

## Principles of Treatment

1. This guidance is based on the best available evidence but use professional judgement and involve patients in management decisions.
2. This guidance should not be used in isolation; it should be supported with patient information about safety netting, delayed/back-up antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. Materials are available on the RCGP TARGET website.
3. Prescribe an antibiotic only when there is likely to be clear clinical benefit, giving alternative, non-antibiotic self-care advice, where appropriate.
4. Consider a “no”, or back-up antibiotic strategy (previously called “delayed” strategy) for acute self-limiting upper respiratory tract infections,<sup>1A+</sup> and mild UTI symptoms. A ‘back-up’ prescription strategy allows reduction in unnecessary use of antibiotics while providing a safety net for people who may need antibiotics. Usual patient advice is to use the prescription if their condition deteriorates within 3 days, or fails to improve after 3 to 7 days. See link for further information: <https://www.rcgp.org.uk/clinical-and-research/resources/toolkits/target-antibiotic-toolkit.aspx>
5. In severe infection, or immunocompromised, it is important to initiate antibiotics as soon as possible, particularly if sepsis is suspected. If patient is not at moderate to high risk for sepsis, give information about symptom monitoring, and how to access medical care if they are concerned.
6. Where an empirical therapy has failed or special circumstances exist, microbiological advice can be obtained from our local hospital microbiology departments:  
GWH: 01793 604800  
RUH: 01225 825428  
SFT: 01722 429105
7. Limit prescribing over the telephone to exceptional cases.
8. Use simple generic antibiotics if possible. Avoid broad spectrum antibiotics (eg. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase risk of *Clostridium difficile*, MRSA and resistant UTIs.
9. Always check for antibiotic allergies. A dose and duration of treatment for adults is usually suggested, but may need modification for age, weight and renal function, or if immunocompromised. In severe or recurrent cases consider a larger dose or longer course.
10. Child doses are provided when appropriate or see the children’s BNF.
11. Refer to BNF for further dosing and interaction information (e.g. interaction between macrolides and statins) and check for hypersensitivity.
12. Have a lower threshold for initiating antibiotics exists for patients who are immunocompromised or those with multiple morbidities; consider culture/specimens, and seek advice.
13. Avoid widespread use of topical antibiotics, especially those agents also available as systemic preparations, e.g. fusidic acid.
14. In pregnancy, take specimens to inform treatment. Penicillins, cephalosporins and erythromycin are not associated with increased risks. If possible, avoid tetracyclines, quinolones, aminoglycosides, azithromycin (except in chlamydial infection), clarithromycin, high dose metronidazole (2g stat) unless the benefits outweigh the risks. Short-term use of nitrofurantoin is not expected to cause foetal problems (theoretical risk of neonatal haemolysis). Trimethoprim is unlikely to cause problems unless poor dietary folate intake, or taking another folate antagonist; however, after consultation with local microbiologists, empirical use of trimethoprim in pregnancy is not included in this guidance.

## Further information:

**Algorithms for diagnosis and management of certain clinical infections (e.g. UTI diagnosis, MRSA screening/suppression etc.):**

- <https://www.gov.uk/government/collections/primary-care-guidance-diagnosing-and-managing-infections>

**List of notifiable diseases & causative organisms:**

- <https://www.gov.uk/guidance/notifiable-diseases-and-causative-organisms-how-to-report>

**ICID Pathology Handbook: Salisbury NHS Foundation trust ICID website under: ICID > Diagnostics > Pathology > Pathology Handbook:**

- [http://www.icid.salisbury.nhs.uk/Diagnostics/Pathology/PathologyHandbook/Pages/Pathology\\_Handbook\\_v5/Pathology%20Department%20Handbook%20v5/index.html](http://www.icid.salisbury.nhs.uk/Diagnostics/Pathology/PathologyHandbook/Pages/Pathology_Handbook_v5/Pathology%20Department%20Handbook%20v5/index.html)

**To go to the infection group you want - ‘ctrl’ click on the link below:**

**UPPER RESPIRATORY TRACT INFECTIONS <sup>1</sup>**

**LOWER RESPIRATORY TRACT INFECTIONS**

**MENINGITIS**

**URINARY TRACT INFECTIONS**

**GENITAL TRACT INFECTIONS**

**GASTRO-INTESTINAL TRACT INFECTIONS**

**SKIN INFECTIONS**

**EYE INFECTIONS**

**DENTAL INFECTIONS**

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>UPPER RESPIRATORY TRACT INFECTIONS</b> <sup>1</sup>				
<b>Influenza treatment</b> PHE Influenza NICE Influenza <b>Influenza prophylaxis:</b> NICE Influenza	<b>Annual vaccination is essential for all those "at risk" of influenza.</b> <sup>1D</sup> Antivirals are not recommended for healthy adults. <sup>1D,2A+</sup> <b>Treat "at risk" patients</b> with five days oseltamivir 75mg BD, <sup>1D</sup> when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children), <sup>1D,3D</sup> or in a care home where influenza is likely. <sup>1D,2A+</sup> At risk: pregnant (including up to two weeks post-partum); children under six months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; diabetes mellitus; chronic neurological, renal or liver disease; morbid obesity (BMI>40). <sup>4D</sup> See the PHE Influenza guidance for the treatment of patients under 13 years of age. <sup>4D</sup> In severe immunosuppression, or oseltamivir resistance, use zanamivir 10mg BD <sup>5A+,6A+</sup> (two inhalations by diskhaler for up to 10 days) and seek advice. <sup>4D</sup>			
<b>Acute sore throat</b> FeverPAIN NICE RTIs NICE sore throat guidance	<b>Use FeverPAIN or Centor score.</b> <ul style="list-style-type: none"> <li>• <b>FeverPAIN score 0-1 or Centor score 0,1 or 2:</b></li> <li>• Do not offer an antibiotic.</li> <li>• <b>FeverPAIN score 2-3:</b> Consider no antibiotic or offer a back-up prescription.</li> <li>• <b>FeverPAIN score 4 or 5 or Centor score 3 or 4:</b> Consider an immediate antibiotic or a back-up antibiotic prescription.</li> </ul> <b>If the person is systemically very unwell or has symptoms and signs of a more serious illness or condition, or has high risk of complications:</b> Offer an immediate antibiotic prescription. Refer to hospital if the patient has a severe systemic infection, or severe complications. Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition and previous antibiotic use, which may lead to resistance. <b>Self-care: Paracetamol or ibuprofen, plus fluids.</b>	Phenoxyethylpenicillin  <i>Penicillin Allergy or intolerance:</i> Clarithromycin  <i>Pregnant &amp; penicillin allergy:</i> Erythromycin  <b>Paediatrics:</b> The same antibiotic options as above would be the recommended options for children at <b>BNF-C</b> doses.	500mg QDS OR 1G BD  250mg-500mg BD  250-500mg QDS or 500mg-1000mg BD	5-10 days  5 days
<b>Scarlet Fever (GAS)</b> PHE	Prompt treatment with appropriate antibiotics significantly reduces the risk of complications. <sup>1D</sup> Observe immunocompromised individuals (diabetes; women in the puerperal period; chickenpox) as they are at increased risk of developing invasive infection. <sup>1D</sup> <b>Notify:</b> PHE South West (Bristol) 0300 303 8162 Avon Health Protection Team (Bristol): 0117 9002620 Gloucestershire Health Protection Team: 01453 829650	First-line (mild): analgesia  Phenoxyethylpenicillin <sup>2D</sup>  Penicillin allergy: Clarithromycin <sup>1D</sup>	500mg QDS <sup>1D</sup>  250-500mg BD <sup>1D</sup>	10 days <sup>3A+, 4A+, 5A+</sup>  5 days <sup>1D, 5A+</sup>

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>Acute Otitis Media</b> (child doses) NICE RTIs NICE otitis media(acute)	<p>Acute otitis media lasts about 3 days but can last up to 1 week.</p> <p><b>Otorrhoea in any child or young person or under 2 years with infection in both ears:</b></p> <ul style="list-style-type: none"> <li>Offer regular doses of paracetamol or ibuprofen for pain and consider whether no antibiotic is needed/ back-up antibiotic or immediate antibiotic.</li> </ul> <p><b>For patients without otorrhoea or under 2 with only 1 ear affected:</b></p> <ul style="list-style-type: none"> <li>Offer regular doses of paracetamol or ibuprofen for pain and consider whether no antibiotic is needed/ back-up antibiotic</li> </ul> <p><b>Advice for patient/carer:</b></p> <ul style="list-style-type: none"> <li>Seek medical help if symptoms worsen rapidly or significantly, do not start to improve after 3 days or the child or young person becomes very unwell.</li> </ul> <p>Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition and previous antibiotic use, which may lead to resistance.</p> <p>If the person is systemically very unwell or has symptoms and signs of a more serious illness or condition, or has high risk of complications: Offer an immediate antibiotic prescription.</p> <p>Refer to hospital if the patient has a severe systemic infection, or severe complications.</p>	<p>Amoxicillin</p> <p><b>Penicillin Allergy or intolerance:</b></p> <p>Clarithromycin (Erythromycin is an alternative- for doses see BNF-C)</p> <p><b>2<sup>nd</sup> line option if patient has worsening symptoms on 1<sup>st</sup> line choice for at least 2-3 days:</b></p> <p>Co-amoxiclav</p> <p><i>If patient has penicillin allergy, consult local microbiologist for options.</i></p>	<p><b>Child doses</b></p> <p>1 -11 months: 125mg TDS 1-4 years: 250mg TDS 5-17 years: 500mg TDS</p> <p>Under 8kg: 7.5mg/kg BD 8-11kg: 62.5mg BD 12-19kg: 125mg BD 20-29kg: 187.5mg BD 30-40kg: 250mg BD CHILD 12-17 yrs: 250-500mg BD</p> <p>1 to 11 months: 0.25 ml/kg of 125/31 suspension TDS 1 to 5 years: 5 ml of 125/31 suspension TDS or 0.25 ml/kg of 125/31 suspension TDS 6 to 11 years: 5 ml of 250/62 suspension TDS or 0.15 ml/kg of 250/62 suspension TDS 12 to 17 years: 250/125 mg TDS or 500/125 mg TDS</p>	<p>5-7 days</p> <p>5-7 days</p> <p>5-7 days</p>
<b>Acute Otitis Externa</b> CKS OE	<p>First line: use analgesia for pain relief<sup>1D,2D</sup> and apply localised heat (e.g. a warm flannel).<sup>2D</sup></p> <p>Second-line: Topical acetic acid or topical antibiotic +/- steroid: similar cure at 7 days.<sup>2D,3A+,4B-</sup></p> <p><b>If cellulitis or disease extending outside ear canal, start oral flucloxacillin and refer to exclude malignant Otitis Externa<sup>1D</sup></b></p>	<p><b>Second Line:</b></p> <p>Topical acetic acid 2% (Ear Calm) <i>Self-care OTC</i></p> <p>Neomycin sulphate with corticosteroid<sup>2D,5A-</sup> (Betnesol N or Otimize)</p> <p>If cellulitis: Flucloxacillin<sup>6B+</sup></p>	<p>1 spray TDS<sup>5A-</sup></p> <p>3 drops TDS<sup>5A-</sup></p> <p>250mg QDS<sup>2D</sup> If severe: 500mg QDS<sup>2D</sup></p>	<p>7 days</p> <p>7 days min to 14 days max<sup>1A+</sup></p> <p>7 days</p>
<b>Acute Rhinosinusitis</b> NICE RTIs NICE Sinusitis (acute)	<p><b>Symptoms &lt;10 days:</b> do not offer antibiotics</p> <p><b>Symptoms &gt;10 days with no improvement:</b> no antibiotic, or back-up antibiotic if likely to be bacterial cause. When using a back-up prescription, advise patients to use prescription if symptoms worsen rapidly or significantly, or do not improve in 7 days. Return to GP if symptoms worsen despite antibiotic.</p> <p>Consider high-dose nasal steroid for 14 days if &gt;12 years (off-label use).</p> <p><b>Systemically very unwell, or more serious signs and symptoms or high risk of complications:</b> immediate antibiotic.</p> <p><b>Refer to hospital if complications present:</b> eg severe systemic infection, intraorbital, periorbital or intracranial complications.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition and previous antibiotic use, which may lead to resistance.</p> <p><b>Self-care:</b> paracetamol/ibuprofen for pain/fever.<sup>6D</sup> Nasal decongestants or saline may help some (little evidence) and can be purchased OTC.</p> <p><b>Advice:</b> Sinusitis usually lasts 2-3 weeks.</p>	<p>Phenoxymethylpenicillin</p> <p><b>Penicillin allergy or intolerance:</b></p> <p>Doxycycline OR Clarithromycin (use erythromycin if pregnant)</p> <p><b>First choice if systemically very unwell, symptoms and signs of a more serious illness or condition, or at high risk of complications:</b></p> <p>Co-amoxiclav</p> <p><b>2<sup>nd</sup> line if worsening symptoms on 1<sup>st</sup> choice taken for at least 2-3 days:</b></p> <p>Co-amoxiclav <i>If patient has a penicillin allergy, contact local microbiologist for advice.</i></p> <p><b>Paediatrics:</b> <b>The same antibiotic options as above would be the recommended options for children at BNF-C doses.</b></p>	<p>500mg QDS</p> <p>200mg stat then 100mg OD<sup>6D</sup> 500mg BD<sup>6D</sup></p> <p>(500mg/125mg) 625mg TDS</p> <p>(500mg/125mg) 625mg TDS</p>	<p>5 days</p>

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>LOWER RESPIRATORY TRACT INFECTIONS</b>				
<b>Cough (acute)</b> NICE cough (acute) NICE RTIs	<p><u>Self-care:</u> Some people may wish to try honey (in over 1s), cough medicines containing the expectorant guaifenesin (in over 12s) or cough medicines containing cough suppressants (except codeine), (in over 12s). These self-care treatments have limited evidence for the relief of cough symptoms.</p> <p><u>Advise the patient upon the following:</u></p> <ul style="list-style-type: none"> <li>the usual course of acute cough (up to 3 or 4 weeks)</li> <li>managing symptoms with self-care</li> <li>when to seek medical help, for example if symptoms worsen rapidly or significantly, do not improve after 3 or 4 weeks, or the person becomes systemically very unwell</li> </ul> <p><b>Acute cough with upper respiratory tract infection:</b> no antibiotic.</p> <p><b>Acute bronchitis:</b> no routine antibiotic.</p> <p><b>Acute cough and higher risk of complications (at face-to-face examination):</b> immediate or back-up antibiotic.</p> <p><b>Acute cough and systemically very unwell (at face to face examination):</b> 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>Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated.</p> <p><u>Reassess patients not initially offered antibiotics if symptoms worsen rapidly or significantly, taking account of:</u></p> <ul style="list-style-type: none"> <li>alternative diagnoses such as pneumonia</li> <li>any symptoms or signs suggesting a more serious illness or condition, such as cardiorespiratory failure or sepsis</li> <li>previous antibiotic use, which may have led to resistant bacteria</li> </ul>	<p><i>First-line:</i> doxycycline</p> <p><i>Alternative first choices:</i> Amoxicillin OR <i>or if penicillin allergic:</i> Clarithromycin <i>If pregnant:</i> Erythromycin</p>	200mg stat then 100mg OD 500mg TDS 250-500mg BD 500mg-1000mg QDS	5 days
		<p><b>Paediatrics:</b> <i>First-line:</i> amoxicillin</p> <p><i>Alternative first choices:</i> Clarithromycin OR</p> <p>Erythromycin OR</p> <p>Doxycycline (only if over 12)</p>	<p><b>Child doses</b>                      1 -11 months: 125mg TDS                      1-4 years: 250mg TDS                      5-17 years: 500mg TDS</p> <p><u>1 month to 11 years:</u>                      Under 8kg: 7.5mg/kg BD                      8-11kg: 62.5mg BD                      12-19kg: 125mg BD                      20-29kg: 187.5mg BD                      30-40kg: 250mg BD</p> <p><u>CHILD 12-17 yrs:</u>                      250-500mg BD</p> <p>1 month to 1 year: 125 mg four times a day or 250 mg twice a day                      2 to 7 years: 250 mg four times a day or 500 mg twice a day                      8 to 17 years: 250 mg to 500 mg four times a day or 500 mg to 1000 mg twice a day</p> <p>12 to 17 years: 200 mg on first day, then 100 mg OD</p>	5 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<p><b>NEW</b> <b>Bronchiectasis (acute exacerbation):</b> <b>NICE</b> <b>Bronchiectasis (acute exacerbation)</b></p>	<p>Send a sputum sample for culture and susceptibility testing. Offer an antibiotic. Consider the severity of symptoms, previous exacerbations, hospitalisations, risk of complications and previous sputum culture and susceptibility results when choosing which antibiotic to use.</p> <p>When sputum culture results are available, review choice of antibiotic and only change the antibiotic if bacteria are resistant and symptoms are not already improving.</p> <p>Tell patient to seek medical help if symptoms worsen rapidly or significantly at any time, or the person becomes systemically unwell.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly, taking account of:</p> <ul style="list-style-type: none"> <li>• Other possible diagnoses, such as pneumonia</li> <li>• Symptoms or signs of something more serious, such as cardiorespiratory failure or sepsis</li> <li>• Previous antibiotic use, which may have led to resistant bacteria</li> </ul> <p>Refer to hospital if the person has symptoms or signs suggesting a more serious illness or condition e.g. cardiorespiratory failure or sepsis). Seek specialist advice if:</p> <ul style="list-style-type: none"> <li>• Symptoms do not improve with repeated courses of antibiotics</li> <li>• Bacteria are resistant to oral antibiotics</li> <li>• Patient is unable to take oral antibiotics</li> </ul> <p><u>Prophylaxis:</u> Only start a trial of antibiotic prophylaxis on specialist advice and consider benefits vs harms. Review regularly for continued need. Where a person is receiving antibiotic prophylaxis, treatment should be with an antibiotic from a different class.</p>	<p><b>1<sup>st</sup> choice options for empirical treatment in the absence of susceptibility data (guided by most recent sputum culture and susceptibilities where possible):</b></p> <p>Amoxicillin (<i>preferred choice in pregnancy</i>)</p> <p>Doxycycline</p> <p>Clarithromycin</p> <p><b>Alternative choice (if patient at higher risk of treatment failure; for empirical treatment in the absence of susceptibility data (guided by most recent sputum culture and susceptibilities where possible):</b></p> <p>Co-amoxiclav OR seek advice from microbiology or respiratory specialist</p> <p><u>Options for children:</u></p> <p>Amoxicillin</p> <p>Clarithromycin</p> <p>Doxycycline (over 12s)</p> <p><b>Alternative options:</b> Co-amoxiclav or seek specialist advice (micro/respiratory)</p>	<p>500mg TDS</p> <p>200mg on 1st day, then 100mg OD</p> <p>500mg BD</p> <p>500mg/125mg TDS</p> <p>1 to 11 months: 125 mg TDS 1 to 4 years: 250 mg TDS 5 to 17 years: 500 mg TDS</p> <p>1 month to 11 years: Under 8 kg: 7.5 mg/kg BD 8 to 11 kg: 62.5 mg BD 12 to 19 kg: 125 mg BD 20 to 29 kg: 187.5 mg BD 30 to 40 kg: 250 mg BD 12 to 17 years, 250 mg to 500 mg BD</p> <p>12 to 17 years: 200 mg on first day, then 100 mg OD</p> <p>1 to 11 months: 0.25 ml/kg of 125/31 suspension TDS 1 to 5 years: 5 ml of 125/31 suspension TDS or 0.25 ml/kg of 125/31 suspension TDS 6 to 11 years: 5 ml of 250/62 suspension TDS or 0.15 ml/kg of 250/62 suspension TDS 12 to 17 years: 250/125 mg TDS or 500/125 mg TDS</p>	<p>7-14 days</p> <p>7-14 days</p>

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>Acute exacerbation of COPD</b> NICE NG115 Gold COPD NICE COPD (acute exacerbation)	<p>Many exacerbations (including severe) are not caused by bacterial infections so will not respond to antibiotics.</p> <p>If upon assessment no antibiotic is given to the patient, tell patient to seek medical help without delay if symptoms worsen rapidly or significantly, do not improve in an agreed timescale, or the patient is systemically very unwell.</p> <p>If a sputum sample is sent for testing, when results are available, review antibiotic choice and only change antibiotic if bacteria resistant and symptoms not improving.</p> <p>If antibiotics are given to the patient, advise them that symptoms may not be fully resolved by completion of the course of antibiotics. They should seek medical help if symptoms worsen rapidly or significantly, or do not improve within 2-3 days (or other agreed timeframe) or the person becomes systemically very unwell.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly, taking account of other possible diagnoses, such as pneumonia, any symptoms or signs of something more serious, such as cardiorespiratory failure or sepsis and previous antibiotic use, which may lead to resistance.</p> <p>Send sputum culture for testing if symptoms have not improved after antibiotics.</p> <p>Refer to hospital if a severe systemic infection is present or in line with NICE guidance on COPD and sepsis.</p> <p>Seek specialist advice if symptoms do not improve with repeated courses of antibiotics, or bacteria are resistant to oral antibiotics or the patient cannot take oral options.</p>	<p><b>1<sup>st</sup> choice empirical treatment or guided by most recent sputum culture and susceptibilities:</b>                      Doxycycline OR                      Amoxicillin OR                      Clarithromycin</p> <p><b>Second choice (no improvement in symptoms on 1<sup>st</sup> choice taken for at least 2-3 days; guided by susceptibilities when available):</b>                      Use alternative 1<sup>st</sup> choice option from a different class above.</p> <p><b>Alternative choice (if patient at higher risk of treatment failure; guided by susceptibilities when available):</b>                      Co-trimoxazole*                      Co-amoxiclav or seek advice from microbiology or respiratory specialist</p> <p><i>*send sputum sample and check microbiological cultures if used</i></p>	<p>200mg stat then 100mg OD                      500mg TDS                      500mg BD</p> <p>960mg BD                      500mg/125mg TDS</p>	<p>5 days</p>
<b>Community acquired pneumonia</b> NICE Pneumonia CG191 2014	<p>Use CRB65 score to guide mortality risk, place of care &amp; antibiotics<sup>1D</sup>.</p> <p>Each CRB65 parameter scores 1:                      Confusion (AMT&lt;8); Respiratory rate &gt;30/min;                      BP systolic &lt;90 or diastolic &lt;60; Age &gt;65;</p> <p><b>Score of 0:</b> Low risk, consider home-based care;  <b>1-2:</b> intermediate risk, consider hospital assessment; <b>3-4:</b> urgent hospital admission<sup>1D</sup></p> <p><b>Always give safety net advice<sup>1D</sup></b> and likely duration of symptoms, e.g. cough 6 weeks<sup>1D</sup></p> <p>Mycoplasma infection is rare in over 65s<sup>2A+,3C</sup></p>	<p><b>CRB65=0:</b> amoxicillin<sup>1D,4D</sup> or clarithromycin<sup>2A+,4D,5A+</sup> or doxycycline<sup>2A+,4D</sup></p> <p><b>If CRB65=1-2 and at HOME.</b> (Clinically assess need for dual therapy for atypicals):                      Amoxicillin<sup>1D,4D</sup> AND clarithromycin<sup>2A+,4D,5A+</sup> or doxycycline alone<sup>4D</sup></p>	<p>500mg TDS<sup>5A+</sup>                      500mg BD<sup>5A+</sup>                      200mg stat then 100mg OD<sup>6A-</sup></p> <p>500mg TDS<sup>5A+</sup>                      500mg BD<sup>5A+</sup>                      200mg stat then 100mg OD<sup>6A-</sup></p>	<p>5 days; review at 3 days;<sup>1D</sup></p> <p>Extend to 7-10 days if poor response<sup>1D</sup></p> <p>7-10 days<sup>1D</sup></p>

## URINARY TRACT INFECTIONS

Note: As antibacterial resistance and *E. coli* bacteraemia is increasing, use nitrofurantoin first line,<sup>1D</sup> ALWAYS give safety net & self-care advice, & consider risks for resistance.<sup>2D</sup> Give **TARGET UTI** leaflet<sup>3D</sup> & refer to PHE UTI guidance for diagnostic information.<sup>1D</sup>

**Always check previous urine cultures and susceptibility results, and previous antibiotic prescribing when choosing antibiotics.**

Please ensure that along with the information that is sent to the microbiology laboratory, you provide information about the clinical symptoms & signs of the patient which may help the staff to interpret an unexpected or complex culture result. Dipstick results on their own are not useful.

**People > 65 years: do not treat asymptomatic bacteriuria;** it is common but is not associated with increased morbidity<sup>1B+</sup> Do not use a dipstick to diagnose a UTI due to frequent asymptomatic bacteriuria.

**Catheter in situ: antibiotics will not eradicate asymptomatic bacteriuria.**<sup>1D, 2D,3A-</sup> Only treat if systemically unwell or pyelonephritis likely<sup>2D</sup> Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma<sup>4D,5A+</sup> Take sample if new onset delirium, or one or more symptoms of UTI.<sup>3A-,6B-,7D</sup>

**\*Pivmecillinam:** SFT & GWH do not currently routinely test pivmecillinam but will do so if the urine sample request form states that pivmecillinam is to be prescribed.

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<p><b>UTI in adults:</b> <b>Lower</b> <b>(no fever or flank pain)</b> PHE URINE SIGN TARGET UTI RCGP UTI clinical module SAPG UTI NICE UTI (lower)</p>	<p>Nitrofurantoin may be used with caution if eGFR 30-44ml/min, if potential benefit outweighs risk. If urine sent for culture &amp; susceptibility, &amp; antibiotic given, review antibiotic choice when results available &amp; change antibiotic for pregnant women if bacteria resistant.</p> <p>Change antibiotic for children &amp; young people, men &amp; non-pregnant women if bacteria resistant &amp; symptoms not improving.</p> <p>For pregnant women, men or children under 16 years, send MSU or use dipstick as per guidance. Offer immediate antibiotic.</p> <p>Patients should be told to seek medical help if symptoms worsen at any time, do not improve within 48hrs of taking the antibiotic or the person becomes very unwell.</p> <p>If patient is given a back-up antibiotic prescription, they should be told to take the antibiotic if there is no improvement in 48hrs or symptoms worsen at any time.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly or do not improve in 48hrs with antibiotics. Take account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition and previous antibiotic use, which may lead to resistance.</p> <p>Refer to hospital if a person aged 16 or over has any symptoms or signs suggesting a more serious illness or condition (e.g. sepsis). Refer children &amp; young people to hospital in line with <b>NICE guidance on UTI in under 16s</b>.</p>	<p><b>1<sup>st</sup> line:</b> nitrofurantoin<sup>15A-</sup> <i>If low risk of resistance:</i><sup>16B+</sup> trimethoprim<sup>17D,18A+</sup></p> <p><b>If 1<sup>st</sup> line unsuitable &amp; GFR &lt;45ml/min:</b><sup>4A+</sup> Pivmecillinam<sup>*19B+, 20D, 21A+</sup> (Do NOT use if penicillin allergic)</p> <p><i>If organism susceptible:</i> amoxicillin<sup>22A+,23A+</sup></p> <p><i>If high risk of resistance or penicillin allergy:</i> Fosfomycin<sup>16B+,24A+,25B-,26B-</sup></p>	<p>100mg m/r BD<sup>27A</sup></p> <p>200mg BD<sup>23A+</sup></p> <p>400mg STAT then 200mg TDS<sup>29B+, 30B+</sup></p> <p>500mg TDS<sup>23A+</sup></p> <p>3g STAT in women. Men: 2<sup>nd</sup> 3g dose 3 days later (unlicensed)<sup>26B-</sup></p>	<p>Women: 3 days<sup>23A+,31B-,32B-,33B+,34B+,35A-,36A+</sup></p> <p>Men: 7 days<sup>37B+,38A-</sup></p>
		<p><b>Low risk of resistance:</b> younger women with acute UTI and no risk factors.<sup>31B-,38C</sup> <b>Risk factors for increased resistance include:</b> care home resident,<sup>13A-,14B-</sup> recurrent UTI (2 in 6 months; ≥3 in 12 months), hospitalisation &gt;7d in the last 6 months, unresolving urinary symptoms, recent travel to a country with increased resistance, previous known UTI resistant to trimethoprim, cephalosporins or quinolones.<sup>39C,40B+,41D</sup> <b>If risk of increased resistance:</b> send urine for culture &amp; susceptibilities, &amp; give safety net advice.<sup>26B-</sup> N.B. <i>SFT &amp; GWH do not currently routinely test pivmecillinam but will do so if the urine sample request form states that pivmecillinam is to be prescribed.</i></p>		
<p><b>Acute prostatitis</b> BASHH NICE prostatitis (acute)</p>	<p>Send MSU for culture and start antibiotics. Review choice once results available.</p> <p><b>*The EMA's Pharmacovigilance Risk Assessment Committee</b> has recommended restricting fluoroquinolones following a review of disabling &amp; potentially long-lasting side-effects but they are appropriate to use in acute prostatitis.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition such as acute urinary retention, prostatic abscess or sepsis and previous antibiotic use, which may lead to resistance.</p> <p>Refer to hospital if there are any signs or symptoms of a more serious condition, such as acute urinary retention, prostatic abscess or sepsis or if symptoms are not improving after 48hrs of antibiotics.</p> <p>Self-care: paracetamol/ibuprofen for pain and fluids.</p>	<p>Ciprofloxacin* or Ofloxacin*</p> <p><b>For people who are unable to take a fluoroquinolone:</b> Trimethoprim</p> <p>For second line choices discuss with a specialist</p>	<p>500mg BD 200mg BD</p> <p>200mg BD</p>	<p><b>All for 14 days</b> <i>Review after 14 days &amp; stop or continue for a further 14 days if needed (based on history, symptoms, clinical examination, urine &amp; blood tests)</i></p>
<p><b>UTI in pregnancy</b> PHE UTI SIGN UTI</p>	<p>Send MSU for culture;<sup>1D</sup> start antibiotics in all with significant bacteriuria, even if asymptomatic.<sup>1D</sup></p> <p>Short-term use of <b>nitrofurantoin in pregnancy</b> is unlikely to cause problems to the foetus<sup>2C, 3C</sup></p>	<p><b>First line:</b> nitrofurantoin<sup>2A-</sup> ,<sup>3D,7A+</sup> (avoid at term) if susceptible, amoxicillin</p> <p><b>Second line:</b> cefalexin<sup>4D,8D</sup></p>	<p>100mg m/r BD<sup>2A-,9C</sup></p> <p>500mg TDS 500mg BD<sup>9C</sup></p>	<p>All for 7 days<sup>7C</sup></p>

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<p><b>UTI in children</b> NICE NICE UTI (lower)</p>	<p><b>Child &lt;3 mths:</b> refer urgently for assessment and treat with IV antibiotics as per <b>NICE guidance on fever in under 5s</b>.</p> <p><b>Child ≥ 3 mths:</b> use positive nitrite to guide antibiotic use,<sup>1A-</sup> send pre-treatment MSU.<sup>1D</sup></p> <p><b>Imaging:</b> refer if child &lt;6 months, or recurrent or atypical UTI.<sup>1D</sup></p> <p>For children with upper UTI/ acute pyelonephritis admit or consider referral as the child may need IV antibiotics.</p>	<p><b>Lower UTI:</b> <b>First line:</b> Trimethoprim (if low risk of resistance) OR Nitrofurantoin (if eGFR ≥45ml/minute) <b>N.B. Liquid is very high cost</b></p> <p><b>Second line (worsening lower UTI symptoms on 1<sup>st</sup> line option taken for at least 48hrs or 1<sup>st</sup> line is not suitable):</b> Cefalexin</p> <p><i>If susceptible, amoxicillin<sup>1A-</sup> can also be used (see cBNF for doses).</i></p>	<p><b>CHILD DOSES:</b> 3-5 months: 25mg BD 6 months- 5 yrs: 50mg BD 6-11 years: 100mg BD 12-15 years: 200mg BD</p> <p>3 months-11 years: 750mcg/kg QDS 12-15 years: 50mg QDS or 100mg MR BD</p> <p>3-11 months: 125mg BD 1-4 years: 125mg TDS 5-11 years: 250mg TDS 12-15 years: 500mg BD</p>	<p>Lower UTI 3 days</p>
<p><b>Acute pyelonephritis</b> CKS (2013) NICE Pyelonephritis (acute)</p>	<p>If admission not needed, send MSU for culture &amp; susceptibility testing and start antibiotics. Patient advice: Seek medical help if symptoms worsen at any time or do not start to improve within 48hrs of taking the antibiotic, or the person becomes systemically very unwell. Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition such as sepsis and previous antibiotic use, which may lead to resistance. Refer to hospital if there are any signs or symptoms of a more serious condition, especially if they are significantly dehydrated or unable to take oral fluids &amp; medicines, if they are pregnant or have a higher risk of complications. Self-care: paracetamol/ibuprofen for pain and fluids. <b>Paediatrics</b> <b>Children under 3 months of age:</b> REFER children under 3 months to paediatric specialist &amp; treat with IV antibiotics in line with the NICE guideline on <b>fever in under 5s</b>. <b>Clinical differentiation between acute pyelonephritis/upper urinary tract infection and cystitis/lower urinary tract infection (NICE CG54):</b> Infants and children who have bacteriuria and fever of 38°C or higher should be considered to have acute pyelonephritis/upper urinary tract infection. Infants and children presenting with fever lower than 38°C with loin pain/tenderness and bacteriuria should also be considered to have acute pyelonephritis/upper urinary tract infection. All other infants and children who have bacteriuria but no systemic symptoms or signs should be considered to have cystitis/lower urinary tract infection. [2007]</p>	<p>Cefalexin (1st choice in pregnancy as well)</p> <p><i>if culture results available &amp; susceptible:</i> Co-amoxiclav or Trimethoprim Ciprofloxacin (consider <b>safety issues</b>)</p> <p><i>If 1<sup>st</sup> line option cefalexin cannot be used in a pregnant patient, discuss alternative options with a microbiologist.</i></p>	<p>500mg BD-TDS (up to 1-1.5g TDS-QDS for severe infections)</p> <p>(500/125mg) 625mg TDS</p> <p>200mg BD 500mg BD</p>	<p>7-10 days</p> <p>7-10 days</p> <p>14 days 7 days</p>
		<p><b>Paediatrics (over 3 months):</b> Cefalexin</p> <p>Co-amoxiclav (only if culture results available &amp; susceptible)</p>	<p>3-11 months: 12.5mg/kg or 125mg BD 1-4 years: 125mg TDS 5-11 years: 250mg TDS (25mg/kg BD to QDS (max 1g/dose QDS) can be used for severe infections from 3 months to 11 years. 12-17 years: 500mg BD-TDS Up to 1-1.5g TDS-QDS can be used for severe infections.</p> <p>3-11 months: 0.25ml/kg of 125/31 suspension TDS* 1-5 years: 5ml of 125/31 suspension TDS* 6-11 years: 5ml of 250/62 suspension TDS* 12-15 years: 250/125 mg or 500/125 mg TDS <b>*Dose may be doubled in severe infection</b></p>	<p>7-10 days</p> <p>7-10 days</p>

# Management of Infection guidance for Primary Care for Wiltshire/Swindon/BaNES CCG January 2019 update

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>Recurrent UTI</b> <b>TARGET UTI</b> <b>NICE UTI</b> <b>(recurrent)</b>	<p><b>Self-care:</b> Advise simple measures including hydration &amp; ibuprofen for symptom relief as well as behavioural &amp; personal hygiene measures. Choose antibiotics according to recent culture &amp; susceptibility results where possible, with rotational use based on local policies. Select a different antibiotic for prophylaxis if treating an acute UTI.</p> <p>Be aware short-term &amp; long-term use of nitrofurantoin is associated with adverse hepatic and pulmonary events. See <b>MHRA</b> guidance.</p> <p><b>NICE</b> recommend the use of vaginal oestrogens for prevention of recurrent UTIs in post-menopausal women if behavioural &amp; personal hygiene measures are not effective. Evidence base as per <b>Cochrane</b> and also <b>NICE CG171</b> (for OAB symptoms).</p> <p>Non-pregnant women may wish to try cranberry products OTC or D-mannose OTC.</p> <p>Refer any pregnant woman, man, child under 16 years or any person with recurrent upper UTI who do not improve with self-care and seek advice on antibiotic options.</p>	<p><b>Antibiotic prophylaxis 1<sup>st</sup> line:</b>            Nitrofurantoin (if eGFR≥45ml/min)            OR            Trimethoprim</p> <p><b>2<sup>nd</sup> line:</b>            Amoxicillin (off-label)            OR            Cefalexin</p> <p><b>Paediatrics:</b>  <b>The same antibiotic options as above would be the recommended options for children at BNF-C doses.</b></p>	<p>100mg STAT when exposed to trigger or 50-100mg ON</p> <p>200mg STAT when exposed to trigger or 100mg ON</p> <p>500mg STAT when exposed to trigger or 250mg ON</p> <p>500mg STAT when exposed to trigger or 125mg ON</p>	<p><b>Use STAT dose regimen upon exposure to trigger 1<sup>st</sup> line. Only use a DAILY antibiotic regimen if STAT regimen fails.</b></p> <p>Review within 6 months, assessing prophylaxis success. Remind about self-care. Decide whether to continue, stop or change antibiotic prophylaxis.</p>

# Management of Infection guidance for Primary Care for Wiltshire/Swindon/BaNES CCG

January 2019 update

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<p><b>NEW</b></p> <p><b>UTI (catheter associated)</b></p> <p><b>NICE (catheter)</b></p> <p><b>Catheter in situ: antibiotics will not eradicate asymptomatic bacteriuria.</b> Only treat if systemically unwell or pyelonephritis likely. Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma. Take sample if new onset delirium, or one or more symptoms of UTI.</p>	<p>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.</p> <p>Send a urine sample for culture &amp; susceptibility testing. When results are available review choice of antibiotic.</p> <p>Self care: Advise paracetamol for pain and fluids to avoid dehydration.</p> <p>Advise patient to seek medical help if symptoms worsen at any time or do not start to improve within 48hrs, or the person become systemically very unwell.</p> <p>Reassess at any time if symptoms worsen rapidly or significantly taking account of other possible diagnoses, any symptoms or signs suggesting a more serious illness or condition such as sepsis and previous antibiotic use, which may lead to resistance.</p> <p>Refer to hospital if there are any signs or symptoms of a more serious condition, especially if they are significantly dehydrated or unable to take oral fluids &amp; medicines, if they are pregnant, have a higher risk of complications, have a recurrent catheter-associated UTI or have bacteria resistant to oral antibiotics.</p> <p>Do not routinely offer antibiotic prophylaxis to people with short-term or long-term catheters.</p> <p>For children under the age of 3 months, refer to paediatric specialist and treat with IV antibiotics in line with NICE guideline on <b>fever in under 5s</b>.</p> <p>*The <b>EMA's Pharmacovigilance Risk Assessment Committee</b> has recommended restricting fluoroquinolones following a review of disabling &amp; potentially long-lasting side-effects.</p>	<p><b>1<sup>st</sup> line (no upper UTI symptoms):</b></p> <p>Nitrofurantoin (<i>if eGFR &gt;45ml/min</i>)</p> <p>Trimethoprim (if low risk of resistance)</p> <p>Amoxicillin (if culture results available &amp; susceptible)</p> <p><b>2<sup>nd</sup> line (no upper UTI symptoms &amp; 1<sup>st</sup> line not suitable):</b></p> <p>Pivmecillinam (Do NOT use if penicillin allergic)</p> <p><b>1<sup>st</sup> line: UPPER UTI symptoms:</b></p> <p>Cefalexin (<i>1st line in pregnancy as well</i>)</p> <p><b>If culture results available &amp; susceptible:</b></p> <p>Co-amoxiclav</p> <p>Trimethoprim</p> <p>OR</p> <p>Ciprofloxacin* (consider <b>safety issues</b>)</p>	<p>100mg M/R BD</p> <p>200mg BD</p> <p>500mg TDS</p> <p>400mg STAT then 200mg TDS</p> <p>500mg BD-TDS (up to 1-1.5g TDS or QDS for severe infections)</p> <p>500/125mg TDS</p> <p>200mg BD</p> <p>500mg BD</p>	<p>7 days</p> <p>7-10 days</p> <p>14 days</p> <p>7 days</p>
		<p><b>PAEDIATRIC OPTIONS</b> (over 3 months of age):</p> <p>Trimethoprim (if low risk of resistance)</p> <p>Amoxicillin (if culture results available &amp; susceptible)</p> <p>Cefalexin</p> <p>Co-amoxiclav (If culture results available &amp; susceptible)</p>	<p><b>CHILD DOSES:</b></p> <p>3-5 months: 25mg BD</p> <p>6 months- 5 yrs: 50mg BD</p> <p>6-11 years: 100mg BD</p> <p>12-15 years: 200mg BD</p> <p>3-11 months: 125mg TDS</p> <p>1-4 years: 250mg TDS</p> <p>5-15 years: 500mg TDS</p> <p>3-11 months: 125mg BD</p> <p>1-4 years: 125mg TDS</p> <p>5-11 years: 250mg TDS</p> <p>12-15 years: 500mg BD</p> <p>3-11 months: 0.25ml/kg of 125/31 suspension TDS*</p> <p>1-5 years: 0.25ml/kg of 125/31 suspension TDS or 5ml of 125/31 suspension TDS*</p> <p>6-11 years: 0.15ml/kg of 250/62 suspension TDS or 5ml of 250/62 suspension TDS*</p> <p>12-15 years: 250/125mg or 500/125mg TDS</p> <p><b>*Double doses if severe infection</b></p>	<p>7-10 days</p>

MENINGITIS				
<p><b>Suspected meningococcal disease</b></p> <p><b>NICE Meningitis</b></p> <p><b>PHE Meningo</b></p>	<p><b>Transfer all patients to hospital immediately.</b><sup>1D</sup></p> <p>IF time before hospital admission,<sup>2D,3A+</sup> and non-blanching rash,<sup>2D,4D</sup> give IV benzylpenicillin<sup>1D,2D,4D</sup> or IV cefotaxime,<sup>2D</sup> unless definite history of anaphylaxis;<sup>1D</sup> rash is not a contra-indication.<sup>1D</sup></p>	<p>IV or IM benzylpenicillin<sup>1D,2D</sup></p> <p><b>OR (IF AVAILABLE)</b></p> <p>IV or IM cefotaxime*<sup>2D</sup></p>	<p>Age 10+ years: 1200mg<sup>5D</sup></p> <p>Children 1 - 9 yr: 600mg<sup>5D</sup></p> <p>Children &lt;1 yr: 300mg<sup>5D</sup></p> <p>Age 12+ years: 1gram<sup>5D</sup></p> <p>Child &lt;12 yrs: 50mg/kg<sup>5D</sup></p>	<p>STAT dose<sup>1D</sup></p> <p>(Give IM if vein cannot be accessed)<sup>1D</sup></p>



# Management of Infection guidance for Primary Care for Wiltshire/Swindon/BaNES CCG

January 2019 update

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>Chlamydia trachomatis/ urethritis</b> BASHH (sept 18) PHE, BASHH statement on use of azithro in pregnancy	Opportunistically screen all aged 16-24 years <sup>1B-</sup> Treat partners and refer to GUM service <sup>2D,3A+</sup> Repeat test for cure in all at 3 months. <sup>1B-,4B-</sup> <b>Pregnancy/breastfeeding:</b> Azithromycin is the most effective option. <sup>5A+,6D,7A+,8A+,9D</sup> Due to lower cure rate in pregnancy, test for cure no earlier than 3 weeks after end of treatment <sup>3A+,1B-</sup>	Doxycycline Azithromycin  <i>Pregnant or breastfeeding:</i> Azithromycin <sup>3A+,7A+,8A+,9D</sup>  or erythromycin <sup>3A+,6D,7A+,8A+</sup>  or amoxicillin <sup>6D,7A+,8A+</sup>	100mg bd 1g STAT then 500mg once daily for 2 days  1g (off-label use) STAT then 500mg once daily for 2 days 500mg QDS OR 500mg BD 500mg TDS	7 days -  7 days 14 days 7 days
<b>Epididymitis</b>	Usually due to gram-negative enteric bacteria in men over 35 years with low risk of STI. <sup>1A+,2D</sup> If under 35 years or STI risk, refer to GUM. <sup>1A+,2D</sup>	<i>Low STI risk:</i> doxycycline <sup>1A+,2D,3A+</sup> or Ofloxacin <sup>1A+,2D</sup> or Ciprofloxacin <sup>1A+,2D,3A+</sup>	100mg BD <sup>1A+,2D,3A+</sup> 200mg BD <sup>1A+,2D</sup> 500mg BD <sup>1A+,2D,3A+</sup>	10-14 days <sup>1A+,2D</sup> 14 days <sup>1A+,2D</sup> 10 days <sup>1A+,2D,3A+</sup>
<b>Vaginal Candidiasis</b> BASHH PHE, CKS	All topical and oral azoles give 70% cure <sup>1A+,2A+</sup> <b>In pregnancy:</b> avoid oral azoles <sup>1A+,3D</sup> and use intravaginal treatment for 7 days <sup>4A+</sup> <b>Recurrent (&gt;4 episodes/yr):</b> <sup>5D</sup> 150mg oral fluconazole every 72hrs for 3 doses induction, <sup>1A+</sup> followed by 1 dose once a week for 6 months maintenance. <sup>1A+,5D</sup>	Clotrimazole <sup>1A+,5D</sup>  miconazole <sup>1A+</sup> or oral fluconazole <sup>1A+,3D</sup> Recurrent: fluconazole (induction/maintenance) <sup>1A+</sup>	500mg pessary <sup>1A+</sup> or 10% cream <sup>1A+</sup> 1200mg pessary <sup>1A+</sup> 150mg orally <sup>1A+,3D</sup> 150mg every 72hrs THEN <sup>1A+,3D</sup> 150mg once a week <sup>1A+,3D,5D</sup>	Stat <sup>1A+</sup> Stat <sup>1A+</sup> Stat <sup>1A+,3D</sup> stat 3 doses <sup>1A+</sup> 6 months <sup>1A+,5D</sup>
<b>Bacterial Vaginosis</b> BASHH PHE	Oral metronidazole (MTZ) is as effective as topical treatment <sup>1A+</sup> but is cheaper. <sup>2D</sup> Less relapse with 7 day than 2g stat at 4 wks <sup>1A+,2D</sup> <b>Pregnant/breastfeeding:</b> avoid 2g stat <sup>3A+,4D</sup> Treating partners does not reduce relapse <sup>5A+</sup>	Oral metronidazole <sup>1A+,3A+</sup> OR metronidazole 0.75% vaginal gel <sup>1A+,2D,3A+</sup> OR clindamycin 2% cream <sup>1A+,2D</sup>	400mg BD <sup>1A+,3A+</sup> or 2g stat <sup>1A+,2D</sup>  5g applicator at night <sup>1A+,2D,3A+</sup> 5g applicator at night <sup>1A+,2D</sup>	7 days <sup>1A+</sup> Stat <sup>2D</sup>  5 nights <sup>1A+,2D,3A+</sup> 7 nights <sup>1A+,2D,3A+</sup>
<b>Trichomoniasis</b> BASHH PHE	Oral treatment needed as extravaginal infection common. <sup>1D</sup> Treat partners <sup>1D</sup> and refer to GUM service <sup>1D</sup> <b>In pregnancy or breastfeeding:</b> avoid 2g single dose MTZ. <sup>2A+,3D</sup> Consider clotrimazole for symptom relief (not cure) if MTZ declined <sup>2A+,4A-,5D</sup>	Metronidazole <sup>1A+,2A+,3D,6A+</sup>  Pregnancy for symptoms: Clotrimazole <sup>2A+,4A+,5D</sup>	400mg BD <sup>1A+,6A+</sup> or 2g stat <sup>6A+</sup> (more adverse effects)  100mg pessary at night <sup>5D</sup>	5-7 days <sup>1A+</sup> stat <sup>1A+,6A+</sup>  6 nights <sup>5D</sup>
<b>Pelvic Inflammatory Disease</b> BASHH 2019 update	Refer woman and sexual contacts to GUM service <sup>1A+</sup> Always culture for gonorrhoea and chlamydia <sup>1A+</sup> If gonorrhoea likely (partner has it, severe symptoms, sex abroad) <sup>2A-</sup> use ceftriaxone regimen <sup>1A+,2A-,3C,4C</sup> (if available) or refer to GUM. Resistance to quinolones is high. *Note that some community pharmacies in Wiltshire keep Ceftriaxone IM in stock under the Emergency Medicines Scheme.	Metronidazole PLUS ofloxacin  <i>If gonorrhoea likely:</i> Metronidazole PLUS Doxycycline PLUS Ceftriaxone*	400mg BD 400mg BD  400mg BD 100mg BD 1g IM	14 days   Stat

## SKIN INFECTIONS See RCGP skin infections online training.<sup>1D</sup> For MRSA, discuss therapy with microbiologist<sup>1D</sup>

<b>Impetigo</b> PHE	For extensive, severe, or bullous impetigo, use oral antibiotics <sup>3D</sup> Reserve topical antibiotics for very localised lesions to reduce the risk of resistance <sup>1D,2B+</sup> Reserve mupirocin for MRSA <sup>1D,3D,4A+</sup>	Oral flucloxacillin <sup>1D,4A+</sup> <i>If penicillin allergic:</i> oral clarithromycin <sup>1D,5D</sup> topical fusidic acid <sup>2D,3B+,4A+</sup> <b>MRSA: topical mupirocin</b> <sup>4A+</sup>	250-500mg QDS <sup>4A+</sup>  250-500mg BD <sup>5D</sup> Thinly TDS <sup>5D</sup> 2% ointment TDS <sup>4A+</sup>	7 days <sup>4A+</sup>  7 days <sup>5D</sup> 5 days <sup>1D,2D</sup> 5 days <sup>1D,2D,4A+</sup>
<b>Eczema</b> NICE Eczema	If no visible signs of infection, use of antibiotics (alone or with steroids) <sup>1A+</sup> encourages resistance and does not improve healing <sup>1A+</sup> In eczema with visible signs of infection, use flucloxacillin <sup>2D</sup> or clarithromycin <sup>2D</sup> or topical treatment (as in impetigo) <sup>2D</sup>			
<b>Cellulitis &amp; erysipelas</b> CREST Cellulitis BLS Cellulitis	<b>Class I:</b> patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone <sup>1D,2D,3A+</sup> <b>Class II:</b> If febrile and ill, or comorbidity, admit for IV treatment <sup>1D</sup> <b>Class III:</b> toxic appearance: admit. <sup>1D</sup> Erysipelas: often facial and unilateral. <sup>4B+</sup> Use flucloxacillin for non-facial erysipelas. <sup>1D,2D,3A+</sup> If river or sea water exposure, discuss with microbiologist. <sup>1D</sup>	flucloxacillin <sup>1D,2D,3A+</sup> <i>Facial (non-dental):</i> co-amoxiclav <sup>6B-</sup>  <i>If penicillin allergic:</i> Clarithromycin <sup>1D,2D,3A+,5A+</sup> <i>Penicillin allergy &amp; taking statins:</i> doxycycline <sup>2D</sup> <i>Unresolving:</i> clindamycin <sup>3A+</sup>	500mg QDS <sup>1D,2D</sup>  500/125mg TDS <sup>1D</sup>  500mg BD <sup>1D,2D</sup>  200mg stat then 100mg OD <sup>2D</sup> 300mg QDS <sup>1D,2D</sup>	All for 7 days. <sup>1D</sup> If slow response continue for a further 7 days <sup>1D</sup>
<b>Leg Ulcer</b> PHE	<b>Ulcers always colonized.</b> <sup>1C,2A+</sup> Antibiotics do not improve healing unless active infection <sup>2A+</sup> and may put patient at risk of C difficile infection. If active infection, send pre-treatment swab <sup>3D</sup> Review antibiotics after culture results.	<b>Active infection:</b> cellulitis/increased pain/pyrexia/purulent exudate/odour <sup>4D</sup> <i>If active infection:</i> Flucloxacillin <sup>5D</sup> or clarithromycin <sup>5D</sup>	500mg QDS <sup>5D</sup> 500mg BD <sup>5D</sup>	As for cellulitis <sup>5D</sup>

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT	
<b>PVL-SA PHE</b> <b>ICID pathology handbook</b>	Panton-Valentine Leukocidin (PVL) is a toxin produced by 20.8-46% of <i>S. aureus</i> from boils/abscesses. <sup>1B+,2B+,3B-</sup> These strains are considered to be rare in healthy people, but can cause severe infections. <sup>2B+</sup> <b>Suppression therapy</b> is likely to be ineffective if skin lesions are still leaking, <sup>4D</sup> so should only be started after the primary infection has resolved. <sup>4D</sup> <b>Risk factors for PVL:</b> recurrent skin infections, <sup>2B+</sup> invasive infections, <sup>2B+</sup> MSM, <sup>3B-</sup> if there is more than one case in a home or close community <sup>2B+,3B-</sup> (school children; <sup>3B-</sup> military personnel); <sup>3B-</sup> nursing home residents; <sup>3B-</sup> household contacts <sup>3B-</sup> .				
<b>Bites</b> <b>CKS</b>	Human: Thorough irrigation is important. <sup>1A+,2D</sup> Antibiotic prophylaxis is advised. <sup>1A+,2D,3D</sup> Assess risk of tetanus, rabies, <sup>1A+</sup> HIV, hepatitis B&C. <sup>3D</sup> Cat: Always give prophylaxis <sup>1A+,3D</sup> Dog: give prophylaxis if: puncture wound; <sup>1A+,3D</sup> bite to hand, foot, face, joint, tendon, ligament; <sup>1A+</sup> immunocompromised/asplenic/cirrhotic/ presence of prosthetic valve/joint <sup>2D,4A+</sup> Penicillin allergy: Review all at 24-48hrs <sup>3D</sup> as not all pathogens are covered. <sup>2D,3D</sup>	<i>Prophylaxis or treatment:</i> co-amoxiclav <sup>2D,3D</sup>  <i>Penicillin allergic:</i>  Human : metronidazole <sup>3D,4A+</sup> PLUS clarithromycin <sup>3D,4A+</sup>  <i>Animal:</i> metronidazole <sup>3D,4A+</sup> AND doxycycline <sup>3D</sup>	375-625mg TDS <sup>3D</sup>  400mg TDS <sup>2D</sup> 250-500mg BD <sup>2D</sup>  400mg TDS <sup>2D</sup> 100mg BD <sup>2D</sup>	All for 7 days <sup>3D,5D</sup>	
<b>Mastitis</b> <b>CKS</b>	Antibiotics not always required. <i>S.aureus</i> is the most common infecting pathogen. <sup>1D</sup> Suspect if woman has: a painful breast; <sup>2D</sup> fever &/or general malaise; <sup>2D</sup> a tender, red breast. <sup>2D</sup> <b>Breastfeeding:</b> oral antibiotics are appropriate, where indicated. <sup>2D,3A+</sup> Women should continue feeding, <sup>1D,2D</sup> including from the affected breast. <sup>2D</sup> Continuation of breastfeeding or expressing will aid resolution of mastitis. Also use simple analgesia.	See different scenarios on CKS link for correct treatment of each of these categories: Lactating women/ Non-lactating women/ Breast Abscess <b>For lactating women, if no breast milk culture is available to guide treatment use:</b>	Flucloxacillin <sup>2D</sup> <i>If penicillin allergic:</i>  Erythromycin OR Clarithromycin	500mg QDS <sup>2D</sup>  250-500 mg QDS <sup>2D</sup> 500mg BD <sup>2D</sup>	10-14 days <sup>2D</sup>
<b>Scabies</b> <b>NHS Scabies</b>	Treat whole body from ear/chin downwards <sup>1D,2D</sup> and under nails. <sup>1D,2D</sup> If under 2 years/elderly, also treat face/scalp <sup>1D,2D</sup> Treat all home and sexual contacts within 24hrs <sup>1D</sup>	Permethrin <sup>1D,2D,3A+</sup> <i>If permethrin allergy:</i> malathion <sup>1D</sup>	5% cream <sup>1D,2D</sup>  0.5% aqueous liquid <sup>1D</sup>	2 applications, 1 week apart <sup>1D</sup>	
<b>Dermatophyte infection- skin</b> <b>PHE Fungal skin and nail infections</b>	<b>Topical treatment for most fungal skin and nail infections are a low clinical priority for local CCGs and is suitable for self care.</b> Terbinafine is fungicidal: <sup>1D</sup> treatment time shorter than with fungistatic imidazoles. <sup>1D,2A+,3A+</sup> If candida possible, use imidazole <sup>4D</sup> <b>If intractable, or scalp:</b> send skin scrapings, <sup>1D</sup> and <b>if infection confirmed:</b> use <u>oral</u> terbinafine <sup>1D,3A+,4D</sup> /itraconazole <sup>2A+,3A+,5D</sup> <b>Scalp:</b> oral therapy, <sup>6D</sup> & discuss with specialist. <sup>1D</sup>	Topical terbinafine <sup>3A+,4D</sup> <i>or</i> topical imidazole <sup>2A+,3A+</sup>  <i>For athlete's foot:</i> topical undecanoates (e.g. Mycota®) <sup>2A+</sup> <i>Patients should be asked to buy these products themselves OTC from a pharmacy.</i>	1% OD-BD <sup>2A+</sup>  1% OD-BD <sup>2A+</sup>  OD-BD <sup>2A+</sup>	1-4 weeks <sup>3A+</sup>  4-6wks <sup>2A+,3A+</sup>	
<b>Dermatophyte infection- nail</b> <b>CKS</b>	<b>Topical treatment for most fungal skin and nail infections are a low clinical priority for local CCGs and is suitable for self care.</b> Take nail clippings; <sup>1D</sup> start therapy only if infection is confirmed. <sup>1D</sup> Oral terbinafine is more effective than oral azole. <sup>1D,2A+,3A+,4D</sup> Liver reactions 0.1 to 1% with oral antifungals. <sup>3A+</sup> If candida or non-dermatophyte infection is confirmed, use oral itraconazole. <sup>1D,3A+,4D</sup> Topical nail lacquer is not as effective. <sup>1D,5A+,6D</sup> <b>To prevent recurrence:</b> apply weekly 1% topical antifungal cream to entire toe area. <sup>6D</sup> <b>Children:</b> seek specialist advice. <sup>4</sup>	<i>First line:</i> terbinafine <sup>1D,2A+,3A+,4D,6D</sup>  <i>Second line:</i> itraconazole <sup>1D,3A+,4D,6D</sup>  Treatment successful when continual, new, healthy, proximal nail growth. <sup>6D</sup>	250mg OD <sup>1D,2A+,6D</sup> fingers toes  200mg BD <sup>1D,4D</sup>  Fingers Toes	6 weeks <sup>1D,6D</sup> 12 weeks <sup>1D,6D</sup>  1 week/month <sup>1D</sup> 2 courses <sup>1D</sup> 3 courses <sup>1D</sup>	

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
<b>Varicella zoster/chicken pox</b> PHE Varicella  <b>Herpes Zoster/Shingles</b> PCDS Herpes zoster	<p><b>Pregnant/immunocompromised/neonate:</b> seek urgent specialist advice.<sup>1D</sup></p> <p><b>Chicken pox:</b> IF onset of rash &lt;24hrs<sup>3A+</sup> &amp; one of the following: &gt;14 years of age;<sup>4D</sup> severe pain;<sup>4D</sup> dense/oral rash;<sup>4D,5B+</sup> taking steroids;<sup>4D</sup> smoker<sup>4D,5B+</sup> consider aciclovir<sup>2A+,3A+,4D</sup></p> <p><b>Shingles:</b> treat if &gt;50 years<sup>6A+,7D</sup> (PHN rare if &lt;50 years<sup>8B+</sup>) and within 72 hrs of rash,<sup>9A+</sup> or if one of the following: active ophthalmic;<sup>10D</sup> Ramsey Hunt;<sup>4D</sup> eczema;<sup>4D</sup> non-truncal involvement;<sup>7D</sup> moderate or severe pain;<sup>7D</sup> moderate or severe rash.<sup>5B+,7D</sup></p> <p><b>Treatment not within 72 hours:</b> consider starting antiviral drug up to 1 week after rash onset,<sup>11B+</sup> if high risk of severe shingles<sup>11B+</sup> or complications<sup>11B+</sup> (continued vesical formation;<sup>4D</sup> older age;<sup>6A+,7D,11B+</sup> immunocompromised;<sup>4D</sup> severe pain).<sup>7D,11B+</sup></p>	Aciclovir <sup>3A+, 6A+, 9A+, 12B+, 13A-, 14A+</sup>  <i>Second line for shingles if compliance a problem:</i> valaciclovir <sup>7D,13A-,15A-</sup> PRESCRIBE GENERICALLY	800mg five times a day <sup>15A-</sup>  1g TDS <sup>13A-</sup> (NB: Use the 500mg tablets, DO NOT use 250mg tablets due to cost)	7 days <sup>13A-,15A-</sup>  7 days <sup>13A-,15A-</sup>
<b>Cold Sores</b> CKS Cold Sores	Cold sores resolve after 5 days without treatment. <sup>1A-,2A-</sup> Provide self-care advice. Patients can purchase topical antiviral products OTC from community pharmacies. Consider oral prophylaxis, if frequent, severe, and with predictable triggers. <sup>4D,5A+</sup>	Topical antivirals applied prodromally reduce duration by 12-18hrs <sup>1A-,2A-,3A-</sup> Use aciclovir 400mg BD for 5-7 days. <sup>5A+,6A+</sup>		
<b>Lyme Disease</b>	See full guidance on page 9-10.			

## EYE INFECTIONS

<b>Conjunctivitis</b> AAO conjunctivitis PHE: Guidance on Infection Control in Schools and other Childcare Settings	<p><b>Only treat if severe,<sup>2A+</sup> as most viral<sup>3D</sup> or self-limiting.<sup>2A+</sup></b> Bacterial conjunctivitis is usually unilateral and <u>also</u> self-limiting.<sup>2A+,3D</sup> It is characterised by red eye with mucopurulent, not watery, discharge.<sup>3D</sup></p> <p>65% and 74% resolve on placebo by day 5 &amp; 7.<sup>4A-,5A+</sup> Fusidic acid is no longer included in this guidance due to its high cost and poor activity for a self-limiting condition.</p>	First-line: Self-care <sup>1D</sup>  Second-line: Chloramphenicol <sup>1D,2A+,4A-,5A+</sup> 0.5% drop <sup>1D,2A+</sup> OR 1% ointment <sup>1D,5A+</sup>	2 hourly for 2 days, <sup>1D,2A+</sup> then reduce frequency <sup>1D</sup> 3-4 times daily, <sup>1D</sup> or just at night if using eye drops <sup>1D</sup>	48 hours after resolution <sup>2A+,7D</sup>
<b>Blepharitis</b> CKS	<p><b>First line:</b> lid hygiene<sup>1D,2A+</sup> for symptom control,<sup>1D</sup> including: warm compresses;<sup>1D,2A+</sup> lid massage and scrubs;<sup>1D</sup> gentle washing;<sup>1D</sup> avoiding cosmetics.<sup>1D</sup></p> <p><b>Second line:</b> topical antibiotics if hygiene measures are ineffective after 2 weeks.<sup>1D,3A+</sup> Consider oral antibiotics<sup>1D</sup> if signs of Meibomian gland dysfunction<sup>3D</sup> or acne rosacea.</p>	First-line: self-care <sup>1D</sup> Second-line: Chloramphenicol <sup>1D,2A+, 3A-</sup> 1% ointment <sup>2A+,3D</sup>  Third-line: Oxytetracycline <sup>1D,3D</sup> OR Doxycycline <sup>1D,2A+,3D</sup>	BD <sup>2A+,3D</sup>  500mg BD <sup>3D</sup> initially 250mg BD <sup>3D</sup> maintenance OR 100mg OD <sup>3D</sup> initially 50mgOD <sup>3D</sup> maintenance	6 week trial <sup>3D</sup>  4 weeks <sup>3D</sup> 8 weeks <sup>3D</sup> 4 weeks <sup>3D</sup> 8 weeks <sup>3D</sup>

## DENTAL INFECTIONS

GPs should not routinely be involved in dental treatment and, if possible, advice should be sought from the patient's dentist, who should have an answer-phone message with details of how to access treatment out-of-hours, or telephone 111 (NHS 111 service in England).

## PRIMARY CARE MANAGEMENT OF LYME DISEASE

**Specialist Advice is required in the following circumstances (NICE NG95):**

- If an adult with Lyme disease has focal symptoms, consider a discussion with or referral to a specialist, without delaying treatment. Choose a specialist according to the person's symptoms, for example, an adult infection specialist, rheumatologist or neurologist.
- Discuss the diagnosis and management of Lyme disease in children and young people under 18 years with a specialist, unless they have a single erythema migrans lesion and no other symptoms. Choose a specialist appropriate for the child or young person's symptoms dependent on availability, for example, a paediatrician, paediatric infectious disease specialist or a paediatric neurologist.

### Non-focal symptoms:

Fever and sweats/Swollen glands/Malaise/Fatigue/Neck pain or stiffness/Migratory joint or muscle aches and pain/Cognitive impairment such as memory problems and difficulty concentrating (sometimes described as "brain fog")/Headache/Paraesthesia

### Focal symptoms:

- Neurological symptoms (such as facial palsy or other unexplained cranial nerve palsies, meningitis, mononeuritis multiplex or other unexplained radiculopathy, or, rarely, encephalitis, neuropsychiatric presentations, or unexplained white matter changes on brain imaging)
- Inflammatory arthritis affecting one or more joints that may be fluctuating and migratory
- Cardiac problems such as heart block or pericarditis
- Eye symptoms such as uveitis or keratitis
- Skin rashes such as acrodermatitis chronica atrophicans or lymphocytoma

### When to test:

- See NICE laboratory investigations and diagnosis algorithm: <https://www.nice.org.uk/guidance/ng95/resources/visual-summary-pdf-4792272301>
- If recent tick bite without erythema migrans, but feel unwell (flu like symptoms without significant respiratory involvement), defer antibiotic treatment and do ELISA test. If there is a positive result offer Immunoblot test, if this is positive, treat with antibiotics, if negative, consider alternative diagnosis +/- seek specialist advice/referral. If there is a negative result and Lyme disease is suspected, repeat ELISA in 4 to 6 weeks after the first test.

ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TREATMENT
Lyme Disease <b>NICE NG95 2018</b> <b>PHE patient info leaflet</b> <b>PHE clinician advice</b> <b>NICE: Lyme disease laboratory investigations and diagnosis visual summary</b> <b>BMJ Lyme disease antibiotic treatment visual summary (April 2018)</b>	<b>Antibiotic treatment options for adults and young people (aged 12 and over) diagnosed with lyme disease according to symptoms</b> <b>PREGNANCY:</b> Ensure appropriate antibiotic is chosen if patient is pregnant (do not use doxycycline in pregnancy or breastfeeding). See <b>NICE NG95 for further information about treatment in pregnancy &amp; discuss treatment options with a microbiologist.</b>			
	Tick bite with no symptoms	<b>Do not treat &amp; supply PHE patient</b> "Tick Aware" leaflet to prevent future infection	N/A	N/A
	<b>Lyme disease without focal symptoms</b> <i>Erythema migrans &amp;/or non-focal symptoms</i> <i>Only use this option if 1<sup>st</sup> &amp; 2<sup>nd</sup> line are not suitable as azithromycin does not penetrate the blood brain barrier which may be important for the prevention of later disseminated disease.</i>	1 <sup>st</sup> line: Doxycycline 2 <sup>nd</sup> line: Amoxicillin 3 <sup>rd</sup> line: Azithromycin*	100mg BD or 200mg OD 1g TDS 500mg OD	21 days 21 days 17 days
	<b>Lyme disease with focal symptoms</b> <i>Lyme disease affecting the cranial nerves or peripheral nervous system</i> <ul style="list-style-type: none"> <li>• Consider seeking specialist advice in adults.</li> <li>• Seek advice in patients aged 12-18.</li> </ul>	1 <sup>st</sup> line: Doxycycline 2 <sup>nd</sup> line: Amoxicillin	100mg BD or 200mg OD 1g TDS	21 days 21 days
	<b>Lyme disease affecting the central nervous system</b> <b>Lyme disease arthritis</b> <b>Acrodermatitis chronica atrophicans</b> <b>Lyme carditis*</b> <b>Lyme carditis &amp; haemodynamically unstable</b>	Refer for specialist advice and perform an ELISA test (see <b>NICE laboratory investigations and diagnosis algorithm</b> ). For further information see <b>NICE NG95</b> .		
	<b>Antibiotic treatment options for children (under 12) diagnosed with Lyme disease according to symptoms<sup>a,b,c</sup></b> <i>Discuss the diagnosis and management of Lyme disease in children and young people under 18 years with a specialist, unless they have a single erythema migrans lesion and no other symptoms.</i> <b>Children weighing more than the amounts specified should be treated according to section above for children over 12 and adults.</b>			
	Tick bite with no symptoms	<b>Do not treat &amp; supply PHE patient</b> "Tick Aware" prevention leaflet	N/A	N/A
	<b>Lyme disease without focal symptoms</b> <i>Erythema migrans &amp;/or non-focal symptoms</i>	9-12 years 1 <sup>st</sup> line: Doxycycline <sup>3</sup> for children <45kg  2 <sup>nd</sup> line: Amoxicillin for children ≤33kg	5mg/kg in 2 divided doses on day 1 followed by 2.5mg/kg daily in 1 or 2 divided doses <b>For severe infections:</b> Up to 5mg/kg OD  30mg/kg TDS	21 days  21 days

# Management of Infection guidance for Primary Care for Wiltshire/Swindon/BaNES CCG

January 2019 update

ILLNESS	COMMENTS	DRUG		DOSE	DURATION OF TREATMENT
Lyme Disease <b>NICE NG95 2018</b> <b>PHE patient info leaflet</b> <b>PHE clinician advice</b> <b>NICE: Lyme disease laboratory investigations and diagnosis visual summary</b> <b>BMJ Lyme disease antibiotic treatment visual summary (April 2018)</b>	<b>Lyme disease without focal symptoms continued</b> <i>Erythema migrans &amp;/or non-focal symptoms</i> <i>Only use azithromycin if 1<sup>st</sup> &amp; 2<sup>nd</sup> line are not suitable as azithromycin does not penetrate the blood brain barrier which may be important for the prevention of later disseminated disease.</i>	9-12 years	3 <sup>rd</sup> line: Azithromycin* <sup>d</sup> for children ≤50kg	10mg/kg OD	17 days
		Under 9 years	1 <sup>st</sup> line: Amoxicillin for children ≤33kg 2 <sup>nd</sup> line: Azithromycin* <sup>d</sup> for children ≤50kg	30mg/kg TDS 10mg/kg OD	21 days 17 days
	<b>Lyme disease with focal symptoms</b> <i>Lyme disease affecting the cranial nerves or peripheral nervous system</i> <i>Seek specialist advice.</i>	9-12 years	1 <sup>st</sup> line: Doxycycline <sup>a</sup> for children <45kg  2 <sup>nd</sup> line: Amoxicillin for children ≤33kg	5mg/kg in 2 divided doses on day 1 followed by 2.5mg/kg daily in 1 or 2 divided doses <u>For severe infections:</u> Up to 5mg/kg OD	21 days
		Under 9 years	1 <sup>st</sup> line: Amoxicillin for children ≤33kg <i>Seek microbiology advice if patient is penicillin allergic</i>	30mg/kg TDS	21 days
<b>Lyme disease affecting the central nervous system</b> <b>Lyme arthritis or Acrodermatitis chronica atrophicans</b> <b>Lyme carditis* (both haemodynamically stable and unstable)</b>	Refer for specialist advice and perform an ELISA test (see <a href="#">NICE laboratory investigations and diagnosis algorithm</a> ). For further information see <a href="#">NICE NG95</a> .				
<b>PRESCRIBING NOTES</b>	<p>*Do not use azithromycin to treat people with cardiac abnormalities associated with Lyme disease because of its effect on the QT interval</p> <p>a Currently, (April 2018), doxycycline does not have a UK marketing authorisation for this indication in children under 12 years and is contraindicated. The use of doxycycline for children aged 9 years and above in infections where doxycycline is considered first line in adult practice is accepted specialist practice. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the <a href="#">General Medical Council's Prescribing guidance: prescribing unlicensed medicines</a> for further information.</p> <p>b Discuss management of Lyme disease in children and young people with a specialist, unless they have a single erythema migrans lesion with no other symptoms, see <a href="#">NICE NG95</a> recommendation 1.3.2.</p> <p>c Children weighing more than the amounts specified should be treated according to adult dosage table.</p> <p>d Currently, (April 2018), azithromycin does not have a UK marketing authorisation for this indication in children under 12 years. The prescriber should follow relevant professional guidance, taking full responsibility for the decision. Informed consent should be obtained and documented. See the <a href="#">General Medical Council's Prescribing guidance: prescribing unlicensed medicines</a> for further information.</p> <p><b>Use of doxycycline in children aged 9-12 years (NICE NG95 full guidance) p48-49:</b>                      "The guideline committee was aware that specialists in the UK do offer doxycycline in children aged 9 years and above as a result of indirect evidence from the United States and Scandinavia despite no licence or BNFC dose. There is also increasing indirect evidence from use in other conditions in the United States and Canada that <b>doxycycline does not cause teeth staining when used for short course (less than 4 weeks) in children aged 2 years and older</b> and international practice is moving to recommend use above 2 years."</p>				
<b>ON-GOING SYMPTOMS</b>	<p>If symptoms that may be related to Lyme disease persist, do not continue to improve or worsen after antibiotic treatment, review the person's history and symptoms to explore:</p> <ul style="list-style-type: none"> <li>possible alternative causes of the symptoms</li> <li>if re-infection may have occurred</li> <li>if treatment may have failed</li> <li>details of any previous treatment, including whether the course of antibiotics was completed without interruption</li> <li>if symptoms may be related to organ damage caused by Lyme disease, for example, nerve palsy.</li> </ul> <p>If the person's history suggests re-infection, offer antibiotic treatment for Lyme disease according to their symptoms (as per tables above).</p> <p>Consider a second course of antibiotics for people with ongoing symptoms if treatment may have failed. Use an alternative antibiotic to the initial course.</p> <p>If a person has ongoing symptoms following 2 completed courses of antibiotics for Lyme disease do not routinely offer further antibiotics <b>and</b> consider discussion with a national reference laboratory or discussion or referral to a specialist.</p> <p>Explain to people with ongoing symptoms following antibiotic treatment for Lyme disease that:</p> <ul style="list-style-type: none"> <li>continuing symptoms may not mean they still have an active infection</li> <li>symptoms of Lyme disease may take months or years to resolve even after treatment</li> <li>some symptoms may be a consequence of permanent damage from infection</li> <li>there is no test to assess for active infection and an alternative diagnosis may explain their symptoms.</li> </ul>				
<b>Further reading</b>	Lyme disease: summary of NICE guidance. BMJ 12 <sup>th</sup> April 2018;361:k1261 <a href="https://www.bmj.com/content/361/bmj.k1261?hwoasp=authn%3A1524670673%3A5762771%3A182198390%3A0%3A0%3A2orIFbSxyV9iNoJCoAz8Xw%3D%3D">https://www.bmj.com/content/361/bmj.k1261?hwoasp=authn%3A1524670673%3A5762771%3A182198390%3A0%3A0%3A2orIFbSxyV9iNoJCoAz8Xw%3D%3D</a>				

## References:

For the evidence base surrounding the choice of antibiotics in this guidance, please see original document from Public Health England (p11-61):

- <https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care>

## Other useful resources:

PHE Health protection in schools and other childcare facilities September 2017:

- <https://www.gov.uk/government/publications/health-protection-in-schools-and-other-childcare-facilities>

Version number	Author	Purpose/change	Date
1.1	Rachel Hobson	Revisions to update guidance in line with new primary care antibiotic guidance from PHE (May/August 17): <ul style="list-style-type: none"> <li>• Links updated</li> <li>• Removal of reference to CENTOR score in sore throat section</li> <li>• Changed clarithromycin to erythromycin for sore throat penicillin allergic patients and in pregnancy</li> <li>• <i>H.pylori</i>: Removed reference to use of De-Nol (unavailable) replaced with bismuth subsalicylate (Pepto Bismol).</li> <li>• Erythema chronicum migrans section completely re-written and updated.</li> <li>• Principles of prescribing section (page 1) updated pregnancy advice</li> <li>• UTI in adults: First line nitrofurantoin and trimethoprim only to be used if low risk of resistance</li> <li>• Conjunctivitis: removal of Fusidic acid eye ointment as an option.</li> <li>• Acute sinusitis: new 1<sup>st</sup> line pen V. Clarithromycin new alternative if pen allergy.</li> <li>• For recurrent <i>C. Difficile</i> Vancomycin is no longer an option, just fidaxomicin.</li> <li>• New section on blepharitis.</li> </ul>	13/8/17
June 2018	Rachel Hobson	<ul style="list-style-type: none"> <li>• New section on Lyme Disease</li> </ul>	2/6/18
December 2018	Rachel Hobson	<ul style="list-style-type: none"> <li>• Updated the following sections so that they are in-line with new NICE guidance: <ul style="list-style-type: none"> <li>○ Otitis media (acute)</li> <li>○ Sore throat (acute)</li> <li>○ Sinusitis (acute)</li> <li>○ UTI (lower)</li> <li>○ Prostatitis (acute)</li> <li>○ Pyelonephritis (acute)</li> <li>○ UTI (recurrent)</li> </ul> </li> <li>• NEW section as per NICE: UTI (catheter)</li> </ul>	4/12/18
January 2019	Rachel Hobson	<ul style="list-style-type: none"> <li>• Updated chlamydia section in-line with updated BASHH guidance, to extend duration of azithromycin treatment and to position doxycycline above azithromycin.</li> </ul>	