Pneumonia
Antibiotic Guidance
for Adults

PAGL Inclusion Approved at
January 2017 PGC

30th March 2020
Temporary alternatives made due to shortages of IV co-amoxiclav

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RATIFIED BY:
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Pneumonia Antibiotic Guidance for Adults

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1. Community Acquired Pneumonia

1.1 Definition of severe community-acquired pneumonia
Onset of infection prior to hospital admission and not within 10 days of hospital discharge

1.2.1 Assess severity of the pneumonia.
This is the key to planning appropriate management of the patient.
Regular assessment of severity during the course of the illness should be performed.
Patients with 3 or more adverse prognostic features are at a high risk of death and should be managed as a severe pneumonia.

Clinical adverse prognostic features ('CURB-65') are:-

- Confusion: new mental confusion (defined as an Abbreviated Mental Test score of 8 or less)
- Urea: raised > 7 mmol/L (new onset)
- Respiratory rate: raised >= 30/min
- Blood pressure: low blood pressure (systolic blood pressure < 90 mm Hg and/or diastolic blood pressure ≤ 60 mm Hg)
- Age 65 or over.

Patients who have >= 2 ‘core’ adverse prognostic features on admission should be reviewed medically at least 12 hourly until shown to be improving

1.2 CURB-65 Score 0-1 (mild) community-acquired pneumonia

Antibiotic treatment:
- Amoxicillin oral 500mg tds for 5 days
- If penicillin allergic: Doxycycline oral 200mg od for 5 days.
- If nil by mouth or swallowing difficulties, refer to antimicrobial website
CURB-65 Score 2 (moderate) community-acquired pneumonia

Antibiotic treatment:
- Amoxicillin oral 1g tds for 5 days and Doxycycline oral 200mg od for 5 days
- If penicillin allergic: give only Doxycycline oral 200mg od for 5 days.
- If nil by mouth or swallowing difficulties, refer to antimicrobial website

1.4 CURB-65 Score ≥ 3 (Severe) community-acquired pneumonia

Send off legionella urine antigen test. Consider critical care referral.

Antibiotic treatment:
- IV cefuroxime 1.5g TDS and oral doxycycline 200 mg OD for 5 days
- Co-Amoxiclav IV 1.2g tds and Doxycycline oral 200mg od for 5 days
- If non-anaphylactic penicillin allergy:
  Meropenem IV 1g tds and Doxycycline oral 200mg od and for 5 days (reduce dose if renal impairment).
  Contact microbiology for advice if anaphylactic penicillin allergy
- If patient has difficulty swallowing, refer to antimicrobial website

2. Hospital-acquired pneumonia

2.1 Definition of Hospital-acquired:
Onset of infection 48 hours or more after hospital admission or Infection present on admission but patient is within 10 days of previous in-patient stay.

2.2 Clinical features:
- Fever
- Purulent sputum or tracheal secretions
- Leucocytosis and new infiltrates on chest X-ray (occurring >48 hrs after hospital admission)

Severe Hospital-acquired pneumonia is defined as having one or more of the following features:

<table>
<thead>
<tr>
<th>General</th>
<th>Admission to ICU.</th>
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<tbody>
<tr>
<td></td>
<td>New mental confusion.</td>
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<tr>
<td>Chest X-ray</td>
<td>Bilateral or multilobular shadowing or rapidly progressive lung infiltrates</td>
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<tr>
<td>Respiratory failure</td>
<td>Respiratory rate ≥ 30/min</td>
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<td></td>
<td>Hypoxia (PaO₂&lt;8kPa or SaO₂&lt;92% on any FiO2)</td>
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<tr>
<td></td>
<td>Need for &gt;35% oxygen to maintain arterial oxygen saturation &gt;90%</td>
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<tr>
<td></td>
<td>Need for ventilatory support</td>
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<tr>
<td>Evidence of severe sepsis</td>
<td>Shock (systolic BP &lt;90mmHg or diastolic BP ≤ 60mmHg)</td>
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The absence of these features would make severe pneumonia unlikely. However, the features may be present due to underlying disease or other causes eg sepsis.

2.3 **Mild/moderate hospital-acquired pneumonia** and not known to be MRSA carrier

Antibiotic treatment:
- Oral co-amoxiclav 625mg TDS for 5 days
- **If NBM:** IV ceftriaxone 2g OD and IV clarithromycin 500mg BD for 5 days
- Co-amoxiclav IV 1.2g tds
- If penicillin allergy: Doxycycline oral 200mg od for 5 days (Reduce dose if renal impairment)
- If NBM and non-anaphylactic penicillin allergy: Meropenem IV 1g tds.
  Contact microbiology for advice if anaphylactic penicillin allergy

2.4 **Severe hospital-acquired pneumonia**

Antibiotic treatment:
- IV ceftriaxone 2g OD and IV clarithromycin 500mg BD for 5 days
- Co-amoxiclav IV 1.2g tds for 5 days (reduce dose if renal impairment)
- If non-anaphylactic penicillin allergy: Meropenem IV 1g tds for 5 days (reduce dose if renal impairment).
  Contact microbiology for advice if anaphylactic penicillin allergy

3. **Ventilator-associated pneumonia**

3.1 **Definition of Hospital-acquired:**
Pneumonia developing after at least 48 hours of mechanical ventilation.

3.2 **Samples to be taken prior to starting antibiotics:**

Take samples:
- Tracheal aspirate +/- broncheolar lavage (If BAL, contact microbiology and ask for an urgent Gram stain)
- Blood sample
- Sputum or throat swab for viral culture and immunofluorescence if immunocompromised patient or features suggestive of influenza infection during the influenza season.

Antibiotic treatment:
- Piperacillin-tazobactam IV 4.5g tds for 5 days (reduce dose if renal impairment)
- If non-anaphylactic penicillin allergy:
  Meropenem IV 1g tds for 5 days (reduce dose if renal impairment).
  Contact microbiology for advice if anaphylactic penicillin allergy
4. Aspiration pneumonia

- Do not treat aspiration / suspected aspiration without evidence of pneumonia.
- Routine antibiotic treatment not indicated - apart from patients with small bowel obstruction who will aspirate colonised gastric contents.
- Treatment - supportive. Pulmonary toilet and early ventilation. Steroids not indicated in the immediate phase.
- If persistence of chest signs, or fever after 48 hours treat as detailed below.

4.1 Mild/moderate aspiration pneumonia

Antibiotic treatment:
- Oral co-amoxiclav 625mg tds for 5 days
- If NBM: IV amoxicillin 1g TDS for 5 days
  Co-amoxiclav IV 1.2g TDS.
  Convert back to above oral regimen as soon as possible to complete the 5 day course.
- If penicillin allergy: Ciprofloxacin oral 500mg bd and Metronidazole oral 400mg bd for 5 days.
- If atypical pathogen suspected add in Doxycycline oral 200mg od or if NBM Clarithromycin IV 500mg bd.

4.2 Severe aspiration pneumonia

Antibiotic treatment:
- If NBM: IV amoxicillin 1g TDS for 5 days
  Co-amoxiclav IV 1.2g TDS.
- If non-anaphylactic penicillin allergy:
  Meropenem IV 1g tds for 5 days (reduce dose if renal impairment).
  Contact microbiology for advice if anaphylactic penicillin allergy.

Cautions:
- Renal Impairment: Dose reductions are required for the following antibiotics in patients with renal impairment: Co-amoxiclav, Imipenem, and Meropenem. Refer to the renal dosing section on the antimicrobial website on INsite for dosing information.
- Liver Impairment: No dose adjustment of antibiotics dosages recommended in these guidelines are routinely required in patients with liver impairment.
- For information on contraindications, cautions, drug interactions and adverse effects refer to the British National Formulary (www.bnf.org) or the Medicines Compendium (www.medicines.org.uk)

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<thead>
<tr>
<th>Date</th>
<th>Issue No.</th>
<th>Reviewed By</th>
<th>Description of any change(s)</th>
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<tbody>
<tr>
<td>27.7.15</td>
<td>1.1</td>
<td>R. Hamilton &amp; C. Ashton</td>
<td>Meropenem dose changed from 500mg qds to 1g tds</td>
</tr>
<tr>
<td>31/3/20 20</td>
<td>1.2</td>
<td>R Hamilton, D Jenkins, D Modha, C Ashton</td>
<td>IV co-amoxiclav substituted temporarily in light of shortages in supply.</td>
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