



Guidelines for the management of infection in primary care within Herts and West Essex ICS

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This document was prepared on behalf of NHS East and North Hertfordshire Clinical Commissioning Group and NHS Herts Valleys Clinical Commissioning Group by the Pharmacy and Medicines Optimisation Team from NHS East and North Hertfordshire CCG and on behalf of NHS West Essex Clinical Commissioning Group by the Medicines Optimisation team. It replaces the separate guidance documents of those CCGs.

This guidance is based on the NICE [Summary of antimicrobial prescribing guidance- managing common infections](#) .It has been adapted for local use with input from local experts in Hertfordshire and West Essex (e.g. Microbiologist and Dermatologist) and may differ slightly from national recommendations. Where such changes are made they will be annotated according to the respective oversight committee i.e. Herts Medicines Management Committee [HMMC] or West Essex Medicines Optimisation Programme Board [MOPB]

Any future amendments will be made in line with governance processes in Herts and West Essex CCGs and listed in the document history on the final page.

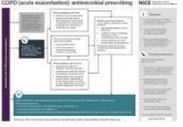
- For all PHE guidance, follow [PHE's principles of treatment](#).
- See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding.
- See BNFC for appropriate use and dosing in children.
- Pharmacies will only allow the purchase of an OTC preparation within its **licensed indications**. For details of exemptions, criteria and conditions that can be managed with OTC products visit the respective guidance for Herts Valleys CCG, East and North Herts CCG or West Essex CCG
- Download the Smartphone app for this guideline free by visiting the appropriate app store

Key:  Click to access doses for children  Click to access NICE's printable visual summary

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Upper respiratory tract infections						
Acute sore throat NICE Public Health England From NICE update Jan 2018	Advise paracetamol, or if preferred and suitable, ibuprofen for pain. Medicated lozenges may help pain in adults. Use FeverPAIN or Centor to assess symptoms: FeverPAIN 0-1 or Centor 0-2: no antibiotic; FeverPAIN 2-3: no or back-up antibiotic; FeverPAIN 4-5 or Centor 3-4: immediate or back-up antibiotic. Systemically very unwell or high risk of complications: immediate antibiotic. Amoxicillin can be considered an alternative for children where taste or frequency might be a problem with phenoxymethylpenicillin and compliance might be poor. [HMMC] *5 days of phenoxymethylpenicillin may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure <i>For detailed information click the visual summary icon.</i>	First choice: phenoxymethylpenicillin	500 mg QDS or 1000 mg BD		5–10 days*	
		Second choice: amoxicillin for children see notes [HMMC]			5 days	
		Penicillin allergy: clarithromycin OR erythromycin (preferred if pregnant)	250 mg to 500 mg BD	 250 mg to 500 mg QDS or 500 mg to 1000 mg BD	5 days	
Influenza	Annual vaccination is essential for all those 'at risk' of influenza. Antivirals are not recommended for healthy adults. Treat 'at risk' patients with 5 days oseltamivir 75 mg BD when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children), or in a care home where influenza is likely.					

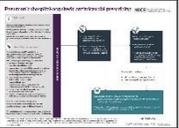
<p>Public Health England</p> <p>From NICE update Feb 2019</p>	<p>At risk: pregnant (and up to 2 weeks post-partum); children under 6 months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; chronic neurological, renal or liver disease; care and nursing home residents; diabetes mellitus; morbid obesity (BMI>40). See the PHE Influenza guidance for the treatment of patients under 13 years. In severe immunosuppression, or oseltamivir resistance, use zanamivir 10 mg BD (2 inhalations twice daily by diskhaler for up to 10 days) and seek advice.</p> <p>Access supporting evidence and rationales on the PHE website.</p>					
<p>Scarlet fever (GAS)</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Prompt treatment with appropriate antibiotics significantly reduces the risk of complications. Vulnerable individuals (immunocompromised, the comorbid, or those with skin disease) are at increased risk of developing complications.</p>	<p>phenoxymethylpenicillin</p>	<p>500 mg QDS</p>		<p>10 days</p>	<p><i>Not available. Access supporting evidence and rationales on the PHE website</i></p>
<p>Penicillin allergy: clarithromycin</p>		<p>250 mg to 500 mg BD</p>		<p>5 days</p>		
<p>Optimise analgesia and give safety netting advice</p>						
<p>Acute otitis media</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Feb 2018</p>	<p>Regular paracetamol or ibuprofen for pain (right dose for age or weight at the right time and maximum doses for severe pain).</p> <p>People who are systemically very unwell: offer an immediate antibiotic.</p> <p>People with otorrhoea or those aged less than 2 years with bilateral infection: Consider no antibiotic, back-up antibiotic or immediate antibiotic.</p> <p>Other people who may be less likely to benefit from antibiotics: Consider no antibiotic or back-up antibiotic.</p> <p>Additional information for advice [HMMC]:</p> <p>No antibiotic - an antibiotic not being needed and seeking medical help if symptoms worsen rapidly or significantly, do not improve after 3 days, or the person becomes systemically very unwell.</p> <p>A back-up antibiotic prescription - an antibiotic not being needed immediately; using</p>	<p>First choice: amoxicillin</p>		<p>5–7 days</p>	<p>5–7 days</p>	
<p>Penicillin allergy: clarithromycin OR</p>		<p>erythromycin (preferred if pregnant)</p>		<p>5–7 days</p>		
<p>Second choice: co-amoxiclav</p>				<p>5–7 days</p>		
		<p>5–7 days</p>				

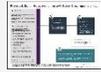
	<p>the back-up prescription if symptoms do not start to improve within 3 days or worsen significantly or rapidly at any time; and seeking medical help if symptoms worsen rapidly or significantly, or the person becomes systemically very unwell.</p> <p>An immediate antibiotic prescription - to seek medical advice if symptoms worsen rapidly or significantly or the person becomes systemically very unwell.</p> <p><i>For detailed information click on the visual summary.</i></p>					
<p>Acute otitis externa</p> <p>Public Health England</p> <p>From NICE update Nov 2017</p>	<p>First choice: analgesia for pain relief, and apply localised heat (such as a warm flannel).</p> <p>Second choice: topical acetic acid or topical antibiotic +/- steroid: similar cure at 7 days.</p> <p>If cellulitis or disease extends outside ear canal, or systemic signs of infection, start oral flucloxacillin and refer to exclude malignant otitis externa.</p>	<p>Second choice: topical acetic acid 2% OR</p>	1 spray TDS		7 days	<p><i>Not available. Access supporting evidence and rationales on the PHE website</i></p>
		<p>topical neomycin sulphate with corticosteroid (consider safety issues if perforated tympanic membrane)</p>	3 drops TDS		7 days (min) to 14 days (max)	
		<p>If cellulitis: flucloxacillin</p> <p>Penicillin allergy: clarithromycin [HMMC</p>	<p>250mg (500mg if severe) QDS</p> <p>500mg BD</p>		7 days	
<p>Sinusitis</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Oct 2017</p>	<p>Advise paracetamol or ibuprofen for pain. Little evidence that nasal saline or nasal decongestants help, but people may want to try them.</p> <p>Symptoms for 10 days or less: no antibiotic.</p> <p>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).</p> <p>Systemically very unwell or high risk of complications: immediate antibiotic.</p> <p><i>For detailed information click on the visual summary.</i></p>	<p>First choice: phenoxymethylpenicillin</p>	500mg QDS		5 days	
		<p>Penicillin allergy: doxycycline (not in under 12s) OR</p>	200mg on day 1, then 100mg OD		5 days	
		<p>clarithromycin OR</p>	500mg BD		5 days	
		<p>erythromycin (preferred if pregnant)</p>	250 to 500mg QDS or 500 to 1000mg BD		5 days	
		<p>Second choice or first choice if systemically very unwell or high risk of complications: co-amoxiclav</p>	500/125mg TDS		5 days	

Lower respiratory tract infections								
<p>Acute exacerbation of COPD</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Dec 2018</p>	<p>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.</p> <p>Some people at risk of exacerbations may have antibiotics to keep at home as part of their exacerbation action plan.</p> <p>Co-trimoxazole should only be used if there are bacteriological evidence of sensitivity and good reason to prefer this combination to a single antibiotic [HMMC].</p> <p><i>For detailed information click on the visual summary. See also the NICE guideline on COPD in over 16s.</i></p> <p>IV antibiotics (<i>click on visual summary</i>)</p>	<p>First choice: amoxicillin OR</p>	500mg TDS (see BNF for severe infection)	-	5 days			
		doxycycline OR	200mg on day 1, then 100mg OD (see BNF for severe infection)	-				
		clarithromycin	500mg BD	-				
		Second choice: use alternative first choice						5 days
		<p>Alternative choice (if person at higher risk of treatment failure): co-amoxiclav OR</p>	500/125mg TDS	-				
		co-trimoxazole OR	960mg BD	-				
levofloxacin (with specialist advice if co-amoxiclav or co-trimoxazole cannot be used; consider safety issues)	500mg OD	-						
<p>Acute exacerbation of bronchiectasis (non-cystic fibrosis)</p> <p>NICE</p>	<p>Send a sputum sample for culture and susceptibility testing.</p> <p>Offer an antibiotic.</p> <p>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.</p> <p>Course length is based on severity of bronchiectasis, exacerbation history, severity of</p>	<p>First choice empirical treatment: amoxicillin (preferred if pregnant) OR</p>	500mg TDS		7 to 14 days			
		doxycycline (not under 12s) OR	200mg on day 1, then 100mg OD					
		clarithromycin	500mg BD					
		<p>Alternative choice (if person at higher risk of treatment failure) empirical treatment: co-amoxiclav OR</p>	500/125mg TDS		7 to 14 days			

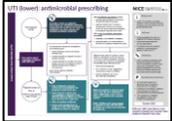
<p>Public Health England</p> <p>From NICE update Dec 2018</p>	<p>exacerbation symptoms, previous culture and susceptibility results, and response to treatment.</p> <p>Do not routinely offer antibiotic prophylaxis to prevent exacerbations.</p> <p>Seek specialist advice for preventing exacerbations in 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.</p> <p><i>For detailed information click on the visual summary.</i></p>	<p>levofloxacin (adults only: with specialist advice if co-amoxiclav cannot be used; consider safety issues) OR</p>	<p>500mg OD or BD</p>				
		<p>ciprofloxacin (children only: with specialist advice if co-amoxiclav cannot be used; consider safety issues)</p>	<p>500mg BD (750mg BD in more severe infections) [HMMC]</p>		<p>14 days</p>		
		<p>IV antibiotics (click on visual summary)</p>					
		<p>When current susceptibility data available: choose antibiotics accordingly</p>					
<p>Acute cough</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Feb 2019</p>	<p>Some people may wish to try honey (in over 1s), the herbal medicine pelargonium (in 12 years and over), cough medicines containing the expectorant guaifenesin (in 12 years and over) or cough medicines containing cough suppressants, except codeine, (in 12 years and over). These self-care treatments have limited evidence for the relief of cough symptoms.</p> <p>Acute cough with upper respiratory tract infection: no antibiotic.</p> <p>Acute bronchitis: no routine antibiotic.</p> <p>Acute cough and higher risk of complications (at face-to-face examination): immediate or back-up antibiotic.</p> <p>Acute cough and systemically very unwell (at face to face examination): immediate antibiotic.</p> <p>Higher risk of complications includes people with pre-existing comorbidity; young children born prematurely; people over 65 with 2 or more of, or over 80 with 1 or more of: hospitalisation in previous year, type 1 or 2 diabetes, history of congestive heart failure, current use of oral corticosteroids.</p>	<p>Adults first choice: doxycycline</p>	<p>200mg on day 1, then 100mg OD</p>	<p>-</p>	<p>5 days</p>		
		<p>Adult alternative first choices: amoxicillin (preferred if pregnant) OR</p>	<p>500mg TDS</p>	<p>-</p>	<p>5 days</p>		
		<p>clarithromycin OR</p>	<p>250mg to 500mg BD</p>	<p>-</p>	<p>5 days</p>		
		<p>erythromycin (preferred if pregnant)</p>	<p>250mg to 500mg QDS or 500mg to 1000mg BD</p>	<p>-</p>	<p>5 days</p>		
		<p>Children first choice: amoxicillin</p>	<p>-</p>	<p>-</p>	<p>5 days</p>		
		<p>Children alternative first choices: clarithromycin OR</p>	<p>-</p>	<p>-</p>	<p>5 days</p>		
		<p>erythromycin OR</p>	<p>-</p>	<p>-</p>	<p>5 days</p>		
		<p>doxycycline (not in under 12s)</p>	<p>-</p>	<p>-</p>	<p>5 days</p>		

	Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated. <i>For detailed information click on the visual summary. See also the NICE guideline on pneumonia for prescribing antibiotics in adults with acute bronchitis who have had a C-reactive protein (CRP) test (CRP<20mg/l: no routine antibiotic, CRP 20 to 100mg/l: back-up antibiotic, CRP>100mg/l: immediate antibiotic).</i>							
Community - acquired pneumonia NICE Public Health England From NICE Sept 2019	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 – see the NICE guideline on sepsis). When choosing an antibiotic, take account of severity, risk of complications, local antimicrobial resistance and surveillance data, recent antibiotic use and microbiological results.	First choice (low severity in adults or non-severe in children): amoxicillin	500mg TDS (higher doses can be used, see BNF)		5 days*			
		Alternative first choice (low severity in adults or non-severe in children): doxycycline (not in under 12s) OR	200mg on day 1, then 100mg OD					
		clarithromycin OR	500mg BD					
		erythromycin (in pregnancy)	500mg QDS		5 days*			
		First choice (moderate severity in adults): amoxicillin AND (if atypical pathogens suspected)	500mg TDS (higher doses can be used, see BNF)					
		clarithromycin OR	500mg BD					
		erythromycin (in pregnancy)	500mg QDS					
		Alternative first choice (moderate severity in adults): doxycycline OR	200mg on day 1, then 100mg OD					
		clarithromycin	500mg BD					

	<p>* Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable. <i>For detailed information click on the visual summary. See also the NICE guideline on pneumonia.</i></p>	<p>First choice (high severity in adults or severe in children): co-amoxiclav AND (if atypical pathogens suspected)</p>	500/125mg TDS		5 days*		
		clarithromycin OR	500mg BD				
		erythromycin (in pregnancy)	500mg QDS				
		<p>Alternative first choice (high severity in adults): levofloxacin (consider safety issues)</p>	500mg BD				
		IV antibiotics (<i>click on visual summary</i>)					
<p>Hospital acquired pneumonia</p> <p>NICE Public Health England</p> <p>From NICE update Sep 2019</p>	<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 <i>the NICE guideline on sepsis</i>).</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>First choice (non-severe and not higher risk of resistance): co-amoxiclav</p>	500/125mg TDS		5 days then review		
		<p>Adult alternative first choice (non-severe and not higher risk of resistance): Choice based on specialist microbiological advice and local resistance data Options include: doxycycline</p>	200mg on day 1, then 100mg OD	-			
		cefalexin (caution in penicillin allergy)	500mg BD or TDS (can increase to 1g to 1.5g TDS or QDS)	-	5 days then review		
		co-trimoxazole	960mg BD	-			
		levofloxacin (only if switching from IV levofloxacin with specialist advice; consider safety issues)	500mg OD or BD	-			

	<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. 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.</i></p>	<p>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</p>	-		5 days then review	
		<p>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</p>				

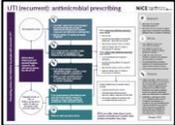
Urinary tract infections

<p>Lower urinary tract infection</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Advise paracetamol or ibuprofen for pain.</p> <p>Non-pregnant women: back up antibiotic (to use if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic.</p> <p>Pregnant women, men, children or young people: immediate antibiotic.</p> <p>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.</p> <p>With Nitrofurantoin - advise patient on the risk of pulmonary and hepatic fibrosis, and the symptoms to report if they develop during treatment. Reactions can develop acutely or insidiously [HMMC].</p>	<p>Non-pregnant women first choice: nitrofurantoin (if eGFR ≥45 ml/minute) OR</p>	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		trimethoprim (if low risk of resistance)	200mg BD	-	3 days	
		<p>Non-pregnant women second choice: nitrofurantoin (if eGFR ≥45 ml/minute and not first choice) OR</p>	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		pivmecillinam (a penicillin) OR	400mg initial dose, then 200mg TDS	-	3 days	
		fosfomycin	3g single dose sachet	-	single dose	

<p>If people have symptoms of pyelonephritis (such as fever) or a complicated UTI, see acute pyelonephritis (upper urinary tract infection) for antibiotic choices.</p> <p><i>For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care</i></p>	<p>Pregnant women first choice: nitrofurantoin (if not used as first choice and avoid at term) – if eGFR ≥ 45 ml/minute</p>	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days
	<p>Pregnant women second choice: amoxicillin (only if culture results available and susceptible) OR</p>	500mg TDS	-	7 days
	<p>cefalexin</p>	500mg BD	-	7 days
	<p>Treatment of asymptomatic bacteriuria in pregnant women: choose from nitrofurantoin (avoid at term), amoxicillin or cefalexin based on recent culture and susceptibility results</p>			
	<p>Men first choice: trimethoprim OR</p>	200mg BD	-	7 days
	<p>nitrofurantoin (if eGFR ≥ 45 ml/minute)</p>	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days
	<p>Men second choice: consider alternative diagnoses basing antibiotic choice on recent culture and susceptibility results</p>			
	<p>Children and young people (3 months and over) first choice: trimethoprim (if low risk of resistance) OR</p>	-		-
	<p>nitrofurantoin (if eGFR ≥ 45 ml/minute)</p>	-		
	<p>Children and young people (3 months and over) second choice: nitrofurantoin (if eGFR ≥ 45 ml/minute and not used as first choice) OR</p>	-		

		amoxicillin (only if culture results available and susceptible) OR	-				
		cefalexin	-				
<p>Acute pyelonephritis (upper urinary tract)</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Advise paracetamol (+/- low-dose weak opioid) for pain for people over 12. Offer an antibiotic.</p> <p>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.</p> <p>Avoid antibiotics that don't achieve adequate levels in renal tissue, such as nitrofurantoin</p> <p><i>For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care</i></p>	Non-pregnant women and men first choice: cefalexin OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7–10 days		
		co-amoxiclav (only if culture results available and susceptible) OR	500/125mg TDS	-	7–10 days		
		trimethoprim (only if culture results available and susceptible) OR	200mg BD	-	14 days		
		ciprofloxacin (consider safety issues)	500mg BD	-	7 days		
		Non-pregnant women and men IV antibiotics (click on visual summary)					
		Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7–10 days		
		Pregnant women second choice or IV antibiotics (click on visual summary)					
		Children and young people (3 months and over) first choice: cefalexin OR	-		-		
		co-amoxiclav (only if culture results available and susceptible)	-		-		
Children and young people (3 months and over) IV antibiotics (click on visual summary)							



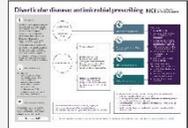
<p>Recurrent urinary tract infection</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Recurrent urinary tract infection (UTI) in adults is defined as repeated UTI with a frequency of 2 or more UTIs in the last 6 months or 3 or more UTIs in the last 12.</p>	<p>First choice antibiotic prophylaxis: trimethoprim (avoid during whole pregnancy period) OR</p>	<p>200mg single dose when exposed to a trigger or 100mg at night</p>		-	
	<p>Recurrent UTI is diagnosed in children and young people under 16 years if they have:</p> <ul style="list-style-type: none"> • 2 or more episodes of UTI with acute pyelonephritis/upper UTI or • 1 episode of UTI with acute pyelonephritis plus 1 or more episode of UTI with cystitis/lower UTI or • 3 or more episodes of UTI with cystitis/lower UTI. [HMMC] CKS 	<p>nitrofurantoin (avoid at term in pregnancy) - if eGFR \geq45 ml/minute</p>	<p>100mg single dose when exposed to a trigger or 50 to 100mg at night</p>		-	
		<p>Second choice antibiotic prophylaxis: amoxicillin OR</p>	<p>500mg single dose when exposed to a trigger or 250mg at night</p>		-	
	<p>First advise about behavioural and personal hygiene measures, and self-care (with D-mannose or cranberry products) to reduce the risk of UTI.</p> <p>For postmenopausal women, if no improvement, consider vaginal oestrogen (review within 12 months).</p> <p>For non-pregnant women, if no improvement, consider single-dose antibiotic prophylaxis for exposure to a trigger (review within 6 months).</p> <p>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).</p> <p>With Nitrofurantoin- advise patient on the risk of pulmonary and hepatic fibrosis, and the symptoms to report if they develop during treatment. Reactions can develop acutely or insidiously [HMMC].</p>	<p>cefalexin</p>	<p>500mg single dose when exposed to a trigger or 125mg at night</p>		-	

	<i>For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care</i>					
Catheter-associated urinary tract infection NICE Public Health England From NICE update Nov 2018	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. Give a dose of antibiotic prior to removal. [HMMC] and 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. With Nitrofurantoin- advise patient on the risk of pulmonary and hepatic fibrosis, and the symptoms to report if they develop during treatment. Reactions can develop acutely or insidiously [HMMC]. <i>For detailed information click on the visual summary. See also the Public Health England</i>	Non-pregnant women and men first choice if no upper UTI symptoms: nitrofurantoin (if eGFR ≥ 45 ml/minute) OR	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		trimethoprim (if low risk of resistance) OR	200mg BD	-		
		amoxicillin (only if culture results available and susceptible)	500mg TDS	-		
		Non-pregnant women and men second choice if no upper UTI symptoms: pivmecillinam (a penicillin)	400mg initial dose, then 200mg TDS	-	7 days	
		Non-pregnant women and men first choice if upper UTI symptoms: cefalexin OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7–10 days	
		co-amoxiclav (only if culture results available and susceptible) OR	500/125mg TDS	-		
		trimethoprim (only if culture results available and susceptible) OR	200mg BD	-	14 days	
		ciprofloxacin (consider safety issues)	500mg BD	-	7 days	
		Non-pregnant woman and men IV antibiotics (click on visual summary)				

	urinary tract infection: diagnostic tools for primary care	Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7–10 days			
		Pregnant woman second choice or IV antibiotics (<i>click on visual summary</i>)						
		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)	-					
Children and young people (3 months and over) IV antibiotics (<i>click on visual summary</i>)								
Acute prostatitis NICE Public Health England From NICE update Oct 2018	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). <i>For detailed information click on the visual summary.</i>	First choice (guided by susceptibilities when available): ciprofloxacin (consider safety issues) OR	500mg BD	-	14 days then review			
		ofloxacin (consider safety issues) OR	200mg BD	-				
		If fluoroquinolone not appropriate (seek specialist advice; guided by susceptibilities when available): trimethoprim	200mg BD	-				
		Second choice (after discussion with specialist): levofloxacin (consider safety issues) OR	500mg OD	-	14 days, then review			
		co-trimoxazole	960mg BD	-				

		IV antibiotics (click on visual summary)				
Meningitis						
Suspected meningococcal disease Public Health England From NICE update Feb 2019	Transfer all patients to hospital immediately. If time before hospital admission, if suspected meningococcal septicaemia or non-blanching rash, give IV benzylpenicillin as soon as possible. Do not give IV antibiotics if there is a definite history of anaphylaxis rash is not a contraindication.	IV or IM benzylpenicillin	Child <1 year: 300 mg Child 1–9 years: 600 mg Adult/child 10+ years: 1.2g		Stat dose; give IM, if vein cannot be accessed	<i>Not available. Access the supporting evidence and rationales on the PHE website</i>
Prevention of secondary case of meningitis PHE From NICE update Jul 2019	Only prescribe following advice from your local health protection specialist/consultant: ☎ 03003038537 (Option 1) Out of hours: contact on-call doctor: ☎ 01603 481 221 Expert advice is available for managing clusters of meningitis. Please alert the appropriate organisation to any cluster situation. Public Health England, Colindale ☎ 0208 200 4400 <i>Access the supporting evidence and rationales on the PHE website.</i>					
Gastrointestinal tract infections						
Oral candidiasis Public Health England From NICE update Oct 2018	Topical azoles are more effective than topical nystatin. Oral candidiasis is rare in immunocompetent adults; consider undiagnosed risk factors, including HIV. Use 50 mg fluconazole if extensive/severe candidiasis; if HIV or immunocompromised, use 100 mg fluconazole.	miconazole oral gel If not tolerated: nystatin suspension fluconazole capsules	2.5ml of 24mg/ml QDS (hold in mouth after food) 1ml; 100,000units/mL QDS (half in each side) 50mg - 100mg OD	  	7 days; continue for 7 days after resolved 7 days; continue for 2 days after resolved 7 to 14 days	<i>Not available. Access supporting evidence and rationales on the PHE website</i>

<p>Infectious diarrhoea</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Refer previously healthy children with acute painful or bloody diarrhoea, to exclude E. coli O157 infection.</p> <p>Antibiotic therapy is not usually indicated unless patient is systemically unwell. If systemically unwell and campylobacter suspected (such as undercooked meat and abdominal pain), consider clarithromycin 250–500mg BD for 5–7 days, if treated early (within 3 days).</p> <p>If giardia is confirmed or suspected: West Essex: tinidazole 2g single dose [MOPB] Hertfordshire: metronidazole 400 mg three times a day for 5 days, or 2 grams once a day for 3 days [HMMC].</p> <p>Access the supporting evidence and rationales on the PHE website.</p>					
<p>Helicobacter pylori</p> <p>Public Health England</p> <p>See PHE quick reference guide for diagnostic advice: PHE H. pylori</p> <p>From NICE update Feb 2019</p>	<p>Always test for <i>H.pylori</i> before giving antibiotics. Treat all positives, if known DU, GU or low-grade MALToma. NNT in non-ulcer dyspepsia: 14</p> <p>Do not offer eradication for GORD.</p> <p>Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection.</p> <p>Penicillin allergy: Use PPI PLUS clarithromycin PLUS metronidazole. If previous clarithromycin, use PPI PLUS bismuth salt PLUS metronidazole PLUS tetracycline hydrochloride.</p> <p>Relapse and no penicillin allergy: Use PPI PLUS amoxicillin PLUS clarithromycin or metronidazole (whichever was not used first choice)</p> <p>Relapse and previous metronidazole and clarithromycin: Use PPI PLUS amoxicillin PLUS either tetracycline OR levofloxacin (if tetracycline not tolerated).</p> <p>Relapse and penicillin allergy (no exposure to quinolone): Use PPI PLUS metronidazole PLUS levofloxacin.</p> <p>Relapse and penicillin allergy (with exposure to quinolone): use PPI PLUS bismuth salt PLUS metronidazole PLUS tetracycline.</p> <p>Retest for H. pylori: Post DU/GU, or relapse after second choice therapy using UBT or SAT consider referral for endoscopy and culture.</p>	<p>Always use PPI First choice and first relapse and no penicillin allergy PPI PLUS 2 antibiotics</p> <p>amoxicillin PLUS</p> <p>clarithromycin OR</p> <p>metronidazole</p> <p>Penicillin allergy and previous clarithromycin: PPI WITH bismuth subsalicylate PLUS 2 antibiotics</p> <p>bismuth subsalicylate PLUS</p> <p>metronidazole PLUS</p> <p>tetracycline</p> <p>Relapse and previous metronidazole and clarithromycin: PPI PLUS 2 antibiotics</p> <p>amoxicillin PLUS</p> <p>tetracycline OR</p>	<p>-</p> <p>1000mg BD</p> <p>500mg BD</p> <p>400mg BD</p> <p>-</p> <p>525mg QDS</p> <p>400mg BD</p> <p>500mg QDS</p> <p>-</p> <p>1000mg BD</p> <p>500mg QDS</p>	<p></p> <p></p> <p></p> <p></p> <p>-</p> <p></p> <p>-</p> <p></p>	<p>7 days</p> <p>MALToma</p> <p>14 days</p>	<p>Not available. Access supporting evidence and rationales on the PHE website</p>

		levofloxacin (if tetracycline cannot be used)	250mg BD						
		Third choice on advice: PPI WITH		-	10 days				
		bismuth subsalicylate PLUS	525mg QDS	-					
		2 antibiotics as above not previously used OR		-					
		rifabutin OR	150mg BD	-					
		Furazolidone	200mg BD	-					
<p>Acute diverticulitis</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Nov 2019</p>	<p>Acute diverticulitis and systemically well: Consider no antibiotics, offer simple analgesia (for example paracetamol), advise to re-present if symptoms persist or worsen.</p> <p>Acute diverticulitis and systemically unwell, immunosuppressed or significant comorbidity: offer an antibiotic.</p> <p>Give oral antibiotics if person not referred to hospital for suspected complicated acute diverticulitis.</p> <p>Give IV antibiotics if admitted to hospital with suspected or confirmed complicated acute diverticulitis (including diverticular abscess).</p> <p>If CT-confirmed uncomplicated acute diverticulitis, review the need for antibiotics.</p> <p>* A longer course may be needed based on clinical assessment.</p>	First choice (uncomplicated acute diverticulitis): co-amoxiclav	500/125 TDS	-	5 days*				
		Penicillin allergy or co-amoxiclav unsuitable: cefalexin (caution in penicillin allergy) AND metronidazole OR	cefalexin: 500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections) metronidazole: 400mg TDS	-					
		trimethoprim AND metronidazole OR	trimethoprim: 200mg BD metronidazole: 400mg TDS	-					
		ciprofloxacin (only if switching from IV ciprofloxacin with specialist advice; consider safety issues) AND metronidazole	ciprofloxacin: 500mg BD metronidazole: 400mg TDS	-					
		For IV antibiotics in complicated acute diverticulitis (including diverticular abscess) see visual summary							

Clostridioides difficile (C.difficile) Public Health England From NICE update Oct 2018	Review need for antibiotics, PPIs, and antiperistaltic agents and discontinue use where possible. Mild cases may respond without metronidazole 70% respond to metronidazole in 5 days; 92% respond to metronidazole in 14 days. [HMMC] If severe (T>38.5, or WCC>15, rising creatinine, or signs/symptoms of severe colitis): treat with oral vancomycin, review progress closely, and consider hospital referral.	First episode: metronidazole	400mg TDS		10–14 days	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
		Severe, type 027 or recurrent: oral vancomycin	125mg QDS		10–14 days [HMMC]	
		Recurrent or second choice: Fidaxomicin On Microbiologist advice only [HMMC and MOPB]	200mg BD	-	10 days	
Traveller's diarrhoea Public Health England From NICE update Oct 2018	Prophylaxis rarely, if ever, indicated. Consider standby antimicrobial only for patients at high risk of severe illness or visiting high-risk areas. When supplied please issue as a private prescription [HMMC and MOPB] .	Standby (private prescription) [HMMC and MOPB]: azithromycin	500mg OD	-	1–3 days	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
Threadworm Public Health England From NICE update Nov 2017	Treat all household contacts at the same time. Advise hygiene measures for 2 weeks (hand hygiene; pants at night; morning shower, including perianal area). Wash sleepwear, bed linen, and dust and vacuum. Child <6 months , add perianal wet wiping or washes 3 hourly.	Child >6 months: mebendazole	100mg stat		1 dose; repeat in 2 weeks if persistent	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
		Child <6 months or pregnant (at least in first trimester): only hygiene measure for 6 weeks	-	-	-	
Genital tract infections						
STI screening Public Health England From NICE update Nov 2017	People with risk factors should be screened for chlamydia, gonorrhoea, HIV and syphilis. Refer individual and partners to GUM. Risk factors: <25 years; no condom use; recent/frequent change of partner; symptomatic or infected partner; area of high HIV. <i>Access the supporting evidence and rationales on the PHE website.</i>					

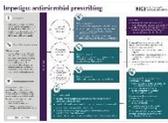
Chlamydia trachomatis/ urethritis Public Health England From NICE update July 2019	Opportunistically screen all sexually active patients aged 15 to 24 years for chlamydia annually and on change of sexual partner. If positive, treat index case, refer to GUM and initiate partner notification, testing and treatment. As single dose azithromycin has led to increased resistance in GU infections, doxycycline should be used first choice for chlamydia and urethritis. Advise patient with chlamydia to abstain from sexual intercourse until doxycycline is completed or for 7 days after treatment with azithromycin (14 days after azithromycin started and until symptoms resolved if urethritis). If chlamydia, test for reinfection at 3 to 6 months following treatment if under 25 years; or consider if over 25 years and high risk of re-infection. Second choice, pregnant, breastfeeding, allergy, or intolerance: azithromycin is most effective. As lower cure rate in pregnancy, test for cure at least 3 weeks after end of treatment. Consider referring all patients with symptomatic urethritis to GUM as testing should include <i>Mycoplasma genitalium</i> and <i>Gonorrhoea</i> . If <i>M.genitalium</i> is proven, use doxycycline followed by azithromycin using the same dosing regimen and advise to avoid sex for 14 days after start of treatment and until symptoms have resolved.	First choice: doxycycline	100mg BD	-	7 days	Not available. Access supporting evidence and rationales on the PHE website
		Second choice/ pregnant/breastfeeding/ allergy/intolerance: azithromycin	1000mg then 500mg OD		Stat 2 days (total 3 days)	
Epididymitis Public Health England From NICE update Nov 2017	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.	doxycycline OR	100mg BD	-	10 to 14 days	Not available. Access supporting evidence and rationales on the PHE website
		ofloxacin OR	200mg BD		14 days	
		ciprofloxacin	500mg BD		10 days	

Vaginal candidiasis Public Health England From NICE update Oct 2018	All topical and oral azoles give over 80% cure. Pregnant: avoid oral azoles, the 7 day courses are more effective than shorter ones. Recurrent (>4 episodes per year): 150mg oral fluconazole every 72 hours for 3 doses induction, followed by 1 dose once a week for 6 months maintenance.	clotrimazole OR	500mg pessary	-	Stat	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		clotrimazole OR	100mg pessary		6 nights	
		oral fluconazole	150mg		Stat	
		If recurrent: fluconazole (induction/maintenance)	150mg every 72 hours THEN 150mg once a week	-	3 doses 6 months	
Bacterial vaginosis Public Health England From NICE update Nov 2017	Oral metronidazole is as effective as topical treatment, and is cheaper. 7 days results in fewer relapses than 2g stat at 4 weeks. Pregnant/breastfeeding: avoid 2g dose. Treating partners does not reduce relapse.	oral metronidazole OR	400mg BD OR 2000mg	-	7 days OR Stat	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		metronidazole 0.75% vaginal gel OR	5g applicator at night		5 nights	
		clindamycin 2% cream	5g applicator at night		7 nights	
Genital herpes Public Health England From NICE update Nov 2017	Advise: saline bathing, analgesia, or topical lidocaine for pain, and discuss transmission. First episode: treat within 5 days if new lesions or systemic symptoms, and refer to GUM. Recurrent: self-care if mild, or immediate short course antiviral treatment, or suppressive therapy if more than 6 episodes per year.	oral aciclovir OR	400mg TDS 800mg TDS (if recurrent)	-	5 days	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		valaciclovir OR	500mg BD		2 days	
		famciclovir	250mg TDS		5 days	
			1000mg BD (if recurrent)		5 days	
					1 day	

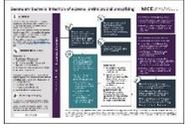
Gonorrhoea Public Health England From NICE update Feb 2019	Antibiotic resistance is now very high. Use IM ceftriaxone if susceptibility not known prior to treatment. Use Ciprofloxacin only If susceptibility is known prior to treatment and the isolate is sensitive to ciprofloxacin at all sites of infection. Refer to GUM. Test of cure is essential.	ceftriaxone OR	1000mg IM	-	Stat	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		Ciprofloxacin (only if known to be sensitive)	500mg		Stat	
Trichomoniasis Public Health England From NICE update Nov 2017	Oral treatment needed as extravaginal infection common. Treat partners, and refer to GUM for other STIs. Pregnant/breastfeeding: avoid 2g single dose metronidazole ; clotrimazole for symptom relief (not cure) if metronidazole declined.	metronidazole	400mg BD 2g (more adverse effects)	-	5–7 day Stat	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		Pregnancy to treat symptoms: clotrimazole	100mg pessary at night		6 nights	
Pelvic inflammatory disease (PID) Public Health England From NICE update Feb 2019	Refer women and sexual contacts to GUM. Raised CRP supports diagnosis, absent pus cells in HVS smear good negative predictive value. Exclude: ectopic pregnancy, 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.	First choice therapy: ceftriaxone PLUS	1000mg IM	-	Stat	<i>Not available.</i> Access supporting evidence and rationales on the PHE website
		metronidazole PLUS	400mg BD		14 days	
		doxycycline	100mg BD		14 days	
		Second choice therapy: metronidazole PLUS	400mg BD		14 days	
		ofloxacin OR	400mg BD		14 days	
		moxifloxacin alone (first choice for <i>M. genitalium</i> associated PID)	400mg OD		14 days	

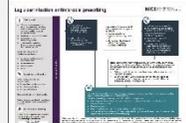
Skin and soft tissue infections

Note: Refer to [RCGP Skin Infections](#) online training. For MRSA, discuss therapy with microbiologist.

<p>Impetigo</p> <p>Public Health England</p> <p>From NICE update Feb 2020</p>	<p>Localised non-bullous impetigo: Hydrogen peroxide 1% cream (other topical antiseptics are available but no evidence for impetigo). If hydrogen peroxide unsuitable or ineffective, short-course topical antibiotic.</p> <p>Widespread non-bullous impetigo: Short-course topical or oral antibiotic. Take account of person's preferences, practicalities of administration, previous use of topical antibiotics because antimicrobial resistance can develop rapidly with extended or repeated use, and local antimicrobial resistance data.</p> <p>Bullous impetigo, systemically unwell, or high risk of complications: Short-course oral antibiotic. Do not offer combination treatment with a topical and oral antibiotic to treat impetigo. *5 days is appropriate for most, can be increased to 7 days based on clinical judgement. <i>For detailed information click on the visual summary.</i></p>	<p>Topical antiseptic:</p> <table border="1" data-bbox="927 137 1935 220"> <tr> <td>Hydrogen peroxide 1%</td> <td>BD or TDS</td> <td></td> <td>5 days*</td> </tr> </table> <p>Topical antibiotic:</p> <table border="1" data-bbox="927 260 1935 432"> <tr> <td>First choice: fusidic acid 2%</td> <td>TDS</td> <td rowspan="2"></td> <td rowspan="2">5 days*</td> </tr> <tr> <td>Fusidic acid resistance suspected or confirmed: mupirocin 2%</td> <td>TDS</td> </tr> </table> <p>Oral antibiotic:</p> <table border="1" data-bbox="927 472 1935 715"> <tr> <td>First choice: flucloxacillin</td> <td>500mg QDS</td> <td rowspan="3"></td> <td rowspan="3">5 days*</td> </tr> <tr> <td>Penicillin allergy or flucloxacillin unsuitable: clarithromycin OR</td> <td>250mg BD</td> </tr> <tr> <td>erythromycin (in pregnancy)</td> <td>250 to 500mg QDS</td> </tr> </table> <p>If MRSA suspected or confirmed – consult local microbiologist</p>	Hydrogen peroxide 1%	BD or TDS		5 days*	First choice: fusidic acid 2%	TDS		5 days*	Fusidic acid resistance suspected or confirmed: mupirocin 2%	TDS	First choice: flucloxacillin	500mg QDS		5 days*	Penicillin allergy or flucloxacillin unsuitable: clarithromycin OR	250mg BD	erythromycin (in pregnancy)	250 to 500mg QDS	
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erythromycin (in pregnancy)	250 to 500mg QDS																				
<p>Cold sores [HMMC]</p>	<p>Most resolve after 5 days without treatment. Topical antivirals applied prodromally can reduce duration by 12 to 18 hours.</p> <p>If frequent, severe, and predictable triggers: consider oral prophylaxis West Essex: aciclovir 400mg, twice daily, for 5 to 7 days [NICE and MOPB] Hertfordshire: (based on local guidance) aciclovir 400 mg, three times a day for severe recurrent cold sores, stopping after 6 -12 months to reassess recurrence frequency – consider restarting after 2 or more recurrences [HMMC].</p>																				
<p>PVL-SA</p> <p>Public Health England</p> <p>From NICE update Nov 2017</p>	<p>Panton-Valentine leukocidin (PVL) is a toxin produced by 20.8 to 46% of <i>S. aureus</i> from boils/abscesses. PVL strains are rare in healthy people, but severe.</p> <p>Suppression therapy should only be started after primary infection has resolved, as ineffective if lesions are still leaking.</p> <p>Risk factors for PVL: recurrent skin infections; invasive infections; MSM; if there is more than one case in a home or close community (school children; military personnel; nursing home residents; household contacts).</p> <p><i>Access the supporting evidence and rationales on the PHE website.</i></p>																				

<p>Eczema (bacterial infection)</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Mar 2021</p>	<p>Manage underlying eczema and flares with treatments such as emollients and topical corticosteroids, whether antibiotics are given or not.</p> <p>Symptoms and signs of secondary bacterial infection can include: weeping, pustules, crusts, no response to treatment, rapidly worsening eczema, fever and malaise.</p> <p>Not all flares are caused by a bacterial infection, so will not respond to antibiotics.</p> <p>Eczema is often colonised with bacteria but may not be clinically infected.</p> <p>Do not routinely take a skin swab.</p> <p>Not systemically unwell: Do not routinely offer either a topical or oral antibiotic.</p> <p>If an antibiotic is offered, when choosing between a topical or oral antibiotic, take account of patient preferences, extent and severity of symptoms or signs, possible adverse effects, and previous use of topical antibiotics because antimicrobial resistance can develop rapidly with extended or repeated use.</p> <p>Systemically unwell: Offer an oral antibiotic.</p>	<p>If not systemically unwell, do not routinely offer either a topical or oral antibiotic</p>			
		<p>Topical antibiotic (if a topical is appropriate). For localised infections only:</p>			
		<p>First choice: fusidic acid 2%</p>	TDS		5 to 7 days
		<p>Oral antibiotic:</p>			
		<p>First choice: flucloxacillin</p>	500mg QDS		5 to 7 days
<p>Penicillin allergy or flucloxacillin unsuitable: clarithromycin OR</p>	250mg BD (can be increased to 500mg BD for severe infections)				
erythromycin (in pregnancy)	250mg to 500mg QDS				
<p>If MRSA suspected or confirmed – consult local microbiologist</p>					



	<p>If there are symptoms or signs of cellulitis, see cellulitis and erysipelas.</p> <p><i>For detailed information click on the visual summary.</i></p>																									
<p>Leg ulcer infection</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Feb 2020</p>	<p>Manage any underlying conditions to promote ulcer healing.</p> <p>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.</p> <p>When prescribing antibiotics, take account of severity, risk of complications and previous antibiotic use.</p> <p><i>For detailed information click on the visual summary.</i></p>	<p>First choice:</p> <table border="1"> <tr> <td>flucloxacillin</td> <td>500mg to 1g QDS</td> <td>-</td> <td>7 days</td> </tr> </table> <p>Penicillin allergy or if flucloxacillin unsuitable:</p> <table border="1"> <tr> <td>doxycycline OR</td> <td>200mg on day 1, then 100mg OD (can be increased to 200mg daily)</td> <td>-</td> <td rowspan="3">7 days</td> </tr> <tr> <td>clarithromycin OR</td> <td>500mg BD</td> <td></td> </tr> <tr> <td>erythromycin (in pregnancy)</td> <td>500mg QDS</td> <td></td> </tr> </table> <p>Second choice:</p> <table border="1"> <tr> <td>co-amoxiclav OR</td> <td>500/125 TDS</td> <td>-</td> <td rowspan="2">7 days</td> </tr> <tr> <td>co-trimoxazole (in penicillin allergy)</td> <td>960mg BD</td> <td></td> </tr> </table> <p>For antibiotic choices if severely unwell or MRSA suspected or confirmed, click on the visual summary</p>	flucloxacillin	500mg to 1g QDS	-	7 days	doxycycline OR	200mg on day 1, then 100mg OD (can be increased to 200mg daily)	-	7 days	clarithromycin OR	500mg BD		erythromycin (in pregnancy)	500mg QDS		co-amoxiclav OR	500/125 TDS	-	7 days	co-trimoxazole (in penicillin allergy)	960mg BD				
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co-amoxiclav OR	500/125 TDS	-	7 days																							
co-trimoxazole (in penicillin allergy)	960mg BD																									
<p>Acne</p> <p>[HMMC]</p>	<p>For West Essex CCG guidelines please refer to NICE GUIDANCE</p> <p>For Herts CCGs :</p> <p>Mild / Moderate: treat in primary care</p> <p>Severe acne or acne that has started to cause scarring: Always refer to a dermatologist</p> <p>First choice: Topical retinoid or benzoyl peroxide (start with lower-strength preparations).</p>	<p>HMMC</p> <p>First choice:</p> <table border="1"> <tr> <td>Topical benzoyl peroxide OR</td> <td>1–2 times a day</td> <td>-</td> <td rowspan="2">6–8 weeks</td> </tr> <tr> <td>Topical adapalene 0.1%</td> <td>Thinly OD</td> <td></td> </tr> </table> <p>Second choice:</p> <table border="1"> <tr> <td>Epiduo® 0.1% / 2.5% gel [HMMC approved]</td> <td>Thinly OD</td> <td>-</td> <td>6–8 weeks</td> </tr> </table> <p>Third choice:</p> <table border="1"> <tr> <td>lymecycline</td> <td>408mg OD</td> <td>-</td> <td rowspan="2">6–12 weeks*</td> </tr> <tr> <td>If no improvement (with lymecycline): doxycycline</td> <td>100mg OD</td> <td>-</td> </tr> </table>	Topical benzoyl peroxide OR	1–2 times a day	-	6–8 weeks	Topical adapalene 0.1%	Thinly OD		Epiduo® 0.1% / 2.5% gel [HMMC approved]	Thinly OD	-	6–8 weeks	lymecycline	408mg OD	-	6–12 weeks*	If no improvement (with lymecycline): doxycycline	100mg OD	-			<p><i>Not available. Access supporting evidence and rationales on the PHE website</i></p>			
Topical benzoyl peroxide OR	1–2 times a day	-	6–8 weeks																							
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If no improvement (with lymecycline): doxycycline	100mg OD	-																								

<p>With or without a topical antibiotic.</p> <p>Second choice: Epiduo® (adapalene 0.1%, benzoyl peroxide 2.5%) for use when monotherapy with benzoyl peroxide or adapalene is not considered appropriate.</p> <p>Third choice: Oral antibiotic for 6-12 weeks initially then reassess.</p> <p>*If there is an improvement continue for total 3 months then try to stop the antibiotic but always continue topical treatment.</p> <p>If acne worsens on stopping oral antibiotics should be restated. May need multiple courses or consider referral to dermatology department.</p> <p>The antibiotics used in acne are being used for their anti-inflammatory effects on the skin, which is why they are used for long courses and repeat courses may be needed.</p> <p>Acne is a chronic disease and lasts for several years in most teenagers who are affected so repeated/continued treatment is usually needed.</p> <p>If patient does not respond to 2 different oral antibiotics or acne becomes nodulo-cystic or scarring refer to dermatology</p>					
	<p>Consider erythromycin if tetracyclines are contraindicated or have been ineffective</p>	<p>500mg BD</p>			

	<i>For detailed information click on Acne treatment pathway - Primary Care Dermatology Society</i>						
Cellulitis and erysipelas NICE Public Health England From NICE update Sept 2019	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.</i>	First choice:					
		flucloxacillin	500mg to 1 g QDS			5 to 7 days*	
		Penicillin allergy or if flucloxacillin unsuitable:					
		clarithromycin OR	500mg BD			5 to 7 days*	
		erythromycin (in pregnancy) OR	500mg QDS				
		doxycycline (adults only) OR	200mg on day 1, then 100mg OD Can be increased to 200mg daily				
		co-amoxiclav (children only: not in penicillin allergy)	-				
		If infection near eyes or nose:					
		co-amoxiclav	500/125mg TDS			7 days*	
		If infection near eyes or nose (penicillin allergy):					
		clarithromycin AND	500mg BD			7 days*	
metronidazole (only add in children if anaerobes suspected)	400mg TDS						
For alternative choice antibiotics for severe infection, suspected or confirmed MRSA infection and IV antibiotics click on the visual summary							
Diabetic foot infection NICE	In diabetes, all foot wounds are likely to be colonised with bacteria. Diabetic foot infection has at least 2 of: local swelling or induration; erythema; local tenderness or	Mild infection: first choice					
		flucloxacillin	500mg to 1g QDS	-		7 days*	
		Mild infection (penicillin allergy):					
		clarithromycin OR	500mg BD	-		7 days*	
erythromycin (in pregnancy) OR	500mg QDS						

<p>Public Health England</p> <p>From NICE update Oct 2019</p>	<p>pain; local warmth; purulent discharge.</p> <p>Severity is classified as:</p> <p>Mild: local infection with 0.5 to less than 2cm erythema</p> <p>Moderate: local infection with more than 2cm erythema or involving deeper structures (such as abscess, osteomyelitis, septic arthritis or fasciitis)</p> <p>Severe: local infection with signs of a systemic inflammatory response.</p> <p>Start antibiotic treatment as soon as possible.</p> <p>Take samples for microbiological testing before, or as close as possible to, the start of treatment</p> <p>When choosing an antibiotic, take account of severity, risk of complications, previous microbiological results and antibiotic use, and patient preference.</p> <p>*A longer course (up to a further 7 days) may be needed based on clinical assessment. However, skin does take time to return to normal, and full resolution at 7 days is not expected.</p> <p>Do not offer antibiotics to prevent diabetic foot infection.</p> <p><i>For detailed information click on the visual summary.</i></p>	<p>doxycycline</p>	<p>200mg on day 1, then 100mg OD Can be increased to 200mg daily</p>			<p>For antibiotic choices for moderate or severe infection, infections where <i>Pseudomonas aeruginosa</i> or MRSA is suspected or confirmed, and IV antibiotics click on the visual summary</p> 
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<p>Insect bites and stings</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Sep 2020</p>	<p>Most insect bites or stings will not need antibiotics.</p> <p>Do not offer an antibiotic if there are no symptoms or signs of infection.</p> <p>If there are symptoms or signs of infection, see cellulitis and erysipelas.</p>	-	-	-	-	
<p>Human and animal bites</p> <p>NICE</p> <p>Public Health England</p> <p>From NICE update Nov 2020</p>	<p>Offer an antibiotic for a human or animal bite if there are symptoms or signs of infection, such as increased pain, inflammation, fever, discharge or an unpleasant smell. Take a swab for microbiological testing if there is discharge (purulent or non-purulent) from the wound.</p> <p>Do not offer antibiotic prophylaxis if a human or animal bite has not broken the skin.</p> <p>Human bite:</p> <p>Offer antibiotic prophylaxis if the human bite has broken the skin and drawn blood.</p> <p>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.</p> <p>Cat bite:</p> <p>Offer antibiotic prophylaxis if the cat bite has broken the skin and drawn blood.</p>	<p>First choice:</p>				
		co-amoxiclav	250/125mg or 500/125mg TDS		3 days for prophylaxis 5 days for treatment*	
		<p>Penicillin allergy or co-amoxiclav unsuitable:</p>				
		metronidazole AND	400mg TDS		3 days for prophylaxis 5 days for treatment*	
		doxycycline	200mg on day 1, then 100mg or 200mg daily			
		<p>seek specialist advice in pregnancy</p>				
		<p>If MRSA suspected or confirmed – consult local microbiologist</p>				
		<p>IV antibiotics (<i>click on visual summary</i>)</p>				

	<p>Consider antibiotic prophylaxis if the cat bite has broken the skin but not drawn blood if the wound could be deep.</p> <p>Dog or other traditional pet bite (excluding cat bite):</p> <p>Do not offer antibiotic prophylaxis if the bite has broken the skin but not drawn blood.</p> <p>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).</p> <p>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.</p> <p>*course length can be increased to 7 days (with review) based on clinical assessment of the wound</p>					
<p>Scabies</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>First choice permethrin: Treat whole body from ear/chin downwards, and under nails.</p> <p>If using permethrin and patient is under 2 years, elderly or immunosuppressed, or if treating with malathion: also treat face and scalp.</p> <p>Home/sexual contacts: treat within 24 hours.</p>	<p>permethrin</p> <p>Permethrin allergy: malathion</p>	<p>5% cream</p> <p>0.5% aqueous liquid</p>	 	<p>2 applications, 1 week apart</p>	<p><i>Not available. Access supporting evidence and rationales on the PHE website</i></p>
Mastitis		Flucloxacillin	500mg QDS	-	10–14 days	

<p>Public Health England</p> <p>From NICE update Nov 2017</p>	<p><i>S. aureus</i> is the most common infecting pathogen. Suspect if woman has: a painful breast; fever and/or general malaise; a tender, red breast.</p> <p>Breastfeeding: oral antibiotics are appropriate, where indicated. Women should continue feeding, including from the affected breast.</p>	<p>Penicillin allergy: erythromycin OR</p>	<p>250–500mg QDS</p>			<p>Not available. Access supporting evidence and rationales on the PHE website</p>
<p>Dermatophyte infection: skin</p> <p>Public Health England</p> <p>From NICE update Feb 2019</p>	<p>Most cases: Use terbinafine as fungicidal, treatment time shorter and more effective than with fungistatic imidazoles or undecenoates. If candida possible, use imidazole.</p> <p>If intractable, or scalp: send skin scrapings and if infection confirmed: use oral terbinafine or itraconazole.</p> <p>Scalp: oral therapy, and discuss with specialist.</p>	<p>topical terbinafine OR</p>	<p>1% OD to BD</p>		<p>1–4 weeks</p>	<p>Not available. Access supporting evidence and rationales on the PHE website</p>
		<p>topical imidazole</p>	<p>1% OD to BD</p>		<p>4–6 weeks</p>	
		<p>Alternative in athlete's foot: topical undecenoates (such as Mycota®)</p>	<p>OD to BD</p>			
<p>Dermatophyte infection: nail</p> <p>Public Health England</p> <p>From NICE update Oct 2018</p>	<p>Take nail clippings; start therapy only if infection is confirmed. Oral terbinafine is more effective than oral azole. Liver reactions 0.1 to 1% with oral antifungals. If candida or non-dermatophyte infection is confirmed, use oral itraconazole. Topical nail lacquer is not as effective</p> <p>To prevent recurrence: apply weekly 1% topical antifungal cream to entire toe area.</p>	<p>First choice: terbinafine</p>	<p>250mg OD</p>		<p>Fingers: 6 weeks Toes: 12 weeks</p>	<p>Not available. Access supporting evidence and rationales on the PHE website</p>
		<p>Second choice: itraconazole</p>	<p>200mg BD</p>		<p>1 week a month Fingers: 2 courses Toes: 3 courses</p>	
		<p>Stop treatment when continual, new, healthy, proximal nail growth.</p>				

	Children: seek specialist advice.					
Varicella zoster/ chickenpox Herpes zoster/ shingles Public Health England From NICE update Oct 2018	Pregnant/immunocompromised/ neonate: seek urgent specialist advice. Chickenpox: consider aciclovir if: onset of rash <24 hours, and 1 of the following: >14 years of age; severe pain; dense/oral rash; taking steroids; smoker. Give paracetamol for pain relief. Shingles: treat if >50 years (PHN rare if <50 years) and within 72 hours of rash, or if 1 of the following: active ophthalmic; Ramsey Hunt; eczema; non-truncal involvement; moderate or severe pain; moderate or severe rash. Shingles treatment if not within 72 hours: consider starting antiviral drug up to 1 week after rash onset, if high risk of severe shingles or continued vesicle formation; older age; immunocompromised; or severe pain.	First choice for chicken pox and shingles: aciclovir	800mg 5 times daily		7 days	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
		Second choice for shingles if poor compliance: <i>not for children:</i> famciclovir OR	250–500mg TDS or 750mg BD	-		
		valaciclovir	1g TDS			
Tick bites (Lyme disease)	Treatment: Treat erythema migrans empirically ; serology is often negative early in	Treatment: doxycycline	100mg BD			<i>Not available. Access supporting evidence and</i>

Public Health England From NICE update Feb 2020	infection. For other suspected Lyme disease such as neuroborreliosis (CN palsy, radiculopathy) seek advice.	First alternative: amoxicillin	1,000mg TDS		21 days	<i>rationales on the PHE website</i>
Eye infections						
Public Health England From NICE update July 2019	First choice: bath/clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting. Treat only if severe , as most cases are viral or self-limiting. Bacterial conjunctivitis: usually unilateral and also self-limiting. It is characterised by red eye with mucopurulent, not watery discharge. 65% and 74% resolve on placebo by days 5 and 7. Third choice: fusidic acid as it has less Gram-negative activity.	Second choice: Chloramphenicol 0.5% eye drop OR 1% ointment	Eye drops: 2 hourly for 2 days, then reduce frequency to 3 to 4 times daily. Eye ointment: 3 to 4 times daily or once daily at night if using antibiotic eye drops during the day		48 hours after resolution	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
		Third choice: fusidic acid 1% gel	BD			
Public Health England From NICE update Nov 2017	First choice: lid hygiene for symptom control, including: warm compresses; lid massage and scrubs; gentle washing; avoiding cosmetics. Second choice: topical antibiotics if hygiene measures are ineffective after 2 weeks. Signs of meibomian gland dysfunction , or acne rosacea: consider oral antibiotics.	Second choice: topical chloramphenicol	1% ointment BD		6-week trial	<i>Not available. Access supporting evidence and rationales on the PHE website</i>
		Third choice: oral oxytetracycline OR oral doxycycline	500mg BD 250mg BD		4 weeks (initial) 8 weeks (maint.)	
			100mg OD 50mg OD		4 weeks (initial) 8 weeks (maint.)	
Suspected dental infections in primary care (outside dental settings)						
Derived from the Scottish Dental Clinical Effectiveness Programme (SDCEP) 2013 Guidelines. This guidance is not designed to be a definitive guide to oral conditions, as GPs should not be involved in dental treatment. Patients presenting to non-dental primary care services with dental problems should be directed to their regular dentist, or if this is not possible, to the NHS 111 service (in England), who will be able to provide details of how to access emergency dental care.						

Note: Antibiotics do not cure toothache. First choice treatment is with paracetamol and/or ibuprofen; codeine is not effective for toothache.

Mucosal ulceration and inflammation (simple gingivitis) Public Health England From NICE update Nov 2017	Temporary pain and swelling relief can be attained with saline mouthwash (½ tsp salt in warm water). Use antiseptic mouthwash if more severe, and if pain limits oral hygiene to treat or prevent secondary infection. The primary cause for mucosal ulceration or inflammation (aphthous ulcers; oral lichen planus; herpes simplex infection; oral cancer) needs to be evaluated and treated.	Chlorhexidine 0.12 to 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10 ml	 	Always spit out after use. Use until lesions resolve or less pain allows for oral hygiene	Not available. Access supporting evidence and rationales on the PHE website
		hydrogen peroxide 6%	2 to 3 minutes BD/TDS with 15ml in ½ glass warm water			
Acute necrotising ulcerative gingivitis Public Health England From NICE update Nov 2017	Refer to dentist for scaling and hygiene advice. Antiseptic mouthwash if pain limits oral hygiene. Commence metronidazole if systemic signs and symptoms.	Chlorhexidine 0.12 to 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10ml		Until pain allows for oral hygiene	Not available. Access supporting evidence and rationales on the PHE website
		hydrogen peroxide 6%	2 to 3 minutes BD/TDS with 15ml in ½ glass warm water			
		metronidazole	400mg TDS		3 days	
Pericoronitis Public Health England From NICE update Nov 2017	Refer to dentist for irrigation and debridement. If persistent swelling or systemic symptoms, use metronidazole or amoxicillin. Use antiseptic mouthwash if pain and trismus limit oral hygiene.	metronidazole OR	400mg TDS		3 days	Not available. Access supporting evidence and rationales on the PHE website
		amoxicillin	500mg TDS		3 days	
		chlorhexidine 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10ml		Until less pain allows for oral hygiene	
		hydrogen peroxide 6%	2 to 3 minutes BD/TDS with 15ml in ½ glass warm water			
Dental abscess	Regular analgesia should be the first option until a dentist can be seen for urgent drainage, as repeated courses of antibiotics for abscesses are not appropriate. Repeated antibiotics alone, without drainage, are ineffective in preventing the spread of infection. Antibiotics are only recommended if there are signs of severe infection, systemic symptoms, or a high risk of complications. Patients with severe odontogenic infections (cellulitis, plus signs of sepsis; difficulty in swallowing; impending airway obstruction) should be referred urgently for hospital admission to protect airway, for surgical drainage					

Public Health England	and for IV antibiotics. The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer any advantage for most dental patients, and should only be used if there is no response to first choice drugs.					
From NICE update Oct 2018	<p>If pus is present, refer for drainage, tooth extraction, or root canal.</p> <p>Send pus for investigation.</p> <p>If spreading infection (lymph node involvement or systemic signs, that is, fever or malaise) ADD metronidazole.</p> <p>Use clarithromycin in true penicillin allergy and, if severe, refer to hospital.</p>	amoxicillin OR	500mg to 1000mg TDS		Up to 5 days; review at 3 days	Not available. Access supporting evidence and rationales on the PHE website
phenoxymethylpenicillin		500mg to 1000mg QDS				
metronidazole		400mg TDS				
Penicillin allergy: clarithromycin		500mg BD				

Abbreviations

HMMC : Herts Medicines Management Committee
MOPB : West Essex Medicines Optimisation Programme Board
PHE Public Health England

BD, twice a day;
eGFR, estimated glomerular filtration rate;
IM, intramuscular;
IV, intravenous;
Maint, maintenance;
MALToma, mucosa-associated lymphoid tissue lymphoma;
m/r, modified release;
MRSA, methicillin-resistant *Staphylococcus aureus*;
MSM, men who have sex with men;
OD, once daily;
OTC, over the counter;
QDS, 4 times a day;
stat, given immediately;
TDS, 3 times a day.

DOCUMENT HISTORY

Date	Version no.	Reason for amendment	Consultation process and approval (give dates for HMMC and MOPB approval)	Page/section	Change made	National or local guideline
May 2021	2	Update of NICE antimicrobial prescribing guidelines	HMMC 13 th May 2021 MOPB 29 th April 2021	7, 22 and 28	<ul style="list-style-type: none"> Community acquired pneumonia updated (NG 191 April 21 means guidance reverts to NG138) Insect bites included (NICE sep2020) Eczema sections updated in line with NICE guidelines. (March 21) Human and animal bites section updated in line with NICE and advice to consult local microbiologist in MRSA positive patients re-iterated (Already at start of skin section) 	National