Using the National Healthcare Safety Network for CAUTI Surveillance

October 2, 2012

11/26/12 - Updated Slide Set

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Nothing to Disclose

Slide Update #s

- 24 – Updated to reflect all the new definitions
- 25 – HAI definition
- 26 – Examples of application of HAI definition
- 28 – Device-Associated HAI definition
- 29 – Date of Event definition
- 30 – Date of Onset
- 35,39, 40 to 46 – Device-Associated HAI definition
- 50 – Date of Event
- 53 – Patient Location
- 54 – Urinary Catheter Status
- 57, 58, 59, 60 - Secondary Blood Stream Infection
- 77 and 80 – Device-Associated HAI definition
- 82 and 83 – HAI definition
- 93, 113, and 124 – Device-Associated HAI definition

* There will be an “Updated Slide” note on each slide

Objectives

- Review requirements for catheter-associated urinary tract infection (CAUTI) reporting to CMS through NHSN
- Accurately apply the CDC/ NHSN definitions and criteria for CAUTI
- Recognize the method to identify denominators for CAUTI rate calculations
- Define key terms

Agenda

- CAUTI epidemiology
- CMS Operational Guidelines for Reporting CAUTI
- Surveillance tips
- NHSN CAUTI definition and new changes
- Denominator collection
- Resources for CAUTI surveillance
- Case studies

CAUTI Epidemiology

- Urinary tract infection is tied with pneumonia as the second most common type of healthcare-associated infection, second only to SSIs[1]
- UTIs account for more than 15% of infections reported by acute care hospitals
- Majority of UTIs associated with indwelling catheters
- Leading cause of secondary BSI with ~10% mortality
- Each year, more than 13,000 deaths are associated with UTIs [2]
- One-third of antimicrobial use inappropriately aimed at treatment of asymptomatic bacteriuria

[1]Magill SS, Hellinger W, et al. Prevalence of healthcare-asociated infections in acute care facilities. Infect Control Hosp Epidemiol. 2012;33(3):283-91.
[2]Klevens RM, Edward JR, et al. Estimating health care-associated infections and deaths in U.S. hospitals, 2002. Public Health Reports 2007;122:160-166.

CMS Reporting via NHSN – Current Requirements

HAI Event	Facility Type	Reporting Start Date
CLABSI	Acute Care Hospitals Adult, Pediatric, and Neonatal ICUs	January 2011
CAUTI	Acute Care Hospitals Adult and Pediatric ICUs	January 2012
SSI	Acute Care Hospitals Colon and Abdominal Hysterectomy	January 2012
I.V. antimicrobial start	Dialysis Facilities	January 2012
Positive blood culture	Dialysis Facilities	January 2012
Signs of vascular access infection	Dialysis Facilities	January 2012
CLABSI	Long Term Care Hospitals *	October 2012
CAUTI	Long Term Care Hospitals *	October 2012
CAUTI	Inpatient Rehabilitation Facilities	October 2012
MRSA Bacteremia	Acute Care Hospitals	January 2013
C. difficile LabID Event	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	Acute Care Hospitals	January 2013
HCW Influenza Vaccination	ASCs	October 2014
SSI *(TBD)*	Outpatient Surgery/ASCs	TBD
* Long Term Care Hospitals are called **Long Term Acute Care Hospitals** in NHSN		

NHSN and CMS Long Term Acute Care and Inpatient Rehabilitation Facilities

- *Long Term Care Hospitals (LTCHs) and Inpatient Rehabilitation facilities (IRF) are required to report CAUTI to CMS via CDC's NHSN beginning October 1, 2012 for all inpatient locations
- NHSN modified to include separate facility surveys specific to LTCH and IRFs

Long Term Care Hospitals are called Long Term **Acute** Care Hospitals in NHSN

NHSN and CMS Long Term Acute Care and Inpatient Rehabilitation Facilities

- Each LTAC and IRF that participate in CMS Hospital Quality Reporting Program (HQRP) with a separate CMS certification number (CCN) number must enroll in NHSN as a separate facility
- Map each of their inpatient locations to the appropriate CDC-defined location type
- All other operational guidelines described with Acute Care guidance

NHSN and CMS

- Must follow the NHSN CAUTI protocol exactly and report complete and accurate data in a timely manner
- CMS reportable data must be included in monthly reporting plans
- Does not preempt any state mandates for CAUTI reporting to NHSN
- Non-compliance results in denial of annual payment update

NHSN and CMS

- CAUTI reporting includes reporting of
  - Denominator data (patient days and indwelling urinary device days)
  - Symptomatic CAUTIs (SUTIs)
  - Asymptomatic bacteremic UTIs (ABUTIs) that are catheter associated

NHSN and CMS

- Data must be reported to NHSN by means of manual data entry into NHSN web-based application or via file imports using the Clinical Document Architecture (CDA) file format
- Data must be submitted monthly (within 30 days of the end of the month in which it is collected) so it has the greatest impact on infection prevention activities
- For data to be shared with CMS, each quarter's data must be entered into NHSN no later than 4 ½ months after the end of the quarter
  - Q1 (January-March) data must be entered into NHSN by August 15; Q2 by November 15; Q 3 by February 15, and Q4 by May 15 (data is frozen at 00:00 on the 16th)

NHSN and CMS

- CDC will provide the following hospital specific data:
  - number of observed CAUTIs
  - number of expected CAUTIs calculated using NHSN database
  - number of indwelling urinary catheter days
  - hospital-specific CAUTI standardized infection ratio (SIR)
  - 95% CI

http://www.cdc.gov/nhsn/PDFs/FINAL-ACH-CAUTI-Guidance.pdf

NHSN and CMS

- Hospitals can view their own HAI summary statistics at a secure CMS website where the Annual Payment Update Dashboard is posted

http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetBasic&cid=1228694346716

CAUTI Prevention and Control begins with surveillance. Gotta have data!!!

Customize Chart Review Process for You/Your Facility

Questions to ask/explore:

- What computer databases does the facility have? (lab, pharmacy, ADT, etc.)
- Is the medical record paper, on-line or both? What is available where?
- Where do I obtain the information needed to assess the criteria?
- Do I have access to the information I need? If not, how do I get access? Develop a collaborative relationship with someone in IT who knows the data bases.

Chart Review Process

- Organize: What am I going to look at first and where is it in the record?

1. Urine culture positive (lab data base)

2. Indwelling urinary catheter in place within criteria? (Nursing documentation? Graphic sheet?)

Sample Work Sheet to Help With Chart Abstraction

Stay focused; don't start wandering!

NHSN National Healthcare Safety Network

OMB No. 0920-0666
Exp. Date: 01-31-2015
www.cdc.gov/nhsn

Urinary Tract infection (UTI)

Page 1 of 4

*required for saving **required for completion	
Facility ID:	Event #:
*Patient ID:	Social Security #:
Secondary ID:	Medicare #:
Patient Name, Last:	First: Middle:
*Gender: F M Other	*Date of Birth:
Ethnicity (Specify):	Race (Specify):
*Event Type: UTI	*Date of Event:
Post-procedure UTI: Yes No	Date of Procedure:
NHSN Procedure Code:	ICD-9-CM Procedure Code:
*MDRO Infection Surveillance: ☐ Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module ☐ No, this infection's pathogen & location are **not** in-plan for Infection Surveillance in the MDRO/CDI Module	
*Date Admitted to Facility:	*Location:

Risk Factors

*Urinary Catheter status at time of specimen collection or onset of signs or symptoms:

☐ In place ☐ Removed within 2 days prior ☐ Not in place nor within 2 days prior

Location of Device Insertion: ____________ Date of Device Insertion: ___/___/_____

If NICU, birth weight (gms): ________

Event Details

*Specific Event: ☐ Symptomatic UTI (SUTI) ☐ Asymptomatic Bacteremic UTI (ABUTI) ☐ Other UTI (OUTI)

*Specify Criteria Used: (check all that apply)

Signs & Symptoms: Any Patient	Signs & Symptoms: ≤ 1 year old	Laboratory & Diagnostic Testing
☐ Fever	☐ Fever	☐ 1 positive culture with ≥ 10^5 CFU/ml with no more than 2 species of microorganisms
☐ Urgency	☐ Hypothermia	
☐ Frequency	☐ Apnea	☐ Positive dipstick for leukocyte esterase or nitrite
☐ Dysuria	☐ Bradycardia	☐ Pyuria
☐ Suprapubic tenderness	☐ Dysuria	☐ Microorganisms seen on Gram stain of unspun urine
☐ Costovertebral angle pain or tenderness	☐ Lethargy	☐ 1 positive culture with ≥ 10^3 CFU/ml and < 10^5 CFU/ml with no more than 2 species of microorganisms
☐ Abscess	☐ Vomiting	☐ Positive culture
☐ Pain or tenderness		☐ Positive blood culture
☐ Purulent drainage or material		☐ Imaging test evidence of infection
☐ Other evidence of infection found on direct exam, during invasive procedure, or by diagnostic tests‡		‡ per specific site criteria

*Secondary Bloodstream Infection: Yes No	
**Died: Yes No	UTI Contributed to Death: Yes No
Discharge Date:	*Pathogens Identified: Yes No *If Yes, specify on pages 2-4.

Assurance of Confidentiality: ... collected with a guarantee that it will be held in strict confidence, will be used only for the purposes stated, and will not otherwise be disclosed or released without the consent of the individual, or the institution in accordance with Sections 304, 306 and 308(d) of the Public Health Service Act (42 USC 242b, 242k, and 242m(d)).

Public reporting burden of this collection of information is estimated to average 32 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. An agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden to CDC, Reports Clearance Officer, 1600 Clifton Rd., MS D-74, Atlanta, GA 30333, ATTN: PRA (0920-0666).

CDC 57.114 (Front) Rev 7, v7.1

Your facility may create its own data collection form and collect additional data so long as the required NHSN data are captured.

Consistency is a Must!

- Standardized chart review helps with learning and time efficiency
- Maintain focus on criteria. Do not deviate from the process you have established
- Surveillance criteria is designed to look at a population at risk
- Identify patients meeting the criteria
- Consistently apply the criteria

Investigating an Infection

Ask yourself questions in this order:
1. Is it an HAI? If not, stop.
2. If an HAI, which site-specific criterion met?
3. Is this a device-associated HAI?
4. Attributable to what location/facility?

Surveillance definitions vs. Clinical Diagnosis

	Surveillance	**Clinical**
Focus	Population based	Patient based
Clinical Judgment	Minimally used	Essential
Purposes	• Identify trends • Establish baselines • Reporting purposes	• Diagnose • Inform treatment decisions

What If There is Clinical Disagreement?

- Surveillance vs. clinical definitions
  - Different purposes
  - May not agree
  - Report based on NSHN surveillance definitions
  - Comments section useful to note important factors
- Can submit questions to nhsn@cdc.gov

Key Terms

All CAUTIs Must be HAI

Key Terms

Updated Slide

Healthcare-associated Infection (HAI)	An infection is considered an HAI if all elements of a CDC/NHSN site-specific infection criterion were first present together on or after the 3rd hospital day (day of hospital admission is day 1. For an HAI, an element of the infection criterion may be present during the first 2 hospital days as long as it is also present on or after day 3. All elements used to meet the infection criterion must occur within a timeframe that does not exceed a gap of 1 calendar day between elements.
Device-associated HAI	An infection meeting the HAI definition is considered a device-associated HAI if the device was in place for >2 calendar days when all elements of a CDC/NHSN site-specific infection criterion were first present together. HAIs occurring on the day of device discontinuation or the following calendar day are considered device-associated HAIs if the device had been in place already for >2 calendar days.
Date of Event	For an HAI (excludes VAE), the date of event is the date when the last element used to meet the CDC/NHSN site-specific infection criterion occurred. Synonyms: infection date, date of infection. (See also Date of Onset for VAE reporting)
Transfer Rule	If all elements of an HAI are present within 2 calendar days of transfer from one inpatient location to another in the same facility (i.e., on the day of transfer or the next day), the HAI is attributed to the transferring location. Likewise, if all elements of an HAI are present within 2 calendar days of transfer from one inpatient facility to another, the HAI is attributed to the transferring facility. Receiving facilities should share information about such HAIs with the transferring facility to enable reporting.
Date of Infection Onset	For a VAE, the date of onset is the date of worsening oxygenation. This is further defined as the first calendar day in which the daily minimum PEEP or FiO_2 increased above the thresholds outlined in the VAE algorithm. Beginning in 2013, this term will be used for VAE reporting only and this definition will no longer be a synonym for Date of Event.

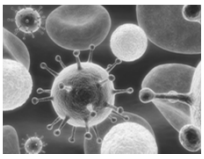
Key Term:

Healthcare-associated Infection (HAI)

An infection is considered an HAI if all elements of a CDC/NHSN site-specific infection criterion were first present together on or after the 3rd hospital day (day of hospital admission is day1).

For an HAI, an element of the infection criterion may be present during the first 2 hospital days as long as it is also present on or after day 3.

All elements used to meet the infection criterion must occur within a timeframe that does not exceed a gap of 1 calendar day between elements.



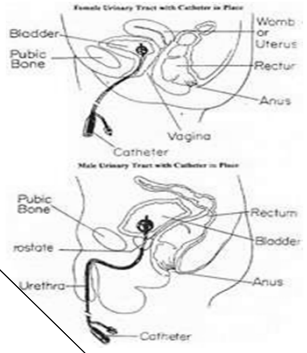
Examples of Application of HAI Definition

Day 1	Day 2	Day 3	Day 4	Day 5	Infection is:
Direct admit to ICU	ICU	ICU All elements of infection criterion first present together			HAI attributable to ICU All elements first present together on day 3.
Admit from ED to ICU	ICU An element of infection criterion present (e.g., fever)	ICU All elements of infection criterion (e.g., fever)	ICU Final element of infection criterion present (e.g., positive culture)		HAI attributable to ICU All elements were present on day 3 or later even though, one of the elements was present on day 2.
Admit to ICU	ICU	ICU An element of infection criterion present (e.g., fever)	ICU No elements of infection criterion present	ICU Final element of infection criterion present (e.g., positive culture)	HAI attributable to ICU All elements present on or after day 3 with no more than a 1 day gap between elements.

Key Term: Indwelling Catheter

A drainage tube that is inserted into the urinary bladder <u>through the urethra</u>, 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).

- Also called a Foley catheter
- Does not include (among others):
  - Straight in and out catheters
  - Suprapubic catheters
  - Nephrostomy tubes



Also includes catheters that are changed from bed bags to leg bags and vice versa.

Key Term: CAUTI Device-associated Infection

Updated Slide

An UTI meeting the HAI definition is considered a catheter associated HAI if the device was in place for >2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of the UTI criterion were first present together. UTIs occurring on the day of device discontinuation or the following calendar day are considered device-associated HAIs if the device had been in place already for >2 calendar days.

Day 1	Day 2	Day 3	CAUTI ?
Admit;5 West Foley placed	5 West Foley in place	5W Foley in place All elements of infection criterion first present together	Yes
Admit; 5 West Foley placed	5 West Foley in place All elements of infection criterion first present together	5West Foley in place	No

Key Term: Date of Event

For an HAI, the date of event is the date when the <u>last</u> element used to meet the UTI infection criterion occurred. Synonyms: infection date, date of infection.

08/01	08/05	08/06	Date of Event
Admit to ICU Foley inserted	ICU Foley in place Temp – 38.8°C	Urine specimen sent E. coli ≥10^5 CFU	08/06

Key Term: Date of Onset

Beginning in 2013, the term "Date of Onset" will be used for VAE reporting only and this definition will no longer be a synonym for Date of Event.

For CAUTI reporting use Date of Event and not date of onset for reporting purposes.

08/01	08/05	08/06	Date of Event
Admit to ICU Foley inserted	ICU Foley in place Temp 38.8°C	Urine specimen sent E. coli ≥10^5 CFU	08/06

Location of Attribution

Updated Slide

The location where the patient was assigned on the date of the UTI event, which is further defined as the date when the last element used to meet the UTI infection criterion occurred.

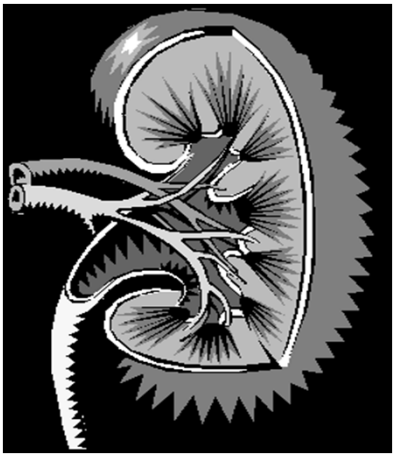
**Transfer Rule: If all elements of a CAUTI are present within 2 calendar days of transfer from one inpatient location/facility to another (i.e. it occurs of the day of transfer or the next day), the CAUTI is attributed to the transferring location/facility*

Day 1	Day 2	Day 3	CAUTI to:
ICU ► 3W	3W All elements of CAUTI criterion first present together	3W	ICU
ICU ► 3W	3W	3W All elements of CAUTI criterion first present together	3W

Transfer Rule: Example

Patient is transferred from SICU to 5 West with a Foley on 08/10/12. On 08/11/12 patient has a fever of 38.2°C a urine culture is collected. Urine has ≥10^5 CFU/ml of *E. coli*. This CAUTI is attributed to the SICU.

CAUTI Criteria and Application



Urinary Tract Infection Definitions

There are two specific types of UTI that can be applied for identifying a CAUTI

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

Both types must be reported to comply with CMS reporting requirements.

Key Question for CAUTI Surveillance
Is this catheter associated?

Updated Slide

Catheter-associated UTI (CAUTI): A UTI where an indwelling urinary catheter was in place for >2 calendar days when all elements of the UTI criterion were first present together

and

An indwelling urinary catheter must be in place on the date of the event or the day before. Infections occurring on Day 1 or 2 following device discontinuation, with day of discontinuation = Day 1, are device-associated infections.

Admit	08/07	08/08	08/09	08/10	CAUTI ?
08/01	Foley placed	Foley in place All elements of infection criterion first present together	Foley in place	Foley in place	Not a CAUTI, but may be an HAI UTI
08/01	Foley placed	Foley in place An element of infection criterion present	Foley in place All elements of infection criterion first present together	Foley in place	Yes, infection criterion fully met on day 3
08/01	Foley placed	Foley removed – only in place part of day	No Foley	All elements of infection criterion first present together	Not a CAUTI, but may be an HAI UTI

SUTI Overview
Symptomatic Urinary Tract Infection

Must have symptoms AND **2** different criterion groups:

- **Criterion 1a** : Urine culture ≥ 10^5 CFU/ml, no more than 2 species
- **Criterion 2a**: Urine culture ≥ 10^3 and $<10^5$ CFU/ml, no more than 2 species, AND positive urinalysis (U/A)

Only Criteria 1a and 2a of SUTI apply to catheter-associated UTIs in adults.

Criteria 1b and 2b of SUTI apply to UTIs that are not catheter-associated.

SUTI Overview
Symptomatic Urinary Tract Infection

Criteria 3 & 4: Patients **≤ 1** year of age; have age-specific signs and symptoms AND

- **Criterion 3:** Urine culture ≥ 10^5 CFU/ml no more than 2 species
- **Criterion 4:** Urine culture ≥10^3 and <10^5 CFU/ml no more than 2 species AND positive U/A

Criteria 3 and 4 are infant-specific equivalents of 1 and 2.

No more than 2 species of microorganisms

***Mixed flora and P. aeruginosa**: Laboratory specimens reported as mixed flora represent at least 2 species of organisms. Therefore any additional organism recovered from the same culture would be > 2 species of organisms.*

***Ps. aeruginosa and Ps. stutzeri** = 2 species*

***MSSA and MRSA** = 1 species (report most resistant)*

Symptomatic UTI
SUTI 1a

Updated Slide

1a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms. ----------OR---------- Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms. * With no other recognized cause

Criteria Rationale
SUTI 1a
Catheter in place

Updated Slide

Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of this criterion were first present together.

Urgency, frequency and dysuria are not reliable indicators of UTI in this population therefore NOT included in criteria.

Criteria Rationale
SUTI 1a

Catheter removed

UTIs occurring on the day of device discontinuation or the following calendar day are considered device-associated UTIs if the device had been in place already for >2 calendar days .

For this criterion urgency, frequency and dysuria are symptoms.

Day 1	Day 2	Day 3	Day 4	CAUTI?
Foley placed	Foley in place	Foley in place for part of day only	All elements of infection criterion first present together	Yes
Foley placed	Foley removed	No Foley	All elements of infection criterion first present together	No

Symptomatic UTI
SUTI 2a

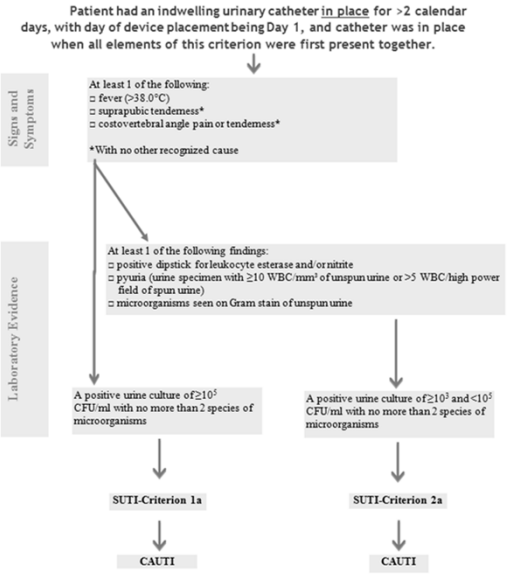
2a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. ----------**OR**---------- Patient had indwelling urinary catheter > 2 calendar days and had it removed the day of or the day before all elements of the criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm^3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. * With no other recognized cause

Flow Diagram SUTI 1a & 2a

Updated Slide

Foley in place

Figure 1: Identification and Categorization of SUTI with Indwelling Catheter (see comments section page 7-7 thru 7-8 for important details)

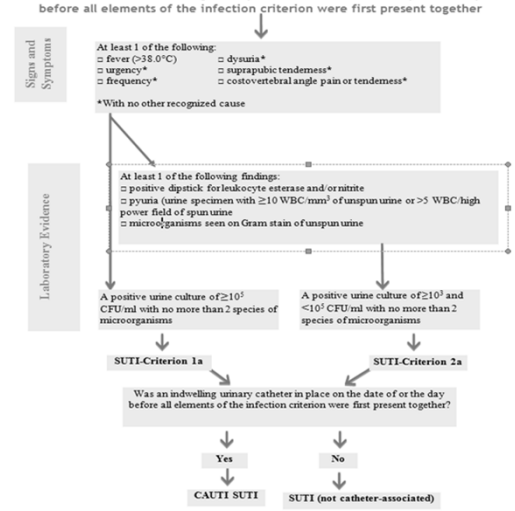


Flow Diagram SUTI 1a & 2a

Updated Slide

Foley removed

Figure 2: Identification and Categorization of SUTI When Indwelling Catheter has been removed (see comments section page 7-7 thru 7-8 for important details)



Updated Slide

Symptomatic UTI Criteria 3 & 4 (***≤1 year old***)

3	Patient **≤1 year of age** with** or without an indwelling urinary catheter has at least 1 of the following signs or symptoms: fever (>38°C core), hypothermia (<36°C core), apnea*, bradycardia*, dysuria*, lethargy*, or vomiting* ***and*** a positive **urine culture of ≥10^5 CFU/ml** with no more than 2 species of microorganisms *With no other recognized cause
4	Patient **≤1 year of age** with** or without an indwelling urinary catheter has at least 1 of the following signs or symptoms: fever (>38°C core), hypothermia (<36°C core), apnea*, bradycardia*, dysuria*, lethargy*, or vomiting* ***and*** At least one of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 WBC/mm^3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram's stain of unspun urine ***and*** a positive **urine culture of between ≥10^3 and <10^5 CFU/ml** with no more than two species of microorganisms *With no other recognized cause

*·**The indwelling urinary catheter was in place for > 2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of this criterion were first present together.*

Asymptomatic Bacteremic UTI (ABUTI)

Updated Slide

Patient *with* or without an indwelling urinary catheter* has **no signs or symptoms** (i.e., for any age patient, no fever (>38°C), urgency, frequency, dysuria, suprapubic tenderness, or costovertebral angle pain or tenderness, **OR** for a patient ≤1 year of age, no fever (>38°C core), hypothermia (<36°C core), apnea, bradycardia, dysuria, lethargy, or vomiting)
and
a **positive urine culture of ≥10^5 CFU/ml** with no more than 2 species of **uropathogen microorganisms****
(see comments section below).
and
a **positive blood culture** with at least 1 matching uropathogen microorganism to the urine culture, or at least 2 matching blood cultures drawn on separate occasions if the matching pathogen is a common skin commensal.

*****Patient had an indwelling urinary catheter was in place for > 2 calendar days, with day of device placement being Day 1, and catheter was in place when all elements of this criterion were first present together.

****Uropathogen microorganisms** are: Gram-negative bacilli, *Staphylococcus* spp., yeasts, beta-hemolytic *Streptococcus* spp., *Enterococcus* spp., *G. vaginalis*, *Aerococcus urinae,* and *Corynebacterium* (urease positive)[+].

[+]*Report Corynebacterium* (urease positive) as either *Corynebacterium species* unspecified or as *C. urealyticum* (CORUR) if so speciated.

(See complete list of uropathogen microorganisms at http://www.cdc.gov/nhsn/library.html.)

Note: All ABUTIs will have a secondary bloodstream infection

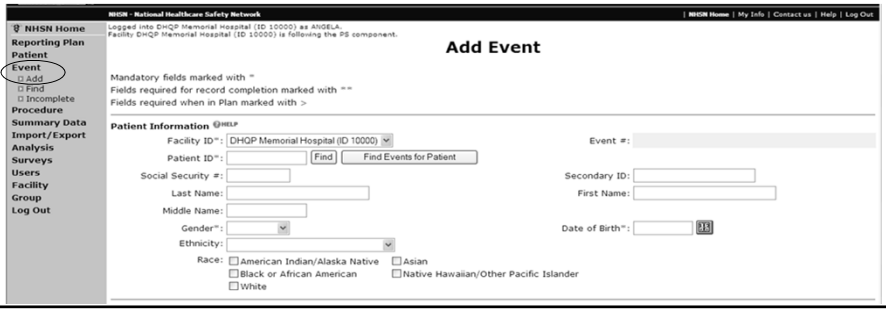
ABUTI

- **Note: Only events with catheters in place for > 2 calendar days prior to urine collection are <u>catheter-associated</u>.**

Entering CAUTI Events into NHSN (Numerator)

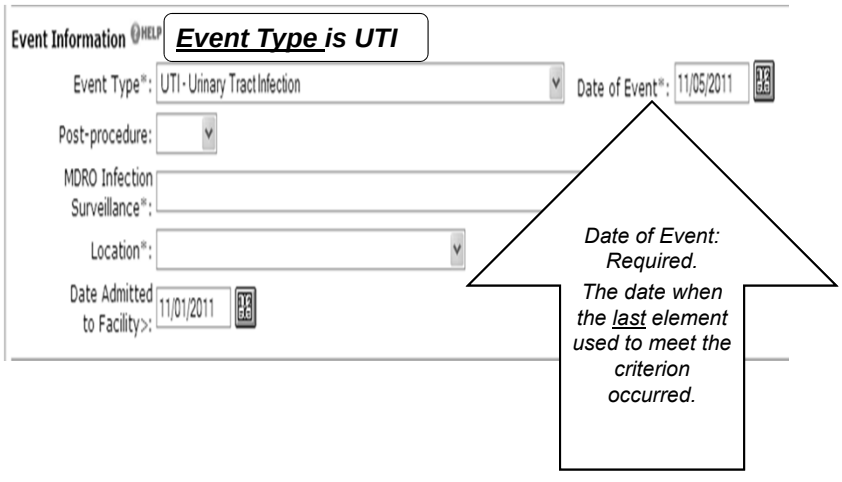
Patient Information

- The top section of UTI data collection form is used to collect patient demographics. Required fields have an asterisk (*).
- There are 4 *required* fields:
  - Facility ID
  - Patient ID
  - Gender
  - Date of Birth



Event Information CAUTI

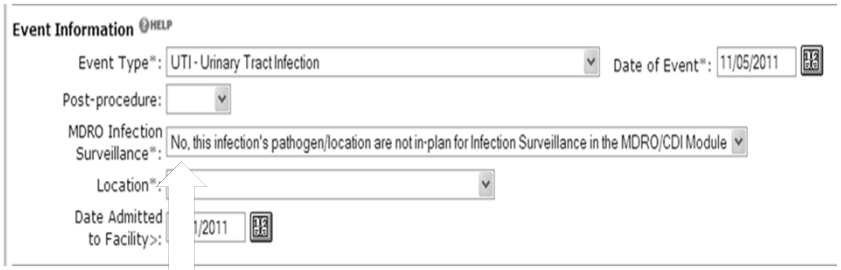
Updated Slide



Event Information
CAUTI

Post-procedure UTI: Optional field. Mark "YES" if this event occurred after an <u>NHSN-defined</u> procedure but before discharge from the facility.

Event Information
CAUTI

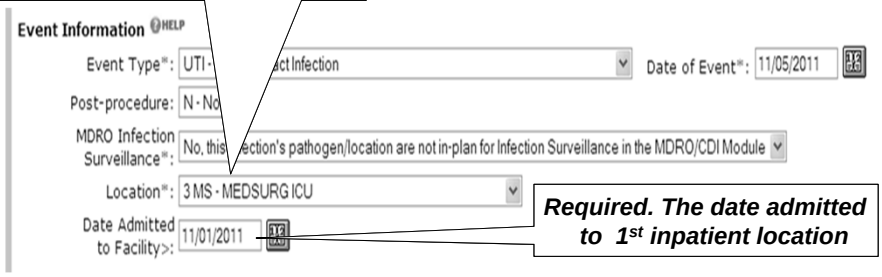


MDRO Infection: Enter "YES" only if the facility's monthly reporting plan includes Infection Surveillance (NOT Lab ID Event) (MDRO/CDI Module) for both the involved pathogen and the location specified.

Event Information
CAUTI

Updated Slide

Required. Enter patient location at the date when the last element of the infection criterion occurred.



Required. The date admitted to 1st inpatient location

If the infection criterion is met within 2 calendar days of transfer (i.e., day of transfer or next day) from a location, indicate the transferring location, not the current location of the patient.

Risk Factors
CAUTI

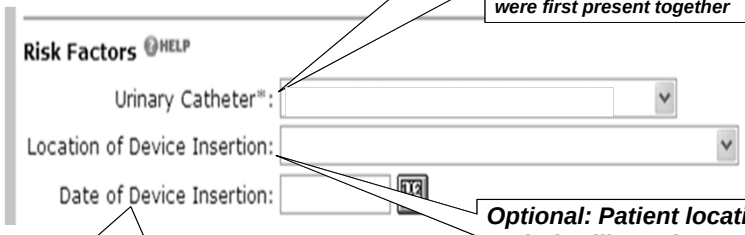
Updated Slide

Required Field: Three options:

INPLACE- If catheter was in place when all elements of the criteria were first present together

REMOVE – If catheter was removed day of or day before all elements of criteria were first present together

NEITHER – If no catheter was in place at the tome of or the day before all elements of criteria were first present together

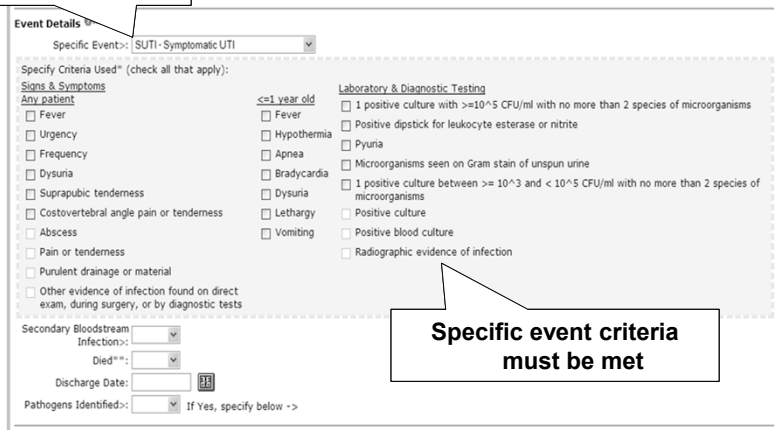


Optional: Patient location where indwelling urinary catheter inserted.

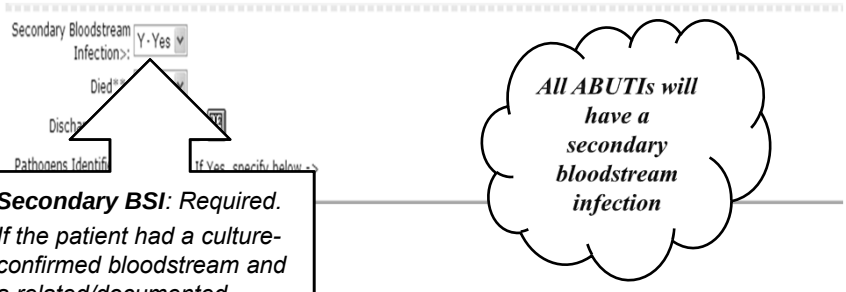
Optional: Date indwelling urinary catheter inserted.

Event Details: Specific Event

Available selections based on event type



Event Details: Secondary BSI



***Secondary BSI**: Required.*
*If the patient had a culture-confirmed bloodstream and a related/documented healthcare-associated UTI, select **Yes**.*

Secondary BSI

- **All criteria for a SUTI require a urine culture, therefore at least one urine organism must match an organism in the blood culture (antibiograms of the isolates do not have to match) for the BSI to be considered secondary to the SUTI.**
- **If the organism is less definitively identified in one culture than the other, the identifications must be complementary.**

Secondary BSI Examples

- Patient meets HAI criteria for a SUTI (suprapubic tenderness and $>10^5$ CFU/ml of *E. coli*) and blood culture from the same date grows *E. coli*. This is an HAI SUTI with a secondary BSI and the reported organism is *E. coli*.
- Patient meets HAI criteria for a SUTI (suprapubic tenderness and $>10^5$ CFU/ml of *E. coli*) and blood culture from the same date grows *E. coli* and *P. aeruginosa*. This is an HAI SUTI with a secondary BSI and the reported organisms are *E. coli* and *P. aeruginosa*, since *P. aeruginosa* is a logical pathogen for this site of infection.

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

Secondary BSI Examples

- Example: Patient meets HAI criteria for a SUTI (suprapubic tenderness and >10^5 CFU/ml of *E. coli*) and blood culture from the same date grows *E. coli* and *S. epidermidis*. This is an HAI SUTI with a secondary BSI and the reported organism is only *E. coli*, since the *S. epidermidis* by itself does not meet BSI criteria.
- Example: A blood culture reported as *Candida albicans* and a urine culture reported as yeast are considered to have matching organisms.
- NOTE: An ABUTI will always have a secondary BSI.

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

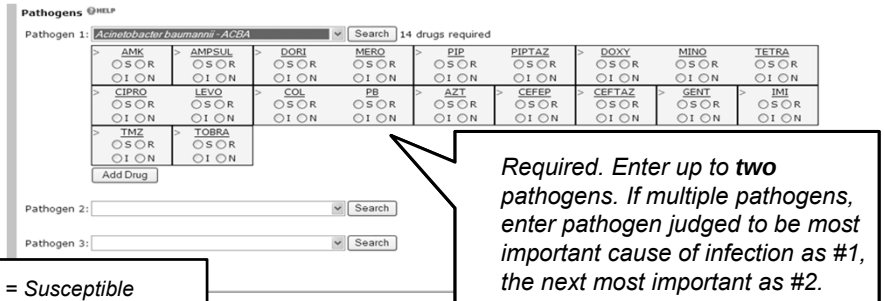
Secondary BSI Guide NHSN Manual Appendix 1, Chapter 4

- **Besides the examples just given, there are other scenarios in this guide that you will find helpful**
- **Definition of matching organism**
- **Additional notes and reporting instructions**

http://www.cdc.gov/nhsn/PDFs/pscManual/4PSC_CLABScurrent.pdf, App 1

Event Details

Event Details
Pathogens Identified



S = Susceptible
I = Intermediate
R = Resistant
NS = Non-susceptible
S-DD = Susceptible-dose dependent
N = Not tested

- **Note: A UTI can have no more than 2 pathogens to meet the definition.**

Collecting Summary Denominator Data

Reminder

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

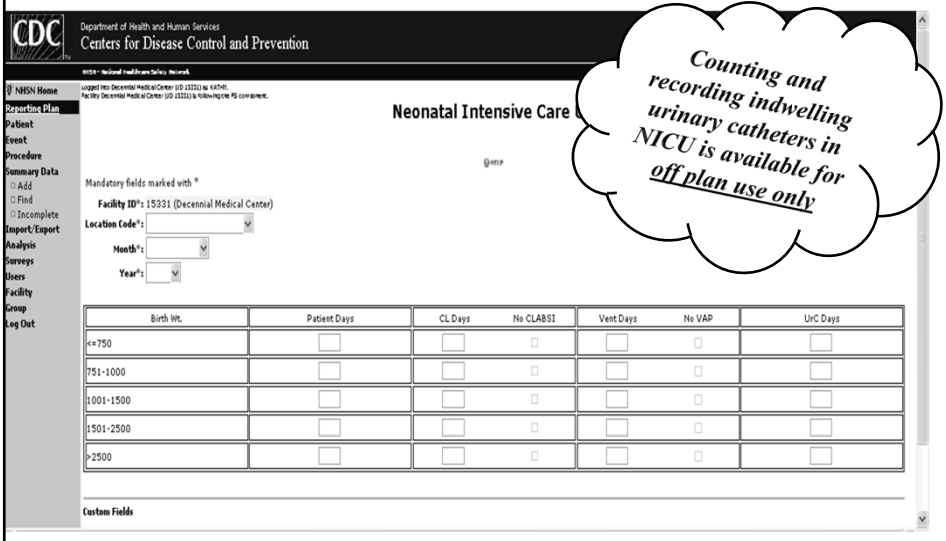
- Number of patients on the unit
- Number of patients with an indwelling urinary catheter

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

Facility ID: 10000 *Location Code: ORTHO *Month: July *Year: 07

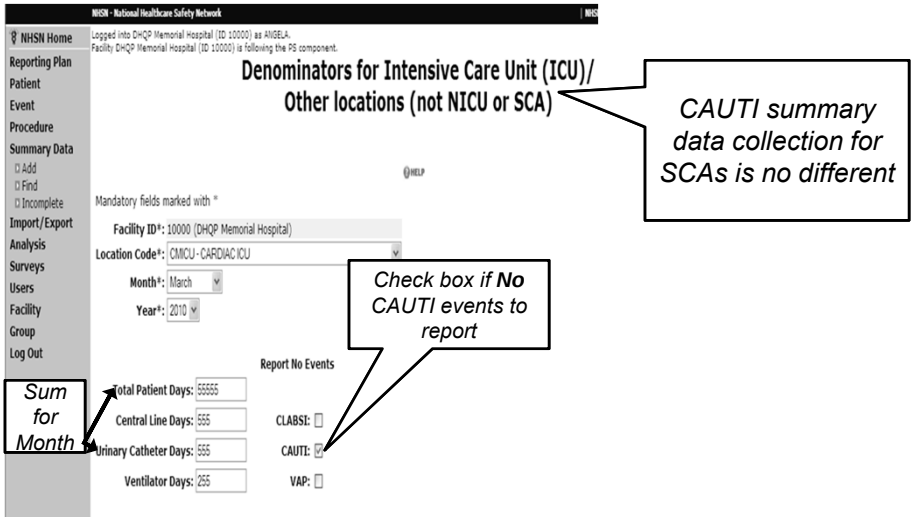
Date	*Number of patients	**Number of patients with 1 or more central lines	**Number of patients with a urinary catheter	**Num…
1	23		8	
2	18		5	
3	21		6	
4				

Collecting NICU Summary Data



Counting and recording indwelling urinary catheters in NICU is available for off plan use only

Summary Data Denominator



Alert Screen Report No Events

Incomplete/Missing List

Incomplete Events | Missing Events | Incomplete Summary Data | Missing Summary Data | Incomplete Procedures | Missing Procedures | Missing Procedure-associated Events

In-plan denominators reported for these locations with no associated events

Print this report
Display All

First | Previous | Next | Last

Displaying 1 - 10 of 77

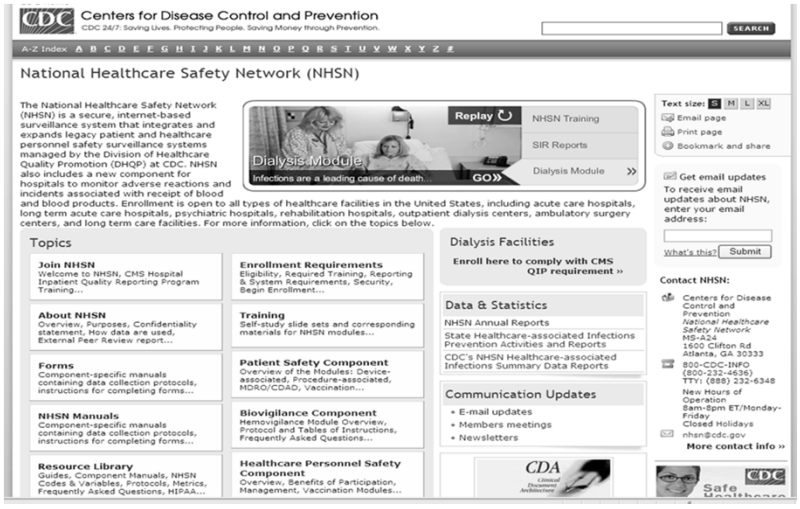
Location	CDC Location	Month/Year	Alert Type	Event Type/Pathogen	Summary Data Form Type	Report No Events
FACWIDEIN		01/2012	Summary but no events	LabID (All) - MRSA	MDRO	☐
FACWIDEIN		01/2012	Summary but no events	LabID (All) - VRE	MDRO	☐
INCARDCC	IN:ACUTE:CC:C	08/2011	Summary but no events	IS - MRSA	MDRO	☐
FACWIDEIN		07/2011	Summary but no events	LabID (All) - MRSA	MDRO	☐
INGI	IN:ACUTE:WARD:GI	07/2011	Summary but no events	IS - MRSA	MDRO	☐
INSCAHONC	IN:ACUTE:SCA:HONC	07/2011	Summary but no events	TCLAB	DA-SCA	☐
INSCAHONC	IN:ACUTE:SCA:HONC	07/2011	Summary but no events	PCLAB	DA-SCA	☐

Electronic Collection of Summary Data

Electronic capture of summary data is acceptable:

- *Following validation of the electronic method against the manual method*
  - *3 months concurrent data collection with both methods*
  - *Difference between methods must be within +/- 5% of each other*

Resources for NHSN



Resources for Surveillance

- NHSN Patient Safety Component Manual, January 2013
  - Ch 3: Monthly Reporting Plan
  - Ch 7: CAUTI Protocol

  (includes forms and their instructions)
  - Ch 16: Key Terms

http://www.cdc.gov/nhsn/TOC_PSCManual.html

Resources for Surveillance

- NHSN Forms
  - 57.106: Monthly Reporting Plan
  - 57.114: Urinary Tract Infection
  - 57.118 Denominators for Intensive Care Unit (ICU)/Other locations (not NICU or SCA)

Available Resources and Training

- Resource
  - CDC/HICPAC *Guideline for Prevention of Catheter-associated Urinary Tract Infections*[1]
- Training
  - Device-Associated Module
  - Pre-recorded Webinars
  - Lectoras

  http://www.cdc.gov/nhsn/training/

[1]*Gould CV, Umscheid CA, Agarwal RK, Kuntz G, Pegues DA. Guideline for prevention of catheter-associated urinary tract infections 2009. Infect Control Hosp Epidemiol. 2010;31(4):319-26.*

Available Training

- NHSN Enrollment & Facility Set-up
- Overview of the Patient Safety Component, Device-associated module
- Data Entry, Surveillance, Analysis, Import, and Customization
- Introduction to the Device-associated Module (Training Course with quiz)
- Catheter-associated Urinary Tract Infection (CAUTI) (Training Course with quiz)

http://www.cdc.gov/nhsn/training/

Case Studies

Case Studies

- Purpose
  - Training on use of definitions based on the January 2013 NHSN Patient Safety Manual
  - Learn to accurately apply definitions
  - Surveillance ≠ Clinical
  - Optimize consistency in the application of the definitions
  - Improved data quality

Case 1

- Day 1: 50 year old patient with end stage pancreatic cancer with liver & bone mets admitted to hospital with advance directive for comfort care and antibiotics only; Foley catheter, peripheral IV and nasal cannula inserted.
- Day 4: Foley remains in place; patient is febrile to 38.0°C and has suprapubic tenderness; IV ampicillin started after urine obtained for culture.
- Day 5: difficulty breathing; CXR=infiltrate L lung base.
- Day 6: urine culture results = 10^5 CFU/ml *E coli.*
- Day 7: CBC shows WBC 3400/mm^3 ; patchy infiltrates in both lung bases; continued episodes of dyspnea; rales noted in LLL.
- Day 11: Patient expired.

Does this patient have a UTI? If, so what type?

1. Yes. SUTI Criterion 1a.
2. Yes, SUTI Criterion 2a.
3. Yes, ABUTI.
4. No UTI.

Case 1 - Rationale

1a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms (see Comments section below). ----------OR---------- Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms *With no other recognized cause

– *(fever 38°C not high enough for criteria)*

Case 2

- 08/02/12 - 66 y.o. to OR for exploratory lap; Foley inserted in OR. Transferred to ICU post-op.
- 08/03/12 – patient stable, Foley in place.
- 08/04/12 patient noted to be febrile (38.9°C) and complained of diffuse abdominal pain. WBC increased to 19,000. He had cloudy, foul-smelling urine and urinalysis showed 2+ protein, + nitrite, 2+ leukocyte esterase, WBC – 15/mm^3 of unspun urine and 3+ bacteria. Culture was 10,000 CFU/ml *E. coli*. The abdominal pain seemed localized to surgical area.

Is this a UTI? If so, what type?

1. No UTI
2. Yes, SUTI Criterion 1b.
3. Yes, SUTI Criterion 2a.
4. Yes, ABUTI.

Case 2 - Rationale

Updated Slide

2a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. ----------**OR**---------- Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm^3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. *With no other recognized cause

Case 3

- Day 1: 58 year old patient is admitted to the ED with GI bleed. Foley inserted.
- Day 2: Patient spikes temp of 38.6°C Indwelling catheter remains in place. Urine specimen is sent.
- Day 3: Culture results 100,000 CFU/ml *Pseudomonas aeruginosa.*

Is this an HAI? If so, what type?

1. Yes, UTI but not a CAUTI because catheter had not been in for 2 calendar days.
2. No, it does not meet definition for HAI
3. Yes, SUTI Criterion 1a

Case 3 - Rationale

- An infection is considered HAI if all elements of the UTI infection criterion were first present together on or after the 3rd hospital day (day of hospital admission is day 1). For an HAI, an element of the infection criterion may be present during the first 2 hospital days as long as it is also present on or after day 3.
- All elements of this infection criterion were present on day 2 of hospital stay so this is not an HAI.

Chapter 17 contains the HAI site specific criteria

Case 4

- Day 1: 84 year old patient is admitted to LTAC with diabetic foot ulcer, indwelling catheter in place.
- Day 8: Indwelling catheter remains in place and no signs or symptoms of infection.
- Day 9: Patient becomes hypotensive, and CBC shows WBC of 15,000. Temp 38.0°C. Foot ulcer draining moderate amount of purulent drainage. Patient is pan-cultured. Blood culture and urine both grow *Streptococcus pyogenes* – urine $>10^5$ CFU/ml. Foot culture positive for *Pseudomonas aeruginosa*.

Is this a UTI? If so, what type?

1. No, because the blood seeded the urine and therefore there is no UTI.
2. Yes, ABUTI
3. Yes, SUTI Criterion 1a with secondary BSI

Case 4 - Rationale

ABUTI:

- *No signs or symptoms (fever not > 38°C)*
- *Positive blood culture with at least 1 uropathogen matching to the urine culture*

What if the organism in both cultures had been Micrococcus? Is it a UTI?

1. Yes. This is an ABUTI.
2. No, This is not an ABUTI.

Case 4 - Rationale

No. Micrococcus is not a uropathogen. Therefore this is not an ABUTI.

Case 4 - Rationale

UROPATHOGENS:

- *Gram-negative bacilli,*
- *Staphylococcus spp.,*
- *Yeasts,*
- *Beta-hemolytic Streptococcus spp., Enterococcus spp.,*
- *G. vaginalis,*
- *Aerococcus urinae,*
- *Corynebacterium (urease positive)*

Uropathogen list found in NHSN manual in the ABUTI criterion section

Case 5

- 08/05/12 - 76 year-old woman is admitted from LTAC at 8 a.m. for surgical debridement of sacral decubitus. Medical history notable for severe rheumatoid arthritis and CHF. Routine admission U/A performed, positive for leukocyte esterase, and 3 WBC by HPF of spun urine. Patient afebrile, denies urinary urgency, frequency or pain. No suprapubic or CVA pain. Foley catheter and peripheral IV are inserted in OR.
- 08/06/12 - Wound care specialist documents wound clean. Temperature 37.4°C. Foley draining cloudy urine.
- 08/07/12 – Temp of 38.2°C. Foley removed. Encouraged to push p.o. fluids. Urine specimen sent to lab for culture and sensitivity.

Case 5

- 08/08/12 – Temp of 38.6°C. Patient complains of dysuria and pain with palpation to suprapubic area. Bactrim started.
- 08/09/12 - Urine specimen sent on 08/07 results are positive for *E. coli 100,000 CFU/ml.* Patient afebrile. Preparing for discharge back to LTAC.

Does this patient have a UTI and is it a CAUTI?

1. No, UTI was present on admission
2. Yes, Patient has a SUTI 1a. and it is a CAUTI
3. Yes, Patient has a SUTI 1b. but it is not a CAUTI

Case 5 - Rationale

1a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms. * With no other recognized cause

U/As may be positive for many non-infectious reasons. Since symptoms of UTI were not present on admission and developed only following Foley insertion this is a CAUTI.

Case 6

- 48 year old male involved in motorcycle accident. Closed head injury, multiple fractures. Taken to OR for ORIFs and evacuation of subdural hematoma. Foley catheter and left subclavian catheter placed in ED. Patient remains on ventilator placed in OR. Lungs clear bilaterally.
- 6 days postop, temp. 99.8°F, rhonchii in left lung base. CXR shows possible infiltrate/atelectasis in this area. Foley remains in place draining, clear yellow urine. Patient remains ventilated, sputum production increased.

Case 6

- Post op day 7: temp. 100.3°F; vent settings stable. No change to sputum production.
- Post op day 8: temp 101.9°F; lungs sounds clear; CXR clear. Patient on vent; Foley and central line remain in place. Pan cultures sent. Empiric antibiotic treatment begun.
- Post op day 9: Urine culture: 100,000 CFU/ml of *P. aeruginosa.* Sputum: *P. aeruginosa.* Blood culture: No growth. Physical assessment normal. No patient response to suprapubic or costovertebral angle palpation.

Does this patient have a UTI? If so, what type?

1. No UTI.
2. Yes, ABUTI.
3. Yes, SUTI 2a.
4. ✓ Yes, SUTI 1a.

Case 6 - Rationale

Yes, this patient has a SUTI 1a. Foley was in place for > 2 calendar days, fever, positive urine culture ≥ 100,000 CFU/ml with one pathogen.

Case 6 - continued

What if the patient had been afebrile, but had an elevated WBC and cloudy urine? Culture results were the same.

Would the patient have a UTI?

Would the patient have a UTI?

1. No UTI
2. Yes, SUTI 1a
3. Yes, ABUTI

Case 6 - Rationale

No. Patient without symptoms and no matching blood culture. Elevated WBC and cloudy urine are not part of the NHSN UTI surveillance criteria.

Case 6 - Rationale

Surveillance definitions work better in some patient populations than others.

Patients should be thoroughly assessed for UTI symptoms, including suprapubic and costovertebral pain. Dialogue/education with clinicians may be warranted.

Clinical diagnosis may differ from surveillance determination.

Definitions must still be applied consistently.

Case 7

- 08/25: 73 y.o. patient in neurosurgical ICU. admitted following cerebrovascular accident. Ventilated, subclavian catheter and Foley catheter in placed on admit. Patient reacts only to painful stimuli.
- 9/2: WBCs slightly elevated, at 12,000/mm^3, temp 37.4°C, urine cloudy. Lungs clear to auscultation.

Case 7

- 9/3: WBC 15,800/mm^3, Temperature: 37.6°C., Breath sounds slightly coarse, minimal clear sputum. Urine unchanged. Blood, endotracheal and urine specimens collected. No suprapubic or CVA pain noted.
- 9/4: Blood and endotracheal cultures no growth. Urine + 100,000 CFU/ml *E. faecium.*

Does this patient have a UTI? If so, what type?

1. Yes, ABUTI.
2. Yes, SUTI Criterion 1a.
3. Yes, SUTI Criterion 1b.
4. No UTI.

Case 7 Rationale

Because there are no urinary symptoms, nor fever > 38°C, nor blood culture matching the urine culture, surveillance criteria for a UTI are not met.

Case 7 - Continued

- What if the patient's temp. was 38.1°C and the patient also met the criteria for a probable VAP including a bronchoalveolar lavage for *K. pneumoniae*?

Does this patient have a UTI?

1. No. The patient's fever is due to pneumonia. Therefore patient is symptomless.
2. Yes. SUTI 1a. Fever is a non-specific symptom and may be due to more than one infection at a time.

Case 7 Rationale

This patient has a SUTI 1a: indwelling catheter present, fever, and urine culture ≥ 100,000 CFU/ml with ≤ 2 organisms.

Case 8

- 8/16: 4-year-old girl admitted following MVA. Taken to OR for open-reduction and internal fixation of a left upper and right lower extremity fractures. Admit to pediatric surgical care unit with Foley catheter draining yellow urine, and right femur to traction. IV in right antecubital vein.

Case 8

- 8/18: Afebrile, taking clear liquid diet and beginning oral pain medication. Using incentive spirometer. Foley draining yellow urine.
- 8/19: Tolerating solid diet. IV converted to saline lock. Foley draining yellow urine.
- 8/20: Foley removed at 0800. Patient voiding without problems. Patient has slight cough of clear phlegm.

Case 8

- 8/21: In the morning, patient requesting bedpan frequently, crying with urination. Temp. 37.9°C. Cough unchanged. Straight cath urine specimen collected. Urine cloudy; U/A + for leukocyte esterase; nitrites negative; 10 WBC by HPF of spun urine. Later that evening, Gram stain of urine shows many gram-negative rods. Empiric Bactrim is ordered.
- 8/23: Urine culture + 50,000 CFU/ml of *E. coli.*

Does this patient have a UTI?

1. No
2. Yes, SUTI 1b
3. Yes, SUTI 2a
4. Yes, SUTI 2b

Case 8 - Rationale

This patient meets the criteria for SUTI 2a:

2a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness, or costovertebral angle pain or tenderness ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. ----------**OR**---------- Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm^3 of unspun urine or > 5WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. *With no other recognized cause

Updated Slide

Case 9

- 3/20: 45-year-old male patient admitted with stage 4 sacral decubitus ulcer. Medical history, paraplegia X 10 years status post motorcycle accident. Suprapubic tube present to dependent urine collection bag, draining yellow urine. Wound care consult placed. Wet to dry dressing changes begun. Green drainage from base of decubitus sent for culture. Afebrile.
- 3/21: Dressing changes continue. CT scan of sacrum suggestive of osteomyelitis. PICC line placed and empiric antibiotics begun.

Case 9

- 3/23: Dressing changes continue. Large amount of green, foul-smelling drainage present.
- 3/24: To OR for surgical debridement. Readmitted to floor post-op with suprapubic tube, PICC line. Afebrile.
- 3/25: Temp 37.6°C. Less drainage from decubitus. Wound care specialist states that granulation tissue beginning to form. Cloudy urine from suprapubic tube.

Case 9

- 3/26: Temp 38.2°C. Patient with shaking chills. Blood and urine specimens collected for cultures and U/A. U/A results reported as + for leukocyte esterase, nitrites and 10 WBC/mm^3 of unspun urine.
- 3/27: Urine culture + 75,000 CFU/ml of *K. pneumoniae.* Blood culture positive for *K. pneumoniae.*

Does this patient have a UTI? CLABSI?

1. No UTI. CLABSI with *K. pneumoniae*
2. Yes, SUTI 1b with secondary BSI
3. Yes, SUTI 2a and CLABSI with *K. pneumoniae*
4. Yes, SUTI 2b with secondary BSI

Case 9 - Rationale

This patient meets SUTI criterion 2b, he has a fever > 38°C, urine culture of >1,000 and < 100,000 CFU/ml of a single organism and a positive U/A (+ leukocyte esterase, WBC of sufficient count and + nitrites).

The BSI has a matching organism to the UTI and is therefore secondary.

Does the patient have a CAUTI?

1. No CAUTI.
2. Yes, Patient has a CAUTI.

Case 9 - Rationale

The patient has a suprapubic catheter but not an indwelling urinary catheter which is inserted via the urethra. Therefore the UTI is not catheter-associated for NHSN reporting purposes.

Remember there is a 1b and 2b criteria for patients that do not have an indwelling urinary catheter in place at the time of, or the day before specimen collection or onset of signs and symptoms.

Case 10

- 08/12: 70 female admitted to acute care facility, for an abdominal hysterectomy (HYST). Foley placed in OR at 0800. To GYN unit post-op. Foley draining clear, yellow urine. IV in left forearm, site without redness and dressing dry.
- 08/13 – Patient stable, Foley in place.
- 08/14 – Patient stabile, Foley removed at 1030. Afebrile. Patient discharged to home at 1400.
- 08/15 – Patient presents to ED with Temp 38.8°C, suprapubic tenderness and dysuria. Blood and urine specimens sent, urinalysis sent. Patient admitted to Med/Surg unit.
- 08/17 Labs results Urine culture (+) 75,000 CFU/ml of MRSA and blood culture (+) for MSSA. U/A results reported as + for leukocyte esterase, nitrites and 10 WBC/mm^3 of unspun urine.
-

Does this patient have an HAI/HAIs?

1. No, this is present on admission
2. Yes, SUTI 2a with secondary BSI
3. Yes, SUTI 1a and a BSI
4. Yes, ABUTI

To what unit is it attributable?

1. GYN unit
2. Med/Surg unit

Case 10 - Rationale

This patient meets the criteria for SUTI 2a:

2a	Patient had an indwelling urinary catheter in place for > 2 calendar days, with day of device placement being Day1, and catheter was in place when all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), suprapubic tenderness, or costovertebral angle pain or tenderness ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm3 of unspun urine or >5 WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. ----------**OR**---------- Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness, or costovertebral angle pain or tenderness* ***and*** at least 1 of the following findings: a. positive dipstick for leukocyte esterase and/or nitrite b. pyuria (urine specimen with ≥10 white blood cells [WBC]/mm^3 of unspun urine or > 5WBC/high power field of spun urine) c. microorganisms seen on Gram stain of unspun urine ***and*** a positive urine culture of $\geq 10^3$ and $<10^5$ CFU/ml with no more than 2 species of microorganisms. *With no other recognized cause

Case 10 - Rationale

This patient has a SUTI 2a with a secondary blood attributable to the GYN unit she was discharged from. She had just been discharged the day before and her Foley had just been discontinued on day of discharge.

How would this be documented as an
MRSA or MSSA or both?

This would be a MRSA because the most resistant organism is reported.

Case 11

- 9/1: 68 year old diabetic female transferred to IRF from acute care facility, status post knee arthroplasty (KPRO). Foley on admission draining pink urine. Bulb suction to both knees via stab wounds draining small amount bloody drainage. IV in left forearm, site without redness and dressing dry.
- 9/2: Foley removed. Patient up to bathroom with help of physical therapist. IV continues. Taking full liquids for lunch. Afebrile.

Case 11

- 9/3: Patient to physical therapy. Complains of burning with urination and urgency. Suprapubic pain upon palpation. Temp 37.8°C. Urine collected and sent for culture and U/A. + for >10 WBCs by HPF of unspun urine, + leukocyte esterase. Empiric antibiotics begun.
- 9/4: Urine culture >100,000 CFU/ml *S. epidermidis.*

Does this patient have a UTI attributable to acute care facility?

1. Yes. Patient has a SUTI 1a attributable to the acute care facility.
2. No. Patient's SUTI 1a is attributable to IRF.
3. No. Patient does not have a UTI.

Case 11
Rationale

This patient does have a SUTI 1a and it is a CAUTI

Day 1	Day 2	Day 3	CAUTI to:
ACF ► IRF Foley had been in place for 7 days	IRF Foley removed	IRF SUTI 1a criterion met	IRF

**Transfer Rule: If a CAUTI develops ≤ 2 calendar days of transfer from one inpatient location/facility to another, it is attributed to the transferring location/facility (i.e., it occurs on the day of transfer or the next day). Date of Transfer = Day 1*

1a	Patient had indwelling urinary catheter in place for > 2 calendar days and had it removed the day of or the day before all elements of this criterion were first present together ***and*** at least 1 of the following signs or symptoms: fever (>38°C), urgency*, frequency*, dysuria*, suprapubic tenderness*, or costovertebral angle pain or tenderness* ***and*** a positive urine culture of $\geq 10^5$ colony-forming units (CFU)/ml with no more than 2 species of microorganisms. *With no other recognized cause

Case 12

How many indwelling catheter days?

A. 6
B. 5
C. 4
D. 3
E. 2
F. 1

Catheter Day Count at 12 noon

Patient	ADT	Urinary Status
101 Black	Day2	Indwelling Foley to direct drainage (DD)
102 White	Day 3	Bedpan – cath spec to lab
103 Gray	D/C home 1.p.m	Voiding
104 Salmon	Adm 2 p.m.	Foley to DD
105 Green	Adm 9 a.m.	Suprapubic to DD
106 Berry	Day 5	Indwelling foley to DD
107 Brown	D/C to home @ 11 a.m.	Straight cath Q3 hours

How many indwelling catheter days?

A. 6
B. 5
C. 4
D. 3
E. 2
F. 1

Patient	ADT	Urinary Status
101 Black	Day 5	Indwelling foley to DD
102 White	Day 3	Indwelling foley to DD
103 Gray	D/C'd home 1 p.m.	Voiding
104 Salmon	Adm 2 p.m.	Incontinent
105 Green	Prior to adm	Suprapubic to direct drainage
106 Berry	Day 3	Indwelling foley to DD
107 Brown	D/C'd home @ 11 a.m.	Was on cath on adm

Case 13

How many indwelling catheter days?

A. 6
B. 5
C. 4
D. 3
E. 2
F. 1

Catheter Day Count at 11 p.m.

Patient	ADT	Urinary Status
101 Washington	Adm. @ 4 p.m.	Condom cath to direct drainage (DD)
102 Dallas	Day 2	Indwelling Foley to DD
103 St. Charles	D/C @ 11 a.m.	Voiding
104 London	Day 3	Incontinent using diaper
105 Orlando	Day 2	Suprapubic to DD
106 Denver	D/C to home @ 4 .pm.	Indwelling Foley to DD
107 England	Adm @ 1 p.m.	Voiding

How many indwelling catheter days?

Patient	ADT	Urinary Status
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]

A. 6
B. 5
C. 4
D. 3
E. 2
F. 1

Great Job!!!

Questions: email user support nhsn@cdc.gov

NHSN Website: http://www.cdc.gov/nhsn/