

Primary Care Antimicrobial Treatment Guidelines

(version 1.1)

These antimicrobial guidelines have been written and reviewed by the Lewisham & Greenwich NHS Trust, Bexley, Lewisham, Oxleas and Greenwich (LGT BLOG) Antimicrobial Forum. This group consists of a multidisciplinary team of healthcare professionals from organisations within South East London including Bexley, Lewisham, and Greenwich Clinical Commissioning Groups, Oxleas NHS Foundation Trust and Lewisham & Greenwich NHS Trust.

The LGT BLOG Antimicrobial Forum is a sub-committee of the Lewisham and Greenwich NHS Trust antimicrobial steering group and is advisory to the individual Clinical Commissioning Groups' Medicines Management Committees and Oxleas NHS Foundation Trust. This guideline has been adapted for local use from the Public Health England document; Management of infection guidance for primary care for consultation and local adaptation July 2015.

DOCUMENT CONTROL

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Aims

The aims of these guidelines, in line with evidence based national guidelines and primary care priorities are to:

- Promote the safe, effective, and economic use of antimicrobials within the primary care services of the three boroughs (Bexley, Lewisham, Greenwich), Oxleas NHS Foundation Trust and Lewisham and Greenwich NHS Trust, including urgent care and out-of-hours centres.
- Manage the prescribing of antibiotics thus reducing the incidence of antibiotic associated infections such as *Clostridium difficile* infection (CDI) and methicillin resistant *Staphylococcus aureus* (MRSA) infection.
- Minimise the emergence of bacterial resistance to antibiotics within the community.
- Assist prescribers in selecting an appropriate antibiotic for commonly encountered infections.

Principles of Treatment

1. This guidance is based on the best available evidence but use professional judgement and involve patients in management decisions.
2. In severe infections it is important to initiate antibiotics as soon as possible.
3. Where an empirical therapy has failed or special circumstances exist, microbiological advice can be obtained from the local hospital microbiologist:
 - **QEH site 020 8836 6000 extension 5697,**
 - **UHL site 020 8333 3000 bleep 7019**Or via switchboard if urgent advice is required outside of normal working hours
4. Prescribe an antibiotic only when there is likely to be a clear clinical benefit.
5. Consider a 'No' or 'Back-up/Delayed' antibiotic strategy for acute self-limiting upper respiratory tract infections, and mild UTI symptoms.
6. Limit prescribing over the telephone to exceptional cases.
7. 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 the risk of *Clostridium difficile*, MRSA and resistant UTIs.
8. In these guidelines a dose and duration of treatment for adults is usually suggested, but may need modification for age, weight and hepatic/renal function. In severe or recurrent cases consider a larger dose or longer course. Please refer to the most up-to-date BNF for further dosing and interaction information (e.g. interaction between macrolides and statins) if needed. Child doses are generally NOT provided; please refer to the most up-to-date BNFc for the latest prescribing advice.
9. There should be a lower threshold for antibiotic treatment in immunocompromised patients or those with multiple morbidities; consider culture and seek advice.

10. Infections acquired whilst a patient is abroad or in healthcare facilities may be caused by microbial strains resistant to antimicrobial agents commonly used in UK primary care practice—a lower threshold for seeking specialist advice is suggested.
11. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations, e.g. fusidic acid).
12. In pregnancy take specimens to inform treatment; consult up-to-date BNF or prescribing information to help guide if a drug is suitable for use in pregnancy.
13. This guidance should not be used in isolation; it should be supported with patient information about back-up/delayed antibiotics, infection severity and usual duration, clinical staff education, and audits. Materials are available on the [RCGP TARGET website](#).

Notifiable Infectious Diseases on Suspicion (NOIDS)

Some infectious diseases and infections are **notifiable** to the Local Authority Proper Officer under the Health Protection (Notification) Regulations 2010. Where these infections may relate to certain categories of conditions covered in these guidelines indication is given in the table. Notification of the infections on the national list is a legal requirement.

It is the duty of the diagnosing medical practitioner to report any cases of these and other conditions, detailed on the list, on suspicion to the local Public Health England Health Protection team:

South London Health Protection Team:

South London HPT,
3rd Floor Zone C Skipton House,
80 London Road,
London,
SE1 6LH

E-mail: phe.selhpt@nhs.net

Phone: 0344 326 2052 (daytime and out of hours)

Fax: 0344 326 7255

NB: a 'final' diagnosis is not necessary for the notification of a suspected notifiable infectious disease. Please follow local procedures for notification.

Laboratory reporting and local sensitivities

During the period of 1st June 2014 to 31st December 2014, the antibiotic resistance of E. coli, (the most common Gram negative cause of urinary tract infections) were: trimethoprim 37%, amoxicillin 56%, nitrofurantoin 3% and co-amoxiclav 26% (these data were derived from all samples obtained from the local laboratory and is not specific to primary care).

For laboratory results suitable choices of antibiotics are reported in line with prescribing guidelines, available clinical information and organism susceptibility, however further information/choices are likely to be available on request from consultant microbiologist.

Clostridium difficile Infection Information

The incidence of *Clostridium difficile* Infection (CDI) within the community of the three boroughs is of equal concern to secondary care facilities. Good antimicrobial prescribing, as outlined in Principles of Treatment above will help to reduce the incidence of CDI:

- 1) Current evidence indicates that clindamycin and second or third generation cephalosporins, (e.g. cefuroxime, cefixime, cefotaxime, ceftriaxone) are significantly more likely to provoke *Clostridium difficile* infection (CDI). Anecdotal evidence also incriminates fluoroquinolones, first-generation cephalosporins (e.g. cefalexin) and co-amoxiclav. These antibiotics should be used sparingly especially in the elderly, in patients at significant risk of CDI and in patients previously diagnosed and / or treated for CDI.
- 2) Where possible a narrow spectrum antibiotic should be used to target the likely cause of the infection guided by microbiology results. **The minimum effective duration of treatment should be prescribed.**
- 3) There is evidence that the use of **Proton Pump Inhibitors (PPIs)** increases susceptibility to *C.difficile*. Review or if possible discontinue PPIs in patients with, or at high risk of, *C.difficile* infection— for more information see [Updated guidance on the management and treatment of Clostridium difficile infection](#) by Public Health England.
- 4) Prescribers should aim to ensure that all prescribing is within the recommendations of this guideline and in cases where deviation is required there is clear documentation of the rationale.

When examining patients with *Clostridium difficile* associated diarrhoea the following should be strictly observed:

- Regular hand washing using soap and water (**do not use alcohol gels** as alcohol is ineffective in killing bacterial spores)
- When appropriate employ universal precautions such as wearing gloves and aprons.

Useful Resources

Treat Antibiotics Responsibly, Guidance, Education, Tools (TARGET)

The Royal College of General Practitioners have published a '[TARGET Antibiotics toolkit](#)' in conjunction with the Antimicrobial Stewardship in Primary Care collaboration. It includes training resources, resources for clinicians, patient information leaflets, antibiotic guidance, a self assessment checklist and audit tools.

'Treating your Infection'

This [information leaflet](#) produced by the Royal College of General Practitioners in conjunction with numerous other national bodies, gives patients useful information on the duration of upper respiratory tract infections, what patients can do to ease symptoms and also safety nets for those patients whose condition deteriorates. It is available in a variety of languages. See also [Appendix 1](#) Treating your infection patient leaflet.

The '[Green Book](#)', Immunisation against infectious diseases has the latest information on vaccines and vaccination procedures for vaccine preventable diseases in the UK

[The British National Formulary](#) (BNF) and [British National Formulary for Children](#) (BNFc) provide UK healthcare professionals with authoritative and practical information on the selection and clinical use of medicines in a clear, concise and accessible manner.

[Summary of Product Characteristics](#) (SPC) provides detailed information on the licensed indications, dosing, cautions, contra-indications and side effects associated with the drug/ preparation. These are supplied by the manufacturer of the medicine

[Public Health England](#) provide a range of resources and information relating to the treatment and prevention of infection

Products available from community pharmacies without a prescription are indicated '**OTC**' (Over the counter).

For further information contact the local Prescribing Advisor from your Clinical Commissioning Group (CCG).

Oxleas Staff - For any medicines related enquiries contact Oxleas Medicines Information, or for advice on infection prevention and control, contact the Infection Control Team as per local guidance.

Allergies

It is good practice to ensure that all patients who report an allergy are assessed and the nature and severity of the allergy documented to differentiate between a true allergic response and adverse effects—see also [NICE guidance 183, drug allergy: diagnosis and management](#)

Throughout these guidelines, the Antibiotic Allergy Traffic light system is in use:

- Drugs in **RED** are contra-indicated in patients with a penicillin allergy
- Drugs in **ORANGE** can be used with caution in patients with a non-severe penicillin allergy if no suitable alternative available but should be avoided in patients with a severe penicillin allergy;
- Drugs in **GREEN** may be used safely in patients with a penicillin allergy.

The use of **cefalexin** within this guideline can be substituted with any other first generation cephalosporin e.g. **cefadroxil**

The use of **clarithromycin** within this guideline can be substituted with **erythromycin** (see BNF/BNFc for dose recommendation).

Penicillin Allergy

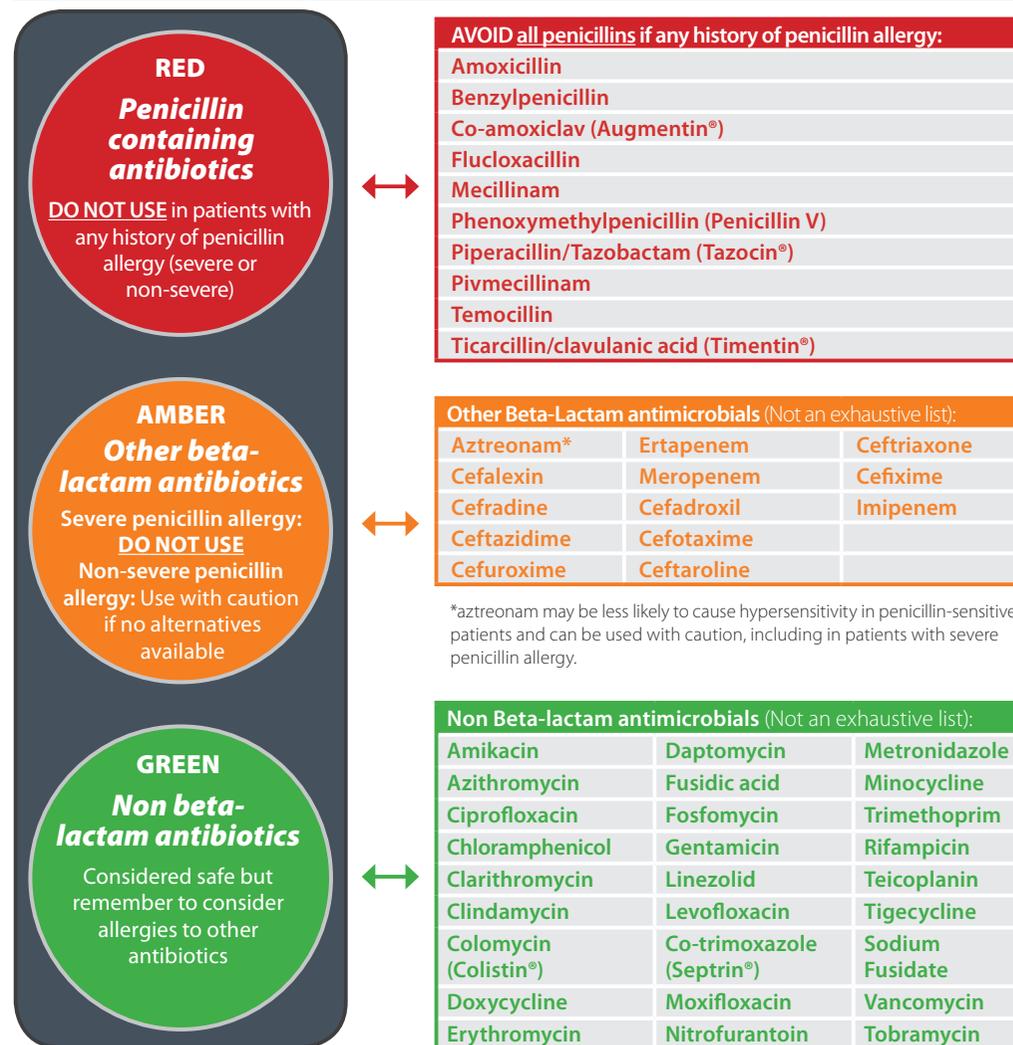
Record all drug allergies clearly on patient records with details of the reaction.

Allergic reactions to **penicillins** are reported frequently, however anaphylactic reactions are uncommon. Patients allergic to one **penicillin** will usually be allergic to all **penicillins**. These patients may also react to other beta-lactam antibiotics e.g. **cephalosporins**, **carbapenems** e.g. (**meropenem**)

Severe penicillin allergy: e.g. anaphylaxis, immediate onset urticarial rash, angio-oedema, Stevens Johnson type reactions

Non-severe allergy: e.g. delayed/minor rash, mild fixed drug eruptions

The following colour coding is used throughout the Trust antimicrobial guidelines:



*aztreonam may be less likely to cause hypersensitivity in penicillin-sensitive patients and can be used with caution, including in patients with severe penicillin allergy.

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
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MENINGITIS

<p>Meningitis (adult and child)</p> <p><i>Neisseria meningitidis, Streptococcus pneumoniae, Haemophilus influenzae, Viruses.</i></p> <p>Notifiable disease on diagnosis or suspicion (see above)</p>	<p>If meningococcal disease is suspected, with a non-blanching rash initiate immediate treatment with:</p> <p>Benzympenicillin by slow IV injection OR by deep IM injection if vein cannot be found.</p> <p>Adult and child > 10 years 1.2g stat Child 1–9 years 600mg stat Child < 1 year 300mg stat</p>	<p>If non-severe penicillin allergy: Cefotaxime IV over 3-5 minutes OR by deep IM injection if vein cannot be found.</p> <p>Adult and child > 12 years 1g stat Child < 12 years 50mg/kg stat</p> <p>If severe penicillin allergy: Transfer patient to hospital Immediately</p>	<p style="text-align: center;"><u>Transfer all patients to hospital immediately.</u></p>
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Prevention of secondary case of meningitis Contact Public Health England for advice on prevention of secondary cases of meningitis ([see Notifiable Infectious Diseases on Suspicion above](#))

EYE INFECTION

<p>Conjunctivitis (adult and child)</p> <p><i>Viral, Staph. aureus, beta-haemolytic streptococci (BHS), Pneumococci, Haemophilus influenzae</i></p>	<p>Note most conjunctivitis is viral — consider if antimicrobial treatment is required as most are self-limiting (65% resolve with placebo by day 5)</p> <p>Bacterial conjunctivitis is usually unilateral and also self-limiting; it is characterised by red eye with mucopurulent, not watery, discharge.</p> <p>Treat only if severe</p> <p>Chloramphenicol 0.5% eye drops 2 hourly for 2 days then 4 hourly (whilst awake) and Chloramphenicol 1% eye ointment at night. (OTC for child over 2 years only) OR Fusidic Acid 1% eye drops BD (only active against staphylococci, no Gram negative activity).</p>	<p>Continue treatment for 2 days after resolution of symptoms. Maximum 7 days treatment</p> <p>In children less than 4 weeks consider possibility of ophthalmia neonatorum.</p>
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INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
UPPER RESPIRATORY TRACT INFECTION			
<p>Acute Sore Throat /Pharyngitis /Tonsillitis (adult and child)</p> <p>(Majority viral) β haemolytic Streptococci (BHS) e.g. groups A,C & G</p>	<p>Adult: Phenoxymethylpenicillin 500mg QDS for 10 days</p> <p>(Child, see BNFC for dose recommendations)</p>	<p>Adult: Clarithromycin 500mg BD for 10 days</p> <p>(Child, see BNFC for dose recommendations)</p>	<p>In most cases antibiotics are not required for viral infections as 90% resolve in 7 days without antibiotics. Consider supportive management – see also Appendix 1: Treating your infection patient leaflet</p> <p>FeverPAIN score should be used to aid decision making.</p> <p>Score a point for each of: Fever in last 24hours; purulence; attendance within 3 days; severely inflamed tonsils; no cough or coryza.</p> <p>Score 0-1: 13-18% streptococci, use NO antibiotic strategy;</p> <p>2-3: 34-40% streptococci, use 3 day back-up antibiotic;</p> <p>>4: 62-65% streptococci, use immediate antibiotic if severe, or 48 hour short backup prescription.</p>
<p>Acute Otitis Media (AOM) (adult and child)</p> <p>Common in children and usually Viral in origin. BHS, <i>Haemophilus influenzae</i>, <i>Moraxella catarrhalis</i> <i>Streptococcus pneumoniae</i></p>	<p>Child: If <2 years old, bilateral infection or discharge from ear, bulging membrane or recurrent infections early antibiotic treatment is recommended.</p> <p>If >2 years, consider if antibiotic treatment is necessary, delay antibiotics for 2-3 days unless significant symptoms are present</p> <p>Amoxicillin TDS for 5 days (see BNFC for dose recommendations)</p> <p>Adult: AOM is rare in adults and referral to a specialist should be considered on clinical grounds</p> <p>Amoxicillin 500mg TDS for 5 days</p> <p>If severe presentation* / no response after 5 days / recent treatment with amoxicillin then send swabs and escalate to: Co-amoxiclav 625mg TDS for 5 days</p>	<p>Clarithromycin BD for 5 days (see BNFC for dose recommendations/ alternative choices)</p> <p>Clarithromycin 500mg BD for 5 days</p>	<p>60% resolve without antibiotics within 24 hours. See also Appendix 1: Treating your infection patient leaflet.</p> <p>Consider referral to specialists in all cases of treatment failure.</p> <p>*Severe presentation includes: patients with fever, significant hearing loss, severe pain, and/or marked erythema.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS		
UPPER RESPIRATORY TRACT INFECTION continued					
<p>Acute Otitis Externa (AOE) (adult and child)</p> <p><i>S. aureus</i>, Fungi including <i>Aspergillus sp.</i> (<i>Pseudomonas</i> may be isolated from ear swabs and often reflects replacement colonising flora following antibiotic use, but may be significant in diabetic patients and swimmers)</p>	<p>First use aural toilet and analgesia</p> <p>Mild: Acetic Acid 2% (Earcalm®) for 7 days (>2 years old) (OTC)</p> <p>Second line: Betnesol-N® ear drops 3 drops TDS for 7-14 days OR Otomize® ear spray 1 spray TDS for 7-14 days</p> <p>If cellulitis or disease extending outside of ear canal, start oral antibiotics and refer:</p> <table border="1" data-bbox="595 587 1639 724"> <tr> <td data-bbox="595 587 1117 724"> <p>Adult: Flucloxacillin 500mg QDS for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p> </td> <td data-bbox="1117 587 1639 724"> <p>Adult: Clarithromycin 500mg BD for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p> </td> </tr> </table>		<p>Adult: Flucloxacillin 500mg QDS for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p>	<p>Adult: Clarithromycin 500mg BD for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p>	<p>Cure rates similar at 7 days for topical acetic acid or antibiotic +/- steroid.</p> <p>Keep ear clean and dry.</p> <p>Swimmer's ear may require topical Ciprofloxacin 0.3% drops - 3 drops TDS for 7 days into the affected ear (unlicensed route) (adults only)</p>
<p>Adult: Flucloxacillin 500mg QDS for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p>	<p>Adult: Clarithromycin 500mg BD for 5 days</p> <p>(Child, see BNFC for dose recommendations)</p>				
<p>Malignant Otitis Externa</p> <p>Mainly <i>Pseudomonas aeruginosa</i>. As AOE plus anaerobes</p>	<p>Refer to ENT - Surgical debridement is often required together with intravenous antibiotic therapy.</p>				
<p>Sinusitis (adult and child)</p> <p>As AOM, plus anaerobes.</p>	<p>Adult: Amoxicillin 500mg TDS for 7 days (Child, see BNFC for dose recommendations)</p> <p>If persistent or severe worsening of symptoms escalate to co-amoxiclav 625mg TDS for 7 days (Child, see BNFC for dose recommendations)</p>	<p>Adult: Doxycycline 200mg on day 1, followed by 100mg daily for 6 days.</p> <p>(Child, seek advice from microbiology)</p>	<p>Avoid antibiotics as 80% resolve in 14 days without treatment. See also Appendix 1: Treating your infection patient leaflet.</p> <p>Use adequate analgesia.</p> <p>If evidence of purulent nasal discharge consider 7 day delayed or immediate antibiotic.</p> <p>Consider ENT referral for drainage of chronic infections.</p>		

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
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LOWER RESPIRATORY TRACT INFECTION
 Note – low doses of penicillin are more likely to select out resistance.
 Do not use the quinolone antibiotics first line (e.g. ciprofloxacin/ofloxacin/levofloxacin/moxifloxacin) due to poor pneumococcal activity; it is advisable to reserve these for proven resistant organisms.

<p>Community acquired pneumonia (adult)</p> <p>Likelihood of Community Acquired Pneumonia (CAP) is higher in elderly (signs not as predictive) and infants, or if focal chest signs and 1 or more systemic features (e.g. fever, aches/pains, temp. $\geq 38^{\circ}\text{C}$). Also consider if pulse >100 beats/min and respiratory rate >24/min.</p> <p><i>CAP: mostly Pneumococi</i> Other pathogens include <i>Moraxella, Mycoplasma, Chlamydia, Legionella, Haemophilus influenzae, viruses</i> <i>And rarely Staph. aureus.</i></p>	<p>Scoring for severity of CAP (Adults) CRB-65: Mental Confusion, Respiratory rate >30/min, Blood pressure systolic <90mmHg or diastolic ≤ 60mm Hg and ≥ 65 years old, score one point for each:</p> <p>CRB-65 Score = 0 (low risk)— treat at home CRB-65 Score = 1-2, (intermediate risk) —consider referral to hospital for assessment CRB-65 Score ≥ 3 (high risk) —urgent hospital admission</p> <p>CRB-65 = 0:</p> <p>Amoxicillin 500mg TDS for 7 days</p> <p>CRB-65 = 1–2: and home treated or if inadequate response within 48 hours.</p> <p>Amoxicillin 500mg TDS PLUS Clarithromycin 500mg BD for 7-10 days OR Doxycycline 200mg on day 1, followed by 100mg OD for 7-10 days to cover atypicals, especially Mycoplasma (adults only)</p>	<p>Clarithromycin 500mg BD for 7 days OR Doxycycline 200mg on day 1, followed by 100mg daily for 6 days.</p> <p>Doxycycline 200mg on day 1, followed by 100mg daily for 7-10 days.</p>	<p>Consider the possibility of influenza.</p> <p>Consider sending sputum/serum samples if no response to empirical therapy.</p> <p>If intermediate/high risk pneumonia and strong epidemiological risk consider sending urine sample for legionella antigen.</p>
<p>Mild community acquired pneumonia (child)</p> <p><i>CAP: mostly Pneumococi</i> Other pathogens include <i>Moraxella, Mycoplasma, Chlamydia, Legionella, Haemophilus influenzae, viruses</i> <i>And rarely Staph. aureus.</i></p>	<p>Amoxicillin for 7 days (see BNFC for dose recommendations)</p>	<p>Clarithromycin for 7 days (see BNFC for dose recommendations)</p>	<p>If any indicators of severe pneumonia are present refer to hospital for assessment</p> <p>Indicators of Severe Pneumonia</p> <ul style="list-style-type: none"> • Oxygen saturation $<92\%$ • Respiratory rate >50/min (or >70/min in infants) • Difficulty in breathing • Intermittent apnoea, grunting • Not feeding infant or signs of dehydration • Cyanosis • Moderate to severe rib recession in an infant • Nasal flaring

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
LOWER RESPIRATORY TRACT INFECTION (LRTI) continued:			
<p>Acute Infective Exacerbation of COPD (adult)</p> <p>Respiratory viruses <i>H influenzae</i> <i>Strep. pneumoniae</i></p>	<p>Amoxicillin 500mg TDS for 5 days</p> <p>If treatment failure with amoxicillin, consider: Doxycycline 200mg on day 1, followed by 100mg daily for 4 days.</p>	<p>Doxycycline 200mg on day 1, followed by 100mg daily for 4 days</p> <p>OR</p> <p>Clarithromycin 500mg BD for 5 days.</p>	<p>Treat exacerbations promptly with antibiotics if purulent sputum, and increased shortness of breath which interferes with daily activities and/or increased sputum volume.</p> <p>NICE recommends, as part of a self-management plan, patients at risk of an exacerbation can receive a supply of antibiotics, to be used during acute episodes.</p>
<p>Acute Bronchitis (adult)</p> <p>(majority viral)</p>	<p>Antibiotics not required for viral infection. However, consider immediate antibiotics if: over 80 years and one of below or greater than 65 years with 2 of below:</p> <ul style="list-style-type: none"> hospitalization in past year, oral steroids, diabetes, congestive heart failure <p>For people presenting with symptoms of lower respiratory tract infection where pneumonia is suspected but a diagnosis has not been made (e.g. severe or protracted symptoms) and it is not clear whether antibiotics should be prescribed, consider a point of care C-reactive protein test where available to guide antibiotic use:</p> <ul style="list-style-type: none"> CRP < 20mg/l — no antibiotics CRP 20–100mg/l — delayed antibiotics CRP > 100mg/l — immediate antibiotics 		<p>Antibiotics little benefit if no co-morbidity.</p> <p>Consider 7 days delayed antibiotic with advice.</p> <p>Symptom resolution can take up to 3 weeks.</p> <p>See also Appendix 1: Treating your infection patient leaflet.</p>
<p>Influenza (adult and child)</p> <p>Influenza A, B (rarely C)</p>	<p>Amoxicillin 500mg TDS for 5 days</p>	<p>Doxycycline 200mg on day 1, followed by 100mg daily for 4 days</p>	<p>Annual vaccination is essential for all those at risk of influenza. For otherwise healthy adults, antiviral therapy is not recommended.</p> <p>Refer to the Public Health England Influenza Guidelines for current advice on the management of Influenza.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
GASTROINTESTINAL INFECTION			
<p>Gastroenteritis/Food poisoning (adult)</p> <p>Majority viral, Campylobacter, Salmonella species, Shigella, Giardia, Cryptosporidium <i>E. coli</i>.</p> <p>Notifiable disease on diagnosis or suspicion (see above)</p>	<p>Antibiotic therapy not usually indicated if not systemically unwell</p> <p>Non-severe cases: fluid and electrolyte replacement therapy only.</p> <p>Severe cases: send stool samples for culture and await results.</p> <p>If systemically unwell and campylobacter infection suspected (e.g. undercooked meat and abdominal pain) consider: Clarithromycin 250mg BD for 5 days; this is only effective if administered within 3 days.</p>		<p>Bloody diarrhoea needs referral and/or urgent investigation for <i>E.coli</i> 0157 infection. Also consider taking 3 stool specimens to check for ova, cysts and parasites if diarrhoea is persistent / intermittent.</p>
<p>Traveller's diarrhoea (adult)</p>	<p>Only consider standby antibiotics for remote areas or people at high-risk of severe illness with traveller's diarrhoea</p> <p>If standby treatment appropriate give: Ciprofloxacin 500mg twice a day for 3 days (private prescription).</p> <p>If quinolone resistance high (e.g. South Asia): consider bismuth subsalicylate (Pepto Bismol®) 2 tablets QDS as prophylaxis or for 2 days treatment. (OTC)</p>		<p>Recurring traveller's diarrhoea—obtain stool sample before deciding if antibiotics are required and maintain fluid balance.</p>
<p>Clostridium difficile diarrhoea (adult)</p> <p>Toxin producing <i>Clostridium difficile</i></p> <p>Mandatory reporting to Department of Health</p>	<p>Review current medications to reduce <i>C.difficile</i> infection risk factors: If taking other antimicrobials these should be stopped if possible, as should laxatives, anti-motility agents and any codeine-containing medications. Proton pump inhibitors should also be reviewed.</p> <p>Review bowel frequency and for signs of severe infection—admit patient if severe infection e.g. temperature > 38.5°C, WCC > 15x10⁹/L, rising creatinine or sign/symptoms of severe colitis/perforation.</p> <p>If ≤5 stools/day and no signs of severe infection: Metronidazole 400mg TDS for 10–14 days.</p> <p>If >5 stools/day or second episode and no signs of severe infection: Vancomycin orally 125mg QDS for 10–14 days. Review progress closely.</p> <p>If signs of severe infection refer to hospital for assessment/treatment</p>		<p>If relapsing disease, seek specialist advice as other treatments including tapering vancomycin, fidaxomicin or faecal transplant may be indicated.</p> <p><i>C.difficile</i> can persist in the stool for several months. Do not test stool for cure.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
GASTROINTESTINAL INFECTION continued			
Eradication of <i>Helicobacter pylori</i> (adult)	First line:		Consider test and treat in persistent uninvestigated dyspepsia Do not offer eradication for gastro-oesophageal reflux disease (GORD)
	Generic PPI BD PLUS amoxicillin 1g BD PLUS clarithromycin 500mg BD* Triple therapy for 7 days	Generic PPI BD PLUS clarithromycin 500mg BD* PLUS metronidazole 400mg BD* Triple therapy for 7 days	
Previous clarithromycin in last 12 months	Generic PPI BD PLUS amoxicillin 1g BD PLUS metronidazole 400mg BD* Triple therapy for 7 days	Generic PPI BD PLUS bismuth subsalicylate 525mg QDS (OTC) PLUS metronidazole 400mg BD PLUS tetracycline hydrochloride 500mg QDS Quadruple therapy for 7 days	Duodenal / Gastric ulcer relapse: retest for <i>H. pylori</i> using breath or stool test OR consider endoscopy for culture & susceptibility. Consider use of an alternative PPI if patient is regularly using one. See NICE guideline for more detailed advice and treatment options.
Threadworm (adult and child)	<p>Adult and child aged over 6 months: Mebendazole 100mg stat (off-label if <2 years)</p> <p>Child aged under 6 months or as an alternative where drug treatment cannot be given: Strict hygiene measures for 6 weeks</p> <p>During pregnancy, physical removal of eggs combined with hygiene methods is the preferred treatment.</p> <ul style="list-style-type: none"> Mebendazole should not be used in the first trimester of pregnancy. However, it can be considered in the second or third trimester if drug treatment is considered necessary. This indication is off-label and BNF states “manufacturer advises toxicity in animal studies” For more details, contact the UK Teratology Information Service (UKTIS), formerly the National Teratology Information Service (NTIS), on 0844 892 0909. <p>Breastfeeding If a woman is breastfeeding, physical removal of eggs combined with hygiene methods is generally preferred. However, mebendazole can be considered if drug treatment is required. This indication is off-label.</p> <p>Some women who are pregnant or breastfeeding may be anxious to eradicate the worms as soon as possible (for example if it is proving difficult to prevent reinfection by hygiene methods alone). In this situation drug treatment may be preferred, provided the woman is not in the first trimester of pregnancy (see above comments).</p>		Treat household contacts at the same time Advise hygiene measures for at least 2 weeks (hand hygiene, pants at night, morning shower,) PLUS wash sleepwear, bed linen, dust and vacuum on day one. For additional information, including hand hygiene measure, see also CKS Threadworm .

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
URINARY TRACT INFECTION Extended Spectrum Beta Lactamase (ESBL) producing coliforms are increasingly prevalent causing UTI in the community.			
Asymptomatic bacteriuria (adult and child)	Treat asymptomatic bacteriuria only if patient is pregnant (and positive urine culture result has been confirmed with a second sample). Asymptomatic bacteriuria is common in the elderly; antibiotic treatment should not be offered as it does not eradicate asymptomatic bacteriuria and may be more harmful than beneficial.		
Lower urinary tract infection in children (no fever or flank pain) Coliforms including <i>E coli</i> , <i>Klebsiella sp</i> , <i>Proteus sp</i> , <i>Enterobacter sp</i> also Enterococci, <i>Staph saprophyticus</i> .	Children < 3 months old – refer urgently to paediatrician for further assessment. Children > 3 months old – obtain urine dipstick tests first and treat if nitrite positive or in the presence of obvious urinary symptoms. Send pre-treatment mid-stream urine (MSU). For patients with low-risk of trimethoprim resistance* : Trimethoprim for 3 days (see BNFC for dose recommendations) For patients with high-risk of trimethoprim resistance* : Nitrofurantoin for 3 days (see BNFC for dose recommendations)		For children, NICE Guidance (Aug 2007) does not recommend prophylactic antibiotics after a first episode of UTI. However, antibiotic prophylaxis may be considered in infants and children with recurrent UTIs. Treatment or prophylactic antibiotics should not be used in children with asymptomatic bacteriuria. Treatment should be guided by MSU culture and sensitivity results where available.
Upper urinary tract infection in children Coliforms including <i>E coli</i> , <i>Klebsiella sp</i> , <i>Proteus sp</i> , <i>Enterobacter sp</i> also Enterococci, <i>Staph saprophyticus</i>	Children < 3 months old – refer urgently to paediatrician for further assessment. Children > 3 months old – send pre-treatment MSU. Co-amoxiclav for 7–10 days (see BNFC for dose recommendations)	Children > 3 months old – send pre-treatment MSU. If non-severe penicillin allergy : Cefixime for 7–10 days (see BNFC for dose recommendations) If severe penicillin allergy : seek microbiology advice	*Risk factors for increased resistance include: <ul style="list-style-type: none"> recurrent UTI; hospitalisation >7 days in the last 6 months; unresolving urinary symptoms; long term urinary catheter; previous trimethoprim treatment; recent travel to a country with increased antimicrobial resistance (outside Northern Europe and Australasia) especially health related; previous known UTI resistant to trimethoprim, cephalosporins or quinolones. Cefixime tablets may be crushed and mixed with a small amount of water or soft foodstuff and taken immediately (unlicensed use).

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
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URINARY TRACT INFECTION continued
 Extended Spectrum Beta Lactamase (ESBL) producing coliforms are increasingly prevalent causing UTI in the community.

<p>Lower urinary tract infection in adults (no fever or flank pain)</p> <p>Coliforms including <i>E coli</i>, <i>Klebsiella sp</i>, <i>Proteus sp</i>, <i>Enterobacter sp</i> also Enterococci, <i>Staph saprophyticus</i></p>	<p>Low risk of trimethoprim resistance*: Trimethoprim 200mg BD for (3 days for women or 7 days for men)</p> <p>High risk of trimethoprim resistance* and eGFR >45ml/min: Nitrofurantoin 50mg QDS for (3 days for women or 7 days for men) OR Nitrofurantoin M/R 100mg BD for (3 days for women or 7 days for men)</p>		<p>Treatment should be guided by MSU culture and sensitivity results where available.</p> <p>For men send pre-treatment MSU.</p> <p>Women - may resolve untreated if mild symptoms, consider back-up/delayed antibiotics.</p>
	<p>High-risk of trimethoprim resistance* and eGFR < 45ml/min: Pivmecillinam 400mg TDS for (3 days for women or 7 days for men)</p>	<p>High-risk of trimethoprim resistance* and eGFR 30-45ml/min: (Nitrofurantoin can be used with caution if eGFR 30-45ml/min if no alternatives. Risk of treatment failure when eGFR<45ml/min. Consider possibility of reduced eGFR in frail, elderly patients)</p> <p>Nitrofurantoin 50mg QDS for (3 days for women or 7 days for men) OR Nitrofurantoin M/R 100mg BD for (3 days for women or 7 days for men)</p> <p>If eGFR <30ml/min treat as per sensitivities. (Fosfomycin 3g stat in women (plus 2nd dose 3 days later in men) may be a treatment option if sensitive)</p>	<p>Assess MSU results carefully noting the microscopy results particularly the absence of white blood cells and the presence of epithelial cells both of which could indicate a problem with contamination</p> <p>It is important to give guidance to patients to maintain hydration.</p> <p>*Risk factors for increased resistance include:</p> <ul style="list-style-type: none"> • care home resident; • recurrent UTI; • hospitalisation >7 days in the last 6 months; • unresolving urinary symptoms; • long term urinary catheter; • previous trimethoprim treatment; • recent travel to a country with increased antimicrobial resistance (outside Northern Europe and Australasia) especially health related; • previous known UTI resistant to trimethoprim, cephalosporins or quinolones.

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
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URINARY TRACT INFECTION continued
 Extended Spectrum Beta Lactamase (ESBL) producing coliforms are increasingly prevalent causing UTI in the community.

<p>Upper urinary tract infection/pyelonephritis in adults (excluding pregnancy) (e.g. if fever, nausea & vomiting, flank pain, malaise, rigors)</p> <p>Coliforms including <i>E coli</i>, <i>Klebsiella sp</i>, <i>Proteus sp</i>, <i>Enterobacter sp</i> also Enterococci, <i>Staph saprophyticus</i></p>	<p>Co-amoxiclav 625mg TDS for 7 days</p>	<p>Ciprofloxacin 500mg BD for 7 days</p>	<p>Treatment should be guided by MSU culture and sensitivity results where available (trimethoprim or amoxicillin may be appropriate for 14 days treatment). If admission not needed, send a pre-treatment MSU and start antibiotics. Follow up may be appropriate. If no response within 24 hours, referral to hospital for further management is advised. If ESBL risk and with microbiology advice consider IV antibiotics via ambulatory care/OPAT (if available) If recurrent cystitis, severe or unresponsive: seek specialist advice and send MSU. The diagnosis of pyelonephritis (distinct from cystitis) must be made at the outset of treatment</p>
<p>Lower urinary tract infection in pregnancy (no fever or flank pain)</p> <p><i>E.coli</i>, <i>Proteus sp</i>. <i>Klebsiella</i>, <i>Staph saprophyticus</i> (young women)</p>	<p>First line: Nitrofurantoin 50mg QDS for 7 days (avoid at term e.g. >34 weeks) OR Nitrofurantoin M/R 100mg BD for 7 days (avoid at term e.g. >34 weeks)</p> <p>Second line: Trimethoprim 200mg BD for 7 days (avoid in 1st trimester* or if taking folate antagonists e.g. antiepileptics or proguanil)</p>		<p>Send a pre-treatment MSU. First episode of asymptomatic bacteriuria in pregnancy should be confirmed with a second sample to exclude contamination. Follow up may be appropriate. Treatment should be guided by MSU culture and sensitivity results where available.</p>
	<p>Third line: Cefalexin 500mg TDS for 7 days</p>	<p>Third line (non-severe penicillin allergy): Cefalexin 500mg TDS for 7 days</p> <p>If severe penicillin allergy seek microbiology advice</p>	<p>Short-term use of nitrofurantoin in pregnancy is unlikely to cause problems to the foetus.</p> <p>*If no alternative, trimethoprim can be used in 1st trimester with folic acid 5mg OD supplementation providing not already on folate antagonists e.g. antiepileptics or proguanil.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
URINARY TRACT INFECTION continued Extended Spectrum Beta Lactamase (ESBL) producing coliforms are increasingly prevalent causing UTI in the community.			
Recurrent urinary tract infection in non-pregnant women (≥ 3 UTIs/year) (adult)	Suggest conservative measures including hydration and cranberry products. If ineffective consider standby antibiotics for suitable patients with safety netting advice (see above for choices) OR Post-coital antibiotics (off-label) First line: Trimethoprim 200mg stat Second line: Nitrofurantoin 100mg stat		Nightly prophylaxis associated with adverse effects and long-term compliance poor. Consider urology referral to exclude urinary tract abnormality.
Urinary Catheter/Urinary catheterisation (adult)	All catheters become colonised with bacteria. Positive catheter urine culture usually indicates colonisation only. Antibiotics will not eradicate asymptomatic bacteriuria; 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. Gentamicin 80mg IV/IM stat (Do not check serum levels for stat doses of Gentamicin) If symptomatic treat as urinary tract infection in adults (with high risk of trimethoprim resistance). The irrigation of urinary catheters is not recommended as it increases the risk of systemic infection and antiseptics act as irritants to the bladder mucosa. Do not dipstick catheter urine.		
Acute Prostatitis (adult)	First line: Ciprofloxacin 500mg BD for 28 days. Culture urine and reassess antibiotic choice as necessary. Second line or based on sensitivity results: Trimethoprim 200mg BD for 28 days.		Send MSU for culture and consider chlamydia and other STDs in sexually active adults, refer to the GUM clinic. Quinolone antibiotics achieve higher prostatic tissue levels. 28 days treatment may prevent chronic prostatitis

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
SKIN INFECTION			
Impetigo (adult and child) <i>Staph. aureus</i> plus β haemolytic Streptococci (BHS)	If mild , consider topical Crystacide cream (hydrogen peroxide 1%) BD or TDS for up to 2 weeks. (OTC) If severe or unresolved: Flucloxacillin 500mg QDS for 7 days (Child, see BNFC for dose recommendations)	If severe or unresolved: Clarithromycin 500mg BD for 7 days. (Child, see BNFC for dose recommendations)	If severe or unresolved, swab first then commence empirical treatment. Avoid the use of topical antibiotics as this encourages resistance and does not improve healing.
Infected Eczema (widespread) (adult and child) <i>Staph. aureus</i>	Flucloxacillin 500mg QDS for 7 days (Child, see BNFC for dose recommendations)	Clarithromycin 500mg BD for 7 days (Child, see BNFC for dose recommendations)	If no visible signs of infection use of topical antibiotics (alone or with steroids) encourages resistance and does not improve healing.
Folliculitis / Boils (adult and child) <i>Staph. aureus</i>	Flucloxacillin 500mg QDS for 7 days (Child, see BNFC for dose recommendations)	Clarithromycin 500mg BD for 7 days (Child, see BNFC for dose recommendations)	Swab folliculitis only then start antimicrobial therapy immediately before drainage. Recurrent infections; Consider nasal swabs (including family) and the possibility of PVL infection. If known MRSA colonised see section below. If chronic, consider acne.
Panton-Valentine Leucodin (PVL) (adult and child) <i>Staph aureus</i> in severe and recurrent cases	Panton-Valentine Leukocidin is a toxin produced by 4.9% of <i>S. aureus</i> from boils/abscesses. This bacteria can rarely cause severe invasive infections in healthy people; if found suppression therapy should be given in line with PHE Health Protection Team advice. Send swabs if recurrent boils/abscesses. Those at risk include: close contact in communities (e.g. military personnel, sports); poor hygiene		Notify the Health Protection unit. Advice on the management of PVL toxin positive <i>S. aureus</i> cases can be found on the PHE Health Protection Team website .
Cellulitis (adult and child) Usually β haemolytic Streptococci (BHS) or <i>Staph aureus</i> . May be mixed organisms	Flucloxacillin 500mg QDS for 7 days then reassess (Child, see BNFC for dose recommendations)	Clarithromycin 500mg BD for 7 days then reassess. (Child, see BNFC for dose recommendations)	If febrile and ill, admit for intravenous treatment. If river or sea water exposure, discuss with microbiologist. Intravenous therapy is required for severe cellulitis. If slow response continue for a further 7 days.

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
SKIN INFECTION continued			
Facial Cellulitis (adult)	Co-amoxiclav 625mg TDS for 7 days then reassess.	Clindamycin 300mg-450mg QDS for 7 days then reassess	In severe cases may require admission for intravenous therapy/exclusion of post-septal periorbital cellulitis if appropriate. If slow response continue for a further 7 days. Stop clindamycin if diarrhoea occurs.
MRSA infection of the Skin Known or suspected (adult and child)	The choice of antibiotics must be based on culture and sensitivity reports. Treat for 7 days and then re-swab.		If severe infection or no response to initial treatment after 24–48 hours seek advice from microbiology. Confirm MRSA sensitivities prior to the initiation of therapy. Assess clinical need for systemic antibiotics.
MRSA Decolonisation	Combined skin and nasal decolonisation required: Skin: Chlorhexidine gluconate 4% solution undiluted as a daily wash to skin for 5 days and shampoo hair on day 1 and day 5 Child or alternative if allergic to chlorhexidine: Octenisan lotion as a daily skin wash for 5 days and shampoo hair on day 1 and day 5 Nasal: Mupirocin 2% nasal ointment TDS for 5 days Alternative if mupirocin resistant: Naseptin nasal ointment QDS for 10 days (contraindicated in peanut or soya allergy)		Screening swabs to be carried out 2 days after the end of decolonisation. Refer to local Trust MRSA policy or PHE MRSA suppression guideline

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
SKIN INFECTION continued			
<p>Diabetic foot or leg ulcer (adult)</p> <p><i>S.aureus</i>, BHS, coliforms, anaerobes. Infections may be polymicrobial</p>	<ul style="list-style-type: none"> The treatment of Diabetic Foot Infections requires specialist multidisciplinary management. Ulcers always colonised and swab results usually reflect colonisation or contamination of the skin surface. Antibiotics do not improve healing unless active infection. Don't treat positive wound swabs if no signs of infection. If clinical signs of active infection, send pre-treatment swab. Review antibiotics after culture results. <p>PEDIS grade 1 – Wound lacking purulence or any manifestations of inflammation (no infection)</p> <p>Antibiotics not indicated</p> <p>PEDIS grade 2 – Presence of more than 2 manifestations of inflammation (purulence, erythema, pain, tenderness, warmth or induration), but any cellulitis or erythema extending ≤2cm around the ulcer, and infection is limited to the skin or superficial subcutaneous tissues; no other local complications or systemic illness. (Mild infection)</p> <p>Flucloxacillin 1g QDS for 7–14 days. Plus urgent podiatry referral.</p> <p>Doxycycline 100mg BD 7–14 days (review sensitivities, if available, to ensure tetracycline sensitive). Plus urgent podiatry referral.</p> <p>PEDIS grade 3 – Infection (as above) in a patient who is systemically well and metabolically stable but has ≥1 of the following characteristics: cellulitis extending >2cm, lymphangitic streaking, spread beneath the superficial fascia, deep tissue abscess, gangrene and involvement of muscle, tendon, joint or bone. (Moderate Infection)</p> <p>PEDIS grade 4 – Infection (as above) in a patient with systemic toxicity or metabolic instability (e.g. fever, chills, tachycardia, hypotension, confusion, leucocytosis, acidotic, severe hyperglycaemia or uraemia. (Severe Infection)</p> <p>PEDIS grade 3 or 4 – refer for immediate management (as per local pathway)</p>		<p>See also 'Primary Care Guidelines for the Management of Type 2 Diabetes'</p> <p>If risk factors for MRSA or MRSA colonised treat as per penicillin allergy choice (or sensitivities when available)</p>
<p>Traumatic Wound infections (adult and child)</p> <p>Staphylococci, Beta- haemolytic Streptococci Anaerobes</p>	<p>Flucloxacillin 500mg QDS for 7 days PLUS Metronidazole 400mg TDS for 7 days (Child, see BNFC for dose recommendations)</p>	<p>Clarithromycin 500mg BD for 7 days PLUS Metronidazole 400mg TDS for 7 days (Child, see BNFC for dose recommendations)</p>	<p>Consult the BNF and the 'Green Book', Immunisation against infectious diseases, for advice on Tetanus vaccination.</p> <p>Assess requirements for wound debridement.</p>
<p>Traumatic Wound infections and MRSA colonised/previous infection (adult)</p>	<p>The choice of antibiotics must be based on culture and sensitivity reports: Consider Doxycycline 100mg BD for 7 days (tetracycline sensitive isolates) PLUS Metronidazole 400mg TDS for 7 days</p> <p>If MRSA strain tetracycline resistant treat as per sensitivities or contact microbiology for advice.</p>		<p>Refer to your Local Wound Care Policy where available.</p> <p>If no clinical response refer for further assessment and consider IV antibiotics.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
SKIN INFECTION continued			
Superficial Surgical Wound Infections (adult) Staphylococci, Beta- haemolytic Streptococci	Treat as per cellulitis guidelines		If slow clinical response consider possibility of deep surgical wound infection.
Deep Surgical Wound Infections (adult) Staphylococci, Anaerobes Beta- haemolytic Streptococci, gram negatives e.g. Abdominal, pelvic, post-partum wounds	Co-amoxiclav 625mg TDS for 7 days	Clarithromycin 500mg BD for 7 days PLUS Metronidazole 400mg TDS for 7 days If no improvement within 72 hours contact microbiology for advice	Wound swabs are advised if patient is at risk of colonisation with MRSA or other resistant bacteria. Separate guidance is available for the treatment of diabetic foot conditions, see above.
Surgical Wound Infections and MRSA colonised/previous infection (adult)	The choice of antibiotics must be based on culture and sensitivity reports: Consider Doxycycline 100mg BD for 7 days (if tetracycline sensitive isolates) PLUS Metronidazole 400mg TDS for 7 days If no improvement within 72 hours contact microbiology for advice		Separate guidance is available for the treatment of diabetic foot conditions, see above. If MRSA strain tetracycline resistant treat as per sensitivities or contact microbiology for advice.
Human Bites (adult and child) <i>S. aureus</i> , Beta haemolytic Streptococci, Anaerobes	Treatment or prophylaxis of infection: Co-amoxiclav 625mg TDS for 7 days (Child, see BNFC for dose recommendations)	Treatment or prophylaxis of infection: Clarithromycin 500mg BD for 7 days PLUS Metronidazole 400mg TDS for 7 days (Child, see BNFC for dose recommendations)	Antibiotic prophylaxis of infection is advised for human bites. Clean wound thoroughly, assess risk of tetanus and blood borne viral infections.
Animal Bites (adult and child) Pasturella species, <i>S. aureus</i> , Beta haemolytic Streptococci, Capnocytophaga, Anaerobes	Treatment or prophylaxis of infection: Co-amoxiclav 625mg TDS for 7 days (Child, see BNFC for dose recommendations)	Treatment or Prophylaxis of infection: Doxycycline 100mg BD for 7 days (adults only) PLUS Metronidazole 400mg for 7 days TDS (Child, discuss options with microbiology)	Clean wound thoroughly, assess risk of tetanus and rabies. If not improving after 48–72 hours seek specialist advice.

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
SKIN INFECTION continued			
<p>Fungal finger/toe nail infections (adult or child) 90% dermatophytes Rarely, non dermatophytes including candida sp</p>	<p>Only treat if positive microscopy and culture of nail clippings/scraping, not for cosmetic reasons.</p> <p>Single nail/superficial involvement: Amorolfine 5% nail paint once weekly; treat fingernails for 6 months, toenails 9–12 months (12 years and over) (OTC)</p> <p>Multiple nails: Adult: By mouth, terbinafine 250mg daily; treat fingernails for up to 6–12 weeks, toenails 3–6 months (Child - unlicensed, see BNFC for dose recommendations)</p>		<p>Most nail dystrophy is due to trauma rather than infection. It can take 6-12 months for damaged toe nails to grow out.</p> <p>If candida or non-dermatophyte infection confirmed alternative treatment may be needed.</p> <p>Terbinafine is unlicensed in children, seek specialist advice regarding the length of treatment & monitoring. Terbinafine tablets may be crushed and mixed with a small amount of water and taken immediately (unlicensed use).</p> <p>For Terbinafine orally —Monitor hepatic function before treatment and then every 4–6 weeks during treatment—discontinue if abnormalities in liver function tests.</p>
<p>Fungal skin infections (adult and child)</p>	<p>If mild: Terbinafine hydrochloride 1% cream. Apply thinly BD for 1–2 weeks</p> <p>If no response, severe, or multiple area involvement send skin scrapings and use: Adult: By mouth, terbinafine 250mg daily - duration dependant on site:</p> <ul style="list-style-type: none"> • Tinea pedis 2-6 weeks • Tinea cruris 2-4 weeks • Tinea corporis 4 weeks <p>(Child - unlicensed, see BNFC for dose recommendations)</p>		<p>Terbinafine is fungicidal, so treatment time is shorter than with fungistatic imidazoles.</p> <p>If likely to be candida use imidazole.</p> <p>Terbinafine tablets may be crushed and mixed with a small amount of water and taken immediately (unlicensed use).</p> <p>For Terbinafine orally —Monitor hepatic function before treatment and then every 4–6 weeks during treatment—discontinue if abnormalities in liver function tests.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST CHOICE ANTIBIOTICS AND ALTERNATE CHOICES	COMMENTS
VIRAL INFECTION		
<p>Shingles (adult and child) Herpes zoster Ophthalmic Herpes zoster</p>	<p>Treat if >50 years and within 72 hours of rash or if active ophthalmic or Ramsey Hunt or eczema:</p> <p>Aciclovir 800mg 5 times daily for 7 days (Child, see BNFC for dose recommendations)</p> <p>See also Public Health England Shingles: guidance and vaccination programme.</p>	<p>Immunosuppressed patients may require IV treatment as risk of dissemination.</p> <p>Ophthalmic Herpes zoster -consider urgent referral to ophthalmology specialist</p>
<p>Chickenpox (adult and child) Varicella zoster</p>	<p>Consider treatment only if any of the following:</p> <ul style="list-style-type: none"> • severe pain • dense/oral rash • secondary household case • steroids • smoker <p>Pregnant/immunocompromised/neonate: seek urgent specialist advice on treatment (may require intravenous treatment)</p> <p>Aciclovir 800mg 5 times daily for 7 days (Child, see BNFC for dose recommendations)</p> <p>Note: infection may be more severe in adults.</p>	<p>Consider referral for treatment with intravenous aciclovir in severe cases or evidence of complications such as pneumonitis or encephalitis.</p> <p>Give safety netting advice- if patients develop symptoms suggestive of infection erythema, temperature, purulence, need to seek medical advice as may require antibiotic treatment.</p> <p>Immunosuppressed or pregnant patients in contact with chickenpox may require immediate post exposure prophylaxis with Varicella Zoster Immunoglobulin, discuss urgently with Consultant Microbiologist..</p> <p>Secondary bacterial infection may require treatment.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST CHOICE ANTIBIOTICS AND ALTERNATE CHOICES	COMMENTS
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GENITOURINARY INFECTIONS
 Trafalgar clinic— 0208 836 6969 (GUM Reception), Contraception and Sexual Health (CASH) Clinic — 020 8301 8920, Waldron Health Centre SRH Clinic— 020 3049 3500

<p>Bacterial vaginosis (adult)</p> <p>Gram neg. anaerobes</p>	<p>Metronidazole 400mg BD for 5–7 days OR Metronidazole 2g as a single dose (not suitable in pregnancy/breastfeeding) OR Metronidazole 0.75% vaginal gel 5g applicatorful at night for 5 nights OR Clindamycin 2% vaginal cream 5g applicatorful at night for 7 nights</p>	<p>Less relapse with 7 day metronidazole oral treatment than 2g oral metronidazole stat dose. Consider metronidazole 2g stat dose if compliance is a concern</p>
<p>Chlamydia urethritis (adult)</p> <p><i>Chlamydia trachomatis</i></p>	<p>If proven (uncomplicated) Chlamydia</p> <p>First line: Azithromycin 1g stat (including in pregnancy)</p> <p>Second line: Doxycycline 100mg BD for 7 days (not in pregnancy)</p>	<p>Chlamydia infections are STIs and partners of positive patients must be followed up and investigated as contacts. Consider referral to the GUM clinic to investigate other STIs and for contact tracing. Post treatment test of cure is recommended (after 6 weeks):</p> <ul style="list-style-type: none"> • For all pregnant cases • Where erythromycin is used (due to low cure rate) • If poor compliance suspected <p><i>Alternative choice in pregnancy: Erythromycin</i> 500mg QDS for 7 days</p>
<p>Gonorrhoea (adult)</p> <p><i>Neisseria gonorrhoeae</i></p>	<p>Only treat gonorrhoea in primary care if specialist services cannot be accessed within a reasonable time, or if the person is unwilling to attend despite receiving appropriate information and advice</p> <p>No penicillin allergy/non-severe penicillin allergy*: IM Ceftriaxone 500mg stat PLUS Azithromycin 1g stat</p>	<p>Refer to the GUM clinic for further treatment, follow up and contact tracing.</p> <p>Seek expert advice for treatment in children</p> <p>*In patients with severe penicillin allergy base treatment on sensitivities where available or refer to GUM clinic for management</p>
<p>Pelvic Inflammatory Disease (PID) (non-severe) (adult)</p> <p><i>Chlamydia trachomatis</i> Coliforms, Streptococci +/- anaerobes or <i>Neisseria gonorrhoeae</i></p>	<p>If <i>low-risk of gonococcal infection:</i> Ofloxacin 400mg BD for 14 days PLUS Metronidazole 400mg BD for 14 days</p> <p>If <i>high-risk of gonococcal infection</i> (gonorrhoea contact, sexual contact whilst abroad, new sexual partner, previous history of STIs) and no penicillin allergy/non-severe penicillin allergy: IM Ceftriaxone 500mg stat PLUS Metronidazole 400mg BD for 14 days PLUS Doxycycline 100mg BD for 14 days.</p> <p>If high-risk of gonococcal infection AND severe penicillin allergy: Refer to GUM</p>	<p>If severe (severe clinical disease, pyrexia>38°C, clinical signs of tubo-ovarian abscess, signs of pelvic peritonitis) refer to gynaecology for IV treatment.</p> <p>Always send a sample for chlamydia and gonococcal testing</p> <p>If high-risk of gonococcal infection refer to the GUM clinic for further treatment, follow up and contact tracing.</p> <p>PID is rare in pregnancy, exclude other obstetric causes and seek specialist advice urgently.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST CHOICE ANTIBIOTICS AND ALTERNATE CHOICES	COMMENTS
GENITOURINARY INFECTIONS continued		
<p>Trichomoniasis (adult)</p> <p><i>Trichomonas vaginalis</i></p>	<p>Ideally, treatment of confirmed trichomoniasis should be provided by a GUM clinic or other local specialist sexual health service. If this is declined or not possible, offer:</p> <p>Metronidazole 400mg BD for 5–7 days (also applies to pregnancy)</p> <p>OR</p> <p>Metronidazole 2g as a single dose (not suitable in pregnancy/breastfeeding)</p>	<p>Trichomonas infections are STIs and partners of positive patients must be followed up and investigated as contacts</p> <p>Consider metronidazole 2g stat dose if compliance is a concern however may be associated with more adverse effects</p> <p>Refer to GUM clinic for treatment follow up and contact tracing.</p>
<p>Genital herpes Herpes simplex (non-immunosuppressed patients) (adult)</p>	<p>First episode:</p> <p>Aciclovir 400mg TDS for 5 days</p> <p>OR</p> <p>Aciclovir 200mg 5 times daily for 5 days</p>	<p>Refer pregnant patients.</p> <p>Refer to GUM clinic for treatment follow up and contact tracing.</p> <p>Alternative dosing regimens may be required if new lesions continue to develop on treatment or in immunosuppressed patients.</p> <p>Other management strategies may apply.</p>
<p>Vaginal Candidiasis (adult)</p> <p><i>Candida albicans</i></p>	<p>Clotrimazole 500mg pessary stat nocte +/- 1% Clotrimazole TDS topical cream</p> <p>OR</p> <p>Fluconazole 150mg oral stat (if oral therapy preferred)</p> <p>Pregnancy:</p> <p>Clotrimazole 100mg pessary at night for 6 nights +/- 1% Clotrimazole TDS topical cream</p>	<p>Longer courses are recommended in recurrent cases</p> <p>Avoid oral anti-fungals in pregnancy.</p>

INFECTIONS INCLUDING COMMON PATHOGENS	FIRST LINE CHOICE	PENICILLIN ALLERGIC	COMMENTS
DENTAL INFECTION Patients should be referred to dentist wherever possible. Prescribe only if essential emergency treatment required.			
Dental abscess (adult and child)	Amoxicillin 500mg TDS for maximum of 3 days (until dentist review) (Child, see BNFC for dose recommendations) Refer to dentist	Metronidazole 400mg TDS for maximum of 3 days (until dentist review) (Child, see BNFC for dose recommendations) Refer to dentist	Regular analgesia should be first option until a dentist can be seen for urgent drainage, as repeated courses of antibiotics for abscess are not appropriate. Repeated antibiotics alone, without drainage are ineffective in preventing spread of infection. Antibiotics are recommended if there are signs of severe infection, systemic symptoms or high risk of complications.

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Appendix 1: Treating your infection patient leaflet

Patient Name <input type="text"/>		Your doctor or nurse recommends that you self-care <input type="checkbox"/>	
Your infection	Usually lasts	How to treat yourself better for these infections, now and next time	When should you get help: Contact your GP practice or contact NHS 111 (England), NHS 24 (Scotland dial 111), or NHS Direct (Wales dial 0845 4647)
<input type="checkbox"/> Middle-ear infection	4 days	<ul style="list-style-type: none"> Have plenty of rest. Drink enough fluids to avoid feeling thirsty. Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol (or ibuprofen) if you or your child are uncomfortable as a result of a fever. Use a tissue and wash your hands well to help prevent spread of your infection to your family, friends and others you meet. Other things you can do suggested by GP or nurse: 	<p>1. to 8. are possible signs of serious illness and should be assessed urgently. Phone for advice if you are not sure how urgent the symptoms are.</p> <ol style="list-style-type: none"> If you develop a severe headache and are sick. If your skin is very cold or has a strange colour, or you develop an unusual rash. If you feel confused or have slurred speech or are very drowsy. If you have difficulty breathing. Signs that suggest breathing problems can include: <ul style="list-style-type: none"> breathing quickly turning blue around the lips and the skin below the mouth skin between or above the ribs getting sucked or pulled in with every breath. If you develop chest pain. If you have difficulty swallowing or are drooling. If you cough up blood. If you are feeling a lot worse. <p>Less serious signs that can usually wait until the next available GP appointment:</p> <ol style="list-style-type: none"> If you are not improving by the time given in the 'Usually lasts' column. In children with middle-ear infection: if fluid is coming out of their ears or if they have new deafness. Other
<input type="checkbox"/> Sore throat	7 days		
<input type="checkbox"/> Common cold	10 days		
<input type="checkbox"/> Sinusitis	18 days		
<input type="checkbox"/> Cough or bronchitis	3 weeks		
<input type="checkbox"/> Other infection: days		

Back-up antibiotic prescription to be collected after days only if you do not feel better or you feel worse

Collect from: GP reception GP or nurse Pharmacy

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- If you take antibiotics when you don't need them, it allows bacteria to build up resistance. This means, they're less likely to work in the future, when you really might need them.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal

Leaflet developed in collaboration with these professional societies:

