

Community-acquired pneumonia (adults presenting to hospital)

Imaging

Confirm diagnosis (usually by chest X-ray) within 4 hours of presentation to hospital.

Lung ultrasound can be used:

- for rapid point-of-care diagnosis in a sick or deteriorating person
- where there is a possible alternative diagnosis, for example, heart failure
- for investigating associated complications such as pleural disease.

Assess disease severity

If sepsis is suspected, assess and manage the person in line with [NICE's guideline on sepsis: recognition, diagnosis and early management](#).

Severity of CAP is assessed by clinical judgement guided by mortality risk score (CURB65):

- low-severity – usually equates to score 0 or 1
- moderate-severity – usually equates to score 2
- high-severity – usually equates to score 3 or more.

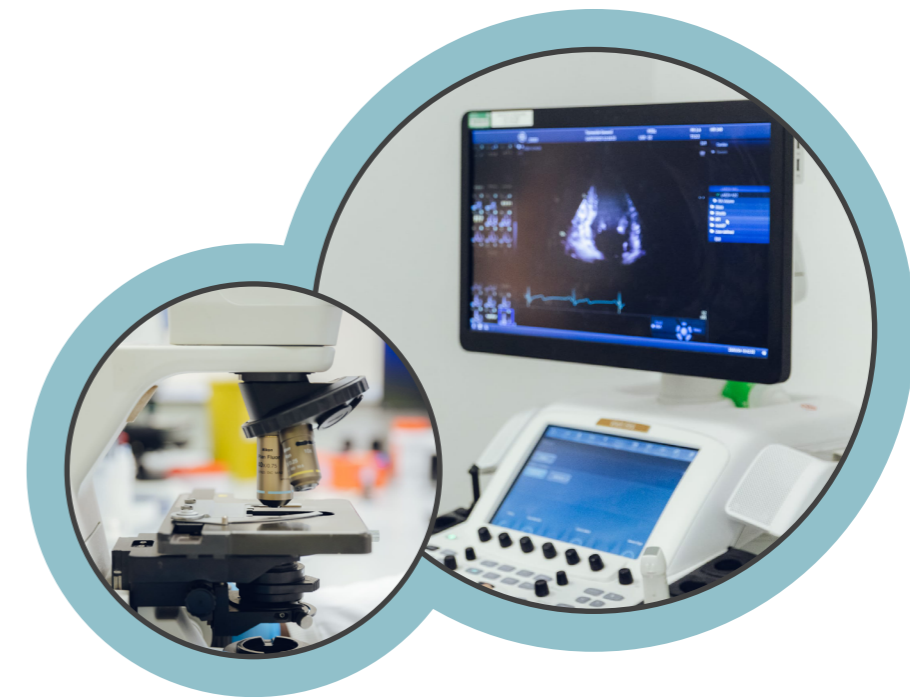
Clinical judgement should always be used, as there may be situations where the mortality risk score does not align with the assessment of disease severity.

Microbiology

Do not routinely offer microbiological tests to adults with low-severity CAP.

For adults with moderate-severity or high-severity CAP, consider:

- blood cultures if there are additional clinical indications such as suspected sepsis (see [NICE's guideline on sepsis](#))
- sputum cultures, taking into account the person's history of antibiotic treatment, their clinical trajectory, the presence of any comorbidities, any recent hospitalisation and the likelihood of getting a good quality sputum sample
- pneumococcal urinary antigen tests to support de-escalation to a narrower spectrum antibiotic
- legionella urinary antigen tests if the person has risk factors for legionella infection.



Decide place of care

Use clinical judgement together with the CURB65 score (bearing in mind this can be affected by other factors, for example, comorbidities or pregnancy) to inform shared decisions about place of care.

Consider:

- CURB65 score of 3 or more: inpatient care or critical care, if appropriate
- CURB65 score of 2:
 - virtual ward, or
 - same day emergency care (SDEC) unit, or
 - hospital at home service, or
 - inpatient care.
- CURB65 score of 0 or 1: discharge home, with referral to primary care-led services and safety netting advice.

When considering referral to a virtual ward, SDEC unit or hospital at home service, make a shared decision with the person (and their family or carers, where appropriate) about the most appropriate place of care, taking into account:

- the person's preferences and support network
- any advanced care plan or treatment escalation plan
- clinical risks, including any comorbidities or frailty
- the safety and suitability of the person's home environment.

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Antibiotics

Start antibiotic treatment as soon as possible after establishing a diagnosis and within 4 hours of presentation to hospital.

When choosing antibiotics, take account of:

- the disease severity
- the risk of developing complications, for example, if the person has a relevant comorbidity such as severe lung disease or immunosuppression
- local antimicrobial resistance and surveillance data (such as flu and *Mycoplasma pneumoniae* infection rates)
- recent antibiotic use
- previous microbiological results, including colonisation with multidrug-resistant bacteria.

Give oral antibiotics first line if the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics.

If intravenous antibiotics are given, review by 48 hours and, if possible, consider switching to oral antibiotics to complete the course.

Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable.

Biomarkers after starting treatment

Consider measuring C-reactive protein or procalcitonin 3 or 4 days after starting treatment if there is clinical concern about treatment failure.

High levels of CRP or PCT, or levels that do not significantly improve with treatment, are associated with treatment failure and the person may need senior clinical review.

Follow-up chest X-rays

Consider follow-up chest X-rays at 6 weeks following discharge for people with:

- risk factors for lung cancer or other underlying respiratory disease, for example, people who smoke or are over 50 years, **or**
- persisting or deteriorating symptoms, **or**
- unexplained weight loss.

Corticosteroids

For adults with high-severity CAP, consider corticosteroids in addition to antibiotics, for 4 to 7 days or until discharge, if sooner.

Note: also see the [Medicines and Healthcare products Regulatory Agency \(MHRA\) advice for restrictions and precautions on the coadministration of fluoroquinolone antibiotics and corticosteroids](#).

When choosing a corticosteroid, consider starting treatment with intravenous hydrocortisone. If hydrocortisone is not suitable, consider an alternative corticosteroid such as dexamethasone by the most appropriate route of administration.

Note: High-severity CAP may include physiological instability, shock, profound hypoxia or need for mechanical ventilation.

Non-invasive respiratory support

For people with respiratory failure in whom standard oxygen therapy is insufficient to meet target saturation levels, consider a trial of high flow nasal oxygen, based on multidisciplinary consensus, clinical trajectory and the person's preferences and ability to tolerate it.

When deciding the best location in the hospital for delivering non-invasive respiratory support, take into account:

- the risk of failure and potential need for invasive mechanical ventilation, **and**
- any advanced directives or established treatment escalation plan, **and**
- the person's clinical trajectory.

Be aware that people with certain co-existing conditions may benefit from a trial of non-invasive ventilation or continuous positive airways pressure.

Reassess people if symptoms or signs do not improve as expected or worsen rapidly or significantly.

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Choice of antibiotic: adults aged 18 years and over

Antibiotic	Dosage and course length
First-line oral antibiotic if low-severity disease	
Amoxicillin	500 mg three times a day (higher doses can be used - see BNF) for 5 days
Alternative oral antibiotics if low-severity disease, for penicillin allergy or if amoxicillin unsuitable (for example, atypical pathogens suspected)	
Doxycycline	200 mg on first day, then 100 mg once a day for 4 days (5-day course in total)
Clarithromycin	500 mg twice a day for 5 days
Erythromycin (in pregnancy)	500 mg four times a day for 5 days
First-line oral antibiotics if moderate-severity disease	
Amoxicillin	500 mg three times a day (higher doses can be used – see BNF) for 5 days, PLUS ONE of the following 2 options if atypical pathogens suspected
clarithromycin	500 mg twice a day for 5 days OR
erythromycin (in pregnancy)	500 mg four times a day for 5 days
Alternative oral antibiotics if moderate-severity disease, for penicillin allergy	
Doxycycline	200 mg on first day, then 100 mg once a day for 4 days (5-day course in total)
Clarithromycin	500 mg twice a day for 5 days
First-line antibiotics if high-severity disease	
Co-amoxiclav	500/125 mg three times a day orally or 1.2 g three times a day intravenously for 5 days, PLUS ONE of the following 2 options
clarithromycin	500 mg twice a day orally or intravenously for 5 days OR
erythromycin (in pregnancy)	500 mg four times a day orally for 5 days
Alternative antibiotic if high-severity disease, for penicillin allergy (consult a local microbiologist if fluoroquinolone not appropriate)	
Levofloxacin 	500 mg twice a day orally or intravenously for 5 days

Notes

See over page.

Community-acquired pneumonia (adults presenting to hospital)

Choice of antibiotic: adults aged 18 years and over, continued

Notes

For **all antibiotics**: see [BNF](#) for appropriate use and dosing in specific populations, for example hepatic impairment, renal impairment, pregnancy and breast-feeding, and administering intravenous (or, where appropriate, intramuscular) antibiotics.

For **erythromycin**: erythromycin is preferred if a macrolide is needed in pregnancy, for example, if there is true penicillin allergy and the benefits of antibiotic treatment outweigh the harms. See the [Medicines and Healthcare products Regulatory Agency \(MHRA\) Public Assessment Report on the safety of macrolide antibiotics in pregnancy](#).

For **amoxicillin with clarithromycin or erythromycin if atypical pathogens suspected**: mycoplasma pneumoniae infection occurs in outbreaks approximately every 4 years. If used as first-choice oral antibiotics if moderate severity, consider adding a macrolide to amoxicillin if atypical pathogens suspected. Review when microbiological results available.

⚠ Warning: for **levofloxacin**, see the [Medicines and Healthcare products Regulatory Agency \(MHRA\) January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics](#), including advice to avoid coadministration of a corticosteroid with a fluoroquinolone.