



A preCAUTIONary Tale: NHSN Catheter-Associated Urinary Tract Infections

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NHSN Protocol and Training Team

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UTI Burden

- 2017 - 160,833 CAUTI¹
 - 5.4 CAUTI/1000 discharges
- 5% Decrease of CAUTI from 2014 – 2017 ¹
- The 2021 NHSN Progress reports shows a 5% increase in CAUTI between 2020 and 2021 with the largest increase in ICUs (9%)
- COVID-19 Impact on CAUTIs: ~28.5% of CAUTI submitted to NHSN to date provide COVID-19 = yes
- Average cost of a HAI CAUTI: \$13,793 ¹
- CAUTI Ranks 3rd in reportable events for NHSN

¹ AHRQ National Scorecard on Hospital-Acquired Conditions Updated Baseline Rates and Preliminary Results 2014-2017

Objectives

At the conclusion of this educational program, learners will be able to:

- Identify 2023 criteria used with UTI surveillance as outlined in the NHSN Patient Safety Component.
- Describe the structure of the Device-associated Module and the NHSN methodology used for UTI data collection.
- Define key terms applicable to UTI surveillance and their corresponding denominator data.
- Apply NHSN surveillance concepts/criteria for UTI to interactive clinical case scenarios

NHSN Acute Care/Critical Access Hospitals (ACH) page

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

National Healthcare Safety Network (NHSN)

CDC > NHSN Home > Resources by Facility

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- COVID-19 Information +
- Acute Care / Critical Access Hospitals**
- Ambulatory Surgery Centers
- Long-term Acute Care Hospitals
- Inpatient Rehabilitation Facilities
- Inpatient Psychiatric Facilities
- Patient Safety Component +
- Long-term Care Facility Component +
- Dialysis Component +
- Biovigilance Component +
- Healthcare Personnel Safety Component (HPS) +
- Neonatal Component +
- Outpatient Procedure Component +
- NHSNCoLab

Acute Care / Critical Access Hospitals (ACH)

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Acute care or other short-term stay hospitals (for instance, general hospitals, critical access hospitals, oncology hospitals, military VA hospitals)

Available Components

- [Patient Safety Component \(PSC\)](#)
- [Healthcare Personnel Safety Component \(HPS\)](#)
- [Biovigilance Component \(BV\)](#)

New Users

- [Enroll New Facility](#)
- [Training Resources](#)
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PSC Manual

- [2023 PSC Manual](#) (PDF - 8 MB)
- [2022 PSC Manual](#) (PDF - 8 MB)

ACH Modules & Events

Access relevant training, protocols, data collection forms and supporting materials for each module.

AUR Module Antimicrobial Use & Resistance Options	PNEU Events Pneumonia (PeDVAR) Events
BSI Events Bloodstream Infections	SSI Events Surgical Site Infection Events
CLIP Events Central Line Insertion Practice Adherence	UTI Events Urinary Tract Infections

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Resources for this discussion

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
- UTI Event form
- UTI Table of Instructions
- Denominator Forms
- FAQs

National Healthcare Safety Network (NHSN)

CDC > NHSN Home > Patient Safety Component

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Resources by Facility +

Patient Safety Component -

Annual Surveys, Locations & Monthly Reporting Plans

Analysis Resources +

Antimicrobial Use & Resistance +

BSI (CLABSI)

CLIP

MDRO & CDI

PedVAE

PNEU

SSI

UTIs (CAUTI)

VAE

Urinary Tract Infections (UTI) Events

[Print](#)

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

Protocols

[Chapter 7: Urinary Tract Infection \(UTI\) Event - January 2023](#) [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**.

[2023 Summary of Updates](#) [PDF - 199 KB]

Supporting Chapters

[Chapter 1: NHSN Overview - January 2023](#) [PDF - 350 KB] ★

[Chapter 2: Identifying Healthcare-associated Infections \(HAIs\) in NHSN - January 2023](#) [PDF - 1 MB]

[Chapter 3: Patient Safety Monthly Reporting Plan - January 2023](#) [PDF - 300 KB]

[Chapter 15: CDC Location Labels and Location Descriptions - January 2023](#) [PDF - 1 MB]

[Chapter 16: NHSN Key Terms - January 2023](#) [PDF - 300 KB]

[Chapter 17: CDC/NHSN Surveillance Definitions for Specific Types of Infections - January 2023](#) [PDF - 1 MB]

[UTIs Training](#)

[Educational Roadmap](#)

[CMS Requirements](#) ★

[HAI Checklists](#)

FAQs

[UTIs Events](#) ←

[Analysis](#)

[Annual Surveys](#)

[Locations](#)

[Miscellaneous](#)

[CDA](#)

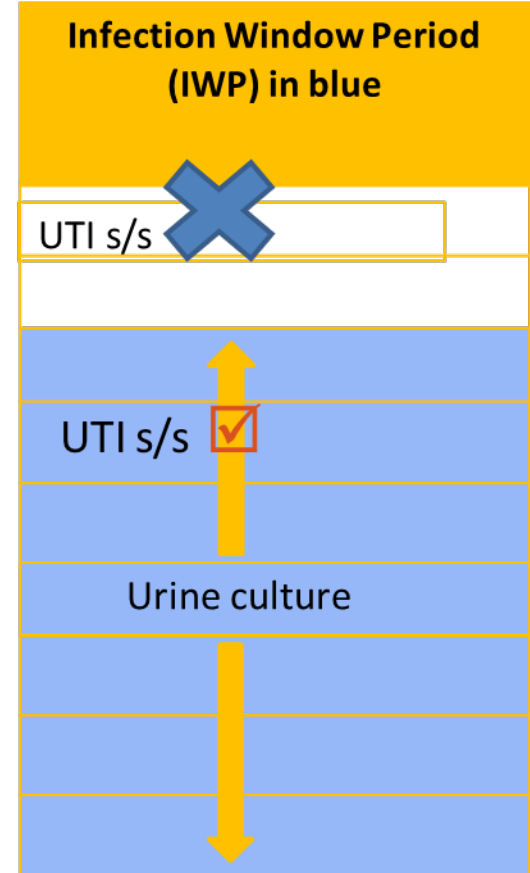
[View All FAQs](#)

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Tips for Successful UTI Surveillance

KEY CONCEPT: Infection Window Period

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



KEY CONCEPT: UTI Repeat Infection Timeframe (RIT)

- 14 -day timeframe where no ‘new’ UTI events are reported (SUTI or ABUTI). All UTI events identified set an RIT & SBAP - Includes non-catheter-associated events **and POA events**
- The RIT for a UTI event is a ‘fixed’ 14 days, specifically , the DOE of UTI event and the following 13 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
- **Do not change device association during the RIT**

KEY CONCEPT: UTI Date of Event (DOE)

- 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: Secondary Blood Attribution Period (SBAP)

SBAP is the period in which a blood specimen must be collected for a secondary bloodstream infection to be attributed to a primary site infection

- Includes IWP combined with the RIT
- Is 14-17 days in length depending upon the date of event

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: Location of Attribution

Location of attribution: inpatient location where the patient was assigned on the DOE

- Non-bedded inpatient locations, for example Operating Room or Interventional Radiology, are not eligible for attribution for HAI events
- Location of attribution must be assigned to an inpatient location where denominator data (patient days, device days) is collected

KEY CONCEPT: Transfer Rule

Rule of Transfer:

- If a UTI DOE is the date of transfer/discharge, or next calendar day, the UTI is attributed to the transferring/ discharging location
- If the patient is in multiple locations 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 culture UTI signs/symptoms (s/s) **OR** matching blood organism

KEY CONCEPT: Catheter Day Count

The Catheter Day count begins on day of catheter insertion.

- If the catheter is in place at time of admission to the facility, the admit date is catheter day 1
- Each day a IUC is in place for any portion of the day counts as a 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



KEY CONCEPT: Urine Culture Clarification

Excluded organisms

- **Candida** species or **yeast** not otherwise specified, **mold**, dimorphic **fungi** or **parasites** are excluded as organisms in the UTI definition therefore blood with these organisms cannot be secondary to UTI. **NOTE:** *Candida auris* is a yeast
- Excluded organisms may be present in urine ; Urine cultures with yeast can be used as long as there is one bacterium with $\geq 10^5$ CFU/ml identified in addition to Yeast. There can be no more than 2 organisms identified (for example, $> 100\text{K}$ CFU/ml of *E. coli* and $> 100\text{K}$ CFU/ml of *C. albicans*)

Urine Culture Clarification

- IWP is set on the urine specimen collection date not specimen result date or Culture order date if different from collection date
- Colony count < 100,000 CFU/ml is not eligible
- Organisms of same genus but different species = 2 organisms (for example, *Pseudomonas aeruginosa* and *Pseudomonas fluorescens*)
- The same organism with different antimicrobial susceptibilities = 1 organism (for example, MRSA and MSSA)

Urine Culture Clarification

- Urine cultures reported as “mixed flora” or similar (perineal flora, vaginal flora, normal flora) cannot be used (Ex. report of E. coli and perineal flora)
- Do not add colony counts together (Ex. 75,000 E. coli + 50,000 Kl. Pneumo would not be combined to make this an eligible colony count)
- NHSN doesn't specify method of urine specimen collection; Urine from any body location (Ex. nephrostomy, suprapubic catheter) are eligible for use.

Indwelling Urinary Catheter (IUC)

Key Concept

A drainage tube that is inserted into the urinary bladder through the urethra, is left in place, and is connected to a collection system.

This includes a collection system that is used for irrigation of any type or duration (e.g., intermittent, continuous).

- Often called a Foley catheter

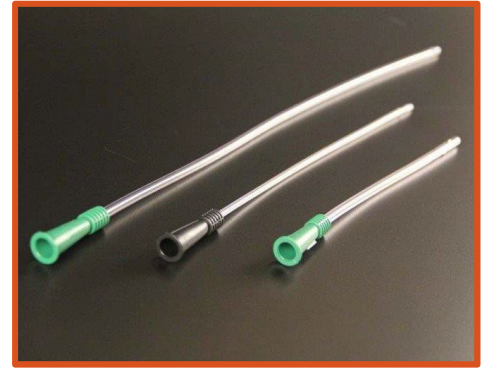
Not an Indwelling Urinary Catheter



Straight
catheterization



Condom catheter
(Texas catheter)



In and Out
catheterization

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

- Suprapubic catheter
- Nephrostomy tubes
- Urostomy
- Ileal conduit
- Perineal urethostomy

NOTE: Urine from any of these sites CAN be used in the determination of a UTI

NHSN Chapter 7

UTI Protocol/Criterion

Urinary Tract Infection Definitions

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

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

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

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

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

1. Patient had an indwelling urinary catheter (IUC) that had been in place for more than 2 consecutive days in an inpatient location on the date of event AND was either:
<ul style="list-style-type: none">• Present for any portion of the calendar day on the date of event <p>OR</p> <ul style="list-style-type: none">• Removed the day before the date of event
2. Patient has at least one of the following signs or symptoms:
<ul style="list-style-type: none">• Fever (>38.0°C)• Suprapubic tenderness*• Costovertebral angle pain or tenderness*• Urinary urgency ^• Urinary frequency^• Dysuria ^ <div data-bbox="1078 612 1605 682" style="border: 1px solid orange; padding: 5px; margin-left: 400px;"><p>*No other recognized cause</p></div> <div data-bbox="1078 694 1605 809" style="border: 1px solid orange; padding: 5px; margin-left: 400px;"><p>^These symptoms cannot be used when catheter is in place</p></div>
3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

All elements of the UTI criterion must occur during the IWP

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

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

Q12: Would NHSN accept low back pain to describe costovertebral pain?

Left or right lower back or flank pain is acceptable. 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.

- 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

Q13: Can abdominal pain be used to meet NHSN’s UTI symptom of suprapubic tenderness

There are many causes of abdominal pain and this symptom is too generalized to meet the localized UTI symptom of suprapubic tenderness. Low abdominal pain or bladder or pelvic discomfort are acceptable symptoms to meet NHSN’s UTI symptom of suprapubic tenderness.

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

1. One of the following is true:
<ul style="list-style-type: none">• Patient has/had an indwelling urinary catheter, but it has/had not been in place for more than 2 consecutive days in an inpatient location on the date of event <p>OR</p> <ul style="list-style-type: none">• Patient did not have a urinary catheter in place on the date of event nor the day before the date of event
2. Patient has at least <u>one</u> of the following signs or symptoms:
<ul style="list-style-type: none">• Fever (>38.0C)• Suprapubic tenderness*• Costovertebral angle pain or tenderness*• Urinary urgency ^• Urinary frequency^• Dysuria ^
3. Patient has a urine culture with no more than two species of organisms identified, at least one of which is a bacterium of $\geq 10^5$ CFU/ml

***No other recognized cause**

^These symptoms cannot be used when catheter is in place

All elements of the UTI criterion must occur during the IWP

Knowledge Check – Is the noted urinary frequency a UTI symptom ?

Yes or No

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


Answer: Yes

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, @ noon complained of urinary frequency
3/29	No fever
3/30	Elevated wbc's
3/31	Positive urine culture with 10^5 CFU/ml <i>E coli</i>

SUTI Knowledge Check

Is this a CAUTI? Yes/NO?

- 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 is the **date of event**
- The IUC was in place > 2 days on the date of event = HAI SUTI 1a -**CAUTI**

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		

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

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

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

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


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

***No other recognized cause**

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

All elements of the UTI criterion must occur during the IWP

SUTI 2 Knowledge Check – Is this a UTI Event?

Date	Details
12/23	2 month-old admitted for ongoing diarrhea and failure to thrive; IUC inserted
12/27	Patient vomits x 2 
12/28	Urine culture is positive for <i>E. coli</i> 10 ⁵ CFU/ml

Yes - This meets catheter-associated SUTI 2, **date of event** 12/27, pathogen *E. coli*

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 $\geq 10^5$ CFU/ml**
3. Patient has organism identified from blood specimen with at least **one matching bacterium** to the bacterium identified in the urine specimen OR meets LCBI criterion 2 (without fever) and matching common commensal(s) in the urine.

All elements of the ABUTI criterion must occur during the IWP

ABUTI

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

Asymptomatic Bacteremic UTI (ABUTI)



Knowledge Check

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

Is this a UTI event? Yes or No?

ABUTI ??

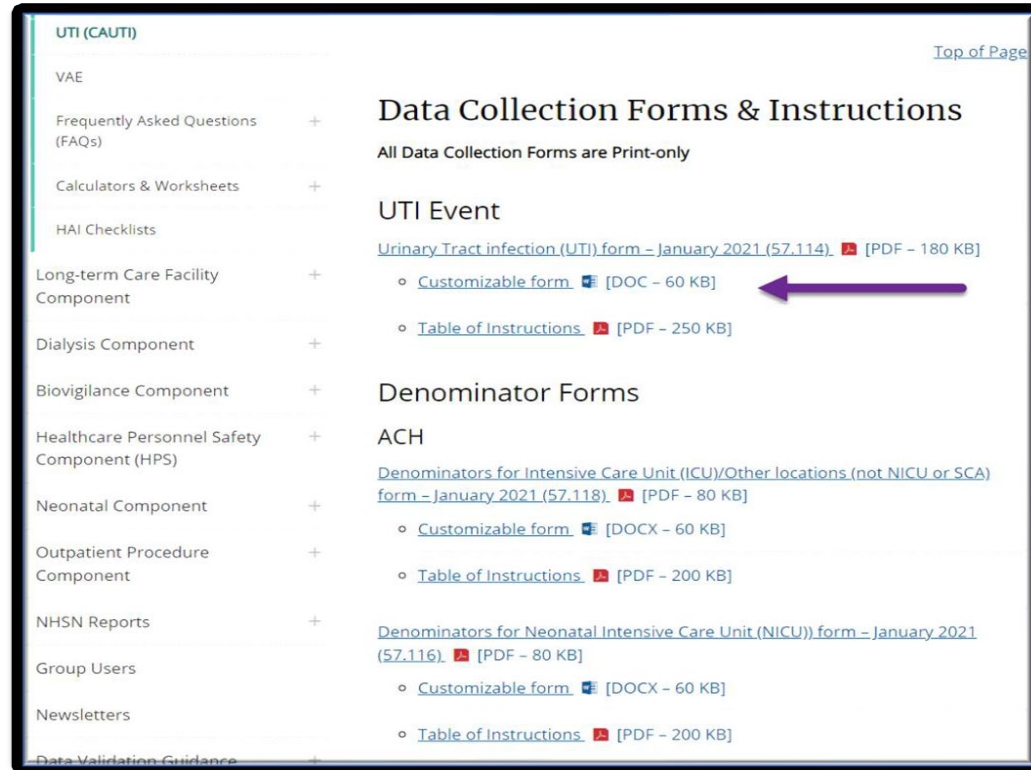
- 2/24: >100k *S. Aureus* urine culture sets the IWP: 2/21 – 2/27
- No UTI s/s, matching urine and blood organism within IWP
- Meets ABUTI, DOE 2/24
- IUC in place > 2 days on DOE therefore catheter-associated. The matching blood organism is deemed a 2nd BSI to the primary
- CA-ABUTI**, reportable if CAUTI surveillance is selected on MRP for the location of attribution

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

Event Reporting for UTI Surveillance

Customizable form

<https://www.cdc.gov/nhsn/acute-care-hospital/cauti/index.html>



UTI (CAUTI) [Top of Page](#)

VAE

Frequently Asked Questions (FAQs) +

Calculators & Worksheets +

HAI Checklists

Long-term Care Facility Component +

Dialysis Component +

Biovigilance Component +

Healthcare Personnel Safety Component (HPS) +

Neonatal Component +

Outpatient Procedure Component +

NHSN Reports +

Group Users

Newsletters

Data Validation Guidance +

Data Collection Forms & Instructions

All Data Collection Forms are Print-only

UTI Event

[Urinary Tract infection \(UTI\) form - January 2021 \(57.114\)](#) [PDF - 180 KB]

- [Customizable form](#) [DOC - 60 KB]
- [Table of Instructions](#) [PDF - 250 KB]

Denominator Forms

ACH

[Denominators for Intensive Care Unit \(ICU\)/Other locations \(not NICU or SCA\) form - January 2021 \(57.118\)](#) [PDF - 80 KB]

- [Customizable form](#) [DOCX - 60 KB]
- [Table of Instructions](#) [PDF - 200 KB]

[Denominators for Neonatal Intensive Care Unit \(NICU\) form - January 2021 \(57.116\)](#) [PDF - 80 KB]

- [Customizable form](#) [DOCX - 60 KB]
- [Table of Instructions](#) [PDF - 200 KB]

Risk Factors: CAUTI

Required Field: Urinary Catheter

Risk Factors

Urinary Catheter *: REMOVE - Urinary catheter in place > 2 days but removed the day before the date of event ▼

Location of Device Insertion: ▼

Date of Device Insertion: 24

Optional: Patient location where indwelling urinary catheter inserted.

Optional: Date indwelling urinary catheter inserted.

Three options:

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


Denominator and Summary Data

Collecting Summary Denominator Data

Manual Collection

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

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

 **NHSN**
NATIONAL HEALTHCARE
SAFETY NETWORK

Form Approved
OMB No. 0920-0666
Exp. Date: 01/31/24
www.cdc.gov/nhsn

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

Page 1 of 1

*required for saving
Facility ID: XXXXX *Location Code: ICU *Month: February *Year: 2022

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	9	5	6	2	0	1
2						

Denominator data

- Each month by individual unit, IUC days are provided
- You will additionally use the denominator field to indicate no events were reported for the month {if applicable} by checking the 'Report No Events' box

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

Mandatory fields marked with *

Facility ID *:

Location Code *:

Month *:

Year *:

Denominator Data		Report No Events
Total Patient Days *	<input type="text" value="400"/>	<input type="checkbox"/>
Central Line Days *	<input type="text" value="128"/>	CLABSI: <input type="checkbox"/>
Urinary Catheter Days *	<input type="text" value="220"/>	CAUTI: <input type="checkbox"/>
Ventilator Days *	<input type="text" value="140"/>	VAE: <input type="checkbox"/> PedVAE: <input type="checkbox"/> PedVAP: <input type="checkbox"/>
APRV Days :	<input type="text"/>	
Episodes of Mechanical Ventilation :	<input type="text"/>	

Sample Values For Estimating Denominator Data		
		Check Sample
Sample Patient Days :	<input type="text"/>	<input type="checkbox"/>
Sample Central Line Days :	<input type="text"/>	<input type="checkbox"/>
Sample Urinary Catheter Days :	<input type="text"/>	<input type="checkbox"/>

Common Mistakes

#1:

UTI as secondary infection-Never

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

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

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

A patient can multiple different sites of infection

#2

Positive urine culture on admit = POA-NO

1/2 Positive urine culture during the POA timeframe without UTI signs or symptoms nor matching blood organism in the IWP is not an event; therefore this does not meet POA.

- 1/9 Positive urine culture sets the IWP: 1/6– 1/12.
- 1/10 fever occurs in the IWP, and is used to meet SUTI, DOE 1/9.
- The IUC was in place > 2 days on the DOE therefore meets SUTI 1a: CAUTI which is HAI.

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

No UTI Event (highlighted in yellow)

CAUTI date of event 1/9 (circled in yellow)

IWP (bracketed from 1/6 to 1/12)

Star (on 1/2 and 1/9)

#3 : fever with IUC = UTI

UTI s/s +IUC on admit \neq automatically POA UTI

- The 6/18 urine culture sets the IWP: 6/15 – 6/21
- The HD 1 fever is not a specified value, also occurs outside the IWP
- 6/19 dysuria eligible post-IUC
- Meets SUTI 1a, DOE = 6/18, a HAI - CAUTI

Date /Unit	First diagnostic test or sign/symptom	Date of Event	Foley Day	Insert where who
6/10/22- Admit to 7S			1	???????
6/15/2022			6	
6/16/2022			7	
6/17/2022			8	
6/18/2022	Positive UC: >100,000 cfu/ml E.Coli; "Burning with urination prior to Foley Removal"	DOE	9	Foley D/C'd @1045
6/19/2022	"Burning with urination"			
6/20/2022				
6/21/2022				

fever w/IUC

Case Studies

Steps in Investigating a Positive Urine Culture as Possible CAUTI

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

Applying the basics: Case 1

DATE	Infection Window Period
2/2 ED	Patient female 35 years of age IUC inserted
2/3 ADMIT	Fever 100.9° F IUC day #1
2/4	Fever 100.8° F IUC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml IUC day #3
2/6	
2/7	
2/8	
2/9	

Letsall Dogood, post-op HYST surgery patient, presents to the ED 2/2 with a several day history of weakness, poor p.o. intake and inability to void. A IUC is inserted in the ED, the patient is transferred on 2/3 to the inpatient surgery unit for further work-up. Fever noted 2/3 , a urine culture is collected 2/4 which yields > 100K Coagulase Negative Staphylococcus.

Is a UTI criteria met?

- A. Yes
- B. No
- C. I'm not sure

Correct answer is 'YES'

Applying the basics: Case 1

DATE	Infection Window Period
2/2 ED	Patient female 35 years of age IUC inserted
2/3 ADMIT	Fever 100.9° F IUC day #1
2/4	Fever 100.8° F IUC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml IUC day #3
2/6	
2/7	
2/8	
2/9	

Letsall Dogood, post-op HYST surgery patient, presents to the ED 2/2 with a several day history of weakness, poor p.o. intake and inability to void. A IUC is inserted in the ED, the patient is transferred on 2/3 to the inpatient surgery unit for further work-up. Fever noted 2/3 , a urine culture is collected 2/4 which yields > 100K Coagulase Negative Staphylococcus.

Is this a POA or an HAI UTI event?

- A. POA
- B. HAI UTI
- C. Neither

Correct answer is POA

Applying the basics: Case 1

DATE	Infection Window Period
2/2 ED	Patient female 35 years of age IUC inserted
2/3 ADMIT	Fever 100.9° F IUC day #1
2/4	Fever 100.8° F IUC day #2
2/5	urine culture: CNS 10 ⁵ CFU/ml IUC day #3
2/6	
2/7	
2/8	
2/9	

Letsall Dogood, post-op HYST surgery patient, presents to the ED 2/2 with a several day history of weakness, poor p.o. intake and inability to void. A IUC is inserted in the ED, the patient is transferred on 2/3 to the inpatient surgery unit for further work-up. Fever noted 2/3 , a urine culture is collected 2/4 which yields > 100K Coagulase Negative Staphylococcus.

Is this a CAUTI event?

- A. Yes
- B. No
- C. I'm not sure

Correct answer is NO

Rationale and Determination: Case 1

The **2/5 positive urine culture** sets the **IWP**: 2/2 - 2/8. There is fever noted 2/3 and 2/4 but the **2/3 fever** is the **first element** to occur within the IWP therefore is used to identify the **DOE for SUTI event**

- Is this a POA or HAI event?
 - POA given the DOE is HD 1
- Is this a CAUTI?
 - The IUC was not in place > 2 days in the inpatient location on the DOE - meets SUTI 1b: Non-Catheter-Associated UTI, still a UTI RIT and SBAP is set

Meets SUTI 1b: Non-Catheter-Associated UTI

DATE	SBAP	RIT	Infection Window Period
2/2 ED			IUC inserted
2/3 ADMIT DOE POA		1	Fever 100.9° F IUC day #1
2/4		2	Fever 100.8° F IUC day #2
2/5		3	urine culture: CNS 10 ⁵ CFU/ml IUC day #3
2/6		4	
2/7		5	
2/8		6	Blood culture 2/8
2/9		7	

Mr. Chris P. Bacon - Case 2

Date	Details
2/2	Presents to ED from NH, non-responsive, IUC in place
2/3	Admitted to Critical Care (CC) Temperature 100.2°F
2/4	Temperature 100.1°F IUC removed
2/5	Inability to Void. IUC placed and Urine culture collected - > 100,000 CFU/ml <i>E. coli</i> , Temperature 100.2°F.
2/6	Transfer to 3Main @ 8am, Temperature 100.8°F
2/10	IUC removed, Discharged to home

Case 2 Q & As

Q1 - Is a UTI event identified in this patient?

Yes

No

I'm not sure

Q2 – What type UTI event is identified ?

SUTI 1a

SUTI 1b

ABUTI

BONUS Q – Is this a CAUTI event?

Yes

No

Maybe

Rationale and Determination: Case 2

- The 2/5 +urine culture sets IWP: 2/2 – 2/8.
- The temps **2/3 and 2/4** are < **100.4 F**, cannot be used to meet UTI. The fever on 2/6 is eligible for SUTI criteria.
- **DOE** is 2/5 - culture is **first** element to occur for the **first** time within the IWP.
- IUC was in place > 2 consecutive days in an inpatient unit = SUTI 1a - **CAUTI**
- Event attributed to CC

Date	Details	Catheter
2/2	IUC placed	
2/3	ADMIT to CC temp 100.2°F	IUC day 1
2/4	Temp 100.1° F IUC removed	IUC day 2
2/5	New IUC placed URC = >100K E. Coli, Temp 100.2°F	IUC day 3
2/6	Transfer to 3 Main Temp 100.8°F ★	IUC day 4
2/7		IUC day 5
2/8		IUC day 6
2/9		IUC day 7
2/10	IUC removed Discharged home	IUC day 8

DOE (highlighted in green box)

Infection Window Period (indicated by a blue bracket spanning from 2/2 to 2/8)

Ms. Inita Ride: Case 3

Date	Details
5/25	Admits to hospital for observation w/SOB, difficulty breathing, poor urinary output. <i>COVID-19 (SARS CoV-2) test = positive.</i> IUC placed on admission.
5/25-28	Highest record temp 100.0° F, COVID-19 treatment begins
5/29	Increased lethargy. +BC with <i>Kl. Pneumo.</i> Urine culture collected, returns with $> 10^5$ CFU/ml <i>Klebsiella species</i>
5/30-6/1	No UTI s/s, respiratory symptoms resolve
6/8	IUC removed; <i>COVID-19 (SARS CoV-2) test = negative</i> Discharged to home

Is this a CAUTI? What UTI criteria is met? How is COVID-19 reported?

COVID - Yes or No

- **Required question for all HAI events occurring on or after January 1, 2022**
 - Answer COVID-19 as 'YES' if the patient is lab test confirmed COVID-19 prior to or on the date of event (HAI). Keep in mind that patients may undergo repeat testing post-treatment and may move from a 'confirmed' to 'negative' COVID-19 status.
 - Answer COVID-19 as 'NO' if the most recent lab test prior to or on the date of event (HAI) is negative.

We did not include in our definition a length of time for the patient to be considered 'confirmed'; however, we focus strictly on the current hospitalization and the response should be based on the lab test available within the current patient record.

It is our hope that the data received over time will enable us to identify the risk of the COVID-19 condition on HAIs.

Case 3 Q & As

Q1: What UTI criteria is met?

SUTI 1a

SUTI 1b

ABUTI

Q2: Is this a CAUTI?

Yes

No

I'm not sure

Q3: How is COVID-19 reported?

Yes

No

Leave the field blank

Ms. Inita Ride Rationale:

Date	Details
5/25	Patient admit for respiratory distress, IUC inserted; <i>COVID-19 (SARSCoV-2) test = positive IUC day 1</i>
5/25-28	No UTI s/s, COVID-19 treatment begins
5/29	Increased lethargy, +BC w/ <i>Kl. Pneumo</i> . Urine culture with $> 10^5$ CFU/ml <i>Klebsiella sp.</i> <i>ABUTI criteria met</i>
5/30-6/1	No UTI s/s , respiratory symptoms resolve
6/8	IUC removed; new <i>COVID-19 (SARSCoV-2) test-negative</i> Discharged to home

Determination: HAI ABUTI w/IUC in place DOE = CA-ABUTI w/ 2nd BSI
COVID -19 = yes [test prior to DOE is positive]

Additional Case Studies

Do you apply the NHSN surveillance definitions correctly? Would you like to test your skills?

Have you heard about the NHSN surveillance case studies?

Since 2010, NHSN has partnered with the American Journal of Infection Control (AJIC), a publication of the Association for Professionals in Infection Control and Epidemiology (APIC), to publish NHSN case studies along with vignettes to highlight various NHSN surveillance criteria and concepts. Whether you are new to infection surveillance, or are a seasoned Infection Preventionist, these case studies are for you! Give them a try and see how much you know or use them for inter-rater reliability testing within your department, or within your local Infection Prevention networking group. There are so many possibilities!

No subscription to AJIC or APIC membership is required, as they are “open access”.

Please use links below to access the current case studies:

- Key Concepts from Chapter 2 - [Health care-associated infections studies project: An American journal of control and national healthcare safety network data quality collaboration case study - Chapter 2 Identifying Healthcare-associated Infections \(HAI\) for NHSN Surveillance case study vignettes - ScienceDirect](#)
- Surgical Site Infection (SSI) Surveillance - [Health care-associated infections studies project: An American Journal of Infection Control and National Healthcare Safety Network Data Quality Collaboration Case Study – Chapter 9 Surgical site infection event \(SSI\) case study - ScienceDirect](#)
- Pneumonia and Ventilator- [Healthcare-associated infections studies project: An American Journal of Infection Control and National Healthcare Safety Network data quality collaboration case study - Pneumonia and Ventilator-Associated Events - ScienceDirect](#)
- Urinary Tract Infection Surveillance - [Health Care-associated infections studies project: An American Journal of Infection Control and National Healthcare Safety Network data quality collaboration case study - Urinary Tract Infection Surveillance - ScienceDirect](#)

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2022

[2022 Q3 \(September\) NHSN Newsletter](#) [PDF – 686 KB]

Inside this issue – Information on the new NHSN Publication Patient Safety and Transition of COVID-19 Hospital Data Reporting, Dialysis COVID-19 Reporting updates, Intro & Insight into DO resources of the Patient Safety Component Webinar now available, and more.

[2022 Q2 \(June\) NHSN Newsletter](#) [PDF – 770 KB]

Inside this issue – Patient Safety and Neonatal Component information, Healthcare Personnel Safety Module updates, Changes to Dialysis COVID-19 reporting, and second quarter General NHSN information and more.

[2022 Q1 \(March\) NHSN Newsletter](#) [PDF – 1 MB]

Inside this issue – Patient Safety updates and Training Announcement, Healthcare Personnel Safety Module information, Quarterly Data Checks for NHSN Dialysis Event, and first quarter General NHSN information and more.

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2017

**For any questions or concerns,
contact the NHSN Helpdesk at nhsn@cdc.gov**



For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333

Telephone, 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348

E-mail: cdcinfo@cdc.gov Web: www.cdc.gov

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