

BSI CASE STUDY: Part 1

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On 1/4 a 32-year-old female admitted to the ED with fever (38° C) and abdominal pain. Patient has a port in place at the time of admission. Past medical history – cervical cancer & cardiomyopathy due to a history of drug use. The patient is admitted to the oncology floor and port is flushed on 1/5. The following day, 1/6, the patient complains of pain at the port site (10/10) and the insertion site is red. Narcotics are requested and 15 mg of oxycodone is given. Blood cultures collected on 1/8 are positive for *Micrococcus* x 1, *Candida albicans*, and *Enterococcus faecalis*.

Part 1: Question 1

What laboratory confirmed bloodstream infection (LCBI) criterion is met?

- A. LCBI-2
- B. MBI LCBI-1
- C. LCBI-1
- D. No criterion is met

Part 1: Question 1

What laboratory confirmed bloodstream infection (LCBI) criterion is met?

A. LCBI-2

B. MBI LCBI-1

C. LCBI-1

D. No criterion is met

Part 1: Question 1 Rationale

The positive blood culture has two recognized pathogens identified (Candida albicans and Enterococcus faecalis). No additional elements (in other words, no sign or symptom such as fever) are needed to meet LCBI 1 criteria; therefore, the LCBI 1 DOE will always be the collection date of the first positive blood specimen used to set the BSI infection window period (IWP), in this case the DOE is January 8th. Please note Micrococcus is a common commensal organism and there is a single organism identified.

Part 1: Question 2

Is this a present on admission (POA) or healthcare associated infection (HAI) event?

- A. Present on admission (POA)
- B. Healthcare associated infection (HAI)

Part 1: Question 2

Is this a present on admission (POA) or healthcare associated infection (HAI) event?

A. Present on admission (POA)

B. Healthcare associated infection (HAI)

Part 1: Question 2 Rationale

The patient is admitted on 1/4/22. The hospital day count begins with the date of admission. There is a positive blood culture on 1/8/22. This is a healthcare associated infection (HAI) because the date of event is on hospital day 5.

Part 1: Question 3

What is the LCBI date of event?

- A. 1/6
- B. 1/8
- C. 1/5
- D. 1/4

Part 1: Question 3

What is the LCBI date of event?

A. $1/6$

B. $1/8$

C. $1/5$

D. $1/4$

Part 1: Question 3 Rationale

The BSI date of event is 1/8/22. Candida albicans and Enterococcus faecalis are recognized pathogens. No additional elements (in other words, no sign or symptom such as fever) are needed to meet LCBI 1 criteria; therefore, the LCBI 1 DOE will always be the collection date of the first positive blood specimen used to set the BSI IWP, in this case the DOE is January 8th.

BSI CASE STUDY: Part 2

BSI Case Study: Part 2

On 1/9 the port is de-accessed after specimen collection and port removal is scheduled due to positive blood culture results. A Peripherally Inserted Central Catheter (PICC) is placed for temporary access. After administration of meds, patient leaves the floor to visit w/ friends. The central line (CL) is disconnected and capped by the nurse so the patient can leave the floor. When the patient returns to the unit, she is slurring words and immediately returns to bed. The safety cap is missing & the CL is un-clamped. Nurse reconnects the central line and finds a syringe in the bed. Nurses suspect the patient tampered w/ the CL while off the floor.

BSI Case Study: Part 2 Continued

The physician is informed of events on 1/10 and orders the discontinuation of the PICC and all narcotics. During rounds, the physician ask the patient about the syringe, and the patient admits to using drugs. **The nurse documents suspicion of line injection on 1/10. The patient spikes a fever of 38.4°C and has increased white blood cell (WBC) count. Blood cultures collected & are positive for *Enterobacter cloacae*, *Pseudomonas aeruginosa*, and *Candida glabrata*.** The patient transferred to ICU.

Part 2: Question 1

Is the patient self-injection CLABSI exclusion met?

A. Yes

B. No

Part 2: Question 1

Is the patient self-injection CLABSI exclusion met?

A. Yes

B. No

Part 2: Question 1 Rationale

Yes, the patient self-injection is met. This CLABSI exclusion requires specific documentation of suspected or confirmed injection into the central line during the current inpatient admission. The nurse's documentation meets the intent and supports the self-injection exclusion.

As a reminder, the documentation must occur during the BSI infection window period.

Part 2: Question 2

Which statement is eligible for use to meet this CLABSI exclusion?

- A. Nurse suspects the patient is tampering with the central line.
- B. Once in the room, the patient returns to the unit slurring words and returns to bed. A syringe is found next to the patient.
- C. Nurse documents there is a suspicion for line injection and notifies the physician. Orders are sent to discontinue the PICC and all narcotics
- D. Patient admits to use drugs to the physician when asked.

Part 2: Question 2

Which statement is eligible for use to meet this CLABSI exclusion?

- A. Nurse suspects the patient is tampering with the central line.
- B. Once in the room, the patient returns to the unit slurring words and returns to bed. A syringe is found next to the patient.
- C. Nurse documents there is a suspicion for line injection and notifies the physician. Orders are sent to discontinue the PICC and all narcotics
- D. Patient admits to use drugs to the physician when asked.

Part 2: Question 2 Rationale

The nurse's documentation is specific to a suspicion of line injection. The documentation required to meet the self-injection CLABSI exclusion is very specific to "INJECTION". Manipulating or tampering with the line (such as biting, picking at, sucking on, etc.) DOES NOT meet the intent of this exclusion. The documentation must specifically state the patient was "observed injecting..." or "suspected of injecting..." the device. Insinuations or descriptive events that suggest such behavior DO NOT meet the intent of this exclusion

BSI CASE STUDY: Part 3

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- Ms. Polly Microbial is **discharged from the hospital on 1/15** and orders are written for outpatient drug treatment. During her therapy visit on **1/17, she complains of feeling tired and achy for the past few days, a mild fever, headache, and intermittent coughing.**
- The nurse at the outpatient treatment center advises Ms. Polly to see her doctor. At the doctor's visit, she reports shortness of breath, chills, dizziness, and weakness. **She is transported to the on 1/18 ED due to a suspicion of COVID-19.**

BSI Case Study: Part 3 Continued

- In the ED, she is noted to have a fever (38.2°C) and her O₂ saturation is 80% on room air. She is placed on oxygen and orders are placed on 1/18 for a COVID-19 (SARS-CoV-2) test and a chest Xray. Blood cultures are also collected on 1/18.
- Ms. Polly is admitted to the ICU on 1/19 with a diagnosis of **COVID-19 pneumonia**. Her COVID-19 test result is positive, and chest imaging findings demonstrate dense airspace opacity throughout both lungs with air bronchograms. Her **blood cultures are positive for methicillin resistant Staph aureus (MRSA)**. A right subclavian central line is inserted is 1/19.

Part 3: Question 1

What criterion did Ms. Polly Microbial meet?

- A. LCBI 2
- B. MBI LCBI 1
- C. LCBI 1
- D. Ms. Polly did not meet any criteria

Part 3: Question 1

What criterion did Ms. Polly Microbial meet?

A. LCBI 2

B. MBI LCBI 1

C. LCBI 1

D. Ms. Polly did not meet any criteria

Part 3: Question 1

Staphylococcus aureus is a recognized pathogens. No additional elements (in other words, no sign or symptom such as fever) are needed to meet LCBI 1 criteria; therefore, the LCBI 1 DOE will always be the collection date of the first positive blood specimen used to set the BSI infection window period (IWP).

Part 3: Question 2

Is this a present on admission (POA) or healthcare associated infection (HAI) event?

- A. Present on admission (POA)
- B. Healthcare associated infection (HAI)

Part 3: Question 2

Is this a present on admission (POA) or healthcare associated infection (HAI) event?

A. Present on admission (POA)

B. Healthcare associated infection (HAI)

Part 3: Question 2 Rationale

This is a present on admission (POA) event. Ms. Polly Microbial is admitted on 1/19, and the blood cultures are collected while she is in the emergency department on 1/18. Because *Staphylococcus aureus* is a recognized pathogen, and the blood specimen collection date is during the present on admission timeframe, this is a POA BSI event.

As a reminder the POA timeframe is defined as the day of admission to an inpatient location (calendar day 1), the 2 days before admission, and the calendar day after admission.

BSI Case Study: Part 3 Continued

Ms. Polly continues to decompensate and is in acute hypoxic respiratory failure. **On 1/25 she is placed on extracorporeal life support (ECLS or ECMO). There is documentation of intermittent fevers, and on 1/31 her Tmax is documented as 38.6°C. Blood cultures are collected on 1/22, 1/26, 1/29, and 2/1. All blood cultures are positive for MRSA.**

BSI Case Study: Part 3 Continued

For the purpose of this part of the case study, we will use 2/1 as the date of event. The teaching point for this portion of the case study is to show the correct reporting fields when the ECMO CLABSI exclusion is met. Keep in mind, 2/1 is captured in the BSI repeat infection timeframe (1/19-2/1).

Part 3: Question 3

On February 1st how many CL days have occurred to determine if the BSI is a CLABSI?

- A. 11 CL days
- B. 13 CL days
- C. 14 CL days
- D. 10 CL days

Part 3: Question 3

On February 1st how many CL days have occurred to determine if the BSI is a CLABSI?

- A. 11 CL days
- B. 13 CL days
- C. 14 CL days
- D. 10 CL days

Part 3: Question 3 Rationale

The central line day count for making a CLABSI determination begins on the day the subclavian line is placed. The central line is placed on 1/19, so this is central line day 1. On 2/1, there are 14 central line days.

Part 3: Question 4

On February 1st how many days is ECMO present?

- A. 6 days
- B. 8 days
- C. 7 days
- D. 5 days

Part 3: Question 4

On February 1st how many days is the ECMO present?

A. 6 days

B. 8 days

C. 7 days

D. 5 days

Part 3: Question 4 Rationale

ECMO is initiated on 1/25. This date begins the ECMO device count. On 2/1, there are 8 ECMO days.

Part 3: Question 5

Using 2/1 as the BSI date of event, is the ECMO CLABSI exclusion met?

- A. No
- B. Not Enough Information to Determine
- C. Yes

Part 3: Question 5

Using 2/1 as the BSI date of event, is the ECMO CLABSI exclusion met?

A. No

B. Not Enough Information to Determine

C. Yes

Part 3: Question 5 Rationale

If 2/1 is used as the date of event, the ECMO CLABSI exclusion is met. The central line is inserted on 1/19; the central line becomes an eligible central line for making a CLABSI determination on 1/21. Additionally, ECMO is initiated on 1/25. Using 2/1 as the BSI date of event, there is an eligible central line and, ECMO is in place >2 calendar days.

Part 3: Question 6

If 2/1 is the BSI date of event, how should you answer the CL field if the event is reported?

- A. CL=Yes
- B. CL=No

Part 3: Question 6

If 2/1 is the BSI date of event, how should you answer the CL field if the event is reported?

A. CL=Yes

B. CL=No

Part 3: Question 6 Rationale

If 2/1 is used as the date of event, there is an eligible central line in place on 2/1. The central line is inserted on 1/19; the central line becomes an eligible central line for making a CLABSI determination on 1/21.

Thank you

For more information, contact CDC
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

