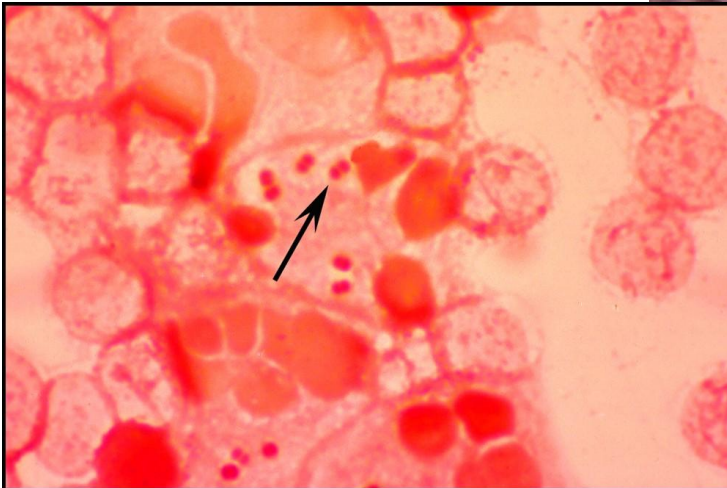

Antibiotic Guidelines for Primary Care

Nelson and Marlborough Districts 2010-2

Neisseria meningitidis



These guidelines are available online at: www.nmdhb.govt.nz under *Health Concerns/Clinical Guidelines/ Infectious Diseases and Antibiotics* and any changes will be updated on-line prior to the next hard-copy edition.

Oral versus parenteral (IV, IM) antibiotics

Oral therapy is appropriate except when:

- The patient cannot take medication orally (e.g., swallowing difficulties) or is unlikely to absorb the antibiotic (e.g., vomiting, severe diarrhoea)
- An oral antibiotic with suitable spectrum is not available
- High doses are required for difficult-to-penetrate sites of infection (e.g., endocarditis, meningitis, osteomyelitis)
- Urgent treatment is needed for severe or rapidly progressive infection
- The patient is unlikely to adhere to oral therapy.

Practice tip

To boost serum and tissue antibiotic levels by up to 200% in patients with moderate infections, **probenecid** 250-500mg orally three or four times daily can be given with penicillin, amoxicillin, flucloxacillin, cephalexin or cefaclor. Probenecid reduces renal and gut secretion of these antibiotics; this interaction does not occur in moderate or severe renal impairment. Beware nausea. Halve dose of concomitant paracetamol and NSAIDs.

Penicillin and cephalosporin allergy cross-reactivity

There is a 3-10% cross-reaction rate between penicillins and cephalosporins.

- If a patient has a mild penicillin allergy or adverse reaction (e.g., mild rash, diarrhoea) then you may prescribe a cephalosporin (and vice versa)
- If a patient has a severe penicillin allergy (e.g., severe rash, urticaria, angioedema, anaphylaxis, hypotension or bronchospasm) then do not prescribe a cephalosporin (and vice versa).

Infection control

Cleanse your hands after every patient contact.

Wear examination gloves if touching infected skin or if a multi-drug resistant organism (e.g., MRSA, ESBL-producer) is suspected or known.

Wear a surgical mask within 1-2 metres of a patient with droplet-transmitted infection, such as meningococcus, whooping cough or influenza.

Antibiotic guidelines – empiric choices

Infection	First choice	Alternatives	Comments
Bites – animal or human, includes injury to fist from contact with teeth	Amox/clavulanate	<u>Cat or dog:</u> clindamycin ⁷ <u>plus</u> (cefuroxime axetil ² or doxycycline ⁹ or cotrimoxazole ⁸ or ciprofloxacin ⁴). <u>Human:</u> clindamycin ⁷ + (cotrimoxazole ⁸ or ciprofloxacin ⁴)	Clean, irrigate and debride non-viable tissue. Assess need for tetanus toxoid. Prophylaxis for 5 days with same antibiotics if human or cat bite or if dog bite that is severe or deep, on hands or face, close to bone, tendon or joint, in area of venous or lymphatic stasis or on immune-compromised victim (diabetes, splenectomy etc.). Refer if involves bone, joint, tendon, hand or face. If infected, submit pus or tissue for culture and treat for 14 days
<i>Blastocystis hominis</i> gastroenteritis	Nil	Metronidazole 1600 mg daily for 10 days <u>or</u> Cotrimoxazole ⁸ 160+ 800mg twice daily for 7 days	Usually a non-pathogenic commensal. Give trial of antibiotic therapy only if persistent diarrhea and no other cause found
Boils	Flucloxacillin	Cephalexin, cotrimoxazole ⁸ , doxycycline ⁹	Small, uncomplicated, non-facial boils can be treated with incision and drainage alone. If recurrent consider decolonisation. For protocol see at end of this handbook, on-line at www.nmdhb.govt.nz or contact Richard Everts or Rosemary Ikram
<i>Bordetella pertussis</i>			See Whooping cough
Breast – non-puerperal infection	Amox/clavulanate	Clindamycin ⁷	Sub-areolar infections often involve anaerobes
Breast – post-partum mastitis or abscess	Flucloxacillin	Cephalexin, cotrimoxazole ⁸	Continue breastfeeding throughout infection. If fail, swab for <i>Candida</i>
Bronchiolitis under 1 yr or “wheezy bronchitis” in children	Nil		RSV and other viruses are the cause. Exclude from pre-school/school until coryzal phase is over
Bronchitis – acute in adults, no underlying lung disease	Nil		Most cases viral. Purulent sputum alone is not an indication for antibiotics. Give antibiotics if medical co-morbidity or advanced age
Bronchitis – exacerbation in adults with COPD	Amoxicillin 500mg TDS for 5 days	Doxycycline ⁹ , cefaclor	Benefit of antibiotics minimal but most likely in those with severe COPD or severe exacerbations

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Burns – prevention of infection	Silver sulphadiazine cream 1%		Broad spectrum, painless, soothing and well studied. Infected burns need systemic antibiotic treatment
Campylobacter gastroenteritis	Nil – usually self-limited. See comments for indications for antibiotic treatment	Erythromycin 500mg (child: 10mg/kg) QID for 5 to 7 days, <u>or</u> EES 800mg (child: 20 mg/kg) QID for 5 to 7 days	Treat only if severe or prolonged, food handler, child-care worker or late pregnancy (nearing term, prevents exposure of neonate during delivery). If intolerant of erythromycin, give norfloxacin ¹⁵ 400mg (child: 10mg/kg) twice daily for 5 days. Notifiable
Candida – vulvo-vaginal or oral thrush	Topical azole or nystatin	Fluconazole ¹⁰ 150mg single dose (for vulvo-vaginitis) or 100mg daily for 7 to 14 days (for oro-pharyngeal infection)	If <u>recurrent</u> vulvovaginal candidiasis (4 or more symptomatic episodes per year) use vaginal cream or oral fluconazole 150-300mg weekly
Cellulitis – limb or face	Flucloxacillin for 7 to 10 days (child: 100 mg/kg/day). (<i>Adding penicillin <u>not</u> required</i>)	Cephalexin, clindamycin ⁷	Keep affected limb elevated. Do not use NSAIDs (increased risk of necrotising fasciitis). See Diabetic foot infection if relevant. To boost flucloxacillin or cephalexin levels consider probenecid 250-500mg with each dose of antibiotic
Cellulitis – periorbital	Amox/clavulanate	Cefaclor	Discuss with Ophthalmologist in all but very mild cases
Chlamydia and other non-gonococcal urethritis or cervicitis	Azithromycin ¹ 1g (10mg/kg for children) single dose	Doxycycline ⁹ 100mg twice daily for 7 days	In pregnancy, can use azithromycin, amoxycillin 500mg TDS for 7 days or EES 500mg TDS for 7 days. Remember contact tracing. Chlamydia test of cure at 4 weeks if rectal infection, pregnancy or if amoxycillin or EES has been used
Clostridium difficile - toxin-positive diarrhoea	Metronidazole 400mg (child: 10 mg/kg) TDS for 7 to 10 days		Stop other antibiotics if possible. Avoid anti-diarrhoeals (e.g., loperamide)

Periorbital cellulitis



Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Common cold – upper respiratory tract viral infection	Nil	Echinacea is not effective	Antibiotics do not prevent bacterial infection. Nasal purulence or discoloured sputum alone do not predict response to antibiotics
Conjunctivitis – bacterial (more likely if eyelids glued in morning or purulent discharge)	Mild: cleansing and lubricants +/- propamidine drops or (OTC)	Moderate or severe: chloramphenicol eye drops (OTC) during day +/- ointment at night	Swab neonates or if suspect STI - treat chlamydial and gonococcal conjunctivitis systemically. Consult specialist if meningococcal conjunctivitis. If contact lens wearer swab and assess for keratitis
COPD			See Bronchitis – exacerbation in patients with COPD
Croup			See Laryngitis
Cystitis			See UTI - cystitis
Dental infections			See Tooth abscess
Dermatophytoses – ‘tinea’ or ‘ringworm’ of scalp or body	Topical azole, topical terbinafine (higher doses may be needed for tinea capitis due to <i>M. canis</i> in children)	Oral terbinafine, oral itraconazole ¹¹	Oral treatment indicated if culture-proven <u>and</u> has either failed topical treatment, is widespread, involves scalp or is being treated with concomitant topical steroid
Diabetic foot infections	Amox/clavulanate	Cefaclor <u>plus</u> metronidazole; Clindamycin ⁷ <u>plus</u> cotrimoxazole ⁸	Refer <u>all</u> foot ulcers for hospital assessment. Bone infection more likely if ulcer > 2cm ² , positive probe to bone, ESR > 70, substantially raised CRP or abnormal plain x-ray
Diarrhoea			See Gastroenteritis, Traveler’s diarrhea or individual organism
Diverticulitis	Amox/clavulanate	Metronidazole <u>plus</u> (cefaclor or cotrimoxazole ⁸)	Treat for 5 days. Low-residue diet. If first episode, consider referral for colonoscopy (≥ 6 weeks after treatment)
<i>Dientamoeba fragilis</i> gastroenteritis	If symptomatic, doxycycline ⁸ 100mg (child > 12 yrs: 2.5 mg/kg) twice daily for 10 days	Metronidazole 400mg (child: 10mg/kg) TDS for 10 days	Treat only if symptomatic. Consider iodoquinol or paromomycin (not subsidized) if fail
Eczema – infected (honey-coloured crusting, folliculitis)	Liquid chlorine bleach (sodium hypochlorite 6%) or potassium permanganate in bath water twice a week (not long-term or if aggravates eczema)	If moderate-severe, prescribe short courses of oral antibiotics as per cellulitis. Swab if usual antibiotics fail	Add ¼ to ½ cup bleach to bath and soak for 5 to 10 min, rinse in fresh water, dry and apply emollient +/- other prescribed medication. Can try triclosan 1.5% soap or chlorhexidine body wash. Mupirocin and fusidic acid effective for localised infection but resistance develops rapidly

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Endocarditis prophylaxis – before dental procedures in patients with high-risk heart valve lesions	Amoxicillin 2g (child: 50mg/kg) given orally 1 hour before procedure, IV just before the procedure or IM 30 minutes before the procedure	If penicillin allergy or a penicillin- or cephalosporin-group antibiotic taken more than once in the previous month: clindamycin ⁷ 600mg (child: 15 mg/kg) orally, IV over 20 minutes or IM <u>or</u> clarithromycin ⁶ 500mg (child: 15mg/kg) orally	Clindamycin not available in syrup form in New Zealand. Beware potential interactions between clarithromycin and other medications. If the antibiotic is inadvertently not administered before the procedure, it may be administered up to 2 hours after the procedure. For details link to: http://www.heartfoundation.org.nz/file/Infective%20Endocarditis%20Dental%20Chart.pdf
Epididymo-orchitis	< 35 years more likely venereal – give ceftriaxone 250mg IM single dose then doxycycline 100mg BD for 10 days	> 35 years or after insertive anal intercourse more likely enteric gram-neg. bacillus – treat as for cystitis in men	Check MSU in all. Test for chlamydia and gonorrhoea if at risk
Epiglottitis			Refer for hospital assessment
Furuncles			See boils
Gastroenteritis – acute, cause unknown	Antibiotics rarely indicated. Test stool if severe or persistent diarrhoea, blood in stool, recent foreign travel, typical of giardiasis, following antibiotics or hospitalization (<i>C. difficile</i>). If bacterial cause found, see individual organism guideline	If particularly severe or acute bloody diarrhoea, while awaiting stool results: give cotrimoxazole ⁸ for 3 to 5 days <u>plus</u> if recent antibiotics or hospitalization add metronidazole	Fluid replacement is mainstay of treatment. Exclude from pre-school, school or work until symptoms settle. Notifiable if part of cluster
Giardiasis	Ornidazole 1.5g (child: 40mg/kg) in evening for 1 to 2 days	Metronidazole 2g (child: 30mg/kg) daily for 3 days	Treat if symptomatic, not carrier. If fails, try metronidazole 400mg (child: 10mg/kg) TDS for 7 days. Notifiable
Gonorrhoea	Ceftriaxone ³ 250mg IM single dose	Ciprofloxacin ⁴ 500mg single dose if known susceptible	Treat for chlamydia as well in all. No test of cure needed

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Herpes simplex – severe, first or recurrent episode	Aciclovir 400mg 5x/day for 7 days		Start ASAP, ideally within 3 days of onset; can start later if new lesions are developing or pain is severe. Lignocaine gel and paracetamol
Herpes zoster			See Shingles
Impetigo /school sores – localised; treatment of other minor skin infection	Topical hydrogen peroxide 1% cream (Crystacide [®])	Topical fusidic acid or mupirocin ¹³ (Povidone iodine probably <u>not</u> effective)	For impetigo, wash crusts off. If widespread or severe, treat with oral agents as per cellulitis. Exclude from pre-school or school until 24h after treatment started; cover sores
Influenza	Tamiflu [®] (oseltamivir) ¹⁶ 75mg twice daily for 5 days	Relenza [®] if vomiting, diarrhoea or severe renal impairment	Treat only if onset ≤ 48 hours <u>plus</u> fever > 38 °C or rigors or sweats <u>plus</u> cough or sore throat
Laryngitis/Croup	Nil		Almost always viral
Leptospirosis	Penicillin or ceftriaxone ³ for 5 to 7 days	Doxycycline ⁹ 100mg twice daily for 5 to 7 days	Start within 1 week of onset. Notifiable
Mastitis			See Breast
Meningococcal infection , meningitis or severe sepsis – prior to transport to hospital	Ceftriaxone ³ 100mg/kg up to 2g IV or IM	<u>Adult</u> : penicillin 1.2g IV or IM <u>Child</u> : penicillin 25-50mg/kg IV or IM	Give if compatible rash in febrile person <u>or</u> in a suspected case in whom the delay to assessment in hospital is likely to be greater than 30 minutes. Notifiable on suspicion
Orchitis			See Epididymo-orchitis
Otitis externa – acute diffuse	Sofradex ¹⁷ drops [®] 4 to 6 drops 2 to 3 times a day <u>Note</u> : Kenacomb Ear Drops [®] have similar activity to Sofradex [®] and are fully funded but very gooey	If framycetin-resistant <i>Pseudomonas</i> use Tobramycin drops + Locorten-Vioform	Keep ear canal dry (acetic acid drops may help), consider suction. Swab and treat empirically with flucloxacillin or cephalexin if fever, spread to pinna or folliculitis
Otitis media – acute	Amoxicillin 40-80mg/kg/day in 2 to 3 divided doses for 5 days (7 to 10 days if < 2 years, underlying medical condition, perforated drum or chronic or recurrent infection)	If fails or persists try amox/clavulanate. If penicillin-allergic use cefaclor 10mg/kg up to 500mg TDS for 5 days or erythromycin	Spontaneous resolution common. Benefit of antibiotics is small; consider if under 2 years or with bilateral or severe infection. For others, educate and give paracetamol and antibiotic prescription to redeem if unresolved at 48 to 72 hours

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Otitis media – chronic suppurative, with or without grommets	Sofradex ¹⁷ (minimal risk ototoxicity if use for up to 7 days)	Ciproxin HC ⁵ only if no response to Sofradex or need prolonged treatment	Aural toilet in all. If perforation < 6 weeks treat with oral antibiotics (see Otitis media – acute) <u>and</u> topical steroid/antibiotic; if perforation > 6 weeks give topical only. If prolonged, refer to ENT Specialist
Parotitis			See Salivary gland infections
Pertussis			See Whooping cough
Pharyngitis/ tonsillitis – see comments before deciding to treat	Penicillin 500mg (child: 10mg/kg) twice daily for 10 days If suspect poor compliance then give benzathine penicillin IM single dose – 0.6 mega units if < 27kg or 1.2mega units if > 27kg	Cefaclor 500mg (child: 10mg/kg) TDS for 10 days Erythromycin for 10 days	Usually viral. Give antibiotics only if: <ul style="list-style-type: none"> • Features of group A streptococcal infection (fever > 38 °C, tender cervical nodes, tonsillar exudates and no cough), especially if aged 3 to 14 years. If uncertain, swab throat • Patient aged 3 to 45 years and high risk group for rheumatic fever (Maori or Pacific peoples; from Northland, Counties/ Manukau, Gisborne, Bay of Plenty, Waikato or Hawkes Bay) • Past rheumatic fever or known rheumatic heart disease (treat at any age) • Scarlet fever • ?Peritonsillar abscess (trismus, refer to hospital) Exclude from school until 24 hours after antibiotics started
Pneumonia – adult <i>(Note: it is not possible to distinguish ‘typical’ from ‘atypical’ pneumonia in individual cases – treat all patients for both sets of causative organisms)</i>	Amoxicillin 1g TDS for 7d <u>plus either</u> roxithromycin 300mg daily <u>or</u> doxycycline ⁹ 200mg STAT then 100mg daily	Mild penicillin allergy: replace amoxicillin with cefaclor 500mg TDS for 7 days Severe penicillin allergy: roxithromycin 300mg <u>or</u> moxifloxacin ¹² 400mg as single agents daily for 7 days	Patients with co-morbidity (e.g. COPD, diabetes, renal failure, cancer, steroids), recent antibiotics, resident in Rest Home or recently discharged from hospital are more likely to have infections caused by gram-negative bacilli. Substitute amox/clavulanate for amoxicillin in these cases

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Pneumonia – adult, suspect aspiration	Amox/clavulanate for 7 days	Clindamycin ⁷	
Pneumonia – child 5 to 15 years	Amoxycillin 25mg/kg TDS for 5-7d	Roxithromycin 4mg/kg twice daily (or erythromycin syrup) for 5-7d	
Pneumonia – child 4 months to 5 years	-	Amoxycillin 25mg/kg TDS orally if investigations suggest bacterial infection	Most are viral. If < 4 months, seek advice
Prostatitis – acute	As for UTI – cystitis in adult men		Check and treat for venereal pathogens if <35 years or sexually active
Prostatitis – chronic bacterial	Cotrimoxazole 160+800mg twice daily for 1 to 3 months	Norfloxacin 400mg twice daily for 4 to 6 weeks, <u>or</u> Ciprofloxacin ⁴ 500mg twice daily for 4 to 6 weeks	90-95% of chronic prostate pain is not due to infection and has no proven treatment - avoid repeated courses of empiric antibiotics. Test urine and expressed prostatic secretions and treat if positive. Consider venereal prostatitis
Pyelonephritis			See UTI – pyelonephritis
Ringworm			See Dermatophytoses
Salivary gland infection – acute bacterial/suppurative	Flucloxacillin 500mg (child 12.5mg/kg) QID for 10 days	Cephalexin, clindamycin ⁷	Typically in dry elderly and neonates – usually <i>Staphylococcus aureus</i> . May need surgical drainage
Salmonella gastroenteritis - high-risk groups only (see Comments)	Cotrimoxazole ⁸ 160+800mg (child: 4+20mg/kg) twice daily for 3 to 5 days if known to be susceptible	Ciprofloxacin ⁴ 500mg daily for 7 to 10 days (14 days if immune-compromised) Azithromycin ¹ 500mg daily for 7 days (14 days if immune-compromised)	No benefit in mild or moderate illness. Treat if severely ill (hospitalised), < 1 year, > 50 years, immunocompromised, vascular graft or prosthetic joint. Notifiable
School sores			See Impetigo

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Septicaemia or overwhelming infection			See Meningococcal infection (for empiric antibiotics before transfer)
Shigella gastroenteritis	Ciprofloxacin ⁴ 750mg daily for 3 days	Cotrimoxazole ⁸ 160+800mg twice daily for 3 to 5 days if known to be susceptible Azithromycin ¹ 500mg daily for 3 days	Treat all cases. Use ciprofloxacin for 7-10 days if immunocompromised. Notifiable
Shingles	Aciclovir 800mg (child: 20mg/kg) 5x/day for 7 days		Start aciclovir more than 72 hours after onset only if ophthalmic zoster or immune-compromised
Sinusitis – acute	Analgesia, saline spray or douches, intranasal steroids and decongestants	Amoxicillin 500mg (child: 15mg/kg) TDS for 10 days If recent antibiotic use or failing amoxicillin, try amox/ clavulanate, cefaclor 500mg (child: 10mg/kg) TDS for 10 days or doxycycline ⁹ 100mg daily for 10 days	Most cases are viral or resolve spontaneously. Consider antibiotics if symptoms > 5-7 days <u>plus</u> (fever or unilateral maxillary sinus tenderness or severe headache or worsening symptoms after initial improvement). Have lower threshold to give antibiotics if immunosuppressed
Thrush			See Candida
Tinea			See Dermatophytoses
Tonsillitis			See Pharyngitis
Tooth abscess	Penicillin 500mg (child: 10mg/kg) QID for 5 days If unresponsive add metronidazole or use amox/clavulanate	If penicillin allergic use clindamycin ⁷ alone	Antibiotic treatment is only an adjunct to an appropriate dental procedure. Give antibiotics only if face swelling, systemic symptoms or fever. If spread to neck, hospitalize
Traveler's diarrhoea – moderate to severe only	Fluid replacement. Antimotility agents for adults without fever or bloody stools	Azithromycin ¹ 1g (child: 20mg/kg) single dose or 500mg (child: 10mg/kg) daily for 3 days	Many causes, especially enterotoxigenic <i>E. coli</i> . Antibiotics only for moderate to severe cases
Trichomoniasis	Metronidazole 2g single dose		If relapse, metronidazole 400mg twice daily for 5 to 7 days. Treat partners, even if asymptomatic
Tuberculosis	See comment		Refer for hospital assessment. Notifiable on suspicion

Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Ulcers – leg or foot, <u>acute</u> infection (pain, redness, swelling, lymphangitis or fever)	Flucloxacillin	Cephalexin, clindamycin ⁷	Swab if antibiotic fails
Ulcers – leg or foot, possible <u>low-grade</u> infection (purulent discharge, non-healing)	Regular dressing changes, cadexamer iodine or silver dressings, debridement, assess venous or arterial supply	If fails, take swab to guide antibiotic choice. Before swab, cleanse/wipe with saline to remove secretions	The presence of bacteria on superficial swabs does not, alone, indicate a need for antibiotics. If no leucocytes on microscopy, infection much less likely. Zinc supplements may help
Urinary tract infection – <i>Candida</i> sp.	Fluconazole ¹⁰ 200mg (child: 5mg/kg) daily for 14 days <u>and</u> ideally change or remove urinary catheter or stent		Frequently a contaminant or meaningless colonizer, especially with indwelling catheter. Treat if symptomatic, neutropenic, imminent urological manipulation or infant of low birth weight
Urinary tract infection - child	Cotrimoxazole 4+20 mg/kg up to 160+800mg twice daily for 5 days	Amox/clavulanate 12.5+3.1 mg/kg up to 500+125 mg twice daily for 5 days, <u>or</u> Cefaclor 50mg/kg/day in 3 divided doses for 5 days	Accurate diagnosis very important – make every effort to collect a sample before starting treatment. Reculture urine if symptoms persist. Refer for inpatient treatment if very unwell or < 6 months old. Discuss with Paediatrician if < 2 years old. Refer for ultrasound if < 5 years old
Urinary tract infection – cystitis in adult men	Trimethoprim 300mg daily for 14 days	Cefaclor 500mg twice daily for 14 days, <u>or</u> Amox/clav 500+125 mg twice daily for 14 days	Often underlying urinary tract abnormality or co-existent prostatitis or epididymitis. Investigate all males with UTI for underlying anatomical or functional abnormality Use norfloxacin only if proven resistance to first-line antibiotics
Urinary tract infection – cystitis in adult women	Trimethoprim ¹⁸ 300mg daily for 3 days	Nitrofurantoin ¹⁴ 50-100mg four times daily for 5 days, <u>or</u> Amox/clav 500+125 mg twice daily for 5 days, <u>or</u> Cefaclor 500mg twice daily for 5 days	Asymptomatic bacteriuria common in women, especially elderly; treat if pregnant, renal transplant or pre- or post-urological procedure. In pregnancy, treat for 7 days with cefaclor, nitrofurantoin or amox/clav then repeat urine culture to confirm cure. Use norfloxacin only if proven resistance to first-line antibiotics

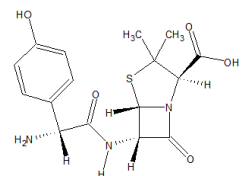
Antibiotic guidelines – empiric choices (continued)

Infection	First choice	Alternatives	Comments
Urinary tract infection – indwelling catheter	Nil unless symptomatic	Nitrofurantoin ¹⁴ 50-100mg four times daily or norfloxacin ¹⁵ 400mg twice daily if can't wait for results of culture	Asymptomatic bacteriuria and pyuria are common and should not be treated. Culture urine and treat only if febrile or rigors, patient has risk factors (e.g., neutropenia, transplantation, pregnancy) or before urological surgery. Treat for 10 to 14 days (less if responds rapidly). Always change catheter
Urinary tract infection – pyelonephritis; mild with low fever and no nausea or vomiting	Amox/clavulanate 500+125 mg TDS for 14 days	Cefaclor 500mg TDS for 14 days, <u>or</u> Cotrimoxazole ⁸ 160+800mg twice daily for 14 days	Assess for underlying anatomical or functional abnormalities, especially obstruction. If moderate severity or resistant organisms, use ciprofloxacin 500mg twice daily for 10 days. If severe or vomiting refer for IV treatment
Vaginosis - bacterial	Metronidazole 2g single dose or 400mg twice daily for 7 days	Clindamycin ⁷ 300mg twice daily for 7 days	If pregnancy, clindamycin has a little more safety data than metronidazole. Avoiding sex or using condoms increases cure rate by 50%
Whooping cough (<i>Bordetella pertussis</i>)	Erythromycin 250mg (child > 1 month: 10mg/ kg) QID for 7 days, <u>or</u> EES 400mg (child > 1 mo: 10 mg/kg) QID for 7 days	Cotrimoxazole ⁸ 160+800mg (child > 2 months: 4+20 mg/kg) twice daily for 7 days	Admit if cyanotic spells; refer if < 6 months. Treatment after early paroxysmal cough phase (approx 21 days) <u>has no effect</u> on illness or infectivity. Exclude from school until 5 days after treatment started. Notifiable on suspicion
Wound infection – deep penetrating or post-operative (see Bites if following bite)	Amox/clavulanate	Cephalexin, clindamycin ⁷ (add ciprofloxacin ⁴ to clindamycin ⁷ if abdominal wound)	Drainage and irrigation are often all that is needed. Culture pus to guide antibiotic choice. Give tetanus toxoid if indicated
Wounds – prevention of infection in traumatic or post-operative	Povidone iodine 10% ointment, hydrogen peroxide 1% cream (Crystacide [®])	Almost any topical antiseptic or antibacterial agent probably works, even honey or manuka oil.	Topical antibiotics reduce risk of infection. Consider especially in patients with face wounds, heavily contaminated wounds, immunocompromised or previous cellulitis in that region. Please avoid agents that have key roles in other conditions (e.g., mupirocin, fusidic acid, silver sulphadiazine)

Footnotes

1. **Azithromycin:** 500mg x2 subsidised only for chlamydia (including contacts); for other use not subsidised so cost approx \$20-\$35 for 3 tablets
2. **Cefuroxime axetil:** not subsidised so cost approx \$20-\$35 for 14 tablets
3. **Ceftriaxone:** subsidised only for treatment of gonorrhoea and meningitis
4. **Ciprofloxacin:** caution in children under 16 years - causes arthropathy in young animals but not seen in limited experience in human children. Caution also in pregnancy - animal studies demonstrate fetal damage but limited human studies show no harmful effects
5. **Ciproxin HC ear drops:** not subsidised; patient cost approx \$35-45
6. **Clarithromycin:** 250mg x2 subsidised for endocarditis prophylaxis; two-week course subsidised for *Helicobacter pylori* eradication; for other use not subsidised so cost approx \$20-\$30 for 14x 250mg tablets or \$45-60 for 14x 500mg tablets. Caution in pregnancy - animal studies demonstrate fetal damage but limited human studies show no harmful effects
7. **Clindamycin:** 150mg x4 subsidised without Specialist endorsement; for longer course please consult Specialist in individual case or complete Clindamycin Consultation and Endorsement Form in this handbook or on www.nmdhb.govt.nz and fax to Richard Everts on (03) 546-1288 or consult Rosemary Ikram at Medlab South. Remember to write the Specialist's name on the prescription
8. **Cotrimoxazole:** do not use in pregnancy. Safe in breastfeeding for infants > 1 month old
9. **Doxycycline:** do not use in children under 12 years (staining of teeth) or in pregnancy after 16 weeks gestation
10. **Fluconazole:** for Specialist endorsement complete Oral Antifungal Consultation and Endorsement Form in this handbook or on www.nmdhb.govt.nz and fax to Richard Everts on (03) 546-1288 or consult Rosemary Ikram at Medlab South. Remember to write the Specialist's name on the prescription. Do not use in pregnancy. Breastfeeding safe
11. **Itraconazole:** for Specialist endorsement complete Oral Antifungal Consultation and Endorsement Form in this handbook or on www.nmdhb.govt.nz and fax to Richard Everts on (03) 546-1288 or consult Rosemary Ikram at Medlab South. Remember to write the Specialist's name on the prescription. Caution in pregnancy - animal studies demonstrate fetal damage but limited human studies show no harmful effects. Insufficient data in breastfeeding
12. **Moxifloxacin:** not subsidised so cost approx \$140 for 5 tablets. Caution in children under 16 years – fluoroquinolones cause arthropathy in young animals but not seen in limited experience in human children. Caution also in pregnancy - animal studies demonstrate fetal damage but limited human studies show no harmful effects
13. **Mupirocin:** partially subsidised (cost approx \$15-25/15g tube)
14. **Nitrofurantoin:** contra-indicated when eGFR < 60 mL/min. Caution in elderly
15. **Norfloxacin:** caution in children under 16 years – fluoroquinolones cause arthropathy in young animals but not seen in limited experience in human children. Caution also in pregnancy - animal studies demonstrate fetal damage but limited human studies show no harmful effects
16. **Oseltamivir:** not subsidised except during pandemic influenza season, then according to Ministry of Health criteria
17. **Sofradex®:** partially subsidised (cost approx \$15-\$25 for 8mL bottle)
18. **Trimethoprim:** do not use in first trimester of pregnancy.

NOTE: Prices are estimates at October 2010. The cost of medicines can vary between pharmacies and may be affected by out-of-hours service charges. Prescription co-payment charges (\$3 or \$15) are dependent on the patients' eligibility for subsidised health care in NZ and the prescribers' contract with the NMDHB for prescription coding (AYJ 4 for hospital and GP prescriptions or AYJ 3 for private specialists' prescriptions).



References and reviewers

These guidelines are based on:

- Nelson and Marlborough antibiotic susceptibility statistics, 2007-9 (www.nmdhb.govt.nz)
- Australian Therapeutic Guidelines, July 2010
- Sanford (USA) Guide to Antimicrobial Therapy, 2010
- BPAC Antibiotic Choices for Common Infections and Treatment of STIs, 2009 (www.bpac.org.nz).

They have been reviewed by NMDHB clinical, public health and pharmacy staff, community Pharmacists, Dr Rosemary Ikram and Tony Barnett (Medlab South) and by Drs Neil Whittaker and Dave Dixon and Ros Gelatly (GP Liaison Officers). The guidelines are endorsed by the Nelson and Wairau Primary Health Organisations and co-ordinate with NMDHB inpatient guidelines.

Contacts

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CLINDAMYCIN CONSULTATION AND ENDORSEMENT FORM

Referrer name: Patient name:

Referrer's fax no.: Patient DOB:

Tick the relevant boxes, sign and date the form then fax to Richard Everts.
You do not need to wait for a reply before prescribing clindamycin.

Indications

- Patient is unable to tolerate first-choice antibiotics; and
- Patient has one of the following infections for which clindamycin is likely to have good empiric efficacy: bite wound, non-puerperal breast infection, limb or face cellulitis, diabetic foot infection, aspiration pneumonia, acute pyogenic salivary gland infection, acute dental infection, acute infected leg or foot ulcer, bacterial vaginosis or deep wound infection.

(Comments:))

Relative contra-indications

- Patient does not have a history of ulcerative or antibiotic-associated colitis, and
- Patient does not have severe liver or kidney disease.

Administration

- Advised to take clindamycin with a glass of water.

Side effects

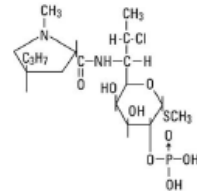
- Warned patient about 2 to 15% risk of gastrointestinal upset (diarrhoea, nausea, vomiting) and advised to stop clindamycin and see a doctor if the symptoms are severe or not going away. Note: young, ambulant patients are less likely to have GI side effects.

Pregnancy

- Not relevant, or
- Advised patient that clindamycin has a high safety rating in pregnancy – it has not been associated with fetal damage despite extensive use in pregnant women.

Breastfeeding

- Not relevant, or
- Advised patient that clindamycin penetrates breast milk in very small quantities but rarely causes side effects (diarrhoea) in the infant.



Signed

Date

FAX TO (03) 546-1288
Richard Everts, Infectious Diseases Specialist and Microbiologist, Nelson Hospital



ORAL ANTIFUNGAL CONSULTATION AND ENDORSEMENT FORM

Referrer name: Patient name:

Referrer's fax no.: Patient dob or NHI

Tick the relevant boxes, sign and date the form then fax to Richard Everts.
Do not wait for a reply before prescribing the antifungal agent (except for unlisted indications).

ITRACONAZOLE

Indications

- Positive fungal culture; and
- Patient unable to take oral terbinafine; and
- Dermatophytosis that has failed topical treatment, involves scalp or is widespread or is being treated with concomitant topical steroid; or
- Other (discuss before prescribing)
.....

Contra-indications

- Patient is not pregnant, and
- Patient is not taking ergot derivatives, terfenadine, pimozone, astemizole, mizolastine, cisapride, dofetilide, levacetylmethadol, oral midazolam, triazolam, sertindole, quinidine, simvastatin or lovastatin

Administration

- Advised to take with food
- Advised to avoid antacids within 2 hours.
(Note: Coca-cola and Pepsi double absorption.)

Side effects

- Warned patient about risk of GI upset, dizziness and headache.

Interactions

- Considered potential interactions with rifampicin, rifabutin, phenytoin, carbamazepine, phenobarbitone, isoniazid, ritonavir, indinavir, clarithromycin, erythromycin, calcium channel blockers, oral anticoagulants, vinca alkaloids, busulfan, docetaxel, trimetrexate, cyclosporine, tacrolimus, sirolimus, digoxin, buspirone, alfentanil, alprazolam, brotizolam, intravenous midazolam, methyl-prednisolone, ebastine, reboxetine, hepatotoxics, budesonide, dexamethasone, cilostazole, disopyramide, eletriptan and halofantrine.

FLUCONAZOLE

Indications

- Positive candida culture; and
- Oral or vulvovaginal candidiasis unresponsive to topical treatment; or
- True candiduria and symptomatic, neutropenic, low birth weight infant or imminent urological manipulation; or
- Other (discuss before prescribing)
.....
.....

Contra-indications

- Patient is not pregnant, and
- Patient is not also taking cisapride

Side effects

- Warned patient about risk of GI upset, headache, rash and acne (common)

Interactions

- Considered potential interactions with cisapride, warfarin, phenytoin, cyclosporin, sulfonyleureas, rifampicin, theophylline, hydrochlorothiazide, oral contraceptives, zidovudine, tacrolimus, rifabutin, benzodiazepines, cimetidine, isoniazid, valproic acid and drugs that prolong QT interval.

Signed

Date

FAX TO (03) 546-1288

Richard Everts, Infectious Diseases Specialist and Microbiologist, Nelson Hospital

STAPHYLOCOCCUS AUREUS DECOLONISATION PROTOCOL

1. All active infections must first be fully treated, and skin conditions (such as eczema, psoriasis) must first be controlled before an attempt at decolonisation is made. If you develop a new skin infection in the days leading up to or during the decolonisation week, contact your doctor so that the decolonisation can be delayed.
2. Other members of the household, even if they do not have symptoms, often carry the same *Staphylococcus aureus* as the index patient. Therefore, all members of the household ideally should undergo decolonisation treatment at the same time or they may reinfect the index case. Consider testing less close contacts.
3. Availability and practicalities of medication.
 - a) Mupirocin (Bactroban), fucidic acid (Fucidin) or povidone iodine (Betadine 10%, 25g, on prescription) ointment may be obtained from any pharmacy. Apply using finger or cotton bud to the inside of each nostril twice a day for 7 days.
 - b) Chlorhexidine 4% body wash (Chlorhexidine Surgical Scrub, 4%, in 500ml pump pot) may be obtained from a community pharmacy (non-prescription item, cost \$12 - \$20). Use in place of soap, each day for 7 days. Scrub all over your body, including between toes and around bottom. Apply to hair and scalp at least three times on any days during the 7 days.
 - c) Oral Antibiotics: In most cases you will be offered oral antibiotics in addition to the nose ointment and antiseptic body wash. One or two antibiotics will be given, one usually being Rifampicin. Rifampicin is taken at a dose of 300mg twice a day. Do not be alarmed to find that your tears, saliva and urine become an orange/red colour. However, please notify your doctor if you develop drowsiness, dizziness, headache, indigestion or a skin rash – there are several alternative drugs that can be prescribed if you cannot tolerate rifampicin. Moreover, tell your doctor if you have contact lenses, are pregnant or take other drugs, as rifampicin may be contraindicated in certain circumstances.
4. During the eradication period, all clothes, bedsheets, pillowcases, bath-towels, hand-towels and tea-towels used that week should be washed using laundry detergent then dried in a hot-air dryer and/or ironed. If the item can't be hot-air dried or ironed then it should be placed somewhere dry and not handled for 10-14 days.
5. On one day during the eradication period, wash with warm water and detergent or clean with disinfectant any hard surfaces that you frequently touch in your house (e.g., light switches, door handles, doors, TV control buttons, taps, benches, the phone, dining table, car keys and steering wheel etc.) to remove dirt from your hands (oil and skin flakes) and kill the bacteria. Wipe down sunglasses and jewellery.

DAY	DATE	NASAL OINTMENT	CHLORHEXIDINE BODY WASH	ORAL ANTIBIOTICS	WASH AND HOT DRY OF FABRIC ITEMS	SURFACE CLEANING
1		Yes	Yes	Yes		
2		Yes	Yes (include hair)	Yes		
3		Yes	Yes	Yes	(any days)	(any one day)
4		Yes	Yes (include hair)	Yes		
5		Yes	Yes	Yes		
6		Yes	Yes (include hair)	Yes		
7		Yes	Yes	Yes		

