COMMUNITY ACQUIRED PNEUMONIA (CAP) - ADULT

Clinical features suggest pneumonia (table 1)

Chest X-ray

No consolidation

Consolidation—pneumonia likely

Consider other diagnosis

MILD PNEUMONIA
Manage as outpatient UNLESS there are concerns that indicate admission:
- Patient age
- Co-morbidities
- Social circumstances
- Ability to tolerate or absorb oral therapy
- Need for supportive O2

MILD PNEUMONIA
Manage as outpatient UNLESS there are concerns that indicate admission:
- Patient age
- Co-morbidities
- Social circumstances
- Ability to tolerate or absorb oral therapy
- Need for supportive O2

MILD PNEUMONIA
Manage as outpatient UNLESS there are concerns that indicate admission:
- Patient age
- Co-morbidities
- Social circumstances
- Ability to tolerate or absorb oral therapy
- Need for supportive O2

Consolidation—pneumonia likely

CONSIDER MELIOIDOSIS if the patient has been to northern Australia (north of Rockhampton) or is returned traveller from Asia-Pacific Region. See eTG guidelines.

UNDERTAKE CURB 65 RISK STRATIFICATION to assist decision on disposition (see table 2)

CURB 65 Score 0 to 1

WEB PNEUMONIA
Manage as outpatient UNLESS there are concerns that indicate admission:
- Patient age
- Co-morbidities
- Social circumstances
- Ability to tolerate or absorb oral therapy
- Need for supportive O2

CURB 65 Score > 1

MODERATE TO SEVERE PNEUMONIA
ADMIT TO HOSPITAL
CURB 65 score = 2 have potential for short stay admission.

ADMISSION REQUIRED?
Determine severity scoring using CURB 65

EXCLUDE

Hospital acquired pneumonia (stay in hospital > 48 hours within 2 weeks of presentation)
- Immunocompromised
- Cystic fibrosis
- Bronchiectasis.

No consolidation

Consider other diagnosis

Table 1
Acute respiratory symptoms
- Cough
- Sputum production
- Pleuritic chest pain
- Shortness of breath
- Fever
- WARNING—non respiratory symptoms may be prominent (eg in elderly—diarrhoea/headache)

Table 2
CURB 65 score
Each risk factor scores 1 point to a maximum of 5 points.
- C - confusion new onset
- U - urea > 7 mmol/L
- R - Respiratory rate ≥ 30 br/min
- B - SBP ≤ 90 or DBP ≤ 60 mmHg
- 65 - age ≥ 65 years

NO CONCERNS

CONCERNS

Oral Antibiotic management as per eTG antibiotic guidelines for CAP

Proceed to SMART-COP score for severity and indication for referral to ICU/HDU.

Continued next page...
COMMUNITY ACQUIRED PNEUMONIA (CAP) - ADULT

RISK STRATISFY HOSPITAL ADMISSION WITH SMART-COP for CAP

50 years old or less

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Systolic BP &lt; 90 mmHg</td>
</tr>
<tr>
<td>M</td>
<td>Multilobar CXR involvement</td>
</tr>
<tr>
<td>A</td>
<td>Albumin &lt; 35 g/L</td>
</tr>
<tr>
<td>R</td>
<td>Respiratory rate ≥ 25 br/min</td>
</tr>
<tr>
<td>T</td>
<td>Tachycardia ≥ 125 bpm</td>
</tr>
<tr>
<td>C</td>
<td>Confusion (acute)</td>
</tr>
<tr>
<td>O</td>
<td>Oxygen low</td>
</tr>
<tr>
<td></td>
<td>PaO2 &lt; 70 mmHg or</td>
</tr>
<tr>
<td></td>
<td>O2 saturations ≤ 93% or</td>
</tr>
<tr>
<td></td>
<td>PaO2/FiO2 ratio &lt; 333</td>
</tr>
<tr>
<td>P</td>
<td>pH &lt; 7.35</td>
</tr>
</tbody>
</table>

More than 50 years old

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Systolic BP &lt; 90 mmHg</td>
</tr>
<tr>
<td>M</td>
<td>Multilobar CXR involvement</td>
</tr>
<tr>
<td>A</td>
<td>Albumin &lt; 35 g/L</td>
</tr>
<tr>
<td>R</td>
<td>Respiratory rate ≥ 30 br/min</td>
</tr>
<tr>
<td>T</td>
<td>Tachycardia ≥ 125 bpm</td>
</tr>
<tr>
<td>C</td>
<td>Confusion (acute)</td>
</tr>
<tr>
<td>O</td>
<td>Oxygen low</td>
</tr>
<tr>
<td></td>
<td>PaO2 &lt; 60 mmHg or</td>
</tr>
<tr>
<td></td>
<td>O2 saturations ≤ 90% or</td>
</tr>
<tr>
<td></td>
<td>PaO2/FiO2 ratio &lt; 250</td>
</tr>
<tr>
<td>P</td>
<td>pH &lt; 7.35</td>
</tr>
</tbody>
</table>

Total points score (maximum 11)

SMART-COP SCORE ≤ 2 points

TREAT AS MODERATE PNEUMONIA
ADMIT TO A MEDICAL WARD

INPATIENT MANAGEMENT

Antibiotics (as per eTG)
- Benzylpenicillin 1.2g IV 6 hourly (then when oral antibiotics appropriate—amoxycillin 1g 8 hourly for 7 days)

PLUS
- Doxycycline 100mg 12 hourly OR Clarithromycin 500mg 12 hourly for 7 days.
- If Gram negative bacteria on sputum or in blood culture either ADD Gentamicin or SUBSTITUTE Ceftriaxone for Benzylpenicillin.

SMART-COP SCORE ≥ 3 points

TREAT AS SEVERE PNEUMONIA
REFER ALL PATIENTS TO HDU/ICU
(scores of ≥ 3 points identified 92% of those needing ICU—including need for vasopressor support or mechanical ventilation)

INPATIENT MANAGEMENT

Antibiotics—empirical (as per eTG)
- Ceftriaxone 1g IV daily
 OR
- Benzylpenicillin 1.2g IV 4 hourly plus Gentamicin IV 1 dose then determine the dosing interval for maximum of either 1 or 2 further doses based on renal function

PLUS
- Azithromycin 500mg IV daily

Consider investigation for influenza during the flu season or when there is flu epidemic and consider empirical antiviral treatment PLUS infection control.
COMMUNITY ACQUIRED PNEUMONIA (CAP) - ADULT

Optimal management of CAP also requires attention to

Need for
- If criteria for septic shock - emergent manage required with SEPSIS PATHWAY.
- Supplemental oxygen.
- Consider non-invasive ventilation (NIV).
- Analgesia for pleuritic chest pain.
- Bronchodilators to treat airflow limitation or to improve mucociliary clearance.
- Consider venous thromboembolism (VTE) prophylaxis.
- Hydration, electrolytes, nutrition and control of co-morbidities (eg cardiac failure, diabetes).
- Watch for potential pneumonia complications (empyema, lung abscess).

INITIAL INVESTIGATIONS FOR ADMITTED

- CXR
- Oxygen saturation
- ECG
- VBG - arterial blood gas may be appropriate in severely ill patients. Arterial pH is preferred BUT venous pH measured immediately after venepuncture may be used. Venous pH values are on average 0.04 units lower than arterial pH values but results are sufficiently close to allow the use of arterial normal range.

INVESTIGATIONS FOR CAUSAL PATHOGEN THAT MAY BE INDICATED

- SPUTUM (good quality) - 40% yield
- BLOOD CULTURE - IF PATIENT MEETS SEVERE SEPSIS IN PATHWAY- TAKE BLOOD CULTURES. 5-10% yield in sicker patients (otherwise change management in only 1~ 200 blood cultures taken).
- OTHER INVESTIGATIONS can be ordered by the inpatient team as not change ED management. (copied here for reference)
  - PNEUMOCOCCAL URINARY ANTIGEN
  - LEGIONELLA URINARY ANTIGEN
  - MYCOPLASMA IgM SEROLOGY
  - ACUTE AND CONVALESCENT SEROLOGY for Mycoplasma, Legionella, Chlamydia, Influenza.
  - NASOPHARYNGEAL SWAB FOR NUCLEIC ACID testing for respiratory viruses (consider ONLY DURING the flu season or when there is flu epidemic and consider empirical antiviral treatment PLUS infection control).

Collection of sputum specimen

- Explain how to take the lid off and put back on the sterile container.
- Rinse mouth thoroughly with water
- Take 3 deep breaths
- Force out a deep cough to loosen sputum.
- Expectorate sputum into the sputum container without holding it in the mouth for too long to avoid contamination with saliva
- Recap the container and send to the lab.
- May need nebulised saline to help stimulate sputum production and expectoration.

IMPORTANT

- It is not always easy to stratify the severity of pneumonia. Patients sometimes fall into a grey area.
- Stratifying into mild, moderate and severe CAP DOES REDUCE the use of broad spectrum IV antibiotics.
- Constantly re-evaluate patients and be prepared to review the risk stratification and act accordingly.
- Switch from IV to oral antibiotics when clinically appropriate.

IF IN DOUBT, ADMIT and TREAT

REFERENCE:
- eTG 2014: internet access
- UP TO DATE 2011: Community acquired pneumonia