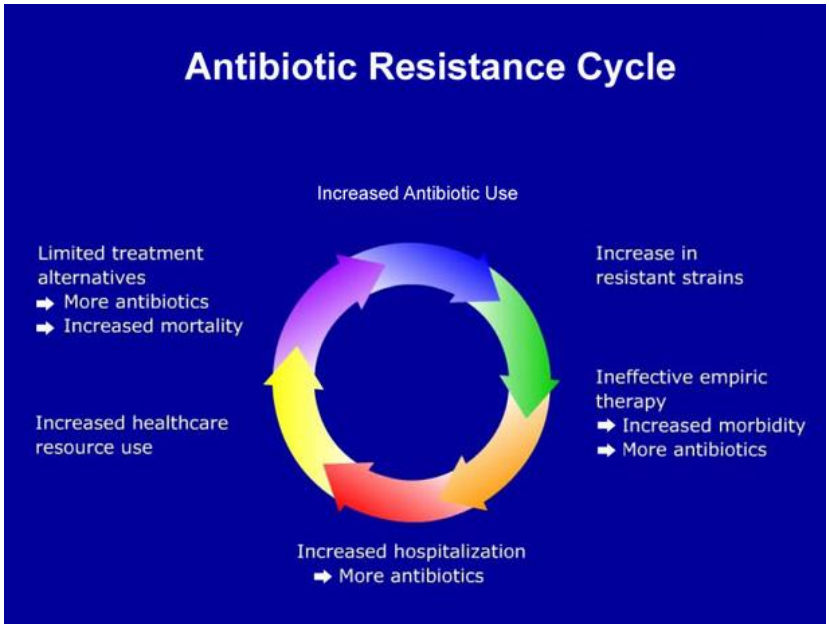
North East London (NEL) Management of Infection Guidance for Primary Care

Adapted from the Public Health England (PHE) Management of infection guidance for primary care for consultation and local adaptation – last updated May 2017



The guidelines have been developed in collaboration with:

- Barking, Havering and Redbridge University NHS Trust (BHRuT) Microbiology teams
- Barts Health NHS Trust Microbiology teams
- Homerton University Hospital NHS Foundation Trust Microbiology team (HUHFT)
- Barking and Dagenham, Havering and Redbridge (BHR) Clinical Commissioning Groups (CCGs)
- City and Hackney (C&H) CCG
- East London Foundation Trust
- Newham CCG
- North East London Foundation NHS Trust (NELFT)
- Tower Hamlets CCG
- Waltham Forest CCG

The guideline review group has involved a range of healthcare professionals including GPs, Microbiologists/Infectious disease consultants, Primary Care Pharmacists/Prescribing Advisors, and Antimicrobial Pharmacists. Advice has also be sought from local dermatologists, obstetricians and gastroenterologists where appropriate.

For a full list of evidence and references for each infection please refer to the main Public health England document available here. They strength of each recommendation is qualified by a letter in parenthesis. This is an altered version of the grading recommendation system used by SIGN.

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For further information please contact a member of the CCG based medicines management/optimisation teams on

CCG	Email contact	Phone number
BHR CCGs	Bhrmedicines.management@nhs.net	0203 182 3133
City and Hackney CCG	cahccg.cityandhackneymedicines@nhs.net	0203 816 3224
Newham	NEWCCG.medicinesmanagement@nhs.net	0203 688 2353
Tower Hamlets	celcsu.prescribingteamqueries@nhs.net	020 3688 2556
Waltham Forest	WFCCG.medicinesoptimisation@nhs.net	020 3688 2652

Microbiology team contact	Contact details
Barking, Havering and Redbridge University NHS trust	GP Microbiologist via switchboard at Queens Telephone: 01708 435000
Barts Health NHS Trust	Tower Hamlets GP phone 07710920866, WX GP enquiries WXH, bleep 422 and NUH GP enquiries 07887856174
Homerton University Hospital NHS Foundation Trust	Microbiology: air-call through switchboard Antimicrobial pharmacist: bleep 209. HUH switch: 0208 510 5555

Guideline review group

Name	Title
Hassan Sergini	Senior Prescribing Advisor, Medicines Optimisation Team, Waltham Forest CCG
Oge Chesa	Deputy Chief Pharmacist, BHR CCGs
Dr Albert J Mifsud	Consultant Public Health Microbiologist for South East London Public Health England London Public Health Laboratory
Dr Mark Melzer	Consultant in Microbiology / Infectious Diseases, Barts Health
Dr Alleyna Claxton	Microbiology Consultant, ICD & DIPC, Strategic Antimicrobial Stewardship Lead, HUHFT
Dr Sandra Lacey	Consultant Microbiologist, BHRuT
Sagal Hashi	Joint Formulary Pharmacist, Medicines Management, C&H CCG
Manisha Madhani	Antimicrobial Pharmacist, BHRuT
Maninder Kaur Singh	Lead Prescribing Advisor, NHS Newham CCG
Anh Vuh	Project & Practice Pharmacist, C&H CCG
Heather Walker	Chief Pharmacist, NELFT
Ann Chan	Senior Prescribing Advisor, Tower Hamlets Medicines Management Team

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Policy Statement

These guidelines are to be read in conjunction with current NICE and PHE guidance, BASHH, CKS and RCGP Target Toolkit. Evidence-based antimicrobial prescribing is essential to begin to address the challenge of increasingly antibiotic-resistant bacteria, and the rise in health care acquired infections. The Health and Social Care Act 2008 (updated 2011) introduces the Code of Practice for the Prevention and Control of HealthCare Associated Infections, also known as the Hygiene Code. This Code requires all health care organisations to have a policy in place on antimicrobial prescribing, in order to reduce the incidence and prevalence of Health Care Associated Infections (HCAI). Where possible, treatment is based on national guidance (Public Health England: Management of infection guidance for primary care for consultation and local adaptation). Local adaptation has been applied where required on advice of the local acute trusts department of infection, based on local sensitivities and resistance patterns.

Infections account for a large proportion of the acute workload seen in general practice and cause considerable patient distress. The prescriber is sometimes put under pressure to prescribe by patients who perceive that antibiotics will provide quick resolution, particularly if they are under pressure to return to work.

However, the evidence to support antibiotic treatment is often weak or lacking, and certain illnesses can be self-limiting. Good communication between the prescriber and patient, with adequate time given to the consultation, is known to bring about more selective and appropriate prescribing

Aims and Objectives of the Guidance

The guidance is presented in three parts: -

- **Section 1:** The antibiotic formulary and recommendations for the North East London region
- **Section 2:** Information for patients.
- **Section 3:** Clinical cases where statutory notification of infectious diseases is required.

The aims are to:

- Support the rational, safe and cost-effective use of antibiotics by selecting the best approach to managing common infections from the evidence available.
- Promote the selective use of antibiotics to reduce the emergence of antimicrobial resistance in the community.
- Empower patients with information and support mechanisms so they can cope with their infection.

The objectives are to:

- Assist prescribers in managing individuals with infections by providing clear information on the likely clinical outcome with or without treatment and to indicate possible risk.
- Help the prescriber decide whether or not antibiotic treatment is indicated and which antibiotic is the most appropriate.

Principles of treatment

- Prescribe antibiotics only when there is likely to be a clear clinical benefit
- Use narrow spectrum antibiotics first
- Save broader spectrum antibiotics for non-responding or resistant infections.
- Serious allergic reactions to penicillin antibiotics are very uncommon. Anaphylactic occurs in one in 7,000 to one in 25,000 treated patients. Patients should be asked if they have experienced an immediate reaction to administration of penicillin (or other antibiotic they report allergy to) such as difficulty in breathing, collapse, rapid onset of a generalised urticarial (wheals/'hives') itchy rash; in these circumstances, the antibiotic should not be prescribed. If a history of delayed rash (after more than a day of administration) is given, then the antibiotic should be avoided. However, most people who give a history of penicillin allergy do not have a true allergy, describing symptoms such as nausea and heartburn, which do not indicate allergy.
- In pregnancy, take specimens to inform treatment, use this guidance or seek expert advice. Penicillins, cephalosporins and erythromycin are not associated with increased risks. If possible, avoid tetracyclines, quinolones, aminoglycosides, azithromycin, clarithromycin, high dose metronidazole (2g stat) unless the benefits outweigh the risks. Short-term use of nitrofurantoin is not expected to cause foetal problems (theoretical risk of neonatal haemolysis). Trimethoprim is also unlikely to cause problems unless poor dietary folate intake, or taking another folate antagonist (Updated advice May 2017)
- Offer a deferred prescription in cases where the need for antibiotic therapy is equivocal, and safety net with clear instructions to the patient as to when they should take it.
- Always refer to up to date up to date BNF, SPC and MHRA for up to date drug information
- Do not prescribe an antibiotic for a simple cold or for all sore throat
- Avoid repeated use of topical antibiotics, as they select for resistant organisms.
- Avoid the use of broad spectrum antibiotics such as co-amoxiclav, quinolones and cephalosporins unless specifically indicated.

This guidance should always be applied in conjunction with clinical judgement and consideration of important individual case factors including allergy, pregnancy, drug interactions.

The recommendations apply only in the absence of contra-indications. Please refer to the latest BNF or SmPC for further information.

East London Health & Care Partnership

NHS

Section 1: Antibiotic formulary

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		EYE INFECTIONS		
Conjunctivitis	*Treat only if severe, as most is viral or self-limiting.* *Bacterial conjunctivitis is usually unilateral and also self-limiting; it is characterised by red eye with mucopurulent, not watery, discharge;*	*If severe:* chloramphenicol 0.5% drop and 1% ointment *Second line:* Fusidic acid 1% gel	2 hourly for 2 days, then 4 hourly (whilst awake) ointment to be used at night Twice a day	All for 48 hours after resolution
		DENTAL INFECTIONS		
The prescribing of antibiotics for dental infections by primary health care practitioners is not recommended. Patients should be advised in all instances to see their local dentist and sign posted to NHS choices or 111. The information below has been provided as guidance and only where it is deemed clinically necessary should antibiotic therapy be prescribed by the GP. This would also apply to dental mouthwashes that can either purchased or obtained from a dentist. Exclusions will apply such as cancer patients. **In cases of significant swelling, GP need to urgently refer to a local hospital with a maxillofacial team to make sure that airway is protected and start both surgical and antimicrobial treatment.**				
Mucosal ulceration and inflammation (simple gingivitis)	*Temporary pain and swelling relief can be attained with saline mouthwash* *Use antiseptic mouthwash:* *If more severe and pain limits oral hygiene to treat or prevent secondary infection*	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 1 minute BD with 5 ml diluted with 5-10 ml water only if patient does not tolerate mouthwash.	Always spit out after use
	The primary cause for mucosal ulceration or inflammation (aphthous ulcers, oral lichen planus, herpes simplex infection, oral cancer) needs to be evaluated and treated. N.B the presence of white/red patches, chronic or recurrent oral ulcers should prompt referral to oral medicine or oral surgery specialist for diagnosis and treatment.	Hydrogen peroxide 6%- *(spit out after use)*	Rinse mouth for 2 mins TDS with 15ml diluted in ½ glass warm water	Use until lesions resolve or less pain allows oral hygiene
Acute necrotising ulcerative gingivitis	*Commence metronidazole and refer to dentist for scaling and oral hygiene advice* *Use in combination with antiseptic mouthwash if pain limits oral hygiene*	Metronidazole Chlorhexidine or hydrogen peroxide	200-400 mg TDS See above dosing in mucosal ulceration	3 days Until oral hygiene possible

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		DENTAL INFECTIONS CONTINUED		
Pericoronitis	Refer to dentist for irrigation & debridement. If persistent swelling or systemic symptoms prescribe antimicrobial according to the severity of the case and patient allergy history (see drug choices column) Use antiseptic mouthwash if pain and trismus limit oral hygiene **If penicillin allergy**	Amoxicillin +/- Metronidazole Chlorhexidine or hydrogen peroxide Clarithromycin Or if severe Clindamycin	500mg TDS 400mg TDS see above dosing in mucosal ulceration 500mg BD 300mg QDS	3 days 3 days Until oral hygiene possible 3 days 3 days
Dental abscess	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. Severe odontogenic infections; defined as cellulitis plus signs of sepsis, difficulty in swallowing, impending airway obstruction, Ludwig's angina requires urgent referral for surgical intervention/management. Refer urgently for admission to protect airway, achieve surgical drainage and IV antibiotics The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer any advantage for most dental patients and should only be used if no response to first line drugs when referral is the preferred option.			
	If pus drain by incision, tooth extraction or via root canal. Send pus for microbiology.	Amoxicillin	500mg TDS	Up to 5 days review at 3days
	If spreading infection (lymph node involvement, or systemic signs i.e. fever or malaise) ADD metronidazole *True penicillin allergy*: use clarithromycin or clindamycin if severe.	*Severe infection: add* Metronidazole *or* *prescribe* Clindamycin	400mg TDS 300mg QDS	5 days 5 days
		True penicillin allergy: Clarithromycin If severe add Metronidazole Or prescribe Clindamycin	500mg BD 400 mg TDS 300mg QDS	Up to 5 days review at 3d 5 days 5days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
DENTAL INFECTIONS CONTINUED				
Oral candidiasis	Topical azoles more effective than topical nystatin. Oral candidiasis rare in immunocompetent adults; consider undiagnosed risk factors including HIV. Fluconazole if extensive/severe candidiasis; if HIV or immunosuppression use 100mg.	***Miconazole oral gel*** ***If miconazole not tolerated nystatin suspension*** ***Fluconazole oral tablets***	20mg/mL QDS 100,000 units/mL QDS 50mg OD OR 100mg OD	7 days or until 2 days after symptoms 7 days; further 7 days if persistent

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
UPPER RESPIRATORY TRACT INFECTIONS				
Influenza treatment PHE Influenza For prophylaxis see: NICE Influenza	**Annual vaccination is essential for all those at risk of influenza**. For otherwise healthy adults antivirals not recommended. **Treat 'at risk' patients**, when influenza is circulating in the community and ideally within 48 hours of onset (do not wait for lab report) or in a care home where influenza is likely. **At risk:** pregnant (including up to two weeks post-partum), 65 years or over, chronic respiratory disease (including COPD and asthma), significant cardiovascular disease (not hypertension), immunocompromised, diabetes mellitus, chronic neurological, renal or liver disease, morbid obesity (BMI>=40). Use 5 days treatment with oseltamivir 75mg bd. If resistance to oseltamivir or severe immunosuppression, use zanamivir 10mg BD (2 inhalations by diskhaler for up to 10 days) and seek advice. See PHE Influenza guidance for treatment of patients under 13 years or in severe immunosuppression (and seek advice).			
Acute sore throat	**Avoid antibiotics** as 90% resolve in 7 days without, and pain only reduced by 16 hours. Use **FeverPAIN** Score: **Fever** in last 24h, **P**urulence, **A**ttend rapidly under 3d, severely **I**nflamed tonsils, **N**o cough or coryza). **Score 0-1**: 13-18% streptococci, use NO antibiotic strategy; **2-3:** 34-40% streptococci, use 3 day back-up antibiotic; **4 or more:** 62-65% streptococci use immediate antibiotic if severe, or 48hr short back-up prescription. Always share self-care advice & safety net. Antibiotics to prevent quinsy NNT >4000. Antibiotics to prevent otitis media NNT 200. 10d penicillin lower relapse *vs* 7d in <18yrs.	Phenoxymethylpenicillin *Penicillin Allergy:* Clarithromycin ***Pregnant & penicillin allergy:*** Erythromycin	500mg QDS or 1G BD (500mg QDS when severe) 250-500mg BD 500mg QDS	10 days 5 days 5 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
UPPER RESPIRATORY TRACT INFECTIONS CONTINUED				
Acute Otitis Media *(child doses)*	**Optimise analgesia and target antibiotics** AOM resolves in 60% in 24hrs without antibiotics, which only reduce pain at 2 days (NNT15) **and does not prevent deafness.** Consider 2 or 3-day delayed+ or immediate antibiotics for pain relief (Paracetamol/NSAID, for fever also) if: **<2 years** AND bilateral AOM (NNT4) or bulging membrane and ≥ 4 marked symptoms. **All ages** with otorrhoea NNT3. Abx to prevent Mastoiditis NNT >4000.	Amoxicillin *Penicillin Allergy:* Erythromycin	**Child doses** Neonate 7-28 days 30mg/kg TDS 1 month-1 year: 125mg TDS 1-5 years: 250mg TDS 5-18 years: 500mg TDS <2 years 125mg QDS 2-8 years 250mg QDS 8-18 years 250-500mg QDS	5 days
Acute Otitis Externa	First use analgesia. Cure rates similar at 7 days for topical acetic acid or antibiotic +/- steroid. If cellulitis/disease extending outside ear canal, start oral antibiotics & refer to exclude malignant OE.	First Line: Acetic acid 2% Second Line: Neomycin sulphate with corticosteroid	1 spray TDS 3 drops TDS	7 days 7 days minimum with 14 days maximum treatment
Acute Rhinosinusitis	**Avoid antibiotics as** 80% resolve in 14 days without; they only offer marginal benefit after 7days NNT15. **Use adequate analgesia.** Consider 7-day delayed or immediate antibiotic when purulent nasal discharge NNT8. In persistent infection use an agent with anti-anaerobic activity e.g. co-amoxiclav.	Amoxicillin *or* Doxycycline *or* Phenoxymethylpenicillin *For persistent symptoms:* Co-amoxiclav	500mg TDS (1g TDS if severe) 200mg stat then 100mg OD 500mg QDS 625mg TDS	7 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
LOWER RESPIRATORY TRACT INFECTIONS				
Note: *Low doses of penicillin's are more likely to select out resistance, we recommend 500mg of amoxicillin. Do **not** use quinolone (ciprofloxacin, ofloxacin) first line due to poor pneumococcal activity. Reserve all quinolones (including levofloxacin) for proven resistant organisms.*				
Acute cough, bronchitis	**In primary care, antibiotics have marginal benefits in otherwise healthy adults.** Patient leaflets can reduce antibiotic use. Antibiotic little benefit if no co-morbidity. **Consider 7day delayed antibiotic with advice.** Symptom resolution can take 3 weeks. Consider immediate antibiotics if > 80yr and ONE of: hospitalisation in past year, oral steroids, diabetic, congestive heart failure OR > 65yrs with 2 of above. Consider CRP test if antibiotic being considered. If CRP<20mg/L no antibiotics, 20-100mg/L delayed, CRP >100mg immediate antibiotics.	**If comorbidity:** Amoxicillin or Doxycycline	500mg TDS 200mg stat then 100mg OD	5 days
Acute exacerbation of COPD	**Many exacerbations are caused by viral infections.** Treat exacerbations with antibiotics if **purulent sputum and increased shortness of breath and/or increased sputum volume.** Risk factors for antibiotic resistant organisms include co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months.	Amoxicillin **or** Doxycycline **If patients MRSA +ve or allergic to penicillin use doxycycline or** Clarithromycin If resistance: Co-amoxiclav	500mg TDS 200mg stat then 100mg OD 500mg BD 625mg TDS	5 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
LOWER RESPIRATORY TRACT INFECTIONS CONTINUED				
Community acquired pneumonia - treatment in the community	Use CRB65 score to help guide and review: Each scores 1: Confusion (AMT<8); Respiratory rate >30/min; BP systolic <90 or diastolic ≤ 60 Age >65. Score 0: suitable for home treatment; Score 1-2: hospital assessment or admission. Score 3-4: urgent hospital admission Mycoplasma infection is rare in over 65s. *Always give safety-net advice and likely duration of symptoms as per NICE QS110.*	IF CRB65=0: Amoxicillin *or* Clarithromycin *or* Doxycycline If CRB65=1,2 and AT HOME Amoxicillin AND **C**larithromycin *or* Doxycycline alone	500mg TDS 500mg BD 200mg stat/100mg OD 500mg TDS 500mg BD 200mg stat/100mg OD	CRB65=0: use 5 days. Review at 3 days & extend to 7-10 days if poor Response. 7-10 days
Note: Do not prescribe tetracyclines in pregnancy. Ciprofloxacin and ofloxacin have poor activity against pneumococci and should not normally be used				

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
GASTROINTESTINAL TRACT INFECTIONS				
Eradication of *Helicobacter pylori*	Treat all positives if known DU, GU low grade MALToma, or NNT in Non-Ulcer dyspepsia. Do not offer eradication for GORD. Do not use clarithromycin, metronidazole or quinolone if used in past year for any infection. **Penicillin allergy:** use PPI + clarithromycin & metronidazole. If previous clarithromycin use PPI + bismuth salt + metronidazole + tetracycline. **Relapse and previous** Seek specialist advice. **Retest** for H.pylori post DU/GU or relapse after second line therapy: using breath or stool test OR consider endoscopy for culture & susceptibility. Testing of H.pylori should not be performed within 4 weeks of treatment with any antibiotic or 2 weeks with any PPI as per NICE.	Always use PPI. (NO need to continue PPI beyond eradication unless ulcer is complicated by haemorrhage or perforation.) PPI WITH Amoxicillin or either clarithromycin OR metronidazole *Penicillin allergy & previous clarithromycin* PPI WITH bismuth subsalicylate metronidazole + tetracycline hydrochloride *Relapse & previous Metronidazole + Clarithromicin:* Seek specialist advice	TWICE DAILY 1g BD 500mg BD 400mg BD 525mg QDS 400mg BD 500mg QDS	All for 7 days MALToma 14 days
Infectious diarrhoea	Fluid and electrolyte replacement is essential. **Antibiotic therapy is not usually indicated unless systemically unwell** as it only reduces diarrhoea by 1-2 days, can aggravate the disease and can lead to resistance. If the patient remains systemically unwell initiate stool investigation for severe, prolonged or recurrent diarrhoea, food poisoning or for travellers' diarrhoea. Antibiotics may be indicated in: - Severe / prolonged symptoms (>5 days); - Systemic signs of infection; - Suspected complications; - Extremes of age; - Immunocompromised hosts – discuss such cases with Microbiology. If systemically unwell and Campylobacter suspected (e.g. undercooked meat and abdominal pain), consider clarithromycin 250–500mg BD for 5–7 days, if treated early (within 3 days).3C Always consider referral to hospital if the patient is systemically unwell; has dehydration, jaundice, or abdominal pain; is on antibiotics or has had chemotherapy. Refer children with severe or localised abdominal pain (this may suggest a surgical cause) or if they have bloody diarrhoea (to investigate for E. coli 0157 infection) or if there are any red flag symptoms or signs (https://www.nice.org.uk/guidance/cg84/chapter/1-Guidance#escalation-of-care). Please notify suspected cases of food poisoning to the Public Health England North East and North Central London Health Protection Team **(NENCLHPT) 020 3837 7084.** Send stool samples early in these cases.			

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
GASTROINTESTINAL TRACT INFECTIONS CONTINUED				
Antibiotic related diarrhoea e.g. *Clostridium difficile*	Stop unnecessary antibiotics and PPIs; 70% respond to MTZ in 5 days; 92% in 14 days. If severe symptoms or signs, i.e. 4 or more bowel movements per day for 2 or more days or presence of symptoms / signs below, treat with oral vancomycin and/or hospital referral. Admit if severe: T >38.5; WCC >15, rising creatinine or signs/symptoms of severe colitis.	*1st and non-severe episode:* Metronidazole PO ***2nd episode / severe:*** Seek specialist advice	400mg TDS	10-14 days
Travellers' Diarrhoea	**Only consider standby antibiotics** when travelling to remote areas or people at high-risk of severe illness with travellers' diarrhoea If standby treatment appropriate give: *ciprofloxacin 500mg twice a day for 3 days **(private prescription)**. If quinolone resistance high (e.g. south Asia): consider bismuth subsalicylate (Pepto Bismol) 2 tablets QDS as prophylaxis or for 2 days treatment			
Threadworm	Treat all household contacts at the same time PLUS advise hygiene measures for 2 weeks (hand hygiene, pants at night, morning shower) PLUS wash sleepwear, bed linen, dust, and vacuum on day one. Child <6 months add perianal wet wiping or washes 3 hourly during day.	>6 months: Mebendazole (off-label if <2yrs) Child < 6 months Mebendazole is unlicensed, use hygiene measures alone for six weeks	100mg	Stat Repeat after 2 weeks if infestation persists
Acute Diverticulitis (NICE CKS)	Evidence on the use of antibiotics for the treatment of uncomplicated diverticulitis is sparse, of low quality, and conflicting. Mild, uncomplicated diverticulitis can be managed at home with paracetamol, clear fluids, and oral antibiotic Prescribe broad-spectrum antibiotics to cover anaerobes and Gram-negative rods	Co-amoxiclav If allergic to penicillin Ciprofloxacin and Metronidazole	625mg TDS 500mg BD	7 days

URINARY TRACT INFECTIONS   **As E. coli bacteraemia in the community is increasing ALWAYS safety net and consider risks for resistance**
The September 2014 Drug Safety Update for nitrofurantoin has highlighted that new evidence indicates: • **Nitrofurantoin is contraindicated in patients with an estimated glomerular filtration rate (eGFR) of less than 45 ml/min/1.73m2**   • **A short course (3 to 7 days) may be used with caution in certain patients with an eGFR of 30 to 44 ml/min/1.73m2 (Only prescribe to such patients with suspected or proven multidrug resistant pathogens when the benefits outweigh the risks of side effects)**   **People > 65 years: do not treat asymptomatic bacteriuria; it is common (25% of women and 10% of men ≥ 65 years) but is not associated with increased morbidity**   **For all UTI cases, please provide patients with the TARGET UTI leaflet.**
Catheterised patients: all catheters become colonised with bacteria, and bacteriuria is common, so a positive urine dipstick or culture from a Catheter Specimen of Urine (CSU) is not an indication for antibiotic treatment in the absence of clinical evidence of infection.   If there are systemic features e.g. fever, confusion, indicating infection, MSU and empiric antibiotics are appropriate.   Catheterised patients who develop UTI may require removal of the catheter to clear infection.

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		URINARY TRACT INFECTIONS CONTINUED		
UTI in adults (lower)	**Treat women** with severe/or ≥3 symptoms. **All patients first line antibiotic:** Nitrofurantoin if GFR >45mls/min; if GFR 30-44, only use if resistance and no alternative. **Women (mild/≤ 2 symptoms):** Pain relief, and consider back-up / delayed antibiotic. If urine not cloudy, 97% NPV of no UTI. If urine cloudy, use dipstick to guide treatment: nitrite, leucocytes, blood all negative 76% NPV; nitrite plus blood or leucocytes 92% PPV of UTI. **Men:** Consider prostatitis and send MSU. OR if symptoms mild/non-specific, use negative dipstick to exclude UTI. **>65 years:** treat if fever ≥38°C or 1.5°C above base twice in 12h AND dysuria OR ≥2 other symptoms. **If treatment failure:** always perform culture.	**1st line:** Nitrofurantoin **If 1st line options unsuitable /** GFR<45mls/min**:** Pivmecillinam (subject to sensitivities and local laboratory procedures) If organism susceptible: Amoxicillin Or Trimethoprim If high risk of resistance (if caused by ESBL producing organisms and no other available oral antibiotic/subject to local laboratory procedures): Fosfomycin (Prescribe as Monuril powder for solution)	100mg M/R BD 400mg stat then 200mg TDS 500mg TDS 200mg BD 3g stat in women; men: 2nd 3g dose 3 days later (unlicensed)	Women: 3 days Men: 7 days
		Low risk of resistance: younger women with acute UTI and no resistance risks. **Risk factors for increased resistance:** care home resident, recurrent UTI (2 in 6 months; ≥3 in 12 months), hospitalisation for >7d in the last 6 months, unresolving urinary symptoms, recent travel to a country with increased resistance, previous UTI resistant to trimethoprim, cephalosporins, or quinolones. **If risk of resistance:** send urine for culture & susceptibilities, & always safety net.		
Catheter in situ: Do not treat asymptomatic bacteriuria. Take sample if new onset of delirium, or two or more symptoms of UTI. For antimicrobial choices refer to sections for UTI in adults (lower) or Acute Pyelonephritis section (as clinically indicated), if signs of severe sepsis refer to hospital. Do not use prophylaxis for catheter change unless history of catheter-change-associated UTI or trauma.				

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		URINARY TRACT INFECTIONS CONTINUED		
Acute prostatitis	Send MSU for culture and start antibiotics. 4 week course may prevent chronic prostatitis. Quinolones achieve higher prostate levels.	Ciprofloxacin* 2nd line: Trimethoprim	500mg BD 200mg BD	28 days 28 days
UTI in pregnancy	Send MSU for culture Start antibiotics in all with significant bacteriuria, even if asymptomatic. Short-term use of nitrofurantoin is unlikely to cause problems to the foetus. Avoid trimethoprim if low folate status or on folate antagonist. Repeat MSU 1 week after treatment as test of cure	**Lower UTI** First line: Nitrofurantoin IF susceptible, Amoxicillin Trimethoprim (Give folate if 1st trimester) Second line: Cephalexin **Upper UTI/pyelonephritis in pregnancy** **Refer to secondary care**	 100mg m/r BD 500mg TDS 200mg BD (off-label) 500mg BD	 7 days
UTI in Children	**Child <3 months**: refer urgently for assessment. **Child ≥ 3 months**: use positive nitrite to guide. Start antibiotics: also send pre-treatment MSU. **Imaging:** only refer if child <6 months, or recurrent or atypical UTI. Ensure nitofurantoin capsules and tablets are used in preference to liquid	**Lower UTI** First line: Nitrofurantoin M/R (If too young to swallow tablets then offer Cephalexin First line) Second line: Cephalexin IF susceptible, Amoxicillin **Upper UTI / pyelonephritis**: First line: Co-amoxiclav Second line: Cefixime (See Childrens BNF for dosing)		Lower UTI 3 days Upper UTI 7-10 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		URINARY TRACT INFECTIONS CONTINUED		
Acute pyelonephritis	If admission not needed, send MSU for culture & susceptibility testing, and start antibiotics. If no response within 24 hours, seek advice. **If ESBL risk (previous UTI caused by ESBL producing organisms or colonisation)** contact microbiology to consider IV antibiotic via outpatients (OPAT).	Co-amoxiclav or Ciprofloxacin If lab report shows sensitive, and no increased risk of treatment failure≠: Trimethoprim	500/125mg TDS 500mg BD 200mg BD	10-14 days 7 days 14 days
	≠ Increased risk of treatment failure if any of the following: Poorly controlled DM, Pregnancy, hospital-acquired infection, acute or chronic renal impairment, suspected or known urinary tract obstruction, urinary catheter/nephrostomy tube, functional or anatomical urinary tract abnormality, renal transplant, immunocompromised			
Recurrent UTI in non-pregnant women: **2 in 6mths or** **≥ 3 UTIs/year**	**First line:** Advise simple measures, incl. hydration & analgesia. Cranberry products work for some women, but good evidence is lacking. **Second line:** Standby or post-coital antibiotics. **Third line:** Antibiotic prophylaxis. Consider methenamine if no renal or hepatic impairment.	First line: Nitrofurantoin (note risk of side effects with long term use) If recent culture sensitive: Trimethoprim Methenamine hippurate	100mg 200mg 1g BD At night OR *post-coital* stat (off-label)	3-6 months; then review recurrence rate and need 6 months
***If a prescription of ciprofloxacin is being considered, a risk assessment for *C. difficile* acquisition should be undertaken** **Note: doses for adults unless otherwise stated. Please refer to BNF for information**				

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
***GENITAL TRACT INFECTIONS* Contact UKTIS for information on foetal risks if patient is pregnant**				
STI screening **(extra care would be required in men)**	People with risk factors should be screened for chlamydia, gonorrhoea, HIV, syphilis. **Refer individual and partners to GUM service who will advise on abstinence during treatment period including partner notification and contact tracing.** **Risk factors**: <25yr, no condom use, recent (<12mth)/frequent change of partner, symptomatic partner, area of high HIV.			
Chlamydia / urethritis	Note: Chlamydia screening programme. Refer patients and contacts to Sexual Health Clinic and other sexual health service providers. Opportunistically screen all aged 15-25 years. Treat partners and refer to GUM service. Due to lower cure rate in pregnancy, test for cure 6 weeks after treatment.	Azithromycin Or Doxycycline *Pregnant or breastfeeding:* Azithromycin or Erythromycin or Amoxicillin	1g stat 100 mg BD 1g (off-label use) 500mg QDS 500mg TDS	Stat 7 days Stat 7 days 7days
Epididymitis	For suspected epididymitis in men over 35 years with low risk of STI (High risk, refer GUM).	Ofloxacin or Doxycycline	200mg BD 100mg BD	14 days 14 days
Gonorrhoea	refer to GUM for culture/sensitivities			
Syphilis	refer to GUM for serology interpretation and assessment			
Vaginal Candidiasis	All topical and oral azoles give 75% cure. In pregnancy: avoid oral azoles and use intravaginal treatment for 7 days.	Clotrimazole *or* oral Fluconazole *Pregnant*: Clotrimazole *or* Miconazole 2% cream	500mg pessary or 10% cream 150mg orally 100mg pessary at night 5g intravaginal BD	stat stat 6 nights 7 days
Bacterial Vaginosis	Oral metronidazole (MTZ) is as effective as topical treatment but is cheaper. Less relapse with 7 day than 2g stat at 4 weeks. **Pregnant**/breastfeeding: avoid 2g stat. Treating partners does not reduce relapse.	Oral Metronidazole (MTZ) *or* MTZ 0.75% vaginal gel *or* Clindamycin 2% cream	400mg BD or 2g 5g applicator full at night 5g applicator full at night	7 days stat 5 nights 7 nights

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
GENITAL TRACT INFECTIONS CONTINUED				
Trichomoniasis	Treat partners and refer to GUM service. In pregnancy or breastfeeding: avoid 2g single dose MTZ. Consider clotrimazole for symptom relief (not cure) if MTZ declined.	Metronidazole (MTZ) Clotrimazole	400mg BD or 2g 100mg pessary at night	5-7 days stat 6 nights
Mild Pelvic Inflammatory Disease (PID)	Test for *chlamydia* and *N. gonorrhoea*. Avoid doxycycline in pregnancy. **Refer woman and contacts to GUM service. Only treat if sure of the absence of other STIs.** If gonorrhoea likely (partner has it, sex abroad, severe symptoms), resistance to quinolones is high, use ceftriaxone regimen, or refer to GUM. Moderate – severe cases (fever, clinical signs of tub-ovarian abscess or signs of pelvic peritonitis) should be urgently referred to gynaecology.	Metronidazole PLUS Ofloxacin *or* Doxycycline *If high risk of gonorrhoea* ADD Ceftriaxone	400mg BD 400mg BD 100mg BD 500mg IM	14 days 14 days Stat
MENINGITIS				
Suspected meningococcal disease	**Transfer all patients to hospital immediately.** If time before hospital admission, and non-blanching rash, give IV benzylpenicillin or cefotaxime, unless definite history of hypersensitivity Give IM if vein cannot be found	IV or IM Benzylpenicillin or IV or IM Cefotaxime	Age 10+ years: 1200mg Children 1-9 year: 600mg Children <1 year: 300mg Age 12+ years: 1gram Child < 12 years: 50mg/kg	Stat
Prevention of secondary case of meningitis: Only prescribe antibiotics following advice from the local Health Protection Unit NENCLHPT: 9am - 5pm Tel: 020 3837 7084; Out of hours: Contact on-call doctor on Tel: 07623 541417				

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		SKIN INFECTIONS		
Impetigo	For extensive, severe, or bullous impetigo, use oral antibiotics Topical and oral treatment produces similar results. As resistance is increasing reserve topical antibiotics for very localised lesions. Reserve Mupirocin for MRSA advise good infection control precautions	Oral Flucloxacillin or if penicillin allergic, clarithromycin Fusidic acid 2% cream or ointment. MRSA only: Mupirocin	500mg QDS 250 –500mg BD Topically TDS Topically TDS	7 days 7 days 5 days 5 days
Eczema	If no visible signs of infection, use of antibiotics (alone or with steroids) encourages resistance and does not improve healing In eczema with visible signs of infection, use treatment as in impetigo.			
Cellulitis	If patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone Toxic appearance, admit If river or sea water exposure, discuss with microbiologist. If febrile and ill, or comorbidity admit for IV treatment *Stop clindamycin if diarrhoea occurs.*	Flucloxacillin *If penicillin allergic:* Clarithromycin *If on statins: Doxycycline* *If unresolving:* Clindamycin (Caution with the use of clindamycin in >65, stop statin therapy whilst on clindamycin) *If facial:* Co-amoxiclav	1g QDS 500mg BD 200mg stat then 100mg OD 300–450mg QDS 500/125mg TDS	All for 7 days. If slow response continue for a further 7 days
	Class I: patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone. **Class II** febrile & ill, or comorbidity, admit for intravenous treatment, or use OPAT (if available). **Class III** toxic appearance: admit.1 If river or sea water exposure, discuss with specialist.			

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
SKIN INFECTIONS CONTINUED				
Leg Ulcers	Diagnosis and management of the underlying condition is important. Routine swabs are not recommended. But, If active infection, send pre-treatment swab. Review antibiotics after culture results. Antibiotics are only indicated if significant cellulitis present. Selectively investigate patients and treat those that do not resolve (see under cellulitis). Review the management of diabetes in diabetic ulcers. **ANTIBIOTICS DO NOT IMPROVE HEALING unless active infection.** Active infection if cellulitis/increased pain/ pyrexia/ purulent exudate/ odour.			
	If active infection refer for specialist advice if infection is severe	Flucloxacillin or Clarithromycin	500mg QDS 500mg BD	7 days 7 days if slow response, continue for a further 7 days.
MRSA colonisation	Please seek advice from the local acute trust microbiology team for advice on prescribing eradication protocols and antibiotics for any confirmed MRSA infection			
Please seek advice from the local acute trust microbiology team for advice on prescribing eradication and infection				
PVL	Panton-Valentine Leukocidin (PVL) is a toxin produced by 4.9% of *S. aureus* from boils/abscesses. This bacteria can rarely cause severe invasive infections in healthy people; if found suppression therapy should be given. Send swabs if recurrent boils/abscesses. At risk: close contact in communities or sport; poor hygiene. See https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/322857/Guidance_on_the_diagnosis_and_management_of_PVL_associated_SA_infections_in_England_2_Ed.pdf			
Bites: Human	Thorough irrigation is important Assess risk of tetanus, HIV, hepatitis B&C Antibiotic prophylaxis is advised	*Prophylaxis or treatment:* Co-amoxiclav	625mg TDS	7 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
SKIN INFECTIONS CONTINUED				
Bites: Cat or dog	Assess risk of tetanus and rabies Give prophylaxis if cat bite/puncture wound; bite to hand, foot, face, joint, tendon, ligament; immunocompromised/diabetic/ asplenic/cirrhotic/ presence of prosthetic valve or prosthetic joint	*First line:* *Co-amoxiclav* *If penicillin allergic:* Metronidazole PLUS Doxycycline (cat/dog/man) *or* Metronidazole PLUS Clarithromycin (human bite) *AND review at 24&48hrs*	625mg TDS 400mg TDS 100mg BD 200-400mg TDS 250-500mg BD	All for 7 days
Scabies	Treat whole body from ear/chin downwards and under nails. If under 2 or elderly, also face/ scalp. Itch can persist for weeks and antiprutitic cream or an oral antihistamine may be indicated. Treat all home and sexual contacts within 24 hours.	Permethrin If allergy: Malathion	5% cream 0.5% aqueous liquid	2 applications 1 week apart
	Please refer to local CCG guidelines in relation to the prescribing of over the counter medications by GPs			
Dermatophyte infection – skin, foot and scalp	Terbinafine is fungicidal so treatment time shorter than with fungistatic imidazoles. If candida possible, use imidazole. If intractable: send skin scrapings and if infection confirmed, use *oral* terbinafine/itraconazole. **Scalp:** discuss with specialist, oral therapy indicated.	Topical Terbinafine *or* topical Imidazole *or (athlete's foot only):* topical Undecanoates (Mycota®)	BD BD BD	1-2 weeks for 1-2 weeks after healing (i.e. 4-6weeks)

ILLNESS	COMMENTS	DRUG	ADULT DOSE	DURATION OF TREATMENT
		SKIN INFECTIONS CONTINUED		
Dermatophyte infection of the finger nail or toenail	Adults: Take nail clippings and start therapy only if infection is confirmed by laboratory Oral terbinafine is more effective than oral azole. Liver reactions occur rarely with oral antifungals. Idiosyncratic liver reactions occur rarely with terbinafine. **For children seek specialist advice** Itraconazole (monitoring of liver function is recommended)	*First line:* Terbinafine *Second line:* Itraconazole *Third line for very superficial as limited evidence of effectiveness:* Amorolfine 5% nail lacquer.	250mg OD fingers toes 200mg BD fingers toes 1-2x/weekly fingers toes	6 – 12 weeks 3 – 6 months 7 days monthly 2 courses 3 courses 6 months 12 months Fingers -7 days monthly (repeat after 21 day interval) 2 courses Toes – 7 days monthly (repeat after 21 day interval) 3 courses
Herpes zoster/Varicella zoster/chicken pox/shingles	Seek urgent specialist advice in pregnant, immunocompromised and neonates. Chicken pox**:** IF onset of rash <24hrs & >14 years or severe pain or dense/oral rash or 2° household case or steroids or smoker consider aciclovir. https://www.gov.uk/government/publications/viral-rash-in-pregnancy **Shingles:** treat if >50 years and within 72 hours of rash (PHN rare if <50 years), or if active ophthalmic or Ramsey Hunt or eczema. Seek advice from NENCLHPT for immunoglobulin advice **020 3837 7084** **Out of Hours 020 7191 1860 or e-mail: nel.team@phe.gov.uk**	*If indicated:* Aciclovir	800mg five times a day	7 days
Cold sores	Cold sores resolve after 7–10d without treatment. Topical antivirals applied prodromally reduce duration by 12-24hrs [1]			

Section 2: Information for patients

1. Refer to NHS Choices
   http://www.nhs.uk/Pages/HomePage.aspx

2. Treating your infection document:
   http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit/~/media/2E1292605D174B318A5302223B04C175.ashx

3. Target UTI leaflet:
   http://www.rcgp.org.uk/TARGETantibiotics/~/link.aspx?_id=9FCF9DA4B4A045519593320478DFD9E7&_z=z

4. Get better without using antibiotics
   https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/245826/3-PC-Get-well-soon-without-antibiotics1.pdf

5. Management of respiratory tract infections (coughs, colds, sore throats, and ear aches) in children
   http://www.whenshouldiworry.com/

6. Home care is best poster for GP waiting area
   http://www.selfcareforum.org/wp-content/uploads/2011/07/Poster_fin.pdf

7. Cough fact sheet
   http://dev.selfcareforum.org/wp-content/uploads/2013/04/Cough_fin.pdf

8. Ear infection fact sheet
   http://dev.selfcareforum.org/wp-content/uploads/2013/04/Ear_Infection_fin.pdf

9. Sore throat fact sheet
   http://dev.selfcareforum.org/wp-content/uploads/2011/07/Sore_throat_fin.pdf

10. Use of antbiotics during pregnancy and risk of spontaneous abortion .Flory TM, Sheehy O, Berard A. CMAJ. 2017 May; 1(189):625-633. Available from: http://www.cmaj.ca/content/189/17/E625

11. Antibiotic use in pregnancy – PHE management of infection guidance for primary care for consultation and local adaptation
    https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612743/__Managing_common_infections.pdf

Section 3: Notification of Infectious Diseases

Registered medical practitioners (RMPs) have a statutory duty to notify suspected cases of certain infectious diseases (listed below).

These can be notified via their local health protection team (HPT). For North East and North Central London, please contact Tel: 02038377084 (Fax: 020 3837 7086)

- Acute encephalitis
- Acute infectious hepatitis
- Acute meningitis
- Acute poliomyelitis
- Anthrax
- Botulism
- Brucellosis
- Cholera
- Diphtheria
- Enteric fever (typhoid or paratyphoid fever)
- Food poisoning
- Haemolytic uraemic syndrome (HUS)
- Infectious bloody diarrhoea
- Invasive group A streptococcal disease
- Legionnaires' disease
- Leprosy
- Malaria
- Measles
- Meningococcal septicaemia
- Mumps
- Plague
- Rabies
- Rubella
- Severe Acute Respiratory Syndrome (SARS)
- Scarlet fever
- Smallpox
- Tetanus
- Tuberculosis
- Typhus
- Viral haemorrhagic fever (VHF)
- Whooping cough
- Yellow fever

References

1. Public Health England – Management of infection guidance for primary care for consultation and local adaptation. Published June 2015- latest review April 2014.

2. Pneumonia: Diagnosis and management of community- and hospital-acquired pneumonia in adults. NICE Guideline (CG191) December 2014

3. Dyspepsia and gastro-oesophageal reflux disease: Investigation and management of dyspepsia, symptoms suggestive of gastro-oesophageal reflux disease, or both. NICE Guideline (CG184) September 2014

4. NICE Clinical Knowledge Summaries (CKS, formerly prodigy) available at https://cks.nice.org.uk/#?char=A

5. Royal College of General Practitioners Sexually Transmitted Infections

6. in Primary Care. RCGP Sex, Drugs, HIV and Viral Hepatitis Group, British Association for Sexual Health and HIV (BASHH). Second Edition 2013 available at https://www.bashh.org/documents/Sexually%20Transmitted%20Infections%20in%20Primary%20Care%202013.pdf

Useful Links

1. British Association of Dermatologists (BAD) guidelines available at **http://www.bad.org.uk/healthcare-professionals**
2. Public Health England Main Web Site: https://www.gov.uk/government/organisations/public-health-england
3. http://legacytools.hpa.org.uk/AboutTheHPA/WhatTheAgencyDoes/LocalServices/NorthEastAndNorthCentralLondonHPT/
4. https://www.nice.org.uk/