



**GUIDELINES FOR TREATMENT OF PROSTHETIC VALVE INFECTIVE ENDOCARDITIS  
in PATIENTS on PEDIATRIC SERVICES**

*(Infectious Diseases consultation is STRONGLY recommended)*

Empiric therapy (prior to confirmation of pathogen):

- *Early (≤1 year since valve replacement):*
  - **Vancomycin IV<sup>3</sup> + Cefepime** 50 mg/kg/dose IV q8h<sup>1</sup> (max: 2 g/dose) + **Rifampin** 7 mg/kg/dose PO/IV q8h (max: 300 mg/dose) + **Gentamicin IV<sup>4</sup>**
- *Late (>1 year since valve replacement):*
  - **Vancomycin IV<sup>3</sup> + Ceftriaxone** 100 mg/kg/dose IV q24h (max: 2 g/dose) ± **Rifampin** 7 mg/kg/dose PO/IV q8h (max: 300 mg) ± **Gentamicin IV<sup>4</sup>**

Vancomycin goal troughs:

- Vancomycin trough goal 10-15 mg/L for pediatric patients with normal renal function (doses ≥60 mg/kg/day)
- Vancomycin trough 15-20 mg/L for pediatric patients with significant renal impairment (requiring doses <50 mg/kg/day)
- Consultation with a pediatric pharmacy specialist is recommended for establishing goals in children receiving 50-60 mg/kg/day

Gentamicin goals:

- Gentamicin is used for gram positive synergy
- Traditional gentamicin synergy dosing (1 mg/kg/dose IV q8h) is preferred in pediatric patients
- Gentamicin peak goal 3-5 mg/L and trough goal <1 mg/L

**Definitive Therapy (Once Pathogen is Identified)**

Pathogens		Antibiotic Therapy (renal dose adjustments may be necessary) <sup>1</sup>	Duration of Therapy	Comments
Viridans group streptococci  OR <i>Streptococcus gallolyticus (bovis)</i>	Penicillin MIC ≤0.12 mg/L	Preferred: <b>Penicillin G</b> 50,000 units/kg/dose IV q4h <sup>1,2</sup> (max: 4 million units/dose) ± <b>Gentamicin IV<sup>4</sup></b> for first 2 weeks OR <b>Ceftriaxone</b> 100 mg/kg/dose IV q24h (max: 2 g/dose) ± <b>Gentamicin IV<sup>4</sup></b> for first 2 weeks Alternative for Severe PCN Allergy: <b>Vancomycin IV<sup>3</sup></b>	6 weeks	
	Penicillin MIC >0.12	Preferred: <b>Penicillin G</b> 50,000 units/kg/dose IV q4h <sup>1,2</sup> (max: 4 million units/dose) + <b>Gentamicin IV<sup>4</sup></b> OR <b>Ceftriaxone</b> 100 mg/kg/dose IV q24h (max: 2 g/dose) + <b>Gentamicin IV<sup>4</sup></b> Alternative for Severe PCN Allergy: <b>Vancomycin IV<sup>3</sup></b>	6 weeks	
Enterococci	See <a href="#">native valve guideline</a> for antimicrobial selection		≥6 weeks	• For Enterococci strains <u>resistant</u> to vancomycin, aminoglycosides, and penicillin, >6 weeks of therapy is recommended (for all other Enterococci strains 6 weeks of therapy should be used).
Staphylococci (MSSA, MSSE)	Preferred: <b>Nafcillin</b> 33 mg/kg/dose IV q4h <sup>2</sup> (max: 2 g/dose) + <b>Rifampin</b> 7 mg/kg/dose PO q8h (max : 300 mg/dose) + <b>Gentamicin IV<sup>4</sup></b> for first 2 weeks		≥ 6 weeks	• Cefazolin may be used instead of nafcillin in patients with penicillin allergy (non-anaphylaxis) if CNS disease is not present.

Pathogens	Antibiotic Therapy (renal dose adjustments may be necessary) <sup>1</sup>	Duration of Therapy	Comments
Staphylococci (MRSA, MRSE)	<b>Preferred:</b> <a href="#">Vancomycin IV</a> <sup>3</sup> + <b>Rifampin</b> 7 mg/kg/dose PO q8h (max : 300 mg/dose) + <a href="#">Gentamicin IV</a> <sup>4</sup> for first 2 weeks	≥ 6 weeks	<ul style="list-style-type: none"> <li>Follow baseline and weekly CK with daptomycin therapy</li> </ul>
	<b>Alternative for Vancomycin Allergy or Failure:</b> <b>Daptomycin</b> 10 mg/kg IV q24h <sup>1</sup> + <b>Rifampin</b> 7 mg/kg/dose PO q8h (max: 300 mg/dose) + <a href="#">Gentamicin IV</a> <sup>4</sup> for first 2 weeks		
HACEK Group	See <a href="#">native valve guideline</a> for antimicrobial selection	6 weeks	
<i>Candida</i> spp.	See <a href="#">native valve guideline</a> for antimicrobial selection	≥6 weeks	
<b>Culture negative, early</b> (≤1 year since valve replacement)	<a href="#">Vancomycin IV</a> <sup>3</sup> + <b>Cefepime</b> 50 mg/kg/dose IV q8h <sup>1</sup> (max: 2 g/dose) + <b>Rifampin</b> 7 mg/kg/dose PO q8h (max: 300 mg/dose) + <a href="#">Gentamicin IV</a> <sup>4</sup> for first 2 weeks	6 weeks	<ul style="list-style-type: none"> <li>Receipt of antibiotics prior to obtaining cultures is the most common cause of culture negative IE. There are many infectious and non-infectious causes. An evaluation of epidemiological factors, history of prior cardiovascular infections, exposure to antimicrobials, clinical course, severity, and extracardiac sites of infection should be performed to help guide diagnosis and treatment.</li> </ul>
<b>Culture negative, late</b> (>1 year since valve replacement)	<a href="#">Vancomycin IV</a> <sup>3</sup> + <b>Ceftriaxone</b> 100 mg/kg/dose IV q24h (max 2 g) ± <b>Rifampin</b> 7 mg/kg/dose PO q8h (max : 300 mg/dose) ± <a href="#">Gentamicin IV</a> <sup>4</sup> for first 2 weeks	6 weeks	

1. Refer to [Antimicrobial Dosing Recommendations for Pediatric Patients](#)
2. If candidate for outpatient therapy, may consider administration via continuous infusion (same daily dose)
3. Refer to [Empiric Dosing and Monitoring Recommendations for Vancomycin in Pediatric Patients](#)
4. Refer to [Empiric Dosing and Monitoring Recommendations for Aminoglycosides in Pediatric Patients](#)

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The recommendations in this guide are meant to serve as treatment guidelines for use at Michigan Medicine facilities. If you are an individual experiencing a medical emergency, call 911 immediately. These guidelines should not replace a provider's professional medical advice based on clinical judgment, or be used in lieu of an Infectious Diseases consultation when necessary. As a result of ongoing research, practice guidelines may from time to time change. The authors of these guidelines have made all attempts to ensure the accuracy based on current information, however, due to ongoing research, users of these guidelines are strongly encouraged to confirm the information contained within them through an independent source.

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