Community acquired pneumonia (CAP) is one of the most common infectious diseases encountered in the PCP office. CAP can be either bacterial or viral with morbidity and mortality highest in the very young, very old and immunocompromised patients.

**Most common causes of CAP**

- **Viruses**
  - Influenza A
  - Influenza B
  - Respiratory syncytial virus (RSV)
  - Adenovirus

- **Bacterial pathogen**
  - Streptococcus pneumoniae
  - Haemophilus influenzae
  - Staphylococcus aureus
  - Chlamydia pneumoniae
  - Mycoplasma pneumoniae

- **Other causes**
  - Aspiration
  - Fungal infection
  - Parasitic infection
  - Legionnaries Disease
  - Psittacosis

**Diagnosis** of CAP is made on clinical grounds based on a combination of signs and symptoms

- Cough (may or may not be productive)
- Fever
- Dyspnea
- Malaise
- Pleuritic pain
- Tachypnea
- Tachycardia
- Hypoxia
- Rales/consolidation on auscultation
- Positive PA and lateral chest x-ray

**Differential diagnoses**

- Acute bronchitis
- Pulmonary edema
- Myocardial infarction
- Congestive heart failure
- Pulmonary fibrosis
- Bronchogenic carcinomas

Adapted from the Cleveland Clinic Journal of Medicine, Vol. 79, Number 1; January 2012 "Managing Community-acquired Pneumonia during Flu Season" Sarah Haessler, MD and Jennifer Schimmel, MD by the Riverside Physician Network Medical Practice Committee
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Outpatient management  
Outpatient versus inpatient management decision may be made by use of a scoring system such as CRB-65© (see attached sample)

Treatment  
- Antibiotic therapy (monotherapy vs. combination therapy decision based on patient condition and co-mobidities)  
  - Macrolides  
  - Doxycycline  
  - Fluoroquinolones  
  - Beta-lactams  
- Cough medicine  
- Cool mist humidifier  
- Consider antiviral therapy if suspected influenza component

Patient instruction  
- Complete antibiotic course even if feeling better  
- Need for increased rest  
- Increase fluid intake if no contraindication  
- Stop smoking  
- Return office visit to monitor response to treatment

Prevention  
- Stop smoking  
- Annual influenza immunization  
- Pneumococcal immunization if age/condition appropriate  
- Practice good hand hygiene  
- Encourage healthy life style

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#### CURB-65 and CRB-65 Severity Scores for Community-Acquired Pneumonia

<table>
<thead>
<tr>
<th>Clinical factor</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confusion</td>
<td>1</td>
</tr>
<tr>
<td>Blood urea nitrogen &gt; 19 mg per dL</td>
<td>1</td>
</tr>
<tr>
<td>Respiratory rate &gt; 30 breaths per minute</td>
<td>1</td>
</tr>
<tr>
<td>Systolic blood pressure &lt; 90 mm Hg or</td>
<td></td>
</tr>
<tr>
<td>Diastolic blood pressure ≤ 60 mm Hg</td>
<td>1</td>
</tr>
<tr>
<td>Age ≥ 65 years</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total points:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CURB-65 score</th>
<th>Deaths/total (%)</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7/1,223 (0.6)</td>
<td>Low risk; consider home treatment</td>
</tr>
<tr>
<td>1</td>
<td>3/1,142 (2.7)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6/91,019 (6.8)</td>
<td>Short inpatient hospitalization or closely supervised outpatient treatment</td>
</tr>
<tr>
<td>3</td>
<td>79/563 (14.0)</td>
<td>Severe pneumonia; hospitalize and consider admitting to intensive care</td>
</tr>
<tr>
<td>4 or 5</td>
<td>44/158 (27.8)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CRB-65 score</th>
<th>Deaths/total (%)</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2/212 (0.9)</td>
<td>Very low risk of death; usually does not require hospitalization</td>
</tr>
<tr>
<td>1</td>
<td>18/344 (5.2)</td>
<td>Increased risk of death; consider hospitalization</td>
</tr>
<tr>
<td>2</td>
<td>30/251 (12.0)</td>
<td></td>
</tr>
<tr>
<td>3 or 4</td>
<td>39/125 (31.2)</td>
<td>High risk of death; urgent hospitalization</td>
</tr>
</tbody>
</table>

CURB-65 = Confusion, Urea nitrogen, Respiratory rate, Blood pressure, 65 years of age and older.
CRB-65 = Confusion, Respiratory rate, Blood pressure, 65 years of age and older.

*—Data are weighted averages from validation studies.1

†—Recommendations are consistent with British Thoracic Society guidelines.2 Clinical judgment may override the guideline recommendation.

1—A CRB-65 score can be calculated by omitting the blood urea nitrogen value, which gives it a point range from 0 to 4. This score is useful when blood tests are not readily available.

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