North Carolina SPICE
Statewide Program for Infection Control & Epidemiology

NATIONAL HEALTHCARE SAFETY NETWORK CENTRAL LINE ASSOCIATED BLOODSTREAM INFECTION (CLABSI)- SECONDARY BSI

Surveillance Key Concepts and Definitions

REFERENCE ACKNOWLEDGMENT

2023 NHSN ANNUAL TRAINING

- AHH! They Do Exist: BSI Central Line Associated Bloodstream Infection Surveillance

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- One Step, Two Step, NEC: Applying Secondary BSI Attribution

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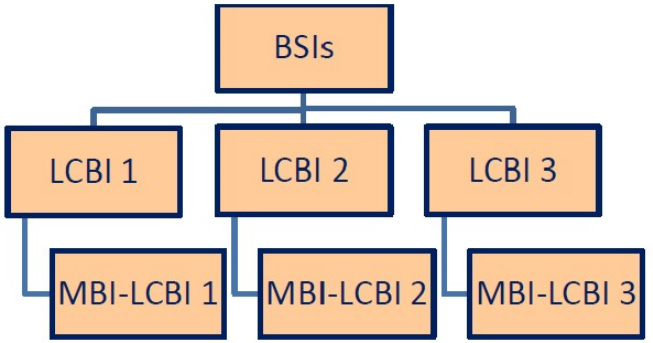
KEY CONCEPTS



- **Laboratory Confirmed Bloodstream Infection (LCBI)**
  - Primary BSI: Organism cultured from the blood that is not related to an infection at another site.
    - Primary BSIs will create a 14-day BSI Repeat Infection Timeframe (RIT).
- **Eligible Organism:** Any organism eligible to meet LCBI or MBI-LCBI criteria-does not include excluded organism(s)
- **Central Line (CL):** An intravascular catheter that **terminates at or close to the heart OR in one of the great vessels** which is used for infusion, withdrawal of blood, or hemodynamic monitoring
  - *Temporary- A non-tunneled, non-implanted catheter*
  - *Permanent- A Tunneled (including certain dialysis) catheters or implanted port*
  - *Umbilical- Inserted through the umbilical artery or vein in a neonate*

Great Vessels for CLABSI Reporting	
Aorta	Subclavian veins
Pulmonary Artery	External iliac veins
Superior vena cava	Common iliac veins
Inferior vena cava	Femoral veins
Brachiocephalic veins	Umbilical artery/vein (neonate)
Internal jugular veins	

NOTE: Neither the type of device nor the insertion site will determine if a line qualifies as a central line. Patients must have one or more qualifying central lines to be included in CLABSI surveillance.

KEY CONCEPTS

- **Lines that are <u>NOT</u> considered central lines for NHSN reporting**
  - Arterial Catheters
  - Arteriovenous fistula
  - Arteriovenous graft
  - Ventricular Assist Devices (VAD)
  - Peripheral IV's
  - Atrial catheters (also known as transthoracic intra-cardiac catheters)
  - Extracorporeal membrane oxygenation (ECMO)
  - Intraaortic balloon pump (IABP) devices
  - Hemodialysis reliable outflow (HERO) dialysis catheters
  - Femoral arterial catheters

Introducer

KEY CONCEPTS

- **Central Line Access**
  - Line placement, needle into the port, infusion or withdrawal through the line, flushes, hemodynamic monitoring
  - **Access = an eligible line for CLABSI events**
- **Eligible Central Line**
  - A central line (CL) that has been in place > 2 consecutive calendar days following the ***first access*** of the central line, in an inpatient location, during the current admission

▶ **NOTE**: Eligible for CLABSI events until the day after removal from the body or patient discharge, whichever comes first.

KEY CONCEPT

- **Central Line Associated BSI (CLABSI):** A laboratory-confirmed bloodstream infection where an **eligible BSI organism** is identified, and an **eligible central line** is present on the LCBI date of event or the day before

Date	31-Mar	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr
Patient A: Port Status	Port in	Port in	Port in	Port in	Port in	Port in	Port in
Accessed	No	No	**Yes**	Yes	**Yes De-accessed***	No	No
Eligible for CLABSI event	No	No	No **CL Day 1**	No CL Day 2	**Yes-eligible CL** CL Day 3	Yes-eligible CL CL Day 4	Yes-eligible CL CL Day 5

Patient A becomes eligible for a CLABSI on 4/4 because an accessed port is in place for some portion of > 2 consecutive calendar days making it an eligible CL on 4/4 (CL day 3). The port remains eligible for a CLABSI until it is removed, or the patient is discharged, whichever comes first.

Date	31-Mar	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr
Patient B: CL/Port Status	CL/Port in	CL/Port in	CL/Port in	CL/Port in	**CL/Port in CL/Port out**	No device	No device
Accessed	No	No	**Yes**	Yes	**Removed**	-	-
Eligible for CLABSI event	No	No	No	No	**Yes-eligible CL**	Yes-eligible CL	No
	-	-	**CL Day 1**	CL Day 2	CL Day 3	-	-

Patient B is eligible for a CLABSI on 4/4 (CL Day 3) through 4/5. An accessed device (CL or port) is in place > 2 consecutive calendar days making it an eligible CL on 4/4 (CL day 3). A BSI with a DOE on the day of or the day after device removal or patient discharge is considered device associated (CLABSI).

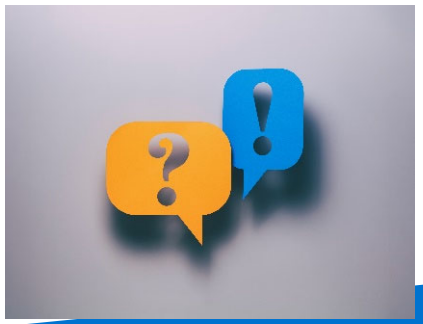
Date	31-Mar	1-Apr	2-Apr	3-Apr	4-Apr	5-Apr	6-Apr
Patient C: CL Status	CL in	CL in	**CL in/ CL out**	CL in	CL in	**CL in/ CL out**	No device
Accessed	Yes	Yes	**Removed**	**Placed**	Yes	**Removed**	
Eligible for CLABSI event	**Yes**	Yes	Yes	Yes	Yes	Yes	Yes
	CL Day 3	CL Day 4	CL Day 5	CL Day 6	CL Day 7	CL Day 8	

Patient C was admitted to an inpatient location on 3/29 with a central line in place. Patient C becomes eligible for a CLABSI on 3/31 (CL Day 3) through 4/6 because an accessed CL had been in place > 2 consecutive calendar days. A BSI DOE occurring on the day of or the day after device removal or patient discharge is considered a device-associated infection (CLABSI). The patient remains eligible for a CLABSI event through 4/6 because a full calendar day **did not pass** without a CL in place, therefore, device counts continue uninterrupted.

KEY TERMS IN BSI SURVEILLANCE: *Location of Attribution*

- **Example 1:**
- 3/10-Patient is seen in the emergency department and transferred to observation unit for monitoring
- 3/11: Patient is transferred to the medical surgical unit
- 3/12: Blood cultures collected in the medical surgical unit and positive for *Enterococcus faecium*

Date	Patient Location	Location of Attribution
3/10	ED observation unit	
3/11	Observation Unit Medical Surgical Unit	
3/12	Medical surgical unit	Medical Surgical Unit



KEY TERMS IN BSI SURVEILLANCE: *Location of Attribution*

- **Example 2:**
- 3/19-Patient is admitted to 5 West
- 3/22: Patient discharged from 5 West
- 3/23: Patient returns to the ED. Blood cultures are collected and positive for *Staphylococcus aureus*
- 3/24 Patient is admitted to 3 East

Date	Patient Location	Location of Attribution
3/19	5 West	
3/22 Discharged	5 West	
3/23 Positive BC	ED	5 West
3/24	3 East	

KEY TERMS IN BSI SURVEILLANCE: *Repeat Infection Timeframe*

- **Example 3:**
- 2/28-Patient is admitted to 4 East; BC positive for *E. coli*
- 3/5: Patient is discharged to oncology ward at Facility B with central line in place
- 3/12: Blood cultures collected positive for *E. coli*
- 3/14: Central line removed

Date	Patient Location	Location of Attribution
2/28 (Facility A) + BC	4 East	?
3/5-Discharged to (Facility B)	Oncology	
3/12 (Facility B) + BC	Oncology	Medical Surgical Unit
3/14 (Facility B)	Oncology	

Note: The RIT applies during a patient's single admission, including the day of discharge and the day after, in keeping with the Transfer Rule. A RIT does not carry over from one admission to another even if readmission is to the same facility.

LCBI CRITERION 1:

- Patient of any age has a **recognized bacterial or fungal** pathogen, not included on the NHSN common commensal list identified from one or more blood specimens obtained by a culture by non-culture based microbiologic testing (NCT) methods *identified to the genus or species level*

AND

- Organism(s) cultured from blood is not related to an infection at another site

LCBI-2 AND 3 CRITERIA:

LCBI 2: Any age patient have at least one: fever (>38.0°C), chills or hypotension

LCBI 3: A patient < 1year of age have at least one: fever (>38.0°C), apnea, hypothermia, bradycardia

AND

- Organism (s) Organism(s) identified from blood is not related to an infection at another site (See Appendix B: Secondary BSI Guide).

AND

- The same NHSN common commensal is identified from **two or more blood specimens** drawn on separate occasions by a culture

KEY CONCEPT

Determining matching organisms:

- If the organism is less definitively identified in one culture than the other, the identifications must be complementary.
  - *Example: A blood culture growing CNS and a blood culture growing S. epidermidis are considered a match because S. epidermidis is a CNS*
  - *Example: A blood culture growing CNS and a blood culture growing Staphylococcus are NOT considered matching because Staphylococcus can be either CNS or CPS*
- If genus and species are identified in both specimens, they must be the same
  - ***Example:*** *A blood specimen reported as Enterobacter cloacae and an intraabdominal specimen of Enterobacter cloacae are matching organisms.*
  - ***Example:*** *A blood specimen reported as Enterobacter cloacae and an intraabdominal specimen of Enterobacter aerogenes are NOT matching organisms as the species are different.*

MATCHING ORGANISMS TABLE

(Chapter 17, Page 17-3)

Examples for Determining Matching Organisms (correct selection for NHSN reporting is bolded)

Identification # 1	Identification # 2	Matching Organisms Yes or No
Bacteroides vulgatus	*Bacteroides fragilis*	*No*
Enterococcus faecalis	*Enterococcus*	*Yes*
Enterococcus faecium	*Enterococcus faecalis*	*No*
Pseudomonas species	***Pseudomonas aeruginosa***	*Yes*
Coagulase-negative Staphylococcus	*Staphylococcus aureus*	*No*
Staphylococcus epidermidis	Coagulase-negative Staphylococcus	*Yes*
Staphylococcus species	Coagulase-positive Staphylococcus	*No*
Streptococcus species	*Streptococcus* Viridans Group	*No*
Yeast	***Candida*** species	*Yes*

BLOOD SPECIMEN COLLECTION TECHNIQUES:

Blood Specimen Collection

The "two or more blood specimens drawn on separate occasions" criterion is met when any of the below are noted:

a. blood from at least two separate blood draws is collected on the same or consecutive calendar days
   OR
b. two separate site preparations (decontamination steps) are performed during specimen collection
   OR
c. the blood cultures are assigned separate specimen numbers, processed individually, and are reported separately in the final laboratory report.

CURRENT GUIDANCE

UPDATED GUIDANCE

Blood Specimen Collection

The "two or more blood specimens drawn on separate occasions" criterion is met if there is blood collected from at least two separate blood draws on the same or consecutive calendar days

AND

the blood cultures are assigned separate specimen numbers, processed individually, and are reported separately in the final laboratory report. The separate specimen numbers indicate two separate site preparations (decontamination steps) are performed during specimen collection.

BLOOD SPECIMEN COLLECTION TECHNIQUES:

- NHSN defers to the accession numbers assigned by the laboratory **since this is the most standardized way to determine if specimens are considered separate blood cultures**.
  - If the lab assigns different accession numbers to one blood specimen from each set and the organisms are matching, the blood specimens **are considered collected on separate occasions**.
  - There is no exception provided for the use of accession numbers when determining if the "separate occasions" requirement is met.
- Improper blood collection technique does not exclude a positive blood specimen from CLABSI surveillance
- Physician diagnosis, such as documentation of contamination, is not a part of the BSI definition criteria (LCBI 1,2 or 3).

BLOOD SPECIMEN COLLECTION: *Accession Numbers*

- 3/1: Patient is admitted, and central line is placed
- 3/4: Fever and hypotension documented
  - Blood specimen collected and positive for *Staphylococcus hominis* X 2
  - No documentation of site prep
  - Separate lab accession numbers documented in the final lab report

	Yes	No
Is LCBI-2 or LCBI-3 criterion met	X	
Matching common commensal identified	X	
Separate site preparations		X
Separate accession number	X	

Table 2: Mucosal Barrier Injury Laboratory-Confirmed Bloodstream Infection (MBI-LCBI)

An MBI-LCBI is a subset of the LCBI criteria; therefore, a BSI event must fully meet an LCBI criterion before evaluating for the corresponding MBI-LCBI criteria.

The MBI-LCBI DOE will always be the date the prerequisite LCBI criteria are met. Abnormal ANC and WBC values reflect risk factors for acquiring an MBI-LCBI, not symptoms of infection and therefore are not used in DOE determinations.

Must meet **one** of the following MBI-LCBI criteria

MBI-LCBI 1	MBI-LCBI 2	MBI-LCBI 3
Patient of **any age** fully meets LCBI 1 criterion	Patient of **any age** fully meets LCBI 2 criterion	Patient **≤1 year of age** fully meets LCBI 3 criterion
with at least **one** blood specimen	with at least **two matching** blood specimens	
with **ONLY intestinal organisms** from the NHSN MBI organism list*	with **ONLY Viridans Group *Streptococcus*** *and/*or ***Rothia spp.*** alone but no other organisms†	
identified by culture or non-culture based microbiologic testing method	identified by culture	

AND

Patient meets at least *one* of the following:

1. Is an allogeneic hematopoietic stem cell transplant recipient within the past year with **one of the following** documented during same hospitalization as positive blood specimen:
   a. Grade III or IV gastrointestinal graft versus host disease [GI GVHD]
   OR
   b. ≥1-liter diarrhea in a 24-hour period (or ≥20 mL/kg in a 24-hour period for patients <18 years of age) with onset on or within the 7 calendar days before the date the positive blood specimen was collected.

   OR

2. Is neutropenic, defined as at least two separate days with ANC† and/or WBC values <500 cells/mm^3 collected within a 7-day time period which includes the collection date of the positive blood specimen, the 3 calendar days before and the 3 calendar days after (See Table 5).

Table 2: Mucosal Barrier Injury Laboratory Confirmed Bloodstream Infection Table (MCBI-LCBI)

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		Day -7	Day -6	Day -5	Day -4	Day -3	Day -2	Day -1	Day 1*	Day 2
A	WBC	100	800	400	300	ND	ND	320	400	230
B	ANC	ND	410	130	ND	ND	120	110	ND	110

MCBI-LCBI 1

+ BC w/Candida spp. x1

MCBI-LCBI 2

+ BC with Viridans strep x2 and fever > 38ºC

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CLABSI EXCLUSIONS

- **Extracorporeal life support (ECLS or ECMO)**
  - A BSI meeting LCBI criteria with an eligible CL where ECMO is present for > 2 days on the BSI DOE and is still in place on the DOE or day before is considered an LCBI.
- **Ventricular assist device (VAD)**
  - A BSI meeting LCBI criteria with an eligible CL where a VAD is present for > 2 days on the BSI DOE and is still in place on the DOE or day before is considered an LCBI.
- **Patient Injection**
  - A BSI meeting LCBI criteria that is accompanied by documentation of observed or suspected patient injection in the vascular access device will be considered LCBI
  - This is specific to **INJECTION** and not tampering or manipulating
  - Documentation must occur within the BSI IWP

CLABSI EXCLUSIONS

- **Pus at the Vascular Access Site**
  - All the following elements are needed:
    - Central line and another vascular access device
    - Pus at the site at one of the below vascular access devices
    - Specimen collected from that site with at least one matching organism to an organism identified in blood

Vascular Access Devices Included In This Exception	
Arterial catheters unless in the pulmonary, aorta or umbilical artery	Hemodialysis reliable outflow (HERO) dialysis catheters
Arteriovenous fistulae Non-accessed CL (those neither inserted nor used during current admission)	Intra-aorta balloon pump (IABP) devices
Arteriovenous grafts	Arteriovenous fistulae
Atrial catheters	Peripheral IV or Midlines

KNOWLEDGE CHECK: MR. SAN T. CLAUS

- 3/7: Mr. San T. Claus admitted to ICU w/fever and tachycardia
- 3/7: Central line placed in ICU
- 3/8: Mr. San T. Claus is transferred to 3A
- 3/9: Blood culture collected due to fever and chills
  - **Culture positive for *Staphylococcus aureus***

No other source of infection identified

IS LCBI CRITERIA MET?

1. No, there is only a single common commensal identified.
2. No, the fever is eligible for use, but the chills are not.
3. Yes, the organism identified is a recognized pathogen
4. Yes, there is a common commensal identified and at least one eligible symptom

KNOWLEDGE CHECK: MR. SAN T. CLAUS

- 3/7: Mr. San T. Claus admitted to ICU w/fever and tachycardia
- 3/7: Central line placed in ICU
- 3/8: Mr. San T. Claus is transferred to 3A
- 3/9: Blood culture collected due to fever and chills
  - **Culture positive for *Staphylococcus aureus***

No other source of infection identified

WHAT IS THE DATE OF EVENT (DOE)?

1. 3/8 because the patient has a fever.
2. 3/7 because this is when the central line was placed
3. 3/9 because there are two signs and symptoms noted
4. 3/9 because a recognized pathogen is identified

KNOWLEDGE CHECK: MR. SAN T. CLAUS

- 3/7: Mr. San T. Claus admitted to ICU w/fever and tachycardia
- 3/7: Central line placed in ICU
- 3/8: Mr. San T. Claus is transferred to 3A
- 3/9: Blood culture collected due to fever and chills
  - **Culture positive for *Staphylococcus aureus***

No other source of infection identified

IS THIS BSI EVENT A CLABSI?

1. No, the central line is not in place > 2 consecutive calendar days on the BSI date of event or before.
2. No, LCBI criteria re not met, so there is no BSI event
3. Yes, the central line is in place > 2 consecutive calendar days on the BSI date of event or before

KNOWLEDGE CHECK: MS. SAN E. TIZE

- 3/18: Ms. San E. Tize admitted to the oncology and port placed.
- 3/19: Fever (102° F), chills
- 3/20: blood cultures collected and there is no documentation of different site preps; different accession numbers noted
  - ***Coagulase-negative Staphylococcus (CNS)* X2 identified**
- 3/22: Repeat blood cultures X 2 collected and positive for *CNS*

No other source of infection identified

IS LCBI CRITERIA MET?

1. No, there is only a single common commensal identified.
2. No, the fever is eligible for use, but the chills are not.
3. Yes, the organism identified is a recognized pathogen
4. Yes, there is a common commensal identified and at least one eligible sign or symptom

Knowledge Check: Ms. San E. Tize

- 3/18: Ms. San E. Tize admitted to the oncology and port placed.
- 3/19: Fever (102° F), chills
- 3/20: blood cultures collected and there is no documentation of different site preps; different accession numbers noted
  - ***Coagulase-negative Staphylococcus (CNS)* X2 identified**
- 3/22: Repeat blood cultures X 2 collected and positive for *CNS*

No other source of infection identified

Is this Present on Admission (POA) or HAI?

1. This is an HAI event because the positive blood cultures are collected on hospital day 3
2. This is a POA event because the fever is on hospital day 2 and matching common commensal organisms are identified.
3. The blood specimens are considered contaminants.

SECONDARY BSI GUIDE

Table B1 Chapter 4 page 36

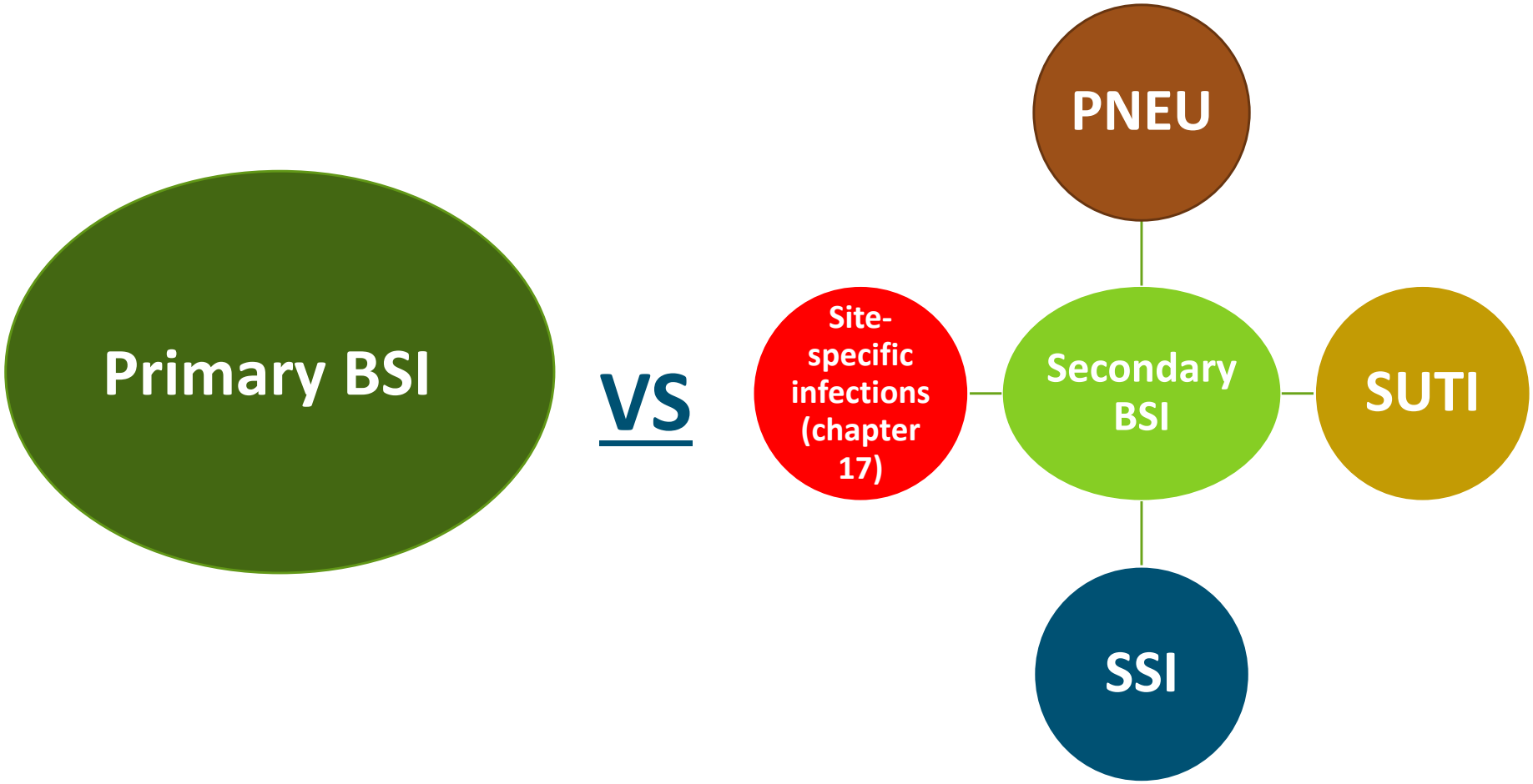
Table B1: Secondary BSI Guide: List of all NHSN primary site-specific definitions available for making secondary BSI determinations using Scenario 1 or Scenario 2

Scenario 1	Scenario 2
A positive blood specimen must contain at least **one eligible matching organism** to the site-specific specimen	Positive blood specimen must be an **element** of the **site-specific definition**
And the blood specimen is collected in the site-specific **secondary BSI attribution period**	**And** blood specimen is collected in the site-specific **infection window period**
And an eligible organism **identified from the site-specific specimen** is used as an element to meet the site-specific definition	And an eligible organism **identified in a blood specimen** is used as an element to meet the site-specific definition

Site	Criterion
ABUTI	ABUTI
BONE	1
BRST	1
CARD	1
CIRC	2 or 3
CONJ	1a
DECU	1
DISC	1
EAR	1, 3, 5 or 7
EMET	1
ENDO	1
EYE	1
GE	2a
GIT	2a, 2b (only yeast)
IAB	1 or 3a
IC	1
JNT	1
LUNG	1
MED	1
MEN	1
ORAL	1, 3a, 3d (only yeast)
OREP	1
PJI	1 or 3e
PNEU	2 or 3
SA	1
SINU	1
SSI	SI, DI or OS
SKIN	2a
ST	1
UMB	1a
UR	1a or 3a
USI	1
SUTI	1a, 1b or 2
VASC *only as SSI*	1
VCUF	3

Site	Criterion
ABUTI	ABUTI
BONE	3a
BURN	1
DISC	3a
ENDO	4a, 4b, 5a or 5b (specific organisms) 6e or 7e plus other criteria as listed
GIT	1b or 2c
IAB	2b or 3b
JNT	3c
MEN	2c or 3c
OREP	3a
PNEU	2 or 3
SA	3a
UMB	1b
USI	3b or 4b

PRIMARY BSI vs SECONDARY BSI



AN ADDITIONAL SECONDARY BSI KEY TERM

- Secondary bloodstream infection attribution period (SBAP)
  - The period in which a blood specimen must be collected for a secondary BSI to be attributed to a primary site of infection
  - **Includes** the Infection Window Period (IWP) combined with the Repeat Infection Timeframe (RIT)
  - 14-17 days in length depending upon the date of event

UTI Date of Event:	UTI IWP:	UTI RIT:	UTI SBAP:
2/4	2/1-2/7	2/4-2/17	2/1-2/17

ENDOCARDITIS (ENDO) CRITERIA

- **ENDO Infection Window Period**
  - 21 days during which all site-specific infection criteria must be met.
    - Date the first positive diagnostic test that is used as an element of the ENDO criterion was obtained, the 10 calendars days before and the 10 calendar days after
- **ENDO RIT**
  - Extended to include the remainder of the patient's current admission
- **ENDO SBAP**:
  - Includes the 21-day IWP and all subsequent days of the patient's current admission
  - Limited to organism(s) identified in blood specimen that match the organism(s) used to meet the ENDO definition

DEFINITIONS

Secondary BSI:

- In order for a bloodstream infection to be determined to be secondary to another site of infection the following requirements must be met.
- At **least one organism** from the blood specimen matches an organism identified from the site-specific specimen that is used as an element to meet the NHSN site-specific infection criterion ***AND*** the blood specimen is collected during the secondary BSI attribution period

OR

- An organism identified in the blood specimen is an element that is used meet the NHSN site-specific infection criterion, and therefore is collected during the site-specific infection window period

ONE STEP: SCENARIO 1

- At least one organism from the blood specimen matches an organism identified from the site-specific specimen that is used as an element to meet the NHSN site-specific infection criterion

AND

- The blood specimen is collected during the secondary BSI attribution period

Blood and site-specific specimen has at least one matching organism

Site-specific is used as an element to meet a primary infection criterion

Positive blood specimen collected during the SBAP of the site-specific infection

"SCOOPING NON-MATCHING ORGANISMS"

- Pay close attention to your blood cultures!!
- If a single blood culture contains an organism that matches the site-specific specimen ***AND*** an organism that does not match:
  - "Scoop" up the non-matching organism
  - The non-matching organism is **"scooped up"** only when it is in the same blood specimen with a matching organism adopted one time only
    - The non-matching organism must be eligible for the NHSN site-specific infection
  - If there are subsequent blood cultures with the non-matching organism, you must assess these blood cultures for LCBI criteria.
- Reference Chapter 4, page 4-32: *Example 'b' under Scenario 1*

SECONDARY BSI SCENARIO 2

- An organism identified in the blood specimen is an element that is used to meet the NHSN site-specific infection criterion, and therefore is collected during the site-specific infection window period

Organism in the blood is an element used to meet the primary site infection criterion specimen has at least one matching organism

Blood specimen is collected during the IWP (or surveillance period if a SSI)

NEC, The Only Secondary BSI Attribution Exception

NEC-Necrotizing enterocolitis

Necrotizing enterocolitis in infants (≤1 year of age) must meet one of the following criteria:

1. Infant has at least ***one*** of the clinical and ***one*** of the imaging test findings from the lists below:
   At least *one* clinical sign:
   a. bilious aspirate** (see **Note**)
   b. vomiting
   c. abdominal distention
   d. occult or gross blood in stools (with no rectal fissure)

   And at least *one* imaging test finding which if equivocal is supported by clinical correlation (specifically, physician documentation of antimicrobial treatment for NEC):
   a. Pneumatosis intestinalis
   b. Portal venous gas (Hepatobiliary gas)
   c. Pneumoperitoneum
   ****Note:** Bilious aspirate from a transpyloric feeding tube should be excluded

2. Surgical NEC: Infant has at least ***one*** of the following surgical findings:
   a. surgical evidence of extensive bowel necrosis (>2 cm of bowel affected).
   b. surgical evidence of pneumatosis intestinalis with or without intestinal perforation.

Reporting Instructions

- Necrotizing enterocolitis (NEC) criteria include neither a site-specific specimen nor organism identified from blood specimen. A BSI is considered secondary to NEC if the patient meets one of the two NEC criteria **AND** an organism identified from blood specimen collected during the secondary BSI attribution period is an LCBI pathogen, or the same common commensal is identified from two or more blood specimens drawn on separate occasions collected on the same or consecutive days.
- Pneumatosis is considered an equivocal abdominal imaging finding for Necrotizing enterocolitis.
  - Examples of abdominal imaging include KUB, ultrasound, or an abdominal x-ray.
- NEC criteria cannot be met in patients > 1 year of age. Review GIT for eligibility.

- ***Chapter 17, page 17-23***
- ***A blood culture is deemed secondary to a NEC criterion if it is collected during the NEC SBAP***

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IMPORTANT SECONDARY BSI CONCEPT(s)

- Only primary BSIs set a 14-day BSI RIT
- ***Secondary BSIs do NOT-***an RIT will be set for the primary type of infection
- A positive blood culture on admission does **NOT** necessarily set a BSI RIT.
  - 2/12: Patient admitted with positive blood culture *Enterococcus faecalis*
  - 2/15: Positive blood culture *Staphylococcus aureus*
- It is necessary to determine if the ***POA* BSI** was primary or secondary to determine if the *subsequent* BSI must be investigated as possible LCBI

IMPORTANT

- The organism in the positive blood culture must be eligible for use in the site-specific infection criteria
- Chapter 2, page 2-22

Pathogen Assignment - Special Considerations

Pathogens excluded from specific infection definitions (for example, yeast in UTI, Example 3 or *Enterococcus* spp. in PNEU, Example 4) are also excluded as pathogens for BSIs secondary to that type of infection (specifically they cannot be added to one of these infections as a pathogen). The excluded organism must be accounted for as either:

1) A primary bloodstream infection (BSI/CLABSI)

OR

2) A secondary BSI attributed to another primary infection (for example, to an IAB or SINU), in accordance with Appendix B, Secondary BSI Guide of the BSI Event protocol

- The steps for secondary BSI determination*:

1. **Scenario 1**: Organism in the site-specific specimen is used to meet criteria, and the blood, collected in the secondary BSI attribution period matches at least one site-specific organism.
2. **Scenario 2:**Organism identified in the blood specimen is used as an element to meet the site-specific infection criterion, and therefore must be collected in the IWP.
3. **NEC:**Positive blood specimen is deemed secondary if captured in the NEC SBAP.

- If neither scenario or NEC exception is met, the BSI is a primary infection.
- POA BSIs must be investigated when a subsequent positive blood specimen is identified within 14 days-otherwise an incorrect determination can be made.Only a primary BSI creates a 14-day BSI RIT
- A positive blood specimen with a non-matching organism can be “scooped up” in the SBAP if it contains a matching organism used to cite an NHSN site-specific infection

RESOURCES:

Chapter 2-Identifying HAI for NHSN Surveillance

https://www.cdc.gov/nhsn/pdfs/pscmanual/2psc_identifyinghais_nhsncurrent.pdf

Chapter 4-Bloodsteam Infection Event

https://www.cdc.gov/nhsn/pdfs/pscmanual/4psc_clabscurrent.pdf

Chapter 15-NHSN Key Terms

https://www.cdc.gov/nhsn/pdfs/pscmanual/16psckeyterms_current.pdf

Chapter 17- Surveillance Definitions for Specific Types of Infections

https://www.cdc.gov/nhsn/pdfs/pscmanual/17pscnosinfdef_current.pdf


Any
Questions