



NHSN Bloodstream Infection Surveillance

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Acknowledgment

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NHSN training courses
www.cdc.gov/nhsn



Objectives

- Define key terms for bloodstream infections (BSI) and central line-associated BSI (CLABSI)
- Review 2016 CLABSI surveillance protocols
- Describe how to collect CLABSI denominator data (central line days and patient days)
- Review use of CLABSI data collection forms

CLABSI Reporting Requirements in California

- California law requires that all general acute care hospitals report CLABSI from all inpatient locations to CDPH via NHSN
- California law also requires that central line insertion practices (CLIP) data are reported for each central line inserted in an ICU, including pediatric and neonatal ICUs
- CMS also requires CLABSI reporting as a component of their hospital quality reporting program

Essentials of CLABSI Surveillance

- Know CLABSI protocols and carry NHSN definitions with you
- Consistently apply CLABSI definition criteria
- Report all CLABSI meeting definition; exclude those that don't
- Failure to report all CLABSI is a breach of NHSN Rules of Behavior and results in
 - Decreased usefulness of national comparative data
 - Unfair comparisons between facilities
 - Validation discrepancies
 - Negative impact on CMS Inpatient Quality Reporting scores and facility reimbursement
- Concerns about CLABSI definitions should be sent to NHSN

CLABSI by Surveillance Definitions vs. CLABSI by Clinical Diagnosis: What if Disagreements?

	Surveillance Definition	Clinical Diagnosis
Purpose	To consistently identify CLABSI <u>within a population</u> for targeting prevention and assessing trends over time	To identify CLABSI in <u>individual patients</u> and to determine appropriate treatment
Criteria	Uses a limited number of predetermined data elements	Considers all diagnostic information available
Clinician judgement	Excluded from CLABSI definitions	Valued for patient management

- At times, clinical and surveillance determinations will not match
- A surveillance determination must be used for NHSN, and must always “trump” an alternative clinical diagnosis for CLABSI reporting purposes

CLABSI Key Terms

Date of Event

- The date the first element used to meet the CLABSI criterion occurs for the first time within the 7-day infection window period

Infection Window Period

- 7-day period in which all CLABSI criterion must be met
- Includes the date of the first positive blood culture, 3 calendar days before, and 3 calendar days after

CLABSI Key Terms (Continued)

Repeat Infection Timeframe

- 14-day CLABSI timeframe, which starts with the CLABSI date of event as day 1.
- No new CLABSI are reported during this period.
- Additional blood culture pathogens identified in this timeframe are added to the CLABSI event

Central Line Definition

- 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

The great vessels are:

- Aorta
- Pulmonary arteries
- Superior vena cava
- Inferior vena cava
- Brachiocephalic veins
- Internal jugular veins
- Subclavian veins
- External iliac veins
- Common iliac veins
- Femoral veins
- Umbilical artery & vein (neonates)



Note: Femoral arteries are not great vessels

Central Line Days Required for CLABSI

For a laboratory confirmed bloodstream infection (LCBI) to be considered central-line associated (CLABSI)

- On the date of event, the central line (or umbilical catheter) must have been in place for >2 calendar days (day 1 = central line placement date)

- AND -

- Central line must be in place on the date of event or was removed the day before

Note: If the central line was in place for >2 days and then removed, the date of event must be either the day the line is discontinued or the next day

Implanted Central Lines Present Upon Hospital Admission

- An implanted central line (e.g., port) present upon admission is eligible for CLABSI once the line is accessed in the hospital
 - CLABSI can occur until the line is “pulled” or until the patient is discharged from the hospital
- If a patient is admitted with an implanted central line in place, and that is the patient’s only central line, the date the line is first accessed is considered line day 1
- “Access” is defined as line placement, infusion, or withdrawal through the line
- Once accessed, the implanted line must be counted in central line day counts until discharge from the hospital

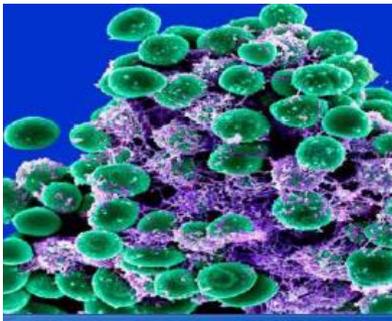
Blood Culture Specimen Notes

- All blood cultures (regardless of collection method) must be included in NHSN surveillance, including
 - Blood collected via venipuncture
 - Blood collected through vascular catheters
- Positive blood cultures cannot be considered contaminants unless there is only a single blood culture with a common commensal pathogen



NHSN Blood Culture Terms

“One or more blood cultures” means at least one bottle from a blood draw is reported by the laboratory as having at least one organism (i.e., is a positive blood culture)



A BSI “recognized pathogen” does not include organisms considered to be common commensals by NHSN. (e.g. *Bacillus spp.*, *Corynebacterium spp.*, *Staphylococcus epidermidis*, *Staphylococcus hominis*, *Streptococcus mutans*)

NHSN Blood Culture Terms (Continued)

- “Drawn on separate occasions” implies that the blood cultures were collected in a manner that suggests two separate blood draw site preparations were performed
- Blood draws collected from separate sites (e.g. different arms)
- Blood draws collected from separate accesses of the same site, including
 - Two draws from a single lumen catheter
 - Two draws from separate lumens of a catheter
 - Two draws a few minutes apart

Determining 'Sameness' of Common Commensals

- Assume that the organisms are the same if
 - the organism from one culture is identified to both genus and species level

AND

- the companion culture identifies only the organism genus with or without other attributes

Example: *S. epidermidis* is the SAME as *Staphylococcus spp.*

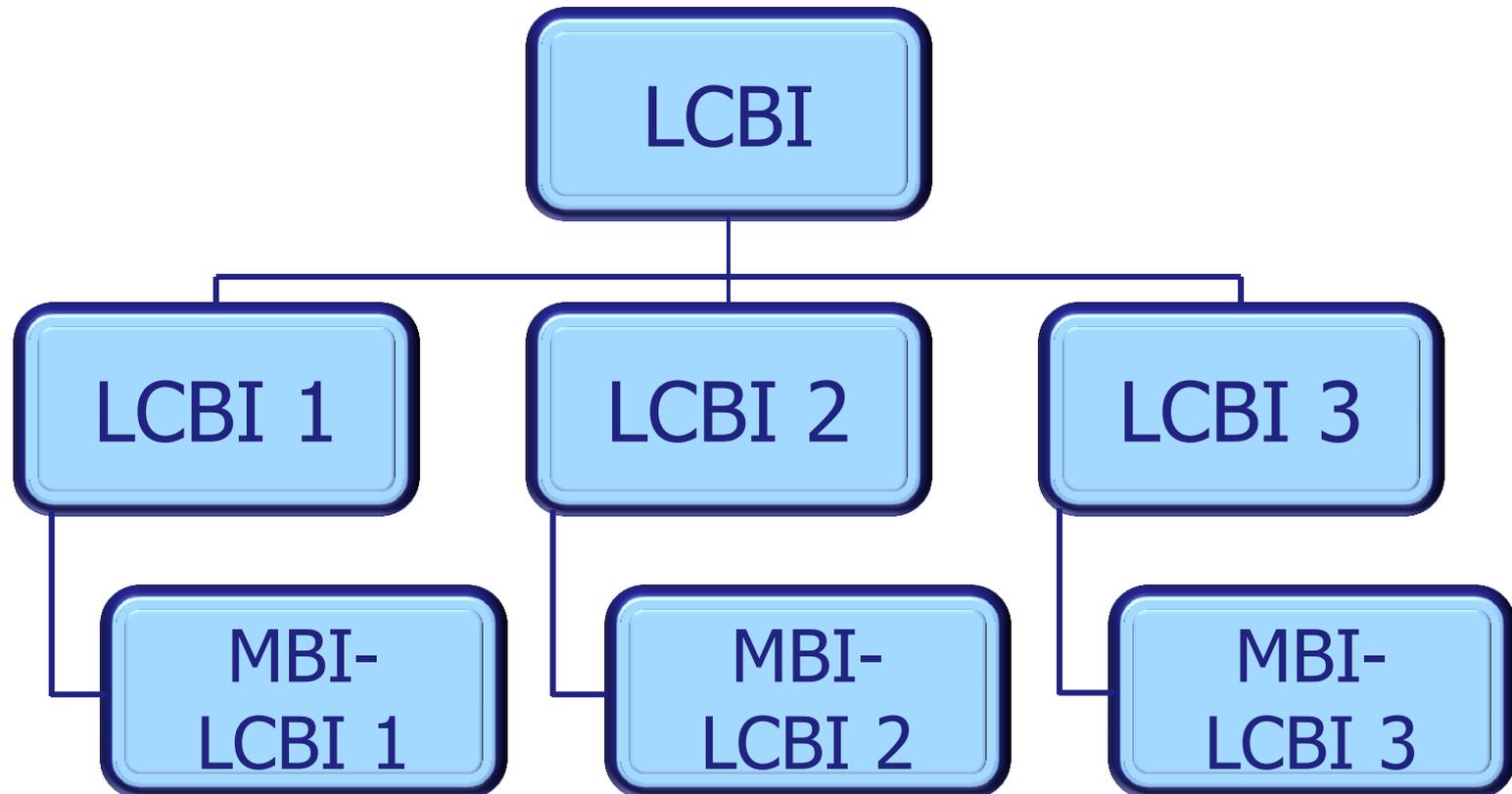
- Antibigrams (organism sensitivity profiles) are NOT utilized to determine the sameness of two organisms
 - Report the more resistant organism

Determining 'Sameness' of Common Commensals (Continued)

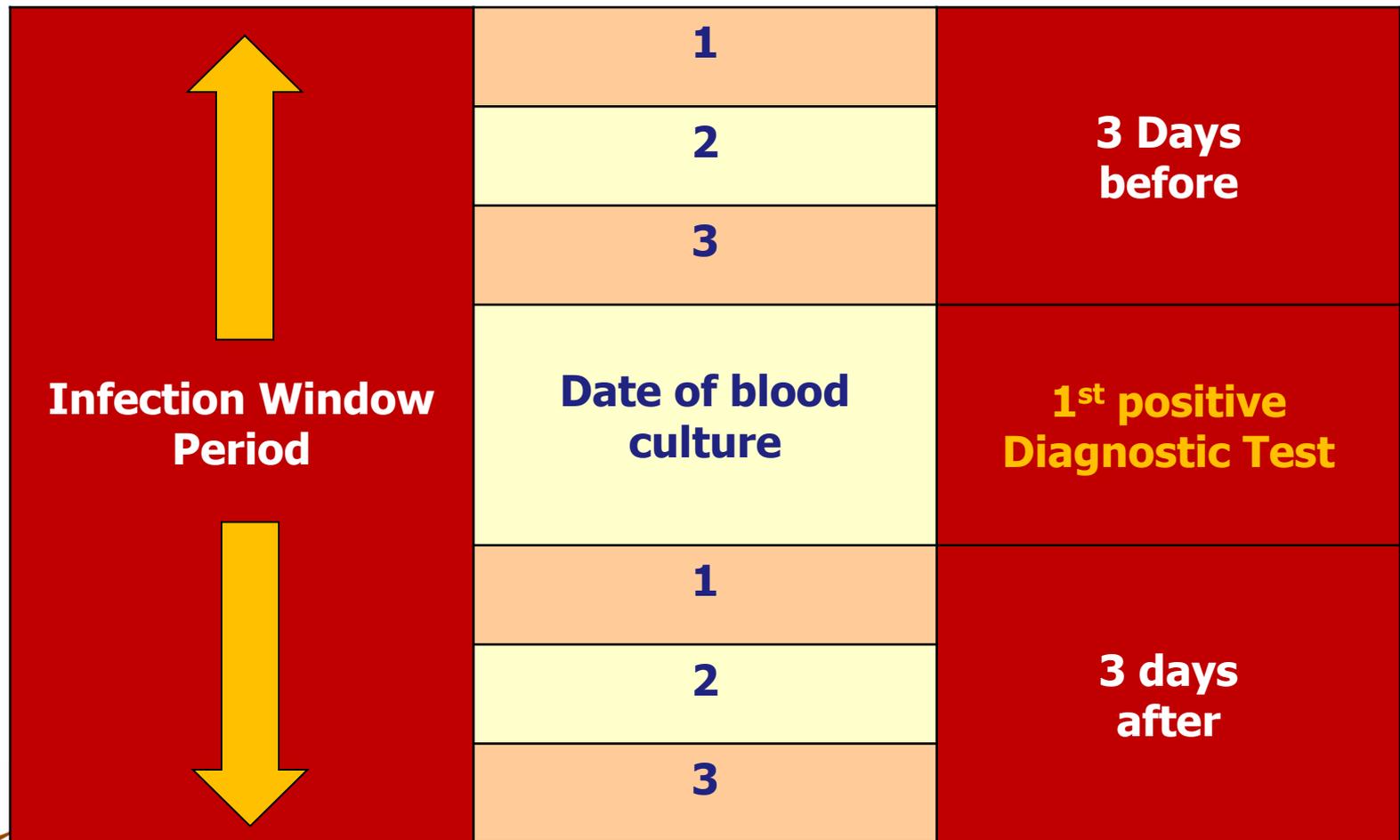
Blood Culture Report	Companion Blood Culture Report	Report BSI to NHSN as...
Coagulase-positive staphylococci	<i>S. aureus</i>	<i>S. aureus</i>
<i>S. epidermidis</i>	Coagulase-negative staphylococci	<i>S. epidermidis</i>
<i>Enterococcus</i> spp.	<i>E. faecium</i>	<i>E. faecium</i>
<i>Bacillus</i> spp. (not <i>anthracis</i>)	<i>B. cereus</i>	<i>B. cereus</i>
<i>S. Salivarius</i>	Strep viridans	<i>S. salivarius</i>



Laboratory-Confirmed Bloodstream Infection (LCBI) Criteria



LCBI Infection Window Period



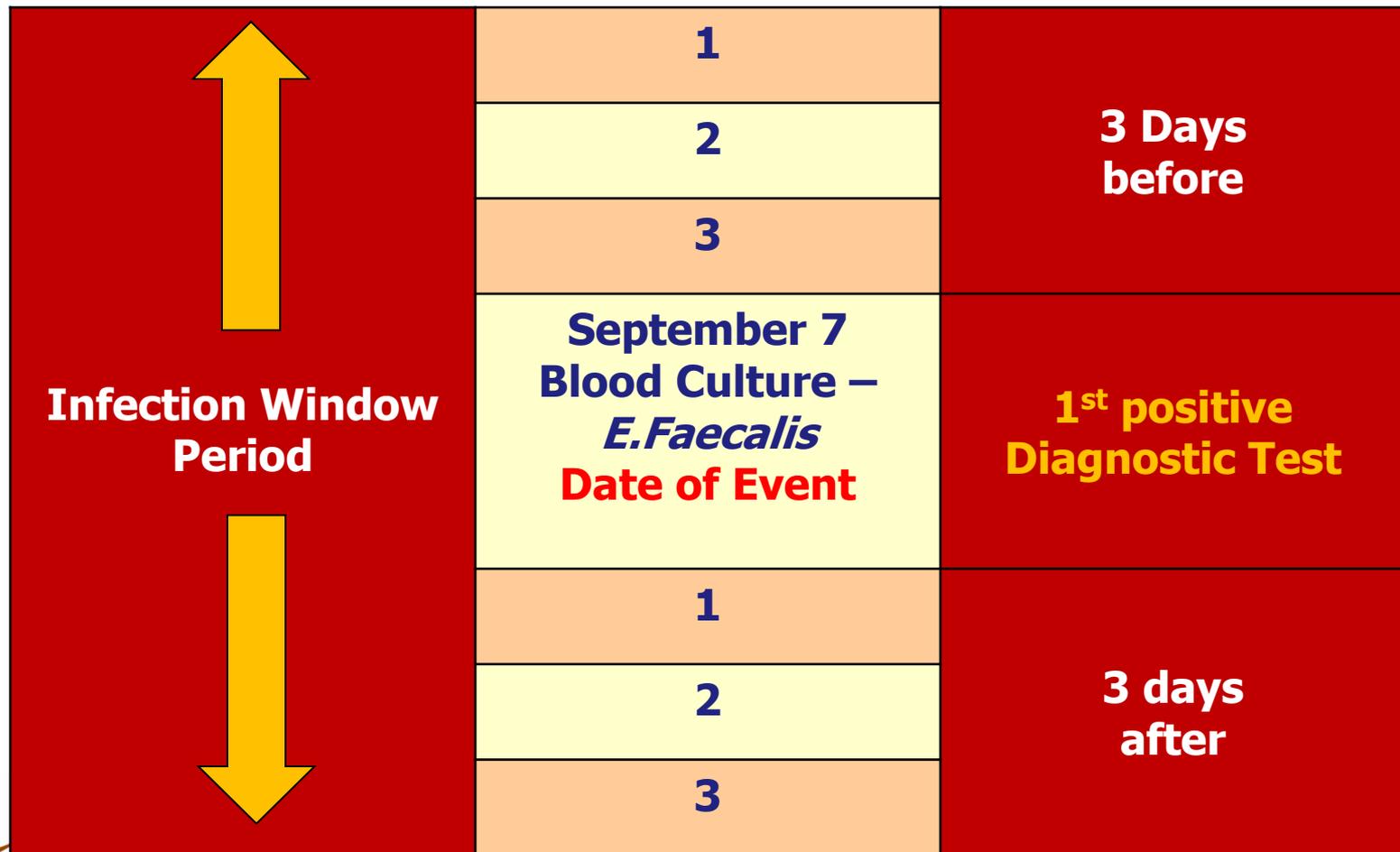
LCBI Criterion 1

- Patient has a recognized pathogen cultured from one or more blood cultures
- AND -
- Organism cultured from the blood is not related to an infection at another site

Example:

- Mary Jones had a CL inserted on admission, September 3.
- On September 6 and 7, she was hypotensive and had an elevated WBC.
- On September 7, blood cultures drawn, which grew *E. faecalis*. No other source of *E. faecalis* infection is present.
- Mary meets LCBI criterion 1.

LCBI 1 Infection Window Period



LCBI Criterion 2

- The same common commensal is cultured from two or more blood cultures drawn on separate occasions (same or consecutive days) within the 7-day infection period
 - AND -
- Patient has at least one of the following signs or symptoms: Fever (38.0°C), chills, or hypotension
 - AND -
- Organisms cultured from blood are not related to an infection at another site

Refer to complete NHSN list of common commensals at

www.cdc.gov/nhsn/XLS/master-organism-Com-CommensalsLists.xlsx

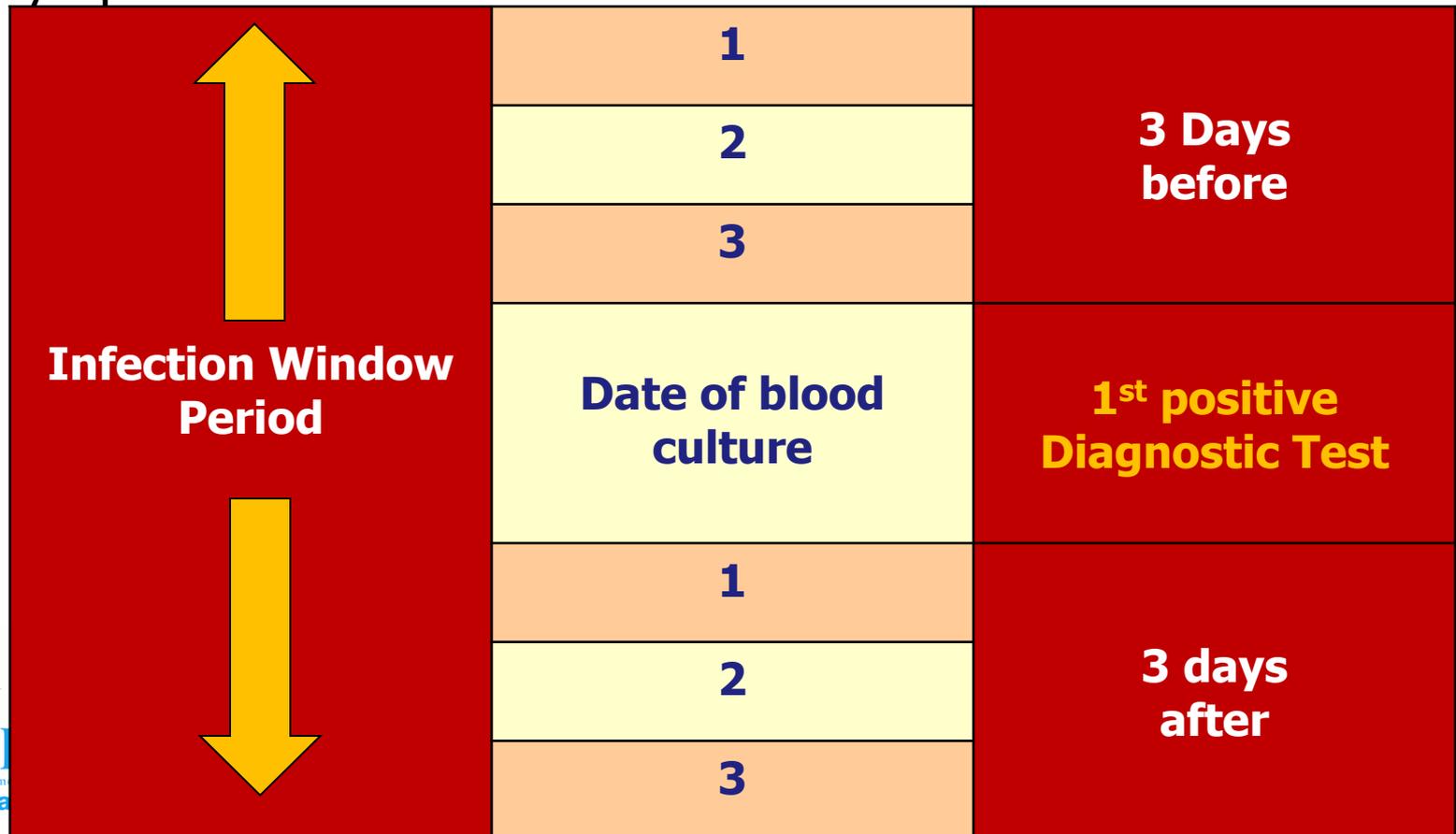
LCBI Criterion 2

Example:

- Edith Smith had a central line inserted on admission on September 3.
- On September 6 and 7, she was hypotensive and had an elevated WBC.
- On September 7, two blood cultures were drawn. One grew coagulase-negative *Staphylococcus* and the other grew *Staphylococcus epidermidis*. No other source of infection is present.
- Edith meets LCBI criterion 2

LCBI 2 Date of Event

If a sign/symptom occurs in the 3 days before the positive blood culture was collected, the LCBI date of event is the day of first sign/symptom



LCBI Criterion 3

Patient \leq 1 year of age

- Has the same common commensal cultured from two or more blood cultures drawn on separate occasions (same or consecutive days) within the 7-day infection period
 - AND -
- Has at least one of the following signs or symptoms: fever ($>38^{\circ}\text{C}$), hypothermia ($<36^{\circ}\text{C}$), apnea, or bradycardia
 - AND -
- Organisms cultured from blood are not related to an infection at another site

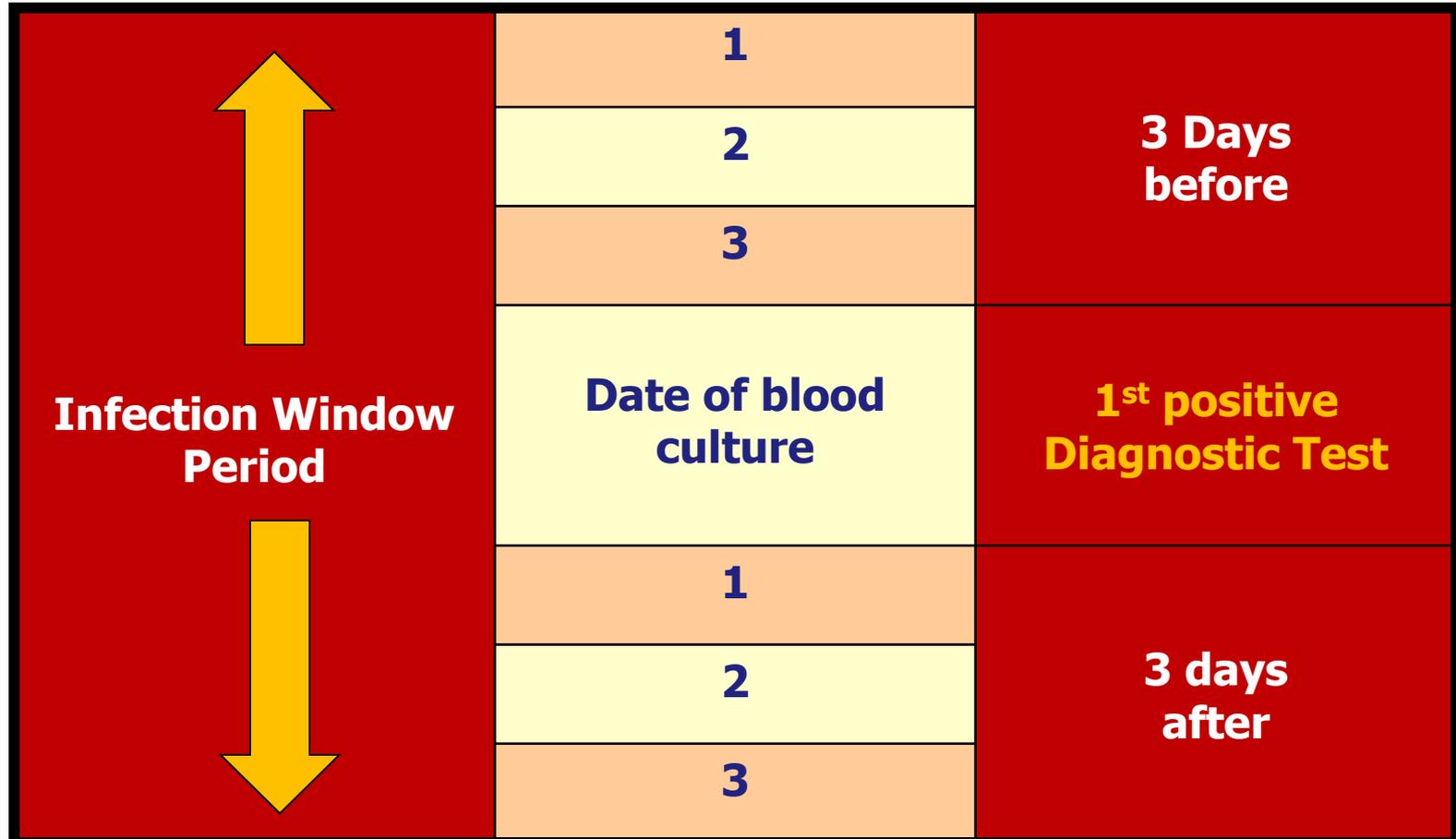
Refer to complete list of NHSN common commensals at
<http://www.cdc.gov/nhsn/XLS/master-organism-Common-CommensalsLists.xlsx>

LCBI Criterion 3

Example:

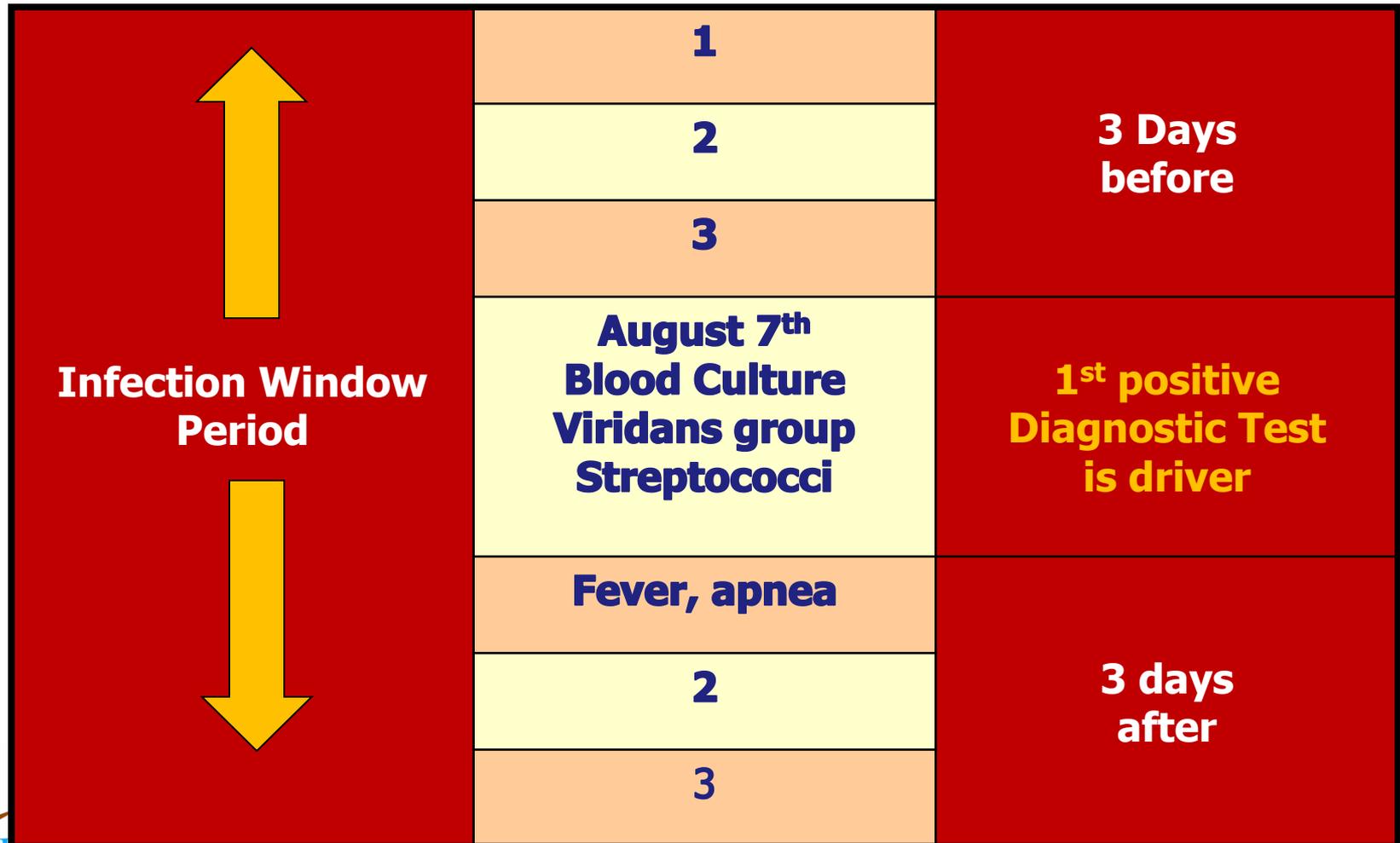
- Baby girl with respiratory distress admitted to NICU on August 4 following vaginal delivery at 32 weeks. Umbilical catheter inserted.
- On August 7, she is more irritable with increasing respiratory distress. Afebrile. Blood culture (x1) grows viridans group *Streptococci*.
- On August 8, repeat blood culture (x1) grows viridans group *Streptococci*. Temp 39°C. Periods of apnea documented.
- No other source of infection.
- Baby meets LCBI 3 criterion.

LCBI 3 Date of Event



If a sign/symptom occurs in the 3 days after the positive blood culture was collected, the LCBI date of event is the day of blood culture collection

Example: Date of Event, LCBI 3



Age Criteria for BSI Surveillance

Remember:

- LCBI criteria 1 and 2 may be used for patients of ANY age, including those ≤ 1 year old
- Criterion 3 only applies to patients who ≤ 1 year old

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

- MBI are a subset of LCBI criteria
- Must meet LCBI 1, 2, or 3 prior to applying MBI criteria
- If an MBI-LCBI is identified, and a subsequent blood culture during the 14-day repeat infection timeframe is found to have an organism excluded from MBI criteria, the original MBI-LCBI event must be edited to be reported as an LCBI
- Add the new pathogen to the event record

Utilizing MBI-LCBI Data

- MBI-LCBI reporting has been required since 2015
 - NHSN establishing new MBI-LCBI CLABSI SIRs
- MBI-LCBI will be removed from 2016 CLABSI data shared with CMS
- Your hospital may choose to consider MBI-LCBI data separately from LCBI data in your internal quality improvement activities because prevention efforts for the two types of BSI may differ

MCBI-LCBI Organisms

Complete listing of MBI-CCBI organisms are available at
<http://www.cdc.gov/nhsn/acute-care-hospital/clabsi/index.html>

Bacillus pestis	YERPE	54365000	Yersinia pestis (organism)
Bacterium rettgeri	PR	14196002	Providencia rettgeri (organism)
All Organisms	Top Organisms	Common Commensals	MBI Organisms

Partial list of eligible Enterobacteriaceae includes:

Citrobacter

Proteus

Shigella

Enterobacter

Providencia

Yersina

Escherichia

Salmonella

Klebsiella

Serratia

MBI-LCBI Criterion 1

- Patient of any age meets criterion 1 for LCBI with at least one blood culture growing any of the following intestinal organisms with no other organisms isolated: *Bacteroides spp.*, *Candida spp.*, *Clostridium spp.*, *Enterococcus spp.*, *Fusobacterium spp.*, *Peptostreptococcus spp.*, *Prevotella spp.*, *Veillonella spp.*, or Enterobacteriaceae*

AND patient meets at least one of the following:

- Is an allogeneic hematopoietic stem cell transplant recipient within the past year with one of the following documented during same hospitalization as positive blood culture:
 - Grade III or IV gastrointestinal graft versus host disease (GI GVHD)
 - ≥ 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 7 calendar days before the date the positive blood culture is collected.
- Is neutropenic, defined as at least 2 separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) < 500 cells/mm³ within a 7 day period which includes the date the positive blood culture was collected (Day 1), the 3 calendar days before and the 3 calendar days after.

Example: MBI-LCBI Criteria 1

Day #	7	6	5	4	3	2	1	1	2	3	4
WBC	100	800	400	300	Not tested	Not tested	320	400 + BC* w/ Candi da spp. X1	Not tested	550	600

Patient meets MBI-LCBI criterion 1. subcriterion 2: Positive blood culture with intestinal organism (*Candida* spp.) and neutropenia (2 separate days of WBC <500 cells/mm³ occurring on the date the positive blood culture was collected [Day 1, value = 400] or during the 3 days before or after that date [in this case, the day before or Day -1; value = 320]).

*Day the blood specimen that was positive was collected.

MCBI-LCBI Criterion 2

- Patient of any age meets criterion 2 for LCBI when the blood cultures are growing only **viridans group streptococci** with no other organisms isolated

AND patient meets at least **one** of the following:

- Is an allogeneic hematopoietic stem cell transplant recipient within the past year with one of the following documented during same hospitalization as positive blood culture:
 - Grade III or IV gastrointestinal graft versus host disease (GI GVHD)
 - ≥ 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 7 calendar days before the date the first positive blood culture was collected.
- Is neutropenic, defined as at least 2 separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cells/mm³ **within a 7 day period which includes the date the positive blood culture was collected (Day 1), the 3 calendar days before and the 3 calendar days after.**

Example: MCBI-Criteria 2

Day #	7	6	5	4	3	2	1	1	2	3	4
ANC	Not tested	410	130	Not tested	Not tested	120	110	Not tested; + BC* w/ viridans group strep X2 and fever 38.1° C	110	300	320

Patient meets MBI-LCBI criterion 2. subcriterion 2: At least 2 positive blood cultures with viridans group streptococci (in this case, 2 positive) and fever $>38.0^{\circ}\text{C}$ and neutropenia (2 separate days of ANC <500 cells/mm³ occurring on the date the positive blood culture was collected [Day 1] or during the 3 days before or after that date). In this case, the Day -1 value=110 and Day -2 value = 120. Note: any two days of Day -2, -1, 2, 3 and 4 could be used since ANC under 500 on those days.

*Day the blood specimen that was positive was collected.

MCBI-LCBI Criterion 3

- Patient ≤ 1 year of age meets criterion 3 for LCBI when the blood cultures are growing only **viridans group streptococci** with no other organisms isolated

AND patient meets at least **one** of the following:

- Is an allogeneic hematopoietic stem cell transplant recipient within the past year with one of the following documented during same hospitalization as positive blood culture:
 - Grade III or IV gastrointestinal graft versus host disease (GI GVHD)
 - ≥ 20 mL/kg diarrhea in a 24 hour period with onset on or within 7 calendar days before the date the first positive blood culture is collected.
- Is neutropenic, defined as at least 2 separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) < 500 cells/mm³ **within a 7 day period which includes the date the positive blood culture was collected (Day 1), the 3 calendar days before and the 3 calendar days after.**

Case Scenario 1

- Ms. Trinket was discharged from the ED with antibiotics for an infected wound on 2/5, but returns on 2/10 after passing out at a party
- Her symptoms on admission are fever, generalized pain, nausea, and hypotension. A central line is inserted in the ED and blood cultures are drawn, which are negative.
- She is admitted to the ICU. On hospital day four, 2/13, repeat blood cultures grow *E. coli*.

Case Scenario 1 - continued

Date	Device	LOC		RIT
Feb 5 D/C				
6				
7				
8				
9				
10 Re-admit	CLine	ED/ICU	Blood Cultures no growth, fever, pain, nausea, hypotension	
11	CLine	ICU		
12	CLine	ICU		
13	CLine	ICU	Blood Culture + <i>E.coli</i>	
14	CLine	ICU		
15	CLine	ICU		
16	CLine	ICU		
17	CLine	ICU		
18	CLine	ICU		
19	CLine	ICU		
20	CLine	ICU		
21	CLine	ICU		
22	CLine	ICU		
23	CLine	ICU		
24	CLine	ICU		
25	CLine	ICU		
26	CLine	ICU		

Determining BSI

Date of Event?

Infection Window?

Event type?

RIT?

REMEMBER!!

There is **NO**
Secondary BSI
Attribution Period for
LCBI !

Is this infection present-on-admission (POA) or an HAI?

A. HAI

B. POA

Rationale:

- ✓ Date of event determines POA or HAI
- ✓ Date of event is the date the first element of LCBI 1 criterion was met
- ✓ First element, pathogen cultured from blood with no other recognized source, occurred after hospital day 2

Present on Admission (POA)

- POA infections can have a date of event that occurs on the day of hospital admission or the day after admission
- The POA time period includes the day of admission, 2 days before admission, and the day after admission

Hospital Day	Criterion
1	
2	
3	
4	All elements of LCBI 1 MET
5	

Date Of Event →

POA

HAI

Case Scenario 1 (Continued)

- On 2/20, a repeat blood culture is collected and subsequently reported as growing *S. aureus*.
- No other source of infection is identified.

This is:

- A. Not a new reportable BSI. Add the organism to the original LCBI 1 event record
- B. Another primary BSI that meets LCBI 1 criteria

Case Scenario 1 Rationale

Date	Device	LOC		RIT
Feb 5 D/C				
6				
7				
8				
9				
10 Re-admit	CLine	ED/ ICU	Blood Cultures no growth, fever, pain, nausea, hypotension	
11	CLine	ICU		
12	CLine	ICU		
13	CLine	ICU	Blood Culture + <i>E.coli</i>	
14	CLine	ICU		
15	<p>The repeat blood culture falls within the RIT of the primary BSI. Therefore, unless another primary source with a matching organism is identified, the pathogen is added to the primary BSI with date of event Feb 10. No new event should be identified or reported.</p>			
16				
17				
18				
19				
20				Blood Culture <i>S. aureus</i>
21				
22				
23				
24				
25				
26				

Is this:

- ★ A. Not a reportable infection, just add the organisms to the original LCBI 1
- B. Another Primary BSI

BSI Location Attribution

- Defined as the inpatient location where the patient was assigned on the date of the infection event

Exception, a.k.a., the “Transfer Rule”

- If all elements of a BSI are present on the day of transfer or the next day, the BSI is attributed to the transferring location (or facility)
- Receiving facilities should share information about the BSI (or other infections) with the transferring facility to enable reporting

Case Scenario 2

- 5/1: Mr. Latier presents to the hospital with myocardial infarction and multiple burns following an electrical accident. Central line inserted in the ED. Admitted to CCU.
- 5/9: Status improved. Transferred to a new location, 4 East
- 5/10: Central line discontinued. WBCs 15,000. Blood and urine collected for culture.
- 5/11: Blood cultures positive *S. aureus*. Urine culture negative.

Date	Device	LOC	
May 1 Admit	CLine	ED/ CCU	
2	CLine	CCU	
3	CLine	CCU	
4	CLine	CCU	
5	CLine	CCU	
6	CLine	CCU	
7	CLine	CCU	
8	CLine	CCU	
9	Cline D/C	CCU/ 4 East	
10		4 East	WBC = 15,000 Blood Culture: =S. aureus Urine Culture : No Growth
11		4 East	
12		4 East	
13		4 East	
14		4 East	
15		4 East	
16		4 East	
17		4 East	
18		4 East	

Case Scenario 2

What should be reported to NHSN?

- A. CLABSI attributed to 4 East
- B. CLABSI attributed to CCU
- C. Nothing to report to NHSN
- D. I just don't know

Date	Device	LOC	
May 1 Admit	CLine	ED/CCU	
2	CLine	CCU	
3	CLine	CCU	
4	CLine	CCU	
5	CLine	CCU	
6	CLine	CCU	
7	CLine	CCU	
8	CLine	CCU	
9	Cline D/C	CCU/4 East	
10		4 East	WBC = 15,000 Blood Culture: =S. aureus Urine Culture : No Growth
11		4 East	
12		4 East	
13		4 East	
14		4 East	
15		4 East	
16		4 East	
17		4 East	
18		4 East	

Rationale Case Scenario 2

- Day of event is **May 10th**
- To meet criteria, device may be removed the day of the event date or the day after
- CLABSI attributed to CCU because all LCBI elements were met the day after transfer to 4 East
- BSI attributed to the location that transferred the patient

Case Scenario 3

- Mr. J.J. Hayes is admitted to the ED on 8/11 for a pelvic fracture after a slip and fall at a baseball game.
- 8/11: Seen in the ED. CL inserted and IV fluids started. Foley catheter inserted. Admitted to trauma ICU
- 8/12: To OR for closed reduction and traction placement. Returned to trauma ICU post-operatively.
- 8/13: Temp 38.5°C.
- 8/14: Still on trauma unit. Temp 38.5°C. Blood cultures collected; one of the set positive for *S. epidermidis*.
- 8/15: Still on trauma unit. Temp 37.9°C. Blood cultures collected; one of the set positive for *S. epidermidis*.
- 8/16: Trauma unit. Temp 37.9°C.

True or False: *S. epidermidis* is a common commensal

A. True

B. False

Is this a BSI? If yes, is it POA or HAI?

A. This is a BSI POA

B. This is a BSI HAI

C. This is NOT a BSI

Is this a CLABSI?

- A. Yes, BSI is central line-associated
- B. No, BSI is not central line-associated

Date	Device	LOC		
AUG 11	Cline/Foley	ED/ T-ICU		
12 Admit	Cline/Foley	T-ICU		
13	Cline/Foley	T-ICU	T= 38.5 C	
14	Cline/Foley	T-ICU	T=38.5 C Blood Culture: <i>Staph epidermidis</i>	
15	Cline/Foley	T-ICU	T= 37.9 C Blood Culture: <i>Staph epidermidis</i>	
16	Cline/Foley	T-ICU	T= 37.9 C	
17	Cline/Foley	T-ICU		
18	Cline/Foley	T-ICU		
19	Cline/Foley	T-ICU		
20	Cline/Foley	T-ICU		
21	Cline/Foley	T-ICU		
22	Cline/Foley	T-ICU		
23	Cline/Foley	T-ICU		
24	Cline/Foley	T-ICU		
25	Cline/Foley	T-ICU		
26	Cline/Foley	T-ICU		
27	Cline/Foley	T-ICU		

Rationale Case Scenario 3

- ✓ HAI CLABSI: **LCBI 2**
- ✓ Date of Event: **8/13**
- ✓ Infection Window Period:
8/11 – 8/17
- ✓ Repeat Infection
Timeframe: **8/13- 8/26**

BSI Data Collection Form



Primary Bloodstream Infection (BSI)

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: BSI	*Date of Event:	
Post-procedure BSI: Yes No	Date of Procedure:	
NHSN Procedure Code:	ICD-9-CM Procedure Code:	
*MDRO Infection Surveillance:		
<input type="checkbox"/> Yes, this infection's pathogen & location are in-plan for Infection Surveillance in the MDRO/CDI Module <input type="checkbox"/> 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		
*If ICU/Other locations, Central line: Yes No	Any hemodialysis catheter present: Yes No	
*If Specialty Care Area/Oncology,	Location of Device Insertion: _____	
Permanent central line: Yes No	Date of Device Insertion: ___ / ___ / _____	
Temporary central line: Yes No		
*If NICU,		
Central line, including umbilical catheter: Yes No		
Birth weight (grams):		
Event Details		
*Specific Event: Laboratory-confirmed		
*Specify Criteria Used:		
<u>Signs & Symptoms</u> (check all that apply)		<u>Underlying conditions for MBI-LCBI</u> (check all that apply):
<u>Any Patient</u> ≤ 1 year old	<input type="checkbox"/> Allo-SCT with Grade ≥ 3 GI GVHD	
<input type="checkbox"/> Fever <input type="checkbox"/> Fever	<input type="checkbox"/> Allo-SCT with diarrhea	
<input type="checkbox"/> Chills <input type="checkbox"/> Hypothermia	<input type="checkbox"/> Neutropenia (WBC or ANC < 500 cells mm ³)	
<input type="checkbox"/> Hypotension <input type="checkbox"/> Apnea	<u>Laboratory</u> (check one)	
<input type="checkbox"/> Bradycardia	<input type="checkbox"/> Recognized pathogen from one or more blood cultures	
		<input type="checkbox"/> Common commensal from ≥ 2 blood cultures
**Died: Yes No	BSI Contributed to Death: Yes No	
Discharge Date:	*Pathogens Identified: Yes No *If Yes, specify on pages 2-3.	

www.cdc.gov/nhsn/forms/57.108_primarybsi_blank.pdf



Assurance of Confidentiality: The voluntarily provided information obtained in this surveillance system that would permit identification of any individual or institution is collected with a guarantee that it will be held in strict confidence, 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 30 minutes per response, including the time for reviewing instructions, searching existing

CLABSI Data Collection

Accurate rates used to calculate standardized infection ratios (SIR) require both:

1. Accurate numerators

- Adhere to definitions and reporting instruction

2. Accurate denominators

- Map units accurately (see NHSN online training)
- Collect line days and patient days accurately
 - Follow specific requirements by location type
 - Validate electronic data collection

BSI Denominator Data Requirements Vary By Location

- ICUs and wards (*excluding NICU , special care areas, oncology*)
 - Central line days
 - Patient days
 - Special care areas / Oncology locations
 - Permanent central line days
 - Temporary central line days
 - Patient days
 - NICU
 - Central line/umbilical catheter days
 - Patient days
- } Collected by birth-weight category

Denominator Data Collection in Special Care Areas (SCA) / Oncology (ONC) Locations

- In SCA-ONC locations, central line days are counted by type
 - **Temporary central line** is a central line that is not tunneled nor implanted
 - **Permanent central line** is a central line that is tunneled or implanted, including certain dialysis catheters and ports

Locations where permanent central lines are likely include

- Oncology
- Hemodialysis
- Transplant

Accurate Central Line Data Collection

- A patient with ≥ 2 central lines is counted as only ONE central line day
- Temporary central lines carry a higher risk of CLABSI. An SCA/ONC patient with both a permanent and a temporary central line is counted only as ONE TEMPORARY central line day.
- If a patient has only a tunneled or implanted central line, begin recording line/patient days on the first day the line was placed or accessed. Continue until the line is removed or patient discharged
- Note: There is no “de-accessing” a central line during hospitalization

Accurate Denominator Data Collection in Neonatal ICUs (NICUs)

- Risk of CLABSI increases as neonatal birthweight decreases
- NICU central line data (numerator and denominator) is collected based on birthweight categories:
 - ≤ 750 grams
 - 751-1000 grams
 - 1001-1500 grams
 - 1501-2500 grams
 - > 2501 grams
- Neonates with either an umbilical catheter or a central line, or both, get counted as only ONE central line day

Check CLABSI Denominator Data

- Use NHSN analysis features to review your CLABSI denominator data
- Make corrections for months with inaccurate data

orgid	location	summaryYQ	months	infcount	numExp	numcldays	SIR	SIR_pval	SIR95CI
15331	SICU	2011Q1	3	4	6.900	3000	0.58	0.1823	0.198, 1.327
CL days 3000									
15331	SICU	2011Q1	3	4	12.420	5400	0.32	0.0057	0.110, 0.737
CL days 5400									

↕

Examples of potential problems

- Counting the same patient as more than one central line day
- Electronic data import occurring twice per day rather than once

Collecting CLABSI Summary Data in ICUs and Wards

- Count at the same time each day
 - Patient days = Number of patients on the unit
 - Central line days = Number of patients with a central line



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

Page 1 of 1

*required for saving
Facility ID: *Location Code: *Month: *Year:

Date	*Number of Patients	**Number of patients with 1 or more central lines	**Number of patients with a urinary catheter	**Number of patients on a ventilator		Number of Episodes of Mechanical Ventilation
				Total Patients	Number on APRV	
1	22	8	10	5	0	5
2	22	8	10	5	0	5
3	20	8	10	3	0	3
4	20	6	8	3	0	3
5						

Collecting CLABSI Summary Data in NICU

- Count at the same time each day
 - Patient days = Number of neonates in each birthweight category in the NICU
 - Central line days = Number of neonates in each birthweight category with a central line

Denominators for Neonatal Intensive Care Unit (NICU)

Page 1 of 1

*required for saving

**conditionally required according to the events indicated in Plan

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

Birth Weight Categories

Date	A = ≤750 g				B = 751-1000 g				C = 1001-1500 g				D = 1501-2500 g				E = >2500 g			
	*Pt	**CL	**VNT	UrC	*Pt	**CL	**VNT	UrC	*Pt	**CL	**VNT	UrC	*Pt	**CL	**VNT	UrC	*Pt	**CL	**VNT	UrC
1	1	1			4	3			6	2			3	1			0	0		
2	1	1			3	3			5	2			3	1			0	0		
3	2	2			3	2			5	2			3	1			1	0		
4	2	2			2	1			5	1			4	1			2	0		
5																				
6																				

Note: NICU counts are always babies' weights at birth, not current weights

Collecting Summary Data in SCA/ONC Locations

- Count at the same time each day
 - Patient days = Number of patients on the SCA/ONC unit
 - Permanent central line days = Number of patients with ONLY a permanent central line
 - Temporary central line days = Number of patients with a temporary central line (with or without a permanent line also)

Denominators for Specialty Care Area (SCA)/Oncology (ONC)

Page 1 of 1

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Facility ID: 88888

*Location Code: **ONC Surg CC**

*Month: **June**

*Year: **2015**

Date	*Number of Patients	**Number of patients with 1 or more central lines (if patient has both, count as Temporary)		**Number of patients with a urinary catheter	**Number of patients on a ventilator	
		Temporary	Permanent		Total Patients	Number on APRV
1	48	2	43			
2	49	1	45			
3	48	3	45			
4	50	8	40			
5						
6						

Entering CLABSI Summary Data for ICU/Wards

- NHSN Home
- Alerts
- Reporting Plan
- Patient
- Event
- Procedure
- Summary Data
 - Add
 - Find
 - Incomplete
 - Delete AUR Data
- Import/Export
- Analysis
- Surveys
- Users
- Facility
- Group
- Log Out

Logged into California General Hospital (ID 15633) as VICKIKELLER.
 Facility California General Hospital (ID 15633) is following the PS component.

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

HELP

Mandatory fields marked with *

Facility ID*: 15633 (California General Hospital)

Location Code*:

Month*:

Year*:

Check box if NO CLABSI events to report

Sample Values For Estimating Denominator Data

Sum for the Month

Total Patient Days:

Central Line Days:

Urinary Catheter Days:

Ventilator Days:

APRV Days:

Episodes of Mechanical Ventilation:

Report No Events

CLABSI:

CAUTI:

VAE:

PedVAP:

Check Box(es) if Sampling Used

Sample Patient Days:

Sample Central Line Days:

Sample Urinary Catheter Days:

Entering CLABSI Summary Data for SCA/ONC Locations

- NHSN Home
- Alerts
- Reporting Plan
- Patient
- Event
- Procedure
- Summary Data
 - Add
 - Find
 - Incomplete
 - Delete AUR Data
- Import/Export
- Analysis
- Surveys
- Users
- Facility

Logged into California General Hospital (ID 15633) as VICKIKELLER.
Facility California General Hospital (ID 15633) is following the PS component.

Denominators for Specialty Care Area/Oncology

Mandatory fields marked with *

Facility ID*: 15633 (California General Ho

Location Code*:

Month*:

Year*:

Check box if NO CLABSI event for central line type to report.

Sum for month

Total Patient Days:

Temporary Central Line Days:

Permanent Central Line Days:

Urinary Catheter Days:

Ventilator Days:

APRV Days:

Report No Events

TCLAB:

PCLAB:

CAUTI:

VAE:

PedVAP:

Episodes of Mechanical Ventilation:

Electronic Collection of CLABSI Summary Data

- Electronic capture of CLABSI summary data is acceptable if you validate the electronic method against manual data collection
 - Must compare 3 months (concurrent) data
 - Difference between the methods must be within +/- 5
 - If difference >5%, must investigate, address discrepancies, and revalidate for 3 months
 - Repeat cycle until difference is $\leq 5\%$



**NEW
2015**

Once Weekly Denominator Collection

- Reducing NHSN Data Collection Burden
- Eligible ICU and ward location types may use
 - Must have 75 or more CL days per month
- Patient days
 - Collected daily
- Central line days collected on a single day, once a week
 - e.g. Every Tuesday

Once Weekly Denominator Collections

- Reduces NHSN data collection burden
- Eligible ICU and ward location types may use
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 - E.g. every Tuesday

Summary

- CLABSI surveillance definitions will sometimes differ from clinical diagnosis
 - Remember, they serve different purposes
 - Surveillance definitions must be adhered to strictly and consistently
- Accurate data collection is necessary for successful CLABSI prevention efforts and is dependent on a variety of factors
 - Accurate CLABSI identification and attribution
 - Accurate central line data collection
 - Accurate mapping of patient locations within NHSN

Resources for CLABSI Reporting

- CLABSI protocols, forms, etc:
 - <http://www.cdc.gov/nhsn/acute-care-hospital/clabsi/index.html>
 - <http://www.cdc.gov/nhsn/newsletters.html>
- Operational guidance for CMS reporting:
 - <http://www.cdc.gov/nhsn/cms/index.html>
 - <http://www.cdc.gov/nhsn/acute-care-hospital/clabsi/index.html>
- Contact list for QIOs:
 - <http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier2&cid=1244767874793>
- NHSN Training
 - <http://www.cdc.gov/nhsn/training/>
 - <http://www.cdc.gov/nhsn/newsletters.html>

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http://www.cdc.gov/hai/pdfs/hai/scottt_costpaper.pdf

Questions?

For more information, please contact
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Thank you!

