Antibiotic Guidelines for Salford Primary Care Trust

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Aims

- ❑ to provide a simple, best guess approach to the treatment of common infections
- ❑ to promote the safe, effective and economic use of antibiotics
- ❑ to minimise the emergence of bacterial resistance in the community

Principles of Treatment

1. This guidance is based on the best available evidence but its application must be modified by professional judgement.
2. A dose and duration of treatment is suggested. In severe or recurrent cases consider a larger dose or longer course
3. Prescribe an antibiotic only when there is likely to be a clear clinical benefit.
4. Consider a no, or delayed, antibiotic strategy for acute sore throat, common cold, acute cough and acute sinusitis.
5. Limit prescribing over the telephone to exceptional cases.
6. Use simple generic antibiotics first whenever possible. Avoid broad spectrum antibiotics (eg co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase risk of *Clostridium difficile*, MRSA and resistant UTIs.
7. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations).
8. In pregnancy AVOID tetracyclines, aminoglycosides, quinolones, *high dose* metronidazole. Short-term use of trimethoprim (theoretical risk in first trimester in patients with poor diet, as folate antagonist) or nitrofurantoin (at term, theoretical risk of neonatal haemolysis) is unlikely to cause problems to the foetus.
9. Generic clarithromycin has fewer side effects than erythromycin and tablets are now similar in cost; clarithromycin suspensions still remain more expensive and the use of erythromycin suspension remains a cost effective choice.
10. Where a 'best guess' therapy has failed or special circumstances exist, microbiological advice can be obtained from 0161 206 5030

ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
UPPER RESPIRATORY TRACT INFECTIONS: Consider delayed antibiotic prescriptions.[A-]				
Influenza Influenza HPA	**Annual vaccination is essential for all those at risk of influenza**. For otherwise healthy adults, antivirals are not recommended. Treat 'at risk' patients, only when influenza is circulating in the community, within 48 hours of onset. At risk: 65 years or over, chronic respiratory disease (including COPD and asthma) significant cardiovascular disease (not hypertension), immunocompromised, diabetes mellitus, chronic renal disease and chronic liver disease. Use oseltamivir 75 mg oral capsule BD (for OD prophylaxis see Influenza NICE) or zanamivir 10 mg (2 inhalations by diskhaler) BD for 5 days. Patients under 13 years see HPA influenza link attached or website.			
Pharyngitis / sore throat / tonsillitis CKS SIGN NICE	**The majority of sore throats are viral; most patients do not benefit from antibiotics.** Consider a delayed antibiotic strategy and explain soreness will take about 8 days to resolve. Patients with 3 of 4 centor criteria (history of fever, purulent tonsils, cervical adenopathy, absence of cough) or history of otitis media may benefit more from antibiotics.[A-] Antibiotics only shorten duration of symptoms by 8 hours.[A+] You need to treat 30 children or 145 adults to prevent one case of otitis media.[A+]			
	Evidence indicates that penicillin for 7 days is more effective than 3 days.[B+] Twice daily higher dose can also be used.[A-] QDS may be more appropriate if severe.[D]	*first line* phenoxymethylpenicillin	500 mg QDS	10 days
		clarithromycin *if allergic to penicillin*	250 - 500 mg BD	10 days
Otitis media *(child doses)* CKS NICE	**Many are viral. Illness resolves over 4 days in 80% without antibiotics.[A+]** Prescribe a NSAID or paracetamol.[A-] for pain and to reduce any temperature. Antibiotics do not reduce pain in first 24 hours, subsequent attacks or deafness.[A+] Need to treat 20 children >2y and seven 6-24m old to get pain relief in one at 2-7 days.[A+B+] It is important that analgesia is also be provided with any antibiotic prescribed. Haemophilus is an extracellular pathogen, thus **macrolides**, which concentrate intracellularly, **are less effective treatment**.	amoxicillin *first line*	40 mg/kg/day in 3 divided doses Maximum 1g TDS	5 days*
		erythromycin *if allergic to penicillin* *9 years and over* clarithromycin (tablets only) Azithromycin *second line if allergic to penicillins*	<2 yrs 125 mg QDS 2-8 yrs 250 mg QDS 9yrs plus: 250-500 mg BD 15-25kg 200 mg OD 26-35kg 300 mg OD 36-45kg 400 mg OD	5 days* 5 days* 5 days* 3 days 3 days 3 days
		co-amoxiclav *second line*	1-6 yrs 156 mg TDS 6-12 yrs 312 mg TDS	5 days* 5 days*

*Standing Medical Advisory Committee guidelines suggest 3 days. In otitis media, relapse rate is slightly higher at 10 days with a 3-day course but long-term outcomes are similar. [A+]

Note: ***Doses are oral and for adults unless otherwise stated. Please refer to BNF for further information.***

Letters indicate strength of evidence: Developed from guidance issued by HPA – June 2008

ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
UPPER RESPIRATORY TRACT INFECTIONS: Consider delayed antibiotic prescriptions.[A-] Continued				
Acute sinusitis CKS NICE	**Many are viral. Symptomatic benefit of antibiotics is small** - 69% resolve without antibiotics; and 84% resolve with antibiotics.[A+] Reserve for severe[B+] or symptoms (>10 days). Cochrane review concludes that amoxicillin and phenoxymethylpenicillin have similar efficacy to the other recommended antibiotics. **If failure to respond use another first line antibiotic then second line**	amoxicillin [A+] OR doxycycline OR clarithromycin *second line:* co-amoxiclav OR ciprofloxacin PLUS metronidazole	500 mg TDS 200 mg stat/100 mg OD 250 mg -500mg BD 625 mg TDS 250 – 500 mg BD 400 mg TDS	7 days 7 days 7 days 7 days 7 days 7 days
LOWER RESPIRATORY TRACT INFECTIONS				
Note: *Avoid tetracyclines in pregnancy. Low doses of penicillins are more likely to select out resistance. The quinolones ciprofloxacin and ofloxacin have poor activity against pneumococci. However, they do have use in PROVEN pseudomonal infections. Levofloxacin has some anti-Gram-positive activity but should not be needed as first line treatment.*				
Acute cough, bronchitis CKS NICE	In Primary Care antibiotics have marginal benefits in otherwise healthy adults.[A+] Patient leaflets can reduce antibiotic use.[B+]	amoxicillin OR doxycycline	500 mg TDS 200 mg stat/100 mg OD	5 days 5 days
Acute exacerbation of COPD NICE CKS	30% viral, 30-50% bacterial, rest undetermined **Use antibiotics** if increased dyspnoea and increased purulence of sputum volume.[B+] *Antibiotics may also be considered if inflammatory markers are raised or temperature >38°C (without other source of infection identified and either Increasing volume of sputum or persisting shortness of breath is present.*	amoxicillin If penicillin allergic use: Clarithromycin 2nd Line use: doxycycline	500 mg TDS 500 mg BD 200 mg stat/100 mg OD	5 days 5 days 5 days
Community-acquired pneumonia - treatment in the community BTS CKS	**Start antibiotics immediately.**[B-] If no response in 48 hours consider admission or add clarithromycin first line or a tetracycline[C] to cover Mycoplasma infection (rare in over 65s) In severely ill give parenteral benzylpenicillin before admission[C] and seek risk factors for Legionella and *Staph. aureus* infection.[D]	amoxicillin OR clarithromycin *Consider adding if no response after 48 hours* *doxycycline*	500 mg - 1g TDS 500 mg BD *200 mg stat/100 mg OD*	Up to 7 days Up to 7 days *Up to 7 days*
MENINGITIS				
Suspected meningococcal disease HPA HPA pdf	**Transfer all patients to hospital immediately.** Administer benzylpenicillin prior to admission, unless history of anaphylaxis,[B-] NOT allergy. Ideally IV but IM if a vein cannot be found.	IV or IM benzylpenicillin	Adults and children 10 yr and over: 1200 mg Children 1-9 yr: 600mg Children <1 yr: 300mg	
Prevention of secondary case of meningitis: Only prescribe following advice from Public Health Doctor: 9 am – 5 pm: ☎ 0161 789 6710 Out of hours: Contact on-call doctor via Tameside switchboard: ☎ 0161 331 6000				
PROPHYLAXIS				
Endocarditis Prophylaxis in Adult patients NICE **See NICE for full guidance**	***When to offer prophylaxis*** Do not offer antibiotic prophylaxis against infective endocarditis: • to people undergoing dental procedures • to people undergoing non-dental procedures at the following sites: ▪ upper and lower gastrointestinal tract ▪ genitourinary tract; this includes urological, gynaecological and obstetric procedures, and childbirth ▪ upper and lower respiratory tract; this includes ear, nose and throat procedures and bronchoscopy. **Do not offer** chlorhexidine mouthwash as prophylaxis against infective endocarditis to people at risk undergoing dental procedures.			

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ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
URINARY TRACT INFECTIONS HPA UTI quick reference guidance ESBLs Prodigy				
Note:. *Amoxicillin resistance is common, therefore ONLY use if culture confirms susceptibility. In the elderly (>65 years), do not treat asymptomatic bacteriuria; it occurs in 25% of women and 10% of men and is not associated with increased morbidity.*[B+] *In the presence of a catheter, antibiotics will not eradicate bacteriuria; only treat if systemically unwell or pyelonephritis likely.*				
Uncomplicated UTI i.e. no fever or flank pain in men or women HPA UTI quick reference guidance	Use urine dipstick to exclude UTI -ve nitrite and leucocyte 95% negative predictive value. There is less relapse with trimethoprim than cephalosporins or pivmecillinam.[A-] Community multi-resistant *E. coli* with Extended-spectrum Beta-lactamase enzymes are increasing so perform culture in all treatment failures.	*First line* nitrofurantoin[A-] *If contraindicated use* trimethoprim[B+]	100 mg m/r BD 200 mg BD	3 days[B+] 7 days in men
		second line - depends on susceptibility of organism isolated e.g. amoxicillin, cefalexin, quinolone, doxycycline. ESBLs are multi-resistant but may remain sensitive to nitrofurantoin.		
UTI in pregnancy	**Send MSU for culture**. Short-term use of trimethoprim or nitrofurantoin in pregnancy is unlikely to cause problems to the foetus.[B+]	nitrofurantoin OR trimethoprim *second line* cefalexin	100 mg m/r BD 200 mg BD 500 mg BD	7 days 7 days 7 days
Children	Refer children <3 months to specialist. Send MSU in all for culture and susceptibility. If ≤3 years, use positive nitrite to start antibiotics. Refer children post UTI for imaging Upper – UTI – co-amoxiclav.	trimethoprim OR nitrofurantoin If susceptible, amoxicillin OR cefalexin Co-amoxiclav	See BNF for dosage	Lower UTI 3 days[A+] Upper UTI 7-10 days
Acute pyelonephritis	Send MSU for culture; remember to modify treatment according to sensitivity results, if necessary. RCT shows 7 days ciprofloxacin is as good as 14 days co-trimoxazole If no response within 24 hours admit. Do not use nitrofurantoin.	co-amoxiclav If susceptible use trimethoprim	625 mg TDS 200 mg BD	14 days 14 days
GASTRO-INTESTINAL TRACT INFECTIONS				
Eradication of *Helicobacter pylori* NICE See Salford PCT guidance. Managing symptomatic relapse	Eradication is beneficial in DU, GU and low grade MALTOMA, but NOT in GORD.[A] In NUD, 8% of patients benefit. Triple treatment attains >85% eradication.[A+] Do not use clarithromycin or metronidazole if used in the past year for any infection.[C] DU/GU: Retest for helicobacter if symptomatic NUD: Do not retest, treat as functional dyspepsia. In treatment failure consult gastroenterologist or microbiology.	*first line*[A+] cheapest option omeprazole PLUS clarithromycin AND metronidazole (MZ) OR amoxicillin (AM) Alternative regimens[A+] PPI PLUS bismuthate (DE-NOL tablets) PLUS 2 antibiotics: amoxicillin clarithromycin[A+] metronidazole oxytetracycline	 20 mg BD 250 mg BD with MZ 500mg BD with AM 400 mg BD 1g BD BD 240 mg BD 1 g BD 500 mg BD 400 mg BD 500 mg QDS	**All for 7 days**[A] **14 days in relapse or maltoma**
Infectious diarrhoea CKS	**Antibiotic therapy not indicated unless patient systematically unwell or post-antibiotic, suggesting *Clostridium Difficile.***			

ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
GASTRO-INTESTINAL TRACT INFECTIONS Continued.				
Traveller's diarrhoea	**Limit prescription of antibacterial to be carried abroad** and taken if illness develops (ciprofloxacin 750 mg single dose) to people travelling to remote areas and for people in whom an episode of infective diarrhoea could be dangerous. In areas of high ciprofloxacin resistance (Asia) can advise prophylactic bismuth subsaliculate.			
Clostridium Difficile Infection HPA reference	CDAD is a common cause of diarrhoea and usually follows antibiotic therapy. Hand washing with soap and water is important as alcohol gels are not effective against *C. Diff* .spores. Discontinue current antibiotic therapy or if necessary change to antibiotic less likely to cause CDAD – confirm with Microbiology. Antimotility drugs are contraindicated. If symptoms not resolving or worsening after 6-7 days use vancomycin. Do not retest samples within 28 days unless negative. Re-test if 2nd episode occurs after more than one month.	*First & Second episode:* metronidazole *If treatment failure or third episode:* vancomycin	400mg TDS 125mg QDS	10 days 14days
		In severe disease, identified by either Leukocyte count >15,000 cells/mm^3 or Creatinine level increased by >50% from baseline use vancomycin first line. **If unsure then seek advice from Microbiology at Salford Royal Foundation Trust (Hope).**		
Threadworms CKS	Treat household contacts. Advise morning shower/baths and hand hygiene. Use piperazine in children under 2.	mebendazole or piperazine	100 mg 1-6 yrs 5ml spoon 3-12 mths 2.5ml spoon	stat stat, repeat after 2 weeks
GENITAL TRACT INFECTIONS – UK NATIONAL GUIDELINES Vaginal discharge quick reference guide BASHH				
Note: *Refer patients with risk factors for STIs (<25y, no condom use, recent (<12mth) or frequent change of sexual partner, previous STI, symptomatic partner) to GUM clinic or general practices with level 2 or 3 expertise in GUM.*				
Vaginal candidiasis BASHH guidelines	All topical and oral azoles give 80-95% cure.[A-] In pregnancy avoid oral azole[B]	clotrimazole 10% OR clotrimazole OR fluconazole	5 g vaginal cream 500 mg pessary 150 mg orally	stat stat stat
Bacterial vaginosis BASHH guidelines	A 7 day course of oral metronidazole is slightly more effective than 2 g stat.[A+] Avoid 2g stat dose in pregnancy. Topical treatment gives similar cure rates[A+] but is more expensive.	metronidazole[A+] OR metronidazole 0.75% vag gel[A+] OR clindamycin 2% cream[A+]	400 mg BD 5 g applicatorful at night 5 g applicatorful at night	7 days 5 days 7 days
Chlamydia trachomatis Chlamydia quick reference guide	Tetracyclines are contra-indicated in pregnancy. Treat partners Refer contacts to GUM clinic	doxycycline[A+] azithromycin[A+]	100 mg BD 1 g stat	7 days 1 hr before or 2 hrs after food
Uncomplicated anogenital Gonorrhoea HPA guidelines BASHH guidelines	Refer to GUM. Treat partners simultaneously. Infection must have been confirmed by laboratory results. Possible co-infection with Trichomonas vaginalis, Candida albicans and Chlamydia trachomatis	cefixime *Note: this is an unlicensed indication*	400mg	stat
Herpes Simplex – genital CKS BASHH guide.	Refer to GUM. Treat partners simultaneously. Confirm diagnosis. **Aciclovir** is treatment of choice.	aciclovir or valiciclovir or famciclovir	200mg 5 times a day 500mg BD 250mg TDS	5 days 5 days 5 days
Trichomoniasis BASHH guidelines	Refer to GUM. Treat partners simultaneously In pregnancy avoid 2g single dose metronidazole. **Topical clotrimazole gives symptomatic relief (not cure).**	metronidazole[A-] *Symptomatic relief:* clotrimazole	400 mg BD or 2 g in single dose 100 mg pessary	5 days 6 days

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ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
GENITAL TRACT INFECTIONS – UK NATIONAL GUIDELINES Vaginal discharge quick reference guide BASHH **Continued.**				
Pelvic Inflammatory Disease (PID) BASHH guidelines	Essential to test for *N. gonorrhoea* (as increasing antibiotic resistance) and chlamydia. Microbiological and clinical cure are greater with ofloxacin than with doxycycline.[A+] Refer contacts to GUM clinic	metronidazole plus ofloxacin[B] *or* metronidazole plus doxycycline[B]	400 mg BD 400 mg BD 400 mg BD 100 mg BD	14 days 14 days 14 days 14 days
Acute prostatitis BASHH guidelines CKS	4 weeks treatment may prevent chronic infection. *Therapy may need to be modified in line with culture results.*	trimethoprim[C] or ciprofloxacin	200 mg BD 500 mg BD	28 days 28 days
SKIN / SOFT TISSUE INFECTIONS				
Impetigo CKS	Systematic review indicates topical and oral treatment produces similar results[A+] As resistance is increasing reserve topical antibiotics for very localised lesions[C or D] Reserve Mupirocin for MRSA.	flucloxacillin } First or erythromycin } line *fusidic acid* *mupirocin*	Oral 500 mg QDS Oral 500 mg QDS *Topically QDS* *Topically QDS*	7 days 7 days *5 days* *5 days*
Eczema CKS	Using antibiotics, or adding them to steroids, in eczema does not improve healing unless there are visible signs of infection.			
Acne CKS	*Topical preparations* should be used to treat mild to moderate acne. *Oral antibiotics* should be used for moderate or severe acne or where topical preparations are not tolerated or are ineffective or where application to the site is difficult. Severe acne should be referred to the dermatology service.	Lymecycline	408mg BD	Supply monthly with frequent review.
Cellulitis CKS	If patient afebrile and healthy other than cellulitis flucloxacillin may be used as single drug treatment. If febrile and ill, admit for IV treatment In facial cellulitis use co-amoxiclav[C]	flucloxacillin *If penicillin allergic:* erythromycin alone co-amoxiclav	500 mg QDS 500 mg QDS 625 mg TDS	7 – 14 days 7 – 14 days 7 - 14 days
Leg ulcers CKS	Bacteria will always be present. **Antibiotics do not improve healing.**[A+] Culture swabs and antibiotics are only indicated if there is evidence of clinical infection such as inflammation/redness/cellulitis; increased pain; purulent exudate; rapid deterioration of ulcer or pyrexia. Sampling for culture requires cleaning then vigorous curettage and aspiration – superficial swabs are of limited use.			
	Diabetic leg ulcer Refer for specialist opinion if moderate to severe infection. Grade 2 & 3 ulcers should be referred to the multidisciplinary foot clinic. For further information consult the Salford 'Management of Diabetic Foot Infections' guidance.	*1st line for Grade 0 & Grade 1:* flucloxacillin plus amoxycillin *Penicillin allergic:* erythromycin	 1000 mg QDS 500 mg TDS 500 mg QDS	7 to 14 days, if no improvement at 14 days refer to multidisciplinary foot clinic.
Animal bite CKS Human bite CKS	Surgical toilet most important. Assess tetanus and rabies risk. Antibiotic prophylaxis advised for – puncture wound; bite involving hand, foot, face, joint, tendon, ligament; immunocompromised, diabetics, elderly, asplenic Antibiotic prophylaxis advised. Assess HIV/hepatitis B & C risk	*First line animal & human prophylaxis and treatment* co-amoxiclav[B-] *If penicillin allergic:* metronidazole PLUS doxycycline and review at 24 & 48hrs 2nd Line: clindamycin PLUS ciprofloxacin	 375-625 mg TDS 200-400 mg TDS 100 mg BD 300mg QDS or 450mg TDS 500mg BD	 7 days 7 days 7 days 7 days 7 days

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ILLNESS	COMMENTS	DRUG	DOSE	DURATION OF TX
SKIN / SOFT TISSUE INFECTIONS Continued.				
Conjunctivitis CKS	**Most bacterial infections are self-limiting** (64% resolve on placebo[A+]). They are usually unilateral with yellow-white mucopurulent discharge.	chloramphenicol 0.5% drops + 1% ointment gentamcin 0.3% drops	2 hrly reducing to QDS at night 2 hrly reducing to QDS	All for 48 hours after resolution
Scabies CKS	Treat whole body including scalp, face, neck, ears, under nails. Treat all household contacts.	permethrin[A+] *Second line if above contraindicated:* malathion	5% cream 0.5%aqueous liquid	2 applications one week apart
Head Lice CKS	Only patients referred into GPs, from the Community Pharmacy Head Lice Scheme due to resistance, should be treated.	*Referred due to resisitance:* carbaryl	1% Aqueous Liquid or 0.5% Alcoholic Lotion	2 applications one week apart
Dermatophyte infection of the proximal fingernail or toenail CKS **For children seek advice**	Take nail clippings: Start therapy only if infection is confirmed by laboratory**.** Idiosyncratic liver reactions occur rarely with terbinafine. For infections with yeasts and non-dermatophyte moulds use itraconazole.[C] Itraconazole can also be used for dermatophytes	5% amorolfine nail lacquer[B-] (for superficial) terbinafine[A-] itraconazole	1-2x/weekly fingers toes 250 mg OD fingers toes 200 mg BD fingers toes	6 months 12 months 6 – 12 weeks 3 – 6 months 7 days monthly 2 courses 7 days monthly 3 courses
Dermatophyte infection of the skin CKS	Take skin scrapings for culture. Treatment: 1 week terbinafine is as effective as 4 weeks azole. [A-]If intractable consider oral itraconazole. Discuss scalp infections with specialist.	Topical 1% terbinafine [A+] Topical undecenoic acid or 1% azole[A+]	OD - BD 1-2x/daily	1 week[A+] 4 – 6 weeks[A+]
Varicella zoster/ Chicken pox CKS & Herpes zoster/ shingles CKS & Herpes simplex oral & ocular CKS - oral CKS - ocular	If pregnant seek advice re treatment and prophylaxis Chicken pox: Clinical value of antivirals minimal unless immunocompromised, severe pain, adult, on steroids, secondary household case **AND** treatment started <24h of onset of rash.A[-] Shingles: Always treat ophthalmic. Non-ophthalmic: Treat >60 yrs if <72h of onset of rash, as post-herpetic neuralgia rare in <50 yrs but occurs in 20% >60y[A+]. Treatment of herpes simplex should start as early as possible and usually within 5 days of the appearance of infection. In severe infection or immunocompromised individuals use oral treatment.	*For chicken pox use:* aciclovir *For shingles use:* aciclovir or valaciclovir or famciclovir *Ophthalmic treatment:* aciclovir 3% eye ointment *For herpes labialis:* aciclovir 5% cream or penciclovir 1% cream	800 mg 5x/day 800 mg 5x/day 1 g TDS 250 mg TDS Child doses – see BNF Apply 5 times a day Apply to lesions every 4 hours (5 times daily) Apply every 2 hours during waking hours	7 days 7 days 7 days 7 days until 3 days after healing 5 – 10 days 4 days
Dental Abscess CKS	Initiate antibiotic therapy if necessary, refer to a Dentist	amoxicillin or metrondiazole	250mg TDS 200mg TDS	5 days 5 days

The following references were used when developing these guidelines:

This guidance was initially developed in 1999 by practitioners in South Devon, as part of the S&W Devon Joint Formulary Initiative, and Cheltenham & Tewkesbury Prescribing Group and modified by the PHLS South West Antibiotic Guidelines Project Team, PHLS Primary Care Co-ordinators and members of the Clinical Prescribing Sub-group of the Standing Medical Advisory Committee on Antibiotic Resistance. It was further modified following comments from Internet users. The guidance has been updated annually as significant research papers, systematic reviews and guidance have been published. The Health Protection Agency works closely with Prodigy.

These guidelines have been further reviewed to reflect local antibiotic resistance patterns and guidelines. This has been carried out by the Medicines Management Team of Salford PCT in conjunction with Microbiology at Salford Royal Foundation Trust.

Grading of guidance recommendations

The strength of each recommendation is qualified by a letter in parenthesis.

Study design	Recommendation grade
Good recent systematic review of studies	A+
One or more rigorous studies, not combined	A-
One or more prospective studies	B+
One or more retrospective studies	B-
Formal combination of expert opinion	C
Informal opinion, other information	D

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Influenza

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LOWER RESPIRATORY TRACT INFECTIONS

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Trimethoprim is a folate antagonist. In some women low folate levels have been associated with an increased risk of malformations. However, in women with normal folate status, who are well nourished, therapeutic use of trimethoprim for a short period is unlikely to induce folate deficiency.

A number of retrospective reviews and case reports indicate that there is no increased risk of foetal toxicity following exposure to nitrofurantoin during pregnancy. Serious adverse reactions eg peripheral neuropathy, severe hepatic damage and pulmonary fibrosis are extremely rare. Nitrofurantoin can cause haemolysis in patients with G6PD deficiency. Foetal erythrocytes have little reduced glutathione and there is a theoretical possibility that haemolysis may occur. However, haemolytic disease of the new-born has not been reported following *in utero* exposure to nitrofurantoin.

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What to do about Traveller's diarrhoea. Drugs & Therapeutic Bulletin 2002;**40:**36-38.

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