Basics of Epidemiology Answer Key

Pre-Quiz Question (slide 4)

Q, A reservoir is the habitat where an infectious disease lives, multiplies and grows. Which of these could be a reservoir?

A. Chronic carrier
B. Medical equipment
C. Bird
D. Hospital room floor
E. Door knob
F. Linens
G. Blood pressure cuff
H. All of the above

Answer: H. All of the above

Pre-Quiz Question: TB (slide 14)

1. Agent for TB
2. Engineering control
3. At high risk for TB
4. An environment that increases the risk for TB
5. Administrative control
6. Environmental control

A. Overcrowded prison
B. Screening of healthcare workers at risk
C. Keeping infected patients isolated
D. Mycobacterium tuberculosis
E. Portable HEPA unit
F. Immunocompromised person

Answers:

1. D
2. E
3. F
4. A
5. B
6. C

Pre-Quiz Questions (slide 34)

Q. What precautions do we use with every patient?

Answer: Standard Precautions

Q. What precautions do we use with patients with possible TB?

Answer: Airborne Precautions

Q. What precautions do we use with a patient with profuse diarrhea?

Answer: Contact Precautions

Q. What precautions do we use with a patient that may have whooping cough?

Answer: Droplet Precautions

Scenario (slide 55)

When doing rounds on patient care unit, you observed several healthcare personnel failing to use PPE when caring for a patient/resident on Contact Precautions. What could you do to improve PPE practices for isolation precautions?

Answer:

- Pull the staff aside individually and use this “teachable moment” to discuss proper PPE use and why this is so important
- Identify personnel on the unit who can assist in improving practices (administrator, physical or other champion, direct care personnel, others…); form a team
- Send the CDC and other related guidelines for preventing transmission of infections to these personnel
- Collaborate with unit personnel to identify barriers to proper PPE use; how PPE use can be improved; availability of PPE, etc.
- Reeducate the staff
- Observe and/or audit on rounds at later time for improvement

Infection Preventionist as an Educator Answer Key

Quiz Matching Question (slide 20)

• Assess Needs • Lesson Plan • Determine Teaching Method • Preparation • Evaluation	• Determine success of the education • Objectives, materials, location and timing is established at this step • Identify what topics need to be taught • Create a step by step plan • Formal lecture or 1:1

Answers:

- Assess Needs – Identify what topics need to be taught
- Lesson Plan - Create a step by step plan
- Determine teaching method – Formal lecture or 1:1
- Preparation – Objectives, materials, location and timing is establish at this step
- Evaluation – Determine success of the education

Life as a Detective and NHSN Basics Answer Key

Pre-Quiz Question (slide 2)

Q. The most essential component of an effective Infection Prevention surveillance program is:

A. The capability to monitor everything
B. Collection of meaningful data
C. Outbreak detection
D. Complying with accreditation agencies

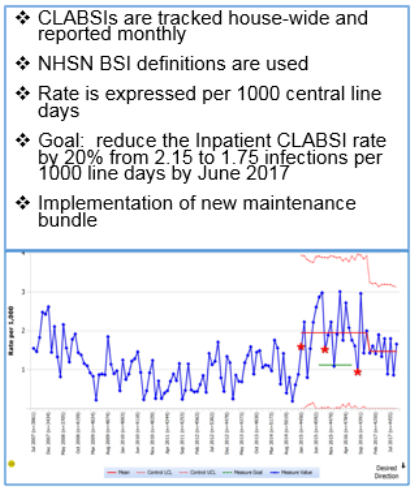
Answer: B. Collection of meaningful data.

Your Infection Prevention surveillance program is only as good as your data.

Scenario 1 (slide 4)

Q. Which of the following you would include in your presentation:

A. Type of event, population, setting and time period
B. Criteria used for defining a case
C. Statistical methods
D. Describe any actions taken and recommendations
E. All of the above



Answer: E. All of the above

Pre-Quiz Definitions (slide 15)

Match the term on the right with a definition on the left.

- Indicators
- Process
- Outcome
- Risk adjusted
- Infection rate
- Case
- Cluster

A. A series of actions or procedures
B. Probability of an infection in a population
C. Events
D. An instance of a particular disease, injury or other health condition that meets selected criteria
E. Grouping together based on similar characteristics
F. Results
G. Group of cases that occurs closely related in time and place

Answers:

- Indicators – D
- Process – A
- Outcome – F
- Risk adjusted – E
- Infection rate – B
- Case – D
- Cluster – G

Quick Quiz (slide 23)

Q. Identify each item as either a process or an outcome:

1. Patient falls
2. Hand hygiene compliance
3. Maintaining barriers during construction
4. difficile infection

Answers:

1. Outcome
2. Process
3. Process
4. Outcome

Quick Quiz (slide 35)

Q. Label Each As Either Passive Or Active Surveillance

1. MRSA screening
2. Reportable disease reports
3. Laboratory reports
4. Hand hygiene compliance
5. Prevention standards observations
6. Blood-borne pathogen reports

Answers:

1. Active
2. Passive
3. Passive
4. Active
5. Active
6. Passive

Pre-Quiz Question #1 (slide 62)

Q. What types of facilities can report to NHSN?

A. Acute Care Hospitals/Facilities
B. Inpatient Rehabilitation Facilities
C. Ambulatory Surgery Centers
D. Outpatient Dialysis Facilities
E. All of the above

Answer: E. All of the above

In addition to all of the facility types listed on this slide, Long Term Acute Care (LTAC) and Long Term Care (LTC) facilities can also report to NHSN.

Pre-Quiz Question #2 (slide 63)

Q. The NHSN Infection Window Period is defined as the 5-days during which all site-specific infection criteria must be met. It includes the day the first positive diagnostic test that is used as an element of the site-specific infection criterion was obtained, the two calendar days before and the two calendar days after.

A. True
B. False

Answer: B. False

The NHSN Infection Window Period is defined as the 7-days during which all site-specific infection criteria must be met. It includes the day the first positive diagnostic test that is used as an element of the site-specific infection criterion was obtained, the 3 calendar days before and the 3 calendar days after.

Quiz – Alphabet Soup (slide 104)

Take a moment to identify and explain each of the following based on what you have learned so far…

- **IWP** – Is the Infection Window Period. It's the 7-days during which all site-specific infection criteria must be met.
- **DOE** – is the Date of Event…It's date the first element used to meet a site-specific infection criterion occurs for the first time within the IWP
- H**AI** – is a Healthcare-Associated Infection of course: DOE occurs on or after the 3rd calendar day of admission to an inpatient location
- **SBAP** – You just learned about that one…That's the Secondary Bloodstream Attribution Period…The period in which a blood specimen must be collected for a secondary bloodstream infection to be attributed to a primary site infection.
- **POA** – POA is present on admission…DOE occurs the day of admission, 2 days prior to admission, or the day after admission to an inpatient location
- **RIT** – is the Repeat Infection Timeframe…the 14-day timeframe during which no new infections of the same type are reported.

Recap Quiz! Question 1 (slide 118)

Q, It's ok to allow my Infectious Disease physician to overrule my NHSN HAI determinations as long as he has clinical documentation to support his decision.

A. True
B. False

Answer: B. False

It is NEVER ok to allow anyone, no matter their role in your organization, to change your HAI determination unless they are better able to apply NHSN definitions to your case.

Recap Quiz! Question 2 (slide 119)

Q. Which of the following is a 14-day timeframe during which no new infections of the same type are reported?

A. IWP
B. RIT
C. SBAP
D. LOA

Answer: B. RIT

Recap Quiz! Question 3 (slide 120)

Q. Additional pathogens recovered during the RIT from the same type of infection are added to the event

A. True
B. False

Answer: A. True

Recap Quiz! Question 4 (slide 121)

Q. If a patient has positive urine culture on admission with >100,000 CFU/ml *E. coli* and the patient states they felt like they had a fever the night before, you can use this to determine the patient has a SUTI on admission.

A. True
B. False

Answer: B. False

The patient must report their actual temperature, such as 100.6, and it be documented in the medical record. It is not sufficient for the patient to only say they had a fever.

Recap Quiz! Question 5 (slide 122)

Q. Which of the following is/are considered a diagnostic test and can be used to set an infection window period?

A. Laboratory specimen collection
B. Imaging Test
C. Procedure or Exam
D. All of the above

Answer: D. All of the above

CAUTI Answer Key

Pre-Quiz Questions (slide 3)

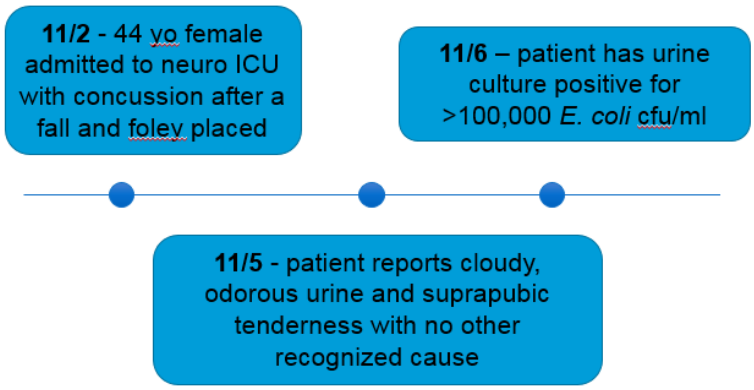
Q. For NHSN CAUTI surveillance, the collection date of the positive urine culture always sets the Infection Window Period.

A. True
B. False

Answer: A. True

The collection date of a positive urine culture always sets the Infection Window Period, provided it meets the NHSN criteria of having no more than 2 species of organisms, one of which is a bacteria >105 CFU/ml. Pay close attention to the dates on the lab reports and don't confuse the report date with the collection date.

Case Scenario 1 (slide 27)



Case Scenario 1 – Question 1 (slide 28)

Q. Does this patient have an HAI?

A. Yes
B. No

Answer: A. Yes

This patient has an HAI because the Date of Event occurred on the 4th calendar day of admission to an inpatient location.

Case Scenario 1 – Question 2 (slide 29)

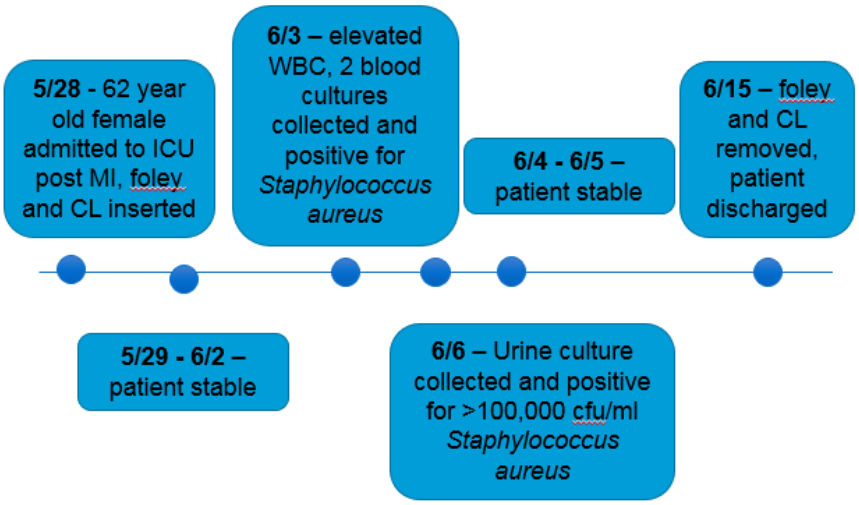
Q. Does this patient have a CAUTI?

A. Yes, SUTI 1a
B. No
C. Yes, ABUTI
D. Yes, SUTI 2

Answer: A. Yes, the patient has a SUTI 1A.

The patient has a foley >2 calendar days on the date of event, suprapubic tenderness with no other recognized cause, and a urine culture with no more than two species of organisms, at least one of which is a bacterium growing >=100,000 cfu/ml.

Case Scenario 2 (slide 31)



Case Scenario 1 – Question 1 (slide 32)

Q. Does this patient have a CAUTI?

A. Yes, SUTI 1a
B. Yes, SUTI 1b
C. No
D. Yes, ABUTI

Answer: D, Yes ABUTI.

The patient has a foley >2 calendar days, no s/s of UTI during the IWP and a positive blood culture that matches an organism in the urine that is growing >100,000 cfu/ml.

Case Scenario 2 – Question 2 (slide 33)

Q. What is the Date of Event?

A. 6/2
B. 5/31
C. 6/3
D. 6/6

Answer: C, 6/3

The date the first element used to meet an NHSN site-specific infection criterion (in this case the positive blood culture) occurs for the first time within the seven-day infection window period. Remember, if you have a positive blood culture, you should continue to monitor for additional positive cultures throughout the Infection Window Period and secondary attribution period. Do not assume that the patient has a primary BSI because the first positive culture is a positive blood.

Case Scenario 3 (slide 35)

- 4/10 - 75 year old female admitted to ICU with possible sepsis; urine culture on admission is positive for >100,000 cfu/ml E. coli, blood cultures x2 are negative; patient has no signs or symptoms of a UTI.
- 4/11 - Patient has temp of 100.8; no dysuria, frequency, urgency, CVA pain, or suprapubic tenderness
- 4/12 – Temp of 100.2; foley placed
- 4/15 – Urine culture positive for >100,000 cfu/ml E. coli
- 4/17 – Temp of 101.0

Case Scenario 3 – Question 1 (slide 36)

Q. Does this patient have a UTI Present on Admission (POA)?

A. Yes, SUTI 1a
B. No
C. Yes, SUTI 1b
D. Yes, ABUTI

Answer: B, No.

Although the patient has a fever and positive urine culture during the first 2 days of admission (in the POA period), this patient does not have a NHSN UTI because fever cannot be used as a UTI criterion in a patient >65 years of age when a foley is not in place.

Case Scenario 3 – Question 2 (slide 37)

Q. Since this patient did not have a UTI Present on Admission, do they have a CAUTI resulting from the second positive urine culture? If so, what is the Date of Event?

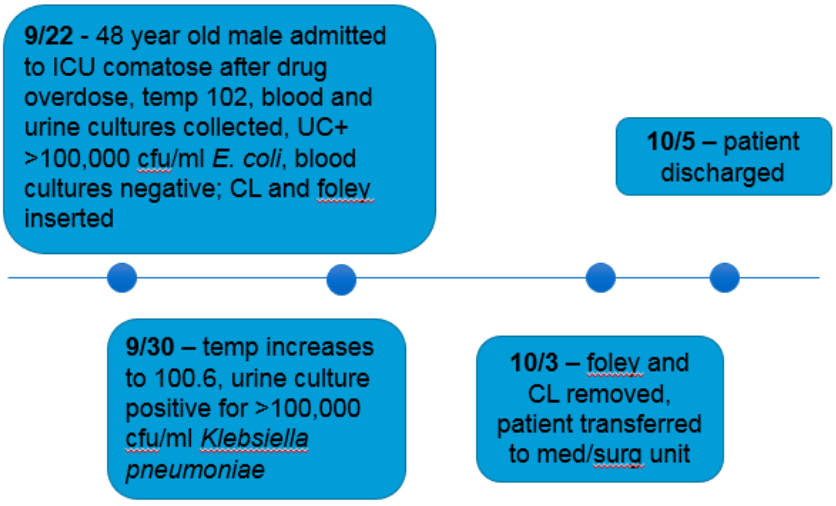
A. Yes, they have a SUTI 1a with DOE of 4/15
B. No, they do not have a CAUTI since the urine culture on 4/15 grew the same organism as the urine culture Present on Admission
C. Yes, they have a SUTI 1a with a DOE of 4/17
D. Yes, they have a SUTI 1b with a DOE of 4/15

Answer: A, Yes, they have a SUTI 1a with DOE of 4/15

The patient did not meet NHSN UTI criteria in the POA period, therefore a foley in place >2 calendar days, a positive urine culture with >100,000 cfu/ml E. coli on 4/15, and fever on 4/17 meet NHSN SUTI 1a criteria.

The Date of Event is 4/15 since that is the date the first element used to meet an NHSN site-specific infection criterion (in this case the positive urine culture) occurs for the first time within the seven-day infection window period.

Case Scenario 4 (slide 39)



Case Scenario 4 – Question 1 (slide 40)

Q. Does the patient have a UTI on 9/22?

A. Yes, SUTI 1a
B. No
C. Yes, ABUTI
D. Yes, SUTI 1b

Answer: D, Yes, SUTI 1b

The patient has a temp >38C and a positive urine growing >100,000 cfu/ml of a bacteria, but does not have a foley for >2 calendar days, so it's a SUTI 1b.

Case Scenario 4 – Question 2 (slide 41)

Q. Does the patient have a reportable CAUTI on 9/30?

A. Yes, another SUTI 1a
B. No
C. Yes, ABUTI
D. Yes, SUTI 1b

Answer: B, No

This patient has a second SUTI on 9/30, in the Repeat Infection Timeframe of the 9/22 SUTI. You do not change the device association during a Repeat Infection Timeframe. Even though the patient had a foley >2 calendar days at the time of the 9/30 SUTI, you would not change the 9/22 non-catheter associated SUTI to a catheter-associated.

Case Scenario 4 – Question 3 (slide 42)

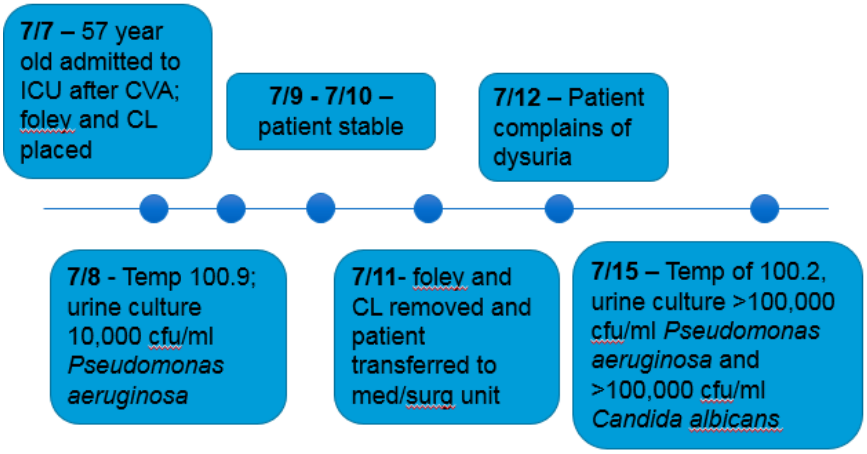
Q. If the non-catheter associated UTI from 9/22 was reported to NHSN, what organism(s) would be reported?

A. *E. coli*
B. *Klebsiella pneumoniae*
C. *E. coli* and *Klebsiella pneumoniae*

Answer: C, *E. coli* and *Klebsiella pneumoniae*

If the non-catheter associated UTI on 9/22 were reported to NHSN, the *Klebsiella pneumoniae* from the 9/30 SUTI would be reported along with the E. coli from the 9/22 SUTI since the 9/30 SUTI fell into the 14-day Repeat Infection Timeframe of the 9/22 SUTI.
If you only report CAUTI to NHSN, this case would not be reported.

Case Scenario 5 (slide 44)



Case Scenario 5 – Question 1 (slide 45)

Q. Does this patient have a CAUTI? If so, what is the Date of Event?

A. Yes, SUTI 1a with DOE of 7/15
B. No
C. Yes, SUTI 1a with DOE of 7/12
D. Yes, ABUTI with DOE of 7/15

Answer: C. Yes, SUTI 1a with DOE of 7/12

The positive urine culture on 7/15 sets an Infection Window Period of 7/12-7/18. The dysuria occurs on 7/12 and that is the first symptom of the UTI within the Infection Window Period.

Did you notice the positive urine culture occurred 4 days after the foley was removed? When reviewing positive urine cultures, don't assume you don't have a CAUTI because there was no foley in place the day before the urine culture was collected. You need to look back 4 days from the date of the urine culture to ensure you have no symptoms of a UTI or foley in place.

Case Scenario 5 – Question 2 (slide 46)

Q. What organism(s) is/are reported for the CAUTI?

A. *Pseudomonas aeruginosa*
B. *Candida albicans*
C. *Pseudomonas aeruginosa* and *Candida albicans*

Answer: A *Pseudomonas aeruginosa*.

Candida is an excluded organism for CAUTI, so only Pseudomonas is reported.

Case Scenario 5 – Question 3 (slide 47)

Q. What is the Location of Attribution for the CAUTI?

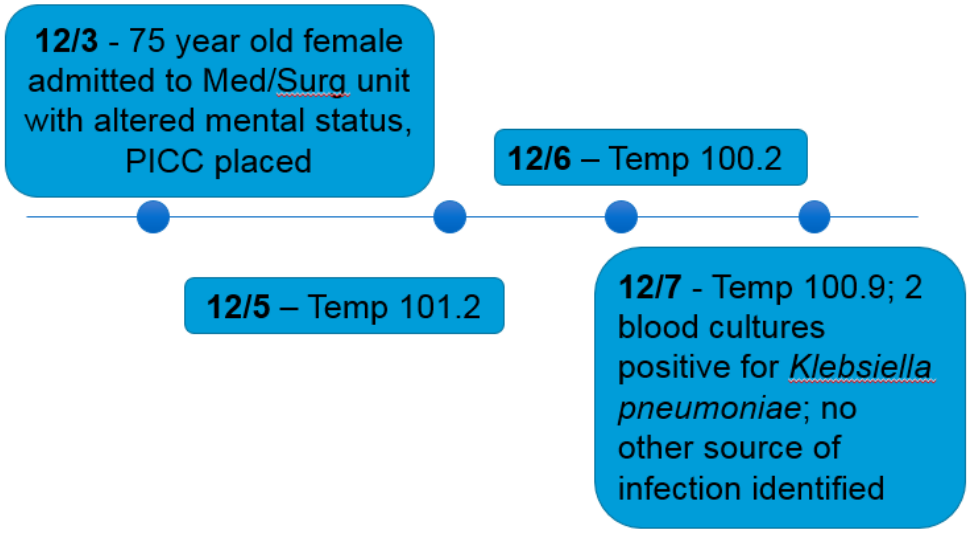
A. ICU
B. Med/surg unit

Answer: A. ICU

Per the Transfer Rule: If the date of the event is the day of transfer/discharge or the day after, the infection is attributed to the transferring location. In this case, the DOE is 7/12 and the patient was transferred from ICU to med/surg unit on the day before. Since the ICU was the transferring unit on 7/11, that is the Location of Attribution.

CLABSI Case Scenarios Answer Key
Applying BSI Definitions

Case Scenario 5 (slide 42)



Case Scenario 1 – Question 1 (slide 43)

Q. Does this patient have a HAI? If so, what is the Date of Event?

A. Yes, with DOE of 12/7
B. No
C. Yes, with DOE of 12/5

Answer: A. Yes, with DOE of 12/7

This patient has a HAI. The date of event is 12/7 and after the 3rd calendar day of admission.

Case Scenario 1 – Question 2 (slide 44)

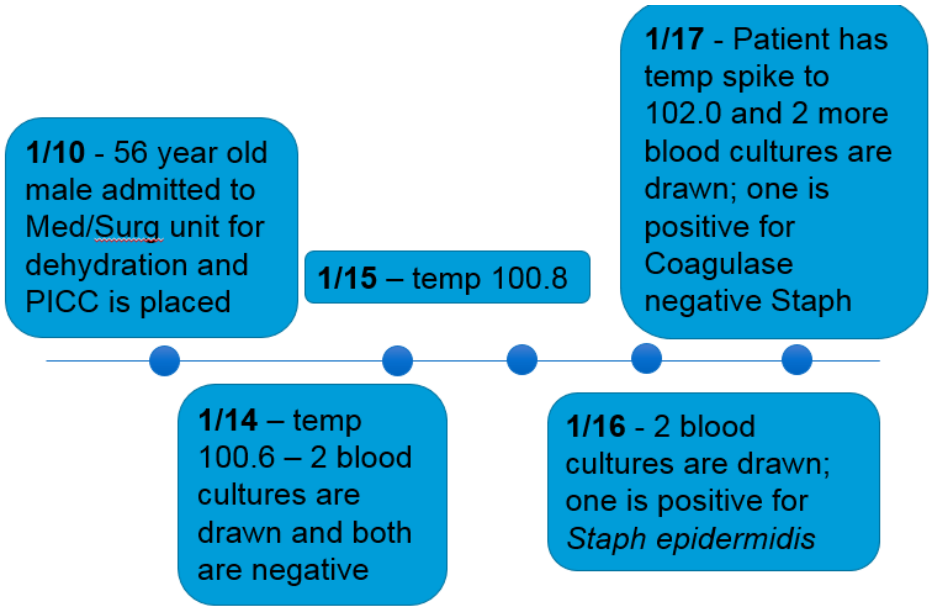
Q. Does this patient have a CLABSI?

A. Yes
B. No

Answer: A. Yes

This is a CLABSI. Patient has a CL in place >2 calendar days and a recognized pathogen identified from 1 or more blood cultures and the organism is not related to an infection at another site.

Case Scenario 2 (slide 46)



Patient has no other source of infection identified

Case Scenario 2 – Question 1 (slide 47)

Q. Does this patient have a CLABSI?

A. No
B. Yes, LCBI 1
C. Yes, LCBI 3
D. Yes, LCBI 2

Answer: D. Yes, LCBI 2

Patient has a CL >2 calendar days, a fever and a common commensal is identified from two blood specimens drawn on separate occasions and consecutive calendar days and organisms are not related to an infection at another site.

Staph epidermidis and Coagulase negative Staph are considered matching organisms because Staph epidermidis is a Coagulase negative Staph.

Case Scenario 2 – Question 2 (slide 48)

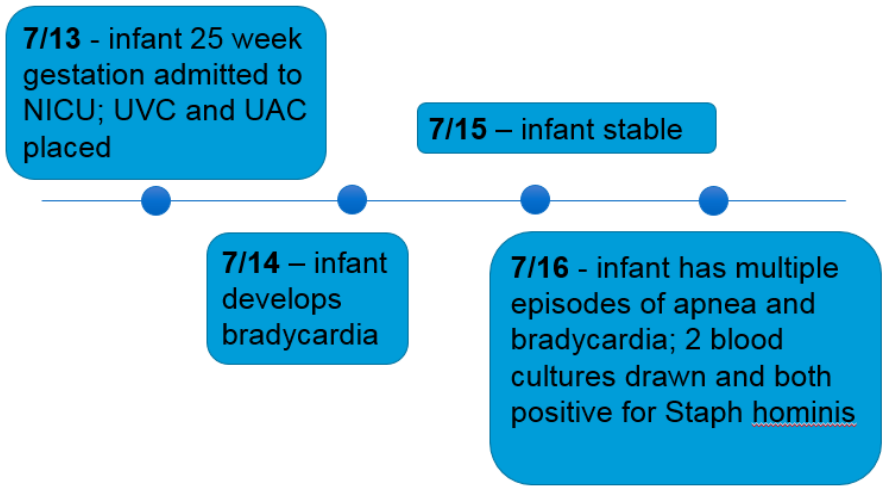
Q. What is the date of first diagnostic test?

A. 1/16
B. 1/14
C. 1/17

Answer: A. 1/16

The matching common commensals represent a single criteria, therefore the date of the FIRST common commensal is the date of the first diagnostic test

Case Scenario 3 (slide 50)



No other source of infection is identified

Case Scenario 3 – Question 1 (slide 51)

Q. Does this patient have a HAI?

A. Yes, patient has a CLABSI with a DOE of 7/16
B. No, patient has a BSI Present on Admission with a DOE of 7/14
C. No, patient does not have any type of infection
D. Yes, patient has a BSI with a DOE of 7/14

Answer: B. No, patient has a BSI Present on Admission with a DOE of 7/14

The patient does have a BSI and it is present on admission with a DOE of 7/14; the first sign of infection is bradycardia occurring on the day after admission to an inpatient location. This is within the POA period, therefore the patient does not have HAI.

Case Scenario 3 – Question 2 (slide 52)

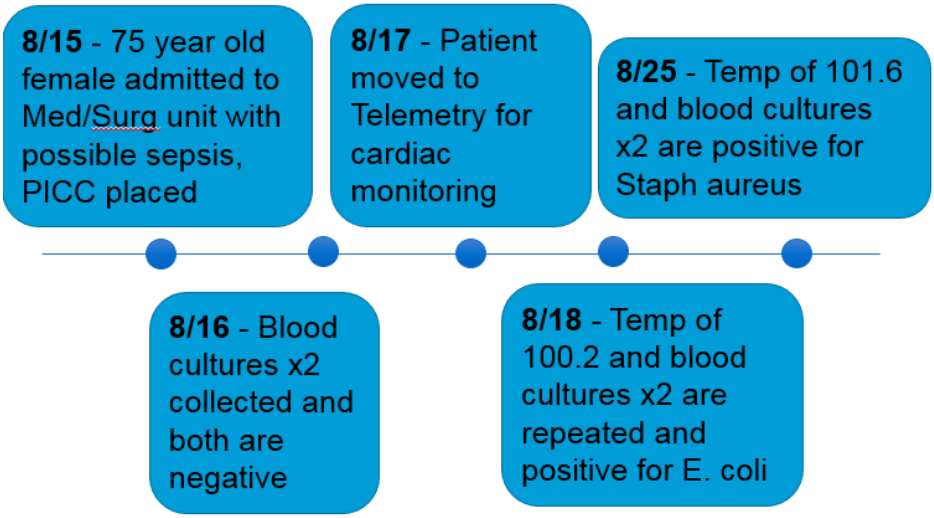
Q. What type of BSI does this patient have?

A. LCBI 2
B. LCBI 1
C. LCBI 3

Answer: C. LCBI 3

Patient has a LCBI 3, they have apnea, bradycardia, the same common commensal is identified from two or more blood specimens drawn on separate occasions, and organism identified is not related to an infection at another site

Case Scenario 4 (slide 54)



No other source of infection is identified

Case Scenario 4 – Question 1 (slide 55)

Q. Does this patient have a CLABSI?

A. Yes, one LCBI 1 with DOE of 8/25
B. No
C. Yes, LCBI 1 with DOE of 8/18 and a second LCBI 1 on 8/25 in the RIT
D. Yes, one LCBI with a DOE of 8/18

Answer: C. Yes, LCBI 1 with DOE of 8/18 and a second LCBI 1 on 8/25 in the RIT

Patient has a CL >2 calendar days, positive blood cultures on 8/18 with a recognized pathogen and no other source of infection is identified. On 8/25 the patient again has a recognized pathogen with no other source identified. The LCBI on 8/25 falls into the 14-day RIT of the 8/18 LCBI.

Case Scenario 4 – Question 2 (slide 56)

Q. What BSI organisms are reported?

A. *E. coli*
B. *Staph aureus*
C. *E. coli* and *Staph aureus*

Answer: C. *E. coli* and *Staph aureus*

The pathogen from the 8/18 CLABSI is reported and the pathogen from the 8/25 BSI is also reported on the 8/18 CLABSI since it falls within the 14-day RIT of that HAI.

Case Scenario 4 – Question 3 (slide 57)

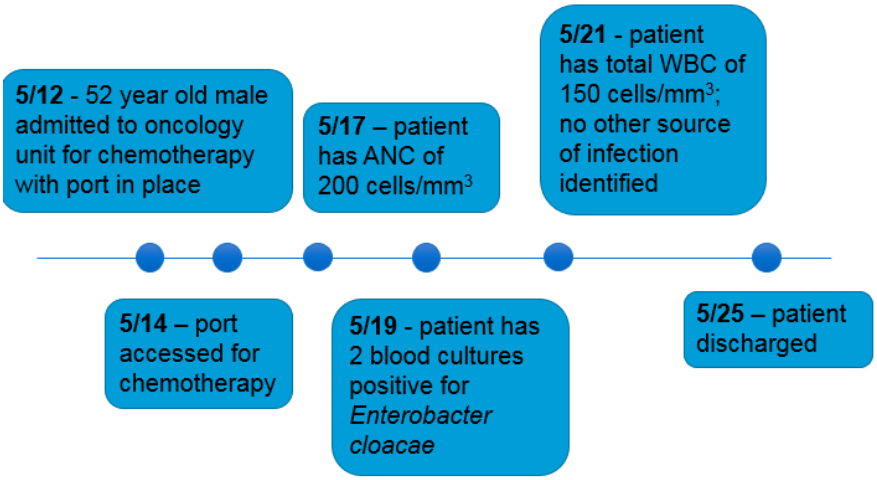
Q. What is the Location of Attribution (LOA) for the 8/18 CLABSI?

A. Med/Surg
B. Telemetry

Answer: A. Med/Surg.

Per the Transfer Rule: If the date of the event is the day of transfer/discharge or the day after, the infection is attributed to the transferring location. In this case, the DOE is 8/18 and the patient was transferred from Med/Surg to Telemetry on the day before. Since the med/surg unit was the transferring unit on 8/17, that is the Location of Attribution.

Case Scenario 5 (slide 59)



Case Scenario 5 – Question 1 (slide 60)

Q. What day does the CL count begin?

A. 5/12
B. 5/13
C. 5/14

Answer: C. 5/14

The device day count begins on 5/12 for the purpose of denominator CL day count, but it begins on 5/14 for the purpose of determining device attribution since that is the first day the line is accessed on an inpatient unit. This line will continue to be counted until it is discontinued or the day after patient discharge.

Case Scenario 5 – Question 2 (slide 61)

Q. What type of CLABSI does this patient have?

A. LCBI 1
B. MBI-LCBI-1
C. The patient does not have CLABSI
D. MBI-LCBI-2

Answer: B. MBI-LCBI-1

Patient has a CL>2 calendar days, at least on blood specimen with an intestinal organism from the MBI organism list and 2 separate days of ANC or total WBC <500 cells/mm3 within a 7 day period [date of positive blood culture, 3 calendar days before, and 3 calendar days after])

Case Scenario 5 – Question 3 (slide 62)

Q. What is the Date of Event?

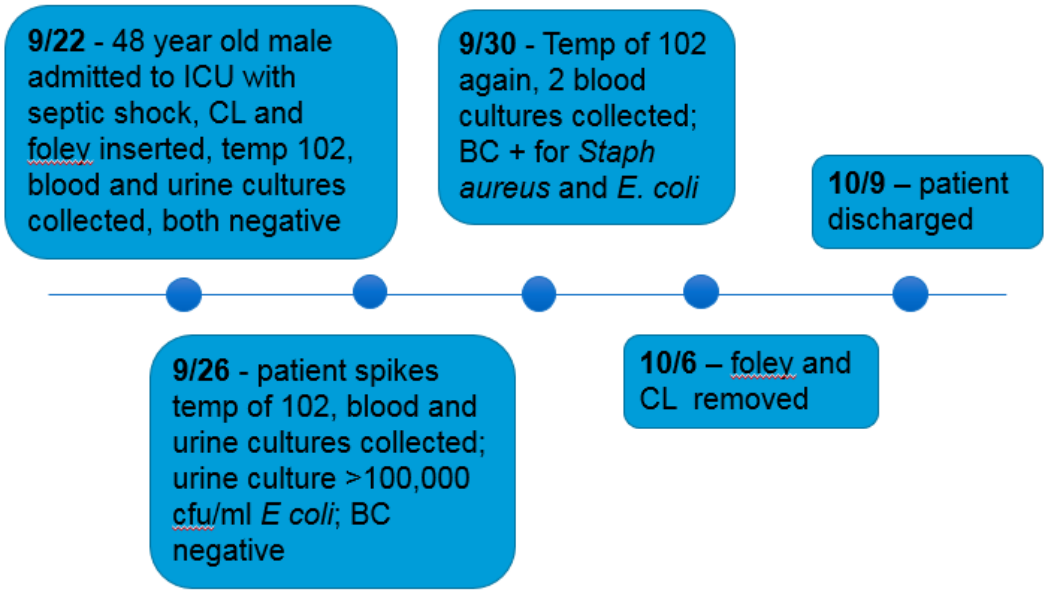
A. 5/19
B. 5/17
C. 5/20
D. 5/18

Answer: A. 5/19

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.

CLABSI Case Scenarios Answer Key
Secondary Bloodstream Infection Determination

Case Scenario 1 (slide 65)



Case Scenario 1 – Question 1 (slide 66)

Q. What HAI does this patient have?

A. BSI secondary to CAUTI
B. UTI secondary to CLABSI
C. Only CLABSI
D. Only CAUTI

Answer: A. BSI secondary to CAUTI

This patient has a BSI secondary to a CAUTI. The patient meets CAUTI criteria with a foley in >2 calendar days, fever, and positive urine culture with >100,000 E coli. Since the blood specimen matches an organism identified from the site-specific infection that is used as an element to meet the NHSN site-specific infection criterion (the urine culture with E. coli) AND the blood specimen is collected during the secondary BSI attribution period, it is a secondary BSI.

Case Scenario 1 – Question 2 (slide 67)

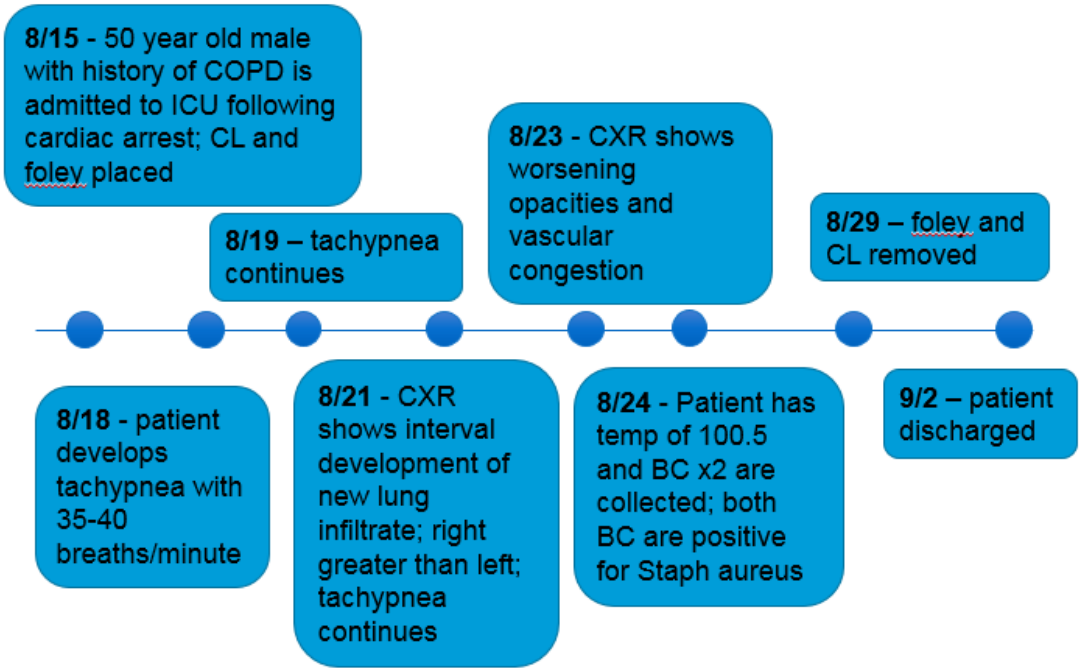
Q. What organism(s) is/are reported to NHSN?

A. *E. coli*
B. *Staph aureus*
C. *E. coli* and *Staph aureus*

Answer: C. *E. coli* and *Staph aureus*

Pathogens identified from secondary BSIs, should be added to those pathogens reported for the primary infection type. In this example, the E. coli is reported for the CAUTI and the Staph aureus is added as the pathogen for the secondary BSI.

Case Scenario 2 (slide 69)



Case Scenario 2 – Question 1 (slide 70)

Q. What HAI does this patient have?

A. CLABSI
B. BSI secondary to VAE
C. Pneumonia (PNU2) only
D. BSI secondary to PNU2

Answer: D. BSI secondary to PNU2.

The patient has a PNU2 with 2 serial CXR showing new and persistent infiltrates, a temp >100.4, tachypnea, and organisms identified from the blood in the IWP. Because the organism in the blood specimen is an element used to meet the NHSN PNU2 infection and is collected within the PNU2 IWP, the BSI is secondary to the PNU2.

Case Scenario 2 – Question 2 (slide 71)

Q. What is the first diagnostic test or sign/symptom that sets the Infection Window Period?

A. Tachypnea
B. First Chest x-ray
C. Positive blood culture
D. Temperature

Answer: B. First Chest x-ray

The first imaging test (or chest x-ray) is the first diagnostic test setting the IWP for the PNU2.

Case Scenario 2 – Question 3 (slide 72)

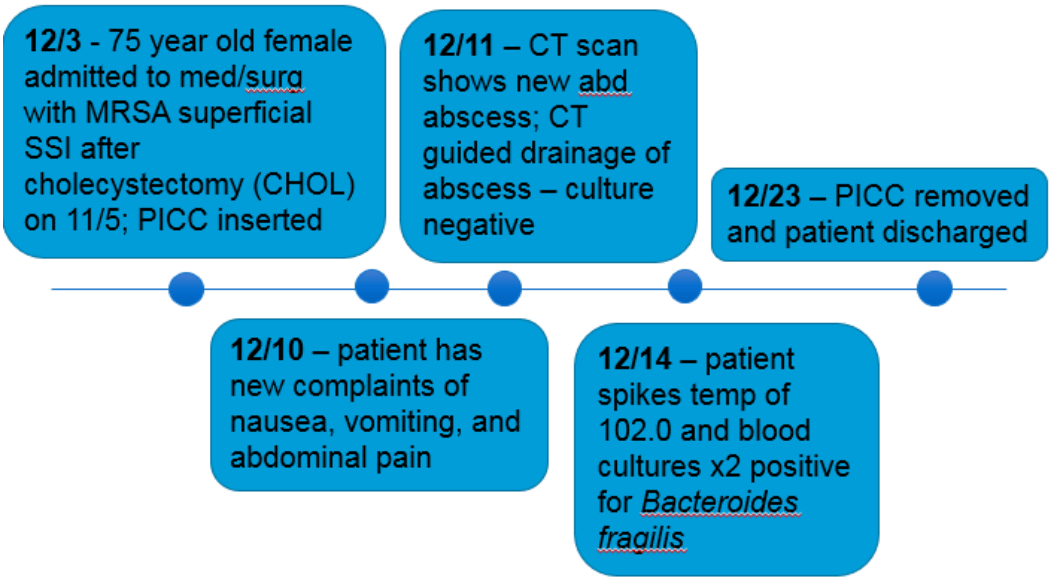
Q. If the blood culture grew *Enterococcus faecalis*, would this still be a PNU2 with secondary BSI?

A. Yes
B. No

Answer: B. No.

Enterococcus faecalis is an excluded organism from PNEU/VAP definition unless it is identified from lung tissue or pleural fluid, so a blood culture *growing Enterococcus faecalis* cannot be a secondary BSI to a PNEU/VAP. If there were no other sources of infection, the blood culture with *Enterococcus* would be a CLABSI.

Case Scenario 3 (slide 74)



Case Scenario 3 – Question 1 (slide 75)

Q. Does this patient have a secondary BSI? If so what site-specific infection is it secondary to?

A. Yes, GIT
B. No, patient does not have a secondary BSI
C. Yes, IAB
D. Yes, OREP

Answer: C. Yes, IAB - see following slide 72 for additional details

The IAB 3b site-specific criteria is met with nausea and vomiting with no other recognized cause, fever, positive blood culture with a MBI organism and imaging evidence of an infection. The secondary BSI criteria is met because an organism identified in the blood specimen is an element that is used to meet the NHSN site-specific infection criterion, and is collected during the site-specific infection window period.

Case Scenario 3 – Question 2 (slide 77)

Q. Could this abdominal abscess be an organ space surgical site infection attributed to the patient's gallbladder surgery on 11/5?

A. Yes
B. No

Answer: B. No

This cannot be a SSI because the surveillance period for cholecystectomy (CHOL) is 30 days and the signs and symptoms of the IAB began after the surveillance period.

Risk Assessment Answer Key

Pre-Quiz Question (slide 3)

Q. The purpose of the risk assessment is to act as a guide and focus for your annual infection control plan.

A. True
B. False

Answer: A. True

Scenario 1: High Level Disinfection (slide 5)

Q. When reviewing microbiology cultures you notice that there is a cluster of *Enterobacter cloace* infections. Upon further review you find that all of the affected patients had a recent endoscopy in your gastroenterology procedure area. You perform an assessment of the area and find a breach in high level (HLD) disinfection practices. A risk assessment should be completed evaluating HLD practices?

A. True
B. False

Answer: A. True

Scenario 1 (slide 6)

Q. Once you've identified the risk, what are the three main components that need to be evaluated to conduct the risk assessment?

A. The probability of the event occurring
B. The names of the individuals responsible for the breach
C. The Impact or severity if the event occurs
D. Your current systems or level of preparedness for the event
E. Hand hygiene compliance rates in the procedural area where the risk was identified

Answer: A, C, D

Scenario 2: CLABSI (slide 7)

Q. You have completed a risk assessment for your organization and identified central line-associated bloodstream infections (CLABSI) as the top priority for your infection prevention program. The risk assessment team develops a CLABSI rate goal for the organization. The team then has to develop measurable objectives and strategies to meet those objectives.

You do not need to develop an evaluation method for your objectives at this time?

A. True
B. False

Answer: B. False

Scenario 2: CLABSI (slide 7)

Q. Which of the following are evidence-based strategies to prevent CLABSI? Select all that apply:

A. Use aseptic technique to insert all central lines
B. Use an insertion checklist to improve adherence to best practices
C. Health care personnel must ensure that a patient's CVC is removed or replaced at the appropriate time and in a safe manner
D. Change dressings over the site every seven days for gauze dressings or every two days for semipermeable dressings
E. All of the above

Answers: A, B, C

Reference is TJC CLABSI Toolkit:
https://www.jointcommission.org/topics/clabsi_toolkit__chapter_3.aspx

Pre-Quiz Question: Risk Assessment Team (slide 12)

Q. Which of the following services should be part of the risk assessment team?

A. Infection Prevention staff
B. Environmental Services
C. Pharmacy
D. Laboratory
E. Nursing
F. Central Processing
G. Other
H. All of the above

Answer: H. All of the above

Quick Quiz (slide 17)

Q. The organizational evaluation should be revised based on input from the risk assessment team?

A. True
B. False

Answer: A. True

Quick Quiz (slide 29)

Q. Which of the following should be considered when evaluating the probability?

A. Loss of function
B. Legal Issue
C. Known risk
D. Historical data
E. Disruption of services
F. Reports in literature
G. All of the above

Answers: C, D, F

Pre-Quiz (slide 40)

Q. What are the benefits of using a group to complete the risk assessment?

A. Creates a group that is knowledgeable about infection prevention
B. Getting buy-in from key stakeholders
C. No single individual will be blamed for priorities
D. All of the above
E. None of the above

Answer: D. All of the above

MDROs and Other Infectious Diseases of Interest for the Infection Preventionist Answer Key

Quick Quiz Match (slide 34)

1. Normally lives in the intestinal tract but is resistant to Vancomycin	MRSA
2. A gram positive coccus that is resistant to methicillin	Antibiotic Stewardship
3. Also known as CRE	Enterococcus
4. Prudent use of antibiotics	Carbapenem resistant enterobactericae

Answers:

1. Enterococcus
2. MRSA
3. Carbapenem resistant Enterobacteriaceae
4. Antibiotic Stewardship

Quick Quiz Match (slide 76)

1. Latent TB	Negative pressure room
2. Airborne Infection Isolation Room	Used to prevent inhalation of airborne diseases
3. N95/PAPR	Tuberculin skin test
4. TST	Infected with TB, but it's not active

Answers:

1. Infected with TB, but it's not active
2. Negative pressure room
3. Used to prevent inhalation of airborne diseases
4. Tuberculin skin test

Quick Quiz Match (slide 93)

1. Call the local PHD	First
2. Investigate if any patients on the Unit have Hep A	Fourth
3. Confirm the diagnosis – check with Lab, what test was done	Second
4. Look for any common activities that the three Nurses may have	Third

Answers:

1. Second
2. Third
3. First
4. Fourth

Quick Quiz Match (slide 95)

1. Was this just a chance occurrence	Finger foods are famous for transmitting bacteria
2. The popcorn may have been contaminated with stool from patient Jones.	As long as 50 days
3. The hand hygiene rate on 5N is 30%. Hep A is transmitted by___	Very low, 0.4 cases per 100,000 population in non-outbreak areas
4. Hep A may have a long incubation period	Fecal-oral route

Answers:

1. Very low, 0.4 cases per 100,000 population in non-outbreak areas
2. Finger foods are famous for transmitting bacteria
3. Fecal-oral route
4. As long as 50 days

Activity: What do you think the IP should do? (slide 96)

	True or False
1. Attend the next Unit meeting and educate the Nurses on how Hep A is transmitted (fecal-oral)	
2. Cross your fingers and hope that this never happens again	
3. Prohibit potlucks on all Nursing Units	
4. Share their Unit hand hygiene rates and ask them how they can improve	

Answers:

1. True
2. False
3. True
4. True

Quick Quiz Match (slide 133)

1. By 2020 what percentage of HCWs are expected to receive influenza vaccine	90%
2. What precautions are requires to prevent transmission of influenza?	Standard and Droplet
3. Adults may be contagious for X days prior to flu symptoms	One day
4. Respiratory etiquette includes	Cover your cough

Answers:

1. 90%
2. Standard and Droplet
3. One day
4. Cover your cough

Quick Quiz Match (slide 146)

1. Disseminated kenpox transmitted?	Airborne and contact
2. How is Shingles contracted?	From reactivation of herpes zoster
3. Disseminated Shingles requires what precautions?	Airborne
4. Localized Shingles requires what precautions?	Standard

Answers:

1. Airborne
2. From reactivation of herpes zoster
3. Airborne and contact
4. Standard

Surveillance: VAE and LabID Answer Key

When Should You Use PNEU/VAP Instead of VAE? (slide 14)

A. Never – always use VAE
B. When conducting in-plan surveillance on mechanically-ventilated children who are in pediatric locations
C. When surveillance is conducted for healthcare-associated pneumonia that is not associated with mechanical ventilation
D. When determining if a BSI is secondary to a lower respiratory site
E. B, C, and D

Answer: E. B, C, and D are all appropriate scenarios for using pneumonia/VAP criteria.

What Are the Daily Minimum PEEP and FiO_2? (slide 30)

A. 5 and 0.40
B. 8 and 0.60
C. 10 and 1.0
D. 5 and 0.60

Time	6 pm	7 pm	8 pm	9 pm	10 pm	11 pm
Peep (cmH_2O)	10	8	5	5	8	8
FiO_2	1.0	0.60	0.40	0.50	0.60	0.60

Answer: D. 5 and 0.60

A PEEP of 5 and a FiO2 of 0.60 are maintained for >1 hour. You'll notice that although 0.40 was the lowest setting, it was not maintained for >1 hour.

Outbreak Investigation Exercise
Answer Key

Determine Incidence Rate (slides 39-40)

Answer:

- # new patients in ICU with MRSA in June = 2
- # patients in ICU in June = 120

Formula is:

$$\frac{\text{\# } \textit{new} \text{ cases in population in given period}}{\text{\# in same population during given period}} \times 10^{n*}$$

$$\frac{2}{120} \times 100 = 1.7$$

How we state our findings is important: This result is stated as “the incidence rate of MRSA in the ICU in June is 1.7 cases per 100 patients”

What is attack rate for MRSA in June? We use 100 as the constant, so it’s the same as we calculated above—1.7 cases per 100 patients or 1.7%. Note that attack rate is most commonly used for foodborne outbreaks.

Attack rate is really a proportion of persons at risk who become infected over an entire period of exposure. There is no specification of time. Always a percent.

Prevalence Rate (slides 41-43)

Answers:

- # new patients in ICU with MRSA in June = 2
- # patients with MRSA in May still in ICU in June = 3
- # patients in ICU in June = 120

Formula is:

$$\frac{\text{\# new and existing cases of MRSA}}{\text{\# ICU pts in June}} \times 100$$

New and existing cases = 3 from May +2 in June = 5 (our numerator)

Population in ICU in June= 120 (our denominator)

We multiply by 100 to give us a whole number.

Answer is 5/120 x 100=4.2

Besides being able to use the formula, you must be able to explain the result you obtain. This is stated as a “the prevalence rate of MRSA in the ICU in June is 4.2 cases per 100 patients”

Notice the difference between the MRSA prevalence and incidence rates in June: Prevalence rate is 4.2 cases per 100 patients – this rate includes both new and existing cases

Incidence rate is 1.7 cases per 100 patients and includes only newly diagnosed patients

Incidence-Density Rate (slides 44-45)

Answer:

Formula is:

Infections / # Patient (or resident) - days in total population X 1000 = rate

5/843 x 1000 = 5.843 0r 5.9

Stated as: There were 5.9 UTIs per 1,000 resident-days in May. Remember that we cannot express an incidence density rate as a percentage.

Device-Associated Infection Rate (DAR) (slides 48)

CLABSI in MICU / # catheter-days in MICU X 1000 = 1/630 x 1000 = 1.6

State rate as: there were 1.6 CLABSIs per 1,000 catheter-days in the MICU in April

Cleaning, Disinfection and Sterilization Answer Key

How would you classify these? (slide 21)

Item	Classification
1. Endoscopes	A. Non-critical
2. Endoscopy biopsy forceps	B. Semi-critical
3. Blood pressure cuff	C. Critical
4. Scalpel	
5. PACU recovery chair	

Answers:

1. B
2. C
3. A
4. C
5. A

How would you process this? (slide 33)

Q. According to Spaulding Classification, a laryngoscope blade should be processed by which method:

A. Cleaning followed by high level disinfection
B. Cleaning followed by chlorhexidine for 20 min.
C. Cleaning followed by ultrasonic washer
D. Alcohol disinfection

Answer: A. Cleaning followed by high level disinfection

Quick Quiz (slide 44)

Q. When performing high-level disinfection, which of the following are correct?

A. Thorough cleaning is critical.
B. HLD solution must be checked for MEC and temperature before use.
C. The soak time on the HLD label must be followed
D. All of the above

Answer: D. All of the above

Quick Quiz (slide 61)

True or False: Immediate use sterilization can be used in lieu of purchasing additional instrument sets.

Answer: False

Surgical Site Infection (SSI) Answer Key

Case 1: Is this procedure primarily closed? (slide 14)

- A patient is admitted with a ruptured diverticulum and a COLO procedure is performed in the inpatient OR.
- Surgeon staples closed the skin at 4 locations with packing placed between the staples

Answer: Yes, this procedure is primarily closed because the surgeon stapled closed the skin at 4 locations.

Case 2: Does this meet the PATOS criteria? (slide 18)

- Patient was admitted with an acute abdomen, to OR for XLAP with findings of an abscess due to ruptured appendix and an APPY is performed.
- Patient returns 2 weeks later and meets criteria for an organ space IAB SSI.

Answer: YES

The PATOS field would be selected as **YES** since there was evidence of infection (an abscess was documented) at the time of surgery and the subsequent SSI developed at the same level. Infections that meet SSI criteria and have the PATOS field as a YES are still reported to NHSN.

Case 3: Does this meet the PATOS criteria? (slide 19)

- Patient is admitted with a ruptured diverticulum and in the OR report the surgeon notes that there are multiple abscesses in the intraabdominal space.
- The patient returns 3 weeks later and meets criteria for a superficial incisional SSI.

Answer: No

The PATOS field would be selected as **NO** since the level of infection at the time of the procedure was organ space and the level of the SSI 3 weeks later was superficial.

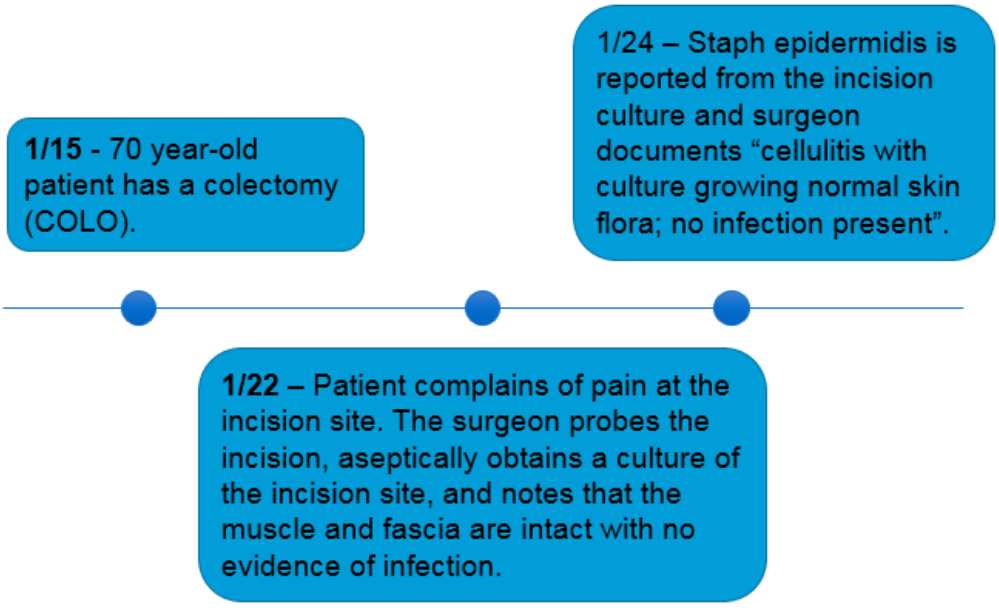
Case 4: Does this meet the PATOS criteria? (slide 20)

- During an unplanned cesarean section (CSEC) the surgeon nicks the bowel and there is contamination of the intraabdominal cavity.
- One week later the patient returns and meets criteria for an organ space OREP (other reproductive) SSI.

Answer: No

The PATOS field would be selected as **NO** since there was no documentation of evidence of infection or abscess at the time of the CSEC. The colon nick was a complication but there was no infection present at the time of surgery. Contamination does not equal infection.

Case Scenario 1 (slide 34)



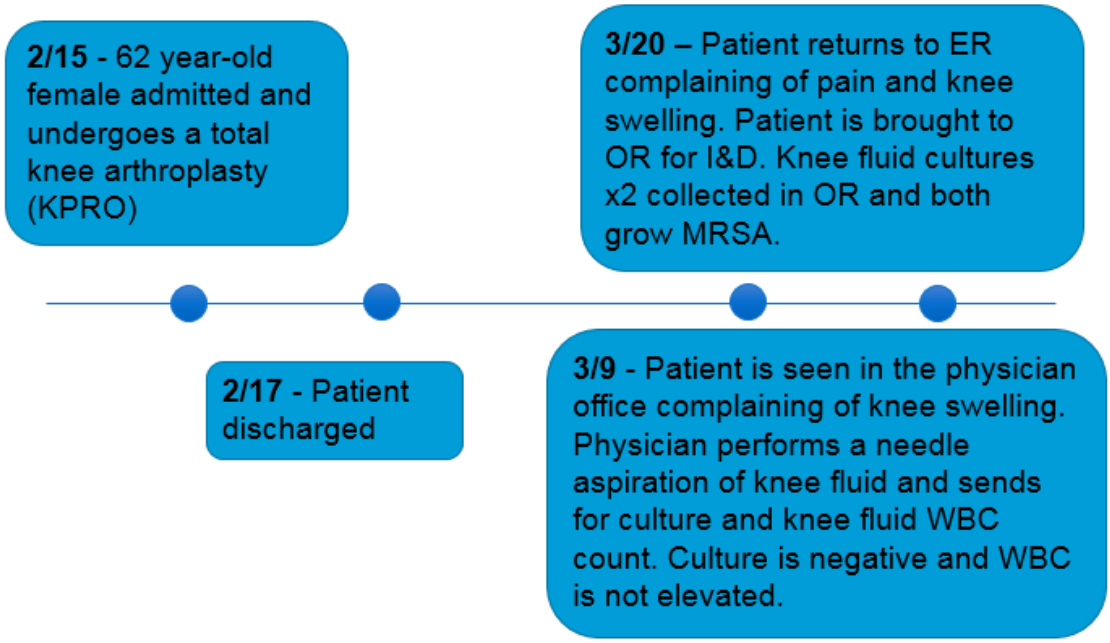
Case Scenario 1 – Question (slide 35)

Q. What should be reported?

A. Deep Incisional SSI
B. Nothing – culture is growing common commensal
C. Superficial Incisional SSI

Answer: C, Superficial Incisional SSI

Case Scenario 2 (slide 37)



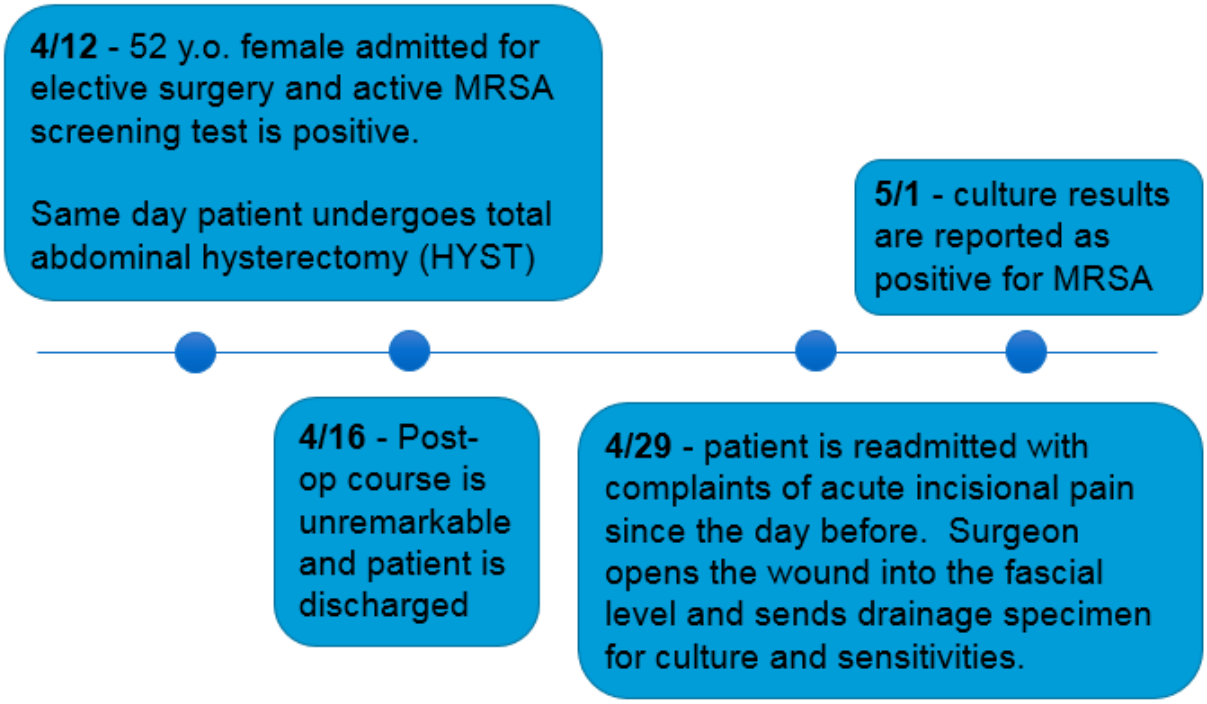
Case Scenario 2 – Question (slide 38)

Q. What should be reported for the KPRO procedure?

A. Superficial Incisional SSI
B. Nothing
C. Deep Incisional SSI
D. Organ/Space – PJI SSI

Answer: B. Nothing

Case Scenario 3 (slide 40)



Case Scenario 3 – Question (slide 40)

Q. Is this a SSI?

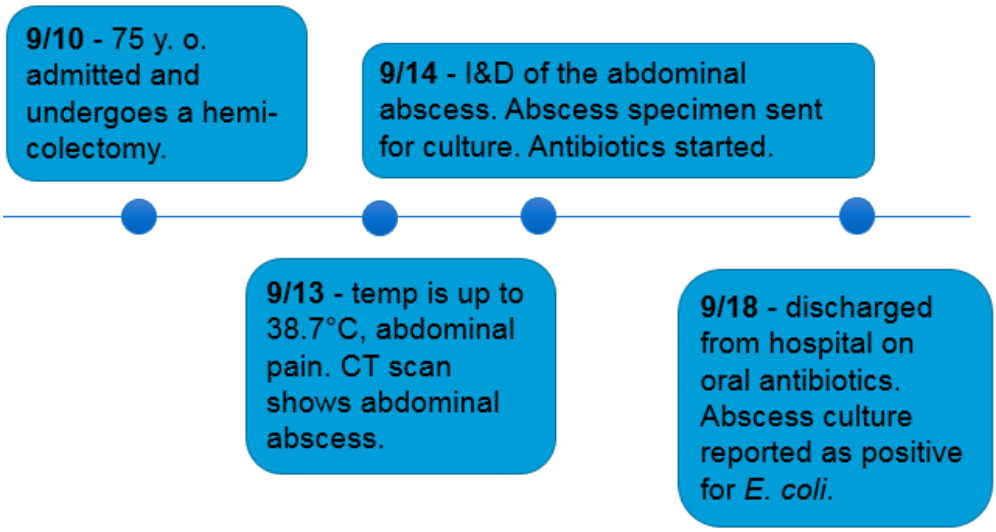
Q. How should it be reported?

A. Yes, Superficial Incisional SSI
B. Yes, Deep Incisional SSI
C. Yes, Organ/Space SSI
D. Not a SSI – patient had a positive screening test for MRSA prior to surgery, so the post-operative cultures with MRSA do not count as a SSI

Answer: B. Yes, Deep Incisional SSI

The fact that the patient was colonized with MRSA preoperatively does not mean that there is not a SSI. The patient had no evidence of infection at the incision site at the time of surgery, so it won't be classified as PATOS. It's a fact that patients who are colonized with MRSA will have an increased risk of developing an MRSA SSI.

Case Scenario 4 (slide 43)



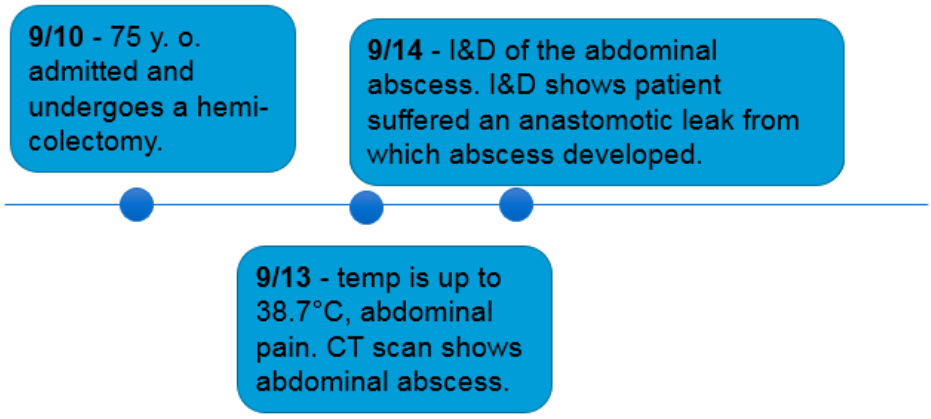
Case Scenario 4 – Question (slide 44)

Q. What type of SSI does this patient have?

A. Superficial Incisional SSI
B. Deep Incisional SSI
C. Organ/Space SSI – IAB
D. Organ/Space SSI – GIT

Answer: C, Organ/Space SSI - intraabdominal

Case Scenario 4 (cont.) (slide 48)

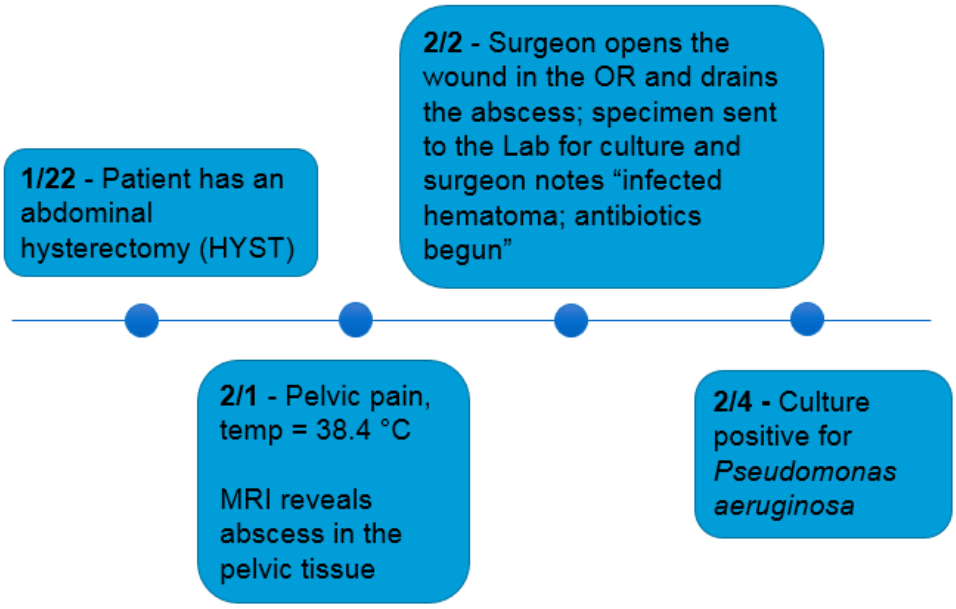


Does this change your determination of an SSI-IAB?

Answer: No

Although an anastomotic leak can be a complication of surgery, the fact remains that this patient meets the criterion for an SSI. If the surgery had not been performed there would not have been an anastomotic leak.

Case Scenario 5 (slide 49)



Case Scenario 5 – Question (slide 50)

Q. What should be reported?

A. O/S SSI – IAB
B. O/S SSI – OREP
C. O/S SSI – EMET

Answer: B. Organ/Space SSI – OREP

Why is this an OREP? OREP includes deep pelvic tissue infection or other infection of the male or female reproductive tract (epididymis, testes, prostate, vagina, ovaries, uterus) including chorioamnionitis, excluding vaginitis, endometritis or vaginal cuff infections

Why isn't this an IAB? Remember the site specific locations for an IAB that we discussed in Case #4? IAB doesn't include the pelvic area.

Using and Reporting Data Answer Key

Pre-Quiz Questions (slide 3)

Q. Bright colors and 3-D effects produce the most easy-to-understand graphs and charts.

A. True
B. False

Answer: False

Use the fewest number of visual effects necessary to communicate data to your audience. The most important rule in presenting your data is to make it easily understandable to the intended audience. Remember, pretty charts can't make up for bad data.

Q. Which of the following is/are should be included on a surveillance report?

A. Methods
B. Data Presentation
C. Discussion
D. Recommendations
E. All of the above

Answer: E. All of the above

All of these components are important in creating an effective surveillance report.

Quick Quiz (slide 13)

Q. When comparing NHSN SIR data to other facilities:

A. Only look at facilities similar to yours
B. You can compare your performance to all others that report to NHSN because the SIR is a risk adjusted measure and accounts for facility and patient factors that contribute to HAI risk.

Answer: Answer: B is the correct answer.

The advantage to using a SIR is the ability to compare performance to all others that use the same data collection methodology.