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| **Doncaster and Bassetlaw Antimicrobial Guidelines**  **for Primary Care** | | | |  |  | |
| **Table of Contents *(click on hyperlink)*** |  |  |  | | |  |
| 1. [INTRODUCTION](#Introduction)  [Antibiotic Principles of Treatment](#Principles_of_Treatment)  [Hypersensitivity to penicillin](#Hypersensitivity_to_penicillin)  [Pregnancy and Breast Feeding](#Pregnancy)  [Contraception](#Contraception)  [Interaction with warfarin and other anticoagulants](#Anticoagulants)  [Methicillin resistant Staph. aureus (MRSA)](#MRSA)  [Erythromycin vs clarithromycin](#Erythromycin_vs_clarithromycin)  [Contact details for further information](#Contact_Details)  2. [UPPER RESPIRATORY TRACT INFECTIONS](#Upper_resp_tract)  [Influenza](#Influenza)  [Pharyngitis / sore throat / tonsillitis](#Pharyngitis)  [Acute Otitis media](#Otitis_media)  [Otitis externa - acute](#Otitis_externa_acute)  [Otitis externa - chronic](#Otitis_externa_chronic)  [Rhinosinusitis](#Sinusitis)  3. [LOWER RESPIRATORY TRACT INFECTIONS](#Lower_resp_tract)  [Acute bronchitis](#bronchitis)  [Acute exacerbation’s of COPD](#COPD)  [Bronchiectasis](#Bronchiectasis)  [Community - acquired pneumonia (CAP)](#CAP)  4. [SKIN / SOFT TISSUE INFECTIONS](#Skin_and_soft_tissue)  [Erysipelas](#Erysipelas)  [Boils, abscesses, impetigo, infected eczema](#Impertigo)  [Cellulitis](#Cellulitis)  [Lactation Mastitis](#Lactation)  [Leg ulcers](#Leg_ulcers)  [Diabetic foot infections](#Diabetic_foot)  [Insect Bites](#Insect_bite)  [Human and Animal Bites (prophylaxis and treatment)](#bites)  [Acne - refer to CKS](http://cks.nice.org.uk/acne-vulgaris#!topicsummary)  [Scabies](#scabies)  [Dermatophyte infection of the proximal fingernail or toenail (Adults)](#Dermatophyte_nails)  [Dermatophyte infection of the skin](#Dermatophyte_skin)  [Candida infection of the skin](#candida_of_skin)  [*Pityriasis versicolor*](#Pityriasis_versicolor)  5 . [EYE INFECTIONS](#eye)  [Conjunctivitis and corneal infections](#conjunctivitis)  6. [PARASITIC INFECTIONS](#parasitic)  [Threadworm](#threadworms) | 2  3  3  4  4  4  4  5  6  6  7  8  8  9  10  10  11  12  13  13  13  14  14  15  15  15  16  16  17  17  18  19  20 |  | 7. [GENITAL TRACT INFECTIONS](#genital)  [Vaginal candidiasis](#candidiasis)  [Bacterial vaginosis](#bacterial_vaginosis)  [Gonococcal urethritis, cervicitis](#gonnococcal)  [Chlamydia trachomatis urethritis, cervicitis](#chlamydia)  [Pelvic Inflammatory Disease (PID)](#PID)  [Epididymo-orchitis](#Epididymo)  8. [URINARY TRACT INFECTIONS](#UTI)  [General Guidance](#General_guidance)  [UTI in women and men (no fever or flank pain)](#uncomplicated_UTI)  [UTI in pregnancy](#UTI_in_pregnancy)  [UTI in children](#UTI_in_children)  [Acute pyelonephritis](#Pyelonephritis)  [Acute prostatitis](#Prostatitis)  9. [GASTRO-INTESTINAL TRACT INFECTIONS](#Gastro)  [*Helicobacter pylori*](#H_Pylori)  [Gastroenteritis](#gastroenteritis)  [*Clostridium Difficile*](#C_diff)  [Giardiasis](#Giardiasis)  [Cryptosporidiosis](#crypto)  [Cholecystitis](#Cholecystitis)  [Diverticular Disease](#Diverticular)  10. [VIRAL INFECTIONS](#viral)  [Herpes zoster (shingles)](#herpes_zoster)  [Varicella zoster (chickenpox)](#varicella)  [Herpes simplex - oral](#herpes_simplex)  [Herpes Simplex – genital](#Herpes_Simplex_Genital)  11. [INFESTATIONS](#infestation)  [Head lice](#head_lice)  [Scabies](#scabies)  12. [DENTAL INFECTIONS](#_Hlk367287937)  [Gingivitis - simple](#Gingivitis_Simple)  [Dental abscess](#Dental_abscess)  13. [BACTERIAL MENINGITIS OR MENINGOCOCCAL DISEASE](#Meningitis)  14. [SEPSIS](#Sepsis) - [Adult](#Sepsis_Adult) / [Paediatric](#Sepsis_Paediatric)  15. [Acknowledgements](#Acknowledgements) & 16. [Approval](#Approval)  17. [Outline list of changes from 2013 version](#List_of_amendments) | | | 21  21  21  21  22  22  23  23  24  24  25  25  26-27  28  28  28  28  29  30  31  31  31  32  33  16  34  34  35  36-37  37  38-42 |

**1.** **INTRODUCTION**

**Principles of Treatment**

**Aims**

* ***To provide a simple, empiric approach to the treatment of common infections in primary care***
* ***To promote the safe, effective and economic use of antibiotics.***
* ***To minimise the emergence of bacterial resistance and reduce the risk of antibiotic associated infections in the community***

**Principles of Treatment**

1. This guidance is based on the best available evidence but its application must be modified by professional judgement
2. Always consult the latest BNF or Summary of Product Characteristics for full prescribing details
3. **Prescribe an antibiotic only when there is likely to be a clear clinical benefit – see link to top ten tips below**
4. **All antibiotics can cause *Clostridium difficile* infection.** Those associated with the highest risk (especially in elderly patients) are cephalosporins, quinolones, clindamycin and possibly co-amoxiclav. Use of these antibiotics should be restricted to the specific indications within the guidelines.
5. **Limit prescribing over the telephone to exceptional cases based on individual clinical judgement**
6. The use of deferred scripts for indications of doubtful value (e.g. otitis media) is one method of managing patient expectation. Retaining the prescription in the surgery for future collection is the recommended method.
7. Educating patients about the benefits and disadvantages of antimicrobial agents is advocated. Practices can provide leaflets and/or display notices advising patients not to expect a prescription for an antibiotic, together with the reasons why. This educational material can be obtained from various sources, such as the British Medical Association (BMA), Department of Health, Infection Control Team and Medicines Management Team.
8. For uncomplicated cystitis in otherwise fit non-pregnant women limit course to 3 days
9. Topical antibiotics should be used very rarely, if at all (eye infections are an exception). For wounds, topical antiseptics are generally more effective. Topical antibiotics encourage resistance and may lead to hypersensitivity. If antibiotic use is essential, try and select an antibiotic that is not used systemically.
10. In children under 12 years avoid the use of tetracyclines.
11. In children under 18 years avoid the use of quinolones if possible. Treatment should be initiated only after a careful benefit/risk evaluation, due to possible adverse events related to joints and/or surrounding tissue. See BNF for Children for further details
12. Co-amoxiclav should be reserved for bacterial infections likely, or known, to be caused by amoxicillin-resistant beta lactamase-producing strains, in view of the increased side effects (jaundice). (The Committee on Safety of Medicines: Current Problems, May 1997).
13. **Where a ‘best guess’ therapy has failed or special circumstances exist, seek advice from a relevant specialist/medical microbiologist*.***

***Top ten tips on effective antibiotic prescribing: click*** [***link***](https://www.rcplondon.ac.uk/sites/default/files/rcp-insight-haiwg-0005-07-2011-effective-antibiotic-prescribing-top-10-tips.pdf) ***or refer to the Royal College of Physicians website*** [***www.rcplondon.ac.uk***](http://www.rcplondon.ac.uk)

[**return to contents**](#Contents)

**Hypersensitivity to penicillin**

* Allergic reactions to penicillins occur in 1–10% of exposed individuals; anaphylactic reactions occur in fewer than 0.05% of treated patients. If allergy status or nature of reaction is uncertain, avoid the use of the antibiotic concerned if there is a reasonable alternative.
* Patients reporting an adverse reaction to penicillin are relatively common. It is important therefore to clarify what reaction the patient actually has experienced (endorse reaction in detail in drug sensitivities section of patients electronic record). In some cases it is simply a common side effect of the drug (e.g. diarrhoea or vomiting) rather than true allergic reaction (e.g. rash, angiodema or anaphylaxis). Patients with true allergy to penicillins will react to all penicillins e.g. Penicillin V, Amoxicillin, Flucloxacillin and Co-Amoxiclav. They may also have a crossover-allergy to other ß-Lactams. The risk of crossover is quoted as between 2 and 16.5% for cephalosporins (e.g. cefalexin). If the patient has a non-serious allergy to penicillins (e.g. rash alone, with no symptoms of anaphylaxis) cephalosporins may still be used. In which case patients should be made aware of the signs and symptoms of an allergic reaction and seek immediate medical advice. Patients with serious allergic symptoms to penicillins (i.e anaphylaxis, breathing difficulties, facial swelling or major skin reactions) should avoid cephalosporins and alternative agents be administered. For further advice on antibiotic choice please contact a consultant microbiologist.

**Pregnancy and Breastfeeding**

Pregnancy

* AVOID tetracyclines, aminoglycosides, quinolones, high dose metronidazole (2g), trimethoprim in 1st trimester and nitrofurantoin during 3rd trimester.
* Systemic antifungals, e.g. triazoles, imidazoles, griseofulvin & terbinafine should also not be used, consult manufacturer’s recommendations or specialist advice if considering using.
* Antivirals – consult manufacturers information
* The following are considered to be safe in pregnancy: penicillins, cephalosporins, erythromycin, trimethoprim in 2nd and 3rd trimester only and nitrofurantoin in 1st and 2nd trimester only.

Breast Feeding

* AVOID tetracyclines, quinolones, high dose metronidazole and nitrofurantion.
* Erythromycin is currently considered the safest of the macrolides in breastfeeding, consult manufacturers recommendations or specialist advice before prescribing other macrolides.
* Systemic antifungals, e.g. triazoles, imidazoles, griseofulvin & terbinafine should also not be used, consult manufacturer’s recommendations or specialist advice if considering using.
* Antivirals – consult manufacturers information

[**return to contents**](#Contents)**Contraception**

* Current recommendations are that no additional contraceptive precautions are required when combined oral contraceptives are used with antibacterials that do not induce liver enzymes, unless diarrhoea or vomiting occur. These recommendations should be discussed with the patient , who should also be advised that guidance in patient information leaflets may differ. [BNF](https://www.medicinescomplete.com/mc/bnf/current/PHP-bnf-interactions-list.htm), [FSRH Drug Interactions Guidance](http://www.fsrh.org/pages/Clinical_Guidance_4.asp)
* It is also currently recommended that no additional contraceptive precautions are required when contraceptive patches or vaginal rings are used with antibacterials that do not induce liver enzymes. There have been concerns that some antibacterials that do not induce liver enzymes (e.g. ampicillin, doxycycline) reduce the efficacy of combined oral contraceptives by impairing the bacterial flora responsible for recycling ethinylestradiol from the large bowel. However, there is a lack of evidence to support this interaction.
* Anecdotal reports of contraceptive failure have been made with the concomitant use of antifungals.

**Interaction with warfarin and other anticoagulants**

* Experience in anticoagulant clinics suggests that the INR can be altered by a course of antibiotics or antifungals.
* Increased frequency of INR monitoring is necessary during and after a course of antibiotics until the INR has stabilized. Cephalosporins, macrolides, tetracyclines, quinolones, metronidazole and trimethoprim seem to cause a particular problem. Contact the anticoagulant clinic for any further advice.

**Methicillin Resistant *Staphylococcus aureus* (MRSA)**

* MRSA are resistant to all beta-lactam antibiotics (e.g. flucloxacillin, co-amoxiclav, cephalosporins) and many other first-line antibiotics. All local strains remain susceptible to the parenteral antibiotics vancomycin and teicoplanin, *most* are also susceptible to tetracyclines.
* Most community *Staph*. *aureus* infections remain sensitive to β-lactam antibiotics such as Flucloxacillin. In the UK, most infections caused by MRSA are associated with healthcare interventions or residential care and occur in patients with the following risk factors:
  + Recently discharged from hospital
  + Nursed in residential home with MRSA-positive residents
  + Infection in a known carrier of MRSA

Community MRSA strains have been identified with increasing frequency in recent years. In some countries, a single community MRSA strain, such as the USA 300 clone in USA, have become predominant, while in the UK a number of different community strains have been identified.

* *Review empirical therapy when results of microbiological investigation are available*
* PHE Advice on screening and suppression of MRSA is available at: <https://www.gov.uk/government/publications/meticillin-resistant-staphylococcus-aureus-mrsa-screening-and-suppression-guidance-for-primary-care>

**Erythromycin – Clarithromycin**

Clarithromycin is now recommended instead of erythromycin as the macrolide of choice in penicillin allergy due to greater compliance with twice daily rather than four times daily dosing and fewer gastro-intestinal side-effects. Generic tablets are of similar costs, though **in children, erythromycin may be preferable as clarithromycin syrup can be more expensive.**

[**return to contents**](#Contents)

**Contacts for further Microbiology or Virology advice on investigation and treatment is available from:**

**a. Consultant Microbiologists**  **b. Consultant Virologist or Virology Specialist Registrars**

Dr Agwuh / Dr Gajee / Dr Jewes / Dr Milupi Northern General Hospital, Sheffield

Bassetlaw Hospital, Tel: 01909 500990 ext 2490 Tel. 0114 2266477 (direct dial)

Doncaster Royal Infirmary, Tel: 01302 647217 or Tel. 0114 2434343 (main switchboard)

Switchboard Tel: 01302 366666 ext 6517

**c. Health Protection Teams**

**Bassetlaw Patients** **Doncaster Patients:**

Public Health England East Midlands Public Health England South Yorkshire

East Midlands Health Protection Team South Yorkshire Health Protection Team

Seaton House Unit C, Meadow Court

Citylink Hayland Street, off Amos Road

Nottingham Sheffield

NG2 4LA S9 1BY

In Hours Tel: 0344 225 4524 (option 1) In Hours Tel: 0114 321 1177

Out of Hours Tel: 0344 225 4524 Out of Hours Tel: 0114 304 9843 ask for public health on call

Fax: 0115 969 3523 Fax: 0114 242 8874

Click links for details on notifiable diseases and to locate the notification form for use by medical practitioners: [PHE Notifiable Diseases List](https://www.gov.uk/guidance/notifiable-diseases-and-causative-organisms-how-to-report#list-of-notifiable-organisms-causative-agents); [Medical Practitioner Notification Form](https://www.gov.uk/government/publications/notifiable-diseases-form-for-registered-medical-practitioners)

[**return to contents**](#Contents)

**2.** **UPPER RESPIRATORY TRACT INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Influenza**  [PHE influenza](https://www.gov.uk/government/publications/influenza-treatment-and-prophylaxis-using-anti-viral-agents)  [**return to contents**](#Contents) | * **Annual vaccination is essential for all those at risk of influenza (NB. this group now includes pregnant women, see HPA influenza link left for further details)**. * For otherwise healthy adults, antivirals are not recommended. * **Treat** ‘at risk’ patients, **only when DH issues notice** that influenza is circulating in the community or in a care home where influenza is likely -ideally within 48 hours of onset. * Risk factors for complicated influenza: age over 65 years, pregnancy (including up to 2 weeks post-partum), chronic cardiac, respiratory, renal, hepatic or neurological disease, severe immunosuppression, diabetes mellitus, morbid obesity (BMI ≥ 40). * Rapid emergence of oseltamivir resistance on treatment has been described in severely immunosuppressed patients * Either oseltamivir and zanamivir can be used in women who are pregnant or breast-feeding when the potential benefits outweighs the risk. * The dose of oseltamivir must be reduced in patients with eGFR <60mL/min/1.73m2 see [BNF](https://www.medicinescomplete.com/mc/bnf/current/PHP3896-oseltamivir.htm#PHP69374-renal-impairment) for details | **Treatment**  Oseltamivir oral capsule  Zanamivir diskhaler should be used if patient is severely immunosuppressed or if there is resistance to oseltamivir.  **Prophylaxis and Patients under 13 years**  See PHE influenza link on left and [NICE Guidance (TA158)](http://guidance.nice.org.uk/TA158) | 75mg bd  **(refer to** [**BNF**](http://www.medicinescomplete.com/mc/bnf/current/PHP3896-oseltamivir.htm) **for dose if eGFR is <60mL/min/1.73m2)**  10mg (2 inhalations) bd | 5 days  5 days  (up to 10 days if Oseltamivir resistance suspected [off label duration]) |
| **Pharyngitis Sore throat**  **Tonsillitis**  [NICE CG69](http://www.nice.org.uk/guidance/cg69)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - Sore throat](http://cks.nice.org.uk/sore-throat-acute#!scenario)  [**return to contents**](#Contents) | * **Avoid antibiotics** as 90% resolve in 7 days without, and pain only reduced by 16 hours * Most throat infections are caused by viruses and many do not require antibacterial therapy. * Centor score predicts likelihood of *Streptococcus pyogenes* (Group A β-haemolytic streptococcus) as the causative organism * If Centor score 3 or 4: (1 point each for -Lymphadenopathy; absence of Cough; Fever; Tonsillar Exudate) consider 2 or 3-day-delayed or immediate antibiotics * Antibiotics to prevent Quinsy NNT >4000 * Antibiotics to prevent Otitis Media NNT 200 * Pain relief is important and can be provided by analgesic antipyretics e.g. paracetamol or ibuprofen. * Diphtheria is rare in the UK; but consider if recent travel or close contact with someone who has travelled overseas recently (especially Russia and former Soviet States, Africa, South America and South-East Asia) or the patient works in a clinical microbiology laboratory, or similar, where *Corynebacterium* species may be handled. Pharyngeal grey-white membrane may be present.   ***DISCUSS URGENTLY WITH MICROBIOLOGY/INFECTIOUS DISEASES IF DIPHTHERIA IS SUSPECTED*** | **First Choice**  No antibiotics  **Alternative Choice**  Phenoxymethylpenicillin  **If allergic to Penicillin:**  Clarithromycin  Alternative in children <12yrs  Erythromycin suspension | Adult :  500mg qds or 1g bd  (1g qds if severe)  1 mth – 11 mths:  62.5mg qds  1-5 yrs:  125mg qds  6-12 yrs:  250mg qds  Adult & child ≥12 years:  250 - 500mg bd  Children <12yrs:  Dose dependent on age and body weight. See [BNFC](https://www.medicinescomplete.com/mc/bnf/current/PHP3505-clarithromycin.htm)  See [BNFC](https://www.medicinescomplete.com/mc/bnf/current/PHP3510-erythromycin.htm) for dose | 10 days  5 days  5 days  5 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Acute Otitis media**  [NICE CG69](http://www.nice.org.uk/guidance/cg69)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - Acute Otitis Media](http://cks.nice.org.uk/otitis-media-acute)  [**return to contents**](#Contents) | * Many infections are caused by viruses. * Optimise analgesia * **Avoid antibiotics** as 60% are better in 24 hours without: they only reduce pain at 2 days (NNT15) **and do not prevent deafness** * Consider 2 or 3-day-delayed or immediate antibiotics if:   + - < 2yrs with bilateral AOM (NNT4) or bulging membrane and ≥ 4 marked symptoms     - All ages with otorrhoea (NNT3) * Antibiotics to prevent Mastoiditis NNT >4000 | **First choice**  No antibiotics - “Wait and see” recommended for 72 hrs  **Alternative Choice**  Amoxicillin  **If allergic to Penicillin:**  Clarithromycin  Alternative in children <12yrs  Erythromycin suspension | Neonate 7- 28 days:  30 mg/kg tds  1 month – 1 year:  125mg tds  1-5 years:  250mg tds  >5 yrs:  500mg tds  Adult &child >12 yrs:  500mg bd  Children <12yrs:  Dose dependent on age and body weight. See [BNFC](https://www.medicinescomplete.com/mc/bnf/current/PHP3505-clarithromycin.htm)  1 mth - 1yr:  125mg qds  2-7 yrs  250mg qds  8-12 yrs  250 -500mg qds | 5 days  5 days  5 days  5 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Otitis externa – acute**  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - Otitis externa](http://cks.nice.org.uk/otitis-externa)  [**return to contents**](#Contents) | * Remove or treat any precipitating or aggravating factors. * Exclude an underlying chronic OM before treating * Use analgesia and aural toilet first line * Avoid ear drops containing an aminoglycoside if the tympanic membrane is perforated * Cure rates similar at 7 days for topical acetic acid or antibiotic +/- steroid * Only consider oral antibiotics when disease extends outside of the ear canal or patient systemically unwell. Refer patient to ENT * Children with OM effusion should not be treated with antibiotic / topical steroids / decongestants or mucolytics. * Diabetic and immunocompromised patients are particularly susceptible to aggressive destruction of cartilage caused by Pseudomonas aeruginosa (“Malignant Otitis Externa”). If suspected, the patient should be referred urgently to an ENT specialist. | **First choice**  Aural toilet  **Mild cases**  Acetic acid 2%  **Alternative choices**  Betamethasone 0.1% plus Neomycin 0.5%  or  Flumetasone pivalate 0.02% plus Clioquinol 1%  **Cellulitis/systemically unwell**  Flucloxacillin  (+ refer to ENT)  **If allergic to penicillin:**  Clarithromycin  (+ refer to ENT) | 1 spray tds  2-3 drops tds  2-3 drops bd  500mg qds  500mg bd | 7 days  7 days minimum to max 14 days  7 days  5-7 days  5-7 days |
| **Otitis externa – chronic**  [**return to contents**](#Contents) | * No antibacterial / antifungals needed * Keep clean and dry. |  |  |  |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Rhinosinusitis**  **Acute or Chronic**  [NICE CG69](http://www.nice.org.uk/guidance/cg69)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - Sinusitis](http://cks.nice.org.uk/sinusitis)  [**return to contents**](#Contents) | * Often associated with viral infection or perennial rhinitis * **Avoid antibiotics as** 80% resolve in 14 days without, and they only offer marginal benefit after 7 days (NNT 15) * Use adequate analgesia * Consider 7-day-delayed or immediate antibiotic when purulent nasal discharge (NNT 8). * In persistent rhinosinusitis an agent with anti-anaerobic activity will be required, e.g. co-amoxiclav. If penicillin allergy then discuss with microbiologist * For persistent symptoms consider referral to ENT | **Acute / uncomplicated**  **First Choice:**  No antibiotic  **Second Choice**  Amoxicillin  or  Phenoxymethylpenicillin  **If allergic to penicillin**  Doxycyycline  or  Clarithromycin  **Persistent Symptoms**  Co-Amoxiclav  **Persistent Symptoms and Penicillin Allergy**  Discuss with microbiologist | 500mg tds  1g tds if severe  500mg qds  200mg stat then 100mg od  250mg to 500mg bd  625mg tds | 7 days  7 days  7 days  7 days  7 days |

**3.** **LOWER RESPIRATORY TRACT INFECTIONS**

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| --- | --- | --- | --- | --- |
| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Acute bronchitis**  [NICE CG69](http://www.nice.org.uk/guidance/cg69)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - Acute Bronchitis](http://cks.nice.org.uk/chest-infections-adult#!scenario)  [**return to contents**](#Contents) | * Antibiotics have only modest benefit if no co-morbidity – most cases associated with viral infection. * Symptom resolution can take 3 weeks. * Consider 7 day delayed antibiotic with symptomatic advice/leaflet * **Antibiotics or further investigation/management is appropriate for patients who meet any of the following criteria:**   + Systemically very unwell   + Symptoms and signs suggestive of serious illness and/or complications   + At high risk of serious complications because of pre-existing comorbidity. This includes patients with significant heart, lung, renal, liver or neuromuscular disease, immunosuppression, cystic fibrosis, and young children who were born prematurely.   + Older than 65 years with acute cough and two or more of the following, or older than 80 years with acute cough and one or more of the following:   + hospitalisation in previous year   + type 1 or type 2 diabetes   + history of congestive heart failure   + current use of oral glucocorticoids | **First Choice (if no co-morbidities):** no antibiotics  **Alternative Choice**  Amoxicillin  **If allergic to Penicillin:**  Doxycycline  or  Clarithromycin | 500mg tds  200mg stat then 100mg daily  500mg bd | 5 days  5 days  5 days |
| **Acute exacerbation’s of COPD**  [NICE CG101](http://www.nice.org.uk/guidance/cg101/chapter/guidance#management-of-exacerbations-of-copd)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [CKS - COPD Exacerbation](http://cks.nice.org.uk/chronic-obstructive-pulmonary-disease#!scenario:1)  [GOLD 2015](http://www.goldcopd.org/uploads/users/files/GOLD_Report_2015_Sept2.pdf)  (NB. 2.15 MB pdf document - allow time to load)  [**return to contents**](#Contents) | * Many cases are viral and non-infectious agents are also responsible for some exacerbations – consider whether antibiotics are needed. * Bacteria, including *Streptococcus pneumoniae, Haemophilus influenzae* and *Moraxella catarrhalis*, can be isolated from sputum samples in stable COPD but are also associated with exacerbations * Treat exacerbations promptly with antibiotics if purulent sputum **and** increased shortness of breath **and/or** increased sputum volume. * If not responding to empiric 1st line therapy, send a sample of the sputum for microbial analysis. * Risk factors for antibiotic resistant organisms include co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months. * Prophylactic continuous use of antibiotics has been shown to have no effect on the frequency of exacerbations * Pneumococcal vaccination and annual influenza vaccination should be offered to all patients with COPD | **First Choice**  Amoxicillin  **If allergic to Penicillin:**  Clarithromycin  **Second Line (i.e. if 1st line treatment failed and awaiting culture results)**  Doxycycline  Or  Discuss with microbiologist | 500mg tds  500mg bd  200mg stat then 100mg od | 5 days  5 days  5 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Bronchiectasis**  [BTS Guideline](https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/bronchiectasis-guideline/)  [CKS - Bronchiectasis](http://cks.nice.org.uk/bronchiectasis)  [**return to contents**](#Contents) | * The presence of purulent sputum alone, or isolation of a pathogen alone are not necessarily indications for antibiotic treatment * Antibiotics are recommended for exacerbations that present with acute deterioration, worsening local symptoms and/or systemic upset. * **Sputum sample should be sent for culture before starting antibiotics and repeat if fail to respond to treatment** * Antibiotics can be modified if pathogen isolated * *Pseudomonas aeruginosa* – treat with oral ciprofloxacin, however significant risk of resistance if repeated courses and associated with *C difficile* colitis. Often require IV antibiotics to achieve clinical improvement * Patients with chronic *P. aeruginos*a , opportunistic mycobacteria or MRSA colonization or with >3 exacerbations per year should have regular follow-up in secondary care | **First Choice**  Amoxicillin  **If allergic to Penicillin:**  Clarithromycin  **If severe bronchiectasis and chronically colonised with *H influenzae***  Amoxicillin  **If *Pseudomonas aeruginosa***  Ciprofloxacin | 500 mg tds  500 mg bd  1g tds or 3g bd  500-750 mg bd | 14 days  14 days  14 days  14 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Community -**  **acquired**  **pneumonia (CAP)**  [BTS Guideline](https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/community-acquired-pneumonia-in-adults-guideline/)  [NICE CG191](http://www.nice.org.uk/guidance/cg191)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care) | * Start antibiotics immediately * Empirical therapy is directed primarily at *S. pneumoniae* which remains the leading cause of CAP * British Society of Antimicrobial Chemotherapy surveillance data show that over 92% of respiratory *S. pneumoniae* isolates in the UK remain fully susceptible to penicillin and locally 96% of isolates are susceptible. * Mycoplasma infection is rare in over 65s * Microbiological investigations not recommended routinely for those managed in the community – consider if no response to empirical therapy after 48 hours * Examination of sputum for *Mycobacterium tuberculosis* should be considered for patients with a persistent productive cough, especially if malaise, weight loss, or night sweats, or if other risk factors exist. * Urine antigen for *Legionella pneumophilia*, PCR of nose and throat swabs or serological investigations should be considered during outbreaks or when there are particular epidemiological reasons. See risk factors below. * Use the CRB-65 score to assess patients, see below. This helps to determine the management of CAP for community patients   **CRB-65 score = score 1 point for each of the following features present:**   * Confusion (AMT ≤8 or new disorientation in person, place or time). * Respiratory rate ≥30/min. * Blood pressure (SBP <90mmHg or DBP <60mmHg). * ≥65 years.   A score of 0 indicates that the patient is likely to be suitable for home treatment.  A score of 1-2 indicates a need to consider hospital referral.  **Patients with a score of 3 or 4 require urgent hospital admission.** | **CRB-65 = 0**  **First Choice**  Amoxicillin  **If allergic to Penicillin:**  Clarithromycin  or  Doxycycline  **CRB-65 = 1 or 2 & patient at home**  **First Choice**  Amoxicillin **AND**  Clarithromycin  **If allergic to Penicillin:**  Doxycycline | 500mg tds  500mg bd  200mg stat, then 100mg od  500mg tds  500mg bd  200mg stat, then 100mg od | 5 days; review at day 3 and extend to  7-10 days if poor response  7 – 10 days  7 – 10 days |
| [**return to contents**](#Contents) | Consider immediate antibiotic administration (Benzylpenicillin 1.2g Slow IV or IM or Amoxicillin 1g oral or, if penicillin allergic, Clarithromycin 500mg oral) for patients being referred to hospital if CAP is thought to be life threatening or there is likely to be a delay of 6 hours or more to admission.  Risk factors for *Legionella* infection include: recent travel or exposure to air conditioning systems, cooling towers, spa pools and other artificial water systems.  *Staphylococcus.aureus* pneumonia may be associated with concurrent or recent influenza.  Panton-Valentine leukocidin is a toxin produced by a small proportion of *S. aureus.* PVL *S. aureus* is a rare cause of high severity haemorrhagic pneumonia in otherwise healthy young people and can be associated with rapid lung cavitation and multiorgan failure. If suspected urgent referral and discussion with microbiologist is recommended. | | | |

**4.** **SKIN / SOFT TISSUE INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Erysipelas**  [**return to contents**](#Contents) | * Almost always caused by β-haemolytic streptococci, usually group A * May be difficult to distinguish from cellulitis | **First Choice**  Phenoxymethylpenicillin  **Alternative if allergic to penicillin:**  Clarithromycin | 500mg qds  500mg bd | 7 days  7 days |
| **Boils, Abscesses, Impetigo,**  **Infected eczema**  [CKS - Impetigo](http://cks.nice.org.uk/impetigo)  [CKS - Boils/Carbuncles](http://cks.nice.org.uk/boils-carbuncles-and-staphylococcal-carriage#!management)  [PHE - PVLSA](https://www.gov.uk/government/publications/pvl-staphylococcus-aureus-infections-diagnosis-and-management-for-primary-care--2)  [**return to contents**](#Contents) | * Usually caused by β-haemolytic streptococci or *S. aureus* * For extensive, severe, or bullous impetigo, use oral antibiotics * Reserve topical antibiotics for very localised lesions, and use only short courses, to reduce the risk of resistance * Reserve mupirocin for MRSA * For eczema, routinely adding an antibiotic to a steroid does not improve response and encourages resistance.   Panton-Valentine Leukocidin (PVL) is a toxin produced by 2% of *Staph. Aureus.* It can cause severe or recurrent impetigo, furunculosis or abscesses/boils. Cross-transmission may occur in households and other closed communities or in association with contact sports. If suspected, submit samples for culture and discuss with Microbiologist | **For localised lesion - impetigo or infected eczema only**  Fusidic acid ointment  **Boil, abscess, severe, widespread or unresponding impetigo/infected eczema**  Flucloxacillin  or  Clarithromycin if penicillin allergic | Topically tds  500mg qds  250mg to 500mg bd | 5 days  7 days  7 days |
| **Cellulitis**  [CREST](http://gain-ni.org/images/Uploads/Guidelines/cellulitis-guide.pdf)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [**return to contents**](#Contents) | * Most commonly caused by β-haemolytic streptococci, often group A but also groups B, C and G and *S. aureus* * If peri-orbital cellulitis refer to hospital for further investigation and treatment * If sea-water or freshwater exposure, discuss with microbiologist. * If febrile, systemically unwell or with underlying co-morbidities which may complicate infection, refer to hospital for IV treatment * Failure to respond may necessitate urgent parenteral antibiotics. * Necrotising fasciitis is a rare but rapidly progressive and destructive soft tissue infection with a high mortality. Presenting signs are often non-specific and may initially resemble cellulitis. Worsening pain, disproportionate to clinical signs, skin necrosis +/-crepitus or bullae should prompt surgical referral and discussion with microbiologist | **First Choice**  Flucloxacillin  **Alternative if allergic to penicillin:**  Clarithromycin  **If poor response consider referral for IV treatment** | 500mg qds  500mg bd | 7 days.  If slow response  continue for a further 7 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Lactation Mastitis**  [CKS - Mastitis](http://cks.nice.org.uk/mastitis-and-breast-abscess#!scenario)  [NICE CG37](http://www.nice.org.uk/guidance/cg37)  [WHO – Mastitis (2000)](http://www.who.int/maternal_child_adolescent/documents/fch_cah_00_13/en/)  [**return to contents**](#Contents) | * Up to 1 in 10 breastfeeding females are affected * Is most common during first 6 weeks post-partum * Associated with pain, redness, fever, myalgia and malaise that occur in the setting of breastfeeding * Mastitis can progress to breast abscess if not treated promptly * Advise patient on getting plenty of rest, drinking plenty of fluid, taking pain killers such as paracetamol or ibuprofen, not to stop breastfeeding and avoiding tight clothing * If there is development of a severely painful swollen lump, with redness and oedema overlying skin - refer to hospital for aspirate/culture. * Refer to secondary care if:   + There are signs of sepsis (such as tachycardia, fever, and chills).   + The infection progresses rapidly.   + The woman is haemodynamically unstable or immunocompromised.   + Breast abscess is suspected * **Prescribe antibiotic if infected nipple fissure, or symptoms not improved/worsening 12-24hrs after effective milk removal and/or positive breast milk culture** * **Advise patient to:**   + **Seek immediate medical advice if symptoms fail to settle after 48 hours of antibiotics treatment as the concern is to prevent the development of a breast abscess.**   + **Return to prescriber for further review at 7 days.** * **If improving after 7 days continue for a further 7 days.  If not seek advice from microbiologist as the concern is to prevent the development of a breast abscess** | **First Choice**  Flucloxacillin  **Alternative if allergic to penicillin:**  Clarithromycin | 500mg qds  500mg bd | 7-14 days  Patient to review at 48 hours.  Prescriber to review at 7 days and decide whether to seek further advice or continue for a further 7 days.  See comment section for further detail. |
| **Leg ulcers**  [PHE - Venous Leg Ulcers](https://www.gov.uk/government/publications/venous-leg-ulcers-diagnosis-and-microbiology-investigation)  [**return to contents**](#Contents) | * Ulcers will always have bacteria present. * Antibiotics do not improve healing unless active infection * Culture swabs and antibiotics are only indicated if there is evidence of clinical infection such as inflammation / redness / cellulitis; increased pain; purulent exudates; rapid deterioration of ulcer or pyrexia. * Sampling for culture requires cleaning to remove surface contaminants then vigorous curettage of the slough and necrotic tissue. Swab viable tissue which is showing signs of infection. | **Minor**  Flucloxacillin  **Alternative if allergic to penicillin:**  Clarithromycin  **Severe / unresolving**  Send swabs for microbial culture and discuss with microbiologist | 500mg qds  500mg bd | 7 days.  If slow response  continue for a further 7 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Diabetic foot infection**  [NICE Diabetic Foot](http://www.nice.org.uk/guidance/ng19)  [**return to contents**](#Contents) | * **Diabetic foot ulcers should urgently be referred to Diabetic Foot Clinic as per NICE guidance if new ulceration, swelling or discolouration** * Take cultures and samples before, or as close as possible to, the start of antibiotic treatment**.** | **Initial**  Flucloxacillin  **Alternative if allergic to penicillin:**  Clindamycin  ***High C Diff risk - Stop immediately if diarrhoea develops.***  **On going-**  Via MDT Foot clinic | 500mg qds  300mg qds | 7 days.  7 days. |
| **Insect Bites**  [CKS - Insect Bites and Stings](http://cks.nice.org.uk/insect-bites-and-stings#!scenariorecommendation:7)  [**return to contents**](#Contents) | Treat only if infected  Establish whether the bite was likely to have occurred in the UK or elsewhere as this will determine course of action  If tick bite consider possibility of Lyme disease – do not offer antimicrobial prophylaxis or serological tests, but advise patient that if a rash appears at the site of the bite (erythema migrans) or a fever develops to seek medical advice | **UK inflicted Bite**  **First Choice**  Flucloxacillin  **Alternative if allergic to penicillin:**  Clarithromycin  **Non - UK inflicted Bite**  Seek advice from microbiology | 500mg qds  500mg bd | 7 days.  If slow response  continue for a further 7 days |
| **Human and Animal Bites**  **(prophylaxis**  **and treatment)**  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [**return to contents**](#Contents) | * Organisms commonly isolated from dog and cat bites include *Pasteurella* species, *S. aureus*, streptococci and anaerobic bacteria * Thorough irrigation is important * **Review all bites at 24 & 48 hours to ensure responding to treatment**   Human bites   * Assess risk of tetanus, HIV, hepatitis B&C * Antibiotic prophylaxis is advised   Animal bites   * Assess risk of tetanus, rabies * Give prophylaxis if cat bite/puncture wound; bite to hand, foot or face; wounds involving injury to joint, tendon or ligament; or if patient immunocompromise/diabetic/asplenic/cirrhotic * Children under 12 or pregnant women with penicillin allergy – discuss with Microbiologist * Asplenic patients are prone to overwhelming sepsis following dog bites. | **First Choice - prophylaxis and treatment:**  Co-amoxiclav  **If allergic to penicillin :** Metronidazole PLUS Doxycycline (not children under 12 or pregnancy; seek advice from microbiology for these)  **or human bite only:** Metronidazole PLUS Clarithromycin | 375-625mg tds  200-400mg tds  100mg bd  200-400mg tds  250-500mg bd | 7 days    7 days  7 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | | **Duration** | |
| Scabies  [CKS - Scabies](http://cks.nice.org.uk/scabies)  [BNF - Scabies](https://www.medicinescomplete.com/mc/bnf/current/PHP78284-skin-infections.htm?q=scabies&t=search&ss=text&p=4#_hit)  (BNF link only accessible from computer with NHS N3 connection)  [return to contents](#Contents) | * Treat all members of the household, close contacts, and sexual contacts simultaneously (within 24 hours), even if absence of symptoms. * Treat whole body including scalp, neck, face, ears and under nails (as per BNF section 13.10.4) * For patients under the age of 2 months; advice from a paediatric dermatologist should be sought prior to any treatment. * Machine wash (at 50°C or above) clothes, towels, and bed linen, on the day of application of the first treatment. | **First choice**  Permethrin - 5% Dermal Cream  **2nd line:-**  Malathion - 0.5% aqueous liquid | Apply over whole body, wash off after 8 to 12 hours.  Apply over whole body, wash off after 24 hours. | | Use twice  one week apart  Use twice  one week apart | |
| **Dermatophyte and candidal**  **infection of the fingernail or**  **toenail (Adults)**  [Brit Association Dermatology Onychomycosis Guide 2014](http://www.bad.org.uk/shared/get-file.ashx?id=2125&itemtype=document)  [PHE - Fungal Skin & Nail](https://www.gov.uk/government/publications/fungal-skin-and-nail-infections-diagnosis-and-laboratory-investigation)  [**return to contents**](#Contents) | * **Treat only if infection confirmed by laboratory** * For infection with dermatophytes use oral terbinafine or itraconazole * For infections with candida or non-dermatophyte moulds use oral itraconazole * Only use topical treatment if superficial infection of the top surface of the nail plate * Topical treatment is inferior to systemic therapy in all but a small number of cases of very distal infection or in Superficial White Onychomycosis * Idiosyncratic liver and other severe reactions occur very rarely with terbinafine and itraconazole   **For children seek expert advice** | **First choice for dermatophytes**  Terbinafine  **First choice for candida/non dermatophytes:-**  Itraconazole  **Alternative choice for superficial infection.**  **(only if systemic therapy contra-indicated/not tolerated)**  Amorolfine 5% nail lacquer (for superficial) | 250mg daily  200mg BD for 7days/month  1-2x weekly | Finger  Toe  Finger  Toe  Finger  Toe | | 6-12wk  3-6mth  2 courses  3 courses  6mth  12mth |

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| **Indication** | **Comment** | **Drug** | **Dose** | | | **Duration** | |
| **Dermatophyte**  **infection of the skin**  [PHE - Fungal Skin & Nail](https://www.gov.uk/government/publications/fungal-skin-and-nail-infections-diagnosis-and-laboratory-investigation)  [CKS - Fungal skin infection - body & groin](http://cks.nice.org.uk/fungal-skin-infection-body-and-groin#!topicsummary)  [**return to contents**](#Contents) | * Take skin scraping for culture * As terbinafine is fungicidal, one week is as effective as 4 weeks azole which is fungistatic * If intractable consider oral terbinafine * Discuss SCALP infections with specialist * Antifungal/steroid combination creams not recommended because they are licensed to be used for a maximum of 7 days however, topical antifungal treatment is usually required for a longer period. | **First Choice (not location specific)**  Topical Terbinafine 1%  **Second Choice for Non-groin infection**  Topical undecenoic acid or topical azole 1% cream  **Second Choice for Groin infection**  Topical azole 1% cream | Apply 1-2 times daily  Apply 1-2 times daily  Apply 1-2 times daily | | 1 wk  4-6 wks  4-6 wks | | |
| **If failure of topical treatment:**  Oral Terbinafine | 250mg od |  |  | | |
| Non groin  Groin | | | 4 wks  2-4 wks |
| **Candida infection of the skin**  [PHE - Fungal Skin & Nail](https://www.gov.uk/government/publications/fungal-skin-and-nail-infections-diagnosis-and-laboratory-investigation)  [CKS - Candida - Skin](http://cks.nice.org.uk/candida-skin#!scenario)  [**return to contents**](#Contents) | * **Confirm by laboratory**   **Infection not widespread/Patient not significantly immunocompromised**   * Treat with 1% azole cream   **Widespread Infection/Topical Treatment Ineffective/Immunocompromised** **Patient**  Use oral fluconazole for 2 weeks and then review response to treatment as follows:   * Infection completely resolved - stop treatment. * Infection improved but not completely resolved, continue treatment for a further 2 weeks * Poor response or no improvement seek specialist advice. | 1% azole cream - use lotion if treating paronychia  **If oral therapy indicated (see left)**  Fluconazole | 1-2 times daily  50mg od | | | 1 week or in case of paronychia until swelling goes  2 weeks then review (see left) | |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| ***Pityriasis versicolor***  [CKS - Pityriasis](http://cks.nice.org.uk/pityriasis-versicolor#!scenario)  [**return to contents**](#Contents) | * Scratching the surface of the lesion should demonstrate mild scaling * If initial therapy fails, verify that the treatment regimen has been followed adequately. * Consider a second topical therapy before considering systemic treatment. * Topical or oral corticosteroids should not be used as they may exacerbate the condition and cause skin atrophy.   If pityriasis versicolor is extensive or if topical treatment is ineffective:   * Confirm the diagnosis by taking skin samples for microscopy. * Consider referral to dermatologist or specialist, particularly if under 12 years of age * Consider an oral antifungal treatment | **First Choice**  Ketoconazole 2% shampoo  **Second choice**  Selenium sulphide 2.5% shampoo (unlicensed indication)  **Small areas**  Clotrimazole 1% cream  **If oral therapy indicated (see left)**  **First Choice**  Itraconazole  **Second Choice**  Fluconazole | once daily  once daily  apply 2-3 times daily  200mg od  50mg od | 5 days  7 days  2-3wks  7 days  2-4wks |

**5.** **EYE INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Conjunctivitis**  [**return to contents**](#Contents) | * Most bacterial conjunctivitis is self-limiting. * Viral infections may be associated with other upper respiratory tract symptoms * Mild cases may not need treatment; treat if moderate or severe or not resolving in 4-5 days. * Consider taking appropriate swabs before initiating treatment, including separate swabs for Chlamydia if indicated (see below). * Pseudomonal infection requires Gentamicin. **Suggest referral** as risk of severe progressive infection.   **Corneal ulcers**   * Refer urgently to the eye Department – do not treat with topical antibiotics as this can interfere with subsequent microbiological investigation   **Neonatal**   * *Neisseria gonorrhoea* causes conjunctivitis in the first few days of life and *Chlamydia trachomatis* at around 5-14 days. * Urgently refer to Paediatrics; all infants in the first 28 days of life with conjunctivitis, for same day assessment and management of their conjunctivitis. * NB. A simple sticky eye (when there are no signs of conjunctival inflammation) does not usually require specialist assessment.   **Contact lens associated infections**   * *Acanthamoeba* spp is a cause of corneal ulcer primarily in contact lens wearers * For contact lens wearers with keratitis, the contact lens should be sent for culture in a sample of contact lens fluid. * Urgently refer to eye specialist   ***Chlamydia trachomatis***   * *C. trachomatis* can cause acute follicular conjunctivitis in adults (usually associated with sexually transmitted genital infection) and neonates * Use specific Chlamydia swabs i.e. urethral or vaginal, and ensure the conjunctiva is swabbed not the discharge from the eye. * Refer patient to local eye and STD clinics immediately   ***Herpes simplex virus***   * Refer immediately to eye casualty | **First choice:**  Topical Chloramphenicol  **Alternative choices:**  Fusidic acid (Fucithalmic®) eye drops - only for gram-positive organisms particularly *S*. *aureus*  or  Topical Gentamicin (if pseudomonas) | **drops**: 1 drop 2-hourly for 2 days then 4 hourly (whilst awake) and  **ointment**: at night  If ointment used alone then 3-4 times daily  Apply twice each day  **drops**: 1 drop 2-hourly (if severe); qds when controlled | For 48 hours after resolution  For 48 hours after resolution |

**6.** **PARASITIC INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Threadworm**  [CKS -Threadworm](http://cks.nice.org.uk/threadworm)  [**return to contents**](#Contents) | * Mebendazole is the drug of choice for treating threadworm infection in patients over 6 months. (nb. 6 months to 2 yrs is unlicensed but recommended in BNFc) * Children under 6 months – hygiene measures alone should be used.   **Treatment with either must be combined with hygiene measures as outlined below. All household members should be treated at the same time.**   * **Treatment with an anthelmintic is contraindicated in children aged less than 6 months and women in the first trimester of pregnancy**. Women in the second or third trimester and women who are breastfeeding may also prefer not to take an anthelmintic * **For people who do not wish to take an anthelmintic, and those in whom an anthelmintic is not recommended**, advise physical removal of the eggs, combined with [hygiene](http://cks.nice.org.uk/threadworm#!scenariorecommendation:2) measures.   **Environmental hygiene measures — undertake on the first day of treatment:**   * Wash sleepwear, bed linen, towels, cuddly toys at normal temperatures and rinse well. * Thoroughly vacuum and dust, paying particular attention to the bedrooms, including vacuuming mattresses. * Thoroughly clean the bathroom by 'damp-dusting' surfaces, washing the cloth frequently in hot water.   **Strict personal hygiene measures — for 2 weeks if combined with drug treatment or for 6 weeks if used alone:**   * Wear close-fitting underpants or knickers at night. Change them every morning. * Cotton gloves may help prevent night-time scratching. Wash them daily. * Bath or shower immediately on rising each morning, washing around the anus to remove any eggs laid by the worms during the night.   **General personal hygiene measures — encourage all the time for all household members:**   * Wash hands and scrub under the nails first thing in the morning, after using the toilet or changing nappies, and before eating or preparing food. * Discourage nail biting and finger sucking. * Avoid the use of 'communal' or shared towels or flannels. | **Children Under 6 months**  Hygiene measures  **Non pregnant Adults and children over 6 months**  Mebendazole Tabs  **Pregnancy & Breastfeeding**  Physical removal of eggs combined with hygiene methods is the preferred treatment.  **Mebendazole should not be used in the first trimester of pregnancy.**  If drug treatment is considered necessary in the second or third trimester of pregnancy or in breastfeeding, mebendazole is the anthelmintic of choice.  Use in this way is unlicensed and contraindicated by manufacturers. **Report any exposure in pregnancy to UKTIS: 🕾0344 892 0909.**  [**http://www.uktis.org/**](http://www.uktis.org/) | 100mg as single dose | stat  repeat after 14 days if infestation persists or has re-occurred |

**7.** **GENITAL TRACT INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Vaginal Candidiasis**  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [**return to contents**](#Contents) | * All topical and oral azoles give 75% cure. * Avoid use of oral azoles in pregnancy. * Intravaginal treatment requires longer duration of treatment in pregnancy | Clotrimazole 10%  or Clotrimazole  or Fluconazole  **In pregnancy**  Clotrimazole  or Miconazole 2% vaginal cream | 5g vaginal cream (pv)  500 mg pessary (pv)  150 mg orally  100 mg pessary at night (pv)  5g intravaginal BD | stat  stat  stat  6 nights  7 nights |
| **Bacterial**  **Vaginosis**  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [**return to contents**](#Contents) | * Oral metronidazole is as effective as topical treatment but is cheaper. * Trials show that the 2g stat dose is slightly less effective at 4 week follow-up, this should be considered only where patient compliance is considered a problem * In Pregnancy avoid 2g single dose metronidazole. * Breastfeeding – systemic metronidazole and clindamycin enter breast milk therefore use intravaginal treatment * Treating partners does not reduce relapse. | **First Choice**  Metronidazole tablets  or  Metronidazole 0.75% vaginal gel  **Second Choice:**  Clindamycin 2% Cream | 400mg bd  or 2g  one 5g applicator full at night  one 5g applicator full at night | 7 days  stat  5 nights  7 nights |
| **Gonococcal**  **urethritis,**  **cervicitis**  [**return to contents**](#Contents) | * Less common than chlamydial infection * Main sites of infection are the mucous membranes of the urethra, endocervix, rectum, pharynx and conjunctiva * Refer to G.U. medicine for management and contact tracing. |  |  |  |
| **Chlamydia**  **trachomatis**  **urethritis,**  **cervicitis**  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [SIGN](http://www.sign.ac.uk/guidelines/fulltext/109/index.html)  [PHE - Chlamydia](https://www.gov.uk/government/publications/chlamydia-trachomatis-diagnosis-guide-for-general-practices)  [**return to contents**](#Contents) | * Opportunistically screen those in whom prevalence is known to be highest, i.e. those aged 15 to 25 yrs or with >2 sexual partners in the previous 12 months, or a recent change of sexual partner. * Refer to GUM clinic for contact tracing and management of partners * Pregnancy or breastfeeding: azithromycin is the most effective option but is ‘unlicensed’. The safety data are reassuring but limited when compared with amoxicillin and erythromycin, however these are less well tolerated and non-compliance may be a problem. * Consider test for cure if anything other than 1st line treatment was given or in pregnancy where a test for cure is done 6 weeks after treatment * Recurrent infections may be prevented by barrier contraception. * Abstain from intercourse or use safe sex until 7 days after azithromycin or completion of other treatment by patient and partner. | **First Choice**  Azithromycin (can be used in pregnancy following discussion of benefits and risks)  or  Doxycycline (contraindicated in pregnancy)  **Alternatives in pregnancy or breastfeeding:**  Erythromycin  or  Amoxicillin | 1 gram, 1 hr before or  2 hrs after food  100mg bd  500 mg qds  500 mg tds | stat  7 days  7 days  7 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Pelvic**  **Inflammatory**  **Disease (PID)**  [PID National Guideline (BASHH)](http://www.bashh.org/documents/3572.pdf)  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [**return to contents**](#Contents) | * **Refer woman and contacts to GUM clinic** * Always culture for gonorrhoea & chlamydia * Ofloxacin should be avoided in patients who are at high risk of gonococcal PID because of increasing quinolone resistance in the UK (e.g. when the patient’s partner has gonorrhoea, in clinically severe disease or following sexual contact abroad). * 28% of gonorrhoea isolates now resistant to quinolones so **only use ofloxacin regimen if gonococcal PID unlikely.** * Complications of gonorrhoea, such as PID, should be referred to GUM | Ofloxacin plus  Metronidazole | 400mg bd  400mg bd | 14 days  14 days |
| **Epididymo-orchitis**  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [**return to contents**](#Contents) | * Important to differentiate from Torsion – (Delay >6 hours →infarction). Torsion more likely if < 20 years old, sudden onset of pain. **If torsion cannot be excluded then urgent urology referral is advised** * Under 35 years - most often a sexually transmitted pathogen such as *Chlamydia trachomatis* and *Neisseria gonorrhoeae*. * Over 35 years - most often non-sexually transmitted Gram negative enteric organisms causing urinary tract infections. Particular risks include recent instrumentation or catheterisation. * There is crossover between these groups and complete sexual history taking is imperative * Refer to GUM clinic if sexually transmitted organisms likely e.g. under 35yrs. * Refer to urologist if urinary tract pathogen identified as anatomical or functional abnormalities of the urinary tract are common in this group. * 20 – 30% of post- pubertal men with mumps develop orchitis | **If Sexually Transmitted Organisms a possibility**  Refer to GUM clinic  **If gram negative enteric organisms more likely**  Ciprofloxacin | 500mg bd | 10 days |

**8.** **URINARY TRACT INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **General Guidance**  [**return to contents**](#Contents) | * Common organisms causing urinary tract infection include: *E. coli*, *Proteus* spp., *Klebsiella* spp., *Staphylococcus saprophyticus* and *Enterococcus* spp. * Local data shows that 88% of urine pathogens are susceptible to nitrofurantoin and 64% susceptible to trimethoprim. Samples are more likely to be submitted for culture in hospitalized patients or those with recurrent infections or who have failed to respond to empiric treatment. – therefore sensitivity rates for uncomplicated infections in primary care are likely to be higher. * Amoxicillin resistance is common, therefore ONLY use if culture confirms sensitivity. * The prevalence of asymptomatic bacteriuria increases with age. There is evidence that, in non-pregnant women,elderly patients and catheterized patients, treatment does more harm than good and antibiotics are not indicated. In pregnancy, however, treatment of asymptomatic bacteriuria is likely to be beneficial. * In the presence of a catheter, antibiotics **will not** eradicate bacteriuria; only treat if systemically unwell or pyelonephritis likely. * **Do not prescribe trimethoprim to a patient who is taking methotrexate – risk of haematological toxicity.** * **Do not prescribe pivmecillinam to a patient who is taking valproate/valproic acid – risk of carnitine depletion leading to hyperammonaemic encephalopathy.** | | | |
| **UTI in**  **women and men**  **(no fever or flank pain)**  [PHE - UTI](https://www.gov.uk/government/publications/urinary-tract-infection-diagnosis)  [SIGN](http://www.sign.ac.uk/guidelines/fulltext/88/index.html)  [CKS - UTI women](http://cks.nice.org.uk/urinary-tract-infection-lower-women)  [CKS - UTI men](http://cks.nice.org.uk/urinary-tract-infection-lower-men)  [RCGP online learning](http://www.rcgp.org.uk/courses-and-events/online-learning/ole/urinary-tract-infections.aspx)  [SAPG - Delayed Ab/No Ab strategy for UTI in women](http://www.scottishmedicines.org.uk/files/sapg/Alternative_management_of_lower_UTI_in_non-pregnant_women.pdf)  [**return to contents**](#Contents) | * Women with severe/ ≥ 3 symptoms of UTI: treat * Women with mild/ ≤ 2 symptoms: use dipstick to guide treatment. Positive nitrite & blood/leucocytes has 92% positive predictive value ; negative nitrite, leucocytes, *and* blood has a 76% NPV   Men: Consider prostatitis and send pre-treatment MSU OR if symptoms mild/non-specific, use negative nitrite and leucocytes to exclude UTI.  If symptoms are severe (for example severe nausea and vomiting, confusion, tachypnoea, tachycardia, or hypotension), refer to hospital; intravenous antibiotics may be required.  Community multi-resistant *E. coli* with Extended-spectrum Beta-lactamase enzymes (ESBLs) are increasing **so perform culture in all treatment failures.**  **Risk factors for increased resistance** include: care home resident, recurrent UTI, hospitalisation >7d in the last 6 months, unresolving urinary symptoms, 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  **In general use Nitrofurantoin first line**. Trimethoprim and pivmecillinam are alternative first line agents.   * Nitrofurantoin contraindicated if eGFR less than 45 mL/min or G6PD deficiency. A short course (3-7 days) may be used with caution if eGFR 30-44 mL/min and multi-resistant isolate with no alternative. * If increased resistance risk send culture for susceptibility & give safety net advice * If increased resistance risk and GFR<45mL/min consider pivmecillinam * If increased resistance risk and elderly consider pivmecillinam | **First Choice**  Nitrofurantoin  or  Trimethoprim  or  Pivmecillinam  **Second Choice**  Depends on susceptibility of organism isolated | 50mg qds or  MR caps 100mg bd  200mg bd  400mg tds  ***(Swallow whole with plenty of fluid while sitting or standing)***  *Note stated dose of pivmecillinam is higher than BNF. This is a PHE recommendation* | 3 days women  7 days men |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **UTI in pregnancy**  [**return to contents**](#Contents) | * In pregnancy: send MSU for culture & sensitivity and start empirical antibiotics * Short-term use of nitrofurantoin during 1st and 2nd trimester of pregnancy is unlikely to cause problems to the foetus. Avoid use during 3rd trimester or if mother is G6PD deficient * Avoid trimethoprim in the first trimester, or in women who have a low folate status or on folate antagonists e.g. anti-epileptic or proguanil. * If patient is not able to take a listed antibiotic contact microbiologist to discuss alternative treatment options. | **First Choice**  Nitrofurantoin(except in 3rd trimester)  or  Amoxicillin (if susceptible)  **Second Choice**  Trimethoprim (except in 1st trimester)  **Third Choice**  Cefalexin | 50mg qds or  MR caps 100mg bd  500mg tds  200 mg bd  500mg bd | 7 days  7 days  7 days  7 days |
| **UTI in Children**  [NICE CG54](http://guidance.nice.org.uk/CG54)  [NICE CG160](http://guidance.nice.org.uk/CG160)  [**return to contents**](#Contents) | * Send pre-treatment MSU for any of the following: * all infants and children less than 3 years * diagnosis of acute pyelonephritis/upper UTI * risk of serious illness * dipstick positive for leucocyte esterase or nitrite. * Dipstick testing can be used to aid diagnosis in children over 3 years * Imaging: refer if child <6 months or atypical UTI (e.g. any of the following: seriously ill, poor urine flow, abdominal mass, raised creatinine, failure to respond to appropriate antibiotics, infection with non-*E. coli* organisms) or recurrent UTI   [**NICE CG54 Urinary Tract Infection in children**](http://guidance.nice.org.uk/CG54)   * Infants and children with a high risk of serious illness and all infants younger than 3 months with a possible UTI should be referred immediately to the care of a paediatric specialist. * For infants and children 3 months or older with cystitis/lower urinary tract infection:   treat with oral antibiotics for 3 days.   * For infants and children 3 months or older with acute pyelonephritis/upper urinary tract infection:   consider referral to a paediatric specialist  treat with oral antibiotics for 7–10 days.  [**NICE CG54**](http://guidance.nice.org.uk/CG54) **includes guidance on diagnosis of UTI; however**  **Assessment of the illness level should also be made as per** [**NICE CG160 Feverish Illness in Children.**](http://guidance.nice.org.uk/CG160) | **Cystitis/Lower UTI**  **First Choice**  Trimethoprim  or  Nitrofurantoin  **Alternative Choice**  Amoxicillin – if known to be susceptible  **Acute pyelonephritis/**  **Upper UTI**  **First Choice**  Co-amoxiclav  If penicillin allergic contact microbiologist to discuss treatment options | See BNF for children for doses | 3 days  3 days  3 days  7 to 10 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Acute**  **Pyelonephritis (Adults)**  [**return to contents**](#Contents) | * Assess for admission to hospital if there are signs of renal infection, e.g. fever or flank pain. * If admission not required send MSU for culture & sensitivity and start antibiotics. * If no response within 24 hours of antibiotic treatment, admit | **First Choice**  Co-amoxiclav  If penicillin allergic or ESBL risk contact microbiologist to discuss treatment options | 500/125mg tds | 10-14 days |
| **Acute prostatitis**  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [**return to contents**](#Contents) | * Acute prostatitis is caused by urinary tract pathogens * Send MSU for culture and start antibiotics * 4-weeks treatment is recommended to reduce the risk of chronic prostatitis * Following recovery, investigation to exclude an underlying structural abnormality is advised * Chronic prostatitis refer to Urology * Quinolones are more effective, as they have greater penetration into the prostate, but there is a higher risk of adverse effects e.g. *C.difficile.* There is poorer evidence for trimethoprim but it can be used in patients allergic to or unable to take ciprofloxacin (e.g. seizures). | **First Choice**  Ciprofloxacin  **Alternative Choice**  Trimethoprim | 500mg bd  200mg bd | 28 days  28 days |

**9.** **GASTRO-INTESTINAL TRACT INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| ***Helicobacter pylori* eradication**  [NICE CG184](http://www.nice.org.uk/guidance/cg184/chapter/1-recommendations#helicobacter-pylori-testing-and-eradication)  [PHE - H pylori](https://www.gov.uk/government/publications/helicobacter-pylori-diagnosis-and-treatment)  [CKS- Dyspepsia](http://cks.nice.org.uk/dyspepsia-unidentified-cause)  [**return to contents**](#Contents) | * *H. pylori* can be diagnosed initially using carbon-13 urea breath test (UBT) or stool antigen test (SAT). PPI within 2 weeks or antibiotics within 4 weeks of test may lead to false negative result. * For children the most accurate method of diagnosis is endoscopy with biopsy. Testing in primary care may help diagnosis and can be either with UBT or SAT. **UBT is not recommended for children under 6 years** as greater risk of false positives in this age group. * Treatment of H Pylori in children is only recommended under specialist supervision. * Helicobacter eradication is beneficial in known DU, GU or low grade MALToma * Routine testing is not recommended in patients with gastro-oesophageal reflux disease * **Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection.** .   Symptomatic relapse – consider seeking specialist advice as may indicate antibacterial resistance   * DU/GU/MALToma or relapse after second line treatment: retest for *H. pylori* using breath or stool test OR consider endoscopy for culture & susceptibility * NUD: Do not retest, offer PPI or H2RA * **If patient fails to meet any criteria for first or second line treatment or fails second line treatment then seek advice from gastroenterologist** | **First Line**  Lansoprazole +  Amoxicillin +  Clarithromycin  or  Lansoprazole +  Amoxicillin +  Metronidazole  **If previous exposure to both clarithromycin and metronidazole**  Lansoprazole +  Amoxicillin +  Tetracycline  **If penicillin allergic** Lansoprazole +  Clarithromycin +  Metronidazole  **If penicillin allergic & previous exposure to clarithromycin and/or metronidazole but no exposure to quinolone**  Lansoprazole +  Tetracycline +  Levofloxacin  **Second line – only if patient still has symptoms following first line treatment – see next page** | 30mg bd  1g bd  500mg bd  30mg bd  1g bd  400mg bd  30mg bd  1g bd  500mg qds  30mg bd  250mg bd  400mg bd  30mg bd  500mg qds  250mg bd | 7 days or  MALToma 14 days  7 days or  MALToma 14 days  7 days or  MALToma 14 days  7 days or  MALToma 14 days  7 days or  MALToma 14 days |

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| **Indication** | **Drug** | **Dose** | **Duration** | **Drug** | **Dose** | **Duration** |
| ***Helicobacter pylori* eradication**  ***continued*** | **Second line treatment options (not Maltoma) if patient still has symptoms following first line treatment**  **For Maltoma – second line – refer to specialist** | | | | | |
| **If clarithromycin regime used first time**  Lansoprazole +  Amoxicillin +  Metronidazole  **If metronidazole regime used first time**  Lansoprazole +  Amoxicillin +  Clarithromycin  **Previous exposure to both clarithromycin and metronidazole and first line treatment did not include tetracycline**  Lansoprazole +  Amoxicillin +  Tetracycline  **Previous exposure to both clarithromycin and metronidazole; first line treatment was with lansoprazole, amoxicillin and tetracycline and no quinolone exposure in last 12 months**  Lansoprazole +  Amoxicillin +  Levofloxacin | 30mg bd  1g bd  400mg bd  30mg bd  1g bd  500mg bd  30mg bd  1g bd  500mg qds  30mg bd  1g bd  250mg bd | 7 days  7 days  7 days  7 days | **Penicillin allergic and has not had quinolone exposure in last 12 months**  Lansoprazole +  Tetracycline +  Levofloxacin | 30mg bd  500mg qds  250mg bd | 7 days |

**These are second line treatment options (not Maltoma) for use if patient still has symptoms following first line treatment**

**For Maltoma – second line – refer to specialist**

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| **Indication** | **Comment** | **Drug** | | | **Dose** | **Duration** | |
| **Gastroenteritis/**  **Infective Diarrhoea**  [PHE - Infectious diarrhoea](https://www.gov.uk/government/publications/infectious-diarrhoea-microbiological-examination-of-faeces)  [NICE CG 84](https://www.nice.org.uk/Guidance/CG84)  [**return to contents**](#Contents) | * Most infectious diarrhoea is a self-limited, usually viral illness * Submit stool sample if systemically unwell, bloody diarrhoea, post-antibiotics/hospitalisation, recent foreign travel, persistent symptoms or if advised by Public Health. * Include relevant travel or antibiotic history so that other specific pathogens are looked for – only those >65 years are routinely tested for *C. difficile*. * Fluid replacement is essential. * Antibiotic therapy is not usually indicated as it only reduces diarrhoea by 1-2 days in uncomplicated infections and can cause resistance. * Antibiotic therapy is contraindicated if patient is infected with *E. coli* O157 as it can lead to Haemolytic Uraemic Syndrome * Antibiotic treatment is recommended for children younger than 6 months with Salmonella gastroenteritis – discuss with Microbiologist * If severe diarrhoea or systemically unwell discuss with Microbiologist.   Please notify known or suspected cases of food poisoning or infectious bloody diarrhoea to, and seek advice on exclusion of patients, from Public Health England. Send stool samples in these cases | | | | | | |
| ***Clostridium difficile***  [PHE – *Clostridium difficile*](https://www.gov.uk/government/publications/clostridium-difficile-infection-guidance-on-management-and-treatment)  [**return to contents**](#Contents) | * Stop unnecessary antibiotics and/or PPIs * Any of the following may indicate severe infection and the patient should be admitted for assessment:   Temperature >38.5°C; WCC >15 x 109/L, rising creatinine or signs/symptoms of severe colitis  Recurrent disease occurs in about 20% patients | | **1st episode (non severe)**  Metronidazole  **2nd episode/recurrent disease**  Vancomycin  **Severe disease**  Discuss with Microbiologist | 400mg tds  125mg qds | | | 10-14 days  10-14 days |
| **Giardiasis**  [**return to contents**](#Contents) | * If the patient relapses consider another course of therapy and investigation of the family who may be asymptomatic excretors. | | Metronidazole | Child  1-2 yrs 500mg od  3-6 yrs 600-800mg od  7-9 yrs 1g od  Adult & Child ≥10years  400mg tds or  2g od (less well tolerated) | | | 3 days  3 days  3 days  5 days  3 days |
| **Cryptosporidiosis**  [PHE - preventing spread guidance](https://www.gov.uk/government/publications/preventing-person-to-person-gastrointestinal-infections)  [**return to contents**](#Contents) | * Infection is acquired from contact with infected humans or animals or after ingestion of contaminated water. * Produces watery diarrhoea which can last for up to 2 to 3 weeks (or longer in immunosuppressed patients). * No specific treatment is currently available. * **This is a notifiable disease** as clusters of cases warrant further investigation to exclude a common source. * Cases should avoid using swimming pools until two weeks after the first normal stool. | | | | | | |

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| **Indication** | **Comment** |
| **Cholecystitis**  [NICE CG188](http://www.nice.org.uk/guidance/cg188)  [CKS - cholecystitis](http://cks.nice.org.uk/cholecystitis-acute#!topicsummary)  [**return to contents**](#Contents) | Suspect acute cholescystitis when someone presents with:   * A history of sudden-onset, constant, severe pain in the upper right quadrant, and possibly anorexia, nausea, vomiting, and sweating. * Low grade fever (a high temperature is uncommon). * Tenderness in the upper right quadrant, with or without Murphy's sign (inspiration is inhibited by pain on palpitation) on examination. A positive Murphy's sign has specificity of 79-96% for acute cholescystitis * History of gallstones (cholelithiasis) is often present   Signs which may indicate a complication include:   * Right upper quadrant palpable mass (distended gallbladder or an inflammatory mass around the inflamed gallbladder) * Fever (evidence of sepsis) * Jaundice (stone in the bile duct or external compression of the biliary ducts e.g. Mirrizzi syndrome)   **Urgent admission** to hospital is recommended with any person with suspected acute cholescystitis or any of the above complications for   * Confirmation of the diagnosis (e.g. abdominal ultrasound, serum amylase, raised white cell count and C-reactive protein) * Monitoring (e.g. blood pressure, pulse, & urinary output) * Treatment (e.g. intravenous fluids, antibiotics, & analgesia) * Surgical assessment for cholestectomy   Consider prescribing an oral nonsteroidal anti-inflammatory drug, while the person is waiting to be admitted.  Consider **routine referral** of people with mild intermittent symptoms and who are not unwell  **For patients who have already been seen by secondary care and are awaiting surgery**  Follow the surgical management plan if presenting with a flare up of their condition. This may include prescribing of antibiotics. |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Diverticular Disease**  [RCS Commissioning Guide 2014](https://www.rcseng.ac.uk/healthcare-bodies/docs/published-guides/colonic-diverticular-disease)  [CKS - Diverticular disease](http://cks.nice.org.uk/diverticular-disease#!topicsummary)  [World Gastroenterology Organisation Practice Guidelines -2007](http://www.worldgastroenterology.org/UserFiles/file/guidelines/diverticular-disease-english-2007.pdf)  [**return to contents**](#Contents) | Previously diagnosed colonic diverticula with symptoms such as lower abdominal pain, nausea/vomiting and signs including fever and localised guarding.   * Referral to hospital is not mandatory for this group of patients, and they may be managed at home. * If patient deemed suitable for home management, this should be in accordance to NICE guidelines with suitable analgesics (Paracetamol rather than non-steroidal anti-inflammatory drugs), and clear liquids for 2-3 days * There is low level evidence that patients suitable for management at home may be managed without the use of antibiotics; however, in general, a course of oral antibiotic is recommended.   Suspected acute diverticulitis but has not previously had a definitive diagnosis of colonic diverticula.   * Management as above is suitable * Referral for out-patient investigation also recommended   Acute Diverticulitis   * Admission to hospital should be arranged for patients with acute diverticulitis as per NICE guidelines. * Refer patient to hospital if   + Pain cannot be managed with Paracetamol   + Hydration cannot be easily maintained with oral fluids,   + Or antibiotics cannot be tolerated   + The person is frail or has significant comorbidity, particularly if immunocompromised   + Complications are suspected (e.g. rectal bleeding that may require transfusion, perforation and peritonitis, intra-abdominal abscess, or fistula)   + Symptoms persist after 48 hours despite conservative management at home. | **First Choice**  Co-amoxiclav  **Penicillin Allergy**  Ciprofloxacin  **AND**  Metronidazole | 500/125mg tds  500mg bd  400mg tds | 7 days  7 days  7 days |

**10.** **VIRAL INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Herpes zoster**  **(shingles)**  [CKS - Shingles](http://cks.nice.org.uk/shingles)  [**return to contents**](#Contents) | Treat if:   * >50 years (as they are at highest risk for post-herpetic neuralgia) and within 72 hours of onset of rash * Ophthalmic zoster (at any age) – refer immediately * Immunocompromised (at any age) – seek Virology advice * Pregnancy – seek Virology advice * Non-truncal involvement (at any age) * Eczema (at any age) * Ramsey Hunt Syndrome (at any age) * Presents with moderate or severe pain or moderate or severe rash (at any age) | **First Choice**  Aciclovir  **If non-compliant with first choice**  Valaciclovir  or  Famciclovir  Nb. if non-compliant with first choice assess likelihood of compliance with others as these are significantly more expensive. | 800mg 5 x daily  1g tds  500mg tds  or  750mg bd  (more expensive) | 7 days  7 days  7 days |
| **Varicella zoster**  **(chickenpox)**  [CKS - Chickenpox](http://cks.nice.org.uk/chickenpox)  [**return to contents**](#Contents) | * Consider treatment for adults & adolescents (>14yrs) seen within 24 hours of onset of rash. * Seek advice from Virologist if patient is pregnant or a neonate or immunocompromised. | Aciclovir | 800mg 5 x daily | 7 days |
| **Herpes simplex - Oral**  [CKS - Herpes Simplex oral](http://cks.nice.org.uk/herpes-simplex-oral)  [**return to contents**](#Contents) | * Treatment should begin as early as possible after the start of an infection. * Topical treatment only effective if initiated prior to vesicles appearing * Obtain advice from Virologist if patient is immunocompromised. * Consider GUM referral * Consider dermatology referral if patient has eczema herpeticum * Consider seeking special specialist advice if patient is pregnant (particularly near term) * Seek specialist advice if neonatal herpes simplex is suspected | **Minor oral infection**  Aciclovir cream 5%  **Extensive oral infection (severe herpetic stomatitis)**  Aciclovir  **Immunocompromised**  Seek advice from Virologist | 5 x daily  200mg 5 x daily | 5 days  5 days |

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** | |
| **Herpes simplex – Genital**  [CKS – Herpes simplex genital](http://cks.nice.org.uk/herpes-simplex-genital)  [STI Guideline (RCGP & BASHH)](http://www.rcgp.org.uk/clinical-and-research/a-to-z-clinical-resources/sexually-transmitted-infections-in-primary-care.aspx)  [**return to contents**](#Contents) | Ideally should be referred to GUM  The following categories of patient must be referred to the appropriate speciality   * Pregnant women * Immunocompromised patients * Severe local secondary infection * Systemic herpes infection (e.g. meningitis)   Patients with HIV may be treated in primary care provided that the infection is uncomplicated and not severe. However, prompt referral is indicated if there is no response to treatment (i.e. lesions are still forming after 3–5 days of treatment).  If referral to GUM not possible same/next day then swab base of lesion (pop blister if necessary) for HSV using a viral swab. Virus typing (to differentiate HSV type 1 from type 2) should be obtained – will help with prognosis, counseling and management  **Self-care measures**   * Clean the affected area with plain or salt water to help prevent secondary infection and promote healing of lesions. * Apply vaseline or a topical anaesthetic (e.g. lidocaine 5%) to lesions to help with painful micturition, if required. * Increase fluid intake to produce dilute urine (which is less painful to void). Urinate in a bath or with water flowing over the area to reduce stinging. * Avoid wearing tight clothing, which may irritate lesions. * Take adequate pain relief (e.g. oral paracetamol). * Avoid sharing towels and flannels with household members (although it is very unlikely that the virus would survive on an object long enough to be passed on, it is sensible to take steps to prevent this). * Advise all people to abstain from sex (including non-penetrative and orogenital sex) until follow up, or until lesions have cleared. | **Immunocompetent - if cannot be referred to GUM**  **Start within 5 days of onset or while new lesions are forming.** Also advise on self-care measures (see left)  Aciclovir  **HIV- only if referral declined AND non-severe uncomplicated infection**  Aciclovir | 200mg 5 x daily  400mg 5 x daily | 5 days  or longer if new lesions are still forming while on treatment.  7-10 days  If new lesions forming after 3-5 days patient must be referred | |
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**11.** **INFESTATIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Head lice**  [PHMEG 2012](http://www.healthprotectionsociety.org.uk/files/1013/2920/7269/Stafford_Headlice_Doc_revise_2012_version.pdf)  [CKS - Head lice](http://cks.nice.org.uk/head-lice)  [BNF - Head lice](https://www.medicinescomplete.com/mc/bnf/current/PHP78284-skin-infections.htm)  [**return to contents**](#Contents) | Head lice infestation (pediculosis) should be treated using lotion or liquid formulations **only if** live lice are present.  Treatment has the best chance of success if it is performed correctly and if all affected household members are treated on the same day.  Treatment is with either: physical insecticide; chemical insecticide; or physical removal.  Treatment choice depends on preference of the individual or their parents/carer (after considering the advantages and disadvantages of each treatment) and what has been previously tried. See [CKS](http://cks.nice.org.uk/head-lice#!scenariorecommendation:1) for list of advantages/disadvantages.   * Physical insecticides kill the lice by physically coating their surfaces and suffocating them. ***P*** * Chemical insecticides poison the lice. ***C*** * Physical removal involves with wet combing with a nit comb, e.g. Bug Buster®   Wet combing or dimeticone 4% lotion is recommended first-line for pregnant or breastfeeding women, young children aged 6 months to 2 years, and people with asthma or eczema.   * Treat all affected household contacts simultaneously * Dimeticone preparations contain inflammable ingredients that are combustible while on the hair. Hair with dimeticone applied should be kept away from open fire, other sources of ignition and hair dryer. * Do not use shampoos. They are diluted too much in use to be effective. * A contact time of 8–12 hours or overnight treatment is recommended for lotions and liquids. * A 2-hour treatment is not sufficient to kill eggs ([BNF](https://www.medicinescomplete.com/mc/bnf/current/PHP78284-skin-infections.htm?q=head%20lice&t=search&ss=text&p=2#_hit)) * Wet combing can be used as alternative to insecticides; however it is considered to be less effective ([PHMEG](http://www.healthprotectionsociety.org.uk/files/1013/2920/7269/Stafford_Headlice_Doc_revise_2012_version.pdf)) * The use of agents with shorter contact times are not recommended as first line treatments since direct comparisons of efficacy with other treatments are not available (DTB 2009;**47**:50-2) | ***P*** denotes physical insecticide  ***C*** denotes chemical insecticide  **First Choices**  ***P*** Dimeticone 4% Lotion (Hedrin)  ***C*** Malathion 0.5% Liquid (Derbac M)  **Alternative Choice**  *(nb. More expensive than first choice treatments)*  ***P*** Dimeticone 92% Spray (Nyda) | **Manufacturer recommendations**  Allow 8 hours contact before washing off  Allow 12 hours contact before washing off  Allow 8 hours contact before washing off | Repeat treatment after 7 days  Repeat treatment after 7 days  Repeat treatment after 8 – 10 days |
| **Pregnancy/breast feeding/young children (6mths- 2yrs)/**  **asthma /eczema** | | |
| Wet combing  (Advise that it will take 10 minutes to complete the process on short hair, but 20–30 minutes for long, frizzy, or curly hair.)  or  Dimeticone 4% Lotion (Hedrin) | Two combing procedures per session.  Four sessions spaced over 2 weeks (on days 1, 5, 9, and 13)  Continue until no full-grown lice have been seen for three consecutive sessions  As above. | |

**12.** **DENTAL INFECTIONS**

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| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Dental infections** | **This section of the guidance should only be used for the management of acute oral conditions pending referral to dentist. If possible advice should be sought from the patient’s dentist.** | | | |
| **Mucosal ulceration and inflammation** (simple gingivitis)  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [**return to contents**](#Contents) | * Temporary pain and swelling relief can be attained with saline mouthwash * Use antiseptic mouthwash if more severe & pain limits oral hygiene. Can also be used to treat or prevent secondary infection. * The primary cause for mucosal ulceration or inflammation (aphthous ulcers, oral lichen planus, herpes simplex infection, oral cancer) needs to be evaluated and treated. | Simple saline mouthwash  Chlorhexidine 0.12-0.2%  *(Do not use within*  *30 mins of toothpaste)* | ½ tsp salt dissolved in glass warm water  Rinse mouth for one minute BD with 5 ml diluted with 5-10 ml water. | Always spit out after use.  Use until lesions resolve or less pain allows oral hygiene |
| **Dental abscess**  [PHE](https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care)  [**return to contents**](#Contents) | * 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. * Refer urgently for admission severe odontogenic infections such as cellulitis plus signs of sepsis, difficulty in swallowing, impending airway obstruction, Ludwigs angina. | Amoxicillin  Or  Phenoxymethylpenicillin  *True penicillin allergy*  Clarithromycin  *Severe Infection or Spreading infection (lymph node involvement or systemic signs i.e. fever or malaise)*  **Add** Metronidazole | 500mg TDS  500mg to 1g QDS  500mg BD  400mg TDS | 5 days  5 days  5 days  5 days |

**13.** **BACTERIAL MENINGITIS OR MENINGOCOCCAL DISEASE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Indication** | **Comment** | **Drug** | **Dose** | **Duration** |
| **Bacterial meningitis or Meningococcal**  **disease**  [PHE - Meningococcal disease](https://www.gov.uk/government/collections/meningococcal-disease-guidance-data-and-analysis)  [NICE CG102](http://guidance.nice.org.uk/CG102/NICEGuidance/pdf/English)  [**return to contents**](#Contents) | * **Rapid admission to hospital is highest priority when meningococcal disease is suspected.** * Meningococcal Disease is a Notifiable Disease * All meningitis infections to be notified to Public Health England who will advise on prophylaxis of contacts. * Recommended that all GPs carry benzylpenicillin injection   Suspected bacterial meningitis   * Children and young people with clinical signs of meningitis but **WITHOUT** non-blanching rash should be transferred directly to secondary care without giving parenteral antibiotics. If urgent transfer to hospital is not possible (for example, in remote locations or adverse weather conditions), antibiotics should be administered.   Suspected meningococcal disease   * Those with suspected meningococcal septicaemia (**WITH** non-blanching rash) +/- signs of meningitis: Parenteral antibiotics (intramuscular or intravenous benzylpenicillin) should be given at the earliest opportunity, either in primary or secondary care, but urgent transfer to hospital should not be delayed in order to give the parenteral antibiotics. | **Recommended all GPs carry** **Benzylpenicillin injection**. Administration is either slow IV or IM.  Not to be given if history of anaphylaxis or angioedema with previous administration of penicillin, cephalosporin or other beta-lactam antibiotic. | Adults & Child ≥ 10yrs:  1.2g  Child 1-9 yrs:  600mg  Child <1 yr:  300mg | Single dose  Single dose  Single dose |
|  |  |  |  |  |

**14.** **SEPSIS**

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| --- | --- | --- |
| **Indication** | **Comment** | |
| **Sepsis - Adults** | **Early Recognition and Treatment is Critical**  **Signs of sepsis**  **S**lurred speech  **E**xtreme muscle pain  **P**assing no urine  **S**evere breathlessness  **I** *feel I might die*  **S**kin mottled or discoloured | |
| [Surviving Sepsis](http://www.survivingsepsis.org/Guidelines/Pages/default.aspx)  [Sepsis Trust - Clinical tools](http://sepsistrust.org/clinical-toolkit/)  [**return to contents**](#Contents) |
| **Diagnosis of Sepsis**   1. **Are any two of the following criteria present?**  * Temp >38.3 or <36 * Respiratory rate of >20 * Heart Rate >90bpm * White cell count <4 X 10/L or >12X10/L * Glucose >7.7 mmol/L(if not diabetic)   **If YES patient has Systemic Inflammatory Response Syndrome(SIRS)**   1. **Is there a clinical suspicion of new infection?**  * Cough/sputum/chest pain * Abdominal pain/distension/diarrhoea * Line infection * Endocarditis * Dysuria; * Headache with neck stiffness * Cellulitis/Wound/Joint infection   **If YES, patient has SEPSIS –** if appropriate for treatment in primary care start antibiotic as per diagnosis, e.g. cellulitis, but also check whether step 3 also applies. | 1. **Is there evidence of any organ dysfunction?**  * BP <90/mean <65mmHg(after initial fluid challenge) * Lactate >2mmmol after initial fluids * INR >1.5 or aPTT >60s * Bilirubin >34µmol/L * Urine output <0.5mL/kg/h for 2h * Creatinine >177µmol/L * Platelets <100 X10/L   **If YES, patient has SEVERE SEPSIS - URGENTLY REFER to hospital as patient may require intravenous antibiotics (within one hour) and further investigations.** |

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| --- | --- |
| **Indication** | **Comment** |
| **Sepsis - Paediatrics** | **Early Recognition and Treatment is Critical**  **IMMEDIATE TRANSFER TO HOSPITAL IF ANY SUSPICION OF SEPSIS IN A CHILD** |
| [Sepsis Trust - Clinical tools](http://sepsistrust.org/clinical-toolkit/)  [Scottish Paediatric Sepsis 6](http://www.scottishpatientsafetyprogramme.scot.nhs.uk/Media/Docs/MCQIC/Paediatric%20sepsis%206%20(web).pdf)  [**return to contents**](#Contents) | **Recognition of a child at risk of sepsis**  **Suspected or proven infection AND at least two of the following:**   * Core temperature < 36°C or > 38°C * Inappropriate tachycardia * Altered mental state(including: sleepiness / irritability / lethargy / floppiness) * Reduced peripheral perfusion / prolonged capillary refill / cool or mottled peripheries   **Reduced threshold for suspicion of Sepsis**  **Some children are at higher risk of sepsis. Treatment may be considered with fewer signs than those listed above. These include, but are not limited to:**   * Infants < 3/12 * Immunosuppressed / compromised * Recent surgery * Indwelling devices / lines * Complex neurodisability / Long term conditions * High index of clinical suspicion (tachypnoea, rash, leg pain, biphasic illness, poor feeding) * Significant parental concern   **Red Flag Sepsis Signs**   * Appearance: Pale/mottled/ashen/blue or non-blanching (purpuric) rash. * Cardiovascular dysfunction: Hypotension, tachycardia/bradycardia, prolonged capillary refill time >5 seconds, or blood gas lactate >2X upper limit of normal. * Respiratory dysfunction: Tachypnoea/bradypnoea/apnoea, grunting, or oxygen required to maintain saturations >92%. * Neurological dysfunction: AVPU = V, P or U; lack of response to social cues; significantly decreased activity; or weak, high-pitched or continuous cry. * Renal dysfunction: Reduced urine output/parents report excessively dry nappies. |

**15.** **Acknowledgements**

This guidance is a revised version of the 2013 Doncaster and Bassetlaw Antibiotic Guidance for Primary Care. The revision has been undertaken by:

Ken Agwuh - Consultant Microbiologist - Doncaster and Bassetlaw Hospitals NHS Foundation Trust

Manyando Milupi - Consultant Microbiologist - Doncaster and Bassetlaw Hospitals NHS Foundation Trust

Rob Wise - Medicines Management Pharmacist - NHS Bassetlaw CCG

An outline of the amendments that have been made from the 2013 version is included in the following pages.

**16. Approval**

This guidance has been approved by the following CCG representative meetings:

NHS Bassetlaw CCG Primary Care Committee, May 2016 (following review by Primary Care Forum, March 2016 and GP Prescribing Leads, April 2016)

NHS Doncaster CCG Medicines Management Committee, March 2016

**17.** **Outline list of changes to sections - 2013 guidance to 2015 guidance**

|  |  |
| --- | --- |
| Logos and hyperlinks updated as appropriate  Footer – review date extended to Jan 2018 since next PHE guidance due for publication Oct 2017 & allows for any delay in publication. | |
| **INTRODUCTION** | |
| Contact Details | DBHFT Consultant list & Health Protection Team telephone numbers updated |
|  |  |
| **UPPER RESPIRATORY TRACT INFECTIONS** | |
| Influenza | Duration of zanamivir extended to 10 days if oseltamivir resistance |
| Pharyngitis Sore Throat Tonsillitis | Dosing modification for penicillin V in adults as per PHE guidance.  Addition of clarithromycin as treatment option for children if penicillin allergy  Dosing for penicillin allergy options in children now hyperlinked to BNF & not stated in guideline |
| Otitis Media | Criteria for delayed/immediate antibiotics amended to add ≥4 marked symptoms to bulging membrane as per PHE  Dosing of amoxicillin amended as per updated PHE guidance  Clarithromycin now added as a treatment option for children. Dose linked through to BNF  Erythromycin dose linked through to BNF |
| Otitis Externa | Added recommendation to refer to ENT if oral therapy commenced  Duration for use of betamethasone/neomycin modified to indicate minimum 7days, maximum 14. |
| Rhinosinusitis | Amoxicillin dosing amended to use 1g if infection deemed severe  Phenoxymethylpenicillin added as a treatment option  Prescribing options for persistent symptoms added |
|  |  |
| **LOWER RESPIRATORY TRACT INFECTIONS** | |
| Acute Bronchitis | Recommendation re delayed antibiotic changed to read as 7 day delayed antibiotic |
| Acute exacerbation of COPD | Doxycycline moved to be treatment option following failed first line therapy and prior to knowing culture results. Clarithromycin left as first line treatment if penicillin allergy. |
| Community acquired pneumonia | Separation of treatment regimens according to CRB-65 score.  Modification of treatment duration |

[**return to contents**](#Contents)

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| **SKIN/SOFT TISSUE INFECTIONS** | |
| Impetigo, infected eczema | Category changed to include boils and abscesses |
| Cellulitis | Highlight added to Necrotising Fasciitis to emphasise signs that should prompt referral |
| Lactation Mastitis | New section |
| Diabetic Foot Infection | Recommendation re culture and sampling added as per NICE Guidance |
| Insect Bites | New Section |
| Human and Animal Bites  (prophylaxis and treatment) | Addition of age detail , i.e. <12, for children |
| Scabies | Contact time for permethrin cream amended to reflect BNF recommendation  Advice added re temperature for machine washing of clothes  Explanation added re the term simultaneously – to mean within 24 hours as per PHE |
| Dermatophyte and candidal infection of the fingernail or toenail (Adults) | Clarification of first choice options.  Amorolfine nail lacquer “demoted” and set as an alternative choice due to its limited place in therapy |
| Dermatophyte infection of the skin | Added recommendation not to use combination steroid/antifungal creams |
| Candida infection of the skin | Treatment separated according to severity of condition/immune status of patient etc.  Addition of oral fluconazole as a treatment recommendation |
|  |  |
| **EYE INFECTIONS** | |
| Conjunctivitis | Treatment duration for Chloramphenicol & Fusidic Acid added as per PHE |
|  |  |
| **PARASITIC INFECTIONS** | |
| Threadworm | Piperazine phos / Sennoside removed as a treatment option as it is no longer available.  Recommendation added to use hygiene measures only if age under 6 months. |
|  |  |
| **GENITAL TRACT INFECTIONS** | |
| Vaginal Candidiasis | Section name changed from candidiasis.  Miconazole cream added as a treatment option in pregnancy |
| Bacterial Vaginosis | 5 day Treatment length for metronidazole removed. Recommendation is 7 days.  Quantity in applicator for vaginal cream/gel treatment options now stated as 5g |
| Chlamydia trachomatis urethritis, cervicitis | Minor rewording re screening  Azithromycin now moved above doxycycline as a treatment choice as it is a stat dose, i.e. more likely to be taken as prescribed and no longer a significant cost difference to doxycycline |
| Epididymo-orchitis | Warning added re urgent referral if torsion cannot be ruled out |

[**return to contents**](#Contents)

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| **URINARY TRACT INFECTIONS** | |
| General Guidance | Added warning re not to use pivmecillinam if patient taking valproate/valproic acid |
| ~~Uncomplicated UTI~~  *Title amended Sep 2016 (see explanation)* | Nitrofurantoin promoted as 1st line choice*.*  eGFR for Nitrofurantoin use reflects MHRA &PHE guidance  Pivmecillinam added as a treatment option  Added information re risk factors for resistance and recommendations for management  Additional hyperlinks for information including CKS and RCGP  Section title amended to remove the word uncomplicated. Now reads as “UTI in women and men  (no fever or flank pain)” as per PHE guidance – Sep 2016 *(Amendment - Rob Wise, agreed by Manyando Milupi)* |
| Acute pyelonephritis | Added to contact microbiologist if ESBL risk |
|  |  |
| **GASTRO-INTESTINAL TRACT INFECTIONS** | |
| *Helicobacter Pylori* | Information relating to testing in children added  Treatment options expanded – taking previous antibiotic exposure into greater consideration.  Removal of Tripotassium Dicitratobismuthate (De-Noltab®) quadruple therapy regimen as De-Noltab®being discontinued by current UK license holder from Jan 2016 |
| *Clostridium difficile* | Vancomycin added for second episode/recurrent disease |
| Giardiasis | Minor amendment to dosing age ranges |
| Cholecystitis | New Section |
| Diverticular Disease | New Section |
|  |  |
| **VIRAL INFECTIONS** | |
| Herpes Zoster | Famciclovir dose amended as per PHE  Pregnancy added as a patient category to seek virology advice |
| Varicella Zoster | Addition of age detail , i.e. >14yr, for treatment consideration |
| Herpes Simplex - Genital | Recommendation added re obtaining viral swab if referral to GUM not possible  Information on self-care measures added |
|  |  |
| **INFESTATIONS** | |
| Head Lice | Further detail added to text information.  Treatment choices amended to First choice and Alternative choice (owing to relative cost difference).  Detail added re wet combing process, i.e. frequency and duration |
| Scabies | As above (skin/soft tissue section) |
|  |  |
| **BACTERIAL MENINGITIS OR MENINGOCOCCAL DISEASE** | Sentence added to inform reader that meningitis is a notifiable disease |
|  |  |
| **DENTAL INFECTIONS** |  |
| Dental abscess | Further detail added re role of metronidazole.  Reinforcing message added repeated antibiotics ineffective if no drainage. |
|  |  |
| **SEPSIS** | New Section |
|  |  |
| **Acknowledgements & Approval** | Updated |

[**return to contents**](#Contents)