2019 STAFFORDSHIRE AND STOKE-ON-TRENT ANTIMICROBIAL PRESCRIBING GUIDELINES –

MANAGING COMMON INFECTIONS IN PRIMARY CARE

Cannock Chase CCG

East Staffordshire CCG

North Staffordshire CCG

South East Staffordshire & Seisdon CCG

Stafford & Surrounds CCG

Stoke-on-Trent CCG

North Staffordshire Combined Healthcare NHS Trust

Midlands Partnership NHS Foundation Trust (MPFT)

Final Version

North Staffordshire APC approval –Sept 2019 South Staffordshire APG approval – Sept 2019 REVIEW DATE: Sept 2020

Intended for use by prescribers in GP Practices, primary care out of hours, MPFT, North Staffordshire Combined Healthcare and other organisations in local health economy who prescribe antibiotics outside of secondary care

Version control: This document is only valid on the day that it is printed.

National antimicrobial resistance (AMR) guidance
H M Government published two documents on 24th January 2019 relating to antimicrobial resistance.

Tackling antimicrobial resistance 2019-2024. The UK's five-year national action plan.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/784894/UK_AMR_5_year_national_action_plan.pdf

Contained and controlled. The UK's 20-year vision for antimicrobial resistance.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/773065/uk-20-year-vision-for-antimicrobial-resistance.pdf

Principles of antimicrobial treatment

1. The guidelines are based on best available evidence however professional judgement and patient choice should also be considered when making a treatment choice. Support for patients with advice on self-care, back-up prescriptions, safety-netting, infection severity and duration also need to be considered.
2. Only prescribe an antibiotic when there is likely to be clear clinical benefit. Utilise back-up prescriptions where appropriate. Do not use antibiotics for viral sore throat, simple coughs and colds.
3. If a person is systemically unwell or at high risk of complications prescribe an immediate antibiotic. Always consider sepsis.
4. Use a lower threshold for antibiotics in immunocompromised, or in those with multiple morbidities; consider culture, and see advice.
5. Limit prescribing over the phone to exceptional circumstances
6. Use simple generic antibiotics wherever possible. Broad spectrum antibiotics e.g. co-amoxiclav, quinolones, cephalsporins increase the risk or *Clostridium difficile*, MRSA and resistant UTIs
7. Avoid widespread use of topical antibiotics, especially in those agents also available systemically e.g. fusidic acid.
8. Use the BNF or children's BNF (c BNF) for the latest information on doses, any amendments required for your specific patient e.g. impaired renal function, interactions etc.
9. Always check for any allergies.
10. Antibiotics should not be added to a repeat prescription, other than exceptional circumstances.
11. Ensure that the duration prescribed is appropriate for the indication, patient and antibiotic. If a prescription chart is used the stop/review date should be clearly documented.
12. Always check previous positive microbiology results prior to commencing antibiotics. If patients fail to improve or there are special circumstances and microbiology advice is required see appendix 1 for contact details.
13. Ensure that the symptoms, indication for the antibiotic, the drug, dose, route of administration and the duration are recorded in the medical notes.
14. Evidence is continuing to emerge regarding the side-effects of quinolones. Quinolones should only be prescribed when the benefits outweigh the risk.

Key changes to 2016 guidelines

Changes from Antimicrobial prescribing guidelines in General Practice 2016

General notes

- Updated to reflect the NICE/PHE guidance –*Summary of antimicrobial prescribing guidance – managing common infections*. The working party has agreed that the July 2019 NICE/PHE guidance would be the reference source used for this document however it is noted that this will continue to be updated by NICE/PHE. Please note whilst going through the governance process new NICE/PHE guidance has been published and the duration of antibiotic treatment for community acquired pneumonia has been updated to reflect this from the September 2019 NICE/PHE guidance. The visual summary has been added to this section.
- The visual summaries for cellulitis and diabetic foot infection have been added to the references from NICE/PHE September and October 2019 updated guidance however the written information for these infections has not been updated.
- The current NICE/PHE guidance as of October 2019 has been added to each section.
  The link to the most up to date NICE guidance can be found here: https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/antimicrobial-prescribing-guidelines.
  The link to the most up to date PHE guidance can be found here https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care
- Document is now alphabetical by main infection area.
- There has been an addition of national antimicrobial stewardship guidance references.
- The general notes on antimicrobial prescribing have been amended and are now titled “Principles of antimicrobial treatment”
- Pregnancy and breastfeeding section has been moved to the beginning of the document.
- Safety issues relating to the prescribing fluoroquinolones has been added.
- Safety issues prescribing antibiotics including common and important drug interactions has been updated and moved to the front of the document.
- The section on “Antimicrobials in School-aged children” has been removed.
- Sepsis section has been updated to reflect NICE NG 51 and Sepsis Trust information.
- Self-care is referred to as first line treatment in infections where this is appropriate

Additional infections added from previous guidance (included in NICE/PHE guidance)

Blepharitis
Oral candidiasis
Genital herpes
Scarlet fever
Lyme disease

Dental infections
Reference to NICE clinical guidance 64 - prophylaxis against infective endocarditis:

Gastrointestinal infections
Clostridium difficile
Fidaxomicin to be prescribed only if recommended by microbiologist – local interpretation of NICE/PHE guidance
All recurrent infections to be discussed with microbiology

Diverticulitis
Addition of amoxicillin and metronidazole as a another choice – local agreement

Genital tract infections
Bacterial vaginosis
Addition of metronidazole vaginal gel – NICE/PHE guidance

Chlamydia trachomatis/urethritis
First line - doxycycline. Second line/pregnant/breast feeding/allergy/intolerance – azithromycin

Pelvic inflammatory disease
First line – stat dose of ceftriaxone, oral metronidazole and doxycycline. Second line – metronidazole and ofloxacin or moxifloxacin

Trichomoniasis
Remove use of clotrimazole for symptom relief in pregnant patients

Vulvovaginal candidiasis
Recurrent infection – fluconazole induction and then maintenance dose for 6 months. This is now licensed.

Meningitis
Suspected meningococcal disease
Cefotaxime has been removed from this section – no longer in NICE/PHE guidance

Respiratory tract infections
Acute exacerbation of bronchiectasis (non-cystic fibrosis)
Penicillin allergy treatment added – NICE/PHE guidance
Pseudomonas aeruginosa colonisation removed. Advice to contact respiratory team or microbiology.

Acute exacerbation of COPD
Second choice – removed clarithromycin and added amoxicillin – choices from NICE/PHE. If patient penicillin allergic co-trimoxazole has been added – local agreement.
Alternative choice (if higher risk of treatment failure) – contact microbiology has been added – local agreement.

Acute cough and bronchitis
Specific antibiotics in guidelines no longer follow COPD exacerbation – follow NICE/PHE guidance.

Acute otitis externa
Locorten-Vioform® removed from section replaced with topical acetic acid spray, topical neomycin sulfate with corticosteroid drops or dexamethasone, glacial acetic acid and neomycin sulfate ear spray – NICE/PHE guidance.
Treatment for cellulitis – flucloxacillin has been added - NICE/PHE guidance.

Acute otitis media
Addition of erythromycin for penicillin allergic pregnant adults – NICE/PHE guidance.
Second choice – co-amoxiclav has been added – NICE/PHE guidance.

Acute sore throat
Addition of erythromycin for penicillin allergic pregnant patients – NICE/PHE guidance.

Sinusitis
Change from doxycycline to phenoxymethylpenicillin first choice antibiotic. Penicillin allergy use doxycycline (not for under 12s) or erythromycin.
Addition of second choice antibiotic or first choice if systemically unwell or high risk of complications – co-amoxiclav – all NICE/PHE guidance.

Skin

Acne
Rationalisation of oral antibiotics – NICE/PHE guidance

Bites
Co-amoxiclav dose 250/125mg to 500/125mg TDS – NICE/PHE guidance
Doxycycline dose now 100mg BD for 7 days in penicillin allergic patients – NICE/PHE guidance. Local agreement to use this combination for both human and animal bites.

Cellulitis, erysipelas, infected eczema and leg ulcers all in same section.

Dermatophyte infection: nail
Addition of itraconazole as second line – NICE/PHE guidance.

Dermatophyte infection: skin
Additional information and further guidance on which treatment to use – NICE/PHE guidance.

Mastitis
Flucloxacillin dose no higher dose for >80 kg patients
Clarithromycin additional choice for penicillin allergy – NICE/PHE guidance.

MRSA
Addition of wound cleansing for patients with chronic wounds - guidance from MPFT.

Varicella zoster/ Herpes zoster
Addition of second line for herpes zoster to aid compliance – NICE/PHE guidance.

Urinary tract infections (UTI)

Acute pyelonephritis

Addition of cephalexin as another first choice – NICE/PHE guidance
Choice of antibiotic added for patients with penicillin allergy patients and pregnant patients – local agreement
Children and young people choice is now cephalexin not co-amoxiclav – NICE/PHE and local agreement

Catheter associated urinary tract infections (UTI) – symptomatic bladder or kidney infection in person with a catheter

Medicine section updated – NICE/PHE guidance

Epididymo-orchitis (not chlamydia or gonococcal)

First choice – doxycycline – NICE/PHE guidance, local agreement
Second choice – ciprofloxacin –NICE/PHE guidance, local agreement

Lower urinary tract infections (UTI)

Separated into non-pregnant women, pregnant women, men and children and young people and treatment updated – NICE/PHE guidance, local agreement

Prostatitis

First choice is trimethoprim with second choice being ciprofloxacin – NICE/PHE guidance, local agreement
Duration is 14 days then review – NICE/PHE guidance

Recurrent urinary tract infections (UTI)

Methenamine hippurate removed, not in NICE/PHE guidance.
Patients to be referred to urology for review – local agreement

Prescribing antibiotics in pregnancy and breast feeding

Please refer to the most recent edition of BNF or the Summary of Product Characteristics for each drug for more detailed information.

BNF – specific information has been moved to the relevant chapters and is included under the individual drug or in the prescribing notes.

Expert advice is available from UK Drugs in Breast Milk Service:
Contact your local Medicines Information service or West Midlands Medicines Information Service (Tel: 0121 424 7298)

Medicines in Lactation Specialist Advisory Service - UK Drugs in Lactation Advisory service (UKDILAS). UKDILAS is available during the centres main opening hours - 09:00 am until 17.00 pm, Monday to Friday, excluding Bank Holidays. To contact the service:

- Telephone: 0121 424 7298
- For non-urgent enquiries email via the enquiry facility on ukdilas.enquiries@nhs.net

http://www.ukmi.nhs.uk/activities/specialistServices/default.asp?pageRef=2

https://www.sps.nhs.uk/articles/ukdilas/

The United Kingdom Teratology Information Service (UKTIS)

- Telephone service: 09:00-17:00 Monday-Friday (excluding bank holidays) for routine enquiries. Urgent enquiries are answered 24 hours per day, seven days per week, in partnership with the National Poisons Information Service (NPIS).
- Telephone: 0344 892 0909
  http://www.uktis.org/

Back-up (Delayed) prescriptions

When there is clinical uncertainty about whether a condition is self-limiting or is likely to deteriorate, back-up prescribing (also known as delayed prescribing) offers healthcare professionals an alternative to immediate antimicrobial prescribing. It encourages self-management as a first step, but allows a person to access antimicrobials without another appointment if their condition gets worse. It is important that the patient is given clear instructions about when they should use the prescription

A back-up (delayed) prescription is a prescription (which can be post-dated) given to a patient or carer, with the assumption that it will not be dispensed immediately, but in a few days if symptoms worsen.
When using back-up (delayed) antibiotic prescribing, patients should be offered:

- How to self-care to manage their symptoms
- Reassurance that antibiotics are not needed immediately because they are likely to make little difference to symptoms and may have side effects (for example, diarrhoea, vomiting and rash)
- What the antibiotics would be used for, if needed
- Advice about how to recognise whether they need to use the antimicrobials, and if so:
  - how to get them
  - when to start taking or using them
  - how to take or use them
- Advice about re-consulting if symptoms get significantly worse despite using the back-up (delayed) prescription.

A back-up (delayed) prescription with instructions about use can either be given to the patient or left at an agreed location (for example, the local pharmacy) to be collected at a later date.
Read codes are available for back-up prescriptions

References

NICE NG 63 Antimicrobial stewardship: changing risk-related behaviours in the general population https://www.nice.org.uk/guidance/NG63
NICE Quality Standard 121 Antimicrobial stewardship - https://www.nice.org.uk/guidance/qs121

Safety issues relating to the prescribing of fluoroquinolones, MHRA advice

MHRA advice can be found here https://www.gov.uk/drug-safety-update/fluoroquinolone-antibiotics-new-restrictions-and-precautions-for-use-due-to-very-rare-reports-of-disabling-and-potentially-long-lasting-or-irreversible-side-effects

Fluoroquinolone antibiotics: new restrictions and precautions for use due to very rare reports of disabling and potentially long-lasting or irreversible side effects

Disabling, long-lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous systems have been reported very rarely with fluoroquinolone antibiotics. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.

Advice for healthcare professionals:

- Systemic (by mouth, injection, or inhalation) fluoroquinolones can very rarely cause long-lasting (up to months or years), disabling, and potentially irreversible side effects, sometimes affecting multiple systems, organ classes, and senses
- Advise patients to stop treatment at the first signs of a serious adverse reaction, such as tendinitis or tendon rupture, muscle pain, muscle weakness, joint pain, joint swelling, peripheral neuropathy, and central nervous system effects, and to contact their doctor immediately for further advice – see sheet for patients
- Do not prescribe fluoroquinolones:
    - For non-severe or self-limiting infections, or non-bacterial conditions
    - For some mild to moderate infections (such as in acute exacerbation of chronic bronchitis and chronic obstructive pulmonary disease; please refer to revised indications in the Summary of Product Characteristics) unless other antibiotics that are commonly recommended for these infections are considered inappropriate (see below)
    - Ciprofloxacin or levofloxacin should no longer be prescribed for uncomplicated cystitis unless other antibiotics that are commonly recommended are considered inappropriate (see below)
- Avoid use in patients who have previously had serious adverse reactions with a quinolone or fluoroquinolone antibiotic
- Prescribe with special caution for people older than 60 years and for those with renal impairment or solid-organ transplants because they are at a higher risk of tendon injury
- Avoid use of a corticosteroid with a fluoroquinolone since co-administration could exacerbate fluoroquinolone-induced tendinitis and tendon rupture
- Report suspected adverse drug reactions to fluoroquinolone antibiotics on the Yellow Card website or via the Yellow Card app

Safety issues prescribing antibiotics including common and important drug interactions

Please refer to appendix 1 of the most recent edition of the BNF or review product SPC.

Common interactions can be found with macrolides, trimethoprim and metronidazole.

N.B. co-trimoxazole contains sulfamethoxazole and trimethoprim. Need to check interactions for both medicines.

Caution when co-prescribing antibiotics with warfarin or methotrexate.

Caution when prescribing macrolides with statins or calcium channel blockers.

Long –term nitrofurantoin treatment can cause pulmonary symptoms especially in the elderly.

Identification and management of sepsis in primary care

NICE NG 51 provides sepsis risk stratification tools which can be found here https://www.nice.org.uk/guidance/ng51/resources/algorithms-and-risk-stratification-tables-compiled-version-2551488301

General Practice Sepsis Decision Support Tool from the Sepsis Trust can be found here https://sepsistrust.org/wp-content/uploads/2018/06/GP-adult-NICE-Final-2.pdf

Sepsis is a serious condition. If left untreated it can lead to shock, multi-organ failure and death.

- Think 'could this be sepsis?' if a person presents with signs or symptoms that indicate possible infection
- Take into account that people with sepsis may have non-specific, non-localised presentations, for example feeling very unwell, and may not have a high temperature
- Pay particular attention to concerns expressed by the person and their family or carers, for example changes from usual behaviour
- Assess people who might have sepsis with extra care if they cannot give a good history (for example, people with English as a second language or people with communication problems
- Assess people with any suspected infection to identify:
    - possible source of infection
    - factors that increase risk of sepsis
    - any indications of clinical concern, such as new onset abnormalities of behaviour, circulation or respiration
- Identify factors that increase risk of sepsis or indications of clinical concern such as new onset abnormalities of behaviour, circulation or respiration when deciding during a remote assessment whether to offer a face to-face-assessment and if so, on the urgency of face-to-face assessment.
- Use a structured set of observations to assess people in a face to-face setting to stratify risk if sepsis is suspected.
- Suspect neutropenic sepsis in patients having anticancer treatment who become unwell. Refer patients with suspected neutropenic sepsis immediately for assessment in secondary or tertiary care.

Sepsis red flags (non-pregnant adults and children > 12 years)

N.B. Values are a guide and should be interpreted in the context of the normal physiology for the patient. Practitioners should act on the information appropriately.

- Responds only to voice or pain/unresponsive
- Acute confusional state
- Systolic BP ≤ 90 mmHg (or drop of > 40 from normal)

- Heart rate > 130/min
- Respiratory rate ≥ 25/min
- Needs oxygen to keep SpO_2 ≥ 92%
- Non-blanching rash, mottled/ashen/cyanotic
- Not passed urine in last 18 hours/ urine output < 0.5ml/kg/hour
- Lactate ≥ 2 mmol/L
- Recent chemotherapy (last 6 weeks)

Action for patients with red flag sepsis

- Transfer patient immediately to hospital call 999 and arrange blue light transfer
- Use of oxygen to maintain appropriate saturation > 94%
- Write clear handover including observations and any antibiotic allergies
- Ensure paramedics pre-alert as "red flag sepsis"

References

NICE NG 51 Sepsis: recognition, diagnosis and early management - https://www.nice.org.uk/guidance/ng51
Sepsis Trust - https://sepsistrust.org
Sepsis Trust professional resources – https://sepsistrust.org/professional-resources/

Infection	Treatment advice	Medicine and dose	Duration	References
Dental infections in primary care outside dental settings GPs should not be involved in dental treatment. Patients presenting to non-dental primary care services with dental problems should be directed to their regular dentist, or if this is not possible, to the NHS 111 service who will be able to provide details of how to access emergency dental care. Note antibiotics do not cure toothache. First line treatment is with paracetamol and/or ibuprofen, codeine is not effective for toothache. NICE clinical guidance 64 – https://www.nice.org.uk/guidance/cg64 prophylaxis against infective endocarditis: antimicrobial against infective endocarditis in adults and children undergoing interventional procedures – 1.1.3 states that antibiotic prophylaxis against infective endocarditis **is not recommended routinely** for people undergoing dental procedures.				

Infection	Treatment advice	Medicine and dose	Duration	References
Eye infections – Adult doses recommended, for children refer to cBNF				
Staffordshire Minor Eye Conditions Service (MECS) provides assessment and treatment for people with recently occurring eye related symptoms and minor eye conditions. The Optician Practice lists for North and South Staffordshire for the service can be found here: https://www.staffsloc.co.uk/mecs.phtml				
Blepharitis	**First line**: **SELF CARE** - lid hygiene for symptom control **Second line**: topical antibiotics if hygiene measures are ineffective after 2 weeks **Signs of Meibomian gland dysfunction, or acne rosacea** refer to eye clinic consider oral antibiotics. Initiated by specialist continued in primary care	**First line: SELF CARE**		NICE/PHE antimicrobial guidance
		Second line: Topical chloramphenicol 1% ointment apply BD	6 week trial	
		Third line: Oral oxytetracycline 500mg BD then 250mg BD **OR**	Initial 4 weeks then 8 weeks maintenance	
		Oral doxycycline 100mg OD then 50mg OD	Initial 4 weeks then 8 weeks maintenance	
Conjunctivitis	Only treat if severe or clinically indicated, as most infections are viral or self-limiting. Bacterial conjunctivitis is usually unilateral and also self-limiting. It is characterised by red eye with yellow-white mucopurulent, not watery discharge. 65% of cases resolve by day 5 without treatment. Fusidic acid has less Gram-negative activity. **First line**: **SELF CARE** bathe/clean eyelids with cotton wool dipped in sterile saline or boiled and cooled water to remove crusting. **Treat only if severe** as most cases are viral or self-limiting	**First line: SELF CARE**		NICE/PHE antimicrobial guidance
		Second line: Chloramphenicol 0.5% eye drops One drop every 2 hours for 2 days then 3 to 4 times daily **OR** Chloramphenicol 1% eye ointment Apply 3 to 4 times daily or once at night if using chloramphenicol eye drops during the day	Continue for 48 hours after resolution	
		Third line: Fusidic acid 1% ophthalmic gel BD		

Infection	Treatment advice	Medicine and dose	Duration	References
Gastrointestinal tract infections - Adult doses recommended, for children refer to cBNF				
Oral candidiasis	Topical azoles are more effective than topical nystatin Oral candidiasis rare in immunocompetent adults; consider undiagnosed risk factors Use fluconazole if severe/extensive candidiasis Check if patients are breast feeding in young infants who need to be treated for oral candidiasis	Miconazole oral gel (equivalent to 124mg/5mL) 2.5mL QDS hold in mouth after food	7 days and continue for 7 days after resolution	NICE/PHE antimicrobial guidance
		If not tolerated: Nystatin oral suspension 100,000 units/ml 1ml QDS after food	7 days and continue for 2 days after resolved	
		Fluconazole 50mg OD or 100mg OD for HIV or immunocompromised patients	7 to 14 days	
Clostridium difficile (C. difficile)	There are no clinical symptoms that are specific for *C. difficile* infection Consider possibility of *C. difficile* infection (particularly if person is elderly) if risk factors are present. Although cephalosporins, fluoroquinolones, clindamycin and broad spectrum penicillins have been associated with *C. difficile* virtually any antibiotic can trigger *C. difficile* by disrupting normal intestinal flora. **Sample should be sent immediately if *C. difficile* is suspected.** Once a diagnosis of *C. difficile* has been confirmed review continuation of antibiotics, proton pump inhibitors (PPI), anti-peristaltic medication and discontinue if possible. Loose stools are defined as sample takes shape of the container (Bristol Stool Chart 5 to 7). **Once diagnosis confirmed commence treatment immediately. Patients with *C. difficile* should be reviewed daily, at least in the initial stages of the infection**	**First episode:** Metronidazole 400mg TDS. If no response within 3 days treat as severe	10 to 14 days	NICE/PHE antimicrobial guidance

Infection	Treatment advice	Medicine and dose	Duration	References
Clostridium difficile (C. difficile) continued	**Mild:** usually < 3 episodes of stools/day and no increase in WCC **Moderate:** usually 3 to 5 episodes of stools/day and increase in WCC less than 15 x 10^9/L **Severe:** WCC > 15 x 10^9/L, acute rising creatinine, temp >38.5^{o}C, severe colitis, number of stools less reliable indicator. Refer to hospital if severe, or if diarrhoea is still present after toxin result reported and any of the following symptoms present: fever, dehydration, sepsis, severe abdominal pain, abdominal distension or vomiting. Ensure adequate hydration. Good hand hygiene is extremely important and all staff caring for patients in any setting should be aware of this.	**Severe** Oral vancomycin 125mg QDS. Review at 3 days if no response consult microbiologist. Ideally patients managed within hospital.	10 to 14 days	NICE/PHE antimicrobial guidance
		Fidaxomicin – **ONLY if recommended by microbiologist** **200mg BD**	10 days	
		Recurrent Contact microbiology		
Diarrhoea	**Infectious diarrhoea** Antibiotic treatment is not required unless patient is systemically unwell, seek advice from microbiologist. Suspected cases of food poisoning should be notified to the Consultant in Communicable Disease Control who will advise on the exclusion of patient in risk groups if necessary. Refer previously healthy children with acute painful or bloody diarrhoea, to exclude *E. coli* 0157 infection. Ensure adequate hydration			NICE/PHE antimicrobial guidance

Infection	Treatment advice	Medicine and dose	Duration	References
Diverticulitis	Mild, uncomplicated diverticulitis can be managed in primary care Refer patient for admission if any of the following apply: • Unable to manage pain • Unable to tolerate oral antibiotics • Patient is frail and/or significant co-morbidities • Suspected complication; bowel perforation; peritonitis or abscess • Dehydrated or risk of dehydration and unable to tolerate oral fluids at home	Co-amoxiclav 500/125mg TDS OR	7 days	CKS March 2019
		Amoxicillin 500mg TDS AND metronidazole 400mg TDS (local microbiology advice)	7 days	
		Penicillin allergic - Refer to hospital or seek microbiology advice Co-trimoxazole 980mg BD **AND** metronidazole 400mg TDS could be used	7 days	
Helicobacter pylori (H. pylori)	The presence of *H. pylori* should be confirmed before commencing eradication treatment. *H. pylori* test should be performed two weeks after PPI stopped. Treat all positives if known gastric ulcer, duodenal ulcer or low-grade MALToma. Do not offer eradication for GORD. Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection.	Always use a PPI **AND** TWO antibiotics. **Refer to table in BNF for further information**	First line, first relapse: 7 days MALToma: 14 days	NICE/PHE antimicrobial guidance NICE CG 184 GORD & dyspepsia in adults: investigation & treatment
Threadworm	Treatment recommended if threadworms have been seen or eggs detected. Treat all household contacts at the same time even asymptomatic unless contraindicated along with hygiene measures for two weeks. **Purchase of over the counter treatment can be recommended except for children under 2, pregnancy and breastfeeding**. For children < 6 months of age use hygiene methods, including perianal wet wiping every 3 hours, for six weeks. During pregnancy and breast feeding follow same plan. Mebendazole can be used in second and third trimester and during breast feeding if consider necessary (off-label)	**Self-care if appropriate** Adults (not pregnant or breast feeding) Mebendazole 100mg STAT For children > 6 months of age see cBNF Mebendazole	ONE dose can be repeated in two weeks if symptoms persist.	NICE/PHE antimicrobial guidance CKS February 2018

Infection	Treatment advice	Medicine and dose	Duration	References
Genital tract infections – adult doses recommended				
STI screening	People with risk factors should be screened for chlamydia, gonorrhoea, HIV and syphilis. Refer individuals and partners to GUM. **Risk factors:** < 25 years of age; no/inconsistent condom use; recent/frequent change of partners; symptomatic or infected partner; area of high HIV prevalence			
Bacterial vaginosis	Oral metronidazole is as effective as topical treatment and costs less. 7 days of oral metronidazole produces fewer relapses than 2g stat dose at four weeks. **Pregnancy/breastfeeding:** avoid 2g stat dose of metronidazole. Use of metronidazole vaginal gel or clindamycin intravaginal cream during pregnancy and breastfeeding should be reviewed on individual patient basis. Treating partners does not reduce relapse	Oral metronidazole 400mg BD OR 2g STAT	7 days OR STAT	NICE/PHE antimicrobial guidance BASHH
		OR Clindamycin 2% intravaginal cream 5g applicator at NIGHT	7 nights	
		OR Metronidazole 0.75% intravaginal gel 5g applicator at NIGHT	5 nights	
Chlamydia trachomatis/ urethritis	Opportunistically screen all sexually active patients aged 15-24 years of age annually and on change of partner. Do not delay treatment and refer to GUM for partner notification full screen and follow up.	**First line:** Doxycycline 100mg BD	7 days	NICE/PHE antimicrobial guidance BASHH
		Second line/ pregnant/ breastfeeding/ allergy/ intolerance Azithromycin 1g STAT then 500mg OD	STAT then 2 days (3 days total)	
Genital herpes	**Advise:** saline bathing, analgesia, or topical lidocaine 5% for pain, and discuss transmission. **First episode:** treat within 5 days if new lesions or systemic symptoms, refer to GUM **Recurrent:** self-care if mild, or immediate short course antiviral treatment, or suppressive therapy if more than 6 episodes per year, refer to GUM	Oral aciclovir 400mg TDS	5 days	NICE/PHE antimicrobial guidance BASHH
		OR Oral aciclovir 800mg TDS **(if recurrent)**	2 days	
		Suppression – aciclovir 400mg BD for up to 12 months		

Infection	Treatment advice	Medicine and dose	Duration	References
Pelvic inflammatory disease	**Refer** women and sexual contacts to GUM **Consider alternative diagnosis:** ectopic pregnancy, appendicitis, endometriosis, UTI, irritable bowel, complicated ovarian cyst, functional pain Moxifloxacin has greater activity against likely pathogens, but always test for gonorrhoea, chlamydia and *M. genitalium.* If *M. genitalium* tests positive use moxifloxacin	**First line therapy:** Ceftriaxone 1g IM PLUS Metronidazole 400mg BD PLUS Doxycycline 100mg BD	STAT 14 days 14 days	NICE/PHE antimicrobial guidance BASHH
		Second line therapy: Metronidazole 400mg BD PLUS Ofloxacin 400mg BD (consider safety issues – see safety section)	14 days	
		OR Moxifloxacin alone first line – see opposite 400mg OD (consider safety issues – see safety section)		
Trichomoniasis	Oral treatment required as extravaginal infection common Treat partners, and refer to GUM for screening for other STIs. **Pregnancy/breastfeeding**: avoid 2g single dose metronidazole.	Metronidazole 400mg BD **OR** 2g STAT	5-7days STAT ONLY	NICE/PHE antimicrobial guidance BASHH
Vulvovaginal candidiasis	Advise avoid use of local irritants All topical and oral azoles give over 80% cure. **The choice of treatment and formulation will depend on factors such as contraindications and cautions, the licenced age and indication for the product, and the person's preference.** **Oral azole recommended by BASHH as first line if appropriate.** **Pregnant:** avoid oral azoles, 7 day topical course more effective than shorter one **Breastfeeding:** avoid oral azoles unless intravaginal azole is unacceptable For vulval symptoms consider using a topical antifungal cream in addition to oral or intravaginal azole. **Recurrent(>4 episodes per year):** Eliminate/control predisposing risk factors as much as possible. **Fluconazole induction and maintenance doses are now licensed** For girls aged between 12 and 16 years of age seek specialist advice.	Oral fluconazole 150mg STAT OR	STAT ONLY	NICE/PHE antimicrobial guidance BASHH CKS May 2017
		Clotrimazole 500mg pessary STAT at night pv	STAT ONLY	
		Pregnant Clotrimazole 100mg pessary at night	6 nights	
		Recurrent: Fluconazole induction 150mg every 72 hours **THEN** 150mg once a week	3 doses **THEN** 6 months	

Infection	Treatment advice	Medicine and dose	Duration	References
Meningitis				
Suspected meningococcal disease	**Transfer all patients to hospital immediately** If there is time before hospital admission for suspected meningococcal septicaemia or meningitis with non-blanching rash give IM/IV benzylpenicillin asap. Do not give benzylpenicillin if there is a history of anaphylaxis with previous penicillin. A rash is not a contraindication.	IM or IV benzylpenicillin Child < 1year 300mg Child 1 – 9 years 600mg Child >10 years/Adult 1.2g	STAT DOSE ONLY Give IM if vein cannot be accessed	NICE/PHE antimicrobial guidance NICE CG 102 Meningitis (bacterial) & meningococcal septicaemia in under 16s: recognition, diagnosis & management
Prophylaxis of close contacts of a case of meningitis for eradication of carriage	All cases where a diagnosis of meningococcal disease is suspected should be **promptly** reported to the Health Protection Team without waiting for microbiological confirmation. This is a notifiable disease and notification of infectious disease is a statutory duty of a registered medical practitioner. **Contact number: 0344 225 3560 – option 2** **Out of hours: 01384 679031**	Prescribe following advice from local Health Protection Team subject to local commissioning agreement	STAT DOSE ONLY	NICE/PHE antimicrobial guidance

Infection	Treatment advice	Medicine and dose	Duration	References
Respiratory tract infections – adult doses recommended, refer to cBNF for children				
Note: low doses of penicillins are more likely to select for resistance. Do not use fluoroquinolones first line due to potential long-term side effects and poor pneumococcal activity. Reserve all fluoroquinolones for proven resistant organisms.				
Acute exacerbation of bronchiectasis (non-cystic fibrosis)	**Send a sputum sample for culture and susceptibility testing.** Ensure prompt treatment of exacerbations. Offer an antibiotic. When choosing an antibiotic, take account of severity of symptoms and risk of treatment failure. People who may be at higher risk of treatment failure include people who have received repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications. Previous sputum results within last 6 months can be used to direct treatment. Empirical treatment can be modified once sensitivities are obtained if there is no improvement. Course length is based on severity of bronchiectasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment. Do not routinely offer prophylactic antibiotics to prevent exacerbations. Seek specialist advice for preventing exacerbations in people with repeated acute exacerbations.	**First choice empirical treatment:** amoxicillin (preferred if pregnant) 500mg TDS **Penicillin allergy:** doxycycline (not under 12s) 200mg STAT then 100mg OD **Alternative choice (if person at higher risk of treatment failure) empirical treatment:** Contact respiratory team OR microbiology **When current susceptibility data available:** Choose antibiotics accordingly	7 to 14 days	NICE/PHE antimicrobial guidance NICE visual summary

Infection	Treatment advice	Medicine and dose	Duration	References
Acute exacerbation of COPD	Many exacerbations will not respond to antibiotics as not caused by bacterial infections. Consider an antibiotic, take into account severity of symptoms (particularly sputum colour changes and increases in thickness or volume), need for hospitalisation and risk of complications, previous sputum culture and susceptibility results, and risk of resistance with repeated courses. Higher risk of treatment failure include the following: people who have received repeated courses of antibiotics, a previous or current sputum culture with resistant bacteria, or people at higher risk of developing complications Some people at risk of exacerbations may have antibiotics to keep at home as part of their exacerbation plan	**No antibiotic**		NICE/PHE antimicrobial guidance NICE visual summary NICE NG 115 COPD in over 16s: diagnosis and management
		If antibiotic required **First choice:** doxycycline 200mg on day 1 then 100mg OD (see BNF for severe infections)	5 day total course	
		Second choice: amoxicillin 500mg TDS (see BNF for severe infection) **If penicillin allergic:** Co-trimoxazole 960mg BD (consider safety issues)		
		Alternative choice (if higher risk of treatment failure): contact microbiology		
Acute cough and bronchitis	**Acute cough with upper respiratory tract infection:** no routine antibiotic	**No routine antibiotic**	5 day total course	NICE/PHE antimicrobial guidance NICE visual summary
	Acute bronchitis: no routine antibiotic	**No routine antibiotic**		
	Acute cough and higher risk of complications (at face to face consultation): immediate or back-up antibiotic. Higher risk – pre-existing co-morbidity; young children born prematurely; people over 65 years with 2 or more of, or over 80 years with 1 or more of: hospitalisation in previous year, type 1 or 2 diabetes, history of congestive heart failure, current use of oral corticosteroids **Acute cough and systemically very unwell (at face to face consultation):** immediate antibiotic Unless otherwise indicated do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid	**Adult first choice:** Doxycycline 200mg on day 1 then 100mg OD		
		Adult second choice: Amoxicillin 500mg TDS		
		If penicillin allergic: Clarithromycin 250mg to 500mg BD		
		If penicillin allergic & pregnant: Erythromycin 250mg to 500mg QDS **or** 500mg to 1g BD		
		Children first choice: Amoxicillin **OR** Clarithromycin		

Infection	Treatment advice	Medicine and dose	Duration	References
Acute otitis externa	**First line is SELF CARE:** analgesia for pain relief. Remove or treat any precipitating or aggravating factors. Clean and keep dry. Avoid using cotton buds in ears. Give appropriate self-care advice. **Second line:** topical acetic acid or topical antibiotic +/- steroid; similar cure at 7 days Treatment failure, swab and treat accordingly with topical antibiotic. If there is sufficient earwax or debris to obstruct topical medication consider cleaning auditory canal (may require referral). If there is extensive swelling of the auditory canal consider inserting an ear wick (may require referral) **If cellulitis or disease extends outside the ear canal, or systemic signs of infection,** start oral flucloxacillin and refer to exclude malignant otitis externa	**First line: SELF CARE**		NICE/PHE antimicrobial guidance
		Second line: Topical acetic acid 2% ONE spray TDS **OR**	7 days	
		Topical neomycin sulphate with corticosteroid e.g. Betamethasone sodium phosphate & neomycin sulfate THREE drops TDS	7 - 14 days	
		OR Dexamethasone, glacial acetic acid, neomycin sulfate (Otomize®) ear spray ONE spray TDS	Discontinue within 7 days if no clinical improvement. Treat for 2 days after symptoms have resolved	
		If cellulitis Flucloxacillin 250mg QDS or 500mg QDS if severe	7 days	
Acute otitis media (AOM)	Antibiotic treatment should not be routinely offered in children over 2 years of age with AOM. Self-care with regular paracetamol or ibuprofen can be given for symptomatic relief of pain and fever. **Otorrhoea or under 2 years with bilateral ear infection**: no, back-up or immediate antibiotic. If the child or young person is systemically very unwell, or has symptoms and signs of a more serious illness or condition, or has high risk of complications offer an immediate antibiotic. **Otherwise:** no or back-up antibiotic **Systemically unwell or high risk of complications:** immediate antibiotic	**Self-care**, no routine antibiotic – visual summary		NICE/PHE antimicrobial guidance NICE visual summary
		First choice: Amoxicillin **adults** 500mg TDS, **children see cBNF**	5-7 days	
		Penicillin allergy: Clarithromycin **adults** 500mg BD, **children see cBNF OR** Erythromycin if pregnant	5-7 days	
		Second choice: Co-amoxiclav **adults** 500/125mg TDS, **children see cBNF**	5-7 days	

Infection	Treatment advice	Medicine and dose	Duration	References
Acute sore throat	Not giving antibiotics for sore throats reduces re-attendance rate (P. Little – see reference section). Most viral and self-limiting and can last for about a week. **Manage with self-care**. Advise paracetamol or ibuprofen. Medicated lozenges may reduce pain in adults. Use FeverPAIN or Centor score **FeverPAIN - F**ever (during previous 24 hours), **P**urulence (pus on tonsils), **A**ttend within 3 days or less, Severely **I**nflamed tonsils, **N**o cough or corzya. One point for each **Centor** – tonsillar exudate, tender anterior cervical lymphadenopathy or lymphadenitis, history of fever >38^{o}C, no cough. One point for each. FeverPAIN 0-1,Centor 0-2: no antibiotic FeverPAIN 2-3: no antibiotic, back-up antibiotic FeverPAIN 4-5 or Centor 3-4: immediate or back-up antibiotic **Systemically very unwell or high risk of complications:** immediate antibiotic If compliance with phenoxymethylpenicillin suspension in young children is a problem due to taste, amoxicillin can be given as an alternative. **Do not use if Epstein-Barr Virus infection is a possibility.**	**Self-care and no antibiotic first line**		NICE/PHE antimicrobial guidance NICE visual summary P. Little et al. Prescribing strategies for sore throat. BMJ 1997
		First choice: Phenoxymethylpenicillin **in adults** 500mg QDS **children see cBNF**	5-10 days	
		Penicillin allergy: Clarithromycin **in adults** 250mg to 500mg BD, children see cBNF	5 days	
		OR erythromycin if pregnant 250-500mg QDS OR 500mg -1g BD		
Community acquired pneumonia	Use CRB65 score to guide mortality risk, place of care and antibiotics. Each parameter scores 1 point **C**onfusion (Abbreviated mental test (AMT) < 8 or new disorientation in person, time or place) **R**espiratory rate >30/min **B**P systolic <90 or diastolic ≤ 60 Age ≥ **65** **Score 0:** low severity, consider home-based care **1-2:** moderate severity, consider hospital admission **3-4:** high severity, urgent hospital admission **Safety net advice** and likely duration of symptoms e.g. cough 6 weeks. Assess requirement for dual therapy for atypicals. Mycoplasma infection is rare in over 65s. Assess severity in children based on clinical judgement Offer an antibiotic. Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected and person meets high risk criteria).	**CRB65 = 0, low severity** **First choice:** amoxicillin 500mg TDS	5 days unless microbiological results suggest a longer course is required or the person is not clinically stable	NICE/PHE antimicrobial guidance NICE visual summary NICE NG 191 Pneumonia in adults: diagnosis & management
		Second choice: doxycycline 200mg STAT then 100mg OD		
		Contact microbiology if above choices are not appropriate		
		CRB65 = 1-2, moderate severity and at home Doxycycline ALONE 200mg STAT then 100mg OD	5 days unless microbiological results suggest a longer course is required or the person is not clinically stable	
		If unable to tolerate doxycycline use amoxicillin 500mg TDS **If suspect legionella refer**		

Infection	Treatment advice	Medicine and dose	Duration	References
Influenza	Annual vaccination is essential for all those "at risk" of influenza. Refer to latest Chief Medical Officer (CMO) letter for at risk groups. Antivirals not recommended for healthy adults. "At risk" patients can be prescribed antiviral when influenza is circulating in the community as advised by PHE Ref - https://www.gov.uk/government/publications/influenza-treatment-and-prophylaxis-using-anti-viral-agents			
Pertussis	If admission is not required prescribe an antibiotic if onset of cough is within previous 21 days, macrolide recommended. If pregnant refer to microbiologist for further advice	**First line:** clarithromycin 500mg BD **Allergy to macrolides:** Co-trimoxazole 960mg BD (off label, not in pregnancy) **Pregnancy:** erythromycin 500mg QDS	7 days	CKS June 2018
Scarlet fever (group A streptococcus – GAS)	Prompt treatment with appropriate antibiotics significantly reduces the risk of complications. Vulnerable individuals (immunocompromised, comorbid, or those with skin disease) are at increased risk of developing complications. Safety net advice and optimise analgesia	Phenoxymethylpenicillin 500mg QDS **in adults** **Penicillin allergy:** Clarithromycin 250mg to 500mg BD **in adults**	10 days 5 days	NICE/PHE antimicrobial guidance
Sinusitis	Mostly viral and can last for 2-3 weeks. **SELF-CARE appropriate**. Advise paracetamol or ibuprofen for pain. Little evidence that saline nasal spray or nasal decongestants help however patients may wish to try. **Symptoms 10 days or less:** no antibiotic **Symptoms with no improvement for more than 10 days:** no antibiotic or back-up antibiotic depending on likelihood of bacterial cause. Can consider high dose nasal steroid (if over 12 years) – off label use **Symptoms very unwell or high risk of complications:** immediate antibiotics	**Self-care first line** **First choice:** Phenoxymethylpenicillin 500mg QDS **Penicillin allergy:** Doxycycline (not under 12 years) 200mg on day 1 then 100mg day **OR** Erythromycin (use if pregnant) 250 to 500mg QDS or 500mg to 1g BD **Second choice or first choice if systemically unwell or high risk of complications:** Co-amoxiclav 500/125mg TDS	5 days	NICE/PHE antimicrobial guidance NICE visual summary

Infection	Treatment advice	Medicine and dose	Duration	References
Skin and soft tissue infections - adult doses recommended, refer to cBNF for children				
Acne	**N.B. Care in pregnancy – several products contra-indicated** **Mild** (open and closed comedones) or **moderate** (inflammatory lesions): **First line: SELF-CARE** (wash with mild soap; do not scrub; avoid make up) **Second line:** topical retinoid or benzoyl peroxide **Third line: ADD** topical antibiotic or consider addition of oral antibiotic **Severe (nodules and cysts): ADD** oral antibiotic and refer	**First line: self-care**		NICE/PHE antimicrobial guidance
		Second line: topical retinoid apply thinly OD **OR**	6-8 weeks	
		Topical benzoyl peroxide 5% gel apply OD – BD	6-8 weeks	
		Third line: topical clindamycin 1% gel apply thinly BD.	12 weeks	
		If treatment failure/severe: doxycycline 100mg OD (not for under 12s)	6-12 weeks	
		OR oral oxytetracycline 500mg BD (not for under 12s)	6-12 weeks	
Bites	**Human:** irrigate thoroughly. Antibiotic prophylaxis is advised. Assess risk of tetanus, rabies, HIV and hepatitis B and C. **Cat:** always give prophylaxis **Dog:** prophylaxis if: puncture wound, bite to hand, foot, face, joint, tendon, or ligament; immunocompromised; cirrhotic; asplenic; or presence of prosthetic valve/joint **Penicillin allergy:** review at 24 and 48 hours, as not all pathogens are covered	**Prophylaxis/treatment all types:** Co-amoxiclav 250/125mg to 500/125mg TDS	7 days	NICE/PHE antimicrobial guidance
		Penicillin allergy all types of bites (local microbiology advice)**:** metronidazole 400mg TDS **AND** doxycyline 100mg BD (not for under 12s)		
		If pregnant and penicillin allergy – contact microbiology		

Infection	Treatment advice	Medicine and dose	Duration	Reference
Cellulitis, erysipelas, infected eczema, leg ulcers.	**Class I:** patient afebrile and healthy other than cellulitis, oral flucloxacillin alone **If river or sea-water exposure:** seek advice **Class II:** patient febrile and ill, or co-morbidity, admit for IV treatment or use Outpatient Parenteral Antimicrobial Therapy service **Class III:** if toxic appearance, admit **Erysipelas:** often facial and unilateral. Use flucloxacillin for non-facial erysipelas **Eczema** only treat if visible signs of infection **Leg ulcers** are always colonised. Antibiotics do not improve healing unless active infection (purulent exudate/odour; increased pain; cellulitis; pyrexia). **Non-healing ulcers:** antimicrobial-reactive oxygen gel may reduce bacterial load.	Flucloxacillin 500mg QDS **Penicillin allergy:** clarithromycin 500mg BD **Facial erysipelas only (non-dental):** co-amoxiclav 500/125mg TDS	**5 days** for infected eczema and leg ulcers **7 days** for cellulitis and erysipelas	NICE/PHE antimicrobial guidance NICE visual summary cellulitis & erysipelas
Dermatophyte infection: nail	**Take nail clippings** and start treatment only if infection confirmed. Oral terbinafine is more effective than oral azoles. Liver reactions 0.1 to 1% with oral antifungals. If candida or non-dermatophyte infection is confirmed, use oral itraconazole. Topical nail lacquer is not as effective. Check LFTs before prescribing any treatment and then every 4 -6 weeks. **To prevent recurrence:** apply weekly 1% topical antifungal cream to entire toe area **Children:** seek specialist advice	**First line:** terbinafine 250mg OD **Second line:** Itraconzaole 200mg BD for ONE WEEK of each month Stop treatment when continual, new, healthy, proximal nail growth	Fingers: 6 weeks Toes: 12 weeks Fingers: 2 courses Toes: 3 courses	NICE/PHE antimicrobial guidance
Dermatophyte infection: skin	**Most cases:** use terbinafine as fungicidal, treatment time shorter and more effective than fungistatic imidazoles or undecenoates. If candida possible, use imidazoles**. Refer to self-care scheme for items that can be purchased over the counter. Reminder for breast feeding patients with these infections.** **If intractable, or scalp:** send skin scrapings, and if infection confirmed: use oral terbinafine or itraconazole. **Scalp:** oral treatment (check LFTs before prescribing and every 4 to 6 weeks) and discuss with specialist	**Self-care may be appropriate** Topical terbinafine 1% OD –BD **OR** Topical imidazole 1% OD-BD Alternative in athlete's foot: topical undecenoates e.g. Mycota OD – BD	1-4 weeks 4-6 weeks 4-6 weeks	NICE/PHE antimicrobial guidance
Diabetic foot infection	For the management of infected diabetic foot ulcers in adults, advice can be sought from the podiatry team, contact details can be found at the end of the document. When infection of a diabetic foot ulcer is clinically suspected the diabetic foot specialist (vascular or orthopaedic) should be consulted at an early stage. Note that Charcot arthropathy can present in a similar way to a deep infection, with or without an ulcer, and is an important differential diagnosis. Patients with urgent diabetic foot problems: Please note the Podiatry Department does not provide a service to patients in Bank Holidays or weekends for urgent/emergency diabetic foot problems or ulcers. For more detailed advice, refer to Midlands Partnership NHS Foundation Trust Diabetic Foot Pathway and Management Guidance.			NICE/PHE antimicrobial guidance NICE visual summary

Infection	Treatment advice	Medicine and dose	Duration	Reference
Head lice	**SELF CARE – see self-care initiative** Only treat if live head louse found by detection combing on wet hair. Treat household members simultaneously. Choice of treatment will depend on the individual and the history, shampoos are not recommended. Wet combing or dimeticone 4% lotion is recommended first line for pregnancy, breastfeeding, young children aged 6 months to 2 years and people with asthma or eczema. No treatment can guarantee success, and manufacturer's instructions must be followed. Regular grooming with detection combs even after successful treatment is recommended to prevent further infection.	Physical insecticide e.g. dimeticone **OR** Chemical insecticide e.g. malathion aqueous lotion (N.B. resistance has been reported) **OR** Wet combing		CKS December 2016
Impetigo	Oral therapy is preferred. Reserve topical antibiotics for one small localised lesion to reduce risk of bacterial resistance. **Mupirocin should NOT be used.**	**Adult** Flucloxacillin 500mg QDS **OR** Clarithromycin 250-500mg BD **Children -** use cBNF	7 days	NICE/PHE antimicrobial guidance
		Topical fusidic acid TDS	5 days	
Lyme disease (tick bites)	**Prophylaxis:** not routinely recommended in Europe. **In pregnancy:** consider amoxicillin. **Immunocompromised:** consider prophylactic doxycycline. Only give prophylaxis within 72 hours of tick removal. Safety net advice about erythema migrans and other possible symptoms that may occur within 1 month of tick removal.	**Prophylaxis:** Doxycycline 200mg STAT (not in under 12s)	STAT ONLY	NICE/PHE antimicrobial guidance
	Treatment: treat erythema migrans empirically, do not send for serology (can be negative for up to 6 weeks). For other suspected Lyme disease such as neuroborreliosis seek advice	**Treatment:** Doxycycline 100mg BD (not in under 12s)	21 days	
		First alternative: Amoxicillin 1g TDS		
Mastitis	*S. aureus* most common infecting pathogen. Suspect if woman has painful breast, fever and/or general malaise, a tender, red breast. Breastfeeding: women should be encouraged to continue breastfeeding including from affected breast and oral antibiotics as appropriate. N.B. both clarithromycin and erythromycin are present in breast milk	Flucloxacillin 500mg QDS	10-14 days	NICE/PHE antimicrobial guidance
		Penicillin allergy: Erythromycin 250-500mg QDS or Clarithromycin 500mg BD		

Infection	Treatment advice	Medicine and dose	Duration	Reference
MRSA (skin disinfection guidance)	Meticillin resistant *Staphylococcus aureus* (MRSA) causes infection or colonisation in the same way as methicillin sensitive *S. aureus* (MSSA). <u>Treatment of infection</u> Antibiotic treatment should only be used on wounds with cellulitis and/or signs of systemic infection. Refer to microbiologist to discuss sensitivities and treatment. Consider discussion/referral to tissue viability specialist. <u>Colonisation</u> Patients colonised with MRSA may require decolonisation treatment; this is an individual risk assessment for each patient. The Infection Prevention and Control Nurses can support the risk assessment if required. Patients who may benefit from decolonisation therapy: • Patients who are booked for elective surgery • Patients who have frequent admission to hospital • The hospital has requested decolonisation prior to treatment • Patients who are known to have MRSA colonisation and have a planned change of device such as a supra pubic catheter (one course of decolonisation may not eradicate the MRSA, but may help reduce the burden of MRSA at the time the device is inserted. Commence decolonisation 5 days before planned insertion) • Patients who have MRSA colonisation and chronic wounds or pressure ulcers that are not healing • Patients who are severely immunocompromised Where patients are found to be MRSA positive and require decolonisation before being admitted for elective surgery please follow the protocol on treatment and screening regimes from the hospital/provider.	**If a patient has a chronic wound:** Octenilin® wound irrigation solution to be used neat to irrigate and clean the wound prior to each dressing change, continue to use until wound heals or significantly improves. Seek support from tissue viability team if wound healing stalls. Caution: wound irrigation solution **should not be used** on hyaline cartilage, the eyes, ears, nose, urinary bladder and in the abdominal cavity.		CKS October 2018 MPFT

Infection	Treatment advice	Medicine and dose	Duration	Reference
MRSA (skin disinfection guidance) continued	<u>Decolonisation for patients colonised with MRSA</u> Advice on decolonisation should be sought from the Infection Prevention and Control Nurses. MRSA is not a contraindication to the transfer of a patient to a care home. MRSA carriers do not require special treatment or follow up after discharge. Patients receiving topical treatment should complete their course but there is no need for routine follow up swabs. Patients should be informed that MRSA does not represent a special risk to healthy relatives, carers or infants.	<u>Decolonisation</u> Nasal mupirocin (Bactroban) apply TDS to anterior nares Skin and hair washes containing chlorhexidine or triclosan. Patients with fragile skin can be treated with Skinsan (triclosan 1% skin cleanser). If MRSA is resistant to mupirocin (rare), Naseptin QDS instead of nasal mupirocin.	5 days for mupirocin and washes 10 days Naseptin	
PVL –SA	Panton-Valentine Leukocidin is a toxin produced by *S.aureus* from boils/abscesses. PVL strains are rare in healthy people but severe. Suppression therapy: refer to microbiologist. Commence after primary infection has resolved, ineffective if lesions still leaking Risk factors for PVL: recurrent skin infections; invasive infections; more than one case in a home or close community; MSM Refer to PHE for advice regarding individual and close contact decolonisation therapy			NICE/PHE antimicrobial guidance
Scabies	Successful treatment relies on accurate identification, treatment and monitoring of the case and all individuals having prolonged skin to skin contact with the case within the last 4-6 weeks. **Products available to purchase over the counter** **First choice permethrin:** treat whole body from ear/chin downwards and under nails. **If using permethrin** and patient is under 2 years, elderly or immunosuppressed, or **if using malathion:** also apply to face and scalp. **Sexual/home contacts:** treat within 24 hours	**First line – self-care** Permethrin 5% cream Permethrin allergy: Malathion 0.5% aqueous liquid Follow manufacturer's instructions	2 applications 1 week apart	NICE/PHE antimicrobial guidance

Infection	Treatment advice	Medicine and dose	Duration	Reference
Varicella zoster (chickenpox)/ Herpes zoster (shingles)	**Pregnant/immunocompromised/neonate:** seek urgent specialist advice **Varicella zoster:** consider aciclovir if: onset of rash < 24 hours and one of the following: > 14 years of age, severe pain, dense/oral rash, smoker, taking steroids. Advise paracetamol for analgesia. Do not recommend NSAIDs in children with varicella zoster. **Herpes zoster:** treat if > 50 years and within 72 hours of rash or if one of the following: active ophthalmic; Ramsay Hunt; eczema; non-truncal involvement; moderate/severe pain; moderate/severe rash. **Consider starting antiviral treatment up to one week after rash onset if:** high risk of severe shingles or continued vesicle formation; older age; immunocompromised; or severe pain.	**First line for varicella zoster and herpes zoster:** Aciclovir 800mg FIVE times a day. **Second line for herpes zoster to aid compliance:** Valaciclovir 1g TDS	7 days	NICE/PHE antimicrobial guidance

Infection	Treatment advice	Medicine and dose	Duration	Reference
Urinary tract infections (UTI) - adult doses recommended, refer to cBNF for children				
Acute pyelonephritis (upper urinary tract)	Take urine sample. Refer to hospital if the person has any signs or symptoms of a more serious illness or condition e.g. sepsis. Offer an antibiotic. Take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Advise paracetamol (+/- low dose weak opioid) for analgesia for patients over 12 years. **Reassess at any time if symptoms worsen or do not start to improve within 48 hours of commencing antibiotic.** Review patient at 5 days and amend duration of antibiotics to 10 days if necessary. This is a local agreement with urology UHNM and microbiology. *See visual summary for further information.*	**Non-pregnant women and men first choice:** Cephalexin 500mg TDS OR Co-amoxiclav 625mg TDS	7 days Review at 5 days and increase to 10 days if necessary	NICE/PHE antimicrobial guidance NICE visual summary
		Non-pregnant women and men first choice and PENICILLIN ALLERGY RASH ONLY not penicillin anaphylaxis: Cephalexin 500mg TDS	7 days Review at 5 days and increase to 10 days if necessary	
		Non-pregnant women and men first choice if PENICILLIN ALLERGY ANAPHYLAXIS: Ciprofloxacin (consider safety issues – see safety section) 500mg BD	7 days Review at 5 days and increase to 10 days if necessary	
		Pregnant women first choice: Cephalexin 500mg TDS	7 days Review at 5 days and increase to 10 days if necessary	
		Children and young people (>3 months) first choice: cephalexin see cBNF for doses	7 days Review at 5 days and increase to 10 days if necessary	

Infection	Treatment advice	Medicine and dose	Duration	Reference
Catheter-associated urinary tract infections (UTI)– symptomatic bladder or kidney infection in a person with a catheter	**<u>Antibiotic treatment is not routinely required for asymptomatic bacteriuria in people with a urinary catheter i.e. only treat if patient exhibiting clinical signs of a UTI</u>** **Consider removing, or if not possible, changing the catheter** if it has been in place for more than 7 days. BUT do not delay antibiotic treatment. When prescribing antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Do not routinely offer antibiotic prophylaxis to people with short-term or long-term catheters. Advise paracetamol for analgesia. Advise drinking sufficient fluids to avoid dehydration. Advise not to become constipated *See visual summary for further information.*	**Non-pregnant women and men first choice if <u>NO upper</u> UTI symptoms:** Nitrofurantoin MR 100mg BD (if eGFR ≥45 mL/minute) **OR** Nitrofurantoin 50mg QDS if MR unavailable (if eGFR ≥45mL/minute)	7 days	NICE/PHE antimicrobial guidance NICE visual summary
		Non-pregnant women and men second choice if <u>NO upper</u> UTI symptoms: Pivmecillinam **(A PENICILLIN)** 400mg stat then 200mg TDS	7 days	
		Non-pregnant women and men second choice if <u>NO upper</u> UTI symptoms and PENICILLIN ALLERGIC: Trimethoprim (if low risk of resistance) 200mg BD	7 days	
		Non-pregnant women and men with upper UTI symptoms refer to upper UTI section above		
		Pregnant women first choice: Cephalexin 500mg TDS	7 days	
		Children and young people (>3 months) contact microbiologist		

Infection	Treatment advice	Medicine and dose	Duration	Reference
Epididymo-orchitis	If under 35 years or STI risk refer to GUM. If pain is acute, severe or fails to settle urgent referral to urology should be made to exclude testicular torsion. For children and young people not sexually active refer to urology. In men over 35 years with low risk STI usually due to Gram-negative enteric bacteria.	**First choice:** Doxycycline 100mg BD	10 days	NICE/PHE antimicrobial guidance
		Second choice: Ciprofloxacin 500mg BD (consider safety issues – see safety section)	10 days	
Lower urinary tract infections (UTI)	Advise paracetamol or ibuprofen for pain Non-pregnant women require MSU if second episode of UTI within 6 months Any male with a UTI should be investigated. Consider urethritis as a potential diagnosis. Non-pregnant women: back up antibiotic or immediate antibiotic Pregnant women, men, children or young people: immediate antibiotic When considering antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data. Urine dipstick in over 65s is not a reliable marker of infection. **If urinary symptoms suggest UTI in this age group send urine culture.** **Treatment excludes patient who have recurrent UTIs – more than 2 in 6 months or 3 in 12 months**	**Non-pregnant women first choice**: nitrofurantoin MR 100mg BD (if eGFR ≥45 ml/minute) OR nitrofurantoin 50mg QDS (if eGFR ≥45 ml/minute) if MR unavailable	3 days	NICE/PHE antimicrobial guidance NICE visual summary PHE Diagnosis of urinary tract infections Quick reference tool for primary care for consultation and local adaptation
		Non-pregnant women second choice: Pivmecillinam **(A PENICILLIN)** 400mg stat then 200mg TDS	3 days	
		OR If penicillin allergic: Trimethoprim (if low risk of resistance) 200mg BD	3 days	
		Pregnant women first choice: nitrofurantoin MR 100mg BD (if eGFR ≥45 ml/minute) OR nitrofurantoin 50mg QDS (if eGFR ≥45 ml/minute) if MR unavailable. Avoid at term	7 days	

Infection	Treatment advice	Medicine and dose	Duration	Reference
Lower urinary tract infections (UTI) continued		**Pregnant women second choice:** Cephalexin 500mg TDS	7 days	
		Treatment of asymptomatic bacteriuria in pregnant women: choose from nitrofurantoin (avoid at term) or cephalexin based on recent culture and susceptibility results.		
		Men first choice: nitrofurantoin MR 100mg BD (if eGFR ≥45 ml/minute) OR nitrofurantoin 50mg QDS (if eGFR ≥45 ml/minute) if MR unavailable.	7 days	
		OR Trimethoprim 200mg BD **if renal impairment**		
		Men second choice: consider alternative diagnoses basing antibiotic choice on recent culture and susceptibility results.		
		Children and young people (3 months and over) first choice: See cBNF for doses Trimethoprim (if low risk of resistance) **OR** Nitrofurantoin (if eGFR ≥45 ml/minute)	3 days	

Infection	Treatment advice	Medicine and dose	Duration	Reference
Prostatitis (acute)	Advise paracetamol (+/- low does weak opioid) for pain, or ibuprofen if preferred and suitable. Offer antibiotic. Send midstream urine sample for culture and susceptibility testing. Review antibiotic choice once sensitivities have been received. Review antibiotic treatment after 14 days and either stop antibiotics or continue for a further 14 days if needed (based on assessment of history, symptoms, clinical examination, urine and blood tests) *For further details see visual summary*	**First choice** (guided by susceptibilities when available): Trimethoprim 200mg BD **Second choice:** ciprofloxacin 500mg BD (consider safety issues – see safety section)	14 days then review	NICE/PHE antimicrobial guidance NICE visual summary
Recurrent urinary tract infections (UTI)	Recurrent UTI – 2 UTI within 6 months or 3 UTI within 12 months. Patients should be investigated and refer to urology. First line: advice on self-care, behavioural and personal measures to reduce risk of UTI. Post-menopausal women: if no improvement consider vaginal oestrogen (review within 12 months) NICE recommends non-pregnant women: if no improvement consider single-dose antibiotic prophylaxis for exposure to single trigger (review within 6 months) For non-pregnant women (if no improvement or no identifiable trigger) or with specialist advice for pregnant women, men, children or young people, consider a trial of daily antibiotic prophylaxis (review within 6 months).			NICE/PHE antimicrobial guidance NICE visual summary

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Sepsis Trust https://sepsistrust.org/

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Contact details

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Microbiology Helpdesk: 01782 674898

Out of hours, Bank Holidays and weekends the UHNM Microbiologist can be contacted by phoning the UHNM Switchboard on 01782 715444
http://www.uhnm.nhs.uk/contactus/pages/ContactUs.aspx

University Hospital of Derby and Burton NHS Foundation Trust
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Pathology enquiries: 01332 789400
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Tel: 01782 441604 extension: 2161

Medicines Optimisation Teams

Cannock Chase CCG	Main switchboard: 01785 854482
East Staffordshire CCG	Main switchboard: 01283 507100
North Staffordshire CCG	Main switchboard: 01782 298002
Stafford & Surrounds CCG	Main switchboard: 01785 854482
South East Staffordshire and Seisdon Peninsula CCG	Main switchboard: 01785 854482
Stoke-on-Trent	Main switchboard: 01782 298002

Medicines Management Team Staffordshire and Midland Partnership Foundation NHS Trust (MPFT)
Medicines Management Office, Haywood Pharmacy 01782 673845
Dispensary 01782 673767

Access to General Podiatry services is by GP referral.

Area	**Refer by telephone and supportive FAX**	**Contact Information**
Cannock Chase, Stafford & Surrounds & South East Staffordshire	Appointment Booking Centre Floor 5 Cannock Chase Council Beecroft Road Cannock WS11 1BG	Telephone: 01543 509770 FAX: 01782 828588 apptbookingcentre.ssotp@nhs.net
North Staffordshire	Fenton Health Centre, Glebedale Road, Fenton, Stoke-on-Trent, Staffordshire, ST4 3AQ	Telephone: 01782 222948 01782 222950 FAX: 01782 222896 Email: Stokepodiatry@nhs.net

Multidisciplinary Diabetes team centres.

Multidisciplinary Diabetes Team Referral Process		
Area	**Refer by telephone and supportive FAX**	**Contact Information**
Cannock Chase, Stafford & Surrounds & South East Staffordshire	Appointment Booking Centre Floor 5 Cannock Chase Council Beecroft Road Cannock WS11 1BG	Telephone: 01543 509770 FAX 01782 828588 apptbookingcentre.ssotp@nhs.net
Seisdon Peninsula	New Cross Hospital, Diabetes Centre Russells Hall Hospital	Telephone: 01902 695310 FAX 01902 695325 wdcfootteam@nhs.net Telephone: 01384 456111 ext 3594
East Staffordshire	Diabetes Centre, Queens Hospital, Burton on Trent	Telephone: 01283 593113 FAX 01283 593056
North Staffordshire	Fenton Health Centre, Glebedale Road, Fenton, Stoke-on-Trent, Staffordshire, ST4 3AQ	Telephone: 01782 222948 01782 222950 FAX: 01782 222896 Email: Stokepodiatry@nhs.net

West Midlands PHE Centre
5 St. Philip's Place
Birmingham
B3 2PW
Telephone: 0344 225 3560

Public Health England Centre - West Midlands Health Protection Team
Local health protection teams lead Public Health England response to all health related incidents. This team covers the areas of Shropshire and Staffordshire. If you need any information on health protection or are concerned by a health related problem in your area, contact the team.
West Midlands PHE Centre Health Protection Team
Public Health England
Stonefield House
St Georges Hospital
Corporation Street
Stafford
ST16 3SR

Tel: 0344 225 3560 Option 2 Out of Hours advice for health professionals – to contact a public health professional in an emergency out of hours; in the evenings, at weekends or during bank holidays, please phone: 01384 679031

Environmental Health
Staffordshire County Council
Environmental Health departments in each local council can be found here:
https://www.staffordshire.gov.uk/environment/Environmental-Health/Home.aspx