and USI can occur simultaneously, and each will create its own Repeat Infection Timeframe (RIT) and Secondary Blood Attribution Period (SBAP).

\*Changes implemented for UTI and USI events with a date of event January 1, 2021 or later

# Why the Changes to Urinary Tract Infection Protocol

- The Healthcare Infection Control Practices Advisory Committee (HICPAC) recommended removal of the exclusion of fever for patients > 65 years of age without an eligible IUC in place to simplify the application of the UTI definitions.
- The USI change provides clinical relevance. Having USI as a specific event under the UTI major event had the potential to preclude the ability to have both an USI and a SUTI or ABUTI identified during the same RIT. The change in 2021 allows both USI and UTI to be identified and both events reported. Each major type event (USI and UTI) creates an RIT. This allows for more accurate event reporting.

# Change #1: Protocol Change in Symptomatic Urinary Tract Infection - Non-catheter Associated (SUTI 1b)

2020

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

- fever ( $>38^{\circ}\text{C}$ ) in a patient that is  $\leq 65$  years of age

2021

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

- fever ( $>38^{\circ}\text{C}$ )

• suprapubic tenderness\*

# SUTI 1b - Scenario 1

**3/25** Male patient, 67 years of age admitted to an acute care hospital for trauma; Indwelling urinary catheter (IUC) inserted.

**3/26** IUC in place; fever 39.0°C.

**3/28** IUC discontinued early morning, at NOON patient complained of urinary frequency.

**3/29** Urine culture collected; > 100,000 CFU/ml *E. coli*.

DATE	SUTI Criterion	IUC day
3/25 Admit	IUC inserted	1
3/26	IUC in place; fever	2
3/27	IUC in place	3
3/28	IUC discontinued urinary frequency	4
3/29	urine culture >100,000 CFU/ml <i>E.coli</i>	5
3/30		
3/31		
4/1		


# SUTI 1b - Scenario 1 Determination

The Infection Window Period (IWP) set using the date of the urine collection is **3/26 - 4/1**.

The first eligible element within the IWP is the fever. Date of event (DOE) **3/26**.

The DOE occurred on the 2<sup>nd</sup> day of admission. The IUC was **not** in place > 2 consecutive days on the date of event. The event is present on admission (POA) SUTI 1b.

IWP

DATE	SUTI Criterion	IUC day
3/25 Admit	IUC inserted	1
3/26	IUC in place; fever 	2
3/27	IUC in place	3
3/28	IUC discontinued urinary frequency	4
3/29	urine culture >100,000 CFU/ml <i>E.coli</i>	
3/30		
3/31		
4/1		

**Beginning in 2021 fever is eligible for use in all patients greater than 65 years of age unrelated to IUC**



# SUTI 1b - Scenario 1-SBAP

**3/25** Male patient, 67 years of age admitted to an acute care hospital for trauma; Indwelling urinary catheter (IUC) inserted.

**3/26** IUC in place; fever 39.0°C.

**3/28** IUC discontinued early morning, at NOON patient complained of urinary frequency.

**3/29** Urine culture collected; > 100,000 CFU/ml *E. coli*.

**4/5** Blood culture collected; E.coli

IWP

RIT

DATE	SUTI Criterion	IUC day
3/25 Admit	IUC inserted	1
3/26	IUC in place; fever	2
3/27	IUC in place	3
3/28	IUC discontinued urinary frequency	4
3/29	urine culture >100,000 CFU/ml <i>E.coli</i>	5
3/30		6
3/31		7
4/1		8
4/2		9
4/5	Blood culture, E.coli	12
4/6		13
4/7		14
4/8		15

S  
B  
A  
P

## SUTI 1b - Scenario 2

**6/16** Female, 79 years of age was admitted to the acute care hospital for altered mental status. No IUC was inserted. No fever documented, no other UTI signs or symptoms.

**6/17 and 6/18** no UTI signs or symptoms documented.

**6/19** The patient became unresponsive and was transferred to ICU with a fever of 39.5°C. A urinary catheter was inserted.

**6/20** A urine culture was collected resulting as > 100,000 CFU/ml of *Klebsiella pneumoniae*.

DATE	SUTI Criterion	IUC day
6/16 Admit	No UTI symptoms	
6/17	No UTI symptoms	
6/18	No UTI symptoms	
6/19	Fever, IUC in place	1
6/20	Urine culture > 100,000 CFU/ml <i>Klebsiella pneumoniae</i>	2
6/21		
6/22		
6/23		


# SUTI 1b - Scenario 2 Determination

The Infection Window Period (IWP) set using the date of the urine collection is **6/17 - 6/23**.

The first eligible element within the IWP is the fever on 6/19. DOE **6/19**.

The DOE occurred on the 4th day of admission. The IUC was **not** in place > 2 consecutive days. The event is healthcare associated (HAI) SUTI 1b.

IWP

DATE	SUTI Criterion	IUC day
6/16 Admit	No UTI symptoms	
6/17	No UTI symptoms	
6/18	No UTI symptoms	
6/19	Fever, IUC in place 	1
6/20	Urine culture > 100,000 CFU/ml <i>Klebsiella pneumoniae</i>	2
6/21		
6/22		
6/23		

**Beginning in 2021 fever is eligible for use in all patients greater than 65 years of age unrelated to IUC**

# NHSN Application View

## SUTI 1b Example DOE 2020

Post procedure:

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

Location:

Date Admitted to Facility:

**Risk Factors**

Urinary Catheter:

**Event Details**

Specific Event:

**Specify Criteria Used \***

Signs & Symptoms	<=1 year old	Laboratory & Diagnostic Testing
<input type="checkbox"/> Any patient	<input type="checkbox"/> Fever	<input checked="" type="checkbox"/> Positive culture with no more than 2 species of organism 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
<input 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"/> Suprapubic tenderness	
<input type="checkbox"/> Pain or tenderness		

## SUTI 1b Example DOE 2021

Secondary ID:

Last Name:

Middle Name:

Gender:

Ethnicity:

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

Medicare #:

First Name:

Date of Birth:

**Event Information**

Event Type:

Post-procedure:

Date of Event:

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

Location:

Date Admitted to Facility:

**Risk Factors**

Urinary Catheter:

**Event Details**

Specific Event:

**Specify Criteria Used \***

Signs & Symptoms	<=1 year old	Laboratory & Diagnostic Testing
<input checked="" type="checkbox"/> Any patient	<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 blood specimen
<input type="checkbox"/> Frequency	<input type="checkbox"/> Apnea	
<input type="checkbox"/> Dysuria	<input type="checkbox"/> Bradycardia	
<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"/> Suprapubic tenderness	
<input type="checkbox"/> Pain or tenderness		

# Change #2: Protocol of Change to Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)

## 2020

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)

## 2021

1. Patient with\* or without an indwelling urinary catheter has no signs or symptoms of SUTI 1 or 2 according to age

\*Patient had an IUC in place for more than 2 consecutive days in an inpatient location on the date of event, and IUC was in place on the date of event or the day before. Catheter - associated ABUTI is reportable if CAUTI is in the facility's reporting plan for the location.

# NHSN Application View

## ABUTI Example DOE 2020

Gender:  M - Male  F - Female Date of Birth: 11/22/1952

Ethnicity:

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

**Event Information**

Event Type:  Date of Event: 09/11/2020

Post-procedure:

MDRO Infection Surveillance:  No, this infection's pathogen/location are not in plan for Infection Surveillance in the MDRO/CDI Module

Location:

Date Admitted to Facility: 09/01/2020

**Risk Factors**

Urinary Catheter:

**Event Details**

Specific Event:

**Specify Criteria Used**

**Signs & Symptoms**

Any patient

- Fever
- Urgency
- Frequency
- Dysuria
- Suprapubic tenderness
- Costovertebral angle pain or tenderness
- Abscess
- Pain or tenderness
- Purulent drainage from affected area
- Other evidence of infection found on invasive procedure, gross anatomic exam, or histopathologic exam

**Laboratory & Diagnostic Testing**

- Positive culture with no more than 2 species of organisms, at least one of which is a bacterium of  $\geq 10^5$  CFU/ml
- Organism(s) identified from blood specimen

**Secondary Bloodstream Infection:**

## ABUTI Example DOE 2021

Gender:  M - Male  F - Female Date of Birth: 11/22/1952

Ethnicity:

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

**Event Information**

Event Type:  Date of Event: 09/10/2021

Post-procedure:

MDRO Infection Surveillance:  No, this infection's pathogen/location are not in plan for Infection Surveillance in the MDRO/CDI Module

Location:

Date Admitted to Facility: 09/01/2021

**Risk Factors**

Urinary Catheter:

**Event Details**

Specific Event:

**Specify Criteria Used**

**Signs & Symptoms**

Any patient

- Fever
- Urgency
- Frequency
- Dysuria
- Suprapubic tenderness
- Costovertebral angle pain or tenderness
- Abscess
- Pain or tenderness
- Purulent drainage from affected area
- Other evidence of infection found on invasive procedure, gross anatomic exam, or histopathologic exam

**Laboratory & Diagnostic Testing**

- Positive culture with no more than 2 species of organisms, at least one of which is a bacterium of  $\geq 10^5$  CFU/ml
- Organism(s) identified from blood specimen

**Secondary Bloodstream Infection:**

# Change # 3: Removal of Urinary System Infection (USI) from UTI

- USI events with a date of event January 1, 2021 or later are no longer a site-specific infection under the major infection UTI.
- A UTI (symptomatic or asymptomatic) and an USI event may be identified during the same timeframe.
- Meeting UTI does not exclude the ability to identify an USI.
- USI site-specific infection criteria can still be found in NHSN Patient Safety Component Surveillance Definitions for Specific Types of Infections and can be used for secondary BSI assignment and as a specific SSI organ/space infection site.

# NHSN Event Application View

## 2020 UTI NHSN Event includes USI

Gender \*: F - Female

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

Post-procedure:

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

Location \*: 5 SOUTH - LTC

Date Admitted to Facility >: 09/01/2020

**Risk Factors**

Urinary Catheter \*: NEITHER - Not catheter associated - Neither In place nor Removed

**Event Details**

Specific Event >: **USI - Urinary System Infection**

Secondary Bloodstream Infection >: **USI - Urinary System Infection**

COVID-19:

Died \*\*:

Discharge Date:

Pathogens Identified >: No. If Yes, specify below >

## 2021 USI is a Specific Event

Ethnicity:

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

**Event Information**

Event Type \*: **USI - Urinary System Infection**

**Custom Fields**

**Comments**

- BJ - Bone and Joint Infection
- BSI - Bloodstream Infection
- CLIP - Central Line Insertion Practices
- CNS - Central Nervous System
- CVS - Cardiovascular
- EENT - Eye, Ear, Nose and Throat
- GI - Gastrointestinal
- LABID - Laboratory-identified MDRO or CDI Event
- LRI - Lower Respiratory Infection
- PedVAE - Pediatric Ventilator-Associated Event
- PNEU - Pneumonia
- REPR - Reproductive Tract
- SSI - Surgical Site Infection
- SST - Skin and Soft Tissue
- USI - Urinary System Infection**
- UTI - Urinary Tract Infection
- VAE - Ventilator-Associated Event
- CDIFF - NON-PROTOCOL CDI EVENTS
- ABCDE - THIS IS A TEST



# NHSN Event Application View 2021

**Event Information**

Event Type \*: UTI - Urinary Tract Infection

Date of Event \*: 01/02/2021

Post-procedure:

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

Location \*: 6C - 6C - ORTHO

Date Admitted to Facility \*: 12/01/2020

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**Risk Factors**

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

Location of Device Insertion:

Date of Device Insertion:

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**Event Details**

Specific Event \*:


Secondary Bloodstream Infection \*: ABUTI - Asymptomatic Bacteremic UTI  
SUTI - Symptomatic UTI

COVID-19:

Died \*\*:

Discharge Date:

Pathogens Identified \*: N - No If Yes, specify below ->



# Transitioning from 2020 to 2021

- Which protocol do I use and when?
- Use the diagnostic test date or the first sign symptom that is used to set the IWP as the determining factor
  - For UTI if the urine culture collection date is January 1, 2021 or later use the 2021 protocol
  - For USI if the specimen collection date or first sign/symptom used to set the IWP is January 1, 2021 or later use the 2021 protocol
- To which year do I assign the date of event?

## Determining The Date Of Event: Transitioning from 2020 to 2021

DATE	Elements used to meet the site-specific infection criterion = X	Date of Event assignment:	Elements used to meet the site-specific infection criterion = X	Date of Event assignment:	Elements used to meet the site-specific infection criterion = X	Date of Event assignment:
December 29, 2020	X	Jan 1, 2021				
December 30, 2020	X	Jan 1, 2021	X	Jan 1, 2021		
December 31, 2020	X	Jan 1, 2021	X	Jan 1, 2021	X	Jan 1, 2021
January 1, 2021 →	Urine culture collection X	Jan 1, 2021	X	Jan 1, 2021	X	Jan 1, 2021
January 2, 2021		→	Urine culture collection X	Jan 2, 2021	X	Jan 2, 2021
January 3, 2021					Urine culture collection X	← Jan 3, 2021

# Summary

- The changes reviewed are applied to events with date of event January 1, 2021 or later.
- Fever is an element that can be used to meet UTI in all ages of patients as well as catheter or non-catheter associated events.
- Urinary System Infection is removed from the NHSN UTI Protocol and remains in CDC/NHSN Surveillance Definitions for Specific Types of Infections Chapter 17.

# FAQ

<https://www.cdc.gov/nhsn/faqs/faq-uti.html>

## FAQ

If a urine culture has > 100,000 CFU/ml *Enterobacter cloacae* #1, > 100,000 CFU/ml *Enterobacter cloacae* #2, and 50,000 CFU/ml *Enterococcus species* is this more than 2 organisms?

The answer is **No**: NHSN surveillance identification of an organism to the genus level or the species level, for example *Enterobacter* (genus) *cloacae* (species) or *Enterococcus* species is as far as you can get for reporting purposes. The *Enterobacter cloacae* #1 and #2 is considered one organism, similarly *Enterococcus* species #1 and *Enterococcus* species #2 would be considered one organism. Antimicrobial susceptibility results nor colony morphology difference does not equate to a report of separate organisms. This urine culture result is not > 2 organisms and is an eligible specimen.

# FAQ

**If a urine culture is positive for 1 organism >100,000 CFU/ml and mixed flora, is this an eligible urine culture results required for UTI?**

The answer is **No**. This urine culture is not eligible for use in an NHSN UTI determination. Because “mixed flora”\* means that at least 2 organisms are present in addition to the identified organism, such a urine culture does not meet the criteria for a positive urine culture with 2 organisms or less. Such a urine culture cannot be utilized to meet the NHSN UTI criteria \* **The same is true for perineal flora, normal flora and vaginal flora.**

## FAQ

**If present, should a fever be applied to criteria of more than one type of HAI, or can it be determined that the fever is due to one type of infection but not another? For instance, can a fever be deemed due to a pneumonia (PNEU) but not a coincidental urinary tract infection (UTI)?**

Because fever is a nonspecific sign of infection, it is possible that an individual may run a fever due to more than one infection at a time. It would be impossible to determine which infection (if not both) was the cause of the fever. Therefore, in this example, if all other criteria besides fever are met, the patient would have both an NHSN PNEU and an NHSN UTI. This process negates the use of clinical, subjective decision making to determine NHSN HAI events.



**For NHSN to assist with a UTI case determination  
please send the following information to  
[nhsn@cdc.gov](mailto:nhsn@cdc.gov):**

Date of Admission

Date(s) of indwelling catheter insertion/removal if applicable

Age of patient

Collection date(s) and results of urine cultures including colony count

Date(s) and types of UTI sign/symptoms

Collection date(s) and results of any positive blood cultures

Please do not send Personal Identifiable Information in the email to NHSN

# Resources

- Tracking Infections in Acute Care Hospitals/Facilities
  - <https://www.cdc.gov/nhsn/acute-care-hospital/index.html>
- Surveillance for Urinary Tract Infections
  - <https://www.cdc.gov/nhsn/acute-care-hospital/cauti/index.html>
- Identifying Healthcare Associated Infection (HAI) for NHSN surveillance
  - [https://www.cdc.gov/nhsn/pdfs/pscmanual/2psc\\_identifyinghais\\_nhsncurrent.pdf](https://www.cdc.gov/nhsn/pdfs/pscmanual/2psc_identifyinghais_nhsncurrent.pdf)
- FAQs: Miscellaneous
  - <https://www.cdc.gov/nhsn/faqs/faqs-miscellaneous.html>

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**Additional NHSN training resources:**

**<https://www.cdc.gov/nhsn/training/>**

**Training Questions: [NHSNTrain@cdc.gov](mailto:NHSNTrain@cdc.gov)**

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For more information, contact CDC  
1-800-CDC-INFO (232-4636)  
TTY: 1-888-232-6348 [www.cdc.gov](http://www.cdc.gov)

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