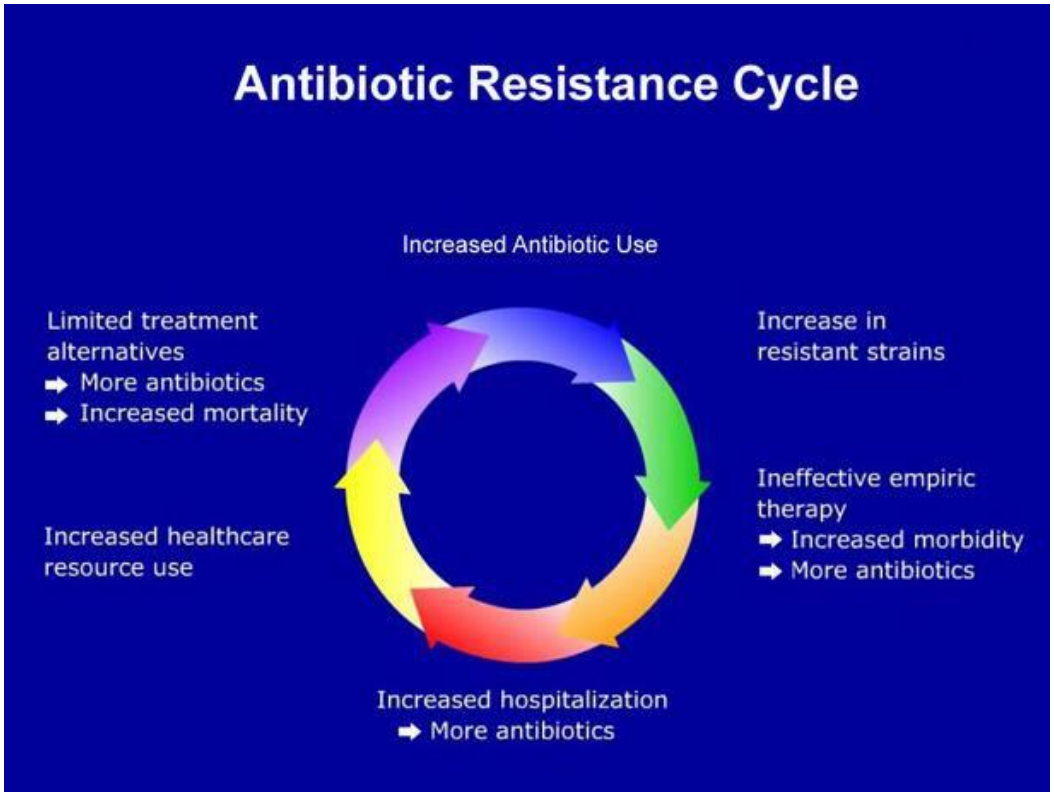
North East London (NEL) Management of Infection Guidance for Primary Care

Adapted from the Public Health England (PHE) and National Institute for Health and Care Excellence (NICE) Management of infection guidance. For primary care use across the East London Health and Care Partnership (ELHCP)



https://asweknowitlife.wordpress.com/2012/12/04/antibiotic-resistance-cycle/

Updated: February 2023
Date of review: February 2024, or sooner if required
Version: 1.6

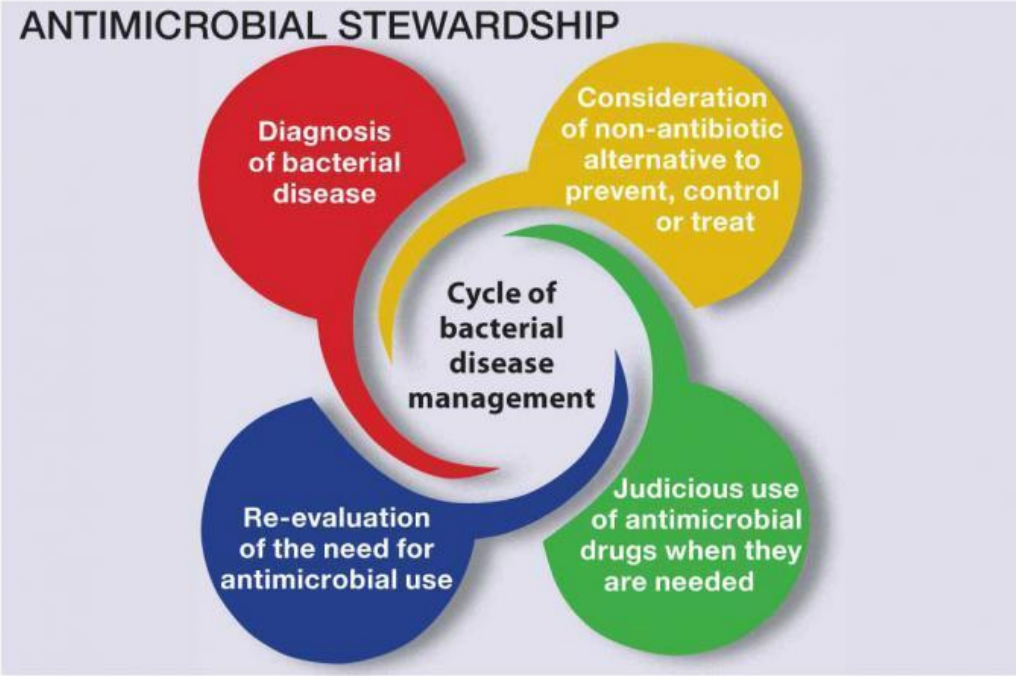
These guidelines have been developed in collaboration with:

- North East London Clinical Commissioning Group (NEL CCG)
- Barking, Havering and Redbridge University NHS Trust (BHRuT) Microbiology team
- Barts Health NHS Trust Microbiology teams
- Homerton University Hospital NHS Foundation Trust Microbiology team (HUHFT)
- NHS North East London Foundation NHS Trust (NELFT)
- NHS East London Foundation Trust (ELFT)

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 been sought from local dermatologists, obstetricians and gastroenterologists where appropriate.

The development and maintenance of this guideline is a key function of the North East London Antimicrobial Resistance Strategy Group (NEL AMRSG), which is a local collaboration of health and social care partners.

Contents



Organisations who have adopted this document	Date ratified by organisation
North East London Formulary and Pathways Group (Chair Person's action)	
*Endorsed by North East London Antimicrobial Resistance Strategy Group (NEL AMRSG)	

Guideline Statement

These guidelines are to be read in conjunction with current guidance from NICE and PHE, other national bodies (e.g. BASHH – British Association for Sexual Health and HIV), relevant NICE Clinical Knowledge Summaries (CKS) and resources from the 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 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.

This guidance should always be applied in conjunction with clinical judgement and consideration of important individual case factors including allergy, pregnancy, drug interactions and drug safety advice from the MHRA. The recommendations apply only in the absence of contra- indications. Please refer to the latest BNF, BNFc or Summary of Product Characteristics (SmPC) for further information

Antimicrobial prescribing guidance – managing common infections

- For all PHE guidance, follow PHE's principles of treatment
- See BNF for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding.

Key		
	 	**Click symbols to access doses for children**
		**Click to access NICE's printable visual summary**

The strength of each PHE recommendation is qualified by a letter in parenthesis. This is an altered version of the grading recommendation system used by SIGN

STUDY DESIGN	RECOMMENDATION GRADE
Good recent systematic review and meta-analysis of studies	A+
One or more rigorous studies; randomised controlled trials	A-
One or more prospective studies	B+
One or more retrospective studies	B-
Non-analytic studies, for example case reports or case series	C
Formal combination of expert opinion	D

Abbreviations

BD, twice a day; eGFR, estimated glomerular filtration rate; IM, intramuscular; IV, intravenous; MALToma, mucosa-associated lymphoid tissue lymphoma; m/r, modified release; MRSA, methicillin-resistant *Staphylococcus aureus*; MSM, men who have sex with men; stat, given immediately; OD, once daily; TDS, 3 times a day; QDS, 4 times a day.

Treating Penicillin-allergic Patients:

These Antibiotic Guidelines contain alternative empirical treatment options for indications in which penicillins are the first-line choice. The table below illustrates the Antibiotic allergy traffic light system, which is employed throughout these guidelines (please note this list is not exhaustive).

Contra-indicated

Antibiotics to be avoided in penicillin allergy:

- Amoxicillin
- Ampicillin (in Co-fluampicil)
- Benzylpenicillin/Penicillin G
- Co-amoxiclav
- Flucloxicillin (in Co-fluampicil)
- Phenoxymethylpenicillin/Penicillin V
- Piperacillin (in Tazocin)
- Pivmecillinam
- Ticarcillin (in Timentin)

Caution

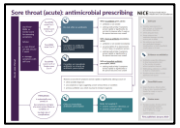
Avoid if serious Type 1 penicillin allergy (e.g.anaphylaxis / angiodema)

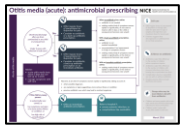
Use with caution if non-severe allergy (e.g. minor rash)

- Cephalosporins: Cefaclor, Cefadroxil, Cefalexin, Cefixime, Cefotaxime, Cefpirome, Cefpodoxime, Cefprozil, Cefrandine, Ceftazidime, Ceftriaxone, Cefuroxime
- Other Beta-lactam antibiotics: Aztreonam, Imipenem, meropenem, ertapenem
- Note: risk of allergic reaction is greater in β-lactams most similar to penicillin's in underlying structure

Considered Safe

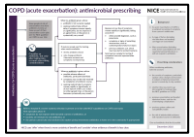
- Amikacin
- Ciprofloxacin
- Clarithromycin
- Clindamycin
- Colistin
- Co-trimoxazole
- Doxycycline
- Erythromycin
- Gentamicin
- Linezolid
- Metronidazole
- Nitrofurantoin
- Minocycline
- Rifampicin
- Sodium fusidate
- Teicoplanin
- Tetracycline
- Tobramycin
- Trimethoprim
- Vancomycin

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Upper respiratory tract infections						
Acute sore throat NICE Public Health England Last updated: Feb 2023	Advise to purchase OTC, paracetamol, or if preferred and suitable, ibuprofen for pain. OTC Medicated lozenges may help pain in adults. Use **FeverPAIN** or **Centor** to assess symptoms: **FeverPAIN 0-1 or Centor 0-2**: no antibiotic; **FeverPAIN 2-3**: no or 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. Avoid broader-spectrum penicillins (e.g. **amoxicillin**) for the empirical treatment of sore throat. *5 days of **phenoxymethylpenicillin** may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure. *For detailed information click the visual summary icon.*	**First choice**: **phenoxymethylpenicillin** **Penicillin allergy**: **clarithromycin OR** **erythromycin** (preferred if pregnant) (**erythromycin** or **clarithromycin** only needed for 5 days as they have a broader spectrum of activity than **phenoxymethylpenicillin** and more likely to drive bacterial resistance)	500mg QDS or 1000mg BD 250mg to 500mg BD 250mg to 500mg QDS or 500mg to 1000mg BD		5 to 10* days 5 days 5 days	
Influenza Public Health England Last updated: Feb 2019	**Annual vaccination is essential for all those 'at risk' of influenza.**[1D] Antivirals are not recommended for healthy adults.[1D,2A+] Treat 'at risk' patients with 5 days oseltamivir 75mg BD,[1D] when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children),[1D,3D] or in a care home where influenza is likely.[1D,2A+] **At risk**: pregnant (and up to 2 weeks post-partum); children under 6 months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; chronic neurological, renal or liver disease; diabetes mellitus; morbid obesity (BMI>40).[4D] See the PHE Influenza guidance for the treatment of patients under 13 years.[4D] In severe immunosuppression, or oseltamivir resistance, use zanamivir 10mg BD[5A+,6A+] (2 inhalations twice daily by diskhaler for up to 10 days) and seek advice.[4D] *Access supporting evidence and rationales on the PHE website.*					
Scarlet fever (GAS) Public Health England Last updated: Feb 2023	Guidance is available from appendix 1 of the UKHSA guidelines for the public health management of scarlet fever outbreaks in schools, nurseries and other childcare settings. Scarlet fever is a notifiable disease, health professionals must inform local health protection teams of suspected cases. **North East and North Central London Health Protection Team (NENCLHPT) numbers:** • Daytime Tel: **020 3837 7084 (option 2 for healthcare professionals)** • **For Out of Hours Advice**: Tel: **0151 909 1215** (between 5pm and 9am and during weekends and Bank Holidays) Email: necl.team@ukhsa.gov.uk ; phe.nenclhpt@nhs.net **(if Personal Identifiable Information (PII) being included)**					

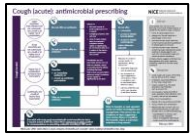
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute otitis media NICE Public Health England Last updated: Mar 2022	Regular paracetamol or ibuprofen for pain (right dose for age or weight at the right time and maximum doses for severe pain). Consider ear drops containing an anaesthetic and an analgesic (**Otigo (lidocaine hydrochloride, phenazone**) 40 mg/10 mg/g) for pain if an immediate antibiotic is not given and there is no ear drum perforation or otorrhoea. **Otorrhoea or under 2 years with infection in both ears**: no, back-up or immediate antibiotic. **Otherwise**: no or back-up antibiotic. **Systemically very unwell or high risk of complications**: immediate antibiotic. *For detailed information click on the visual summary.*	**First choice**: **amoxicillin**	-		5 to 7 days	
		Penicillin allergy: **clarithromycin OR**	-		5 to 7 days	
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	-			
		Second choice: **co-amoxiclav**	-		5 to 7 days	
Acute otitis externa Public Health England Last updated: Nov 2017	**First line**: Advise to purchase OTC analgesia for pain relief,[1D,2D] and apply localised heat (such as a warm flannel).[2D] **Second line**: OTC topical acetic acid (>12yrs) e.g. EarCalm spray OR topical antibiotic +/- steroid e.g. betamethasone 0.1% neomycin (Betnesol N drops) or Otomize Spray: similar cure at 7 days.[2D,3A+,4B-] **If cellulitis or disease extends outside ear canal**, or systemic signs of infection, swab ear, start oral flucloxacillin and refer to exclude malignant otitis externa.[1D]	**Second line**: OTC (>12yrs) topical **acetic acid** 2%[2D,4B-] **OR**	1 spray TDS[5A-]	BNF for children	7 days[5A]	*Not available. Access supporting evidence and rationales on the PHE website*
		topical **neomycin sulphate** with corticosteroid[2D,5A-] (consider safety issues if perforated tympanic membrane)[6B-]	3 drops TDS[5A-]	BNF for children	7 days (min) to 14 days (max)[3A+]	
		If cellulitis: **flucloxacillin**[7B+]	250mg QDS[2D]	BNF for children	7 days[2D]	
			If severe: 500mg QDS[2D]			
Sinusitis NICE	Advise to purchase OTC paracetamol or ibuprofen for pain. Little evidence that nasal saline or nasal decongestants help, but people may want to try them OTC. **Symptoms for 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.	**First choice**: **phenoxymethylpenicillin**	500mg QDS		5 days	
		Penicillin allergy: **doxycycline** (not in under 12s) **OR**	200mg on day 1, then 100mg OD		5 days	
		clarithromycin OR	500mg BD			

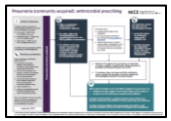
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Public Health England Last updated: Oct 2017	Consider high-dose nasal corticosteroid (if over 12 years). **Systemically very unwell or high risk of complications**: immediate antibiotic. *For detailed information click on the visual summary.*	**erythromycin** (preferred if pregnant)	250 to 500mg QDS or 500 to 1000mg BD			
		Second choice or first choice if systemically very unwell or high risk of complications: **co-amoxiclav**	500/125mg TDS		5 days	

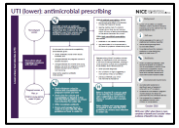
▼ Lower respiratory tract infections

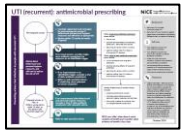
COVID-19 NICE **Last updated: November 2021**	Antibiotics should not be used for preventing or treating COVID-19 unless there is clinical suspicion of additional bacterial co-infection. See the section on suspected or confirmed co-infection. **Do not use azithromycin** to treat COVID-19. **Do not use doxycycline** to treat COVID-19 in the community. **Do not offer** an antibiotic for preventing secondary bacterial pneumonia in people with COVID-19. If a person in the community has suspected or confirmed secondary bacterial pneumonia, start antibiotic treatment as soon as possible, see community-acquired pneumonia for choices. In hospital, start empirical antibiotics if there is clinical suspicion of a secondary bacterial infection in people with COVID-19, see hospital-acquired pneumonia for choices. Start antibiotics as soon as possible after establishing a diagnosis of secondary bacterial pneumonia, and certainly within 4 hours. Start treatment within 1 hour if the person has suspected sepsis and meets any of the high-risk criteria for this outlined in the NICE guideline on sepsis. For detailed information, see the NICE guideline on managing COVID-19.					
Acute exacerbation of COPD NICE Public Health England Last updated: Dec 2018	Many exacerbations are not caused by bacterial infections so will not respond to antibiotics. Consider an antibiotic, but only after considering severity of symptoms (particularly sputum colour changes and increases in volume or thickness), need for hospitalisation, previous exacerbations, hospitalisations and risk of complications, previous sputum culture and susceptibility results, and risk of resistance with repeated courses. Some people at risk of exacerbations may have antibiotics to keep at home as part of their exacerbation action plan. *For detailed information click on the visual summary. See also the NICE guideline on COPD in over 16s.*	**First choice:** **amoxicillin OR**	500mg TDS (see BNF for severe infection)	-	5 days	
		doxycycline OR	200mg on day 1, then 100mg OD (see BNF for severe infection)	-		
		clarithromycin	500mg BD	-		
		Second choice: use alternative first choice				
		Alternative choice (if person at higher risk of treatment failure): **co-amoxiclav OR**	500/125mg TDS	-	5 days	
		co-trimoxazole OR	960mg BD	-		

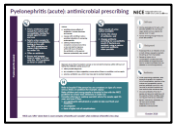
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute exacerbation of COPD cont…		**levofloxacin** (with specialist advice if **co-amoxiclav** or **co-trimoxazole** cannot be used; consider safety issues)	500mg OD	-		
		IV antibiotics *(specialist only)*				
Acute exacerbation of bronchiectasis (non-cystic fibrosis) NICE Public Health England Last updated: Dec 2018	Send a sputum sample for culture and susceptibility testing. 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've had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications. 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 antibiotic prophylaxis to prevent exacerbations. Seek specialist advice for preventing exacerbations in people with repeated acute exacerbations. This may include a trial of antibiotic prophylaxis after a discussion of the possible benefits and harms, and the need for regular review. *For detailed information click on the visual summary.*	**First choice empirical treatment:** **amoxicillin** (preferred if pregnant) **OR**	500mg TDS		7 to 14 days	
		doxycycline (not in under 12s) **OR**	200mg on day 1, then 100mg OD			
		clarithromycin	500mg BD			
		Alternative choice (if person at higher risk of treatment failure) empirical treatment: **co-amoxiclav OR**	500/125mg TDS		7 to 14 days	
		levofloxacin (adults only: with specialist advice if **co-amoxiclav** cannot be used; consider safety issues) **OR**	500mg OD or BD			
		ciprofloxacin (children only: with specialist advice if **co-amoxiclav** cannot be used; consider safety issues)	-			
		IV antibiotics *(specialist only)*				
		When current susceptibility data available: choose antibiotics accordingly				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute Cough NICE **Last updated: Feb 2019**	Some people may wish to try honey (in over 1s), the herbal medicine pelargonium (in over 12s), cough medicines containing the expectorant guaifenesin (in over 12s) or cough medicines containing cough suppressants, except codeine, (in over 12s). These self-care treatments have limited evidence for the relief of cough symptoms and should be advised to be purchase OTC. **Acute cough with upper respiratory tract infection**: no antibiotic. **Acute bronchitis**: no routine antibiotic. **Acute cough and higher risk of complications (at face-to-face examination/remote examination)**: immediate or back-up antibiotic. **Acute cough and systemically very unwell (at face to face examination/remote examination)**: immediate antibiotic. Higher risk of complications includes people with pre-existing comorbidity; young children born prematurely; people over 65 with 2 or more of, or over 80 with 1 or more of: hospitalisation in previous year, type 1 or 2 diabetes, history of congestive heart failure, current use of oral corticosteroids. Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated. *For detailed information click on the visual summary. See also the NICE guideline on pneumonia for prescribing antibiotics in adults with acute bronchitis who have had a C-reactive protein (CRP) test (CRP<20mg/l: no routine antibiotic, CRP 20 to 100mg/l: back-up antibiotic, CRP>100mg/l: immediate antibiotic).*	**Adults first choice (if indicated):** **doxycycline**	200mg on day 1, then 100mg OD	-	5 days	
		Adults alternative first choices: **amoxicillin** (preferred if pregnant) **OR**	500mg TDS	-		
		clarithromycin OR	250mg to 500mg BD	-		
		erythromycin (preferred if pregnant)	250mg to 500mg QDS or 500mg to 1000mg BD	-		
		Children first choice (if indicated): **amoxicillin**	-		5 days	
		Children alternative first choices: **clarithromycin OR**	-			
		erythromycin OR	-			
		doxycycline (not in under 12s)	-			

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Community-acquired pneumonia NICE Public Health England Last updated: Sept 2019	Assess severity in adults based on clinical judgement guided by mortality risk score (CRB65 or CURB65). See the NICE guideline on pneumonia for full details: **low severity** – CRB65 0 or CURB65 0 or 1 **moderate severity** – CRB65 1 or 2 or CURB65 2 **high severity** – CRB65 3 or 4 or CURB65 3 to 5. Each CRB65 parameter scores one: • Confusion (AMT<8, or new disorientation in person, place or time) • Respiratory rate >30/min; • BP systolic <90 or diastolic ≤ 60; • Age > 65 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 any high-risk criteria – see the NICE guideline on sepsis). When choosing an antibiotic, take account of severity, risk of complications, local antimicrobial resistance and surveillance data, recent antibiotic use and microbiological results. * Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable. *For detailed information click on the visual summary. See also the NICE guideline on pneumonia.*	**First choice (low severity in adults or non-severe in children): amoxicillin**	500mg TDS (higher doses can be used, see BNF)		5 days*	
		Alternative first choice (low severity in adults or non-severe in children): doxycycline (not in under 12s) **OR**	200mg on day 1, then 100mg OD			
		clarithromycin OR	500mg BD			
		erythromycin (in pregnancy)	500mg QDS			
		First choice (moderate severity in adults): amoxicillin AND (if atypical pathogens suspected)	500mg TDS (higher doses can be used, see BNF)	-	5 days*	
		clarithromycin OR	500mg BD	-		
		erythromycin (in pregnancy)	500mg QDS	-		
		Alternative first choice (moderate severity in adults): doxycycline OR	200mg on day 1, then 100mg OD	-		
		clarithromycin	500mg BD	-		
		First choice (high severity in adults or severe in children): co-amoxiclav AND (if atypical pathogens suspected)	500/125mg TDS		5 days*	
		clarithromycin OR	500mg BD			
		erythromycin (in pregnancy)	500mg QDS			
		Alternative first choice (high severity in adults): levofloxacin (consider safety issues)	500mg BD	-		
		IV antibiotics *(specialist only)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Urinary tract infections						
Lower urinary tract infection NICE Public Health England	Advise to purchase OTC paracetamol or ibuprofen for pain and to drink sufficient fluids to avoid dehydration. **Non-pregnant women**: back up antibiotic (to use if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic. **Pregnant women, men, children or young people**: Start antibiotics empirically immediately and send midstream urine for culture and sensitivity. 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. *For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care.* *Only if non-pregnant woman has failed any first-choice treatment options for in the last 1 month or risk factor for increased resistance Risk factors for increased resistance – • care home resident • recurrent UTI (2 in 6 months; 3 in 12 months) • hospitalisation for >7 days in the last 6 months • recent travel to country with increased resistance • previous resistant isolates, unresolving urinary symptoms	**Non-pregnant women first choice**: **nitrofurantoin** (if eGFR ≥45 ml/minute) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		trimethoprim (only if culture results available and susceptible)	200mg BD	-		
		Non-pregnant women second choice: **nitrofurantoin** (if eGFR ≥45 ml/minute and not used as first choice) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		*__pivmecillinam__ (a penicillin) **OR**	400mg initial dose, then 200mg TDS	-	3 days	
		*__fosfomycin__	3g single dose sachet	-	single dose	
		Pregnant women first choice: **nitrofurantoin** (avoid at term) – if eGFR ≥45 ml/minute	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		Pregnant women second choice: **amoxicillin** (only if culture results available and susceptible) **OR**	500mg TDS	-	7 days	
		cefalexin	500mg BD	-		
		Treatment of asymptomatic bacteriuria in pregnant women: choose from **nitrofurantoin** (avoid at term), **amoxicillin** or **cefalexin** based on recent culture and susceptibility results				
		Men first choice: **nitrofurantoin** (if eGFR ≥45 ml/minute) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		trimethoprim (only if culture results available and susceptible)	200mg BD	-		
		Men second choice: basing antibiotic choice on recent culture and susceptibility results. Consider alternative diagnoses				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Lower urinary tract infection cont. Last updated: Oct 2018		**Children and young people (3 months and over) first choice**: **trimethoprim** (only if culture results available and susceptible) **OR**	-			
		nitrofurantoin (if eGFR ≥45 ml/minute)	-			
		Children and young people (3 months and over) second choice: **nitrofurantoin** (if eGFR ≥45 ml/minute and not used as first choice) **OR**	-		-	
		amoxicillin (only if culture results available and susceptible) **OR**	-			
		cefalexin	-			
Recurrent urinary tract infection NICE Public Health England Last updated: Oct 2018	First advise about behavioural and personal hygiene measures, and self-care (Advise to Purchase D-mannose or cranberry products OTC) to reduce the risk of UTI. For postmenopausal women, if no improvement, consider vaginal oestrogen **(review within 12 months).** For non-pregnant women, if no improvement, consider single-dose antibiotic prophylaxis for exposure to a 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,	**First choice antibiotic prophylaxis**: **nitrofurantoin** (avoid at term) - if eGFR ≥45 ml/minute **OR**	100mg single dose when exposed to a trigger or 50 to 100mg at night		-	
		trimethoprim (avoid in pregnancy)	200mg single dose when exposed to a trigger or 100mg at night		-	
		Second choice antibiotic prophylaxis: **amoxicillin OR**	500mg single dose when exposed to a trigger or 250mg at night		-	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
	consider a trial of daily antibiotic prophylaxis **(review within 6 months).** For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care.	**cefalexin**	500mg single dose when exposed to a trigger or 125mg at night		-	
Acute pyelonephritis (upper urinary tract) NICE Public Health England Last updated: Oct 2018	Advise to purchase OTC paracetamol (+/- low-dose weak opioid) for pain for people over 12. Send midstream urine sample for culture and susceptibility testing Offer an antibiotic. 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. People at higher risk of complications include those with abnormalities of the genitourinary tract or underlying disease (such as diabetes or immunosuppression). *For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the Public Health England urinary tract infection: diagnostic tools for primary care.*	**Non-pregnant women and men first choice**: **cefalexin OR**	1g TDS	-	7 to 10 days	
		co-amoxiclav (only if culture results available and susceptible) **OR**	500/125mg TDS	-	7 to 10 days	
		trimethoprim (only if culture results available and susceptible) **OR**	200mg BD	-	14 days	
		ciprofloxacin (consider safety issues)	500mg BD	-	7 days	
		Non-pregnant women and men IV antibiotics *(click on visual summary)*				
		Pregnant women first choice: **cefalexin**	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7 to 10 days	
		Pregnant women second choice or IV antibiotics *(click on visual summary)*				
		Children and young people (3 months and over) first choice: **cefalexin OR**	-		-	
		co-amoxiclav (only if culture results available and susceptible)	-			
		Children and young people (3 months and over) IV antibiotics *(specialist only)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Catheter-associated urinary tract infection NICE Public Health England	Antibiotic treatment is not routinely needed for asymptomatic bacteriuria in people with a urinary catheter. 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 if it is indicated. Advise to purchase OTC paracetamol for pain. Advise drinking enough fluids to avoid dehydration. Offer an antibiotic for a symptomatic infection. 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 a short-term or long-term catheter. *For detailed information click on the visual summary. See also the Public Health England urinary tract infection: diagnostic tools for primary care.*	**Non-pregnant women and men first choice if no upper UTI symptoms:** **nitrofurantoin** (if eGFR ≥45 ml/minute) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		trimethoprim (if low risk of resistance) **OR**	200mg BD	-		
		amoxicillin (only if culture results available and susceptible)	500mg TDS	-		
		Non-pregnant women and men second choice if no upper UTI symptoms: **pivmecillinam** (a penicillin)	400mg initial dose, then 200mg TDS	-	7 days	
		Non-pregnant women and men first choice if upper UTI symptoms: **cefalexin OR**	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7 to 10 days	
		co-amoxiclav (only if culture results available and susceptible) **OR**	500/125mg TDS	-		
		trimethoprim (only if culture results available and susceptible) **OR**	200mg BD	-	14 days	
		ciprofloxacin (consider safety issues)	500mg BD	-	7 days	
		Non-pregnant women and men IV antibiotics *(specialist only) (click on visual summary)*				
		Pregnant women first choice: **cefalexin**	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7 to 10 days	
		Pregnant women second choice or IV antibiotics *(specialist only) (click on visual summary)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Catheter-associated urinary tract infection cont. Last updated: Nov 2018		**Children and young people (3 months and over) first choice:** **trimethoprim** (only if culture results available and susceptible) **OR**	-		-	
		amoxicillin (only if culture results available and susceptible) **OR**	-			
		cefalexin OR	-			
		co-amoxiclav (only if culture results available and susceptible)	-			
		Children and young people (3 months and over) IV antibiotics *(specialist only)*				
Acute prostatitis NICE Public Health England Last updated: Oct 2018	Advise to purchase OTC paracetamol (+/- low-dose weak opioid) for pain, or ibuprofen if preferred and suitable. Offer antibiotic. 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). Quinolones achieve higher prostate levels. Admit to hospital if man has any of the following: severely ill or in acute urinary retention. Consider urgent referral if man is immunocompromised or has diabetes or had a pre-existing urological condition. *For detailed information click on the visual summary.*	**First choice** (guided by susceptibilities when available): **ciprofloxacin** (consider safety issues) **OR**	500mg BD	-	14 days then review	
		ofloxacin (consider safety issues) **OR**	200mg BD	-		
		trimethoprim (if fluoroquinolone not appropriate; seek specialist advice)	200mg BD	-		
		Second choice (after discussion with specialist): **levofloxacin** (consider safety issues) **OR**	500mg OD	-	14 days, then review	
		co-trimoxazole	960mg BD	-		
		IV antibiotics *(specialist only)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Meningitis						
Suspected meningococcal disease Public Health England Last updated: Feb 2019	**Transfer all patients to hospital immediately**.[1D] If time before hospital admission,[2D,3A+] if suspected meningococcal septicaemia or non-blanching rash,[2D,4D] give **IV or IM benzylpenicillin** [1D,2D,4D] as soon as possible.[2D] Consider **IV or IM cefotaxime** in patients who cannot be given **benzylpenicillin** Do not give IV antibiotics if there is a definite history of anaphylaxis;[1D] rash is not a contraindication.[1D]	**IV or IM benzylpenicillin** [1D,2D]	Child <1 year: 300mg[5D] Child 1 to 9 years: 600mg[5D] Adult/child 10+ years: 1.2g[5D]		Stat dose;[1D] give IM, if vein cannot be accessed [1D]	*Not available. Access the supporting evidence and rationales on the PHE website*
		For patients who cannot be given **benzylpenicillin:** **IV or IM cefotaxime**	Child 1 month to 11 years: 50mg/kg Child 12 to 17 years: 1g Adult: 1g		Stat dose; give IM, if vein cannot be accessed	
Prevention of secondary case of meningitis: Only prescribe antibiotics following advice from the London Health Protection Team **North East and North Central London Health Protection Team (NENCLHPT) contact numbers:** • Daytime Tel: **020 3837 7084 (option 2)** • **For Out of Hours Advice**: Tel: **0151 909 1215** (between 5pm and 9am and during weekends and Bank Holidays) • Email: necl.team@phe.gov.uk ; phe.nenclhpt@nhs.net						
▼ Gastrointestinal tract infections						
Oral candidiasis Public Health England Last updated: Oct 2018	**Topical azoles** are more effective than topical nystatin.[1A+] Oral candidiasis is rare in immunocompetent adults;[2D] consider undiagnosed risk factors, including HIV.[2D] Use 50mg fluconazole if extensive/severe candidiasis;[3D,4D] if HIV or immunocompromised, use 100mg fluconazole.[3D,4D]	**miconazole** oral gel[1A+,4D,5A-]	2.5ml of 24mg/ml QDS (hold in mouth after food) [4D]	BNF for children	7 days; continue for 7 days after resolved[4D,6D]	*Not available. Access supporting evidence and rationales on the PHE website*
		If not tolerated: **nystatin** suspension[2D,6D,7A-]	1ml; 100,000units/ml QDS (half in each side) [2D,4D,7A-]	BNF for children	7 days; continue for 2 days after resolved[4D]	
		fluconazole capsules[6D,7A-]	50mg/100mg OD[3D,6D,8A-]	BNF for children	7 to 14 days[6D,7A-,8A-]	
Infectious diarrhoea Public Health England Last updated: Oct 2018	Refer previously healthy children with acute painful or bloody diarrhoea, to exclude *E. coli* O157 infection.[1D] **Antibiotic therapy is not usually indicated unless patient is systemically unwell**.[2D] If systemically unwell and campylobacter suspected (such as undercooked meat and abdominal pain),[3D] consider **clarithromycin** 250mg to 500mg BD for 5 to 7 days, if treated early (within 3 days).[3D,4A+] If giardia is confirmed or suspected – **tinidazole** 2g single dose is the treatment of choice.[5A+] Seek specialist advice for treatment in pregnancy *Access the supporting evidence and rationales on the PHE website.*					

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Helicobacter pylori Public Health England See PHE quick reference guide for diagnostic advice: PHE *H. pylori* Last updated: Feb 2019	Always test for *H.pylori* before giving antibiotics. Treat all positives. If negative, only retest for *H.pylori* if DU, GU, family history of cancer, MALToma, or if test was performed within two weeks of PPI, or four weeks of antibiotics.[21B+,27C] Leave a 2-week washout period after proton pump inhibitor (PPI) use before testing for H. pylori with a carbon-13 urea breath test (UBT) or a stool antigen test (STA), or laboratory-based serology where its performance has been locally validated Do not test for *H pylori* in proven GORD Do not offer eradication for GORD.[3D] Do not use **clarithromycin**, **metronidazole** or **quinolone** if used in the past year for any infection.[5A+,6B+,7A+] Note that bismuth subsalicylate are unlicensed **Retest for *H. pylori*:** post DU/GU, or relapse after second-line therapy,[1A+] using UBT or SAT,[10A+,11A+] consider referral for endoscopy and culture.[2D] **PPI** – Use either Omeprazole 20mg BD **OR** Lansoprazole 30mg BD	**Always use PPI**[2D,3D,5A+,12A+] **First line and first relapse and no penicillin allergy** PPI **PLUS** 2 antibiotics	-	BNF for children	7 days[2D] MALToma 14 days[7A+,16A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		amoxicillin[2D,6B+] **PLUS**	1000mg BD[14A+]	BNF for children		
		clarithromycin[2D,6B+] **OR**	500mg BD[8A-]	BNF for children		
		metronidazole[2D,6B+]	400mg BD[2D]	BNF for children		
		Penicillin allergy and previous clarithromycin: PPI **WITH** bismuth subsalicylate PLUS 2 antibiotics	-	-		
		bismuth subsalicylate[13A+] **PLUS**	525mg QDS[15D]			
		metronidazole[2D] **PLUS**	400mg BD[2D]	BNF for children		
		tetracycline[2D]	500mg QDS[15D]			
		Relapse **and previous metronidazole and clarithromycin**: PPI **PLUS** 2 antibiotics	-	-		
		amoxicillin[2D,7A+] **PLUS**	1000mg BD[14A+]	BNF for children		
		tetracycline[2D,7A+] **OR**	500mg QDS[15D]			
		levofloxacin (if tetracycline cannot be used)[2D,7A+]	250mg BD[7A+]			
		Third line *(specialist only)* PPI **WITH**	-	-	10 days	
		bismuth subsalicylate **PLUS**	525mg QDS[15D]	-		
		2 antibiotics as above not previously used **OR**	-	-		
		rifabutin[14A+] **OR**	150mg BD	-		
		furazolidone[17A+]	200mg BD	-		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Clostridioides difficile infection NICE Public Health England Last updated: Jul 2021	For suspected or confirmed *C. difficile* infection, see Public Health England's guidance on diagnosis and reporting. **Assess**: whether it is a first or further episode, severity of infection, individual risk factors for complications or recurrence (such as age, frailty or comorbidities). **Existing antibiotics**: review and stop unless essential. If still essential, consider changing to one with a lower risk of *C. difficile* infection. Review the need to continue: proton pump inhibitors, other medicines with gastrointestinal activity or adverse effects (such as laxatives), medicines that may cause problems if people are dehydrated (such as NSAIDs). Do not offer antimotility medicines such as loperamide. Offer an oral antibiotic to treat suspected or confirmed *C. difficile* infection. For adults, consider seeking prompt specialist advice from a microbiologist or infectious diseases specialist before starting treatment. For children and young people, treatment should be started by, or after advice from, a microbiologist, paediatric infectious diseases specialist or paediatric gastroenterologist. **If antibiotics have been started for suspected *C. difficile* infection, and subsequent stool sample tests do not confirm infection, consider stopping these antibiotics.** *For detailed information click on the visual summary*	**First-line for first episode of mild, moderate or severe:** **vancomycin**	125mg QDS	BNF for children	10 days	
		Second-line for first episode of mild, moderate or severe if vancomycin ineffective: **fidaxomicin**	200mg BD	BNF for children		
		For further episode within 12 weeks of symptom resolution (relapse): **fidaxomicin**	200mg BD	BNF for children		
		For further episode more than 12 weeks after symptom resolution (recurrence): **vancomycin OR**	125mg QDS	BNF for children		
		fidaxomicin	200mg BD	BNF for children		
		For alternative antibiotics if first- and second-line antibiotics are ineffective or for life-threatening infection seek specialist advice (see visual summary)				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute diverticulitis NICE **Last updated: Nov 2019**	**Acute diverticulitis and systemically well:** Consider no antibiotics, advice to purchase OTC simple analgesia (for example paracetamol), advise to re-present if symptoms persist or worsen. **Acute diverticulitis and systemically unwell, immunosuppressed or significant comorbidity:** offer an antibiotic. Give oral antibiotics if person not referred to hospital for suspected complicated acute diverticulitis. Give IV antibiotics if admitted to hospital with suspected or confirmed complicated acute diverticulitis (including diverticular abscess). If CT-confirmed uncomplicated acute diverticulitis, review the need for antibiotics. * A longer course may be needed based on clinical assessment.	**First-choice (uncomplicated acute diverticulitis):** co-amoxiclav	500/125mg TDS	-	5 days*	
		Penicillin allergy or co-amoxiclav unsuitable: cefalexin (caution in penicillin allergy) **AND** metronidazole **OR**	cefalexin: 500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections) metronidazole: 400mg TDS	-		
		trimethoprim **AND** metronidazole **OR**	trimethoprim: 200mg BD metronidazole: 400mg TDS	-		
		ciprofloxacin (only if switching from IV ciprofloxacin with specialist advice; consider safety issues) **AND** metronidazole	ciprofloxacin: 500mg BD metronidazole: 400mg TDS			
		For IV antibiotics in complicated acute diverticulitis (including diverticular abscess) *(specialist only)*				
Traveller's diarrhoea Public Health England Last updated: Oct 2018	Prophylaxis rarely, if ever, indicated.[1D] Consider **standby** antimicrobial only for patients at high risk of severe illness,[2D] or visiting high-risk areas.[1D,2D]	**Standby**: azithromycin	500mg OD[1D,3A+]	-	1 to 3 days[1D,2D,3A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		Prophylaxis/treatment: bismuth subsalicylate	2 tablets QDS[1D,2D]	-	2 days[1D,2D,4A-]	
Threadworm Public Health England Last updated: Nov 2017	**Treat all household contacts at the same time**.[1D] Mebendazole should be advised OTC for all patients >2yrs **Advise hygiene measures for 2 weeks**[1D] (hand hygiene;[2D] pants at night; morning shower, including perianal area).[1D,2D] Wash sleepwear, bed linen, and dust and vacuum.[1D] **Child <6 months**, add perianal wet wiping or washes 3 hourly.[1D]	**Child >6 months**: mebendazole[1D,3B-] (OTC for >2yrs)	100mg stat[3B-]	BNF for children	1 dose;[3B-] repeat in 2 weeks if persistent[3B-]	*Not available. Access supporting evidence and rationales on the PHE website*
		Child <6 months or pregnant (at least in first trimester): only hygiene measure for 6 weeks[1D]	-	-	-	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Genital tract infections						
Chlamydia trachomatis/ urethritis Public Health England Last updated: July 2019	Opportunistically screen all sexually active patients aged 15 to 24 years for chlamydia annually and on change of sexual partner.[1B-] If positive, treat index case, refer to GUM and initiate partner notification, testing and treatment.[2D,3A+] As single dose **azithromycin** has led to increased resistance in GU infections, **doxycycline** should be used first line for chlamydia and urethritis.[4A+] Advise patient with chlamydia to abstain from sexual intercourse until **doxycycline** is completed or for 7 days after treatment with **azithromycin** (14 days after **azithromycin** started and until symptoms resolved if urethritis).[3A+,4A+] If chlamydia, test for reinfection at 3 to 6 months following treatment if under 25 years; or consider if over 25 years and high risk of re-infection.[1B-,3B+, 5B-] **Second line, pregnant, breastfeeding, allergy, or intolerance**: **azithromycin** is most effective.[6A+,7D,8A+,9A+,10D] As lower cure rate in pregnancy, test for cure at least 3 weeks after end of treatment.[3A+] Consider referring all patients with symptomatic urethritis to GUM as testing should include *Mycoplasma genitalium* and *Gonorrhoea*.[11A-] If *M.genitalium* is proven, use doxycycline followed by **azithromycin** using the same dosing regimen and advise to avoid sex for 14 days after start of treatment and until symptoms have resolved.[11A-,12A+]	**First line**: **doxycycline**[4A+,11A-,12A+]	100mg BD[4A+,11A-,12A+]	-	7 days[4A+,11A-,12A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		Second line/ pregnant/breastfeeding/ allergy/intolerance: **azithromycin**[4A+,11A-,12A+]	1000mg[4A+,11A-,12A+] then 500mg OD[4A+,11A-,12A+]		Stat[4A+,11A-,12A+] 2 days[4A+,11A-,12A+] (total 3 days)	
Bacterial vaginosis Public Health England Last updated: Nov 2017	Oral **metronidazole** is as effective as topical treatment,[1A+] and is cheaper.[2D] 7 days results in fewer relapses than 2g stat at 4 weeks.[1A+,2D] **Pregnant/breastfeeding**: avoid 2g dose.[3A+,4D] Treating partners does not reduce relapse.[5A+]	oral **metronidazole**[1A+,3A+] **OR**	400mg BD[1A+,3A+] **OR** 2000mg[1A+,2D]	-	5 - 7 days (NICE CKS 2018) **OR** Stat[2D]	*Not available. Access supporting evidence and rationales on the PHE website*
		metronidazole 0.75% vaginal gel[1A+,2D,3A+] **OR**	5g applicator at night[1A+,2D,3A+]		5 nights[1A+,2D,3A+]	
		clindamycin 2% cream[1A+,2D]	5g applicator at night[1A+,2D]		7 nights[1A+,2D,3A+]	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Epididymitis Public Health England Last updated: Nov 2017	Usually due to Gram-negative enteric bacteria in men over 35 years with low risk of STI.[1A+,2D] If under 35 years or STI risk, refer to GUM.[1A+,2D]	**doxycycline**[1A+,2D] **OR**	100mg BD[1A+,2D]	-	10 to 14 days[1A+,2D]	*Not available. Access supporting evidence and rationales on the PHE website*
		ofloxacin (consider safety issues) [1A+,2D] **OR**	200mg BD[1A+,2D]		14 days[1A+,2D]	
		ciprofloxacin (consider safety issues) [1A+,2D]	500mg BD[1A+,2D,3A+]		10 days[1A+,2D,3A+]	
Genital herpes Public Health England Last updated: Nov 2017	**Advise**: saline bathing,[1A+] analgesia,[1A+] or OTC topical lidocaine for pain,[1A+] and discuss transmission.[1A+] **First episode**: treat within 5 days if new lesions or systemic symptoms,[1A+,2D] and refer to GUM.[2D] **Recurrent**: self-care if mild,[2D] or immediate short course antiviral treatment,[1A+,2D] or suppressive therapy if more than 6 episodes per year.[1A+,2D]	oral **aciclovir**[1A+,2D,3A+,4A+] **OR**	400mg TDS[1A+,3A+]	-	5 days[1A+]	*Not available. Access supporting evidence and rationales on the PHE website*
			200mg five times a day		5 day (NICE CKS 2017)	
			800mg TDS (if recurrent)[1A+]		2 days[1A+]	
		valaciclovir *(specialist only)* [1A+,3A+,4A+] **OR**	500mg BD[1A+]		5 days[1A+]	
		famciclovir *(specialist only)* [1A+,4A+]	250mg TDS[1A+]		5 days[1A+]	
			1000mg BD (if recurrent)[1A+]		1 day[1A+]	
Gonorrhoea Public Health England Last updated: Feb 2019	Antibiotic resistance is now very high.[1D,2D] Refer to GUM.[3B-] Test of cure is essential.[2D] Use IM **ceftriaxone** if susceptibility not known prior to treatment[2D]. Use **ciprofloxacin** **only** If susceptibility is known prior to treatment and the isolate is sensitive to ciprofloxacin at all sites of infection[1D,2D]	**ceftriaxone**[2D] **OR**	1000mg IM[2D]	-	Stat[2D]	*Not available. Access supporting evidence and rationales on the PHE website*
		ciprofloxacin[2D] (only if known to be sensitive)	500mg[2D]		Stat[2D]	
Trichomoniasis Public Health England Last updated: Nov 2017	Oral treatment needed as extravaginal infection common.[1D] Treat partners,[1D] and refer to GUM for other STIs.[1D] **Pregnant/breastfeeding**: avoid 2g single dose **metronidazole;**[2A+,3D] **clotrimazole** for symptom relief (not cure) if metronidazole declined.[2A+,4A-,5D]	**metronidazole**[1A+,2A+,3D,6A+]	400mg BD[1A+,6A+]	-	5 to 7 day[1A+]	*Not available. Access supporting evidence and rationales on the PHE website*
			2g (more adverse effects)[6A+]		Stat[1A+,6A+]	
		Pregnancy to treat symptoms: **clotrimazole**[2A+,4A-,5D]	100mg pessary at night[5D]		6 nights[5D]	
STI screening Public Health England Last updated: Nov 2017	People with risk factors should be screened for chlamydia, gonorrhoea, HIV and syphilis.[1D] Refer individual and partners to GUM.[1D] **Risk factors**: <25 years; no condom use; recent/frequent change of partner; symptomatic or infected partner; area of high HIV.[2B-] *Access the supporting evidence and rationales on the PHE website.* **(Extra care would be required in men)**					

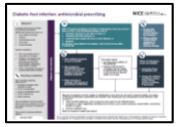
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Pelvic inflammatory disease Public Health England Last updated: Feb 2019	**Refer women and sexual contacts to GUM**.[1A+] **Raised CRP** supports diagnosis, absent pus cells in HVS smear good negative predictive value.[1A+] **Exclude**: 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* .[1A+] *If M. genitalium* tests positive use **moxifloxacin**.[1A+] BASHH guideline for the Management of Pelvic Inflammatory Disease (2019 Interim Update)	**First line therapy**: **ceftriaxone**[1A+,3C,4C] **PLUS**	1000mg IM[1A+,3C]	-	Stat[1A+,3C]	*Not available. Access supporting evidence and rationales on the PHE website*
		metronidazole[1A+,5A+] **PLUS**	400mg BD[1A+]		14 days[1A+]	
		doxycycline[1A+,5A+]	100mg BD[1A+]		14 days[1A+]	
		Second line therapy: **metronidazole**[1A+,5A+] **PLUS**	400mg BD[1A+]		14 days[1A+]	
		ofloxacin[1A+,2A-,5A+] **OR**	400mg BD[1A+,2A-]		14 days[1A+]	
		moxifloxacin alone[1A+] (first line for *M. genitalium associated PID*)	400mg OD[1A+]		14 days[1A+]	
Vaginal candidiasis Public Health England Last updated: Oct 2018	All topical and oral azoles give over 80% cure.[1A+,2A+] **Pregnant**: avoid oral azoles, the 7-day courses are more effective than shorter ones.[1A+,3D,4A+] **Recurrent (>4 episodes per year):**[1A+] 150mg oral fluconazole every 72 hours for 3 doses induction,[1A+] followed by 1 dose once a week for 6 months maintenance.[1A+]	**clotrimazole**[1A+,5D] **OR**	500mg pessary[1A+]	-	Stat[1A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		clotrimazole OR	200mg pessary		3 nights	
		clotrimazole[1A+] **OR**	100mg pessary[1A+]		6 nights[1A+]	
		oral fluconazole[1A+,3D]	150mg[1A+,3D]		Stat[1A+]	
		If recurrent: **fluconazole** (induction/maintenance)[1A+]	150mg every 72 hours **THEN** 150mg once a week[1A+,3D]	-	3 doses 6 months[1A+]	

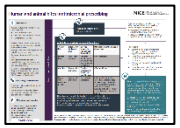
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Skin and soft tissue infections						
Note: Refer to RCGP Skin Infections online training.[1D] For MRSA, discuss therapy with microbiologist.[1D]						
Impetigo NICE Last updated: Feb 2020	**Localised non-bullous impetigo:** Hydrogen peroxide 1% cream (other topical antiseptics are available but no evidence for impetigo). If hydrogen peroxide unsuitable or ineffective, short-course topical antibiotic. **Widespread non-bullous impetigo:** Short-course topical or oral antibiotic. Take account of person's preferences, practicalities of administration, previous use of topical antibiotics because antimicrobial resistance can develop rapidly with extended or repeated use, and local antimicrobial resistance data. **Bullous impetigo, systemically unwell, or high risk of complications:** Short-course oral antibiotic. Do not offer combination treatment with a topical and oral antibiotic to treat impetigo. *5 days is appropriate for most, can be increased to 7 days based on clinical judgement.Referral to a consultant in Communicable Disease Control is required if there is a significant local outbreak (for example, in a nursing home or school). *For detailed information click on the visual summary.*	**Topical antiseptic:** hydrogen peroxide	1% BD - TDS		5 days*	
		First choice topical antibiotic if hydrogen peroxide unsuitable **fusidic Acid**	2% ointment TDS			
		Fusidic acid resistance suspected or confirmed: mupirocin 2%	TDS			
		First line oral antibiotic oral **flucloxacillin**	500mg QDS			
		Penicillin allergy or flucloxacillin unsuitable: clarithromycin OR	250mg BD			
		erythromycin (in pregnancy)	250mg to 500mg QDS			
		If MRSA suspected or confirmed – consult local microbiologist				
Acne vulgaris NICE **Last updated:** Jun 2021	**First-line treatment options:** offer a course of 1 of the options, taking account of severity, preferences, and advantages/disadvantages of each option. Completing the course is important because positive effects can take 6 to 8 weeks. Consider topical OTC benzoyl peroxide monotherapy as an alternative if first-line treatment options are contraindicated, or to avoid topical retinoids or an antibiotic (topical or oral).	First line: fixed combination of topical adapalene with topical **benzoyl peroxide** (for any acne severity, not in under 9s) OR	0.1% **adapalene**/ 2.5% **benzoyl peroxide** OR 0.3% **adapalene**/2.5% **benzoyl peroxide** OD (thinly in the evening)	BNF for children	12 weeks	*Not available. See the NICE guideline on acne vulgaris*
		fixed combination of topical **tretinoin** with topical **clindamycin** (for any facial acne severity, not in under 12s) OR	**0.025% tretinoin/ 1% clindamycin** OD (thinly at bedtime)	BNF for children		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acne vulgaris cont… NICE **Last updated:** Jun 2021	**Do not use:** monotherapy with a topical antibiotic, monotherapy with an oral antibiotic, or a combination of a topical antibiotic and an oral antibiotic. Review first-line treatment at 12 weeks. Only continue a topical or oral antibiotic for more than 6 months in exceptional circumstances. Review at 3 monthly intervals, and stop the antibiotic as soon as possible. *For detailed information see the NICE guideline on acne vulgaris.*	fixed combination of topical **benzoyl peroxide** with **topical clindamycin** (for mild to moderate acne, not in under 12s) OR	3% **benzoyl peroxide**/1% **clindamycin** OR 5% **benzoyl peroxide/1% clindamycin** OD (in the evening)	BNF for children	12 weeks	*Not available. See the NICE guideline on acne vulgaris*
		fixed combination of topical **adapalene** with topical **benzoyl peroxide** AND either oral **lymecycline** or oral **doxycycline** (for moderate to severe acne, not in under 12s) OR	0.1% **adapalene**/ 2.5% **benzoyl peroxide** OR 0.3% **adapalene**/2.5% **benzoyl peroxide** OD (thinly in the evening)	BNF for children		
			AND **lymecycline** 408mg OD **OR** **doxycycline** 100mg OD	BNF for children		
		Topical azelaic acid **AND** either oral **lymecycline** or oral **doxycycline** (for moderate to severe acne, not in under 12s) *Apply OD for 1 week, then BD patients with sensitive skin	15% or 20% **azelaic acid** BD* **AND**	BNF for children		
			lymecycline 408mg OD **OR** **doxycycline** 100mg OD	BNF for children		
		Alternative: topical **benzoyl peroxide** OTC	5% **benzoyl peroxide** OD to BD	BNF for children		

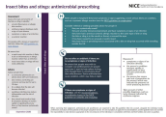
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Cold sores Public Health England Last updated: Nov 2017	**Most resolve after 5 days without treatment**.[1A-,2A-] Topical OTC antivirals applied prodromally can reduce duration by 12 to 18 hours.[1A-,2A-,3A-] **If frequent, severe, and predictable triggers**: consider oral prophylaxis:[4D,5A+] **aciclovir** 400mg, twice daily, for 5 to 7 days.[5A+,6A+] *Access supporting evidence and rationales on the PHE website*					
PVL-SA Public Health England Last updated: Nov 2017	Panton-Valentine leukocidin (PVL) is a toxin produced by 20.8 to 46% of *S. aureus* from boils/abscesses.[1B+,2B+,3B-] PVL strains are rare in healthy people, but severe.[2B+] **Suppression therapy** should only be started after primary infection has resolved, as ineffective if lesions are still leaking.[4D] **Risk factors for PVL**: recurrent skin infections;[2B+] invasive infections;[2B+] MSM;[3B-] if there is more than one case in a home or close community[2B+,3B-] (school children;[3B-] military personnel;[3B-] nursing home residents;[3B-] household contacts).[3B-] Consider taking a swab of pus from the contents of the lesion if the boil or carbuncle is: • Not responding to treatment, persistent or recurrent, to exclude atypical mycobacteria or PVL-SA. • There are multiple lesions. • The person: Is immunocompromised, is known to be colonized with MRSA, Has diabetes. • If PVL-SA is suspected, this should be mentioned specifically on the laboratory form **If positive PVL MRSA or positive *S. aureus* contact the North East and North Central London Health Protection Team (NENCLHPT) contact numbers:** • Daytime Tel: **020 3837 7084 (option 2)** • **For Out of Hours Advice**: Tel: **0151 909 1215** (between 5pm and 9am and during weekends and Bank Holidays) • Email: necl.team@phe.gov.uk ; phe.nenclhpt@nhs.net *Access the supporting evidence and rationales on the PHE website.*					
Leg ulcer NICE Last updated: Feb 2020	Manage any underlying conditions to promote ulcer healing. Only offer an antibiotic when there are symptoms or signs of infection (such as redness or swelling spreading beyond the ulcer, localised warmth, increased pain or fever). Few leg ulcers are clinically infected but most are colonised by bacteria. When prescribing antibiotics, take account of severity, risk of complications and previous antibiotic use. *For detailed information click on the visual summary.*	**First-choice:**				
		flucloxacillin	500mg to 1g QDS	-	7 days	
		Penicillin allergy or if flucloxacillin unsuitable:				
		doxycycline OR	200mg on day 1, then 100mg OD (can be increased to 200mg daily)	-	7 Days	
		clarithromycin OR	500mg BD			
		erythromycin (in pregnancy)	500mg QDS			
		Second choice:				
		co-amoxiclav OR	500/125mg TDS	-	7 Days	
		co-trimoxazole (in penicillin allergy)	960mg BD			

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
		For antibiotic choices if severely unwell or MRSA suspected or confirmed, click on the visual summary				
Cellulitis and erysipelas NICE Public Health England Last updated: Sept 2019	Exclude other causes of skin redness (inflammatory reactions or non-infectious causes). Consider marking extent of infection with a single-use surgical marker pen. Offer an antibiotic. Take account of severity, site of infection, risk of uncommon pathogens, any microbiological results and MRSA status. Infection around eyes or nose is more concerning because of serious intracranial complications. *A longer course (up to 14 days in total) may be needed but skin takes time to return to normal, and full resolution at 5 to 7 days is not expected. Do not routinely offer antibiotics to prevent recurrent cellulitis or erysipelas. *For detailed information click on the visual summary.*	**First choice:**				
		flucloxacillin	500mg to 1g QDS		5 to 7 days*	
		Penicillin allergy or if flucloxacillin unsuitable:				
		clarithromycin (inc children with penicillin allergy) **OR**	500mg BD		5 to 7 days*	
		erythromycin (in pregnancy) **OR**	500mg QDS			
		doxycycline (adults only) **OR**	200mg on day 1, then 100mg OD	-		
		co-amoxiclav (children only: not in penicillin allergy)	-			
		If infection near eyes or nose:				
		co-amoxiclav	500/125mg TDS		7 days*	
		If infection near eyes or nose (penicillin allergy):				
		clarithromycin AND	500mg BD		7 days*	
		metronidazole (only add in children if anaerobes suspected)	400mg TDS			
		For alternative choice antibiotics for severe infection, suspected or confirmed MRSA infection and IV antibiotics *(specialist only)* **click on the visual summary**				
Eczema (bacterial infection) NICE	Manage underlying eczema and flares with treatments such as emollients and topical corticosteroids, whether antibiotics are given or not. Symptoms and signs of secondary bacterial infection can include: weeping, pustules, crusts, no response to treatment, rapidly worsening eczema, fever and malaise.	**If not systemically unwell, do not routinely offer either a topical or oral antibiotic**				
		Topical antibiotic (if a topical is appropriate). For localised infections only:				
		First choice: **fusidic acid** 2%	TDS		5 to 7 days	
		Oral antibiotic (if oral is appropriate):				
		First choice: **flucloxacillin**	500mg QDS		5 to 7 days	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Public Health England Last updated: Mar 2021 **Eczema (bacterial infection) cont** NICE Public Health England Last updated: Mar 2021	Not all flares are caused by a bacterial infection, so will not respond to antibiotics. Eczema is often colonised with bacteria but may not be clinically infected. Do not routinely take a skin swab. **Not systemically unwell:** Do not routinely offer either a topical or oral antibiotic. If an antibiotic is offered, when choosing between a topical or oral antibiotic, take account of patient preferences, extent and severity of symptoms or signs, possible adverse effects, and previous use of topical antibiotics because antimicrobial resistance can develop rapidly with extended or repeated use. **Systemically unwell:** Offer an oral antibiotic. If there are symptoms or signs of cellulitis, see cellulitis and erysipelas. *For detailed information click on the visual summary.*	**Penicillin allergy or flucloxacillin unsuitable: clarithromycin OR**	250mg BD (can be increased to 500mg BD for severe infections)			
		erythromycin (in pregnancy)	250mg to 500mg QDS			
		If MRSA suspected or confirmed – consult local microbiologist				
Diabetic foot infection NICE	In diabetes, all foot wounds are likely to be colonised with bacteria. Diabetic foot infection has at least 2 of: local swelling or induration; erythema; local tenderness or pain; local warmth; purulent discharge. Severity is classified as: **Mild**: local infection with 0.5 to less than 2cm erythema	**Mild infection: first choice**				
		flucloxacillin	500mg to 1g QDS	-	7 days*	
		Mild infection (penicillin allergy):				
		clarithromycin **OR**	500mg BD	-	7 days*	
		erythromycin (in pregnancy) **OR**	500mg QDS			
		doxycycline	200mg on day 1, then 100mg OD (can be increased to 200mg daily)			

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Diabetic foot infection cont.. Last updated: Oct 2019	**Moderate**: local infection with more than 2cm erythema or involving deeper structures (such as abscess, osteomyelitis, septic arthritis or fasciitis) **Severe**: local infection with signs of a systemic inflammatory response. Start antibiotic treatment as soon as possible. Take samples for microbiological testing before, or as close as possible to, the start of treatment When choosing an antibiotic, take account of severity, risk of complications, previous microbiological results and antibiotic use, and patient preference. *A longer course (up to a further 7 days) may be needed based on clinical assessment. However, skin does take time to return to normal, and full resolution at 7 days is not expected. Do not offer antibiotics to prevent diabetic foot infection. *For detailed information click on the visual summary.*	**For antibiotic choices for moderate or severe infection, infections where *Pseudomonas aeruginosa* or MRSA is suspected or confirmed, and IV antibiotics** *(specialist only)* **click on the visual summary**				
Scabies Public Health England Last updated: Oct 2020	**First choice OTC permethrin**: Treat whole body from ear/chin downwards,[1D,2D] and under nails.[1D,2D] **If using permethrin** and patient is under 2 years, elderly or immunosuppressed, or **if treating with malathion**: also treat face and scalp.[1D,2D] **Home/sexual contacts**: treat within 24 hours.[1D]	OTC **permethrin** (>2yrs) [1D,2D,3A+]	5% cream[1D,2D]	BNF for children	2 applications, 1-week apart[1D]	*Not available. Access supporting evidence and rationales on the PHE website*
		Permethrin allergy: **malathion**[1D]	0.5% aqueous liquid[1D]	BNF for children		
Human and animal bites NICE Public Health England	Offer an antibiotic for a human or animal bite if there are symptoms or signs of infection, such as increased pain, inflammation, fever, discharge or an unpleasant smell. Take a swab for microbiological testing if there is discharge (purulent or non-purulent) from the wound. Do not offer antibiotic prophylaxis if a human or animal bite has not broken the skin.	**First choice:**				
		co-amoxiclav	250/125mg or 500/125mg TDS		3 days for prophylaxis 5 days for treatment*	
		Penicillin allergy or co-amoxiclav unsuitable:				
		doxycycline **AND**	200mg on day 1, then 100mg or 200mg daily		3 days for prophylaxis 5 days for treatment*	
		metronidazole	400mg TDS			

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
		seek specialist advice in pregnancy				
Last updated: Nov 2020	**Human bite:** Offer antibiotic prophylaxis if the human bite has broken the skin and drawn blood. Consider antibiotic prophylaxis if the human bite has broken the skin but not drawn blood if it is in a high-risk area or person at high risk. **Cat bite:** Offer antibiotic prophylaxis if the cat bite has broken the skin and drawn blood. Consider antibiotic prophylaxis if the cat bite has broken the skin but not drawn blood if the wound could be deep. **Dog or other traditional pet bite (excluding cat bite)** Do not offer antibiotic prophylaxis if the bite has broken the skin but not drawn blood. Offer antibiotic prophylaxis if the bite has broken the skin and drawn blood if it has caused considerable, deep tissue damage or is visibly contaminated (for example, with dirt or a tooth). Consider antibiotic prophylaxis if the bite has broken the skin and drawn blood if it is in a high-risk area or person at high risk. *course length can be increased to 7 days (with review) based on clinical assessment of the wound.	**IV antibiotics** *(specialist only)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Insect bites and stings NICE Last updated: Sept 2020	An insect bite or sting often causes a small, red lump on the skin, which may be painful and itchy. Secondary bacterial infection is unlikely; it is unclear which causative organisms are most common. **Do not offer an antibiotic if there are no symptoms or signs of infection.** With rapid-onset skin reactions likely to be inflammatory or allergic reactions, most bites and stings will not need antibiotics. The guideline notes people may wish to consider oral antihistamines (OTC) to help relieve itching (which may last up to 10 days), and some antihistamines cause sedation, which might help at night. For bites and stings where there is a sign of an infection, antibiotic treatment recommendations in the NICE guideline on cellulitis and erysipelas should be followed, or the guidance on Lyme disease if there is a known or suspected tick bite.					
Mastitis Public Health England Last updated: Nov 2017	*S. aureus* is the most common infecting pathogen.[1D] Suspect if woman has: a painful breast;[2D] fever and/or general malaise;[2D] a tender, red breast.[2D] **Breastfeeding**: oral antibiotics are appropriate, where indicated.[2D,3A+] Women should continue feeding,[1D,2D] including from the affected breast.[2D]	**For lactating woman:** flucloxacillin[2D]	500mg QDS[2D]	-	10 to 14 days[2D]	*Not available. Access supporting evidence and rationales on the PHE website*
		If penicillin allergy: erythromycin[2D] **OR**	250mg to 500mg QDS[2D]			
		clarithromycin[2D]	500mg BD[2D]			
		For non-lactating woman (NICE CKS): co-amoxiclav	625mg TDS			
		If penicillin allergy (NICE CKS): Metronidazole **AND**	500mg TDS			
		Erythromycin **OR**	250mg to 500mg QDS			
		clarithromycin	500mg BD			
Dermatophyte infection: skin Public Health England Last updated: Feb 2019	**Dermatophyte infection: skin** Including: Tinea corporis (ringworm) Tinea pedis (athlete's foot), Tinea cruris (jock itch) Tinea faciei (facial ringworm), Tinea capitis (scalp ringworm) **Most cases**: use terbinafine as fungicidal, treatment time shorter and more effective than with fungistatic imidazoles or undecenoates [1D,2A+] If candida possible, use imidazole.[4D] **If intractable, or scalp**: send skin scrapings,[1D] and if infection confirmed: use oral terbinafine[1D,3A+,4D] or itraconazole.[2A+,3A+,5D] **Scalp**: oral therapy,[6D] and discuss with specialist.[1D]	topical terbinafine[3A+,4D] **OR**	1% OD to BD[2A+]	BNF for children	1 to 4 weeks[3A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		topical clotrimazole [2A+,3A+]	1% OD to BD[2A+]	BNF for children	4 to 6 weeks[2A+,3A+]	
		Alternative in athlete's foot: topical undecenoates[2A+] (such as Mycota®)[2A+]	OD to BD[2A+]	BNF for children		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Dermatophyte infection: nail Public Health England Last updated: Oct 2018	**Take nail clippings**;[1D] start therapy only if infection is confirmed.[1D] Oral **terbinafine** is more effective than oral azole.[1D,2A+,3A+,4D] Liver reactions 0.1 to 1% with oral antifungals.[3A+] If candida or non-dermatophyte infection is confirmed, use oral **itraconazole**.[1D,3A+,4D] Topical nail lacquer is not as effective.[1D,5A+,6D] **To prevent recurrence**: apply weekly 1% topical antifungal cream to entire toe area.[6D] **Children**: seek specialist advice.[4D]	**First line**: **terbinafine**[1D,2A+,3A+,4D,6D]	250mg OD[1D,2A+,6D]	BNF for children	Fingers: 6 weeks[1D,6D] to 3 months (NICE CKS) Toes: 12 weeks[1D,6D] to 6 months (NICE CKS)	*Not available. Access supporting evidence and rationales on the PHE website*
		Second line: **itraconazole**[1D,3A+,4D,6D]	200mg BD[1D,4D]	BNF for children	1 week repeated after 21 days Fingers: 2 courses[1D] Toes: 3 courses[1D]	
		Stop treatment when continual, new, healthy, proximal nail growth.[6D]				
Varicella zoster/ chickenpox **Herpes zoster/ shingles** Public Health England Last updated: Oct 2018	**Pregnant/immunocompromised/ neonate/Breastfeeding**: seek urgent specialist advice.[1D] **Chickenpox**: consider **aciclovir**[2A+,3A+,4D] if: onset of rash <24 hours,[3A+] and 1 of the following: >14 years of age;[4D] severe pain;[4D] dense/oral rash;[4D,5B+] taking steroids;[4D] smoker.[4D,5B+] Advice to purchase OTC paracetamol for pain relief.[6C] **Shingles**: treat if >50 years[7A+,8D] (PHN rare if <50 years)[9B+] and within 72 hours of rash,[10A+] or if 1 of the following: active ophthalmic;[11D] Ramsey Hunt;[4D] eczema;[4D] non-truncal involvement;[8D] moderate or severe pain;[8D] moderate or severe rash.[5B+,8D] Shingles treatment if not within 72 hours: consider starting antiviral drug up to 1 week after rash onset,[12B+] if high risk of severe shingles[12B+] or continued vesicle formation;[4D] older age;[7A+,8D,12B+] immunocompromised;[4D] or severe pain.[7D,11B+]	**First line for chicken pox and shingles**: **aciclovir**[3A+,7A+,10A+,13B+,14A-,15A+]	800mg 5 times daily[16A-]	BNF for children	7 days[14A-,16A-]	*Not available. Access supporting evidence and rationales on the PHE website*
		Second line for shingles if poor compliance: *not for children:* **famciclovir**[8D,14A-, 16A-] *(specialist only)* **OR**	250mg to 500mg TDS[15A+] **OR** 750mg BD[15A+]	-		
		valaciclovir[8D,10A+,14A-] *(specialist only)*	1g TDS[14A-]	BNF for children		

<table>
<tr><th>Infection</th><th>Key points</th><th>Medicine</th><th colspan="2">Doses</th><th>Length</th><th>Visual summary</th></tr>
<tr><th></th><th></th><th></th><th>Adult</th><th>Child</th><th></th><th></th></tr>
<tr><td rowspan="2">Tick bites (Lyme disease)
Public Health England

Last updated:
Feb 2020</td><td rowspan="2">Treatment: Treat erythema migrans empirically; serology is often negative early in infection.[1D]
For other suspected Lyme disease such as neuroborreliosis (CN palsy, radiculopathy) seek advice.[1D]
See NICE NG95 for full treatment doses/information</td><td>Treatment
doxycycline[1D]</td><td>100mg BD[1D]</td><td>BNF for children</td><td rowspan="2">21 days[1D]</td><td rowspan="2">See NICE NG95</td></tr>
<tr><td>Alternative:
amoxicillin[1D]</td><td>1,000mg TDS[1D]</td><td>BNF for children</td></tr>
<tr><td colspan="6">Be aware that:
• the bacteria that cause Lyme disease are transmitted by the bite of an infected tick
• ticks are mainly found in grassy and wooded areas, including urban gardens and parks
• tick bites may not always be noticed
• infected ticks are found throughout the UK and Ireland, and although some areas appear to have a higher prevalence of infected ticks, prevalence data are incomplete
particularly high-risk areas are the South of England and Scottish Highlands but infection can occur in many areas
• Lyme disease may be more prevalent in parts of central, eastern and northern Europe (including Scandinavia) and parts of Asia, the US and Canada.
Be aware that:
• most tick bites do not transmit Lyme disease and that prompt, correct removal of the tick reduces the risk of transmission.
Give people advice about:
• where ticks are commonly found (such as grassy and wooded areas, including urban gardens and parks)
• the importance of prompt, correct tick removal and how to do this (see the Public Health England website for information on removing ticks)
• covering exposed skin and using insect repellents that protect against ticks
• how to check themselves and their children for ticks on the skin
• sources of information on Lyme disease, such as Public Health England, and organisations providing information and support, such as patient charities.</td></tr>
</table>

<table>
<tr><th>Infection</th><th>Key points</th><th>Medicine</th><th colspan="2">Doses
Adult / Child</th><th>Length</th><th>Visual summary</th></tr>
<tr><td>MRSA Decolonisation</td><td colspan="6">MRSA decolonisation is not routinely recommended for patients in the community unless clinically indicated. Conditions where MRSA eradication may be considered include:
• Preparation for an elective procedure where patient is identified as positive for MRSA colonisation
• Management of a high-risk wound as advised by the microbiology/infection team
• Management of indwelling devices as advised by the microbiology/infection team
<table>
<tr><th>Trust</th><th>Recommended Decolonisation Regimen</th><th>Comments</th></tr>
<tr><td>Bart’s Health NHS Trust</td><td>Please refer to full guidance on microguide app
http://microguide.horizonsp.co.uk/viewer/barts/adult</td><td>Click on healthcare - associated infections section then click MRSA</td></tr>
<tr><td>Barking,Havering and Redbridge University Trust</td><td>Please refer to full guidance on microguide app
https://viewer.microguide.global/bhrhospitals/adult</td><td>Click on healthcare - associated infections section</td></tr>
<tr><td>Homerton University Hospital NHSFT</td><td>Please refer to guidance on microguide app
https://viewer.microguide.global/huh/adult</td><td>See “Infection Prevention and Control” section. Note: The Microguide contains the in-patient decolonisation protocol only. Liaise with Infection Control to decide appropriateness and discuss if alternative protocol required.</td></tr>
</table>
Advice on antibiotic treatment for clinically infected wounds in MRSA colonised patients can be obtained from the hospital microbiology team.
For further information refer to each individual Trust guidelines.</td></tr>
<tr><td colspan="7"><h2>▼ Eye infections</h2></td></tr>
<tr><td>Conjunctivitis

Public Health England

Last updated: July 2019</td><td>First line: bath/clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting.[1D] Advice to avoid the use of contact lenses.
Treat only if severe,[2A+] as most cases are viral[3D] or self-limiting.[2A+]
Bacterial conjunctivitis: usually unilateral and also self-limiting.[2A+,3D] It is characterised by red eye with mucopurulent, not watery discharge.[3D] 65% and 74% resolve on placebo by days 5 and 7.[4A-,5A+] Third line: fusidic acid as it has less Gram-negative activity.[6A-,7D]</td><td>Second line:
OTC (>2yrs):
chloramphenicol [1D,2A+,4A-,5A+]
0.5% eye drop[1D,2A+]
OR
1% ointment[1D,5A+]

Third line:
fusidic acid 1% gel[2A+,5A+,6A-]</td><td>Eye drops: 2 hourly for 2 days,[1D,2A+] then reduce frequency[1D] to 3 to 4 times daily.[1D] Eye ointment: 3 to 4 times daily or once daily at night if using antibiotic eye drops during the day.[1D]

BD[1D,7D]</td><td>BNF for children

BNF for children</td><td>48 hours after resolution[2A+,7D]</td><td>Not available. Access supporting evidence and rationales on the PHE website</td></tr>
</table>

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Blepharitis Public Health England Last updated: Nov 2017	**First line**: lid hygiene[1D,2A+] for symptom control,[1D] including: warm compresses;[1D,2A+] lid massage and scrubs;[1D] gentle washing;[1D] avoiding cosmetics.[1D] **Second line**: OTC topical antibiotics if hygiene measures are ineffective after 2 weeks.[1D,3A+] **Signs of meibomian gland dysfunction**,[3D] or acne rosacea:[3D] consider oral antibiotics.[1D]	**Second line**: topical OTC (>2yrs) **chloramphenicol**[1D,2A+,3A-]	1% ointment BD[2A+,3D]	BNF for children	6-week trial[3D]	*Not available. Access supporting evidence and rationales on the PHE website*
		Third line: oral **oxytetracycline**[1D,3D] **OR**	500mg BD[3D] 250mg BD[3D]	BNF for children	4 weeks (initial)[3D] 8 weeks (maint)[3D]	
		oral **doxycycline**[1D,2A+,3D]	100mg OD[3D] 50mg OD[3D]	BNF for children	4 weeks (initial)[3D] 8 weeks (maint)[3D]	
▼ Suspected dental infections in primary						
Derived from the **Scottish Dental Clinical Effectiveness Programme (SDCEP) 2013 Guidelines**. **This guidance is not designed to be a definitive guide to oral conditions, as 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 (in England), who will be able to provided details of how to access emergency dental care.**						
Note: Antibiotics do not cure toothache.[1D] First-line treatment is with paracetamol[1D] and/or ibuprofen;[1D] codeine is not effective for toothache.[1D] Should be advised to purchase OTC						
Mucosal ulceration and inflammation (simple gingivitis) Public Health England Last updated: Nov 2017	Temporary pain and swelling relief can be attained with OTC saline mouthwash (½ tsp salt in warm water)[1D]. Use antiseptic mouthwash if more severe,[1D] and if pain limits oral hygiene to treat or prevent secondary infection.[1D,2A-] The primary cause for mucosal ulceration or inflammation (aphthous ulcers;[1D] oral lichen planus;[1D] herpes simplex infection;[1D] oral cancer)[1D] needs to be evaluated and treated.[1D]	OTC **chlorhexidine** 0.12 to 0.2%[1D, 2A-,3A+,4A+] (do not use within 30 minutes of toothpaste)[1D] **OR**	Rinse with 10 ml[1D] for 1-minute BD	BNF for children BNF for children	Always spit out after use.[1D] Use until lesions resolve[1D] or less pain allows for oral hygiene[1D]	*Not available. Access supporting evidence and rationales on the PHE website*
		OTC hydrogen peroxide 6%[5A- 1D]	Dilute 15ml in ½ glass warm water and rinse for 2 to 3 minutes BD/TDS[1D]	BNF for children		
Acute necrotising ulcerative gingivitis Public Health England Last updated: Nov 2017	Refer to dentist for scaling and hygiene advice.[1D,2D] Antiseptic mouthwash if pain limits oral hygiene.[1D] Commence **metronidazole** if systemic signs and symptoms.[1D,2D,3B-,4B+,5A-]	OTC **chlorhexidine** 0.12 to 0.2% (do not use within 30 minutes of toothpaste)[1D] **OR**	Rinse with 10 ml[1D] for 1-minute BD	BNF for children	Until pain allows for oral hygiene[6D]	*Not available. Access supporting evidence and rationales on the PHE website*
		OTC hydrogen peroxide 6%[1D]	Dilute 15ml in ½ glass warm water and rinse for 2 to 3 minutes BD/TDS[1D]	BNF for children		
		metronidazole[1D,3B-,4B+,5A-]	400mg TDS[1D,2D]	BNF for children	3 days[1D,2D]	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Pericoronitis Public Health England Last updated: Nov 2017	Refer to dentist for irrigation and debridement.[1D] If persistent swelling or systemic symptoms,[1D] use **metronidazole**[1D,2A+,3B+] or amoxicillin.[1D,3B+] Use antiseptic mouthwash if pain and trismus limit oral hygiene.[1D]	**metronidazole**[1D,2A+,3B+] **OR**	400mg TDS[1D]	BNF for children	3 days[1D,2A+]	*Not available. Access supporting evidence and rationales on the PHE website*
		amoxicillin[1D,3B+]	500mg TDS[1D]	BNF for children	3 days[1D]	
		chlorhexidine 0.2% (do not use within 30 minutes of toothpaste)[1D] **OR**	Rinse with 10 ml[1D] for 1-minute BD	BNF for children	Until less pain allows for oral hygiene[1D]	
		hydrogen peroxide 6%[1D]	Dilute 15ml in ½ glass warm water and rinse for 2 to 3 minutes BD/TDS[1D]	BNF for children		
Dental abscess Public Health England Last updated: Oct 2018	Regular analgesia should be the first option[1A+] until a dentist can be seen for urgent drainage,[1A+,2B-,3A+] as repeated courses of antibiotics for abscesses are not appropriate.[1A+,4A+] Repeated antibiotics alone, without drainage, are ineffective in preventing the spread of infection.[1A+,5C] Antibiotics are only recommended if there are signs of severe infection,[3A+] systemic symptoms,[1A+,2B-,4A+] or a high risk of complications.[1A+] Patients with severe odontogenic infections (cellulitis,[1A+,3A+] plus signs of sepsis;[3A+,4A+] difficulty in swallowing;[6D] impending airway obstruction)[6D] should be referred urgently for hospital admission to protect airway,[6D] for surgical drainage3A+ and for IV antibiotics.[3A+] The empirical use of **cephalosporins**,[6D] **co-amoxiclav,**[6D] **clarithromycin,**[6D] and **clindamycin**[6D] do not offer any advantage for most dental patients,[6D] and should only be used if there is no response to first-line drugs.[6D]					
	If pus is present, refer for drainage,[1A+,2B-] tooth extraction,[2B-] or root canal.[2B-] Send pus for investigation.[1A+] If spreading infection[1A+] (lymph node involvement[1A+,4A+] or systemic signs,[1A+,2B-,4A+] that is, fever[1A+] or malaise)[4A+] ADD metronidazole.[6D,7B+] Use **clarithromycin** in true penicillin allergy[6D] and, if severe, refer to hospital.[3A+,6D]	**amoxicillin**[6D,8B+,9C,10B+] **OR**	500mg to 1000mg TDS[6D]	BNF for children	Up to 5 days; [6D,10B+] review at 3 days[9C,10B+]	*Not available. Access supporting evidence and rationales on the PHE website*
		phenoxymethylpenicillin[1 1B-]	500mg to 1000mg QDS[6D]	BNF for children		
		metronidazole[6D,8B+,9C]	400mg TDS[6D]	BNF for children		
		Penicillin allergy: **clarithromycin**[6D]	500mg BD[6D]	BNF for children		

Information for Patients

1. **NHS website - complete guide to conditions, symptoms and treatments, including what to do and when to get help.**
2. **Target RCGP Treating your infection leaflet**
3. **The TARGET Treating Your Infection (TYI):**

The TARGET 'Treating Your Infection' leaflets for common infections are available in **25 languages and in a pictorial format**. They all provide information on:

- Average symptom duration for common infections
- Self-care advice for patients/parents
- Safety-netting advice about when to re-consult

- **Self-care Leaflet**

The Managing Your Common Infection (Self-Care) leaflet can be used as a tool to increase patients' confidence and knowledge on how to self-care for their own infections thereby potentially reduce inappropriate antibiotic use.

- **UTI Leaflet - Women Under 65 Years**

The Treating Your Infection Urinary Tract Infection (TYI-UTI) patient information leaflet has been designed to be used with women under 65 years who are experiencing urinary symptoms suggesting uncomplicated UTIs

- **UTI Leaflet - Older Adults**

The Treating Your Infection Urinary Tract Infection (TYI-UTI) leaflet for older adults can be used either to provide information on UTIs to those at risk or care staff may wish to share this leaflet with older adults in their care and/or their relatives.

- **UTI Leaflet - Combined For Adults**

This leaflet contains information from our Treating Your Infection Urinary Tract Infection (TYI-UTI) leaflet for women under 65 years and UTI leaflet for older adults in an easily accessible booklet style format with icons and images.

- **RTI Leaflet**

The Treating Your Infection Respiratory Tract Infection (TYI-RTI) patient information leaflet has been designed to be used with patients who are experiencing self-limiting RTIs.

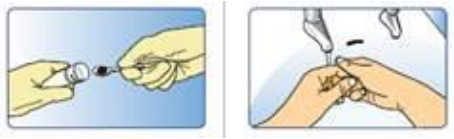
- **RTI Pictorial Leaflet**

The leaflet can be used to provide information on RTIs. It is pictorial and uses plain English so that it is suitable for a range of community groups.

- **RTI Leaflet - Other Settings**

These leaflets have been designed for use in the out of hours (OOH) and pharmacy settings.

4. Other useful leaflets (not developed by TARGET)



Public Health England Stool collection leaflet (click on the picture to download the leaflet)

The stool collection leaflet is a step-by-step guide illustrating how to collect a stool sample for microbiological examination.

Antibiotic guardian leaflet (click on the image to download the leaflet)

Part of the dental antimicrobial stewardship toolkit for primary care, this leaflet highlights why antibiotics don't cure toothache and provides safety netting advice.

When should I worry? Booklet for parents and carers (click on the image to download the booklet). For other languages please visit the When Should I Worry website.

The 'When Should I Worry?' booklet provides information for parents about the management of respiratory tract infections such as coughs, colds, sore throats and ear aches in children. It is designed to be shared in consultations.

Caring for children with coughs leaflet (click on the image to download the leaflet)

This leaflet was co-created by a diverse group of parents and University of Bristol researchers. It contains information addressing the four most common parental concerns for children with RTI with cough and safety-netting advice based on NICE guidelines. The leaflet was created under a creative commons licence (attribution) which means they can be used, reproduced and distributed by anyone as long as they are clearly attributed in any report or publication and cited as: Cabral, C. Ingram, J. Redmond, N. Horwood, J. Blair, P. Hollinghurst, S. Hay, A. Lucas P. 2016, 'Caring for children with coughs: Information and advice for parents'. University of Bristol, Bristol. Foreign language translation of this leaflet are available from the University of Bristol website.

Get well soon without antibiotics leaflet (click on the image to download the leaflet)

This leaflet, produced by the Department of Health, explains the need to get the right treatment for common illnesses such as colds and coughs without encouraging antibiotic resistance. It is available in different languages and is suitable for distribution in waiting areas.

Antibiotics Don't Cure Toothache (click on the image to download the leaflet)

Part of the dental antimicrobial stewardship toolkit for primary care, this leaflet highlights why antibiotics don't cure toothache and provides safety netting advice.

Self-care forum fact sheets

The Self-Care Forum is dedicated to helping people take care of themselves and as such, have created a series of self-care fact sheets for common ailments which aim to help clinicians and patients discuss issues around self-care during consultation and especially how to handle the symptoms in the future. The Self Care Forum Fact Sheets can be found here and include:

- Fever in children
- Cough
- Acne
- Sore throat
- Middle ear infection (otitis media)
- Common cold in adults
- Sinusitis
- Urine symptoms in men

ELHCP Care Home Hydration and UTI Resources

- UTI assessment tool for care home staff 

- Hydration guide for care homes 

- Hydration poster 

- All about urine leaflet 

- Monthly Structured Drinks Rounds Chart 

Notification of Diseases

Registered medical practitioners (RMPs) have a statutory duty to notify suspected cases of certain infectious diseases (listed below). These can be notified via the North East and North Central London Health Protection Team (NENCLHPT):

- Daytime Tel: **020 3837 7084 (option 2)**
- **For Out of Hours Advice**: Tel: **0151 909 1215** (between 5pm and 9am and during weekends and Bank Holidays)
- Email: necl.team@phe.gov.uk ; phe.nenclhpt@nhs.net

Notifiable diseases

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

Other References

1. Public Health England – Guidance for managing common infections, including upper and lower respiratory, and urinary tract infections. Latest review August 2020
2. National Institute for health and Care Excellence (NICE) Antimicrobial prescribing guidelines
3. NICE Clinical Knowledge Summaries
4. Royal College of General Practitioners Sexually Transmitted Infections
5. British Association for Sexual Health and HIV (BASHH)

Other useful links

1. TARGET Antibiotics Toolkit
2. UK Teratology Service/Best Use of Medicines in Pregnancy
3. Antibiotic Guardian - The Antibiotic Guardian campaign encourages the public and health professionals to pledge to use antibiotics more responsibly.
4. Bristol University resources on caring for children with coughs - This website was created by a collaboration of researchers and parents who talked to lots of parents about what information they wanted to know when their child had a cough.
5. The British Infection Association (BIA) - The BIA aims to promote the science and practice of medicine in relation to infection, to support all infection specialists and trainees, and to further research into infection.
6. The British Society for Antimicrobial Chemotherapy (BSAC) - BSAC exists to facilitate the acquisition and dissemination of knowledge in the field of antimicrobial chemotherapy.
7. e-Bug - operated by Public Health England, is a free microbiology, hygiene and antibiotic educational resource for junior (9-11 years) and senior (12-15 years) school students, young adults (15-18 years) and community groups across Europe.
8. European Centre for Disease Prevention and Control (ECDC) - A number of initiatives are taking place across Europe to spread the messages on the risks associated with inappropriate use of antibiotics and how to take antibiotics responsibly.
9. Health Education England (HEE) Antimicrobial Resistance - The HEE antimicrobial resistance animation intends to assist prescribers when they are faced with somebody who incorrectly feels they should be prescribed an antibiotic.
10. Medicines for Children - The Medicines for Children website provides information for parents and carers about giving medicines to children, written and reviewed by doctors, pharmacists, parents and carers.
11. Patient.info - This website has useful patient information leaflets about all minor illnesses and self-management options.
12. RCGP Sepsis Toolkit - The Sepsis toolkit provides a collection of tools, knowledge, and current guidance to support the identifying and appropriate management of patients with sepsis.
13. Scottish Antimicrobial Prescribing Group (SAPG) - SAPG is a national clinical multi-disciplinary forum and its primary objective is to co-ordinate and deliver a national framework for antimicrobial stewardship to enhance the quality of antimicrobial prescribing and management in Scotland.
14. Treat yourself better - The treat yourself better website has a symptom checker for cold and flu as well as the message that antibiotics do not work these symptoms.
15. World Antibiotic Awareness Week (WAAW) and European Antibiotic Awareness Day (EAAD) - WAAW/EAAD takes place during November each year and aims to increase awareness of global antibiotic resistance and to encourage best practices among the public, health workers and policy makers to avoid the further emergence and spread of antibiotic resistance.

Key Contacts

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

CCG		Email contact	Contact Number
North East London CCG	BHR ICP	bhrmedicines.management@nhs.net (Barking and Dagenham, Havering and Redbridge)	0203 182 3133
	CH ICP	nelondon.cahmedicines@nhs.net (City and Hackney)	0203 816 3224
	TNW ICP	nelondon.tnwmedicinesoptimisation@nhs.net (Tower Hamlets, Newham and Waltham Forest)	0203 688 2315

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, NUH GP enquiries 07887856174
Homerton University Hospital NHS Foundation Trust	Microbiology: air-call through switchboard Antimicrobial pharmacist: bleep 209. HUH switchboard: 0208 510 5555

Guideline Review Group

Name	Title
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 Sandra Lacey	Consultant Microbiologist, BHRuT
Dr Alleyna Claxton	Microbiology Consultant HUHFT
Dr Davina Sharma	Microbiology Consultant HUHFT
Dr Sarah Hall	GP Medicines Optimisation Lead Tower Hamlets, NEL ICB
Sanjay Patel	Deputy Chief Pharmacist, NEL ICB
Reema Patel	Prescribing Advisor, NEL ICB
Roberta Contino	Lead Pharmacist Vaccinations and Antimicrobials, ELFT
Manisha Madhani	Antimicrobial Pharmacist, BHRuT
Reshma Ali	Administrator NEL ICB

Document version control

Version	Date	Editor	Details of update
1.0	July 2020	Reshma Ali/ Sanjay Patel (BHR CCGs)	Formatted previous infection guide and incorporated with summary table from managing common infections produced by NICE and Public Health England (PHE) information
1.1 - 1.2	Oct 2020	Sanjay Patel (BHR CCGs)	Updated following comments from NEL AMRSG Members  Infection Guide comments Oct 20.xlsx
1.3	Dec 2021	Sanjay Patel (NEL CCG, BHR ICP)	Updated with NELHCP logo, contents page, new NEL CCG contacts, review group details, and links to treating your infection patient information leaflets Updated in line with newly released NICE releases for: • Covid-19 • *Clostridioides difficile* infection • Eczema (bacterial infection) • Acne vulgaris And also, further comments received from NEL medicines committees:  Infection Guide comments V1.2.xlsx
1.4	June 2022	Sanjay Patel (NEL CCG, BHR ICP)	Updated in line with updated NICE guideline for: • Otitis media (acute): antimicrobial prescribing [NG91]
1.5	Dec 2022	Sanjay Patel (NEL ICB)	Updated Organisations who have adopted this document (Page 2 to reflect new NEL governance for guideline approval) Updated key contacts Updated in line with updated NICE/UKHSA interim guideline: • Scarlet Fever (GAS) - NHSE/UKHSA issued interim clinical guidance on Group A Streptococcus in children. Updated North East and North Central London Health Protection Team (NENCLHPT) numbers • NICE updated NG84 acute sore throat guideline so that it **applies to adults only**. For children and young people, we refer users to the NHSE/UKHSA interim guidance.
1.6	Feb 2023	Sanjay Patel (NEL ICB)	Updated in line with updated NICE/UKHSA guideline: • Group A Streptococcus: reinstatement of NICE sore throat guidance for children and young people and withdrawal of NHS England interim guidance