

## **TREATMENT OF INFECTIONS IN PRIMARY CARE- QUICK REFERENCE GUIDE**

### **Principles of Treatment**

1. This guidance is based on the best available evidence at the time of development. Its application must be modified by professional judgement, based on knowledge about individual patient co-morbidities, potential for drug interactions and involve patients in management decisions.
2. It is important to initiate antibiotic as soon as possible in severe infection or in those immunocompromised, particularly if sepsis is suspected. Refer to the NICE guideline [NG51] Sepsis: recognition, diagnosis and early management for further information.
3. This guidance should not be used in isolation; it should be supported with patient information about safety netting, back-up/delayed antibiotics, self –care, infection severity and usual duration, clinical staff education, and audits. The RCGP TARGET antibiotics toolkit is available via the RCGP website.
4. The majority of this guidance provides dose and duration of treatment for **ADULTS**. Doses may need modification for age, weight and renal function. Refer to appropriate paediatric sources for information on paediatric doses.
5. Refer to BNF for further dosing and interaction information (e.g. interaction between macrolides and statins), ALWAYS check for hypersensitivity/allergy.
6. Have a lower threshold for antibiotics in immunocompromised or in those with multiple co-morbidities; send samples for culture and seek advice.
7. Prescribe an antimicrobial only when there is likely to be a clear clinical benefit, giving alternative, non-antibiotic self –care advice where appropriate.
8. Consider a no, or delayed, antibiotic strategy for acute self-limiting upper respiratory tract infections (e.g. acute sore throat, acute cough and acute sinusitis) and mild UTI symptoms
9. ‘Blind’ antibiotic prescribing for unexplained pyrexia usually leads to further difficulty in establishing the diagnosis.
10. Limit prescribing over the telephone to exceptional cases.
11. Avoid broad spectrum antibiotics (e.g. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase the risk of *Clostridium difficile*, MRSA and resistant Urinary Tract Infections (UTIs).
12. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations, in most cases, topical use should be limited).
13. If diarrhoea or vomiting occurs due to an antibiotic or the illness being treated, the efficacy of hormonal contraception may be impaired and additional precautions should be recommended.
14. Clarithromycin is now recommended over erythromycin, except in pregnancy and breastfeeding. It has fewer side-effects and twice daily rather than four times daily dosing promotes compliance. **Statins should be withheld when macrolide antibiotics are prescribed.**
15. In pregnancy, take specimens to inform treatment. Penicillins, cephalosporins and erythromycin are not associated with increased risk of spontaneous abortion. If possible, avoid tetracyclines, quinolones, aminoglycosides, azithromycin (except in chlamydial infection), clarithromycin and high dose metronidazole (2g stat) unless the benefits outweigh the risks. Short-term use of nitrofurantoin is not expected to cause foetal problems (theoretical risk of neonatal haemolysis). Trimethoprim is also unlikely to cause problems unless poor dietary folate intake, or taking another folate antagonist. **If you are**

**unsure about a particular drug's use in pregnancy contact the Medicines Optimisation team for further advice.**

16. Annual vaccination is essential for all those at clinical risk of severe influenza. For information on Immunisation against infectious disease refer to The Green Book.
17. For information on causative pathogens, refer to PHE guidance: Management of infection guidance for primary care for consultation and local adaptation

**DOSES: See BNF for doses to be given. Use upper end of dosage range to ensure adequate treatment and prevent emergence of resistance**

**Refer to full guidelines for more details and uses in specific clinical situations**

Upper Respiratory Tract Infections				
Condition	NO OF DAYS TREATMENT	FIRST CHOICE	ALTERNATIVE Where First Choice Contra-Indicated	SECOND CHOICE If First Choice therapy has failed
Acute Sore Throat	Avoid antibiotics: 82% resolve without any antibiotics in 7 days. If FeverPAIN score is 4 or more (purulence; no cough or coryza; fever in last 24 hours; severely inflamed tonsils, attend rapidly under 3 days), consider delayed or immediate antibiotics. If FeverPAIN score 2-3 use 3 day delayed antibiotic strategy			
	10 days	phenoxymethylpenicillin	Clarithromycin (5 days)	Pregnant and penicillin allergy Erythromycin (5 days)
Acute Rhinosinusitis	Avoid antibiotics: If symptoms <10 days most resolve without any antibiotics. Use adequate analgesia. Consider delayed or immediate antibiotics if several of purulent nasal discharge, severe localised unilateral pain, fever, marked deterioration after initial milder phase present.			
	5 days	Phenoxymethylpenicillin	Doxycycline- or clarithromycin	If very unwell or worsening: co-amoxiclav
Acute Otitis Media Child	Optimise analgesia. Most children get better within 3 days without any antibiotics. Consider delayed script.			
	5 - 7 days	Amoxicillin	Clarithromycin or Erythromycin	Worsening symptoms on 1 <sup>st</sup> choice taken for at least 2-3 days: Co-amoxiclav
Acute Otitis Externa	First use analgesia. Cure rates similar at 7 days for topical acetic acid or antibiotic +/- steroid. If cellulitis or disease extending outside ear canal, start oral antibiotics & refer to exclude malignant OE			
	7 days	Acetic acid 2%	Neomycin sulphate with corticosteroid (7-14 days)	

### Lower Respiratory Tract Infections

Condition	NO OF DAYS TREATMENT	FIRST CHOICE	ALTERNATIVE Where First Choice Contra-Indicated	SECOND CHOICE If First Choice therapy has failed
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NOTE: low doses of penicillins are more likely to select out resistance. Do not use quinolones (ciprofloxacin, ofloxacin) first line due to poor pneumococcal activity. Reserve all quinolones for proven resistant organisms.

Acute cough, Bronchitis	Antibiotics have little benefit if there are no co-morbidities. Consider delayed prescription. Symptom resolution can take three weeks			
	5 Days	Doxycycline	Amoxicillin	

Acute exacerbation of COPD	Treat exacerbations promptly with antibiotics if purulent sputum and increased shortness of breath and/or increased sputum volume			
	5 days	Amoxicillin	Doxycycline or Clarithromycin	If risk factors present: Co-Amoxiclav

Community Acquired Pneumonia	Use CRB65 score in conjunction with clinical judgement to guide mortality risk, place of care and antibiotics. Score of 3-4 requires urgent hospital admission.			
	5 days – review at 3 days and extend to 7-10 if poor response	Score 0; Amoxicillin	Score 0: clarithromycin or Doxycycline	
	7-10 days	Score 1 or 2: amoxicillin AND clarithromycin	Score 1 or 2: Doxycycline	

### Urinary Tract

Condition	NO OF DAYS TREATMENT	FIRST CHOICE	ALTERNATIVE Where First Choice Contra-Indicated	SECOND CHOICE If First Choice therapy has failed
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UTI in women (lower)	3 days (severe symptoms)	Nitrofurantoin	If low risk of resistance or if sensitivity known: Trimethoprim	If 1 <sup>st</sup> line options unsuitable: Pivmecillinam If ESBL producing UTI: Fosfomycin
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Note: Asymptomatic bacteriuria occurs in 25% of women and 10% of men >65 years. Never use antibiotics based on a dip stick result in patients > 65 years. In the presence of a catheter, antibiotics will not eradicate bacteria. A pre-treatment MSU should be sent for UTIs in men and children prior to treatment with antibiotics.

UTI in men (lower)	7 days	Send pre-treatment MSU	If low risk of resistance:	On sensitivities
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		Nitrofurantoin	Trimethoprim	
UTI in pregnancy	7 days	Send MSU for culture and start empirical antibiotics: Nitrofurantoin unless at term	Amoxicillin if culture results available OR Cefalexin	
UTI in children	Lower-3 days	Pre-treatment MSU		On sensitivities
		Trimethoprim or Nitrofurantoin If susceptible, Amoxicillin.  Second line: Cefalexin Otherwise guided by microbiology results		
	Upper 7-10 days	Refer to paediatrics to: obtain a urine sample for culture; assess for signs of systemic infection; consider systemic antimicrobials: Cefalexin OR Co-amoxiclav.		
Acute Pylonephritis	7 days	Cefalexin (7-10 days) Co-amoxiclav (7-10 days)	Ciprofloxacin (7 days)	If no response within 24 hours, seek advice
Recurrent UTI in women		Following trigger exposure (off label) Stat single dose	Prophylaxis once daily at night; for review at 3 months	
Acute Prostatitis	14 days then review for continuation of further 14 days	Send MSU samples and start Ciprofloxacin	Ofloxacin	Trimethoprim
<b>Genital Tract Infections</b>				
<b>Condition</b>	<b>NO OF DAYS TREATMENT</b>	<b>FIRST CHOICE</b>	<b>ALTERNATIVE Where First Choice Contra-Indicated</b>	<b>SECOND CHOICE If First Choice therapy has failed</b>

NOTE: people with risk factors for STIs should be screened. Risk factors: <25 years, no condom use, recent (12 month)/frequent change of partner or symptomatic partner, area of high HIV prevalence

Pelvic Inflammatory Disease	14 days	Metronidazole + Doxycycline + Ceftriaxone	Metronidazole + Ofloxacin	
Epididymitis	10-14 days	Ofloxacin	Doxycycline OR Ciprofloxacin	
Chlamydia Trachomatis	7 days	Doxycycline	Azithromycin (3 days total treatment)	Treat partners and refer to GUM clinic
Vaginal Candidiasis	Stat dose	Clotrimazole 500mg Pess or oral fluconazole	Clotrimazole pessary 100mg (6 nights)	
Bacterial vaginosis	7 days	Metronidazole oral	Metronidazole vag gel 0.75% (5 nights)	Clindamycin 2% vaginal cream (7 nights)
Trichomoniasis	Stat dose or 5-7 days	Metronidazole oral		Pregnancy for symptoms Clotrimazole 100mg pessary (6 nights)
<b>Skin/Soft tissue infection</b>				
Condition	NO OF DAYS TREATMENT	FIRST CHOICE	ALTERNATIVE Where First Choice Contra-Indicated	SECOND CHOICE If First Choice therapy has failed
Cellulitis	7 days	Flucloxacillin or Co-Amoxiclav (facial)	Clarithromycin or Doxycycline (if on statins)	If slow response, continue for a further 7 days
Leg Ulcers	Routine swabs are not recommended. Antibiotics are <i>only</i> indicated if active infection, suggestive by presence of cellulitis/increased pain/pyrexia/purulent exudates/odour			
	7 days	Flucloxacillin or Clarithromycin		If slow response swab and consider need for gram negative cover
Animal/Human Bites	Antibiotic prophylaxis advised, especially if cat bites, immunocompromised, cirrhotic, presence of prosthetic valve/ joint asplenic; puncture wound; bite involving hand, foot, face, joint, tendon, ligament. Assess tetanus and rabies risk. For human bite assess HIV/Hepatitis risk			
	7 days	Co-Amoxiclav	Penicillin allergy: metronidazole + doxycycline (cat/dog) OR metronidazole + clarithromycin (human)	

			review at 24 & 48 hours	
Impetigo	7 days	Extensive, severe, bullous: Flucloxacillin (oral)	Clarithromycin	Topical fusidic acid (5 days) Mupirocin (5 days)
Eczema	Do not use antibiotics if no signs of infection. If infection is visible then use treatment as in impetigo.			
Scabies	2 applications, one week apart	Permethrin 5% cream	Malathion 0.5% aqueous liquid	
Fungal Skin Infections	1-4 weeks	Terbinafine (topical)	Topical Imidazole (4-6 weeks), or (athletes foot only) Topical Undecanoates (4-6 weeks) (Mycota <sup>®</sup> )	
Fungal Infections of the Nail	Take nail clippings and only start therapy if infection is confirmed by laboratory.			
	See BNF	Terbinafine	Itraconazole-pulsed	
<b>Gastro-Intestinal Tract</b>				
<b>Condition</b>	<b>NO OF DAYS TREATMENT</b>	<b>FIRST CHOICE</b>	<b>ALTERNATIVE Where First Choice Contra-Indicated</b>	<b>SECOND CHOICE If First Choice therapy has failed</b>
Eradication of Helicobacter-pylori – see gastro-intestinal section of Formulary – <a href="#">link</a>				
Gastroenteritis	Fluid replacement essential. Antibiotic not usually indicated.			
Diverticulitis	7 days	Co-amoxiclav	Ciprofloxacin and Metronidazole	
Threadworm	Treat all household contacts at the same time PLUS advise hygiene measures for 2 weeks (hand hygiene, pants at night, morning shower (include perianal area)) PLUS wash sleepwear, bed linen, and dust and vacuum on day one			
	Stat, repeat after 2 wks	> 6 months: Mebendazole (off-label if <2yrs)		
		< 6 months: Use hygiene measures alone for 6 weeks		
Clostridium	Stop current antibiotics and proton pump inhibitors. For recurrent see main			

Difficile	guidance - link			
	10-14 days	Metronidazole (1 <sup>st</sup> episode)		2 <sup>nd</sup> episode/severe: Vancomycin
<b>Viral Infection</b>				
Condition	NO OF DAYS TREATMENT	FIRST CHOICE	ALTERNATIVE Where First Choice Contra-Indicated	SECOND CHOICE If First Choice therapy has failed
Herpes Zoster/ Varicella Zoster	7 days	Aciclovir		For shingles if compliance a problem: Valaciclovir or Famciclovir
NOTE: For shingles, prescribe only for patients over the age of 50 years and within 72 hours of rash. Chicken pox is not normally treated except in immuno-compromised/pregnant/neonate. Specialist advice should be sought.				
<b>Meningitis</b>				
Meningococcal Disease	Stat	IV or IM Benzylpenicillin (high dose)		Transfer all patients immediately to hospital

Title	<b>Infections in Primary Care Quick Reference Guide</b>
Document reference	<b>TreatmentofInfectionsinPrimaryCare-QuickReferenceGuide201904V5.0Final</b>
Author	Updated by Medicines Management Team Mid Essex CCG
Consulted with	Dr Louise Teare, Microbiology Consultant, MEHT
Reference:	Managing common infections: guidance for primary care, Public Health England, February 2017 (updated) NICE antimicrobial guidelines on various conditions (to January 2019) Mid Essex Primary Care Guidelines, July 2017
Approved by	Mid Essex Medicines Management Committee
Date approved	
Next review date	

Previous version	Key Changes
Treatment of Infections in Primary Care – Quick Reference Guide, June 2018	Updated according to NICE and Public Health England Guidelines
Formulary for the treatment of infections in primary care, Jan 2015	Updated according to Public Health England Guidelines Document management added
Formulary for the treatment of infections in primary care, Jan 2013	Updated according to Public Health England Guidelines Document management added