For most patients penicillin (IV) or amoxicillin (oral) are the preferred beta-lactam antibiotics. Ceftriaxone/cefotaxime should only be used for patients with mild-moderate penicillin allergy or where penicillin resistant pneumococci are strongly suspected.

What is community-acquired pneumonia?
Community acquired pneumonia (CAP) is defined as pneumonia occurring in individuals who are not in hospital (or have been in hospital for less than 48 hours) and who are not significantly immunocompromised.

CAP in adults
Choice of antibiotic is usually empirical because the aetiology is not known for at least 48 hours after admission. An Australian study of CAP in adults has shown that the most common causes are respiratory viruses (15%), Streptococcus pneumoniae (14%), Mycoplasma pneumoniae (9%), Haemophilus influenzae (5%), Legionella species (3.3%) and Chlamydophila (Chlamydia) species (2%). In the majority of cases no pathogens were isolated and it is assumed that viruses & S.pneumoniae were the most likely cause in those patients.1

Assessing adult patients with suspected CAP
In patients with suspected pneumonia the following should be assessed:
- History and examination, chest X-ray, oxygen saturation
- Investigations for the causal pathogen - may include sputum (Gram stain and culture) and blood cultures
- Depending on clinical circumstances, other investigations may be ordered such as urinary antigen assay (pneumococcal & Legionella), nose & throat swabs for respiratory viruses, serology (Mycoplasma, Legionella, Chlamydophila [Chlamydia]).
- Pneumonia severity score may be used to guide decisions about need for inpatient management and most appropriate empirical antibiotic therapy. CORB & SMART-COP are based on predictors of requirement for intensive respiratory or vasopressor support and mortality and can be found in Therapeutic Guidelines: Antibiotic version 14.
- An algorithm adapted from the guidelines for initial antibiotic management is reproduced on the back page of this fact sheet. For dosing information refer to Therapeutic Guidelines: Antibiotic available on CKN (Queensland Health intranet users only).

Considerations when assessing CAP severity
- Management options based on severity scoring systems should only be considered as a guide. The patients clinical and social context should always be taken into account.
- Close clinical review during the initial 24 to 48 hours is essential as some patients may worsen during this period and management may need to change.

Additional notes on management
- Once patients with CAP become clinically stable and can tolerate oral therapy, they should be switched from IV therapy.
- For IV therapy, benzyl penicillin is preferred to amoxy/ampicillin as it has similar efficacy against beta-lactamase negative H. influenza, but a narrower spectrum of activity.
- For oral therapy, amoxicillin is preferred to phenoxyethylpenicillin because it has better absorption and is more active against H. influenza.
- Penicillin-resistant S. pneumoniae and H. influenzae are uncommon causes of CAP in Australia and the routine use of ceftriaxone or cefotaxime for non severe CAP is not recommended as it provides no additional benefit over the penicillins. These drugs should be reserved for patients with mild to moderate penicillin allergy.
- Staphylococcus aureus is a rare cause of severe CAP and usually occurs in the context of prior influenza A. If it is suspected on the basis of an urgent sputum Gram stain, add vancomycin to the empiric regimen as non-multiresistant MRSA may be the cause.

Other considerations in tropical regions
In some tropical regions Burkholderia pseudomallei and Acinetobacter baumannii are important causes of severe CAP with the incidence of B. pseudomallei second to S. pneumoniae. Risk factors include diabetes, heavy alcohol consumption, chronic renal failure and chronic lung disease and in these cases a different initial therapy is required.

Key Points for Clinicians
1. Consider using CORB or SMART-COP to determine severity of pneumonia as part of initial assessment of patient with suspected CAP and use as a guide for empirical choice of antibiotic.
2. Penicillin (IV) or amoxicillin (oral) are the preferred beta-lactam antibiotics.
3. For patients with mild penicillin allergy IV cefotaxime/ceftriaxone or oral cefuroxime are the recommended alternatives.
4. Clinical review in the initial 24 - 48 hours is important.
5. Modify therapy after microbiological diagnosis is confirmed.
6. An early step down to oral therapy once the patient is stable is strongly recommended.
Initial antibiotic management of community-acquired pneumonia in adults

Adapted from Therapeutic Guidelines: Antibiotic Version 14.²

Clinical features suggest pneumonia

Chest X-ray

No consolidation

Consolidation — pneumonia likely

Is the CAP sufficiently severe to require hospital admission?
Consider age, co-morbidities, social supports in addition to severity of illness

No

Outpatient treatment
Mild CAP

amoxycillin oral
OR (if atypical organism suspected)
doxycycline oral
OR
roxithromycin oral

(see ‘mild CAP — outpatient treatment’ in Therapeutic Guidelines: Antibiotic for doses)

Yes

Inpatient treatment

Determine if CAP is ‘severe’ using CORB or SMART-COP

(see Therapeutic Guidelines: Antibiotic version 14)
in conjunction with clinical judgment

Moderate (non severe) CAP

Non tropical regions
(and tropical regions with no risk factors*)
benzylpenicillin IV
PLUS EITHER
doxycycline oral
OR
roxithromycin oral

Tropical regions with risk factors*
ceftiraxone IV
PLUS
initial single dose gentamicin
(untill further assessment)

(see ‘mild CAP’ in Therapeutic Guidelines: Antibiotic for doses)

Severe CAP
(eg, CORB score of 2 or more or SMART_COP score of 5 or more)

Non tropical regions
benzyl penicillin IV PLUS
gentamicin IV
OR
ceftriaxone IV
OR
ceftaxime IV
PLUS (in all cases)
azithromycin IV

Tropical regions (all patients)
meropenem IV
PLUS
azithromycin IV

(see ‘severe CAP’ in Therapeutic Guidelines: Antibiotic for doses)

References:

Disclaimer: Please note that any material printed is regarded as an uncontrolled copy.