CLABSI Update

How to Succeed with a Moving Target

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Objectives

• Understand current trends in CLABSI
• Understand NHSN CLABSI definitions for 2016
• Understand how CLABSI are counted for CMS Value-Based Purchasing reporting
• Discuss the differences between surveillance definitions and improvement opportunities for CLABSI prevention
17,758 CLABSI in US Acute Care Hospitals in 2015
2014 National Experience

- 27 states had increased rate compared to national SIR in 2014
  - 11 states with statistically significant rate
  - 18 states with increased rates compared to themselves in 2013
- 23 states had improved rate compared to national SIR in 2014
  - 13 states with statistically significant improvement
- 49 states had statistically significant decrease in CLASBI since 2008 baseline
2016 CLABSI Definitions

• Surveillance definitions, not clinical definitions used for treatment decisions
• Should be followed exactly when evaluating a positive blood culture
• Cannot be overridden by MD review

• When in doubt, email NHSN for validation
Definitions

• Primary bloodstream infections (BSI): Laboratory-confirmed bloodstream infections (LCBI) that are not secondary to an infection at another body site

• Central line-associated BSI (CLABSI): A laboratory-confirmed bloodstream infection (LCBI) where central line (CL) or umbilical catheter (UC) was in place for >2 calendar days on the date of event, with day of device placement being Day 1, **AND**
  – the line was also in place on the date of event or the day before.
  – If a CL or UC was in place for >2 calendar days and then removed, the date of event of the LCBI must be the day of discontinuation or the next day to be a CLABSI.
  – Patient with POA implanted central line (port) in place, and that is the patient’s only central line, day of first access in an inpatient location is considered Day 1. “Access” is defined as line placement, infusion or withdrawal through the line.

• Central lines that are removed and reinserted:
  – patient without a central line for at least one full calendar day (NOT to be read as 24 hours), then the central line day count to determine eligibility for a CLABSI, will start over

• Bloodstream infections will not be reported if they occur within the Repeat Infection Timeframe (RIT) of a previously identified BSI
  – Note that only primary BSIs create a BSI RIT. Secondary BSIs do not create a BSI RIT
• A positive blood specimen meeting LCBI criteria, that is accompanied by **documentation** of observed or suspected patient accession into vascular access lines, within the BSI infection window period, will be considered an LCBI, but not CLABSI for NHSN reporting purposes.
  
  – A BSI RIT will be created. If reporting the BSI to NHSN, answer “No” to the risk factor event field “Central line?”
  
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  • If a facility is reporting CLABSI electronically to NHSN via Clinical Document Architecture (CDA), no CLABSI should be reported for this event, since this BSI is not considered associated to the central line.
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  – If blood specimens meeting LCBI criteria with a date of event outside of the BSI RIT occur, they must be investigated as a part of any BSI surveillance.
  
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  • Documentation of observed or suspected patient accession into vascular access lines, within the BSI infection window period, will again be necessary in order to determine that the LCBI is not central-line associated for this reason.
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**Inpatient Dialysis:**

• Inpatients receiving dialysis are included in any CLABSI surveillance in the location in which they are housed, regardless of whether or not the central line is the only central line and only accessed for dialysis. This also applies to patients in Long-Term Acute Care (LTAC) facilities within Acute Care Facilities when dialysis is received from the Acute Care Facility staff.
LCBI-1

**Laboratory-Confirmed Bloodstream Infection (LCBI)**

Patient has a recognized pathogen identified from one or more blood specimens by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST)).

**AND**

Organism(s) identified in blood is not related to an infection at another site

LCBI-2

Patient has at least one of the following signs or symptoms: fever (>38.0 C), chills, or hypotension

**AND**

Organism(s) identified from blood is not related to an infection at another site (See Appendix 1 Secondary BSI Guide)

**AND**

the same common commensal is identified from two or more blood specimens drawn on separate occasions, by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST)).

- Criterion elements must occur within the Infection Window Period, the 7-day time period which includes the collection date of the positive blood ± 3 calendar days
- **Note**: The matching common commensals represent a single element; therefore, the collection date of the first common commensal is the date of the element used to determine the Date of Event.
LCBI-3

Patient ≤ 1 year of age has at least one of the following signs or symptoms: fever (>38.0 C), hypothermia (<36.0 C), apnea, or bradycardia

AND

Organism(s) identified from blood is not related to an infection at another site (See Appendix 1 Secondary BSI Guide)

AND

the same common commensal is identified from two or more blood specimens drawn on separate occasions, by a culture or non-culture based microbiologic testing method which is performed for purposes of clinical diagnosis or treatment (e.g., not Active Surveillance Culture/Testing (ASC/AST).

• Criterion elements must occur within the Infection Window Period, the 7-day time period which includes the collection date of the positive blood ± 3 calendar days

• **Note:** The matching common commensals represent a single element; therefore, the collection date of the first common commensal is the date of the element used to determine the Date of Event.

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

Must meet one of the following criteria:

• Patient of any age meets criterion 1 for LCBI with at least one blood specimen identified by a culture or non-culture based microbiologic testing method, with any of the following intestinal organisms (but no other organisms): *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 specimen:
  
  • 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 specimen was collected.

– Is neutropenic, defined as at least two separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cells/mm³ within a 7-day time period which includes the date the positive blood specimen was collected (Day 1) ± 3 calendar days

For MBI-LCBIs, ANC/WBC levels should not be used to set the IWP or to identify the date of event. MBI-LCBIs are subsets of LCBIs and therefore the date of the LCBI would be the date of the MBI-LCBI event.

**MBI-LCBI-2**

• Patient of any age meets criterion 2 for LCBI with at least one blood specimen identified by a culture or non-culture based microbiologic testing method, with only viridans group streptococci and no other organisms.

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 specimen:

  • 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 specimen was collected.

– Is neutropenic, defined as at least two separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cells/mm³ within a 7-day time period which includes the date the positive blood specimen was collected (Day 1) ± 3 calendar days
MBI-LCBI-3

- Patient ≤1 year of age meets criterion 3 for LCBI with at least one blood specimen are identified by a culture or non-culture based microbiologic testing method, with only viridans group streptococci and no other organisms.

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 specimen:
  - Grade III or IV gastrointestinal graft versus host disease [GI GVHD]
  - ≥20 mL/kg in a 24-hour period with onset on or within 7 calendar days before the date the positive blood specimen was collected.
- Is neutropenic, defined as at least two separate days with values of absolute neutrophil count (ANC) or total white blood cell count (WBC) <500 cells/mm³ within a 7-day time period which includes the date the positive blood specimen was collected (Day 1) ± 3 calendar days.

MBI, SIR and CMS VBP

- CDC will update the risk-adjustment of HAI data using the event and denominator data reported to NHSN for 2015 – referred to as the “Re-baseline” of HAI data. The final analyses of 2015 data will occur in the summer of 2016, and the new risk-adjustment and SIRs will be available in NHSN in December 2016/January 2017.
  - During these analyses, various questions/concerns expressed by NHSN users and partners in recent years will be addressed, including:
    - Exclusion of MBI-LCBI from future CLABSI rates and SIRs
- Note that the new, re-baselined SIRs will be calculated for 2015 and forward.
### CDC's Standard Population Data in the Hospital VBP Program

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<th>Fiscal Year</th>
<th>Baseline Year</th>
<th>Performance Year</th>
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*CDC will use "current standard population data" (CY 2015) to calculate measures that we will translate into scores on the measures.

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### Other 2016 Changes

- Allowing non-culture based lab tests to qualify for CLABSI (i.e. PCR)
- Excluding certain fungal pathogens
- Excluding labs from brain dead patients supported for organ donation
- Exclude Salmonella sp from LCBI
- Dis-association of BSI from CL for certain other vascular access site infections
- Modification of IAB criteria
Value Based Purchasing

Evaluating Hospitals
Achievement vs. Improvement

- **Achievement Points**
  Awarded by comparing an individual hospital's rates during the performance period with all hospitals' rates from the baseline period.
  - Rate equal to or better than the benchmark: 10 points
  - Rate worse than the achievement threshold: 0 points
  - Rate equal to or better than the achievement threshold and worse than the benchmark: 1-10 points

- **Improvement Points**
  Awarded by comparing an individual hospital's rates during the performance period to that same individual hospital's rates from the baseline period.
  - Rate equal to or better than the benchmark: 9 points
  - Rate equal to or worse than the baseline period rate: 0 points
  - Rate between the baseline period rate and the benchmark: 0-9 points

*Please note that unlike the other measures, the MSP56 measure compares a hospital's rates during the performance period with all hospitals' rates from the performance period.*


Banner Health
Two Options: Achievement or Improvement

CLABSI Example

- Hospital USA had an overall ICU CLABSI standardized infection ratio (SIR) of 0.352 in 2016. Their baseline SIR in 2014 was 0.470.
- CMS Benchmark SIR is 0.00 and threshold SIR is 0.369

**Improvement Score is**

\[
10 \times \frac{0.352 - 0.369}{0.470 - 0.352} + 0.5 = 0.96
\]

**Achievement Score is**

\[
9 \times \frac{0.352 - 0.470}{0.369 - 0.470} + 0.5 = 1.76
\]

Hospital USA receives higher of two scores, or 2 out of 10 points for CLABSI.
### Definition Change

**Performance Opportunity**

- Threshold and benchmark are NHSN Standardized Infection Ratio (SIR).
- Facility must have an expected infections > 1 to be included and an SIR calculated.
  - If facility cannot calculate an SIR, measure is excluded and other measures within the domain are rebalanced.
Analyzing your Opportunities

• Know and understand your data
  – Use a standardized drill down tool
  – Was all expected care delivered and documented (ie. prevention bundle)?
  – Are you following all nationally recognized prevention strategies?
  – Do you have >90% compliance with expected practices?
  – Is the infection a result of a definition change?

How to Improve Your Performance

• Follow NHSN definitions exactly
• Data accuracy- run your reports and validate them monthly
• Understand your baseline for each performance period
• Develop and implement improvement strategies
• Provide routine status reports to stakeholders
• Tell the story with your data
• Get out of the office and onto the floor- prevention doesn’t happen in an office!
Current Challenges

- Annual definition changes
- Lack of compliance with prevention bundles
- Timeliness of new evidence and research
- Reimbursement pressure on hospitals
- Technology
- Increasing regulatory requirements
A Personal Story

"Progress is impossible without change, and those who cannot change their minds cannot change anything."

George Bernard Shaw