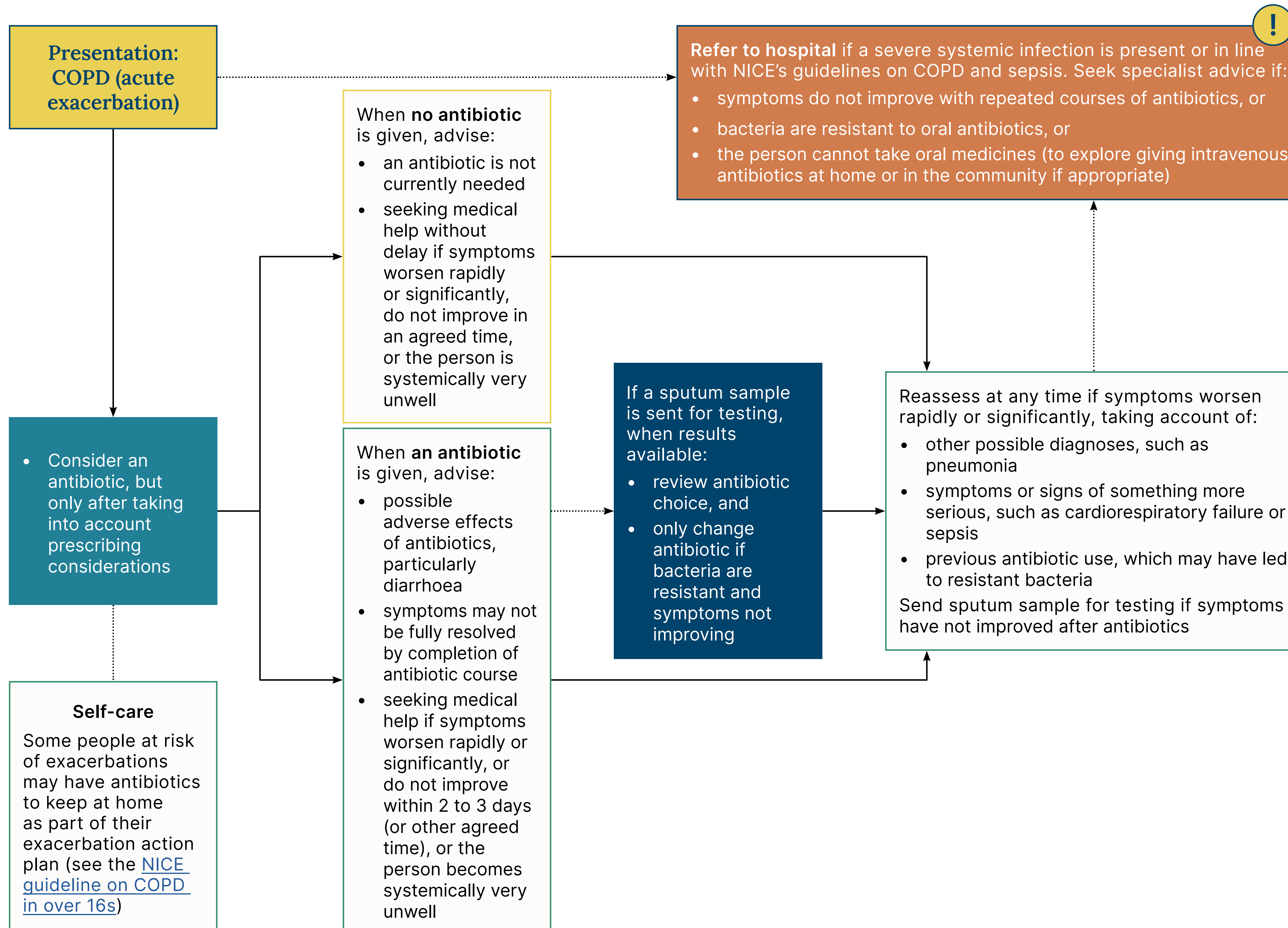
COPD (acute exacerbation): antimicrobial prescribing



Background

- An acute exacerbation of COPD is a sustained worsening of symptoms from a person's stable state
- A range of factors (including viral infections and smoking) can trigger an exacerbation
- Many exacerbations (including some severe exacerbations) are not caused by bacterial infections so will not respond to antibiotics

Prescribing considerations

When considering antibiotics, take into account:

- the severity of symptoms, particularly sputum colour changes and increases in volume or thickness beyond the person's normal day-to-day variation
- whether they may need to go into hospital for treatment (see the NICE guideline on COPD in over 16s)
- previous exacerbation and hospital admission history, and the risk of developing complications
- previous sputum culture and susceptibility results
- the risk of antimicrobial resistance with repeated courses of antibiotics

Give oral antibiotics first line if possible

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Choice of antibiotic for adults aged 18 years and over

Antibiotic	Dosage and course length
First-choice oral antibiotics (empirical treatment or guided by most recent sputum culture and susceptibilities)	
Amoxicillin	500 mg three times a day for 5 days (see BNF for amoxicillin for dosage in severe infections)
Doxycycline	200 mg on first day, then 100 mg once a day for 5-day course in total (see BNF for doxycycline dosage in severe infections)
Clarithromycin	500 mg twice a day for 5 days
Second-choice oral antibiotics (no improvement in symptoms on first choice taken for at least 2 to 3 days; guided by susceptibilities when available): use alternate first choice from a different class	
Alternative-choice oral antibiotics (if person at higher risk of treatment failure; guided by susceptibilities when available)	
Co-amoxiclav	500/125 mg three times a day for 5 days
Co-trimoxazole	960 mg twice a day for 5 days
Levofloxacin (only if other alternative choice anti-biotics are unsuitable; with specialist advice) !	500 mg once a day for 5 days
First-choice intravenous antibiotics (if unable to take oral antibiotics or severely unwell; guided by susceptibilities when available)	
Amoxicillin	500 mg three times a day (see BNF for amoxicillin for dosage in severe infections)
Co-amoxiclav	1.2 g three times a day
Clarithromycin	500 mg twice a day
Co-trimoxazole	960 mg twice a day (see BNF for co-trimoxazole dosage in severe infections)
Piperacillin with tazobactam	4.5 g three times a day (see BNF for piperacillin with tazobactam dosage in severe infections)
Second-choice intravenous antibiotics: consult local microbiologist (guided by susceptibilities)	

Notes

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

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

For **intravenous antibiotics**: review by 48 hours and consider stepping down to oral antibiotics where possible.

For **co-trimoxazole**: only consider for use in acute exacerbations of COPD when there is bacteriological evidence of sensitivity and good reason to prefer this combination to a single antibiotic (see BNF information on co-trimoxazole).

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

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