Patient Safety Component
Urinary Tract Infection Surveillance: From Definitions to Case Studies

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Objectives

We will demonstrate how to perform UTI surveillance. By the end of this lesson, you will be able to:

- Define NHSN UTI criteria
- Perform interactive knowledge checks
- Understand how to report a UTI event and denominator data
- Assess and apply UTI criteria to UTI case studies

Current CAUTI Burden

NHSN Progress Report[1]

- The CAUTI Standardized Infection Ratio (SIR) was **0.62** across general acute care hospitals in 2023
- Decrease in overall CAUTI SIR by **38%** from 2015 national baseline to 2023
- General acute care hospitals reported **17,370 CAUTIs** in 2023

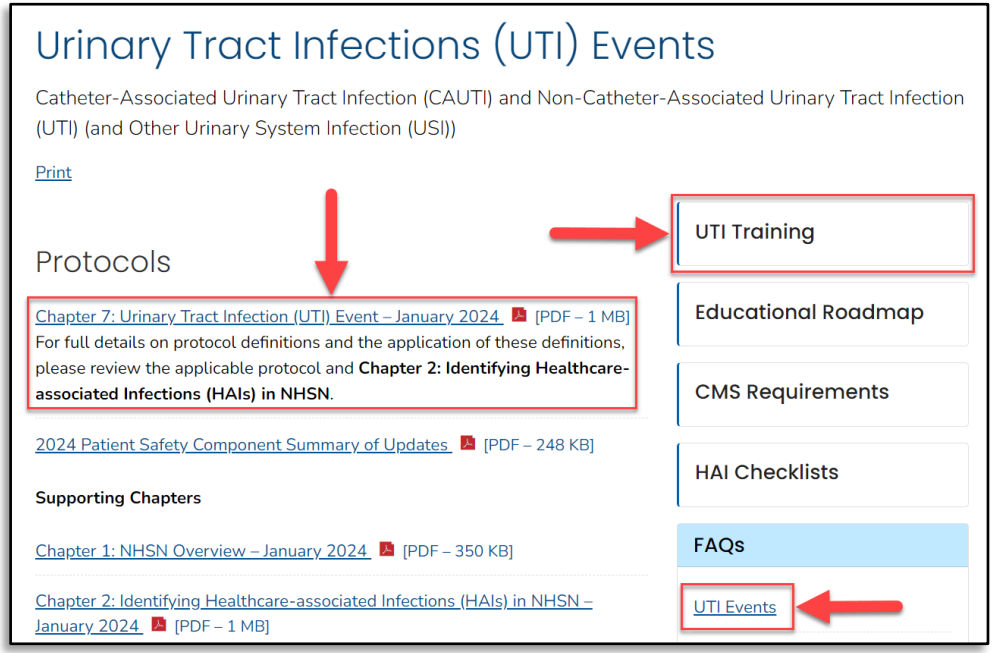
Recent Literature[2]

- Average incremental cost of an HAI CAUTI: **$9,807**
  - ICU Stay: **$7,337**
  - Non-ICU Stay: **$5,439**

[1] A.R. & Patient Safety Portal Catheter-Associated Urinary Tract Infections - 2023

[2] Kelly T, Ai C, Jung M, Yu K. Catheter-associated urinary tract infections (CAUTIs) and non-CAUTI hospital-onset urinary tract infections: Relative burden, cost, outcomes and related hospital-onset bacteremia and fungemia infections. *Infection Control & Hospital Epidemiology*. 2024;45(7):864-871. doi:10.1017/ice.2024.26

NHSN CAUTI Resources



Urinary Tract Infections (UTI) Events

Catheter-Associated Urinary Tract Infection (CAUTI) and Non-Catheter-Associated Urinary Tract Infection (UTI) (and Other Urinary System Infection (USI))

Print

Protocols

Chapter 7: Urinary Tract Infection (UTI) Event – January 2024 [PDF – 1 MB]
For full details on protocol definitions and the application of these definitions, please review the applicable protocol and **Chapter 2: Identifying Healthcare-associated Infections (HAIs) in NHSN**.

2024 Patient Safety Component Summary of Updates [PDF – 248 KB]

Supporting Chapters

Chapter 1: NHSN Overview – January 2024 [PDF – 350 KB]

Chapter 2: Identifying Healthcare-associated Infections (HAIs) in NHSN – January 2024 [PDF – 1 MB]

UTI Training

Educational Roadmap

CMS Requirements

HAI Checklists

FAQs

UTI Events

Relevant UTI Materials

- Chapter 2
- Chapter 7 - UTI Events
- Chapter 16
- FAQ - UTI
- UTI Trainings
- HAI Checklist

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

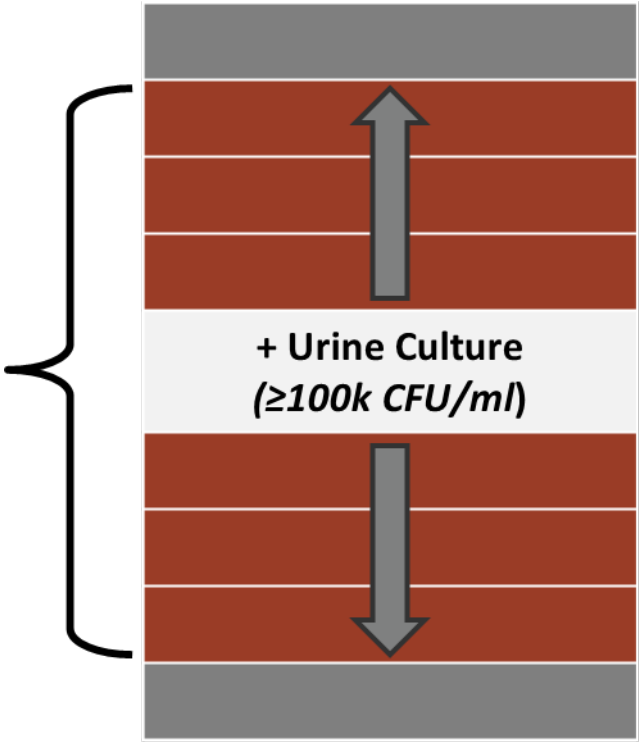
Chapter 2 – Key Concepts Reminders

Infection Window Period (IWP)

The infection window period is a **7-day timeframe** during which all site-specific infection criteria must be met.

It includes the collection date of the **first positive diagnostic test** that is used as an element to meet the site-specific infection criterion, the **3 calendar days before** and the **3 calendar days after**.

- **Note**: An eligible urine culture **always** sets the IWP for this module.



Date of Event (DOE)

- The UTI DOE is the date the **first** element used to meet UTI criterion occurs for the **first** time within the 7-day IWP.
- The first element could be a positive urine culture **OR** an NHSN UTI sign/symptom.

Date	SUTI Criteria	IUC Day
4/25	Admitted to inpatient unit	--
4/26	IUC inserted	1
4/27	IUC present	2
4/28 DOE	**+ Urine culture ≥100K CFU/ml *S. aureus***	**3**
4/29	Fever (38.2°C)	4
4/30	IUC discontinued	5
5/1	Urinary frequency	--

Date of Event (DOE)

Date	SUTI Criteria	IUC Day
4/25	Admitted to inpatient unit	--
4/26	IUC inserted	1
4/27 DOE	**IUC present, Fever (38.2°C)**	**2**
4/28	+ Urine culture ≥100K CFU/ml *S. aureus*	3
4/29	Fever (38.2°C)	4
4/30	IUC discontinued	5
5/1	Urinary frequency	--

Repeat Infection Timeframe (RIT)

- Defined as a **14-day timeframe** where no 'new' UTI events are reported (SUTI or ABUTI)
  - UTI DOE is Day 1
- All UTI events identified set an RIT
  - Includes non-catheter-associated events and present on admission (POA) events
- Additional urine cultures identified in the RIT with eligible pathogens that differ from original culture are added to the event

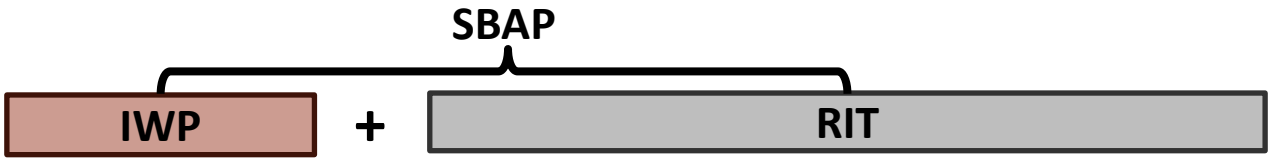
Important Note: Any 'new' UTI event captured within the RIT **does not** change the initial device association determination or location of attribution

Secondary BSI Attribution Period (SBAP)

- The secondary BSI attribution period is the period in which a blood specimen must be collected for a secondary bloodstream infection to be attributed to a UTI event

- All UTI events identified set an SBAP
  - Includes non-catheter-associated events and present on admission (POA) events

- The SBAP includes the IWP combined with the RIT
  - 14-17 days in length depending upon the date of event



Location of Attribution

- Location of attribution is the inpatient location where the patient was assigned on the DOE.

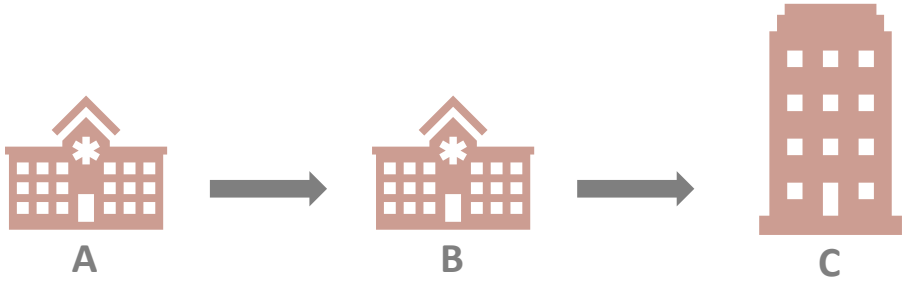
- Non-bedded inpatient locations, for example Operating Room or Nuclear Medicine, are **not eligible** for attribution for HAI events.

- Must be assigned to an inpatient location where denominator data (patient days, device days) are collected.

Transfer Rule

- If a UTI DOE is the date of transfer/discharge, or the next calendar day, the UTI is attributed to the transferring/discharging location or facility.

- If the patient is in multiple locations or facilities within the transfer rule time frame, attribute the UTI to the first location in which the patient was housed the day before the UTI DOE.



UTI Events/Chapter 7 – Key Concepts

Urine Culture

- **Eligible Urine Culture**
  - ≥ 100,000 CFU/ml of at least one eligible organism*

    AND
  - No more than two species of organisms

  Note: A positive urine culture alone is not a UTI event

- **Urine Specimen** (*UTI FAQ - Q20*)
  - Reminder, urine collected from **ANY** source, including urine collection devices, such as nephrostomy tubes, **CAN** be used when making a UTI determination.

**Utilize NHSN Terminology Browser to assess UTI organism eligibility here.*

Urine Culture

- **Excluded Organisms**
  - Any yeast or yeast species (including *Candida auris*), mold, dimorphic fungi, or parasites.

Note: Excluded organisms can be in an eligible urine culture, **IF** there is one bacterium with ≥ 100,000 CFU/ml in addition to the excluded organism.

Examples:

✅ **Eligible urine culture**: ≥ 100,000 CFU/ml of *Escherichia coli* and *Candida albicans*

❌ **Ineligible urine culture**: ≥ 100,000 CFU/ml of *Escherichia coli*, ≥ 100,000 CFU/ml of *Klebsiella pneumoniae*, and yeast

Urine Culture

- **Colony Count Ranges** (*UTI FAQ - Q2*)
  - 50,000-100,000 CFU/ml and 75,000-100,000 CFU/ml do **NOT** meet NHSN UTI criteria.

Examples:

✅ **Eligible urine culture**: ≥ 100,000 CFU/ml of *Staphylococcus aureus* and 75,000-100,000 CFU/ml of *Klebsiella aerogenes*

Does not get reported in NHSN application

❌ **Ineligible urine culture**: 50,000-100,000 CFU/ml of *Escherichia coli*

Urine Culture

- **Mixed Flora** (*UTI FAQ - Q3*)
  - Implies >2 organisms and does not meet NHSN UTI criteria
    - **Ineligible urine culture**: > 100,000 CFU/ml of *Acinetobacter baumannii* and 10,000 CFU/ml of mixed flora

- **Morphology** (*UTI FAQ - Q4*)
  - Differing morphology does **NOT** affect organism count

Eligible Urine Culture

- *E. coli* #1 > 75,000 CFU/ml
- *E. coli* #2 > 50,000 CFU/ml

One Organism

- *S. aureus* ≥ 100,000 CFU/ml

Indwelling Urinary Catheter (IUC)

- An indwelling urinary catheter is 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 included in CAUTI surveillance, such as coude catheters.

Indwelling Urinary Catheter (IUC)

- The following do **NOT** qualify as an IUC:
  - Suprapubic catheter
  - Nephrostomy tubes
  - Urostomy
  - Ileal conduit
  - Perineal urethrostomy

- If these devices are present in addition to an IUC, the eligibility of the IUC is unaffected.

Note: Again, urine collected from **ANY** source, including the above sites, **CAN** be used when making a UTI determination, see FAQ UTI – Q20.

Catheter Day Count

Day of insertion = Catheter Day 1

Guidance for IUCs that are removed and reinserted:

If, after IUC removal, the patient is **without an IUC for at least 1 full calendar day**, NOT to be read as 24 hours, then the IUC day count will **start anew**.

If instead, a new IUC is inserted **before a full calendar day has passed**, the IUC device day count, will continue **uninterrupted**.

Important Notes:

- If the IUC is present at the time of admission, the date of admission = Catheter Day 1.
- An IUC that is present for any part of a calendar day counts as a device day.

Catheter Day Count

	3/29	3/30	3/31	4/1	4/2	4/3	4/4	4/5	4/6
Patient A	IUC (Day 1)	IUC (Day 2)	IUC (Day 3)	IUC (Day 4)	IUC **Removed** (Day 5)	IUC **Inserted** (Day 6)	IUC (Day 7)	IUC **Removed** (Day 8)	**No IUC**
Patient B	IUC (Day 1)	IUC (Day 2)	IUC (Day 3)	IUC (Day 4)	IUC **Removed** (Day 5)	**No IUC**	IUC (Day 1)	IUC (Day 2)	IUC (Day 3)

Knowledge Check – Catheter Day Count

True or False

- In the scenario below, removing an IUC and inserting a new IUC will reset the catheter day count.
  - True
  - False

Example:

1/22	1/23	1/24	1/25	1/26	1/27	1/28
IUC (Day 1)	IUC (Day 2)	IUC **Removed** (Day 3)	New IUC **Inserted** (Day **?**)	IUC (Day **?**)	IUC (Day **?**)	IUC (Day **?**)

Knowledge Check – Catheter Day Count

True or False

- In the scenario… serting a new IUC will reset the catheter da…
  - True
  - False

The device day count will continue uninterrupted given that a full calendar day has not passed where the patient was without an IUC.

Example:

1/22	1/23	1/24	1/25	1/26	1/27	1/28
IUC (Day 1)	IUC (Day 2)	IUC **Removed** (Day 3)	New IUC **Inserted** (Day 4)	IUC (Day 5)	IUC (Day 6)	IUC (Day 7)

NHSN UTI Definitions – SUTIs & ABUTIs

Urinary Tract Infection Definitions

There are two specific types of UTI:

1. **S**ymptomatic **U**rinary **T**ract **I**nfection (**SUTI**)
2. **A**symptomatic **B**acteremic **U**rinary **T**ract **I**nfection (**ABUTI**)

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

Patient (any age) must meet 1, 2, and 3 below:

1. Patient had an indwelling urinary catheter that had been in place for more than 2 consecutive days in an 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)
- 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 ≥ 100,000 CFU/ml

All elements of the UTI criterion MUST occur within the IWP

Knowledge Check – SUTI 1a Criterion

- **Is this a CAUTI/SUTI 1a event**
  - Yes
  - No

- Eligible urine culture
  - IWP: 11/9-11/15
- Eligible s/s within 7-day IWP
  - Suprapubic tenderness
- IUC in place >2 days on the DOE

Date	Details
11/9	IUC present
11/10	Patient report of suprapubic tenderness, IUC present
11/11	IUC present
11/12	Urine culture (>100,000 CFU/ml, *Escherichia Coli*), IUC present
11/13	IUC present

Admitted 11/5

SUTI 1b: Non-Catheter-associated Urinary Tract Infection (Non-CAUTI)

Patient (any age) 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 for more than two consecutive days in an inpatient location on the date of event **OR**
•	Patient did not have an indwelling 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 (>38.0°C) • 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 ≥100,000 CFU/ml

***No other recognized cause**

^These symptoms cannot be used when catheter is in place

All elements of the UTI criterion MUST occur within the IWP

Knowledge Check – SUTI 1b Criterion

- **Is this a SUTI 1b event?**
  - Yes
  - No

- Eligible urine culture
  - IWP: 10/24-10/30
- Eligible s/s within 7-day IWP
  - Fever >38°C
- IUC in place <2 days on the DOE

Date	Details
10/23	Fever (38.1°C/100.6°F), IUC inserted for the first time
10/24	Fever (38.6°C/101.5°F), IUC removed
10/25	Patient report of bilateral lower back pain
10/26	Continued patient report of bilateral lower back pain
10/27	Urine culture (>100,000 CFU/ml, *Enterococcus faecalis*)

Admitted 10/21

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

Patient (≤ 1 year of age) 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 (>38.0°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 ≥100,000 CFU/ml

^No other recognized cause

All elements of the UTI criterion MUST occur within the IWP

Knowledge Check – SUTI 2 Criterion

- **Is this a SUTI 2 event?**
  - Yes
  - No

- Patient is <1 year old
- Eligible urine culture
  - IWP: 1/5-1/11
- Eligible s/s within 7-day IWP
  - Fever >38°C and lethargy

Date	Details
1/5	Admitted (*patient 6 months old*), no IUC present
1/6	--
1/7	Patient becomes lethargic and febrile (38.8°C/101.8°F)
1/8	Urine culture (>100,000 CFU/ml, *Enterobacter cloacae*)
1/9	Patient started on antibiotics

non-CAUTI SUTI 2 event

Asymptomatic Bacteremic Urinary Tract Infection (ABUTI)

Patient (any age) 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 regardless of 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 the ≥100,000 CFU/ml.
3.	Patient has organism identified from blood specimen with at least ***one*** matching bacterium to the ≥100,000 CFU/ml bacterium identified in the urine specimen, **OR** is eligible to meet LCBI criterion 2 (*without fever*) and has a matching common commensal(s) in the urine.

All elements of the UTI criterion MUST occur within the IWP

Knowledge Check – ABUTI Criterion

- **Is this an ABUTI event?**
  - Yes
  - No

- Eligible urine culture
  - IWP: 12/4-12/11
- No SUTI s/s within 7-day IWP
- Organism from blood matches urine culture organism (i.e. >100,000 CFU/ml, *E. coli*)

Date	Details
12/5	--
12/6	Patient report of 'abdominal pain'
12/7	Urine culture (*Escherichia Coli* & *Staphylococcus aureus*, both reported as >100,000 CFU/ml)
12/8	Blood culture (+*Escherichia Coli*)
12/9	Patient transported to ICU

Admitted 11/22

Not an eligible SUTI sign/symptom. The report of 'abdominal pain' is too general and not to be interpreted as 'suprapubic tenderness' as there are many causes of abdominal pain (*see next slide*)

FAQs: Costovertebral Pain and Suprapubic Tenderness

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

Q13. Would NHSN accept low back pain to describe costovertebral pain?

Generalized 'low back pain' in the medical record is not interpreted as CVA pain or tenderness, as there can be many causes of low back pain. Left, right, or bilateral lower back or flank pain (left, right, or bilateral) is acceptable to describe costovertebral pain.

Q14. Can abdominal pain be used to meet NHSN's UTI symptom of suprapubic tenderness?

Pain documented as 'abdominal pain' in the medical record is too general and not to be interpreted as suprapubic tenderness as there are many causes of abdominal pain. Lower abdominal pain, (left/right or bilateral) or bladder or pelvic pain or discomfort are acceptable documentation to meet NHSN's UTI symptom of suprapubic tenderness.

FAQs: No Other Recognized Cause

Q14. To exclude using "*with no other recognized cause*" it should be clear that the symptom of interest relates to another cause and is **clearly differentiated** from a UTI symptom.

Ideally, clinical decisions related to exclusion of suprapubic tenderness or costovertebral angle pain or tenderness, should be made by a physician and/or their designee within your organization who has access to a patient's entire medical record and clinical picture.

UTI signs or symptoms that are **not eligible** for "*with no other recognized cause*" include:

- Fever
- Urinary urgency
- Urinary frequency
- Dysuria

UTI Event Reporting

UTI Event Reporting

UTI Event Form & Table of Instructions (TOI)

Urinary Tract Infection (UTI) form (57.114) *here* Table of Instructions *here*

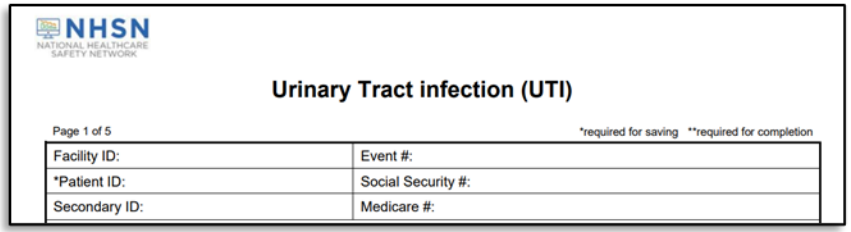
Data Collection Forms & Instructions

All Data Collection Forms are Print-only

UTI Event

Urinary Tract infection (UTI) form (57.114) [PDF – 180 KB]

- Customizable form [DOC – 60 KB]
- Table of Instructions [PDF – 6 pages]



NHSN
NATIONAL HEALTHCARE SAFETY NETWORK

Urinary Tract infection (UTI)

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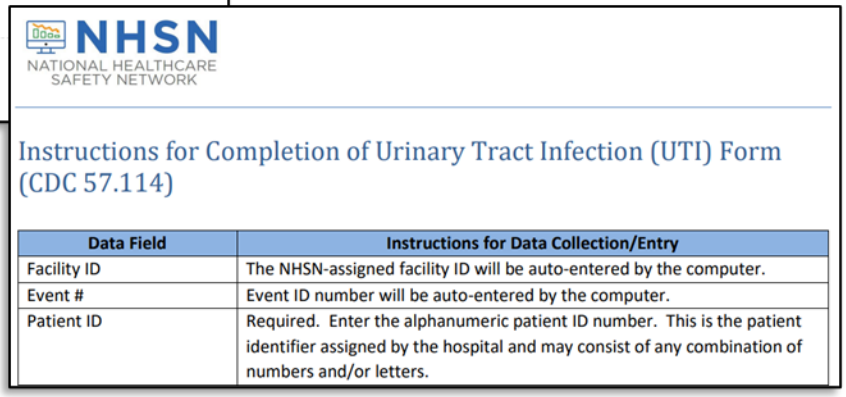
Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:



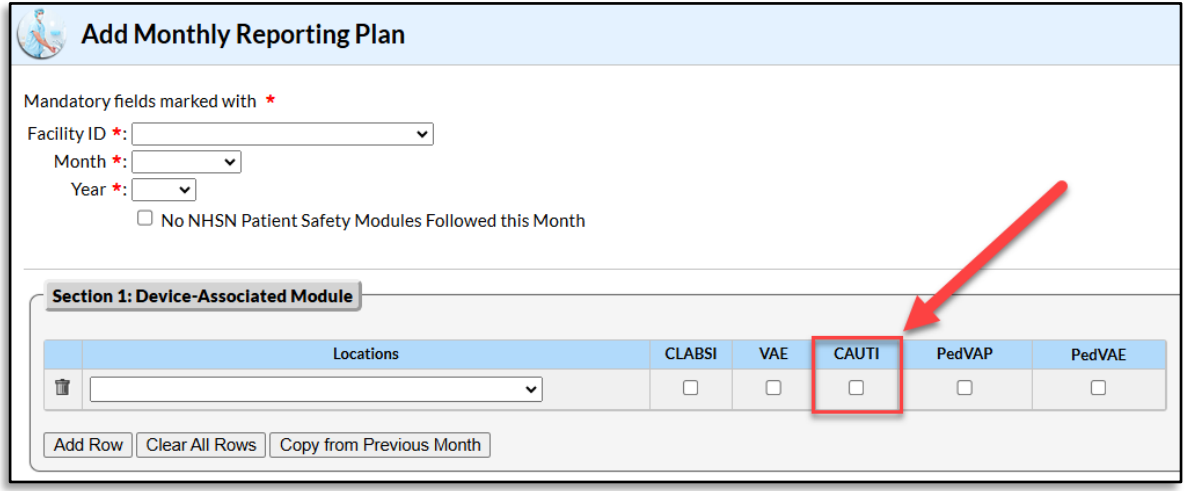
NHSN
NATIONAL HEALTHCARE SAFETY NETWORK

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.

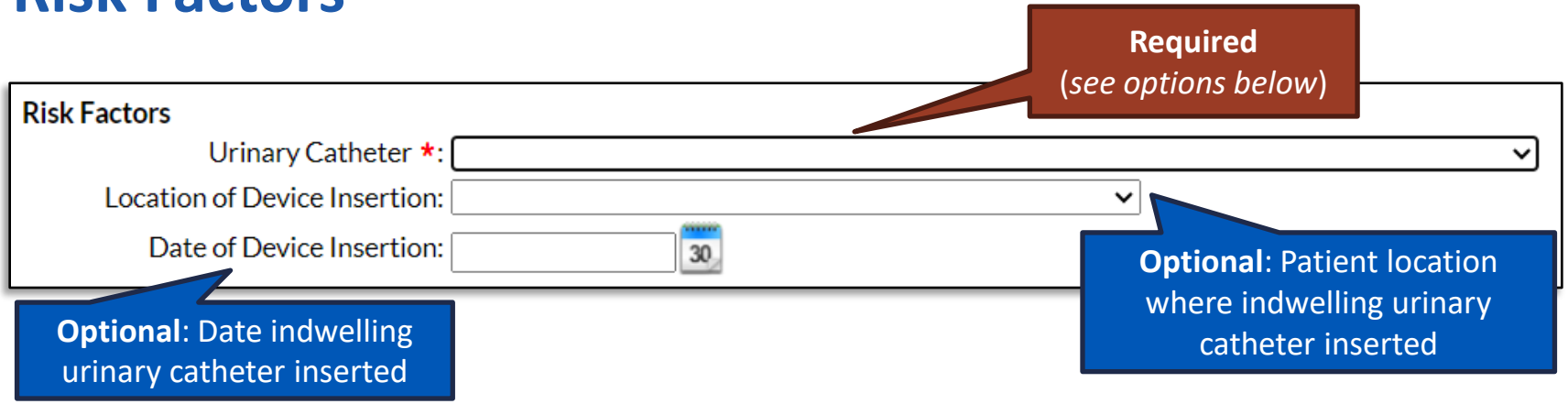
NHSN Application

- To report event data for this module ‘CAUTI’ must be selected in your Monthly Reporting Plan



- UTI events can be an be reported manually or via CDA

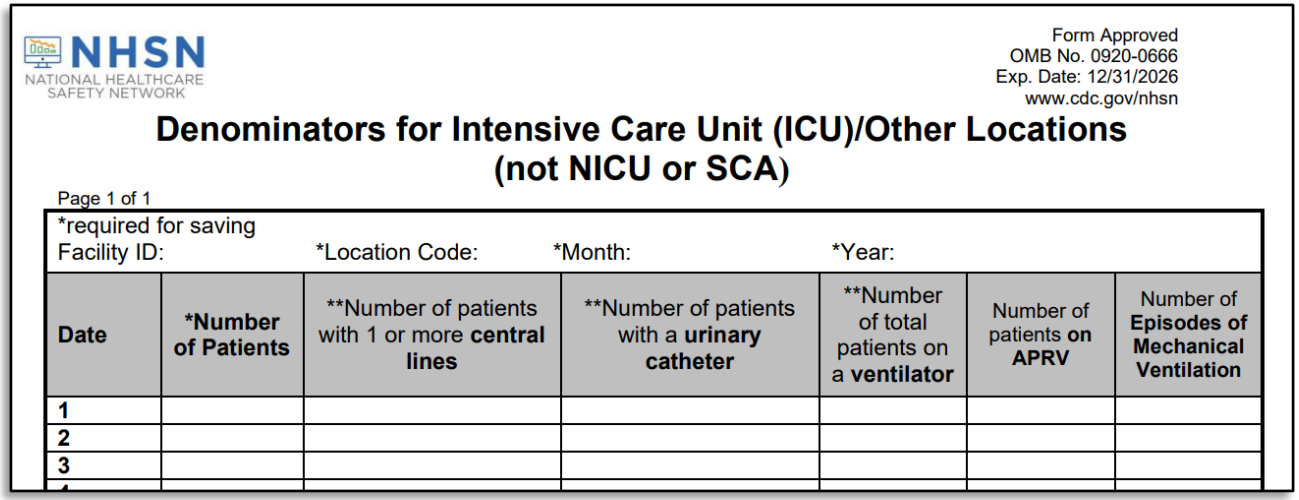
Risk Factors



- ***INPLACE*** – Urinary catheter in place for more than 2 consecutive days on the date of event
- ***REMOVE*** – Urinary catheter in place for more than 2 consecutive 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

Collecting Summary Denominator Data

Manual Collection



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Form Approved
OMB No. 0920-0666
Exp. Date: 12/31/2026
www.cdc.gov/nhsn

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

Page 1 of 1

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Facility ID: *Location Code: *Month: *Year:

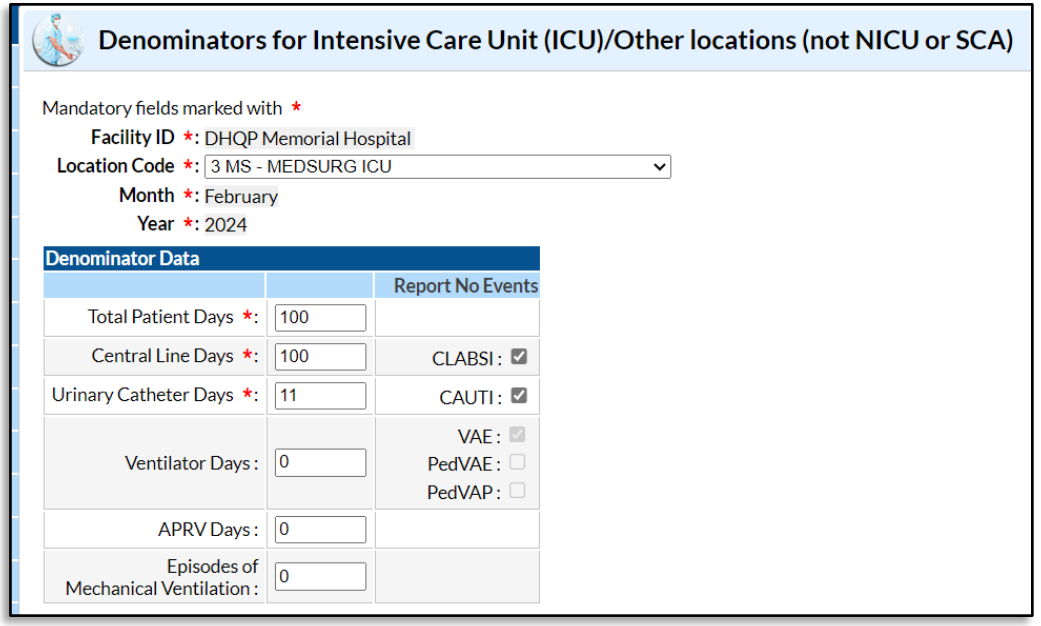
Date	*Number of Patients	**Number of patients with 1 or more **central lines**	**Number of patients with a **urinary catheter**	**Number of total patients on a **ventilator**	Number of patients **on APRV**	Number of **Episodes of Mechanical Ventilation**
1						
2						
3						

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

Reporting Summary Denominator Data

- **Patient days** and **urinary catheter days** should be reported monthly and by individual unit
- If no UTI events occurred for a month check the "Report No Events" box
  - **Note**: This must be completed for each unit



What's new in the UTI Event Module?

UTI – Neurogenic Bladder Definition

- **NHSN's Objective**: Assess the number of spinal cord injury patients with neurogenic bladder to explore if the current UTI event module may require modification.

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".

UTI – Neurogenic Bladder Definition

ICD-10-CM Code	Code Description
S14.101A	Unspecified injury at C1 level of cervical spinal cord, initial encounter
S14.101D	Unspecified injury at C1 level of cervical spinal cord, subsequent encounter
S14.101S	Unspecified injury at C1 level of cervical spinal cord, sequelae
S14.102A	Unspecified injury at C2 level of cervical spinal cord, initial encounter
S14.102D	Unspecified injury at C2 level of cervical spinal cord, subsequent encounter
S14.102S	Unspecified injury at C2 level of cervical spinal cord, sequelae
S14.103A	Unspecified injury at C3 level of cervical spinal cord, initial encounter
S14.103D	Unspecified injury at C3 level of cervical spinal cord, subsequent encounter
S14.103S	Unspecified injury at C3 level of cervical spinal cord, sequelae
S14.104A	Unspecified injury at C4 level of cervical spinal cord, initial encounter
S14.104D	Unspecified injury at C4 level of cervical spinal cord, subsequent encounter
S14.104S	Unspecified injury at C4 level of cervical spinal cord, sequelae
S14.105A	Unspecified injury at C5 level of cervical spinal cord, initial encounter
S14.105D	Unspecified injury at C5 level of cervical spinal cord, subsequent encounter
S14.105S	Unspecified injury at C5 level of cervical spinal cord, sequelae
S14.106A	Unspecified injury at C6 level of cervical spinal cord, initial encounter
S14.106D	Unspecified injury at C6 level of cervical spinal cord, subsequent encounter
S14.106S	Unspecified injury at C6 level of cervical spinal cord, sequelae
S14.107A	Unspecified injury at C7 level of cervical spinal cord, initial encounter
S14.107D	Unspecified injury at C7 level of cervical spinal cord, subsequent encounter
S14.107S	Unspecified injury at C7 level of cervical spinal cord, sequelae
S14.108A	Unspecified injury at C8 level of cervical spinal cord, initial encounter
S14.108D	Unspecified injury at C8 level of cervical spinal cord, subsequent encounter
S14.108S	Unspecified injury at C8 level of cervical spinal cord, sequelae
S14.109A	Unspecified injury at unspecified level of cervical spinal cord, initial encounter
S14.109D	Unspecified injury at unspecified level of cervical spinal cord, subsequent encounter

Spinal Cord Injury | Neurogenic bladder

ICD-10-CM Code	Code Description
N31.0	Uninhibited neuropathic bladder, not elsewhere classified
N31.1	Relfex neuropathic bladder, not elsewhere classified
N31.2	Flaccid neuropathic bladder, not elsewhere classified
N31.8	Other neuromuscular dysfunction of bladder
N31.9	Neuromuscular dysfunction of bladder, unspecified

**A complete list of NHSN SCI-NB ICD-10-CM codes can be found here*

UTI – Neurogenic Bladder Definition

- The **new** SCI-NB risk factor field is **optional** for reporting in 2025 as we are still in the exploratory phase

- Please note that this is **not currently an exclusion** and does not impact CAUTI determinations or NHSN analytics
  - Chapter 7 UTI definitions must be applied as currently written
  - If SCI-NB diagnostic codes are documented in the patient's medical record and align with the NHSN provided list (*see here*) they are eligible for use

UTI Case Studies

Steps to Investigate a Positive Urine Culture

1. Assess eligibility of a positive urine culture	• Is this an eligible urine culture (*at least one eligible organism ≥ 100K CFU/ml and no more than two organisms*)?
	  ○ If yes, continue reviewing the potential event.
	  ○ If no, **STOP** (*cannot have a UTI event without an eligible urine culture*).

2. Set the 7-day infection window period (IWP)	• An eligible urine culture **always** sets the IWP for the UTI module. This timeframe includes the 3 days before the urine culture, the day of the urine culture and 3 days after the urine culture for a total of 7 days.

3. Locate the first element used to meet site-specific infection criterion within the 7-day IWP	• Are all the UTI criteria met during the IWP?
	  ○ If yes, there is a UTI event.
	  ○ If no, there is no event.

4. Identify the date of event (DOE)	• The date that the first element occurs for the first time within the IWP. The first element could be a positive urine culture **OR** an NHSN UTI sign/symptom.
5. Establish if present on admission (POA) or a healthcare-associated infection (HAI)	• **POA**: The DOE is found to be the date of admission to an inpatient location, the 2 days before admission, or the calendar day after admission. • **HAI**: The DOE occurred on or after hospital day 3.
6. Associate catheter use to UTI event	• **CAUTI/CA-ABUTI**: IUC in place for > 2 consecutive days in an inpatient location on the DOE or removed the before the DOE. • **Non-CAUTI/CA-ABUTI**: IUC present, but **not** in place for > 2 consecutive days in an inpatient location or the patient **did not** have an IUC in place on the date of event nor the day before the date of event.
7. Set a repeat infection timeframe (RIT) and secondary BSI attribution period (SBAP)	• **RIT**: 14-day timeframe where no 'new' UTI events are reported (SUTI or ABUTI). The DOE is Day 1 of the RIT. Please note, a urine culture alone does not set an RIT NHSN criterion must be met. • **SBAP**: The 14–17-day timeframe in which a blood specimen must be collected for a secondary BSI to be attributed to a UTI event. The SBAP includes the IWP combined with the RIT.

Case Study 1

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
7/13	Patient admitted from a LTC facility for a diabetic foot ulcer and difficulty ambulating. The patient had a foley catheter present and a urine culture was collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Proteus mirabilis*
7/14	Foley catheter was replaced.
7/15	-
7/16	-
7/17	-
7/18	New onset of confusion and fever (38.8°C/101.9°F).
7/19	-
7/20	Urine culture collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Escherichia coli*
7/21	Foley removed, and patient started on antibiotics.

Case Study 1 – Rationale

Date	Details
7/13	Patient admitted from a LTC facility for a diabetic foot ulcer and difficulty ambulating. The patient had a foley catheter present and a urine culture was collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Proteus mirabilis*
7/14	Foley catheter was [illegible]d.
7/18	New onse[illegible]
7/20	Urine cult[illegible] ➢ *U[illegible]*
7/21	Foley rem[illegible]

- This culture is eligible for use and sets an IWP, 7/11-7/16.
  - ***Note****: The IWP is shorted as it cannot extend past the POA timeframe (i.e. 2 days before inpatient admission).*
- However, without an eligible UTI sign or symptom captured within the IWP there is no SUTI event to report or RIT to set.

Case Study 1 – Rationale

Date	Details
7/13	Patient admitted from a LTC facility for a diabetic foot ulcer and difficulty ambulating. The patient had a foley catheter present and a urine culture was collected. ➢ ***Urine Culture Re***
7/14	Foley catheter was replaced.
7/18	New onset of confusion and fever (38.8°C/101.9°F).
7/20	Urine culture collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Escherichia coli*
7/21	Fole ed on antibiotics.

2 The measured fever is eligible for use as it is >38.0°C (100.4°F). It is also the first element captured within the IWP, setting the DOE as 7/18.

1 This culture is eligible for use and sets an IWP, 7/17-7/23.

Case Study 1 – Rationale

Date	Details
7/13	Patient admitted from a LTC facility for a diabetic foot ulcer and difficulty ambulating.
7/14	
7/18	
7/20	
7/21	Foley removed, and patient started on antibiotics.

- The date of event is Hospital Day 6, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient had an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **CAUTI meeting SUTI 1a criterion**.
- The RIT is 7/18-7/31 and the SBAP is 7/17-7/31.

Case Study 2

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
2/9	Patient presented to the ER with altered mental status, shortness of breath, cough, increased oxygen requirement, and decreased urinary output.
2/10	Admitted to inpatient unit & foley catheter placed. Urine culture collected. ➢ ***Urine Culture Result***: 75,000-100,000 CFU/ml, *Pseudomonas aeruginosa*
2/11	-
2/12	-
2/13	-
2/14	-
2/15	-
2/16	WBC count maximum: 40.4 cells/µL.
2/17	Foley catheter removed. Patient reports abdominal pain, right lower quadrant.

Case Study 2 – Rationale

Date	Details
2/9	Patient presented to the ER with altered mental status, shortness of breath, cough, increased oxygen requirement, and decreased urinary output.
2/10	Admitted to inpatient unit & foley catheter placed. Urine culture collected. ➢ ***Urine Culture Result***: 75,000-100,000 CFU/ml, *Pseudomonas aeruginosa*
2/16	WBC
2/17	Foley er quadrant.

This culture is **NOT** eligible for use, results must be reported as ≥100,000 CFU/ml. There is no UTI event to report or RIT to set.

- ***Note**: If your laboratory can clarify the culture count and report it as ≥100,000 CFU/ml it can be used, see NHSN UTI FAQ – Q2.*

Case Study 3

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
9/5	Patient admitted following total hip replacement. A Foley catheter was placed for urinary management during their early post-operative period.
9/6	Foley catheter removed.
9/7	-
9/8	Patient reports new onset of both urinary urgency and frequency. Urine culture collected. ➢ ***Urine Culture Results***: 50,000-100,000 CFU/ml, *Staphylococcus aureus* >100,000 CFU/ml, *Enterococcus avium*
9/9	Patient WBC count is elevated.
9/10	Supportive care was provided to alleviate symptoms and improve patient comfort.

Case Study 3 – Rationale

Date	Details
9/5	Patient a… urinary man…
9/6	Foley cathet… removed.
9/8	Patient reports new onset of both urinary urgency and frequency. Urine culture collected. ➢ ***Urine Culture Results***: 50,000-100,000 CFU/ml, *Staphylococcus aureus* >100,000 CFU/ml, *Enterococcus avium*
	…otoms and improve patient comfort.

2 The report of "urinary urgency" and "urinary frequency" are eligible for use. They are also the first elements captured within the IWP, setting the DOE as 9/8.

1 This culture is eligible for use and sets an IWP, 9/5-9/11. However, Staphylococcus a*ureus* should **NOT** be reported to NHSN as it is <100,000 CFU/ml.

Case Study 3 – Rationale

Date	Details
9/5	Patient admitted following total hip replacement. A Foley catheter was placed for
9/6	
9/8	
9/9	
9/10	Supportive care was provided to alleviate symptoms and improve patient comfort.

- The date of event is Hospital Day 4, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient did not have an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **non-CAUTI meeting SUTI 1b criterion**.
- The RIT is 9/8-9/21 and the SBAP is 9/5-9/21.

Case Study 4

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Location	Details
8/11	Location A	Patient admitted for urinary retention. Went to the OR for prostate surgery to treat urinary obstruction. Foley catheter placed.
8/12	Location A	-
8/13	Location A	-
8/14	Location A	-
8/15	Location A	Patient discharged home.
8/16	ED	Patient presents to ED with pelvic pain and leakage around Foley site. Suprapubic tenderness documented.
8/17	ED	-
8/18	Location B	Admitted to inpatient unit from ED. Foley catheter present. Urine culture collected. ➢ ***Urine Culture Results***: >100,000 CFU/ml, *Klebsiella pneumoniae* >100,000 CFU/ml, *Enterococcus faecalis*
8/19	Location B	Fever (>38.0°C)
8/20	Location B	-
8/21	Location B	-
8/22	Location B	Foley catheter removed. Patient discharged home.

Case Study 4 – Rationale

Date	Details
8/1	gery to treat
8/1	
8/16	Patient presents to ED with pelvic pain and leakage a site. Suprapubic tenderness documented.
8/18	Admitted to inpatient unit from ED. Foley catheter present. Urine culture collected. ➢ ***Urine Culture Results***: >100,000 CFU/ml, *Klebsiella pneumoniae* >100,000 CFU/ml, *Enterococcus faecalis*
8/19	Fever (>38.0°C)
8/22	Foley catheter removed. Patient discharged home.

This culture is eligible for use and sets an IWP, 8/16-8/21.

- ***Note****: The IWP is shorted as it cannot extend past the POA timeframe (i.e. 2 days before inpatient admission).*

Case Study 4 – Rationale

Date	Details
8/11	[illegible] to treat urin[illegible]
8/15	Patient discharged home.
8/16	Patient presents to ED with pelvic pain and leakage around Foley site. Suprapubic tenderness documented.
8/18	Admitted to inpatient [illegible] from ED. Foley catheter present. Urine culture collected. ➢ ***Urine Culture Resu[illegible]*** [illegible]000 CFU/ml, *Klebsiella pneumoniae* [illegible] *Enterococcus faecalis*
8/19	Fever (>38.0°C)
8/22	Foley catheter remove[illegible]

2 Since the event occurred on the day after discharge, the Transfer Rule is applied, and the infection is attributed to the discharging location, Location A.

1 The report of suprapubic tenderness is within the POA timeframe and is eligible for use. It is also the first element captured within the IWP, setting the DOE as 8/16.

Case Study 4 – Rationale

Location A

- The date of event is after Hospital Day 3, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient had an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **CAUTI meeting SUTI 1a criterion**.
- The RIT for the first admission is 8/16-8/29. However, the RIT does not carry over from one admission to another.

***Note**: Facilities should always share information of potential HAI events that may occur before or following transfers between facilities.*

Case Study 4 – Rationale

Location B

- The date of event is before Hospital Day 3, which makes this a **Present on Admission (POA)** infection.
- Since the patient did not have an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **non-CAUTI meeting SUTI 1b criterion**.
- The POA RIT for the second admission is 8/18-8/31. Since the DOE was two days prior to admission, the date of admission to Location B marks Day 1 of the RIT.

Note: *Only NHSN SUTI1a/CAUTI events are required to be reported by CMS. However, be sure to check your state or local requirements as they may require all UTIs be reported to NHSN. Reporting requirements vary from state-to-state.*

Case Study 5

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
12/13	Newborn admitted to Well Newborn/General Nursery. Foley catheter inserted for a voiding cystourethrogram (VCUG).
12/14	Foley catheter removed.
12/15	Patient hypothermic (35.9°C/96.6°F). Warmed blanket provided.
12/16	Temperature fluctuations continue: • **Min**: 24.1°C (75.4°F) • **Max**: 37.9°C (100.2°F)
12/17	-
12/18	Urine culture collected. ➢ ***Urine Culture Results***: >100,000 CFU/ml, *Pseudomonas aeruginosa*

Case Study 5 – Rationale

Date	
12/13	
12/14	Foley catheter
12/15	Patient hypothermic (35.9°C/96.6°F). Warmed blanket provided.
12/16	Temperature fluctuations continue: • **Min**: 24.1°C (75.4°F) • **Max**: 37.9°C (100.2°F)
12/18	Urine culture collected. ➢ ***Urine Culture Results***: >100,000 CFU/ml, *Pseudomonas aeruginosa*

2 The measured temp is eligible for use as it is <36.0°C (96.8°F). It is also the first element captured within the IWP, setting the DOE as 12/15.

- ***Note**: Fever and hypothermia are non-specific symptoms of infection and cannot be excluded from UTI determination because they are clinically deemed due to another recognized cause.*

1 This culture is eligible for use and sets an IWP, 12/15-12/21.

Case Study 5 – Rationale

Date	Details
12/13	Newborn admitted to Well Newborn/General Nursery. Foley catheter inserted for a
12/14	
12/15	
12/16	s:
12/18	➢ ***Urine Culture Results***: >100,000 CFU/ml, *Pseudomonas aeruginosa*

- The date of event is Hospital Day 3, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient is <1 year of age and did not have an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **non-CAUTI meeting SUTI 2 criterion**.
- The RIT is 12/15-12/28 and the SBAP is 12/15-12/28.

Case Study 6

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
5/11	Patient admitted after a motor vehicle accident. They suffered a traumatic spinal cord injury (SCI). Foley catheter placed due to their inability to void.
5/13	Diagnosed with neurogenic bladder, a condition where there is dysfunction or damage to the nerves that control the bladder as a result of a SCI.
5/14	Mild fever (38.2°C/100.8°F) and complaint of abdominal discomfort.
5/15	Urine culture collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Enteroccous faecalis*
5/16	Foley catheter replaced and started on IV antibiotic therapy.
5/17	After 24 hours of IV antibiotic therapy, the patient's fever began to subside, and their abdominal pain improved.

Case Study 6 – Rationale

Date	
5/11	P… i…
5/13	Diagnosed wi… …, a condition where there is dysfunction or damage to the nerv… …ntrol the bladder as a result of a SCI.
5/14	Mild fever (38.2°C/100.8°F) and complaint of abdominal discomfort.
5/15	Urine culture collected. ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Enteroccous faecalis*
5/16	…ted on IV antibiotic therapy.
5/17	…erapy, the patient's fever began to subside, and their abdominal pain improved.

2 The measured fever is eligible for use as it is >38.0°C (100.4°F). It is also the first element captured within the IWP, setting the DOE as 5/14.

- ***Note**: Generalized "abdominal pain" in the medical record is too general and not to be interpreted as suprapubic tenderness as there are many causes of abdominal pain.*

1 This culture is eligible for use and sets an IWP, 5/12-5/18.

Case Study 6 – Rationale

Date	Details
5/11	Patient admitted after a motor vehicle accident. They suffered a traumatic spinal cord injury (SCI). Foley catheter placed due to their inability to void.
5/13	Diagnosed with neurogenic bladder, a condition where there is dysfunction or damage to the nerves that control the bladder as a result of a SCI.
5/14	Mild fever ( ) and complaint of abdominal discomfort.
5/15	
5/16	
5/17	and their

After review of the patient's chart the following ICD-10-CM diagnosis codes were identified and cross checked with the NHSN eligible code list:

- **Spinal Cord Injury (SCI)**: S14.107A Unspecified injury at C7 level of cervical spinal cord, initial encounter
- **Neurogenic Bladder (NB)**: N31.1 Reflex neuropathic bladder, not elsewhere classified

Case Study 6 – Rationale

Date	Details
5/11	Patient admitted after a motor vehicle accident. They suffered a traumatic spinal cord injury (SCI). Foley catheter placed due to their inability to void.
5/13	
5/14	
5/15	
5/16	
5/17	After 24 hours of IV antibiotic therapy, the patient's fever began to subside, and their abdominal pain improved.

- The date of event is Hospital Day 4, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient had an IUC in place for >2 consecutive days in an inpatient location on the DOE, this is a **CAUTI meeting SUTI 1a criterion**.
- The RIT is 5/14-5/27 and the SBAP is 5/12-5/27.

Case Study 7

Does this patient have a UTI?

A. Yes, SUTI 1a (CAUTI)

B. Yes, SUTI 1b (non-catheter-associated)

C. Yes, SUTI 2 (CAUTI)

D. Yes, SUTI 2 (non-catheter-associated)

E. Yes, ABUTI (CAUTI)

F. Yes, ABUTI (non-catheter-associated)

G. No UTI

Date	Details
3/28	Patient admitted to Oncology unit. PICC, colostomy, and nephrostomy tubes (left and right), and indwelling urinary catheter (IUC) in place at admission.
3/29	PICC accessed for the first time.
3/30	-
3/31	-
4/1	CLABSI event suspected. Peripheral blood cultures ordered, and urine culture collected from a nephrostomy. Urine culture collected. ➢ ***Blood Culture Result***: (+) *Escherichia coli* (+) Vancomycin-resistant Enterococcus (VRE) ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Escherichia coli*
4/2	-
4/3	-
4/4	-
4/5	Fever (39.1°C/102.3°F)
4/6	Patient transferred to ICU.

Case Study 7 – Rationale

Date	
3/28	Patient … right), a…
3/29	PICC accessed for the first time.
4/1	CLABSI event suspected. Peripheral blood cultures ordered, and urine culture collected from a nephrostomy. Urine culture collected. ➢ ***Blood Culture Result***: (+) *Escherichia coli* (+) Vancomycin-resistant Enterococcus (VRE) ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Escherichia coli*
4/5	Fever (39.1°C/102.3°F)
4/6	Patient transferred to ICU.

The urine culture is eligible for use and sets an IWP, 3/29-4/4.

- ***Note****: The UTI event module does not differentiate where a urine specimen must be collected from. Any urine specimen submitted for culture is eligible for review to see if that urine specimen meets NHSN UTI criteria, see NHSN UTI FAQ – Q20.*

This fever, while eligible to meet SUTI criterion is outside of the IWP.

Case Study 7 – Rationale

Date	Details
3/28	Patient admitted to Oncology unit. PICC, colostomy, and nephrostomy tubes (left and right), and [illegible]
3/29	PICC acces[illegible]
4/1	CLABSI event susp[illegible] peripheral blood cultures ordered, and urine culture collected from a neph[illegible]. Urine culture collected. ➢ ***Blood Culture Result***: (+) *Escherichia coli* (+) Vancomycin-resistant Enterococcus (VRE) ➢ ***Urine Culture Result***: >100,000 CFU/ml, *Escherichia coli*
4/5	Fever (39.1°C/102.3°F)
4/6	Patient transferred to ICU.

Given that the blood culture collected on 4/1 falls within the 7-day IWP, the patient meets Asymptomatic Bacteremic Urinary Tract Infection (ABUTI) criterion with *E. coli* as the matching bacterium.

Case Study 7 – Rationale

Date	Details
3/28	Patient admitted to Oncology unit. PICC, colostomy, and nephrostomy tubes (left and right), and indwelling urinary catheter (IUC) in place at admission.
3/29	PI
4/1	CL … ollected fr…
4/5	Fe…
4/6	Patient transferred to ICU.

- Since VRE was isolated from the same blood specimen as the organism matching the urine culture (*E. coli*) you can add it to the ABUTI event as a secondary BSI and it would not be eligible for CLABSI consideration.
- The non-matching organism is only "*scooped up*" when there is a matching organism in the same blood specimen.
- If there are subsequent blood cultures with only the non-matching organism, you must assess the blood cultures for LCBI criteria.

Case Study 7 – Rationale

Date	Details
3/2	and
3/2	
4/1	cted
4/5	
4/6	Patient transferred to ICU.

- The date of event is Hospital Day 5, which makes this a **Healthcare-associated Infection (HAI)**.
- Since the patient had an indwelling urinary catheter (IUC) in place for >2 days in an inpatient location on the DOE this would be a **catheter-associated ABUTI (CA-ABUTI)**.
- The RIT is 4/1-4/14 and the SBAP is 3/29-4/14.

Note: *Catheter-associated ABUTIs are reportable if CAUTI is in your facility's reporting plan for this location, see NHSN UTI FAQ – Q16.*

Additional Resources

Resources

- **NHSN UTI FAQs**
  - https://www.cdc.gov/nhsn/faqs/faq-uti.html

- **NHSN Terminology Browser**
  - https://cdcnhsn.clinicalarchitecture.com/SymedicalCDCNHSNViewpoint/#/search

- **NHSN Patient Safety Component Manual**
  - https://www.cdc.gov/nhsn/pdfs/pscmanual/pcsmanual_current.pdf
    - Chapter 2 - Identifying Healthcare-associated Infections (HAI) for NHSN Surveillance
    - Chapter 7 - Urinary Tract Infection (Catheter-Associated Urinary Tract Infection [CAUTI] and Non-Catheter-Associated Urinary Tract Infection [UTI]) Events

- **NHSN HAI/POA Determination Tools**
  - https://www.cdc.gov/nhsn/poa/index.html
  - https://www.cdc.gov/nhsn/xls/general-rules-worksheet.xlsx

For NHSN questions or concerns related to the Annual Training

Post questions in the Annual Training Community

After July 10th, please submit questions to the NHSN Help Desk.

- Access new portal at **https://servicedesk.cdc.gov/nhsncsp** .
- If you do not have a SAMS login, or are unable to access ServiceNow, you can still email the NHSN Help Desk at **nhsn@cdc.gov**.

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