COVID-19 rapid guideline: antibiotics for pneumonia in adults in hospital

NICE National Institute for Health and Care Excellence

Key messages

- To guide decision making about antibiotics, use
  - antibiotic prescribing table 1 for patients with suspected community-acquired pneumonia (that is, pneumonia that has developed before or within 48 hours of admission).
  - antibiotic prescribing table 2 for patients with suspected hospital acquired pneumonia (that is, pneumonia that develops 48 hours or more after admission and that was not incubating at admission).
- When choosing antibiotics, also take account of local antimicrobial resistance data and other factors such as their availability.
- Give oral antibiotics if the patient can take oral medicines and their condition is not severe enough to need intravenous antibiotics.
- Review all antibiotics at 24 to 48 hours or as soon as test results are available.
- Stop antibiotics if the pneumonia is due to COVID-19 and there is no evidence of bacterial infection (see section 4 in the COVID-19 rapid guideline on antibiotics for pneumonia in adults in hospital for more information).
- Review antibiotic choice based on microbiological results and switch to a narrower spectrum antibiotic when appropriate.
- If antibiotics are continued, give them for a total of 5 days, then stop them unless there is a clear indication to continue.
- Review intravenous antibiotic use within 48 hours and think about switching to oral antibiotics.
- See the BNF for appropriate use and dosing in specific populations, for example, for hepatic impairment, renal impairment, pregnancy and breast-feeding, and when administering intravenous antibiotics.

Table 1 Antibiotics for people 18 and older with suspected community-acquired pneumonia

Empirical treatment	**Antibiotics and dosage** (oral doses are for immediate-release medicines)
Oral antibiotics for moderate or severe pneumonia	**Options include**: **Doxycycline**: 200 mg on first day, then 100 mg once a day **Co-amoxiclav**: 500 mg/125 mg three times a day **with** **Clarithromycin**: 500 mg twice a day **In severe pneumonia, and if the other options are unsuitable:** **Levofloxacin**: 500 mg once or twice a day (consider the safety issues with fluoroquinolones)
Intravenous antibiotics for moderate or severe pneumonia	**Options include:** **Co-amoxiclav**: 1.2 g three times a day **with** **Clarithromycin**: 500 mg twice a day **Cefuroxime**: 750 mg three times a day (increased to 750 mg four times a day or 1.5 g three or four times a day if infection is severe) **with** **Clarithromycin**: 500 mg twice a day **In severe pneumonia, and if the other options are unsuitable:** **Levofloxacin**: 500 mg once or twice a day (consider the safety issues with fluoroquinolones)

There are no validated tools to assess the severity of community-acquired pneumonia in the context of the COVID-19 pandemic; severity should be based on clinical judgement.

Consult a local microbiologist for alternative options, including for pregnant women.

If there is a penicillin allergy, avoid using co-amoxiclav and use cefuroxime with caution.

For safety issues with fluoroquinolones, see the Medicines and Healthcare products Regulatory Agency advice. This covers restrictions and precautions for using fluoroquinolone antibiotics because of very rare reports of disabling and potentially long-lasting or irreversible side effects affecting musculoskeletal and nervous systems. Warnings include: stopping treatment at the first signs of a serious adverse reaction (such as tendonitis), prescribing with special caution for people over 60 years and avoiding coadministration with a corticosteroid (March 2019).

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Table 2 Antibiotics for people 18 and older with suspected hospital-acquired pneumonia

Empirical treatment	**Antibiotics and dosage** (oral doses are for immediate-release medicines)
Oral antibiotics for non-severe pneumonia when there is not a higher risk of resistance	**Options include:** **Doxycycline:** 200 mg on first day, then 100 mg once a day **Co-amoxiclav:** 500 mg/125 mg three times a day **Co-trimoxazole:** 960 mg twice a day (see the BNF for information on monitoring of patient parameters) **If the other options are unsuitable:** **Levofloxacin:** 500 mg once or twice a day (consider the safety issues with fluoroquinolones)
Intravenous antibiotics for severe pneumonia (for example, symptoms or signs of sepsis or ventilator-associated pneumonia) or when there is a higher risk of resistance	**Options include:** **Piperacillin with tazobactam:** 4.5 g three times a day, increased to 4.5 g four times a day if infection is severe **Ceftazidime:** 2 g three times a day **If the other options are unsuitable:** **Levofloxacin:** 500 mg once or twice a day (use a higher dosage if infection is severe; consider the safety issues with fluoroquinolones)
Antibiotic to be added if meticillin-resistant Staphylococcus aureus infection is suspected or confirmed (dual therapy with an intravenous antibiotic listed above)	**Vancomycin:** 15 mg/kg to 20 mg/kg two or three times a day intravenously, adjusted according to serum vancomycin concentration. Maximum 2 g per dose (see the BNF for information on patient parameter and therapeutic drug monitoring) **Teicoplanin:** Initially 6 mg/kg every 12 hours for 3 doses intravenously, then 6 mg/kg once a day (see the BNF for information on patient parameter and therapeutic drug monitoring) **Linezolid:** 600 mg twice a day orally or intravenously (with specialist advice only; see the BNF for information on monitoring of patient parameters)

There are no validated tools to assess the severity of hospital-acquired pneumonia in the context of the COVID-19 pandemic; severity should be based on clinical judgement.

Consult a local microbiologist for alternative options, including for pregnant women.

If there is a penicillin allergy, avoid using co-amoxiclav and piperacillin with tazobactam, and use cefuroxime and ceftazidime with caution.

Higher risk of resistance includes symptoms or signs starting more than 5 days after hospital admission, relevant comorbidity such as severe lung disease or immunosuppression, recent use of broad-spectrum antibiotics, colonisation with multidrug-resistant bacteria, and recent contact with a health or social care setting before current admission.

For antibiotics not licensed for hospital-acquired pneumonia (co-trimoxazole, levofloxacin), use would be off-label. See NICE's prescribing medicines for more information.

For safety issues with fluoroquinolones, see the Medicines and Healthcare products Regulatory Agency advice. This covers restrictions and precautions for using fluoroquinolone antibiotics because of very rare reports of disabling and potentially long-lasting or irreversible side effects affecting musculoskeletal and nervous systems. Warnings include: stopping treatment at the first signs of a serious adverse reaction (such as tendonitis), prescribing with special caution for people over 60 years and avoiding coadministration with a corticosteroid (March 2019).