




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

Key Concepts
Definitions



1

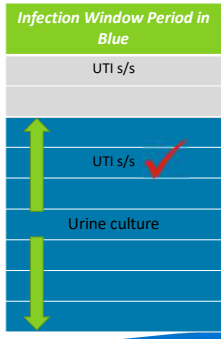
REFERENCE ACKNOWLEDGMENT
2024 NHSN ANNUAL TRAINING

► **CAUTION:** Is it a CAUTI? Know your CAUTI criteria
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2

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



3

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, IUC inserted | 1 |
| 3/26 | IUC in place | 2 |
| 3/27 | IUC in place | 3 |
| 3/28 | IUC discontinued | 4 |
| 3/28 | DOE urinary frequency | |
| 3/29 | No fever | |
| 3/30 | Elevated wbc's | |
| 3/31 | urine culture >100,000 CFU/ml E.coli | |
| 4/1 | | |
| 4/2 | | |
| 4/3 | | |

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4

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

5

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)

6

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.

7

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.

8

URINE CULTURES

▶ Eligible Urine Culture

- ▶ $\geq 100K$ 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.

9

URINE CULTURES

• Excluded Organisms:

- Candida species or yeast not otherwise specified, 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 $\geq 100K$ CFU/ml in addition to the excluded organism.

Example:

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

10

URINE CULTURES

▶ Mixed Flora

- ▶ Implies $>$ two organisms and does **not** meet NHSN UTI criteria
 - ▶ Ineligible urine culture: $\geq 100K$ 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 $\geq 100K$ MRSA are considered the same organism.

11

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

One Organism

12

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.

13

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.

14

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 location on the day of event and either:
 - 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:
 - Fever (>38° C)
 - 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

15

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.

16

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:
 - 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:
 - Fever (>38° C)
 - Suprapubic tenderness*
 - Costovertebral angle pain or tenderness*
 - Urinary urgency[^]
 - Urinary frequency[^]
 - Dysuria[^]

* 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

17

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> |

18

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> | |

19

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 < 1 year 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 ≥10 ⁵ CFU/ml |

* No other recognized cause

20

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 >10⁵ 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

21

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?

22

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.**

23

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

24

QUESTIONS



25