Hospital Acquired Pneumonia in Adults

Hospital acquired pneumonia (HAP): pneumonia not present at the time of hospital admission and occurring ≥ 48 hours after admission

MOST COMMON MICROORGANISMS
- Streptococcus pneumoniae
- Staphylococcus aureus
- Haemophilus influenzae
- Gram-negative bacilli
  - Escherichia coli, Klebsiella spp., Enterobacter spp., Serratia spp., Pseudomonas aeruginosa

DIAGNOSTIC CONSIDERATIONS
- Sputum culture
- Blood cultures (aerobic and anaerobic) x 2 sets using two sites
- Suspect HAP if
  - Chest imaging shows new pulmonary infiltrate, PLUS one of:
    - Fever
    - Purulent respiratory secretions
    - Leukocytosis
    - Dyspnea or increase in oxygen requirements

DURATION
- Usual duration of therapy is 7 days
- Longer duration indicated for abscess, empyema, or severely immunocompromised

SPECIAL CONSIDERATIONS
- Therapy should be tailored once culture and sensitivity results or other diagnostic information becomes available.
- Aspiration pneumonitis: antimicrobial therapy is not indicated for acute macroaspiration events. Pneumonia may develop, reassess after 48 hours.
- Aspiration pneumonia: routine addition of anaerobic coverage, such as metronidazole, is not recommended unless treating an empyema or lung abscess.
**EMPIRIC TREATMENT**

- Review patient’s prior culture results and prior antibiotic use to inform empiric choices

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<th>Risk Factors</th>
<th>Regimen</th>
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<tbody>
<tr>
<td>No rapid clinical deterioration</td>
<td>Ceftriaxone 1 g IV q24h OR Amoxicillin-clavulanate* 875 mg PO BID OR Levofloxacin* 750 mg PO/IV q24h</td>
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<tr>
<td>Not admitted to ICU</td>
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<tr>
<td>No IV antibiotic use within preceding 90 days</td>
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Any ONE of the following:
- HAP requiring ICU management: septic shock and/or intubation
- Colonization or prior infection with *Pseudomonas* or other resistant Gram-negative bacilli (e.g. extended spectrum beta-lactamase producing *E. coli, Klebsiella*)
- Prolonged hospitalization (>2 weeks)
- IV antibiotic use within 90 days

Consider adding:
- Ciprofloxacin* 400 mg IV q8h OR Tobramycin* 5-7 mg/kg IV q24h‡
**ADD:**
- Vancomycin* IV (See NSHA Antimicrobial Handbook or Spectrum App)

If MRSA suspected:
- Known MRSA colonization
- Previous MRSA infection

If double antipseudomonal coverage is indicated:
- HAP requiring ICU management: septic shock and/or intubation AND
  - Colonization or prior infection with *Pseudomonas* or other resistant Gram-negative bacilli (e.g. extended spectrum beta-lactamase producing *E. coli, Klebsiella*) OR
  - Broad spectrum IV antibiotic use within 90 days

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