



LTCH QRP Provider Training



NHSN Healthcare Associated Infection Surveillance What has Changed in 2015?

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Objectives

- ❑ State purposes of 2015 changes
- ❑ Identify new definitions and modifications
- ❑ Identify major changes to specific infection definitions (a.k.a. Chapter 17)
- ❑ State the new denominator sampling option

Purposes of 2015 Definitional Modifications

- ❑ Improve patient care*
- ❑ Decrease subjectivity*
- ❑ Optimize data consistency*
- ❑ Reflect current diagnostic methods*
- ❑ Respond to user input*

**While avoiding additional
surveillance burden*

New Definitions and Modifications

- ❑ Infection Window Period*†
- ❑ Date of Event*
 - Present on Admission (POA) Infections*†
 - Healthcare-Associated Infections (HAI)*†
- ❑ Repeat Infection Timeframe (RIT)*†
- ❑ Secondary BSI Attribution Period*†
- ❑ Pathogen assignment (as relates to RIT) *†

* Does not apply to VAE, LabID Event Surveillance

† Does not apply to SSI Surveillance

Worksheet for Surveillance

- ❑ *To promote consistent surveillance data collection*
- ❑ *Worksheet, and example of a completed worksheet with explanation*
- ❑ *<http://www.cdc.gov/nhsn/acute-care-hospital/clabsi/index.html>*
- ❑ *First 2 documents under “Supporting Materials”*
- ❑ *Note: 2 tabs at the bottom of each*
- ❑ *Highly recommend use*

**Coming
soon: HAI
worksheet
generator**

Worksheet for Surveillance

| Date | First diagnostic test or sign/sympto | Infection Window Period | Event (Date of Event) | RIT (Specimen & Pathogen) | 2 nd ary BSI Attribution Period | Calendar Date / Hospital Day | First diagnostic test or sign/sympto | Infection Window Period | Date of Event | Repeat Infection Timeframe - RIT | Secondary BSI Attribution Period | Calendar D |
|------|--------------------------------------|-------------------------|-----------------------|---------------------------|--|------------------------------|--------------------------------------|-------------------------|---------------|----------------------------------|----------------------------------|------------|
| 1 | | | | | | 1 | | | | | | |
| 2 | | | | | | 2 | | | | | | |
| 3 | | | | | | 3 | | | | | | |
| 4 | | | | | | 4 | | | | | | |
| 5 | | | | | | 5 | | | | | | |
| 6 | | | | | | 6 | | | | | | |
| 7 | | | | | | 7 | | | | | | |
| 8 | | | | | | 8 | | | | | | |
| 9 | | | | | | 9 | | | | | | |

Definition Application

| | SSI | LabID | VAE |
|----------------------------------|-----|-----------------------|-----------------------|
| Infection Window Period | NA | Not Applicable | Not Applicable |
| Date of Event | Yes | | |
| POA | NA | | |
| HAI | NA | | |
| Repeat Infection Time Period | NA | | |
| Secondary BSI Attribution Period | * | | |

**See SSI specific guidance; N/A=Not Applicable*

What is no longer used beginning 2015?

- ❑ Gap Days concept to determine criterion met
- ❑ Logical pathogens to determine secondary bloodstream infections (BSI)
- ❑ Date of event = Date of last element

Infection Window Period

| 2014 | | 2015 |
|-----------------|--|-------------------------|
| Gap Day concept |  | Infection Window Period |

Infection Window Period

- A 7-day-period during which all site-specific infection criterion must be met. It includes the date of the first positive diagnostic test, that is an element of the site-specific criterion, 3 calendar days before and 3 calendar days after
 - For site-specific criterion that do not include a diagnostic test, the first documented localized sign or symptom that is an element of the infection criterion will be used

Infection Window Period

□ Diagnostic test examples*

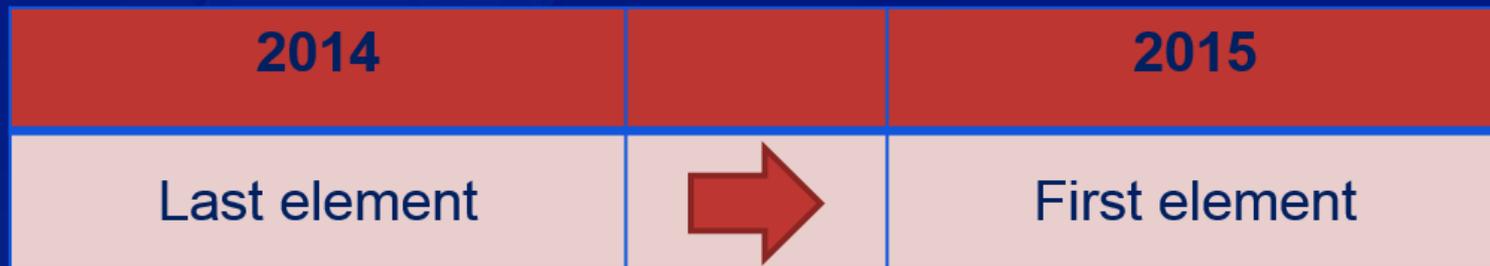
- Laboratory specimen collection
- Imaging test
- Procedure or exam
- Physician diagnosis
- Initiation of treatment

□ Localized sign or symptom examples:

- Diarrhea
- Site specific pain
- Purulent exudate

* If there is more than one diagnostic test results, the most **localizing** test result will be used, e.g., if trying to determine MBI-LCBI, use the blood culture as opposed to the ANC level

Date of Event



Date of Event

The date the first element used to meet the CDC NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period

Note: The element MAY have been present before the infection window period.

Infection Window Period

| Hospital Day | Criterion |
|--------------|--|
| 8 | |
| 9 | |
| 10 | |
| | Temp = 101.5° F |
| | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |

Diagnostic Test



3 Before

3 After

7 Day Infection Window Period

Infection Window Period and Date of Event

Date of event

| Hospital Day | SUTI Criterion |
|--------------|--|
| 8 | |
| 9 | |
| 10 | |
| 11 | Temp = 101.5° F |
| 12 | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |

7 Day Infection Window Period

Infection Window Period and Date of Event

| Hospital Day | SUTI Criterion |
|--------------|--|
| 8 | |
| 9 | Temp = 100.5° F |
| 10 | Temp = 100.7° F |
| 11 | |
| 12 | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |



Date of event



7 Day Infection Window Period

Present on Admission (POA)

vs.

Healthcare-Associated Infection (HAI)

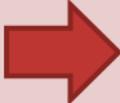
- ❑ Present on Admission - date of event* occurs on the day of admission or the day after admission to an inpatient location.
 - The POA time period continues to include the day of admission, 2 days before and the day after admission.
- ❑ Healthcare-Associated Infection - the date of event* occurs on or after the 3rd calendar day of admission.

| | Hospital Day | Criterion |
|----------------------|---------------------|-----------|
| Date of event | 1 Date of admission | |
| | 2 | POA |
| | 3 | |
| | 4 | HAI |
| | 5 | |

A diagram with a box on the left labeled 'Date of event'. Two arrows originate from this box: one points to a blue box labeled 'POA' which is positioned over the '2' row of the table, and the other points to a red box labeled 'HAI' which is positioned over the '4' row of the table.

* Date of event = date the first element used to meet the CDC/NHSN site-specific infection criterion occurs for the first time within the seven-day infection window period

Determining New vs. Extending Infections

| 2014 | | 2015 |
|--|--|--|
| <p>Continuation of symptoms or treatment at time of next infection</p> <ul style="list-style-type: none">• Subjective• Treatment purpose sometimes undocumented |  | <p>Repeat Infection Timeframe</p> <ul style="list-style-type: none">• Objective• Requires no interpretation of treatment purposes• Reduces labor of surveillance |

Repeat Infection Timeframe (RIT)

- Uses date of event to determine a 14-day timeframe during which no new infections of the same type are reported**
- The date of event is Day 1 of the 14-day Repeat Infection Timeframe**
- If date of event for subsequent potential infection is within 14 days**
 - Do not report new event**
 - Additional pathogens identified are added to the original event**

Repeat Infection Timeframe (RIT)

Date of event

14 Day Repeat Infection Timeframe (RIT)

| Hospital Day | SUTI Criterion |
|--------------|--|
| 8 | |
| 9 | |
| 10 | |
| 11 | Temp = 101.5° F |
| 12 | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |

Repeat Infection Timeframe (RIT)

- The RIT will apply at the level of specific type of infection with the exception of Bloodstream Infection (BSI), Urinary Tract Infection (UTI) and Pneumonia (PNEU) where the RIT will apply at the major type of infection
 - Patient will have no more than one BRST (specific type of major type SST)
 - As opposed to:
 - Patient will have no more than one BSI (i.e., LCBI [1, 2, or 3], MBI-LCBI [1, 2, or 3])
 - Patient will have no more than one UTI (i.e., SUTI, ABUTI, non-SSI USI)
 - Patient will have no more than one PNEU (i.e., PNU1, PNU2, PNU3)

Applying the Repeat Infection Timeframe

| Major Type | Specific Type |
|--------------------------------|---------------|
| Skin and Soft Tissue Infection | BRST |
| | BURN |
| | CIRC |
| | DECU |
| | SKIN |
| | ST |
| | UMB |
| | UTI |
| | SUTI |
| | ABUTI |

Can have only 1 BURN or 1 CIRC, etc.

Can only have 1 UTI either SUTI or ABUTI

Knowledge Test

- ❑ Your facility is performing CAUTI surveillance on your medical ward 5-West.
- ❑ Patient admitted to 5-West on 1/15/2015 with urine culture positive for $> 100,000$ CFU/ml of *E. coli*. No NHSN UTI symptoms present. Foley inserted at time of urine culture.
- ❑ 8 days later (1/23/15), Foley remains, and patient has temperature of 38.2°C and positive urine culture of $> 100,000$ CFU/ml of *E. coli*.

A CAUTI should be reported for this patient for 1/23/15?

- A. True
- B. False

Because this patient did not meet UTI criteria related to the 1/15 urine culture, no UTI repeat infection timeframe was set. Patient met criteria for CAUTI on 1/23 which will be reported.

Secondary Bloodstream Infection (BSI) Attribution

| 2014 | | 2015 |
|---|--|----------------------------------|
| No objective time period for associating BSI to another infection |  | Secondary BSI Attribution Period |

Secondary Bloodstream Infection (BSI) Attribution Period

- The period in which a positive blood culture must be collected to be considered a bloodstream infection that is secondary to another site infection.**
- This period includes the Infection Window Period combined with the Repeat Infection Timeframe (RIT)**
- This period is 14 – 17 days in length depending on the date of event**

NOTE: A primary BSI will not have a Secondary BSI Attribution Period

Secondary BSI Attribution

Date of event

Secondary BSI Attribution Period =
Infection Window Period
+
Repeat Infection Timeframe

14 days

| Hospital Day | SUTI Criterion |
|--------------|--|
| 9 | |
| 10 | Temp = 101.5° F |
| 11 | |
| 12 | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |

Secondary BSI Attribution

Date of event

Secondary BSI Attribution Period=

Infection Window Period

+

Repeat Infection Timeframe

17 days

| Hospital Day | SUTI Criterion |
|--------------|--|
| 9 | |
| 10 | |
| 11 | |
| 12 | |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> ; costovertebral angle pain |
| 14 | Temp = 101.5° F |
| 15 | |
| 16 | |
| 17 | |
| 18 | |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24-26 | |

Secondary Bloodstream Infection (BSI) Rules

- Secondary bloodstream infections may be attributed to a primary site infection during the Secondary BSI Attribution Period as per the Secondary BSI Guide (Appendix 1) of the BSI event protocol

- Blood culture organisms matches at least one organism found in the site-specific infection culture which is used to meet the primary site infection criterion

OR

- The positive blood culture is an element used to meet the primary site infection criterion

Only two ways

Secondary Bloodstream Infection (BSI) Attribution

| 2014 | | 2015 |
|-----------------------------|--|--|
| Allowed "Logical" Pathogens |  | Requires Matching Pathogen or Blood Culture as Element |

Secondary BSI Attribution

Secondary BSI Attribution Period

Infection Window Period

+

Repeat Infection Timeframe

15 days

| Day | SUTI Criterion |
|-----|--|
| 9 | |
| 10 | |
| 11 | Temp = 101.5° F |
| 12 | Temp = 102.1° F |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> |
| 14 | |
| 15 | |
| 16 | |
| 17 | |
| 18 | Blood culture: <i>E.coli</i> |
| 19 | |
| 20 | |
| 21 | |
| 22 | |
| 23 | |
| 24 | |

SUTI with secondary BSI*
Pathogen: *E.coli*
Date of Event: Day 11

* Per the Secondary Bloodstream Infection Guide (Appendix 1) of the Bloodstream Infection Protocol

Disposition of Pathogens Identified

- **During RIT**
- **During Secondary BSI Attribution Period**

Pathogen Assignment

- ❑ **Additional eligible pathogens identified within a Repeat Infection Timeframe are added to the event**
- ❑ **Pathogen exclusions for specific infection definitions (e.g., UTI, PNEU)* also apply to secondary bloodstream infection pathogen assignment**
 - Excluded pathogens must be attributed to another primary site-specific infection as either a secondary BSI or identified as a primary BSI

* Refer to the Urinary Tract Infection (Catheter-Associated Urinary Tract Infection [CAUTI] and non-Catheter-Associated Urinary Tract Infection [UTI]) and Other Urinary System Infection (USI) Events and the Pneumonia (Ventilator-Associated [VAP] and non-ventilator-associated Pneumonia [PNEU]) Events protocols

Case for consideration*

January 1: 45-year-old patient with Guillain-Barre admitted to MICU. Foley catheter in place.

January 11: Temp – 101.5° F

January 12: Temp – 102.1° F

January 13: Urine culture collected; “+” 100,000 CFU/ml *E. coli*.

January 14: Blood culture collected; “+” *E. coli* and *C. albicans*

January 18: Urine culture collected; “+” 100,000 CFU/ml *Enterococcus*

No other infection sites are present

*your facility is reporting ALL healthcare-associated infections to NHSN

Case for Consideration

| DAY | SUTI Criterion | LCBI Criterion | DAY |
|-------|----------------|----------------|-----|
| 1 Adm | | | 1 |
| 2 | | | 2 |
| 3 | | | 3 |
| 4 | | | 4 |
| 5 | | | 5 |
| 6 | | | 6 |
| 7 | | | 7 |
| 8 | | | 8 |
| 9 | | | 9 |
| 10 | | | 10 |
| 11 | | | 11 |
| 12 | | | 12 |
| 13 | | | 13 |
| 14 | | | 14 |
| 15 | | | 15 |
| 16 | | | 16 |
| 17 | | | 17 |
| 18 | | | 18 |
| 19 | | | 19 |

Which of the following is true for NHSN reporting?

- A. Patient has only an LCBI on January 14 with *E. coli* and *C. albicans*
- B. Patient has a SUTI 1a on January 11 with *E. coli* and *Enterococcus* and a secondary BSI AND an LCBI with *C. albicans* on January 14.

Pathogen Assignment

UTI – Secondary BSI Attribution Period
 Infection Window + 14 day RIT (15 days)

| DAY | SUTI Criterion | LCBI Criterion | DAY |
|-------|--|-----------------------------------|-------|
| 1 Adm | | | 1 Adm |
| 9 | | | 9 |
| 10 | | | 10 |
| 11 | Temp = 101.5° F | | 11 |
| 12 | Temp = 102.1° F | | 12 |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> | | 13 |
| 14 | Blood culture: <i>E.coli</i> , and <i>C. albicans</i> | Blood culture: <i>C. albicans</i> | 14 |
| 15 | | | 15 |
| 16 | | | 16 |
| 17 | | | 17 |
| 18 | Urine culture: >100,000 cfu/ml, <i>Enterococcus spp.</i> | | 18 |
| 19 | | | 19 |
| 20 | | | 20 |
| 21 | | | 21 |
| 22 | SUTI with Secondary BSI Pathogen: <i>E.coli</i>, <i>Enterococcus</i> Date of Event: Jan. 11 | | 22 |
| 23 | | | 23 |
| 24 | | | 24 |
| 25 | | | 25 |
| 26-27 | | | 26-27 |

LCBI
Pathogen: *C. albicans*
(excluded UTI pathogen)
Date of Event: Jan 14

BSI – 14 day RIT

Pathogen Assignment

- ❑ **A BSI pathogen may be reported for more than one infection source**
- ❑ **Example 1**
 - Assigned as a secondary BSI pathogen to different primary site infections (e.g., UTI and IAB)

Pathogen Assignment

SUTI – Secondary BSI
 Attribution Period = Infection Window + 14 day RIT

SUTI with Secondary BSI
Pathogen: E.coli
Date of Event: 11

| DAY | SUTI Criterion | IAB Criterion | DAY |
|-----|---|--|-----|
| 8 | | | 8 |
| 9 | | Temp = 101.5 Abdominal pain | 9 |
| 10 | | | 10 |
| 11 | Temp = 101.5° F | CT guided drainage of abdominal fluid collection: E.coli | 11 |
| 12 | Temp = 102.1° F | | 12 |
| 13 | Urine culture: >100,000 cfu/ml, E. coli | | 13 |
| 14 | | | 14 |
| 15 | | | 15 |
| 16 | | | 16 |
| 17 | Blood culture: E.coli | Blood culture: E.coli | 17 |
| 18 | | | 18 |
| 19 | | | 19 |
| 20 | | | 20 |
| 21 | | | 21 |
| 22 | | | 22 |
| 23 | | | 23 |
| 24 | | | 24 |

IAB (non-surgical) with Secondary BSI
Pathogen: E.coli
Date of Event: 9

IAB – Secondary BSI
 Attribution Period = Infection Window + 14 day RIT

Pathogen Assignment

- ❑ BSI pathogens may be assigned to more than one infection source
- ❑ **Example 2**
 - Assigned as a secondary BSI pathogen to a site-specific infection (e.g., UTI) and assigned as an additional pathogen to a primary BSI event

Pathogen Assignment

UTI – Secondary BSI Attribution Period
 Infection Window + 14 day RIT

| DAY | SUTI Criterion | LCBI Criterion | DAY |
|-----|--|------------------------------------|-----|
| 8 | | | 8 |
| 9 | | Blood culture: <i>Staph aureus</i> | 9 |
| 10 | | | 10 |
| 11 | Temp = 101.5° F | | 11 |
| 12 | Temp = 102.1° F | | 12 |
| 13 | Urine culture: >100,000 cfu/ml, <i>E. coli</i> | | 13 |
| 14 | | | 14 |
| 15 | | | 15 |
| 16 | | | 16 |
| 17 | Blood culture: <i>E.coli</i> | Blood culture: <i>E.coli</i> | 17 |
| 18 | | | 18 |
| 19 | | | 19 |
| 20 | | | 20 |
| 21 | | | 21 |
| 22 | | | 22 |
| 23 | | | 23 |
| 24 | | | 24 |

LCBI
Pathogen: Staph aureus & E.coli
Date of Event: day 9

SUTI with Secondary BSI
Pathogen: E.coli
Date of Event: day 11

BSI – 14 day RIT

Major Definitional Changes for Specific Types of Infections

□ BSI, PNEU, SSI, UTI, VAE-

- Removed from chapter 17
- Found in separate, dedicated chapters
- Chapters cover both device-associated and non-device associated

□ BRON-

- Removed entirely from NHSN surveillance

□ UTI-

- Major changes to definitions-covered in UTI presentation

□ Secondary BSI Attribution

- Reviewed earlier
- Reinforced in CLABSI presentation

□ *Clostridium difficile* infection

***Clostridium difficile* Infection (CDI)**

- ❑ **Purpose: minimize subjectivity, increase consistency**
- ❑ **Different criteria than LabID Event**
- ❑ **Requirements**
 - Positive test for toxin-producing *C. difficile*
 - Unformed stool or
 - pseudomembranous colitis
- ❑ **No exclusions for medications/tests or prior diarrhea**
- ❑ **Not intended to drive clinical practice**

Device-associated Denominator Sampling

National Center for Emerging and Zoonotic Infectious Diseases



Denominator Sampling

- ❑ **Weekly sampling of number of patient days and number of device days in location**
 - Indwelling urinary catheter
 - Central line
- ❑ **See “Denominator Data” sections of BSI and UTI protocols for details**
- ❑ **<http://www.cdc.gov/nhsn/pdfs/newsletters/vol9-3-enl-sept-2014.pdf> (article page 6)**

Resources

❑ NHSN Website:

www.cdc.gov/nhsn

❑ Analysis Quick Reference Guides:

<http://www.cdc.gov/nhsn/PS-Analysis-resources/reference-guides.htm>

❑ Identifying HAIs (Hot Topic webinar):

<https://www.youtube.com/watch?v=VH63CU3iUHw&feature=youtu.be>

❑ HAI worksheet (under Supporting Materials):

<http://www.cdc.gov/nhsn/acute-care-hospital/clabsi/index.html> or

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

Summary- 2015

- ❑ **Gap Day concept no longer used to determine HAI- instead use the 7-day infection window period**
- ❑ **Date of event- date of first element during infection window period**
- ❑ **POA vs HAI definition unchanged**
- ❑ **Secondary BSI attribution period**
 - Time-limited (14-17 days)
- ❑ **Secondary BSI Rules**
 - Simplified – blood culture matching site or part of infection definition

Summary- 2015

❑ Pathogen assignment-

- Add on if in RIT and not an excluded organism
- Organism may be added to more than 1 event

❑ Surveillance definitions for specific infection types

- BRON is no longer an NHSN infection
- New CDI infection
- Other important changes

❑ New alternative device day count option- weekly sampling

- Available in certain location types and must have minimal average device days count ≥ 75 /month in prior year

In Appreciation

Thanks to Cindy Gross, Infection Preventionist, for Hot Topic slides preparation.

Questions?

Questions:



Email user support
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NHSN Website:
<http://www.cdc.gov/nhsn/>