CBE ID

3658

Title

Adult Blood Culture Contamination Rate; A national measure and standard for clinical laboratories and antibiotic stewardship programs

Endorsement Status

Endorsed

Is Under Review

No

Next Maintenance Cycle

Spring 2027

Previous Endorsement Cycle

Spring 2022

Initial Endorsement

Mon, 12/12/2022 - 00:00

Steward

Centers for Disease Control and Prevention

1.0 New or Maintenance

Maintenance

1.1 Measure Structure

Single Measure

1.3 Electronic Clinical Quality Measure (eCQM)

No

1.6 Measure Description

Goal:

Blood culture contamination (BCC) is defined as having a commensal organism (which is a bacteria or fungus that normally colonizes human skin, without causing disease) isolated from only one blood culture set out of two or more sets collected within a 24-hour period (this is considered false positive test result). The purpose of the measure is to ensure that all hospitals that collect blood cultures follow a standard operating procedure (SOP) for how blood culture collection is performed by healthcare providers and monitor performance of the healthcare providers using this SOP by following a standard for determining the blood culture contamination rate.

The blood culture contamination rate is used as a monitor of healthcare providers ability to follow the SOP correctly. If they are following the SOP correctly the contamination rate will be 3% percent or less. Low contamination rates result in appropriate and optimal use of antibiotics which reduces adverse patient events such as overuse of antibiotics, increased exposure to hospital acquired infections like *Clostridium difficile* colitis, development of antibiotic resistant bacteria, and extended length of hospital stay. This national quality measure will bring all healthcare institutions up to the same recommended standards of quality and safety guidelines.

The overall BCC contamination rate should be evaluated on a monthly basis or more in the institutions who currently analyze and report the rate. It is calculated by dividing the total number of contaminated blood culture sets by the total number of blood culture sets collected during the monthly evaluation period.

Generally, in adults with a suspicion of a blood stream infection, two - four blood culture sets should be obtained in the evaluation of each septic episode (Defined as a 24-hour period). An adequate amount of blood culture volume is needed to detect the presence of true bacteremia or septicemia. When only one blood culture set is collected out of the two - four recommended sets this is called a single set blood culture.

One method to determine if the appropriate amount of blood volume is being collected is to evaluate the single set blood culture rate. This overall single set blood culture rate should be evaluated on a monthly basis or more in the institutions who currently analyze and report the rate. It is calculated by dividing the total number of single set blood cultures without another set collected within 24 hours by the total number of blood culture sets collected during the monthly evaluation period.

This measure supports the Hospital Onset Bacteremia & Fungemia measure currently in development by the National Center for Emerging and Zoonotic Infectious Diseases (NCEZID) Division of Healthcare Quality Promotion (DHQP) and the National Healthcare Safety Network (NHSN) Hospital Onset Bacteremia & Fungemia module slated to be implemented late 2022 – early 2023.

It does this in 2 ways:

A. The BCC measure monitors blood culture contamination rate, which will rise, resulting in false positive blood cultures, when blood cultures are not collected correctly. False positive blood culture results may result in an artificial rise in the Hospital Onset Bacteremia (HOB) rate.

B. Accurate diagnosis of bacteremia/fungemia requires 40 to 60 mL of blood be drawn per septic episode. False negative results may occur when too little blood is drawn. The secondary measure addresses single set blood cultures (20 mL or less) which do not provide the blood volume needed

to accurately diagnosis bacteriemia/fungemia. False negative results could cause an artificial lowering of the HOB rate. In addition, 2 blood culture sets are required to determine if the growth of commensal bacteria (skin flora) in the blood culture is more likely to be due to contamination (single set positive) or a true infection (both sets positive). A single set blood culture does not allow the laboratory or the clinician to determine if the presence of commensal bacteria meets the criteria for reporting.

Problem:

Per the American Society for Microbiology (ASM) and the Clinical Laboratory Standards Institute (CLSI) the overall blood culture contamination rate should not exceed 3%, however reported contamination rates in hospitals vary widely ranging from 0.6% to 12.5% and higher contamination rates have been reported. with the highest rates associated with emergency department settings. One study reported a 26% contamination rate in pediatric outpatients. [1]

- Usually evaluated on a monthly basis to ensure timely reporting and follow up for any contamination events.
- Although 3% has been a benchmark for many years, some healthcare systems are able to maintain rates well below 3% and the goal would be to have the rate driven down to as close to 0% as possible.
- Currently, health care institutions in the United States are held to a performance standard of 3% rates of blood culture contamination. Clearly, as will be shown in this review, recent advances in practice can lead to much lower rates of contamination. If this is true, in view of the substantial negative consequences of contaminated blood cultures, the question arises, should this arbitrary 3% contamination rate threshold be reconsidered? [2]

Research estimates of all positive blood cultures, 20% to 56% are likely false positives [2]

- In a series of large clinical studies examining blood cultures and bacteremia over 4 recent decades, Weinstein and colleagues found that one-third to one-half of all positive blood cultures were judged by infectious disease physicians to represent contamination. Other studies have reported lower rates. Story-Roller and Weinstein found that 26% of all positive blood cultures were judged to contain contaminants. The overall contamination rate at the university hospital where this study was done was 3.9%. Washer et al. found that 13% of all positive blood cultures represented contamination and that overall contamination rates were 0.8% when blood for culture was obtained peripherally by phlebotomists who performed venipuncture. Rupp et al. reported that 23% of all positive blood cultures represented contamination and that overall contamination rates were 1.8% during a defined study period. Interestingly, the institutional contamination rate in this study increased to 2.8% 6 months following conclusion of the study and reversion to standard practice. Other studies have noted that 20 to 56% of all positive blood cultures are found to be contaminated.
- Up to 40% of patients with contaminated (false positive) blood cultures are started on unnecessary antibiotics and blood culture contamination results in an 80% increase in total microbiology charges and from 1-5 extra days in the hospital. On a national scale, blood culture contamination results in nearly 1 million extra hospital days, 200,000 courses of unneeded antibiotics and over 1 billion dollars of excess cost.

Patients exposed to antibiotics can develop a variety of adverse drug reactions specific to individual agents, such as nephrotoxicity. However, patients exposed to antibiotics are also at risk for a variety of unique adverse reactions due to the antibacterial effects of the drugs, which can indiscriminately alter a patient's bacterial population (known as the microbiome). This disruption is known to increase risks for diarrhea, including a diarrheal super-infection caused by the bacteria Clostridioides difficile which causes colitis and can be serious and even fatal. Moreover, there is growing evidence that disruption of the microbiome can lead to other serious adverse outcomes, such as sepsis. [3]

Skin contaminants in blood culture bottles are common, very costly to the healthcare system, and frequently confusing to clinicians." Clinicians are treating very ill patients and when a blood culture bottle grows a bacteria it is always concerning and will trigger an investigation of the source of the bacteria. The presence of bacteria, even bacteria from the skin may cause the clinician to treat initially with antibiotics to treat the bacteria and order more blood cultures to evaluate the initial blood culture results. [4]

Patient Impact (Outcomes):

When possible skin bacterial contaminants occur in blood cultures, healthcare clinicians may attempt to resolve the issue by drawing extra blood culture sets which may lead to the following adverse effects: [2] reference, section labeled clinical Impact

Exposure to additional needlesticks causing:

- Hematomas
- Loss of venous access
- Blood loss resulting in iatrogenic anemia
- Low patient and caregiver satisfaction
- Increased cost and length of hospitalization

Misinterpretation of skin contaminant as a true case of bacteremia may lead to misuse or inappropriate use of antibiotics causing: [2] reference, section labeled clinical Impact

- Hospital-acquired C. difficile colitis
- Allergic reactions
- Drug-drug interactions
- Antibiotic resistance emergence
- Disruption of the host microbiome

Misinterpretation of a skin contaminant as a true case of bacteremia has been identified to prolong hospital stays leading to: [2] reference, section labeled clinical Impact

- Potential increased exposure to hospital-acquired infections such as MRSA and C. difficile colitis
- Increased patient costs, and overall hospital costs (labor and resources)

Project Timeline:

2022

- Submit application for NQF Draft Measure

2023 – 2025

- Collect contaminated blood culture and single set blood culture data
- Stratify rates per department location such as ED, intensive care unit, post-surgical unit, Medical, other designations as needed based off of the structure of the hospital system.

2026

- Review blood culture contamination and volume literature and update measure as needed
- Once 3% contamination rate benchmark has been in place for 3 years ask for evidence that institutions are putting interventions into place to reduce contamination rates in collaboration with their antibiotic stewardship program.
- Interventions such as education and training programs, use of initial specimen diversion devices, adjusting skin disinfectants used prior to phlebotomy, or other interventions described in the following CMR article Table 2.

- Doern GV, et al Practical Guidance for Clinical Microbiology Laboratories: A Comprehensive Update on the Problem of Blood Culture Contamination and a Discussion of Methods for Addressing the Problem. Clin Microbiol Rev. 2019 Oct 30;33(1):e00009-19. doi: 10.1128/CMR.00009-19. PMID: 31666280; PMCID: PMC6822992.

- Begin collecting blood culture contamination rate data for patients ≤18 years of age.

2026 – 2029

- Review blood culture contamination and volume literature and update measure as neede
- Collect contaminated blood culture and single set blood culture data with intervention

implemented.
- Introduce blood volume as a required measure with at least 40 to 60 mL collected per septic episode (per 24-hour period) as the goal

2029

- Review blood culture contamination and volume literature and update measure as needed
- Complete actions to make this measure required by CMS for hospitals to measure and report blood culture contamination rate and volume for all blood cultures collected, and act on the results to improve quality by reducing the contamination rate and optimizing the volume collected.

To provide a further introduction to the proposed measure the following sections provide an overview of the clinical laboratory, describes the standard of practice for blood culture collection, and walks through the general process to order a blood culture, laboratory processing, testing, and reporting.

The Laboratory

The laboratory team is highly skilled, educated, and maintains certifications per The Clinical Laboratory Improvement Amendments of 1988 (CLIA) [4]

- The Clinical Laboratory Improvement Amendments of 1988 (CLIA) regulations include federal standards applicable to all U.S. facilities or sites that test human specimens for health assessment or to diagnose, prevent, or treat disease. https://www.cdc.gov/clia/about.html
- Laboratory Directors
    - Licensed MD, DO, DPM or DMD and Certified in anatomic, clinical, or oral pathology
    - Board Certified by a national accreditation board related to a laboratory specialty.
- Technical Supervisors
    - Doctorate, master's, or bachelor's in laboratory science
    - At a minimum bachelor’s degree in lab science and 4 years’ experience in high complexity laboratory with minimum 6 months in the appropriate subspecialty
    - Board certified by a national accreditation board related to a laboratory specialty.
- Testing Personnel
    - Doctorate, master's, or bachelor's in laboratory science
    - Board certified by a national accreditation board related to a laboratory specialty.
- The laboratories are highly focused on quality assurance, and continuous improvement
    - Laboratories are required to have standard operating practices (SOPs) in place to share with and educate clinicians who are obtaining specimens to send to the laboratory for testing on how to collect the specimens correctly. They also monitor optimal specimen collection, transport, and handling. This is called the pre-analytic phase of testing.
    - Laboratories are also responsible for maintaining SOPs for test result reporting and

providing result interpretations to guide the clinician care team when and as needed. This is called post-analytic phase of testing.
    - Laboratories are CLIA certified and routinely inspected by CMS deemed accreditation agencies such as the College of American Pathologists (CAP) Accreditation | College of American Pathologists (cap.org), The Joint Commission http://www.jointcommission.org/ and others.
    - Inspection standards are comprehensive, and any deficiencies in the pre-analytic, analytic or post analytic phases of testing are reported back to CMS for further evaluation.

–

Blood Culture Collection Standard of Practice for collecting blood culture specimen

- Per The Clinical Laboratory Improvement Amendments of 1988 (CLIA) all laboratories are required to have standard operating procedures for all pre-analytical, analytical, and post-analytical laboratory processes (the total testing process).[4] (§ 493.1251 Standard: Procedure manual)

- CLIA regulations specifies that laboratories are responsible for providing instructions for optimal specimen collection. "According to the Clinical and Laboratory Improvements Act (CLIA), the clinical microbiology laboratory is responsible for the preanalytical phase of testing related to the diagnosis of infectious diseases (42). This includes the selection, collection, and transport of specimens. Therefore, the clinical laboratory plays a central role in providing instructions for preventing contamination during blood culture procurement." Monitoring the contamination rate serves as a proxy measurement of how well blood culture collectors are following the blood culture collection instructions
- The TTP shown demonstrates the connection between laboratory activities and clinical interpretation and follow up. Ref 8 states "An exploration of the beginning and end of the loop reveals that the pre-preanalytical steps (initial procedures not performed in the clinical laboratory and not under the control of laboratory personnel) and the post-post analytic steps (final procedures performed outside the laboratory, consisting of receiving, interpreting, and using laboratory information for patient management) are more error prone. These activities are poorly evaluated and monitored, often because the process owner is unidentified, and the responsibility falls in the boundaries between laboratory and clinical departments. System failures and cognitive errors coexist to allow the generation of errors in laboratory testing; they result from multiple causes and are associated with analytic and nonanalytic reasoning. [6,7,8]
- For Blood Culture Collection the standard of practice is defined as [5]:
- Collection of at least two blood culture sets within a 24-hour window
    - Consisting of one aerobic and one anaerobic bottle in each set
- Volume of blood collected, not timing, is most critical.
    - 10 mL of blood collected in each bottle for a total of 40 mL
    - A second important determinant is the number of blood culture sets performed during a given septic episode. Generally, in adults with a suspicion of blood stream infection, 2–4 blood culture sets should be obtained in the evaluation of each septic episode.

(Defined as a 24-hour period)
    - Collection by two separate venipunctures from separate arms, if possible
    - If possible, blood should be drawn for blood culture before initiating antimicrobial therapy
    - Catheter-drawn blood cultures have a higher risk of contamination (false positives).
- Do not submit catheter tips for culture without an accompanying blood culture obtained by venipuncture.

The following section is provided to demonstrate the interdisciplinary function of the Laboratory Information system (LIS) Laboratory Standard operating procedures (SOPs) and the Electronic Health Record (EHR) and how the LIS can be utilized to manage and report both pre and post analytic blood culture results as well as collect data for the BCC measure.

General processing for Blood Culture Ordering, Accessioning, Testing, and Reporting

- Blood culture is ordered in the Electronic Health Record (EHR) by clinical care team
    - This order optimally includes both aerobic and anaerobic bottles (one set)
    - Each lab test order has its own unique order code which can be pulled out of the LIS for data evaluation. For example, Blood Culture – order code: (CUBLD)
    - The order is transmitted to the Laboratory Information System (LIS) where a unique laboratory specimen accession number is created for the order.
        - The Laboratory Information System (LIS) is the platform used by laboratories to track laboratory test orders and to enter results for laboratory testing. The LIS interfaces with the patient's Electronic Health record providing results in the patient's chart.
    - The collector annotates the date and time of collection on the label
        - CLIA Requirement to have data and time annotated on all specimens collected.
    - The collector also labels the site / source of the blood draw location such as "venipuncture right arm."
        - CLIA Requirement to label site / source on all specimens collected.
            - Example of site would be "Left Antecubital Fossa."
            - Example of source would be "Blood"
    - Once a blood culture is received by the laboratory the date and time of receipt is entered in the LIS
        - If blood culture not received by the laboratory, the laboratory finds this fact out when reviewing the pending order list. The laboratory follows up with the clinical team and either blood collected and sent to laboratory or order is cancelled.
    - The lab order and patient data (name, date of birth, medical record number, patient location, gender, and race if available) will then display in the LIS.
    - The lab verifies the patient data is identical to what is listed on label affixed to the blood culture bottle and to what is displayed in the LIS.
    - If the information in the LIS does not match the information on the blood culture bottles, the floor is called, and an investigation is done to resolve the error.
    - Example of comment: Single Set Blood culture collected, false negative results may occur, please collect additional set to improve accuracy of blood culture results.

- The blood culture set is collected by the clinical care team or phlebotomy team
- A label is then placed on each blood culture bottle which includes the order code, and patient data (name, date of birth, medical record number, patient location, and gender).
- The blood culture set is then sent to the laboratory for processing

Accessioning

- The lab staff will then receive the blood culture set and enter information into the Laboratory Information System (LIS) by scanning the bar code on the label or entering the accession number from the label on the blood culture bottles
- The collection time should be entered into the LIS based off of the collection date and time labeled by the collector on the label affixed on the blood culture bottles.
- The site / source of the blood draw annotated on the bottles is entered into the LIS.
- The volume collected in each blood culture bottle is also entered into the LIS.
- If only one blood culture set was collected within a 24-hour period, a comment can be entered to provide the need to collect an additional blood culture for appropriate evaluation of septicemia and bacteremia.
- The initials or tech codes of the collecting personnel are also entered into the LIS, this may be hard coded and available in the LIS in some institutions. This allows the laboratory to track blood culture drawing personnel and identify potential issues associated specific personnel and following the SOP for blood culture collection.
- Entering the set under a unique accession number into the LIS provides a time stamp of receipt and a time stamp of collection.
- CLIA requirements list here and provide reference

Testing and Reporting

- The microbiology laboratory staff then loads the blood culture bottle onto a blood culture analyzer for a routine incubation of 5 days
- Bottles may also be loaded into an incubator for manual reading of 5 days if an automated system is not available
- Remove the positive bottle from the incubator
- Set up slides for Gram stain; a microscopy technique performed to determine whether microorganisms are present in the sample
- Set up media to culture suspected microorganisms and then place the media into an incubator
- If the Gram stain is positive a call is made immediately by the lab to the patient's clinical care team, the time of the call and who was called is documented in the LIS.
- A positive Gram stain is considered a critical value and laboratories must have policies in place to ensure the result is immediately verbally notified to the patient's clinical care team.
- Requesting the collection of additional blood cultures
- Prescribing antimicrobials based on the Gram stain result
- Extend the hospitalization of the patient
- Wait for additional results from previously collected blood cultures before taking action
- If the action taken by the clinical care team is based on a false positive result this may lead

to adverse patient events as mentioned under the problem section.

- Each microorganism has its own unique result code which can be pulled out of the LIS for data evaluation. For example, *S. aureus* – result code: (STAU)
- For microorganisms that are considered to be skin contaminants (commensal organisms) it is incumbent upon the laboratory to communicate this to the clinician and this can be done by adding an additional result code to be entered to specify the organism as a skin contaminant.
- Lab Result Code Comment: One set positive out of two sets. Possible skin contaminant no further workup performed. Please call lab if further workup needed. [2]
- How to determine if a blood culture is contaminated?
    - Contaminated blood culture defined as:
    - one blood culture set positive out of two to three sets collected with a possible skin contaminant
    - There are 2 ways to report bacteria identified as skin contaminants
        - By genus: Most species of CoNS, most species of Corynebacterium (diphtheroids) and related genera, Alpha-hemolytic viridans group strep, Bacillus spp. other than Bacillus anthracis, Micrococcus spp., viridans group streptococcus, Cutibacterium acnes and related species, saprophytic Neisseria sp. and Moraxella sp.
        - By genus and species: The National Healthcare Safety Network maintains a list with of bacteria identified as skin contaminants by both genus and genus and species.
            - The NHSN list contains the name of the organism and corresponding SNOMED code
- If growth is detected the analyzer sounds an alarm and the laboratory personnel pulls the blood culture bottle out of the instrument and:
- The instrument provides a time stamp of detection of growth of bacteria or yeast
- Lab will then:
- Depending on the result of the Gram stain the clinical care team may then take action based on the clinical status of the patient:
- The microbiology lab will continue to work up the positive culture and report the results of the identification of the microorganism.

https://www.cdc.gov/nhsn/xls/master-organism-com-commensals-lists.xlsx

- There are certain skin organisms that are considered pathogens when found in blood cultures (such as Staphylococcus aureus or Methicillin resistant Staphylococcus aureus even if only isolated in one blood culture set. These will be treated as pathogens per laboratory protocol for blood culture workup and in these cases, communication may occur between the laboratory and the clinician to discuss the patient's condition, whether the organism is a true pathogen or a contaminant, and how to proceed with working up the blood culture.

References

1. Snyder SR, et al. Effectiveness of practices to reduce blood culture contamination: A Laboratory Medicine Best Practices systematic review and meta-analysis. Clin Biochem. 2012

Sep;45(13-14):999-1011. doi: 10.1016/j.clinbiochem.2012.06.007. Epub 2012 Jun 16. PMID: 22709932; PMCID: PMC4518453. https://pubmed.ncbi.nlm.nih.gov/22709932/

2. Doern GV, et al. A comprehensive update on the problem of blood culture contamination and a discussion of methods for addressing the problem. Clinical Microbiology Reviews. January 2020. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6822992/

3. Redefining the antibiotic stewardship team: recommendations from the American Nurses Association/Centers for Disease Control and Prevention Workgroup on the role of registered nurses in hospital antibiotic stewardship practices. JAC Antimicrob Resist. 2019 Jul 26;1(2):dlz037. doi: 10.1093/jacamr/dlz037. PMID: 34222911; PMCID: PMC8210263. https://pubmed.ncbi.nlm.nih.gov/34222911/

4. "LABORATORY REQUIREMENTS," Code of Federal Regulations, Title 32 (2022): ChapterIV, Subchapter G, Part 493 (Up to date as of 01/01/2022) https://www.ecfr.gov/current/title-42/chapter-IV/subchapter-G/part-493

5. J Michael Miller et al, A Guide to Utilization of the Microbiology Laboratory for Diagnosis of Infectious Diseases: 2018 Update by the Infectious Diseases Society of America and the American Society for Microbiology, Clinical Infectious https://pubmed.ncbi.nlm.nih.gov/29955859/

6. Lundberg GD. Acting on significant laboratory results. JAMA. 1981;245:1762–1763.

7. Lundberg GD. How clinicians should use the diagnostic laboratory in a changing medical world. Clin Chim Acta. 1999;280:3–11.

8. Plebani M, Laposata M. Am J Clin Pathol. The brain-to-brain loop concept for laboratory testing 40 years after its introduction. 2011;136:829-833l

1.7 Measure Type

Process

1.8 Level of Analysis

Facility

1.13 Data Dictionary

Not attached. I attest that all information will be provided where codes and/or value sets are needed (1.14a - 1.15c).

1.14 Numerator

Primary Measure:Total number of blood culture sets with growth of a commensal organism in only one blood culture set out of two or three blood culture sets collected. Sub Measure:Total number of single set blood cultures collected either one bottle or one set (1 aerobic and 1 anaerobic bottle) in one blood draw within 24-hour period

1.15 Denominator

Primary Measure – Blood Culture Contamination Rate: Total number of all blood culture sets

collected which are eligible to be considered for contamination per eligibility criteria Primary Measure Eligibility Criteria: Patient ≥ 18 years oldPatient may be present in any department of the hospital such as ICU, ED, inpatient floors, step down units. (No outpatients)At least two blood culture sets drawn in a 24-hour period Sub Measure – Single Set Blood Culture Rate: Total number of two or three sets and single sets, either one bottle or one blood culture set (1 aerobic and 1 anaerobic bottle), collected in a 24-hour period Sub Measure Eligibility Criteria: Patient ≥ 18 years oldPatient may be present in any department of the hospital such as ICU, ED, inpatient floors, step down units. (No outpatients) The need for single set blood culture rateBlood culture contamination cannot be evaluated unless at least two blood culture sets have been collected, as the definition of blood contamination is a single blood culture set positive out of two sets of blood cultures for a possible skin contaminant. The test result would be reported from the laboratory as follows " Single set positive out of 2 sets (or 3 sets, if this is the laboratory policy) for possible skin contaminant, please call laboratory if further work up is needed" This comment alerts the clinician that a probable contaminant event has occurred, and they may order an additional 1 or 2 blood culture sets for further evaluation. In addition, in order to accurately diagnosis septicemia and bacteremia it is important to assess the percent of blood cultures with only one set out of the recommended two or more sets collected within a 24-hour period. Two blood culture sets are necessary to obtain at least 40 mL of blood which is the amount of blood recommended to accurately evaluate an adult patient for bacteremia and sepsis. According to a publication by Lee, Andrew et al. "Detection of bloodstream infections in adults: how many blood cultures are needed?" Journal of clinical microbiology vol. 45,11 (2007): 3546-8. doi:10.1128/JCM.01555-07https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2168497/ Data were analyzed to determine the cumulative sensitivity of blood cultures obtained sequentially during the 24-h time period. Of 629 unimicrobial episodes with ≥3 blood cultures obtained during the 24-h period, 460 (73.1%) were detected with the first blood culture, 564 (89.7%) were detected with the first two blood cultures, 618 (98.3%) were detected with the first three blood cultures, and 628 (99.8%) were detected with the first four blood cultures. This study highlights the increase in blood culture testing sensitivity in relation to the amount of blood volume and the number of blood culture sets collected. The primary and sub measures must be reported together to ensure patients are being appropriately evaluated for bacteremia and septicemia, and to ensure adverse patient events are avoided.

1.20 Types of Data Sources

Other

6.1.2 Current or Planned Use(s)

Public Reporting, Regulatory and Accreditation Programs, Quality Improvement (Internal to the specific organization)

6.1.3 Current Use(s)

Quality Improvement (Internal to the specific organization)

Exclusions

Primary Measure:

Only a single set collected (must have two sets or more collected) within a 24-hour period

Patient ≤ 18 years in age

Planned Use

Public Reporting, Quality Improvement (Internal to the specific organization), Regulatory and Accreditation Programs

Risk Adjustment

No risk adjustment or risk stratification

Target Population

Adults (Age >= 18)

The measure developer is different from the measure steward

No

Steward Organization

Centers for Disease Control and Prevention

Steward POC email

JBUNN@CDC.GOV