

Antibiotic Guidelines - Indications for use of Cephalosporins, Quinolones and Co-Amoxiclav

Use simple, generic antibiotics if possible. Avoid broad spectrum antibiotics (for example co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase the risk of *Clostridium difficile*, MRSA and resistant UTIs.

Illness	Choice of drug	Adult Dose	Duration	Comments
Lower urinary tract infection in pregnancy NICE Visual Summary	1 st choice: Nitrofurantoin (avoid at term) - if eGFR ≥45 ml/minute 2 nd choice : Amoxicillin (only if culture results available and susceptible) OR cefalexin	100mg MR BD or 50mg qds if MR unavailable 500mg TDS 500mg BD	All for 7 days	Pregnant women, men, children or young people: immediate antibiotic. When considering antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Treatment of asymptomatic bacteriuria in pregnant women: choose from nitrofurantoin (avoid at term), amoxicillin or cefalexin based on recent culture and susceptibility results For dosing in children and young people under 16 years please see visual summary
	Lower urinary tract infection in children NICE Visual Summary	Children and young people (3 months and over) first choice: trimethoprim (if low risk of resistance) OR nitrofurantoin (if eGFR ≥45 ml/minute) Children and young people (3 months and over) second choice: nitrofurantoin (if eGFR ≥45 ml/minute and not used as first choice) OR amoxicillin (only if culture results available and susceptible) OR cefalexin		
Acute pyelonephritis (upper urinary tract) NICE Visual Summary	Non-pregnant women and men first choice: cefalexin OR co-amoxiclav (only if culture results available and susceptible) OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections) 625mg TDS	7–10 days 7–10 days	Advise paracetamol (+/- low-dose weak opioid) for pain for people over 12. Offer an antibiotic. When prescribing antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Avoid antibiotics that don't achieve adequate levels in renal tissue, such as nitrofurantoin. For pregnant women and second choice antibiotics for all see Visual Summary.
	trimethoprim (only if culture results available and susceptible) OR	200mg BD	14 days	
	ciprofloxacin (consider safety issues)	500mg BD	7 days	
	Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7–10 days	
	Children and young people (3 months and over) first choice: cefalexin OR co-amoxiclav (only if culture results available and susceptible) For dosing in children and young people under 16 years please see visual summary			
Recurrent urinary tract infection NICE Visual Summary	First choice antibiotic prophylaxis: trimethoprim (avoid in pregnancy) OR	200mg single dose when exposed to a trigger or 100mg at night		First advise about behavioural and personal hygiene measures, and self-care (with D-mannose or cranberry products) to reduce the risk of UTI. For postmenopausal women, if no improvement, consider vaginal oestrogen (review within 12 months). For non-pregnant women, if no improvement, consider single-dose antibiotic prophylaxis for exposure to a trigger (review within 6 months). For non-pregnant women (if no improvement or no identifiable trigger) or with specialist advice for pregnant women, men, children or young people, consider a trial of daily antibiotic prophylaxis (review within 6 months).
	nitrofurantoin (avoid at term) - if eGFR ≥45 ml/minute	100mg single dose when exposed to a trigger or 50 to 100mg at night		
	Second choice antibiotic prophylaxis: amoxicillin OR	500mg single dose when exposed to a trigger or 250mg at night		
	cefalexin	500mg single dose when exposed to a trigger or 125mg at night		
Catheter-associated UTI NICE Visual Summary	Non-pregnant women and men first choice if upper UTI symptoms are present: cefalexin OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7 -10 days	Antibiotic treatment is not routinely needed for asymptomatic bacteriuria in people with a urinary catheter. Consider removing or, if not possible, changing the catheter if it has been in place for more than 7 days. But do not delay antibiotic treatment. Advise paracetamol for pain. Advise drinking enough fluids to avoid dehydration. Offer an antibiotic for a symptomatic infection. When prescribing antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Do not routinely offer antibiotic prophylaxis to people with a short-term or long-term catheter.
	co-amoxiclav (only if culture results available and susceptible) OR	625mg TDS		
	trimethoprim (only if culture results available and susceptible) OR	200mg BD	14 days	
	ciprofloxacin (consider safety issues)	500mg BD	7 days	
	Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7–10 days	
	Children and young people (3 months and over) first choice: trimethoprim (if low risk of resistance) OR amoxicillin (only if culture results available and susceptible) OR cefalexin OR co-amoxiclav (only if culture results available and susceptible) For dosing in children and young people under 16 years see visual summary			
Diverticulitis NICE Visual Summary	First-choice (uncomplicated acute diverticulitis): co-amoxiclav	625mg TDS	All 5 days *	Acute diverticulitis and systemically well: Consider no antibiotics, offer simple analgesia (for example paracetamol), advise to re-present if symptoms persist or worsen. Acute diverticulitis and systemically unwell, immunosuppressed or significant comorbidity: offer an antibiotic. Give oral antibiotics if person not referred to hospital for suspected complicated acute diverticulitis. If CT-confirmed uncomplicated acute diverticulitis, review the need for antibiotics. * A longer course may be needed based on clinical assessment.
	Penicillin allergy or co-amoxiclav unsuitable: cefalexin (caution in penicillin allergy) AND metronidazole OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS if severe) 400mg TDS		
	trimethoprim AND metronidazole OR	200mg BD 400mg TDS		
	ciprofloxacin (only if switching from IV ciprofloxacin with specialist advice; consider safety issues) AND metronidazole	500mg BD 400mg TDS		
Gonorrhoea	Ceftriaxone OR	1000mg IM	Stat	Antibiotic resistance is now very high. Use IM ceftriaxone if susceptibility not known prior to treatment. Use Ciprofloxacin only If susceptibility is known prior to treatment and the isolate is sensitive to ciprofloxacin at all sites of infection. Refer to GUM. Test of cure is essential.
	ciprofloxacin (only if known to be sensitive)	500mg	Stat	
Pelvic Inflammatory Disease	First line therapy: ceftriaxone PLUS metronidazole PLUS doxycycline	1000mg IM 400mg BD 100mg BD	STAT 14 days 14 days	Refer women and sexual contacts to GUM. Raised CRP supports diagnosis, absent pus cells in HVS smear good negative predictive value. Exclude: ectopic, appendicitis, endometriosis, UTI, irritable bowel, complicated ovarian cyst, functional pain. Moxifloxacin has greater activity against likely pathogens, but always test for gonorrhoea, chlamydia, and <i>M. genitalium</i> . If <i>M. genitalium</i> tests positive use moxifloxacin.
	Second line therapy: Metronidazole PLUS ofloxacin . OR moxifloxacin alone (first line for <i>M. genitalium</i> associated PID)	400mg BD 400mg BD 400mg OD	14 days 14 days 14 days	
Hospital-acquired pneumonia	See guidance in Quinolones section on hospital acquired pneumonia (below community acquired pneumonia entry)			

Cephalosporins

Quinolones

	Acute prostatitis NICE Visual Summary	First choice (guided by susceptibilities when available): ciprofloxacin OR ofloxacin OR trimethoprim (if unable to take quinolone, seek specialist advice) Second choice (after discussion with specialist): levofloxacin OR co-trimoxazole	500mg BD 200mg BD 200mg BD 500mg OD 960mg BD	14 days then review	Advise paracetamol (+/- low-dose weak opioid) for pain, or ibuprofen if preferred and suitable. Offer antibiotic. Review antibiotic treatment after 14 days and either stop antibiotics or continue for a further 14 days if needed (based on assessment of history, symptoms, clinical examination, urine and blood tests). Consider safety issues of quinolones
Acute pyelonephritis		As above: see previous entry regarding Acute pyelonephritis			
Catheter-associated UTI		As above: see previous entry regarding Catheter-associated UTI			
Diverticulitis		As above: see previous entry regarding diverticulitis			
Helicobacter pylori		For first choice, Penicillin allergy, previous Clarithromycin, and Third line choice please refer to full guidelines for antibiotic choice.			Always test for H.pylori before giving antibiotics. Treat all positives in known DU, GU or low grade MAL.Toma. NNT in non-ulcer dyspepsia: 14.
		For relapse and previous metronidazole and clarithromycin: PPI PLUS Amoxicillin PLUS tetracycline hydrochloride OR levofloxacin (if tetracycline cannot be used)	1000mg BD 500mg QDS 250mg BD	7 days MAL.Toma 14 days	Do not offer eradication for GORD. Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection Penicillin allergy: use PPI PLUS Clarithromycin and Metronidazole. If previous clarithromycin use PPI PLUS bismuthate salt PLUS metronidazole PLUS tetracycline. For relapse and penicillin allergy (no exposure to quinolone): use PPI PLUS metronidazole PLUS levofloxacin . Retest for H.pylori: post DU/GU, or relapse after second line therapy, using urea breath test or stool antigen test; consider referral for endoscopy and culture.
Pelvic Inflammatory		As above: see previous entry regarding Pelvic Inflammatory			
Epididymitis		Doxycycline OR ofloxacin OR ciprofloxacin	100mg BD 200mg BD 500mg BD	10 - 14 days 14 days 10 days	Usually due to Gram-negative enteric bacteria in men over 35 years with low risk of STI. If under 35 years or STI risk, refer to GUM
Acute exacerbation of COPD NICE Visual Summary		First choice: amoxicillin OR doxycycline OR clarithromycin	500mg TDS 200mg stat then 100mg OD 500mg BD	All for 5 days	Many exacerbations are not caused by bacterial infections so will not respond to antibiotics. Consider an antibiotic, but only after taking into account severity of symptoms (particularly sputum colour changes and increases in volume or thickness), need for hospitalisation, previous exacerbations, hospitalisations and risk of complications, previous sputum culture and susceptibility results, and risk of resistance with repeated courses. Some people at risk of exacerbations may have antibiotics to keep at home as part of their exacerbation action plan. (see BNF for doses in severe infection)
		Second choice: use alternative first choice Alternative choice (if person at higher risk of treatment failure): co-amoxiclav OR co-trimoxazole OR levofloxacin (with specialist advice if co-amoxiclav or co-trimoxazole cannot be used consider safety issues)	625mg TDS 960mg BD 500mg OD		
Acute exacerbation of bronchiectasis (non-cystic fibrosis) NICE Visual Summary		First choice empirical treatment: amoxicillin (preferred if pregnant) OR doxycycline (not in under 12s) OR Clarithromycin Alternative choice (if person at higher risk of treatment failure) empirical treatment: co-amoxiclav OR levofloxacin (adults only: with specialist advice if co amoxiclav cannot be used; consider safety issues) OR ciprofloxacin (children only: with specialist advice if co-amoxiclav cannot be used; consider safety issues)	500mg TDS 200mg stat then 100mg OD 500mg BD 625mg TDS 500mg OD or BD For childrens doses please use visual summary	7-14 days 7-14 days	Send a sputum sample for culture and susceptibility testing. Offer an antibiotic. When choosing an antibiotic, take account of severity of symptoms and risk of treatment failure. People who may be at higher risk of treatment failure include people who've had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications. Course length is based on severity of bronchiectasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment. Do not routinely offer antibiotic prophylaxis to prevent exacerbations. Seek specialist advice for preventing exacerbations in people with repeated acute exacerbations. This may include a trial of antibiotic prophylaxis after a discussion of the possible benefits and harms, and the need for regular review. <i>For detailed information click on the visual summary.</i> For IV antibiotics click on visual summary. When current susceptibility data available choose antibiotic accordingly
Community-acquired pneumonia NICE Visual Summary		First choice (low severity in adults or non-severe in children): a amoxicillin	500mg TDS (higher doses can be used, see BNF)	All 5 days * Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable	Assess severity in adults based on clinical judgement guided by mortality risk score (CRB65 or CURB65). See the NICE guideline on pneumonia for full details: low severity – CRB65 0 or CURB65 0 or 1 moderate severity – CRB65 1 or 2 or CURB65 2 high severity – CRB65 3 or 4 or CURB65 3 to 5. 1 point for each parameter: confusion , (urea >7 mmol/l), respiratory rate ≥30/min, low systolic (<90 mm Hg) or diastolic (≤60 mm Hg) blood pressure , age ≥65. Assess severity in children based on clinical judgement. Offer an antibiotic. Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected and person meets any high risk criteria When choosing an antibiotic, take account of severity, risk of complications, local antimicrobial resistance and surveillance data, recent antibiotic use and microbiological results. <i>For detailed information click on the visual summary. See also the NICE guideline on pneumonia.</i> <i>For IV antibiotics click on visual summary .For childrens doses click on visual summary</i>
		Alternative first choice (low severity in adults or non-severe in children): doxycycline (not in under 12s) OR clarithromycin OR erythromycin (in pregnancy)	200mg stat then 100mg OD 500mg BD 500mg QDS		
		First choice (moderate severity in adults): amoxicillin WITH (if atypical pathogens suspected) clarithromycin OR erythromycin (in pregnancy)	500mg TDS (higher doses can be used, see BNF) 500mg BD 500mg QDS		
		Alternative first choice (moderate severity in adults): doxycycline OR clarithromycin	200mg stat then 100mg OD 500mg BD		
		First choice (high severity in adults or severe in children): co-amoxiclav WITH (if atypical pathogens suspected) clarithromycin OR erythromycin (in pregnancy)	625mg TDS 500mg BD 500mg QDS		

	Alternative first choice (high severity in adults): levofloxacin (consider safety issues)	500mg bd		
Hospital-acquired pneumonia NICE Visual Summary	First choice (non-severe and not higher risk of resistance): co-amoxiclav	625mg TDS	5 days then review	<p>If symptoms or signs of pneumonia start within 48 hours of hospital admission, see community acquired pneumonia.</p> <p>Offer an antibiotic. Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected and person meets any high risk criteria – see the NICE guideline on sepsis).</p> <p>When choosing an antibiotic, take account of severity of symptoms or signs, number of days in hospital before onset of symptoms, risk of developing complications, local hospital and ward-based antimicrobial resistance data, recent antibiotic use and microbiological results, recent contact with a health or social care setting before current admission, and risk of adverse effects with broad spectrum antibiotics.</p> <p>No validated severity assessment tools are available. Assess severity of symptoms or signs based on clinical judgement.</p> <p>Higher risk of resistance includes relevant comorbidity (such as severe lung disease or immunosuppression), recent use of broad spectrum antibiotics, colonisation with multi-drug resistant bacteria, and recent contact with health and social care settings before current admission.</p> <p>If symptoms or signs of pneumonia start within days 3 to 5 of hospital admission in people not at higher risk of resistance, consider following community acquired pneumonia for choice of antibiotic.</p> <p><i>For detailed information click on the visual summary. See also the NICE guideline on pneumonia. For first choice IV antibiotics (severe or higher risk of resistance) and antibiotics to be added if suspected or confirmed MRSA infection see visual summary</i></p>
	Adults alternative first choice (non-severe and not higher risk of resistance) Choice based on specialist microbiological advice and local resistance data Options include: doxycycline cefalexin (caution in penicillin allergy) co-trimoxazole levofloxacin (only if switching from IV levofloxacin with specialist advice; consider safety issues)	200mg stat then 100mg OD 500mg BD or TDS (can increase to 1 to 1.5g TDS or QDS) 960mg BD 500mg OD or BD		
	Children alternative first choice (non-severe and not higher risk of resistance): clarithromycin Other options may be suitable based on specialist microbiological advice and local resistance data	See visual summary		
Acute Otitis Media NICE Visual Summary	First choice: Amoxicillin	For dosing in children and young people under 18 years please see visual summary	5 - 7 days	Regular paracetamol or ibuprofen for pain (right dose for age or weight at the right time and maximum doses for severe pain). Otorrhoea or under 2 years with infection in both ears: no, back-up or immediate antibiotic. Otherwise: no or back-up antibiotic. Systemically very unwell or high risk of complications: immediate antibiotic
	Penicillin Allergy: Clarithromycin OR		5 - 7 days	
	Erythromycin (preferred if pregnant)		5 - 7 days	
	Second choice: Co-amoxiclav		5 - 7 days	
Sinusitis NICE visual summary	First choice: Phenoxymethylpenicillin Penicillin Allergy: Doxycycline (not in under 12s) OR Clarithromycin OR Erythromycin (preferred if pregnant)	500mg QDS 200mg stat then 100mg OD 500mg BD 250 to 500mg QDS or 500 to 1000mg BD	All 5 days	Advise paracetamol or ibuprofen for pain. Little evidence that nasal saline or nasal decongestants help, but people may want to try them. Symptoms for 10 days or less: no antibiotic. Symptoms with no improvement for more than 10 days: no antibiotic or back-up antibiotic depending on likelihood of bacterial cause. Consider high-dose nasal corticosteroid (if over 12 years). Systemically very unwell or high risk of complications: immediate antibiotic.
	Second choice or first choice if systemically very unwell or high risk of complications: Co-amoxiclav	625mg TDS		
Acute exacerbation of COPD	As above: see previous entry regarding Acute exacerbation of COPD			
Acute exacerbation of bronchiectasis (non-cystic fibrosis)	As above: see previous entry regarding Acute exacerbation of bronchiectasis (non-cystic fibrosis)			
Community-acquired pneumonia	As above: see previous entry regarding Community-acquired Pneumonia			
Hospital-acquired pneumonia	As above: see previous entry regarding Hospital -acquired pneumonia			
Acute pyelonephritis	As above: see previous entry regarding Acute pyelonephritis			
Catheter-associated UTI	As above: see previous entry regarding Catheter-associated UTI			
Diverticulitis	As above: see previous entry regarding diverticulitis			
Cellulitis and Erysipelas NICE visual summary	Flucloxacillin <i>If penicillin allergic or flucloxacillin not suitable</i> Clarithromycin OR erythromycin (in pregnancy) OR doxycycline (adults only) OR	500mg-1g QDS 500mg BD 500mg QDS 200mg on day 1, then 100mg OD	5 to 7 days* 5 to 7 days*	Exclude other causes of skin redness (inflammatory reactions or non-infectious causes). Consider marking extent of infection with a single-use surgical marker pen. Offer an antibiotic. Take account of severity, site of infection, risk of uncommon pathogens, any microbiological results and MRSA status. Infection around eyes or nose is more concerning because of serious intracranial complications. *A longer course (up to 14 days in total) may be needed but skin takes time to return to normal, and full resolution at 5 to 7 days is not expected. Do not routinely offer antibiotics to prevent recurrent cellulitis or erysipelas. <i>For detailed information click on the visual summary. For alternative choice antibiotics for severe infection, suspected or confirmed MRSA infection and IV antibiotics click on the visual summary</i>
	co-amoxiclav (children only: not in penicillin allergy) For infections near eye/nose Co-amoxiclav If penicillin allergy then clarithromycin AND metronidazole (only add in children if anaerobes suspected)	625mg TDS 500mg BD 400mg TDS	7 days* 7 days* 7 days*	
Leg Ulcer Infection NICE visual summary	First choice : Flucloxacillin OR for penicillin allergy or when flucloxacillin is unsuitable: Doxycycline OR Clarithromycin OR	500mg to 1g QDS 200mg stat , then 100mg OD, can be increased to 200mg OD 500mg BD	All 7 days	Manage any underlying conditions to promote ulcer healing. Only offer an antibiotic when there are symptoms or signs of infection (such as redness or swelling spreading beyond the ulcer, localised warmth, increased pain or fever). Few leg ulcers are clinically infected but most are colonised by bacteria. When prescribing antibiotics, take account of severity, risk of

	Erythromycin (in pregnancy) Second choice co-amoxiclav OR co-trimoxazole (in penicillin allergy)	500mg QDS 625mg TDS 960mg BD		complications and previous antibiotic use. <i>For detailed information click on the visual summary.</i> For antibiotic choices if severely unwell or MRSA suspected or confirmed, click on the visual summary
Human and animal Bites NICE Visual Summary	First choice : co-amoxiclav Penicillin allergy or co-amoxiclav unsuitable : metronidazole AND doxycycline For MRSA discuss with microbiologist Seek specialist advice in pregnancy	375–625mg TDS 400mg TDS 200mg day 1, then 100mg or 200mg daily	3 days for prophylaxis 5 days for treatment (can extend to 7 days dependent on clinical assessment and with review))	Offer an antibiotic for a human or animal bite if there are symptoms or signs of infectionTake a swab for microbiological testing if there is discharge (purulent or non-purulent) from the wound. Do not offer antibiotic prophylaxis if a human or animal bite has not broken the skin. Human bite: Offer antibiotic prophylaxis if the human bite has broken the skin and drawn blood. Consider antibiotic prophylaxis if the human bite has broken the skin but not drawn blood if it is in a high-risk area or person at high risk. Cat bite: Offer antibiotic prophylaxis if the cat bite has broken the skin and drawn blood. Consider antibiotic prophylaxis if the cat bite has broken the skin but not drawn blood if the wound could be deep. Dog or other traditional pet bite (excluding cat bite): Do not offer antibiotic prophylaxis if the bite has broken the skin but not drawn blood. Offer antibiotic prophylaxis if the bite has broken the skin and drawn blood if it has caused considerable, deep tissue damage or is visibly contaminated (for example, with dirt or a tooth). Consider antibiotic prophylaxis if the bite has broken the skin and drawn blood if it is in a high risk area or person at high risk.

For doses in children please refer to the relevant NICE visual summary or the [BNF for Children](#).

See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding.

Avoid use of quinolones unless benefits outweigh the risk as new 2018 evidence indicates that they may be rarely associated with long lasting disabling neuro-muscular and skeletal side effects.

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Latest NICE updates approved by MOPB chairman's action April 2020. Latest NICE update approved at MOPB April 21 and HMMC May 21

Document history from March 2020	Consultation Process	Page (s)	Changes / where deviates from NICE
NICE updates March 2020	Approved by MOPB chairman's action April 2020	1	Acute diverticulitis added
		2	Bronchiectasis added
		2-3	Community and hospital acquired pneumonia added
		3	
		4	Leg ulcer infection (replaces PHE guidance from Feb 2019).
Review March 2020 to align guidance with NICE.	Approved by MOPB chairman's action April 2020	1	Rationale added.
		1	Pelvic inflammatory disease updated in line with NICE
		3	Cellulitis and Erysipelas updated in line with NICE
Feb 2021	Information on links are already approved		COVID -19 rapid guidelines on community acquired pneumonia, link added in line with ICS and NICE
April 2021	MOPB	2-4	Community acquired pneumonia reverts to NICE sep19. Human and animal bites section detail expanded