**Staphylococcus aureus** Bacteremia Management

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**INITIAL EVALUATION**

- Blood culture positive for *S. aureus*
  - Perform clinical assessment to identify source and extent of infection
  - Obtain Infectious Diseases (ID) consult regardless of presumed source
  - Eliminate and/or debride other sites of infection
  - Order daily blood cultures on at least days 2-4 after initial positive blood culture
  - Obtain transthoracic echocardiogram (TTE). A transesophageal echocardiogram (TEE) should be pursued when a patient meets criteria for complicated bacteremia\(^2\) and/or when recommended by ID.
  - Remove all indwelling central lines unless absolutely contraindicated or discussed with ID

**ANTIBIOTIC SELECTION\(^1\)**

(Adjust dose for patients with organ dysfunction)

- **First Line:**
  - Daptomycin\(^3\) 8 mg/kg IV daily or
  - Vancomycin 15 mg/kg IV every 12 hours (adjust dose based on levels\(^4\))
- **Second Line:**
  - Ceftaroline 600 mg IV every 8 hours

- **First Line\(^6\):**
  - Ceftazolin\(^7\) 2 g IV every 8 hours or
  - Oxacillin\(^8\) 2 g IV every 4 hours
- **Second Line:**
  - Daptomycin\(^3\) 8 mg/kg IV daily

**DURATION OF THERAPY**

- **MRSA bacteremia**
  - Yes
  - **First Line:**
    - Daptomycin\(^3\) 8 mg/kg IV daily or
    - Vancomycin 15 mg/kg IV every 12 hours (adjust dose based on levels\(^4\))
  - **Second Line:**
    - Ceftaroline 600 mg IV every 8 hours
  - **Therapy duration:** 4-6 weeks IV therapy from first negative blood culture

- **MSSA bacteremia**
  - No
  - **First Line:**
    - Ceftazolin\(^7\) 2 g IV every 8 hours or
    - Oxacillin\(^8\) 2 g IV every 4 hours
  - **Second Line:**
    - Daptomycin\(^3\) 8 mg/kg IV daily
  - **Complicated bacteremia?**
    - Yes
    - **Therapy duration:** 2 weeks IV therapy from first negative blood culture
    - No

MRSA = methicillin-resistant *Staphylococcus aureus*
MSSA = methicillin-sensitive *Staphylococcus aureus*
AUC = area under the curve
MIC = minimum inhibitory concentration

\(^1\) Refer to institutional renal dosing guide (internal only) or tertiary dosing references (e.g., Lexicomp) for dosing recommendations
\(^2\) Any of the following findings constitute a complicated bacteremia:
  - Endocarditis verified upon echocardiography
  - Evidence of metastatic sites of infection
  - Febrile beyond 3 days after appropriate therapy started
  - Daptomycin should not be used as monotherapy if evidence of pulmonary involvement
  - Obtain ID consult to assist with individualized AUC/MIC dosing

\(^3\) Combination therapy with two or more active anti-MRSA agents may be considered on a case-by-case basis
\(^4\) Beta-lactam choice: Other beta lactam agents should not be considered to be interchangeable with ceftazolin, nafcillin or oxacillin. In cases where an alternative beta-lactam is needed (e.g., concomitant infection), addition of ceftazolin, nafcillin or oxacillin should be considered on a case-by-case basis.

\(^5\) All MSSA are sensitive to ceftazolin; susceptibility testing is not independently performed

\(^6\) Oxacillin is better tolerated than nafcillin based on the available data

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1 Refer to institutional renal dosing guide (internal only) or tertiary dosing references (e.g., Lexicomp) for dosing recommendations
2 Any of the following findings constitute a complicated bacteremia:
   - Endocarditis verified upon echocardiography
   - Evidence of metastatic sites of infection
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3 Combination therapy with two or more active anti-MRSA agents may be considered on a case-by-case basis
4 Beta-lactam choice: Other beta lactam agents should not be considered to be interchangeable with ceftazolin, nafcillin or oxacillin. In cases where an alternative beta-lactam is needed (e.g., concomitant infection), addition of ceftazolin, nafcillin or oxacillin should be considered on a case-by-case basis.
5 All MSSA are sensitive to ceftazolin; susceptibility testing is not independently performed
6 Oxacillin is better tolerated than nafcillin based on the available data

Department of Clinical Effectiveness V4
Approved by Executive Committee of the Medical Staff on 10/17/2023
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**SUGGESTED READINGS**


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**DEVELOPMENT CREDITS**

This practice consensus statement is based on majority opinion of the *Staphylococcus aureus* Bacteremia Management workgroup at the University of Texas MD Anderson Cancer Center for the patient population. These experts included:

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