Antibiotic Prophylaxis for Infective Endocarditis (IE)

**NOTE:**
- The information presented herein is based on the American Heart Association 2007 guidelines.
  - These guidelines present the best data-driven guidelines ever compiled on the subject and deviate significantly from historical practice.
  - The patient population in these guidelines was limited due to the small number of actual endocarditis cases thought to be prevented by antimicrobial prophylaxis, even when 100% effective.
- The committee, after extensive literature review of both human and animal studies, concluded that bacteremia associated with daily activities, as well as poor dental hygiene, were much more likely to cause infective endocarditis than bacteremia associated with a dental procedure. No randomized trials have been conducted.
- Thus, the existing evidence does not support the extensive use of antibiotic prophylaxis recommended previously.
  - Previous widespread use of antimicrobial prophylaxis may lead to an increased risk of the development of multi-drug-resistant organisms, anaphylaxis, side effects of unnecessary antibiotic administration, and excessive costs to the health care system.

**Antibiotic Prophylaxis**

Antibiotic prophylaxis should be considered only for the following conditions:
- Prosthetic cardiac valve.
- Previous infective endocarditis.
- Cardiac transplant recipients who have cardiac valvulopathy.
- Congenital heart disease (CHD) that meets at least one of the following characteristics:
  - Unrepaired cyanotic CHD, including palliative shunts and conduits.
  - Completely repaired congenital heart defect with prosthetic material or device, whether placed by surgery or by catheter intervention, during the first 6 months after the procedure.
  - Repaired CHD with residual defects at the site or adjacent to the site of a prosthetic patch or prosthetic device (which inhibit endothelialization).

Antibiotic prophylaxis is reasonable for patients with cardiac conditions listed above that are undergoing the following procedures:
- **Dental**
  - All dental procedures that involve:
    - Manipulation of gingival tissue.
    - Manipulation of the periapical region of teeth.
    - Perforation of the mucosa.
- **Respiratory**
  - All invasive procedures of the respiratory tract that involve incision or biopsy of the respiratory mucosa.
    - Tonsillectomy and adenoidectomy.
    - Bronchoscopy with biopsy.
  - Invasive respiratory tract procedure to treat an established infection.
    - Drainage of an abscess or empyema.
- **Procedures Involving Infected Areas**
  - Procedures involving areas currently infected such as the genitourinary tract, skin, or soft tissue should be delayed if possible until the infection is resolved.

**Note:** See Appendix A for antibiotic prophylaxis regimens. Antibiotic prophylaxis solely to prevent IE is no longer recommended for patients who undergo a GI or GU tract procedure, including patients with the highest risk of adverse outcomes due to IE.

**Reference**

**Quality Measures**
- Appropriate antibiotic prophylaxis per selected endoscopy and dental procedures

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**Guideline Approved**

**Disclaimer:** Clinical practice guidelines and algorithms at The Ohio State University Wexner Medical Center (OSUWMC) are standards that are intended to provide general guidance to clinicians. Patient choice and clinician judgment must remain central to the selection of diagnostic tests and therapy. OSUWMC’s guidelines and algorithms are reviewed periodically for consistency with new evidence; however, new developments may not be represented.

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Appendix A. Antibiotic Prophylaxis Regimens

<table>
<thead>
<tr>
<th>Situation</th>
<th>Agent</th>
<th>Regimen*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>Amoxicillin</td>
<td>2 g oral</td>
</tr>
<tr>
<td>IV/IM alternative†</td>
<td>Ampicillin OR</td>
<td>2 g IM / IV</td>
</tr>
<tr>
<td></td>
<td>Cefazolin or ceftriaxone §</td>
<td>1 g IM / IV</td>
</tr>
<tr>
<td>Allergic to penicillins or ampicillin oral</td>
<td>Cephalexin §</td>
<td>2 g oral</td>
</tr>
<tr>
<td></td>
<td>Cindamycin</td>
<td>600 mg oral</td>
</tr>
<tr>
<td></td>
<td>Azithromycin or clarithromycin‡</td>
<td>500 mg oral</td>
</tr>
<tr>
<td>Allergic to penicillins or ampicillin unable to take oral medication</td>
<td>Cefazolin or ceftriaxone § OR</td>
<td>1 g IM / IV</td>
</tr>
<tr>
<td></td>
<td>Clindamycin</td>
<td>600 mg IM/ IV</td>
</tr>
</tbody>
</table>

* Oral medications given 30 to 60 min prior; IV/IM medications completed 30 min prior; if not given prior, either oral or IV/IM may be given up to 2 hours post procedure.

† IM injection should be avoided in patients on anticoagulants.

§ Cephalosporins should not be used in an individual with a history of anaphylaxis, angioedema, or urticaria with penicillins or ampicillin.

‡ Erythromycin should not be given in conjunction with cisapride, pimozide, astemizole, terfenadine, ergotamine, or dihydroergotamine

Note: If patient is already receiving long-term antibiotic therapy, select an antibiotic from a different class.