Bronchiectasis (acute exacerbation): antimicrobial prescribing

Presentation: bronchiectasis (acute exacerbation)

- Send a sputum sample for culture and susceptibility testing
- Offer an antibiotic

Advise:

- possible adverse effects of antibiotics, in particular diarrhoea
- seeking medical help if symptoms worsen rapidly or significantly at any time, or the person becomes systemically very unwell

When results of sputum culture are available:

- review choice of antibiotic
- only change antibiotic according to susceptibility results if bacteria are resistant and symptoms are not already improving, using narrow spectrum antibiotics when possible

Reassess at any time if symptoms worsen rapidly or significantly, taking account of:

- other possible diagnoses, such as pneumonia
- symptoms or signs of something more serious, such as cardiorespiratory failure or sepsis
- previous antibiotic use, which may have led to resistant bacteria

Refer to hospital if the person has any symptoms or signs suggesting a more serious illness or condition (for example, cardiorespiratory failure or sepsis).

Seek specialist advice if:

- symptoms do not improve with repeated courses of antibiotics
- bacteria are resistant to oral antibiotics
- the person cannot take oral medicines (to explore giving intravenous antibiotics at home or in the community if appropriate)

Prevention

- Do not routinely offer antibiotic prophylaxis
- Seek specialist advice for management of repeated exacerbations, which may include a trial of antibiotic prophylaxis

Background

- An acute exacerbation of bronchiectasis is sustained worsening of symptoms from a person's stable state

Antibiotics - treatment

When choosing antibiotics, take account of:

- the severity of symptoms
- previous exacerbations, hospitalisations and risk of complications
- previous sputum culture and susceptibility results

Give oral antibiotics first line if possible

Antibiotics - prophylaxis

- Only start a trial of antibiotic prophylaxis on specialist advice
- When considering antibiotic prophylaxis, discuss the possible benefits (reduced exacerbations), harms (increased antimicrobial resistance, adverse effects and interactions with other medicines) and the need for regular review

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Bronchiectasis (acute exacerbation): antimicrobial prescribing

Choice of antibiotic for treating an acute exacerbation: adults aged 18 years and over

Antibiotic	Dosage and course length
First-choice oral antibiotics for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)	
Amoxicillin	500 mg three times a day for 7 to 14 days
Doxycycline	200 mg on first day, then 100 mg once a day for 7- to 14-day course in total
Clarithromycin	500 mg twice a day for 7 to 14 days
Alternative-choice oral antibiotics (if person at higher risk of treatment failure) for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)	
Co-amoxiclav	500/125 mg three times a day for 7 to 14 days
Levofloxacin (only if co-amoxiclav is unsuitable; with specialist advice) !	500 mg once or twice a day for 7 to 14 days
First-choice intravenous antibiotics (if unable to take oral antibiotics or severely unwell) for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)	
Co-amoxiclav	1.2 g three times a day
Piperacillin with tazobactam	4.5 g three times a day, increased if necessary to 4.5 g four times a day
Levofloxacin (only if co-amoxiclav or piperacillin with tazobactam are unsuitable; with specialist advice) !	500 mg once or twice a day
When current susceptibility data available, choose antibiotics accordingly: consult local microbiologist as needed	

Notes

For **all antibiotics**: see BNF for appropriate use and dosing in specific populations, for example hepatic and renal impairment, pregnancy and breastfeeding, and for administering intravenous antibiotics. When a person is receiving antibiotic prophylaxis, treament should be with an antibiotic from a different class.

Amoxicillin is the preferred choice in women who are pregnant.

For **first- and alternative-choice oral antibiotics:** course length based on an assessment of the person's severity of broncheictasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment.

For **alternative-choice oral antibiotics:** people who may be at higher risk of treatment failure include people who have had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications.

For **intravenous antibiotics:** review intravenous antibiotics by 48 hours and consider stepping down to oral antibiotics where possible for a total antibiotic course of 7 to 14 days.

! **Warning:** for **levofloxacin**, see the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate. In September 2024, levofloxacin for acute exacerbation of bronchiectasis was an off-label use. See NICE's information on prescribing medicines.

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Bronchiectasis (acute exacerbation): antimicrobial prescribing

Choice of antibiotic for treating an acute exacerbation: children and young people under 18 years

Antibiotic	Dosage and course length
First-choice oral antibiotics for empirical treatment in the absence of current susceptibility data (guided by most recent sputum cluture and susceptibilities where possible)	
Amoxicillin	1 to 11 months, 125 mg three times a day for 7 to 14 days 1 to 4 years, 250 mg three times a day for 7 to 14 days 5 to 17 years, 500 mg three times a day for 7 to 14 days
Clarithromycin	1 month to 11 years: • Under 8 kg, 7.5 mg/kg twice a day for 7 to 14 days • 8 to 11 kg, 62.5 mg twice a day for 7 to 14 days • 12 to 19 kg, 125 mg twice a day for 7 to 14 days • 20 to 29 kg, 187.5 mg twice a day for 7 to 14 days • 30 to 40 kg, 250 mg twice a day for 7 to 14 days 12 to 17 years, 250 mg to 500 mg twice a day for 7 to 14 days
Doxycycline	12 to 17 years, 200 mg on first day, then 100 mg once a day for a 7- to 14-day course in total
Alternative-choice oral antibiotics (if person at higher risk of treatment failure) for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)	
Co-amoxiclav	1 to 11 months, 0.25 ml/kg of 125/31 suspension three times a day for 7 to 14 days 1 to 5 years, 5 ml of 125/31 suspension three times a day or 0.25 ml/kg of 125/31 suspension three times a day for 7 to 14 days 6 to 11 years, 5 ml of 250/62 suspension three times a day or 0.15 ml/kg of 250/62 suspension three times a day for 7 to 14 days 12 to 17 years, 250/125 mg three times a day or 500/125 mg three times a day for 7 to 14 days
Ciprofloxacin (only if co-amoxiclav is unsuitable, with specialist advice) (!)	1 to 17 years, 20 mg/kg twice a day (maximum 750 mg per dose) for 7 to 14 days

Antibiotic	Dosage and course length
First-choice intravenous antibiotics (if unable to take oral antibiotics or severely unwell) for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)	
Co-amoxiclav	1 to 2 months, 30 mg/kg twice a day 3 months to 17 years, 30 mg/kg three times a day (maximum 1.2 g three times a day)
Piperacillin with tazobactam	1 month to 11 years, 90 mg/kg three or four times a day (maximum 4.5 g four times a day) 12 to 17 years, 4.5 g three times a day, increased if necessary to 4.5 g four times a day
Ciprofloxacin (only if co-amoxiclav or piperacillin with tazobactam are unsuitable; with specialist advice) (!)	1 to 17 years, 10 mg/kg three times a day (maximum 400 mg per dose)
When current susceptibility data available, choose antibiotics accordingly: consult local microbiologist as needed	

Notes

For **all antibiotics**: see BNF for children for appropriate use and dosing in specific populations, for example hepatic and renal impairment, and for administering intravenous antibiotics. Where a person is receiving antibiotic prophylaxis, treament should be with an antibiotic from a different class. The age bands apply to children of average size and, in practice, the prescriber will use the age bands in conjunction with other factors such as the severity of the condition and the child's size in relation to the average size of children of the same age. Course length based on an assessment of the person's severity of broncheictasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment.

For **alternative-choice oral antibiotics:** people who may be at higher risk of treatment failure include people who have had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications.

For **intravenous antibiotics:** review intravenous antibiotics by 48 hours and consider stepping down to oral antibiotics where possible for a total antibiotic course of 7 to 14 days.

Amoxicillin is the preferred choice in young women who are pregnant.

(!) **Warning:** for **ciprofloxacin,** see the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.

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