

NATIONAL HEALTHCARE SAFETY NETWORK CATHETER-ASSOCIATED URINARY TRACT INFECTION (CAUTI) - SURVEILLANCE

Key Concepts
Definitions



REFERENCE ACKNOWLEDGMENT

2024 NHSN ANNUAL TRAINING

► CAUTION: Is it a CAUTI? Know your CAUTI criteria

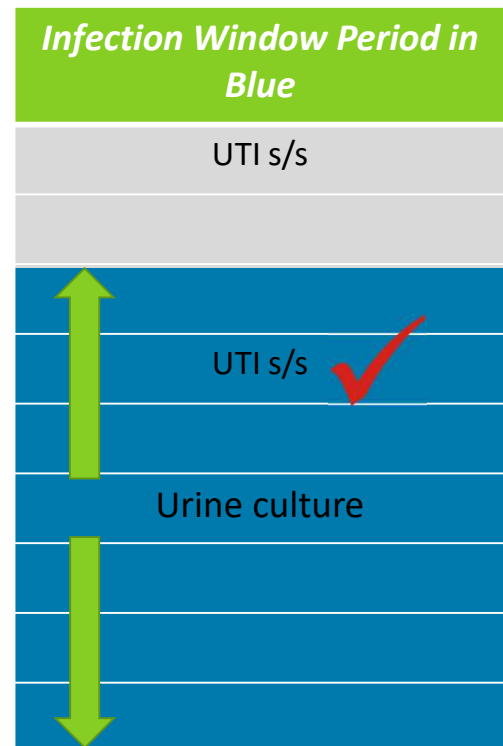
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KEY CONCEPT: INFECTION WINDOW PERIOD

- ▶ + Urine culture is always use to set the IWP
- ▶ Use only eligible UTI element within the IWP
 - ▶ Urine culture
 - ▶ UTI signs/symptoms (s/s) **OR** matching blood organism



KEY CONCEPT: UTI DATE OF EVENT

- ▶ The UTI DOE is the date the first element used to meet a UTI criterion occurs for the first time within the 7-day IWP
- ▶ First element may be culture OR sign/symptom



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

KEY CONCEPT: UTI RIT

- ▶ 14-day timeframe where no 'new' UTI events are reported (SUTI or ABUTI). All UTI events identified set an RIT and SBAP-includes non-catheter-associated events and POA events
- ▶ The RIT for a UTI event is a 'fixed' 14 days. "New" urine cultures identified in the RIT with different eligible pathogens from original culture are added to the event

NOTE: The original date of event is maintained and **DO NOT** change device association during the RIT

TWO SCENARIOS FOR 2ND BSI CAN BE APPLIED TO UTI

- ▶ **Scenario 1- Matching organism concept:** At least one organism identified in a positive **BLOOD** culture matches an organism identified from the **URINE** culture used to meet SUTI criteria **AND** the blood culture is collected in the SBAP (IWP + RIT)

OR

- ▶ **Scenario 2- ABUTI:** The + BC is used as an element in meeting the UTI criterion ABUTI (and collected during UTI IWP)

KEY CONCEPT: INDWELLING URINARY CATHETER (IUC)

- ▶ A drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a drainage bag (including leg bags).
- ▶ IUCs are also often called Foley catheters.
- ▶ IUCs used for intermittent or continuous irrigation are also included in CAUTI surveillance.

UTI SITE SPECIFIC CONCEPTS

Unless an IUC is also present, the following do NOT qualify as an IUC

- ▶ Suprapubic catheter
- ▶ Nephrostomy tubes
- ▶ Urostomy
- ▶ Ileal conduit
- ▶ Perineal urethrostomy

▶ **NOTE:**

- ▶ Urine collected from **any** source, including the above sites, **CAN** be used to determine a UTI.

URINE CULTURES

► Eligible Urine Culture

- $\geq 100\text{K CFU/ml}$ of at least one eligible organism.

AND

- No more than two organisms.

► Urine Source

- **Any** source, including urine collection devices, such as nephrostomy tubes.

URINE CULTURES

- **Excluded Organisms:**

- Any yeast or yeast species, mold, dimorphic fungi or parasites or mold, **including** *Candida auris*
 - Blood with these organisms cannot be secondary to UTIs
- Excluded organisms **can** be in an eligible urine culture, if there is **one** bacterium with $\geq 100\text{K}$ CFU/ml in addition to the excluded organism.

Example:

- ▶ Eligible urine culture: $> 100\text{K}$ CFU/ml of *Escherichia coli* and $> 100\text{K}$ CFU/ml of *Candida albicans*.
- ▶ Ineligible urine culture: $> 100\text{K}$ CFU/ml of *Escherichia coli*, $> 100\text{K}$ CFU/ml of *Klebsiella pneumoniae*, and yeast.

URINE CULTURES

▶ Mixed Flora

- ▶ Implies > two organisms and does **not** meet NHSN UTI criteria
 - ▶ Ineligible urine culture: $\geq 100\text{K}$ CFU/ml of *A.baumannii* and 10K CFU/ml of mixed flora

▶ Sensitivities

- ▶ A urine culture that has sensitive and resistant bacteria in the same culture, it is **not** considered two different organisms.
 - ▶ Example: > 100K MSSA and $\geq 100\text{K}$ MRSA are considered the same organism.

URINE CULTURES

► Colony Count Ranges

- 75K to 100K does **NOT** meet NHSN UTI criteria.

► Morphology

- Differing morphology does **NOT** affect organism count

► Eligible Urine Culture

- E. coli #1 > 100,000 CFU/ml
- E. coli #2 > 10,000 CFU/ml
- Staph Aureus > 100,000 CFU/ml



CATHETER DAY COUNT

- ▶ Day of insertion = Catheter Day 1.
 - ▶ If the catheter is present at the time of admission, then the date of admission (DOA) = Catheter Day 1.
- ▶ Each day an IUC is in place for **any** portion of the day counts as an IUC day.
 - ▶ When an IUC is removed and later replaced, the IUC day count continues uninterrupted **unless** the patient is without an IUC for at least 1 full calendar day (**NOT to be read as 24 hours**).
 - ▶ If there is a full calendar day interruption, the IUC day count will start anew with new IUC placement.

URINARY TRACT INFECTION (UTI) DEFINITIONS

► There are two specific types of UTI:

- Symptomatic UTI (**SUTI**)
 - **SUTI 1a**- Catheter-associated Urinary Tract Infection (CAUTI) in any age patient
 - **SUTI 1b**- Non-Catheter-associated Urinary Tract Infection (Non-CAUTI) in any age patient
 - **SUTI 2** – CAUTI or Non-CAUTI in patients 1 years of age or less
- Asymptomatic Bacteremic UTI (**ABUTI**)

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

UTI DEFINITIONS

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

► Patient must meet 1, 2, and 3 during the IWP

1.	Patient had an indwelling urinary catheter (IUC) that had been in place for more than 2 consecutive days in an inpatient locations on the day of event and either:		
	<ul style="list-style-type: none">▪ Present for any portion of the calendar day on the DOE OR▪ Removed the day before the DOE		
2.	Patient has at least one of the following signs or symptoms:		
	<table><tr><td><ul style="list-style-type: none">▪ Fever (>38° C)▪ Suprapubic tenderness*▪ Costovertebral angle pain or tenderness*▪ Urinary urgency^▪ Urinary frequency^▪ Dysuria^</td><td><p>* No other recognized cause</p><p>^ These symptoms cannot be used when catheter is in place</p></td></tr></table>	<ul style="list-style-type: none">▪ Fever (>38° C)▪ Suprapubic tenderness*▪ Costovertebral angle pain or tenderness*▪ Urinary urgency^▪ Urinary frequency^▪ Dysuria^	<p>* No other recognized cause</p> <p>^ These symptoms cannot be used when catheter is in place</p>
<ul style="list-style-type: none">▪ Fever (>38° C)▪ Suprapubic tenderness*▪ Costovertebral angle pain or tenderness*▪ Urinary urgency^▪ Urinary frequency^▪ Dysuria^	<p>* No other recognized cause</p> <p>^ These symptoms cannot be used when catheter is in place</p>		
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		

SYMPTOMS



- Fever is a ***non-specific symptom*** of infection and cannot be excluded from UTI determination because it is clinically deemed due to another recognized cause.
- Suprapubic tenderness whether elicited on palpation or as a subjective complaint of suprapubic pain is acceptable as part of the criteria if documented in the medical record during the IWP.
 - *Lower abdominal pain or bladder or pelvic discomfort are examples of symptoms that be used as suprapubic tenderness.*
 - *Generalized “abdominal pain” in the medical record is not to be interpreted as suprapubic tenderness as there are many causes of abdominal pain and is too general.*
- Left or right or bilateral lower back are examples of symptoms that can be used as costovertebral angle pain or tenderness.
 - *Generalized “low back pain” is not to be interpreted as costovertebral angle pain or tenderness as there can be many causes of low back pain.*

UTI DEFINITIONS

- ▶ **SUTI 1b: Non-Catheter-associated Urinary Tract Infection (Non-CAUTI)**
- ▶ **Patient must meet 1, 2, and 3 during the IWP**

- | | |
|----|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | One of the following is true: |
| | <ul style="list-style-type: none">▪ Patient has/had an IUC, but it has/had not been in place for more than 2 consecutive days in an inpatient location on the DOE OR▪ Patient did not have an IUC in place on the DOE nor the day before the DOE |
| 2. | Patient has at least one of the following signs and symptoms: |
| | <ul style="list-style-type: none">▪ Fever (>38° C)▪ Suprapubic tenderness*▪ Costovertebral angle pain or tenderness*▪ Urinary urgency^▪ Urinary frequency^▪ Dysuria^ <p style="text-align: right;">* No other recognized cause</p> |
| 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 |

NEW IN 2025

Spinal Cord Injury-associated Neurogenic Bladder (SCI-NB): For the purpose of NHSN reporting, neurogenic bladder is a condition in which there is dysfunction or damage to the nerves that control the bladder as a result of a spinal cord injury. In order to answer “Yes” to the ‘Neurogenic bladder’ field within the NHSN application you must utilize:

- One of the ICD-10-CM diagnosis codes that indicates a diagnosis of spinal cord injury (SCI)
- AND**
- One of the ICD-10-CM diagnosis codes that indicates a diagnosis of neurogenic bladder (NB)

In tandem, these diagnostic codes define SCI-NB for NHSN surveillance purposes. For a complete list of eligible ICD-10-CM codes please visit the Urinary Tract Infection (UTI) Events section of the NHSN website under [“Supporting Materials”](#).

FIND YOUR UTI DEFINITION

KNOWLEDGE CHECK-IS THIS A CAUTI?

True or False

The patient's complaint of urinary frequency on 3/28 is after the IUC was removed, so can be used to meet SUTI

Date	Details
3/25	Patient admitted to acute care hospital for CVA; IUC inserted
3/26	IUC in place
3/27	IUC in place
3/28	IUC discontinued early morning, at noon complained of urinary frequency
3/29	No fever
3/30	Elevated WBCs
3/31	Positive urine culture with $>10^5$ CFU/ml <i>E. coli</i>

SUTI KNOWLEDGE CHECK

IS THIS A CAUTI?

- ▶ 3/31 Positive urine culture sets the IWP: 3/28-4/3
- ▶ **The 3/28 urinary frequency is first element to occur within the IWP therefore it is the DOE**
- ▶ The IUC was in place > 2 days on the DOE = HAI
SUTI 1a-CAUTI

Date	SUTI Criterion	IUC Day
3/25 Admit	CVA, IUC inserted	1
3/26	IUC in place	2
3/27	ICU in place	3
3/28	IUC discontinued; urinary frequency	④
3/29	No fever	
3/30	Elevated WBCs	
3/31	Urine culture > 10 ⁵ CFU/ml <i>E. coli</i>	

UTI DEFINITIONS

- ▶ **SUTI 2: CAUTI or Non-CAUTI in patients 1 year of age or less**
- ▶ **Patient must meet 1, 2, and 3 during the IWP**

1.	Patient is < 1year of age (with or without an indwelling urinary catheter)
2.	Patient has at least one of the following signs or symptoms <ul style="list-style-type: none">▪ Fever (>38° C)▪ Hypothermia (<36.0°C)▪ Apnea*▪ Bradycardia*▪ Lethargy*▪ Vomiting*▪ Suprapubic tenderness*
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

*** No other recognized cause**

ASYMPTOMATIC BACTEREMIC URINARY TRACT INFECTION (ABUTI) – all ages

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**
- ② Patient has a urine culture with no more than two species of organisms identified, **at least one of which is a bacterium of $>10^5$ 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 commensals(s) in the urine

ASYMPTOMATIC BACTEREMIC URINARY TRACT INFECTION (ABUTI) KNOWLEDGE CHECK

Date	Details
2/20	Patient admitted to ICU with MI, IUC inserted
2/21-23	No UTI signs/symptoms
2/24	Elevated WBCs, no UTI s/s, positive blood with <i>S. aureus</i> and positive urine culture with $> 10^5$ CFU/ml <i>S. aureus</i>
2/25-2/27	No UTI s/s
2/28	IUC removed, Discharged to home

Is this a reportable UTI?

COMMON MISCONCEPTIONS



► UTI as secondary infection - **Never**

- UTI is a primary site of infection and **cannot** be considered secondary to another site of infection.

► Positive urine culture on admission automatically = Present on Admission (POA) – **No**

- A Positive urine culture during the POA timeframe without UTI signs or symptoms nor matching blood organism in the IWP is not an event **and can therefore this not meet POA.**

► UTI signs or symptoms such as fever on admission automatically = POA- **No**

- The positive urine culture sets the IWP, therefore if the sign or symptom occurs before the IWP set by the urine culture it cannot be POA.

► RIT continues during readmission- **No**

- The RIT applies during a patient's single admission, including the day of discharge and the after, in keeping with the transfer rule.
- **An RIT does not carry over from the one admission the another even if the readmission is to the same facility.**

RESOURCES:

► CAUTI Surveillance

<https://www.cdc.gov/nhsn/psc/uti/index.html>

- Patient Safety Component Manual
 - Chapter 2-Identifying HAI for NHSN Surveillance
 - Chapter 7-Urinary Tract Infection (UTI) Event
 - Chapter 16-NHSN Key Terms
- FAQs

QUESTIONS

