Management of infection in primary care

Principles of Treatment

1. This guidance is based on the best available evidence but use professional judgement and involve patients in management decisions.
2. In severe infection, or immunocompromised, it is important to initiate antibiotics as soon as possible, particularly if sepsis is suspected. If patient is not at moderate to high risk for sepsis, give information about symptom monitoring, and how to access medical care if they are concerned.
3. Where an empirical therapy has failed or special circumstances exist, microbiological advice can be obtained from ☎ 01206 747374 (out of hours via 01206 747474).
4. Prescribe an antibiotic only when there is likely to be clear clinical benefit, giving alternative, non-antibiotic self-care advice, where appropriate.
5. Consider a 'No' or 'Back-up/Delayed', antibiotic strategy for acute self-limiting upper respiratory tract infections, and mild UTI symptoms.
6. Limit prescribing over the telephone to exceptional cases.
7. Use simple, generic antibiotics if possible. Avoid broad spectrum antibiotics (eg. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase the risk of *Clostridium difficile*, MRSA and resistant UTIs.
8. Always check for antibiotic allergies. A dose and duration of treatment for adults is usually suggested, but may need modification for age, weight, renal function, or if immunocompromised. In severe or recurrent cases, consider a larger dose or longer course.
9. Childrens doses can be accessed by clicking on the ☺ symbol. Doses should be checked with the current version of "BNF for children"- cBNF.
10. Refer to BNF for further dosing and interaction information (e.g. the interaction between macrolides and statins) and check for hypersensitivity.
11. Have a lower threshold for antibiotics in immunocompromised or in those with multiple morbidities; consider culture and seek advice.
12. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations, e.g. fusidic acid).
13. In pregnancy, take specimens to inform treatment. Where possible, avoid tetracyclines, aminoglycosides, quinolones, azithromycin (except in chlamydial infection), clarithromycin, and high dose metronidazole (2g stat), unless the benefits outweigh the risks. Penicillins, cephalosporins, and erythromycin are safe in pregnancy. 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.

This guidance should not be used in isolation; it should be supported with patient information about safety netting, delayed/back-up antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. Materials are available on the RCGP TARGET website.

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
UPPER RESPIRATORY TRACT INFECTIONS				
Influenza	PHE Influenza **For prophylaxis:** NICE Influenza	**Annual vaccination is essential for all those "at risk" of influenza.** Antivirals are not recommended for healthy adults. **Treat "at risk" patients** with five days oseltamivir 75mg BD, when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children), or in a care home where influenza is likely. **At risk:** pregnant (including up to two weeks post-partum); children under six months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; diabetes mellitus; chronic neurological, renal or liver disease; morbid obesity (BMI>40). See the PHE Influenza guidance for the treatment of patients under 13 years of age. In severe immunosuppression, or oseltamivir resistance, use zanamivir 10mg BD (two inhalations by diskhaler for up to 10 days) and seek advice.		
Scarlet fever (GAS)	Prompt treatment with appropriate antibiotics significantly reduces the risk of complications. Observe immunocompromised individuals (diabetes; women in the puerperal period; chickenpox) as they are at increased risk of developing invasive infection.			
	PHE Scarlet fever	**First line (mild)**: analgesia Phenoxymethylpenicillin Penicillin allergy: clarithromycin	 500mg QDS click for child doses 250-500mg BD click for child doses	 10 days 5 days
Acute sore throat	Refer to NICE NG84: **2 page** visual summary algorithm: https://www.nice.org.uk/guidance/ng84/resources/visual-summary-pdf-4723226606			

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
Acute Otitis Media *(Children and young people under the age of 18 years)*	Refer to NICE NG91: : **2 page** visual summary algorithm: https://www.nice.org.uk/guidance/ng91/resources/visual-summary-pdf-4787282702			
Acute Otitis Externa	**First line:** analgesia for pain relief, and apply localised heat (e.g. a warm flannel). **Second line:** topical acetic acid or topical antibiotic +/- steroid: similar cure at 7 days. **If cellulitis or disease extends outside ear canal**, or systemic signs of infection, start oral flucloxacillin and refer to exclude malignant otitis externa.			
	CKS Otitis Externa	**First Line**: analgesia for pain relief **Second line**: Topical acetic acid 2% OR Topical neomycin sulphate with corticosteroid **If cellulitis**: flucloxacillin	 1 spray TDS click for child doses 3 drops TDS click for child doses 250mg QDS click for child doses If severe 500mg QDS	 7 days 7 days (min) to 14 days (max) 7 days 7 days
Sinusitis (acute)	Refer to NICE NG79: : **2 page** visual summary algorithm: https://www.nice.org.uk/guidance/ng79/resources/visual-summary-pdf-4656316717			

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
LOWER RESPIRATORY TRACT INFECTIONS				
Note: Low doses of penicillins are more likely to select for resistance, we recommend amoxicillin 500mg. Do **not** use quinolones (ciprofloxacin, ofloxacin) first line as there is poor pneumococcal activity. Reserve all quinolones (including levofloxacin) for proven resistant organisms.				
Acute cough & bronchitis	**Antibiotics have little benefit if no co-morbidity.** **Second line:** 7-day delayed antibiotic, safety net, and advise that symptoms can last 3 weeks. **Consider immediate antibiotics** if >80 years of age and one of: hospitalisation in past year; taking oral steroids; insulin-dependent diabetic; congestive heart failure; serious neurological disorder/stroke, or >65 years with two of the above. **Consider CRP** if antibiotic is being considered. No antibiotics if CRP<20mg/L and symptoms for >24 hours; delayed antibiotics if 20-100mg/L; immediate antibiotics if >100mg/L.			
	NICE RTIs	**First line**: self-care and safety netting advice		
		Second line: Amoxicillin	500mg TDS click for child doses	5 days
		Penicillin allergy: doxycycline	200mg stat then 100mg OD	5 days
Acute exacerbation of COPD	Treat exacerbations promptly with antibiotics if purulent sputum **and** increased shortness of breath **and/or** increased sputum volume. Risk factors for antibiotic resistance include: severe COPD (MRC>3), co-morbidity, frequent exacerbations, antibiotics in last 3 months.			
	NICE COPD GOLD COPD	Amoxicillin *or* doxycycline *or* clarithromycin	500mg TDS click for child doses 200mg stat then 100mg OD 500mg BD click for child doses	5 days
		***If resistance**:* co-amoxiclav	625mg TDS click for child doses	5 days

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Community acquired pneumonia	Use CRB65 score to guide mortality risk, place of care & antibiotics. Each CRB65 parameter scores 1: **C**onfusion (AMT<8); **R**espiratory rate >30/min; **B**P systolic <90 or diastolic ≤60; age ≥**65. Score 0** low risk: consider home based care. **Score 1-2** intermediate risk consider hospital assessment. **Score 3-4 urgent hospital admission.** **Always give safety-net advice** and likely duration of different symptoms, e.g. cough 6 weeks. Mycoplasma infection is rare in >65s.			
	NICE pneumonia	**IF CRB65=0:** amoxicillin *or* clarithromycin *or* doxycycline **If CRB65=1,2 and at home:** (clinically assess need for dual therapy for atypicals): amoxicillin AND clarithromycin *or* doxycycline alone	500mg TDS click for child doses 500mg BD click for child doses 200mg stat then 100mg OD 500mg TDS click for child doses 500mg BD click for child doses 200mg stat then 100mg OD	5 days. Review at 3 days. Extend to 7-10 days if poor response. 7-10 days

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
URINARY TRACT INFECTIONS Note: As antibiotic resistance and Escherichia coli bacteraemia in the community is increasing, use nitrofurantoin first line, always give safety net and self-care advice, and consider risks for resistance. Give TARGET UTI leaflet, and refer to the PHE UTI guidance for diagnostic information				
UTI in adults (lower)	**All patients first line antibiotic**: nitrofurantoin if GFR >45mls/min. If GFR 30-45, only use if no alternative. **Treat women** with severe/≥3 symptoms. **Women <65 years (mild/≤2 symptoms)**: pain relief and consider delayed antibiotic. If urine not cloudy, 97% NPV of no UTI. If urine cloudy, use dipstick to guide treatment: nitrite, leukocyctes, blood all negative 76% NPV; nitrite plus blood or leukocytes 92% PPV of UTI. **Men <65 years**: consider prostatitis and send MSU or if symptoms mild or non-specific, use negative dipstick to exclude UTI. **>65 years**: treat if fever ≥38°C, or 1.5°C above base twice in 12 hours, and >1 other symptom. **If treatment failure**: always perform culture.			
	PHE UTI Diagnosis TARGET UTI RCGP UTI SIGN UTI NHS Scotland UTI	**First line**: nitrofurantoin **If low risk of resistance:** trimethoprim **If first line unsuitable or GFR <45ml/min:** pivmecillinam **If organism susceptible**: amoxicillin **If high resistance risk:** fosfomycin	100mg m/r BD, OR 50mg i/r QDS (BD dose increases compliance) 200mg BD 400mg stat then 200mg TDS (400mg if high resistance risk) 500mg TDS Women and men: 3g stat Men: a second 3g stat 3 days later (unlicensed)	Women 3 days Men 7 days
		Low risk of resistance: younger women with acute UTI and no risk. **Risk factors for increased resistance include**: care-home resident; recurrent UTI; hospitalisation for >7 days in the last 6 months; unresolving urinary symptoms; recent travel to a country with increased resistance; previous UTI resistant to trimethoprim, cephalosporins, or quinolones. **If risk of resistance**: send urine for culture and susceptibilities; safety net.		
UTI in patients with catheters: antibiotics will not eradicate asymptomatic bacteriuria; only treat if systemically unwell or pyelonephritis likely. Do not use prophylactic antibiotics for catheter change unless there is a history of catheter-change-associated UTI or trauma. Take sample if new onset of delirium, or one or more symptoms of UTI.				

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Acute prostatitis	Send MSU for culture and start antibiotics. 4 week course may prevent chronic prostatitis. Quinolones achieve higher prostate concentrations.			
	Ciprofloxacin *or* ofloxacin **Second line**: trimethoprim		500mg BD 200mg BD 200mg BD	28 days 28 days 28 days
UTI in pregnancy	Send MSU for culture and start antibiotics in all with significant positive culture, even if asymptomatic. **First line**: nitrofurantoin, unless at term. **Second line**: trimethoprim; avoid if low folate status, or on folate antagonist. **Third line**: cephalosporins, as risk of *C. difficile*.			
	SIGN UTI	**First line***:* nitrofurantoin (avoid at term) **Second line***:* trimethoprim *Give folate if 1st trimester* **Third line***:* cefalexin	100mg m/r BD OR 50mg i/r QDS 200mg BD (off-label) 500mg BD	All for 7 days
UTI in Children	**Child <3 months**: refer urgently for assessment. **Child ≥ 3 months**: use positive nitrite to guide antibiotic use, also send pre-treatment MSU. **Imaging:** refer if child <6 months, or recurrent or atypical UTI.			
	NICE UTI in under 16s	***Lower UTI****:* nitrofurantoin click for child doses *or* trimethoprim click for child doses **Second line**: cefalexin click for child doses **IF susceptible** amoxicillin click for child doses ***Upper UTI****:* refer to paediatrics to: obtain a urine sample for culture; assess for signs of systemic infection; consider systemic antimicrobials.		*Lower UTI* 3 days

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Acute pyelonephritis	If admission not needed, send MSU for culture & susceptibility testing and start antibiotics. If no response within 24 hours seek advice. **If ESBL risk** and with microbiology advice consider IV antibiotic via outpatients (OPAT).			
		Ciprofloxacin or co-amoxiclav **If organism sensitive***:* trimethoprim	500 BD click for child doses 500/125mg TDS click for child doses 200mg BD click for child doses	7 days 7 days 14 days
Recurrent UTI in non-pregnant women (2 in 6 months or ≥ 3 in a year)	**First line**: advise simple measures, including hydration; ibuprofen for symptom relief. Cranberry products (self-care) work for some women. **Second line**: stand-by or post-coital antibiotics. **Third line**: antibiotic prophylaxis. Consider methenamine if no renal/hepatic impairment.			
	TARGET UTI	**Antibiotic prophylaxis**: **First line**: nitrofurantoin **Second line**: ciprofloxacin **If recent culture sensitive**: trimethoprim Methenamine hippurate	100mg m/r 500mg *At night or post coital* stat 100mg (off- label) 1g BD	3-6 months, then review recurrence rate and need. 6 months
MENINGITIS				
Suspected meningococcal disease	**Transfer all patients to hospital immediately.** If time before hospital admission, and non-blanching rash, give IV benzylpenicillin or IV cefotaxime. Do not give IV antibiotics if there is a definite history of anaphylaxis; rash is not a contraindication.			
	NICE Meningitis	IV or IM benzylpenicillin ***OR*** IV or IM cefotaxime	Child <1 year: 300mg Child 1-9 years: 600mg Adult/child 10+ years: 1.2g Child <12 years: 50mg/kg Adult/child 12+ years: 1g	Stat dose. Give IM if vein cannot be accessed

Prevention of secondary case of meningitis**:** Only prescribe following advice from Public Health Doctor: 9 am – 5 pm: ☎ 0300 303 8537 Out of hours: Contact on-call doctor ☎ 01245 444417

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
GASTRO INTESTINAL TRACT INFECTIONS				
Oral candidiasis	**Topical azoles** more effective than topical nystatin. Oral candidiasis rare in immunocompetent adults; consider undiagnosed risk factors including HIV. Use fluconazole 50mg if extensive/severe candidiasis; use 100mg if HIV or immunocompromised.			
	CKS candida	Miconazole oral gel	20mg/mL QDS (hold in mouth after food) click for child doses	7 days; further 2 days after symptoms resolve
		If miconazole not tolerated nystatin suspension	4ml; 100,000 units/mL QDS (half in each side) click for child doses	
		Fluconazole capsules	50mg *OR* 100mg OD click for child doses	7-14 days
Helicobacter pylori	Treat all positives, if known DU, GU or low grade MALToma. NNT in non-ulcer dyspepsia: 14. Do not offer eradication for GORD. Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection. **Penicillin allergy:** use PPI PLUS clarithromycin PLUS metronidazole. If previous clarithromycin, use PPI PLUS bismuth salt PLUS metronidazole PLUS tetracycline hydrochloride. **Relapse and previous metronidazole and clarithromycin:** use PPI PLUS amoxicillin PLUS either tetracycline OR levofloxacin. **Retest for H. pylori:** post DU/GU, or relapse after 2nd line therapy, using UBT/SAT test consider referral for endoscopy & culture.			
	NICE GORD and dyspepsia	**Always use PPI.**		
		PPI PLUS	click for child doses	
		amoxicillin PLUS	1g BD click for child doses	7 -14 days
		clarithromycin OR	500mg BD click for child doses	
		metronidazole	400mg BD click for child doses	
	PHE *H.pylori*	**Penicillin allergy**:		*MALToma* 14 days
		PPI PLUS	click for child doses	
		bismuth subsalicylate PLUS	525mg BD	
		metronidazole PLUS	400mg BD click for child doses	***Third line on microbiology advice:***
		tetracycline hydrochloride	500mg QDS	14 days PPI *PLUS*
		Relapse:		bismuth salt *PLUS*
		PPI PLUS amoxicillin PLUS	1g BD click for child doses	two antibiotics not previously used,
		tetracycline hydrochloride OR	500mg QDS	or rifabutin 150mg BD
		levofloxacin	250mg BD	or furazolidone 200mg BD

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Infectious diarrhoea PHE diarrhoea	Refer previously healthy children with acute painful or bloody diarrhoea to exclude *E. coli* 0157 infection. **Antibiotic therapy is not usually indicated unless patient is systemically unwell.** If systemically unwell and campylobacter suspected (e.g. undercooked meat and abdominal pain), consider clarithromycin 250–500mg BD for 5–7 days, if treated early (within 3 days).			
Clostridium difficile	Stop unnecessary antibiotics, PPIs and antiperistaltic agents. Mild cases (<4 episodes of diarrhoea/day) may respond without metronidazole; 70% respond to metronidazole in 5 days; 92% respond to metronidazole in 14 days. **If severe (T>38.5, or WCC>15, rising creatinine, or signs/symptoms of severe colitis)**: treat with oral vancomycin,review progress closely and consider hospital referral.			
	PHE Clostridium difficile	***1st episode***: metronidazole ***Severe/type 027/recurrent***: oral vancomycin ***Recurrent disease or second line***: fidaxomicin	400mg or 500mg TDS click for child doses 125mg QDS click for child doses 200mg BD	10-14 days 10-14 days then taper 10 days
Traveller's diarrhoea	Prophylaxis rarely, if ever, indicated. Consider **stand-by** antimicrobial only for patients at high risk of severe illness or visiting high risk areas.			
	----------	Stand-by: azithromycin Prophylaxis/treatment: bismuth subsalicylate	500mg OD 2 tablets QDS	1-3 days 2 days
Threadworm	Treat all household contacts at the same time. Advise hygiene measures for two weeks (hand hygiene, pants at night, morning shower (include perianal area). Wash sleepwear, bed linen, and dust, AND vacuum. Child <6 months add perianal wet wiping or washes three hourly.			
	CKS threadworm	*Child over 6 months:* mebendazole (off-label if <2yrs) Child under 6 months - hygiene measures alone for 6 weeks	100mg stat	Stat dose, but repeat in 2 weeks if persistant

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GENITAL TRACT INFECTIONS Contact UKTIS for information on foetal risks if patient is pregnant.				
STI screening	People with risk factors should be screened for chlamydia, gonorrhoea, HIV, syphilis. Refer individual and partners to GUM service. **Risk factors:** <25years, no condom use, recent/frequent change of partner, symptomatic partner, area of high HIV.			
Chlamydia trachomatis/ urethritis	Opportunistically screen all patients aged 16-24 years. Treat partners and refer to GUM service. Repeat test for cure in all at three months. **Pregnancy/breastfeeding**: azithromycin is most effective. As lower cure rate in pregnancy, test for cure at least three weeks after end of treatment.			
	SIGN Chlamydia	**First line**: azithromycin *or* doxycycline ***Pregnant or breastfeeding****:* azithromycin *or* erythromycin *or* amoxicillin	1g 100mg BD 1g 500mg BD 500mg TDS	Stat 7 days Stat 10-14 days 7 days
Epididymitis	Usually due to Gram-negative enteric bacteria in men over 35 years with low risk of STI. If under 35 years or STI risk, refer to GUM.			
	----------	doxycycline or ofloxacin or ciprofloxacin	100mg BD 200mg BD 500mg BD	10-14 days 14 days 10 days
Vaginal Candidiasis	All topical and oral azoles give over 70% cure. **Pregnancy:** avoid oral azoles, and use intravaginal treatment for 7 days. **Recurrent (>4 episodes per year):** 150mg oral fluconazole every 72 hours for three doses induction, followed by one dose once a week for six months maintenance.			
	BASHH Vulvovaginal candidiasis	Clotrimazole or Miconazole or oral fluconazole Recurrent: fluconazole (induction/maintenance)	500mg pess or 10% cream 100mg pessary Stat 150mg 150mg every 72 hours THEN 150mg once a week	Stat 14 nights Stat 2 doses 6 months

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Bacterial vaginosis	Oral metronidazole is as effective as topical treatment and is cheaper. Seven days results in fewer relapses than 2g stat at four weeks. **Pregnant/breastfeeding**: avoid 2g dose. Treating partners does not reduce relapse.			
	BASHH Bacterial vaginosis	Oral metronidazole *or* metronidazole 0.75% vaginal gel *or* clindamycin 2% cream	400mg BD *or* 2g stat 5g applicator at night 5g applicator at night	7 days Stat 5 nights 7 nights
Genital herpes	**Advise**: saline bathing, analgesia, or topical lidocaine for pain, and discuss transmission. **First episode**: treat within five days if new lesions or systemic symptoms, and refer to GUM. **Recurrent**: self-care if mild, or immediate short course antiviral treatment, or suppressive therapy if more than six episodes per year.			
	BASHH Anogenital herpes	**First line**: oral aciclovir OR valaciclovir OR famciclovir	 400mg TDS 800mg TDS (if recurrent) 500mg BD 250mg TDS 1g BD (if recurrent)	 5 days 2 days 5 days 5 days 1 day
Gonorrhoea	Antibiotic resistance is now very high. Use IM ceftriaxone and oral azithromycin and refer to GUM. Test of cure is essential.			
	----------	Ceftriaxone PLUS azithromycin (oral)	500mg IM 1g	Stat Stat
Trichomoniasis	Oral treatment needed as extravaginal infection common. Treat partners, and refer to GUM for other STIs. **Pregnancy/breastfeeding**: avoid 2g single dose metronidazole; clotrimazole for symptom relief (not cure) if metronidazole declined.			
	BASHH trichomoniasis	Metronidazole Pregnancy – for symptoms: clotrimazole	400mg BD or 2g (more adverse effects) 100mg pessary at night	5-7 days Stat 6 nights

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF ☺ for child doses	DURATION OF TREATMENT
Pelvic Inflammatory Disease	Refer woman and sexual contacts to GUM service. Always culture for gonorrhoea and chlamydia. If gonorrhoea likely (partner has it, sex abroad, severe symptoms), use regimen with ceftriaxone, as resistance to quinolones is high.			
	BASHH PID	Metronidazole PLUS ofloxacin **GC:** metronidazole PLUS doxycycline PLUS ceftriaxone	400mg BD 400mg BD 400mg BD 100mg BD 500mg IM	14 days Stat
SKIN INFECTIONS – Note: Refer to RCGP Skin Infections online training. For MRSA, discuss therapy with microbiologist.				
Impetigo	**Localised lesions only**: topical antibiotics to reduce risk of resistance. Only use mupirocin if caused by MRSA. **Extensive, severe, or bullous**: oral antibiotics.			
	PHE Impetigo	Topical fusidic acid **MRSA**: topical mupirocin Oral flucloxacillin Oral clarithromycin	Thinly TDS click ☺ for child doses 2% ointment TDS click ☺ for child doses 250-500mg QDS click ☺ for child doses 250 -500mg BD click ☺ for child doses	5 days 5 days 7 days 7 days
Cold sores	CKS cold sores	**Most resolve** after 5 days without treatment. Topical antivirals applied prodromally can reduce duration by 12-18 hours. **If frequent, severe, and predictable triggers:** consider oral prophylaxis: aciclovir 400mg, twice daily, for 5-7 days.		
PVL-SA	PHE PVL-SA	Panton-Valentine leukocidin (PVL) is a toxin produced by 20.8-46% of *S. aureus* from boils/abscesses. PVL strains are rare in healthy people, but severe. **Suppression therapy** should only be started after primary infection has resolved, as ineffective if lesions are still leaking.**Risk factors for PVL:** recurrent skin infections; invasive infections; MSM if there is more than one case in a home or close community (school children; millitary personel; nursing home residents; household contacts).		
Eczema	NICE Eczema	**No visible signs of infection:** antibiotic use (alone or with steroids) encourages resistance and does not improve healing.**With visible signs of infection:** use oral flucloxacillin or clarithromycin, or topical treatment (as in impetigo).		

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Acne	**Mild (open and closed comedones) or moderate (inflammatory lesions)**: **First-line:** self-care (wash with mild soap; do not scrub; avoid make-up). **Second-line:** topical retinoid or benzoyl peroxide. **Third-line:** add topical antibiotic, or consider addition of oral antibiotic. **Severe (nodules and cysts):** add oral antibiotic (for 3 months max) and refer.			
	CKS Acne vulgaris	***First-line****:* self-care ***Second-line****:* topical retinoid OR benzoyl peroxide ***Third-line****:* topical clindamycin ***If treatment failure/severe****:* oral tetracycline OR oral doxycycline.	 Thinly OD click ☺ for child doses 5% cream OD-BD click ☺ for child doses 1% cream, thinly BD click ☺ for child doses 500mg BD click ☺ for child doses 100mg OD click ☺ for child doses	 6-8 weeks 6-8 weeks 12 weeks 6-12 weeks 6-12 weeks
Cellulitis and erysipelas	**Class I:** patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone. **If river or sea water exposure**: seek advice. **Class II** patient febrile & ill, **or** comorbidity, admit for intravenous treatment, or use OPAT. **Class III** if toxic appearance: admit. **Erysipelas:** often facial and unilateral. Use flucloxacillin for non-facial erysipelas.			
	CREST Cellulitis BLS Cellulitis	Flucloxacillin **If penicillin allergic***:* Clarithromycin **Penicillin allergy & taking statins**: doxycycline **If unresolving**: clindamycin *If facial (non dental):* co-amoxiclav	500mg QDS click ☺ for child doses 500mg BD click ☺ for child doses 200mg stat then 100mg OD 300 QDS click ☺ for child doses 500/125mg TDS click ☺ for child doses	All for 7 days. If slow response continue for a further 7 days
Leg ulcer	Ulcers always colonised. Antibiotics do not improve healing unless active infection (purulent, exudate/odour, increased pain, cellulitis, pyrexia).			
	PHE venous leg ulcers	Active infection if purulent, exudate/odour, increased pain, cellulitis, pyrexia.		
		If active infection: flucloxacillin *or* clarithromycin	500mg QDS click ☺ for child doses 500mg BD click ☺ for child doses	As for cellulitis
		Non-healing: antimicrobial reactive oxygen gel may reduce bacterial load.		

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Bites	**Human**:Thorough irrigation is important. Antibiotic prophylaxis is advised. Assess risk of tetanus, rabies, HIV, hepatitis B/C. **Cat**: always give prophylaxis. **Dog:** Give prophylaxis if puncture wound, bite to hand, foot, face, joint, tendon or ligament; immunocompromised, asplenic, cirrhotic, presence of prosthetic valve/joint. **Penicillin allergy**: Review all at 24 and 48 hours, as not all pathogens are covered			
	CKS bites	***Prophylaxis or treatment:*** co-amoxiclav ***If penicillin allergic:*** **Human :** metronidazole AND clarithromycin **Animal:** metronidazole AND doxycycline	375-625mg TDS click for child doses 400mg TDS click for child doses 250-500mg BD click for child doses 400mg TDS click for child doses 100mg BD click for child doses	All for 7 days
Scabies	Treat whole body from ear/chin downwards and under nails. **If under 2 years/elderly**: also treat face/scalp. **Home/sexual contacts:** treat within 24 hours.			
	NHS scabies	Permethrin ***If permethrin allergy****:* malathion	5% cream click for child doses 0.5% aqueous liquid click for child doses	2 applications 1 week apart
Mastitis	CKS Mastitis and breast abscess	*S.aureus* is the most common infecting pathogen. Suspect if woman has: a painful breast; fever and/or general malaise; a tender, red breast. **Breastfeeding:** oral antibiotics are appropriate, where indicated. Women should continue feeding, including from the affected breast.		
		Flucloxacillin **Penicillin allergy**: erythromycin OR clarithromycin	500mg QDS 250-500mg QDS 500mg BD	10-14 days

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Dermatophyte infection - skin	**Most cases**: terbinafine is fungicidal: treatment time shorter than with fungistatic imidazoles. If candida possible, use imidazole. **If intractable, or scalp** send skin scrapings. **If infection confirmed**, use oral terbinafine or itraconazole. **Scalp**: oral therapy and discuss with a specialist.			
	PHE fungal skin and nail infections	Topical terbinafine or topical imidazole ***For athlete's foot:*** topical undecanoates: e.g. Mycota	1% OD-BD click for child doses 1% OD-BD click for child doses OD-BD click for child doses	1-4 weeks 4-6 weeks
Dermatophyte infection - nail	Take nail clippings: start therapy only if infection is confirmed by laboratory. Oral terbinafine is more effective than oral azole. Liver reactions 0.1 – 1% with oral antifungals. If candida or non-dermatophyte infection is confirmed, use oral itraconazole. Topical nail lacquer is not as effective. **To prevent recurrence**: apply weekly 1% topical antifungal cream to entire toe area. **Children**: seek specialist advice.			
	CKS Fungal nail infection	***First line:*** terbinafine ***Second line:*** itraconazole	250mg OD click for child doses 200mg BD click for child doses	fingers 6 weeks toes 12 weeks 1 week a month fingers 2 courses toes 3 courses
			Stop treatment when continual, new, healthy, proximal nail growth.	
Varicella zoster/chicken pox **Herpes zoster / shingles**	**Pregnant/immunocompromised/neonate:** seek urgent specialist advice. **Chicken pox:** consider aciclovir if onset of rash <24 hours and one of the following: >14 years of age; severe pain; dense/oral rash; taking steroids; smoker. **Shingles:** treat if >50 years (PHN rare if <50 years) and within 72 hours of rash or if one of the following: active ophthalmic; Ramsey Hunt; eczema; non-truncal involvement; moderate or severe pain; moderate or severe rash. **Treatment not within 72 hours**: consider starting antiviral drug up to one week after rash onset, if high risk of severe shingles or complications (continued vesicle formation; older age; immunocompromised; severe pain).			
	PHE Varicella PCDS Herpes zoster	Aciclovir ***Second line for shingles if poor compliance as high cost*** valaciclovir or famciclovir	800mg five times a day click for child doses 1g TDS click for child doses 250-500mg TDS or 750mg BD	7 days

ILLNESS	USEFUL LINKS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
EYE INFECTIONS				
Conjunctivitis	**First line:** bath/clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting. **Treat only if severe**, as most cases are viral or self-limiting. **Bacterial conjunctivitis**: usually unilateral and also self-limiting. It is characterised by red eye with mucopurulent, not watery discharge. 65% and 74% resolve on placebo by days 5 and 7. **Second line**: fusidic acid as it has less gram-negative activity.			
	AAO conjunctivitis	***First line**: self-care* ***Second line**:* chloramphenicol 0.5% eye drop or 1% ointment ***Third line**:* fusidic acid 1% gel	2 hourly for 2 days then reduce frequency to 3-4 times daily, or just at night if using eye drops. click for child doses BD click for child doses	All for 48 hours after resolution
Blepharitis	**First line:** lid hygiene for symptom control including: warm compresses; lid massage and scrubs; gentle washing; avoiding cosmetics. **Second line:** topical antibiotics if hygiene measures are ineffective after 2 weeks. **Signs of Meibomian gland dysfunction, or acne rosacea**: consider oral antibiotics.			
	CKS Blepharitis	***First line**: self-care* ***Second line**:* *chloramphenicol* ***Third line:*** *oral oxytetracycline* *OR* *oral doxycycline*	1% ointment BD click for child doses 500mg BD click for child dose 250mg BD click for child doses 100mg OD click for child doses 50mg OD click for child doses	6 week trial 4 weeks (initial) 8 weeks (maint) 4 weeks (initial) 8 weeks (maint)

Summary table – suspected dental infections treated in primary care (outside dental setting)

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, who will be able to provided details of how to access emergency dental care.

ILLNESS	GOOD PRACTICE POINTS	TREATMENT	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
Note: Antibiotics do not cure toothache. First line treatment is with paracetamol and/or ibuprofen; codeine is not effective for toothache.				
Mucosal ulceration and inflammation (simple gingivitis) SDCEP Dental problems	Temporary pain and swelling relief can be attained with saline mouthwash. Use antiseptic mouthwash if more severe and if pain limits oral hygiene to treat or prevent secondary infection. The primary cause for mucosal ulceration or inflammation (aphthous ulcers, oral lichen planus, herpes simplex infection, oral cancer) needs to be evaluated and treated.	Self care with saline mouthwash Self care with chlorhexidine 0.12-0.2% *(do not use within 30 minutes of toothpaste)* Self care with hydrogen peroxide 6% *(spit out after use)*	½ tsp salt in warm water click for child doses 1 minute BD with 10 ml. click for child doses 2-3 minutes BD-TDS with 15ml diluted in ½ glass warm water click for child doses	Always spit out after use. Use until lesions resolve or less pain allows oral hygiene
Acute necrotising ulcerative gingivitis	Refer to dentist for scaling and hygiene advice. Antiseptic mouthwash if pain limits oral hygiene. Commence metronidazole in the presence of systemic signs and symptoms.	Self care with chlorhexidine 0.12 – 0.2% or hydrogen peroxide 6% metronidazole	See above dosing in mucosal ulceration 400mg TDS click for child doses	Until pain allows for oral hygiene 3 days

ILLNESS	COMMENTS	DRUG	ADULT DOSE Check cBNF for child doses	DURATION OF TREATMENT
Pericoronitis SDCEP Dental problems	Refer to dentist for irrigation & debridement. If persistent swelling or systemic symptoms use metronidazole or amoxicillin. Use antiseptic mouthwash if pain and trismus limit oral hygiene.	Metronidazole or amoxicillin self care with chlorhexidine 0.2% or hydrogen peroxide 6%	400mg TDS click for child doses 500mg TDS click for child doses See above dosing for mucosal ulceration	3 days 3 days Until pain allows for oral hygiene
Dental abscess SDCEP Dental problems	Regular analgesia should be the first option until a dentist can be seen for urgent drainage, as repeated courses of antibiotics for abscess are not appropriate. Repeated antibiotics alone, without drainage are ineffective in preventing spread of infection. Antibiotics are only recommended if there are signs of severe infection, systemic symptoms or high risk of complications. Patients with severe odontogenic infections (cellulitis plus signs of sepsis, difficulty in swallowing, impending airway obstruction) should be refered urgently for hospital admission to protect airway, for surgical drainage and for IV antibiotics. The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer any advantage for most dental patients, and should only be used if there is no response to first line drugs.			
	If pus is present, refer for drainage, tooth extraction, or root canal. Send pus for investigation. If spreading infection (lymph node involvement or systemic signs, i.e. fever or malaise) ADD metronidazole. Use clarithromycin in true penicillin allergy and, if severe, refer to hospital.	Amoxicillin or phenoxymethylpenicillin metronidazole *Penicillin allergy:* clarithromycin	500mg – 1g TDS click for child doses 500mg – 1g QDS click for child doses 400mg TDS click for child doses 500mg BD click for child doses	Up to 5 days review at 3 days

Reference:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/643046/Management_and_treatment_of_common_infections.pdf
NICE Clinical Guidelines. **https://www.nice.org.uk/**

Abbreviations

AMT = Abbreviated mental test
AOM = Acute otitis media
BD = Twice daily
BMI = Body mass index
BP = Blood pressure
C. difficile = *Clostridium difficile*
COPD = Chronic obstructive pulmonary disease
CRB65 = Confusion; Respiratory rate; BP systolic; Age >65
CRP = C-reactive protein
DU = Duodenal ulcer
E. coli = *Escherichia coli*
ESBL = Extended-spectrum beta-lactamase
FeverPAIN = Fever; Purulence; Attend rapidly; Inflamed tonsils; No cough or coryza
g = Gram(s)
GAS = Group A Streptococci
GC = Gonorrhoea
GFR = Glomerular filtration rate
GORD = Gastro-oesophageal reflux disease
GPs = General practitioners
GU = Gastric ulcer
GUM = Genitourinary medicine
HIV = Human immunodeficiency virus
H. pylori = *Helicobacter pylori*
IM = Intramuscular
i/r = Immediate release
IV = Intravenous
l = Litre(s)
MALToma = Mucosa-associated lymphoid tissue lymphoma
mg = Milligram(s)
Min = Minute
ml = Millilitre(s)
m/r = Modified release
MRC = Medical Research Council dyspnoea (breathlessness) scale
MRSA = Methicillin-resistant *Staphylococcus aureus*
MSM = Men who have sex with men
MSU = Midstream urine
NNT = Number needed to treat
NPV = Negative predictive value
OD = Once daily
OPAT = Outpatient parenteral antibiotic therapy
PHN = Post-herpetic neuralgia
PID = Pelvic inflammatory disease
PPI = Proton pump inhibitor
PPV = Positive predictive value
PVL = Panton-Valentine Leukocidin
PVL-SA = Panton-Valentine Leukocidin *Staphylococcus aureus*
QDS = Four times daily
SAT = Stool antigen test
S. aureus = *Staphylococcus aureus*
STI = Sexually transmitted infection
T = Temperature
TDS = Three times daily
tsp = Teaspoon
UBT = Urea breath test
UTI(s) = Urinary tract infection(s)
WCC = White cell count

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