NHS Fife Antibiotic Guidance for the Treatment of Community Managed Infections

The aim of this guidance is to:
- promote appropriate antibiotic prescribing
- adequately treat the infection that has been diagnosed
- minimise the risk of patients developing *Clostridium difficile* infection
- reduce the development of multi-drug resistant bacteria.

*C. difficile* infection is associated with the use of all antibiotics but most strongly with cephalosporins, co-amoxiclav, clindamycin and quinolones. It is therefore particularly important to avoid these agents if at all possible. Antibiotics should be:
- used only when there are clear signs of a bacterial infection
- targeted at the likely or known pathogens i.e. use as narrow a spectrum agent as possible and rationalise as soon as microbiology results are available.
- used for the shortest duration required to treat the infection
- stopped immediately if started inappropriately – don’t ‘complete the course’ just because it has been started.

Doses are for adults with normal renal function unless otherwise stated.

**UPPER RESPIRATORY TRACT INFECTIONS**

The majority of URTI are viral. Consider a ‘no prescribing’ or “delayed prescribing” strategy for those at low risk of complications.

<table>
<thead>
<tr>
<th>Pharyngitis / Acute Sore throat / Tonsillitis</th>
<th>Acute Otitis Media</th>
<th>Acute Otitis Externa</th>
<th>Acute Rhinosinusitis</th>
</tr>
</thead>
</table>
| Avoid antibiotics as 90% resolve in 7 days without and pain is only reduced by 16 hours | Avoid antibiotics as 60% better in 24 hours without; they only reduce pain at 2 days and do not prevent deafness. Consider immediate antibiotics or delayed prescription by 2-3 days for: | If cellulitis or disease extends outside the ear canal start oral antibiotics and refer | Avoid antibiotics as 80% resolve in 14 days without treatment
Optimise analgesia
Consider 7 day delayed or immediate antibiotics if purulent nasal discharge |
| Patients with 3 or 4 centor criteria (fever, tonsillar exudate, lymphadenopathy, absence of cough) may benefit more from antibiotics or a prescription delayed by 2-3 days | Consider immediate antibiotics for those > 65yrs with 2 or more of the following or > 80yrs and 1 or more of the following: | See BNF for children for dosages | Amoxicillin 500g TDS
If true penicillin allergy: |
| Phenoxymethyl/penicillin 500mg QDS or 1G BD (1G QDS if severe) | Hospitalisation in the previous year | Duration: 5 days |
| Duration: 10 days | Age > 65years | If true penicillin allergy or clinical failure to above: |
| If true penicillin allergy: | CRB65 score: 1 point for each of: | Doxycycline 200mg stat then 100mg OD |
| Clarithromycin 500mg BD | - Confusion (new onset) (AMT <8) | Duration: 5 days |
| Duration: 5 days | - Resp Rate >30/min | | |
| Optimise Analgesia
Amoxicillin | Erythromycin suspension | If true penicillin allergy or clinical failure to above: |
| If true penicillin allergy: | Erythromycin suspension is preferable to Clarithromycin suspension as it is half the cost | Doxycycline 200mg stat then 100mg OD |
| Clarithromycin 500mg BD | See BNF for children for dosages | Duration: 5 days |
| Duration: 5 days | | If true penicillin allergy: |
| First use aural toilet (if available) & optimise analgesia | | Clarithromycin 500mg BD |
| If treatment required and eardrum not perforated: | | If clinical failure to above: |
| Otomax | Doxycycline 200mg stat then 100mg OD | Doxycycline 200mg stat then 100mg OD |
| or Sofradex | | If CRB-65 score = 1 and treating at home: |
| For chronic otitis externa/itchy ears | Amoxicillin 500g TDS
or Doxycycline 200mg stat then 100mg OD | Amoxicillin 500g TDS
or Clarithromycin 500g BD |
| Acetic acid 2% | | If clinical failure to above: |
| See Fife formulary SECTION 12.1 for other treatments at www.fifeadtsc.scot.nhs.uk | | Doxycycline 200mg stat then 100mg OD |
| | | If true penicillin allergy or clinical failure to above: |
| | | Doxycycline 200mg stat then 100mg OD |
| | | If patient presents with/post influenza: |
| | | Doxycycline 200mg stat then 100mg OD |
| | | or Co-amoxiclav 625mg TDS |
| | | Duration: 7 days |

**LOWER RESPIRATORY TRACT INFECTIONS**

**Acute Cough / Bronchitis**

Antibiotics have little benefit if no co-morbidity. Symptom resolution can take 3 weeks.

Consider immediate antibiotics for those > 65yrs with 2 or more of the following or > 80yrs and 1 or more of the following:
- Hospitalisation in the previous year
- Type 1 or 2 diabetes
- history of congestive heart failure
- current use of oral glucocorticoids

**Acute exacerbation of COPD**

Antibiotics usually only of benefit if the patient has purulent sputum and either increased shortness of breath or increased sputum volume

**Mild Community Acquired Pneumonia**

CRB-65 score can be used to help assess severity.

CRB-65 score: 1 point for each of:
- Confusion (new onset) (AMT <8)
- Resp Rate >30/min
- Bp diastolic ≤60mmHg or systolic <90mmHg
- Age >65yrs

CRB65 = 0: suitable for home treatment unless co-morbidity/social concern

CRB65 = 1 or 2: hospital referral and assessment required.

CRB65 score = ≥3: urgent hospital admission

Hypoxia is also an admission indicator (aim for O₂ sats of 94-96% or if at risk of hypercapnic respiratory failure 89-92%).

For adults, if delayed admission or life threatening and no known penicillin allergy give immediate:
benzylpenicillin 1200mg IV or amoxicillin 1g oral

**Amoxicillin 500mg TDS**

If true penicillin allergy or no response to amoxicillin: **Doxycycline 200mg stat then 100mg OD**

Duration: 5 days

**Doxycycline 200mg stat then 100mg OD**

If clinical failure to above: **Co-amoxiclav 625mg TDS**

Duration: 5 days

**Doxycycline 200mg stat then 100mg OD**

If true penicillin allergy: **Clarithromycin 500g BD**

If clinical failure to above: **Doxycycline 200mg stat then 100mg OD**

If CRB-65 score = 1 and treating at home: **Amoxicillin 500g TDS**

plus **Clarithromycin 500g BD**

If true penicillin allergy or clinical failure to above: **Doxycycline 200mg stat then 100mg OD**

If patient presents with/post influenza: **Doxycycline 200mg stat then 100mg OD**

or **Co-amoxiclav 625mg TDS**

Duration: 7 days

Before prescribing antibiotics check the BNF for any potential drug interactions.

UPPER RESPIRATORY TRACT INFECTIONS

- Pharyngitis / Acute Sore throat / Tonsillitis
- Acute Otitis Media
- Acute Otitis Externa
- Acute Rhinosinusitis

LOWER RESPIRATORY TRACT INFECTIONS

- Acute Cough / Bronchitis
- Acute exacerbation of COPD
- Mild Community Acquired Pneumonia
- Amoxicillin 500g TDS
- Doxycycline 200mg stat then 100mg OD
- Co-amoxiclav 625mg TDS

Doses are for adults with normal renal function unless otherwise stated.
**URINARY TRACT INFECTIONS**

**Lower Urinary Tract Infection**

**Non-pregnant women:**
- Do not send pre-treatment MSU on 1st presentation.
- Send MSU for all treatment failures.
- Severe or ≥ 3 symptoms: treat e.g. dysuria, urgency, polyuria, hematuria, flank/suprapubic discomfort, fever/chills, new onset or worsening of pre-existing delirium/confusion.

Mild or ≤ 2 symptoms: use dipstick and presence of cloudy urine to guide treatment. Nitrite and blood or leucocytes has 92% positive predictive value; negative nitrite, leucocytes and blood has a 76% negative predictive value.

Consider a delayed prescription (by 48 hours) and symptomatic relief with simple analgesia and maintaining fluid intake for women under 65 with 2 or less symptoms which are not severe, and there is not a history of recurrent cystitis.

**Men:**
- Send pre-treatment MSU if symptoms mild or non-specific use negative nitrite and leucocytes to exclude UTI.

**Upper Urinary Tract Infection (Pyelonephritis)**
- Send MSU for culture & sensitivity within 24 hours, admit.

**Acute Prostatitis**
- Send MSU for culture & sensitivity and start antibiotics. If no response within 24 hours, admit.

**Urinary Tract Infection in pregnancy**
- **(Symptomatic UTI NOT asymptomatic bacteriuria)**
  - Send MSU for culture & sensitivity and start empirical antibiotics.
  - Short term use of nitrofurantoin in pregnancy is unlikely to cause problems to foetus.
  - Avoid trimethoprim if low folate status or on folate antagonist (e.g. antiepileptic or proguanil)

**Urinary Tract Infection in children**
- < 3 months with suspected UTI: admit if ≥3 months use positive nitrite to start antibiotics.
- Imaging: Only refer children < 6 months or those with atypical UTI. Send pre-treatment MSU for all.

**Trimethoprim**
- 200mg BD
- Nitrofurantoin 50mg QDS (or nitrofurantoin MR 100mg BD)

(Avoid nitrofurantoin if eGFR <45 ml/min, seek microbiologist advice if eGFR <45 ml/min and no other suitable oral alternative available.)

**Duration:** 3 - 5 days for females and 7 days for males

A Cochrane review found no difference in outcome between 3, 5 or 10 day course of treatment for uncomplicated LUTI in women. This review also found that while 3 days of treatment is adequate to achieve symptomatic relief for most patients, it appears that longer therapy is better in terms of bacteria elimination from the urine irrespective of the antibiotic used. A 5 day course could be considered for women in whom eradication of bacteria in the urine is important, weighing up the increased risk of adverse events.

**Ciprofloxacin**
- 500mg BD for 7 days
- Co-amoxiclav 625mg TDS for 14 days

**Lower UTI:**
- Trimethoprim or Nitrofurantoin Duration: 3 days
- **Upper UTI:**
  - Co-amoxiclav Duration: 7-10 days
  - See BNF for children for dosages

**Recurrent UTI in non-pregnant women**
- (≥3 UTIs/year or ≥2 UTIs/6months)
- Consider asking patient to buy high strength cranberry capsules (interacts with warfarin) or prescribe post-coital or standby antibiotics as all may reduce recurrence.

Nightly antibiotics reduce UTIs but adverse effects and resistance risk. 6 -12 months treatment allows a period of ‘bladder healing’. No evidence of additional benefit beyond 6 – 12 months

**Catheter-Related Urinary Tract Infection (CAUTI)**
- Dipstick tests are not recommended for diagnosing catheter related UTI. Catheterised patients with asymptomatic bacteriuria should not receive antibiotics (SIGN 88).
- Antibiotics only required if patient has signs/symptoms of UTI e.g. fever/chills, new costovertebral (central low back) tenderness, new onset or worsening of pre-existing delirium/confusion or agitation. If treatment is required, where possible the catheter should be removed and replaced 24 – 48 hours into antibiotic treatment.

**Duration of treatment should be 7 days for females and males with lower UTI.**

For upper UTI – the duration is same as for non-CAUTI.

Treatment as for lower or upper UTI dependent on clinical signs/symptoms

**Granular cystitis**
- Send pre-treatment MSU on 1st presentation.
- Send MSU for all treatment failures.
- Post-coital or once daily at night Nitrofurantoin 50-100mg (Avoid nitrofurantoin if eGFR <45 ml/min.) or Trimethoprim 100mg Duration: Trial for 6 months, stop and review.

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**MENINGITIS**

**Suspected meningococcal disease**
- Transfer all patients to hospital immediately.
- If possible administer benzylpenicillin or cefotaxime prior to admission, unless hypersensitive i.e. history of difficulty breathing, collapse, loss of consciousness or rash
- Ideally IV but IM if a vein cannot be found

**IV or IM Benzylpenicillin:**
- Adults and child >10yrs: 1200mg 1-9 yrs: 600mg < 1 yr: 300mg

**IV or IM Cefotaxime:**
- Adult and child >12yrs: 1G < 12 yrs: 50mg/kg (max 1G)

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**GASTRO-INTESTINAL TRACT INFECTIONS**

**Eradication of Helicobacter pylori** - See Fife Joint Formulary Chapter 1(subsection 1.3.5) for eradication regimes

**Thread Worms**
- Treat all household contacts at same time plus hygiene measures for 2 weeks (hand hygiene, pants at night, morning shower)
- Also, wash sleepwear, bed linen, dust & vacuum on day one

**Infectious Diarrhoea**
- Antibiotics not indicated unless patient systemically unwell. Seek Microbiology advice

**Traveller’s Diarrhoea**
- Only consider stand-by antibiotics for patients travelling to remote areas or those people at high risk of severe illness. Private prescription for Ciprofloxacin 500mg BD for 3 days.
- In areas of high ciprofloxacin resistance (e.g. South Asia)
  - consider Pepto-Bismol 2 tabs QDS for 2 days

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**Dental Infections**

**Refer patient to dentist.**
- For all other acute oral conditions pending being seen by a dentist refer to the dental formulary at www.sdccep.org.uk/index.aspx?id=2334

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**Issued by:** NHS Fife Antimicrobial Management Team

Approved on behalf of NHS Fife by the Fife Area Drugs & Therapeutics committee

**SKIN / SOFT TISSUE INFECTIONS**

### Cellulitis (Also: other skin and soft tissue infections)

- **If patient is febrile and otherwise healthy, flucloxacillin should be used as a single agent.**
- **If river or sea water exposure, consult Microbiologist**
- **If febrile and ill, or severe facial cellulitis admit for IV treatment**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cellulitis</td>
<td>Flucloxacillin 500mg QDS</td>
</tr>
<tr>
<td>If true penicillin allergy:</td>
<td>Clarithromycin 500mg BD</td>
</tr>
<tr>
<td>If mild cellulitis:</td>
<td>Co-amoxiclav 625mg TDS</td>
</tr>
<tr>
<td>If MRSA known/suspected:</td>
<td>Doxycycline 200mg OD (check sensitivities once available)</td>
</tr>
<tr>
<td>Duration:</td>
<td>7 days</td>
</tr>
<tr>
<td>If slow response continue for further 7 days</td>
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</tbody>
</table>

### Diabetic Foot Infection

- **All diabetic patients with active ulceration must be referred as an emergency to a member of the multidisciplinary foot team**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Treatment</th>
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</thead>
<tbody>
<tr>
<td>Impetigo</td>
<td>Flucloxacillin 500mg QDS</td>
</tr>
<tr>
<td>If true penicillin allergy:</td>
<td>Clarithromycin 500mg BD</td>
</tr>
<tr>
<td>Duration:</td>
<td>7 days</td>
</tr>
<tr>
<td>Review antibiotics once culture results available</td>
<td></td>
</tr>
<tr>
<td>If slow response continue for further 7 days</td>
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</tbody>
</table>

### Impetigo

- **For extensive, severe, or bullous impetigo, use oral antibiotics.**
- **As resistance is increasing reserve topical antibiotics for very localised lesions.**
- **Reserve Mupirocin for MRSA**
- **Erythromycin suspension is preferable to clarithromycin suspension as it is half the cost**

### Eczema

- **Topical antibiotics (eg Fucidin ®) are not recommended as they encourage resistance and do not improve healing.**
- **If visible signs of infection, treat as for impetigo.**

### Cat or Dog Bite:

- **Thorough irrigation is important**
- **Assess tetanus and rabies risk.**
- **Antibiotic prophylaxis advised for cat bite/puncture wound; bite involving hand, foot, face, joint, tendon, ligament; immunocompromised; diabetics, elderly, asplenic, cirrhotic.**

### Human Bite:

- **Thorough irrigation is important**
- **Antibiotic prophylaxis advised Assess tetanus, HIV, Hepatitis B & C risk.**

### Scabies

- **Treat whole body from ear/chin downwards & under nails.**
- **<2yrs & elderly also face and scalp.**
- **Treat all household and sexual contacts within 24 hours.**

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<tr>
<th>Condition</th>
<th>Treatment</th>
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<tbody>
<tr>
<td>Scabies</td>
<td>Permethrin 5% cream 2 applications one week apart</td>
</tr>
<tr>
<td>If allergy:</td>
<td>Malathion 0.5% aqueous liquid 2 applications one week apart</td>
</tr>
</tbody>
</table>

### Varicella Zoster / Chicken pox

- **If pregnant or immunocompromised or neonate: seek urgent advice.**
- **Consider aciclovir if treatment can be started within 24 hrs of onset of rash and patient is >14 yrs, or has severe pain, or has dense/oral rash or is on steroids, or is a smoker or is a secondary household case.**

### Herpes Zoster / Shingles

- **If pregnant or immunocompromised or neonate: seek urgent advice.**
- **Always treat if active ophthalmic or Ramsey Hunt or eczema.**
- **Also treat > 50yrs if < 72 hrs of onset of rash.**

### Fungal infections of the skin

- **Terbinafine 1% topically BD**
- **Duration: 7-14 days**
- **or Clotrimazole 1% or Miconazole 2% topically BD**
- **continue for 1-2 weeks after healing**

### Fungal infections of the proximal fingernail or toenail

- **Take nail clippings: start therapy only if infection confirmed.**
- **If the infection is mild and superficial use topical treatment. More severe infections will require oral therapy.**
- **Liver reactions are rare with oral antifungals.**
- **Oral terbinafine is more effective than itraconazole in dermatophyte infections.**
- **If candida or non-dermatophyte infection is confirmed, use oral terbinafine.**

### Conjunctivitis

- **Most bacterial conjunctivitis is self-limiting. 65% resolve on placebo by day 5.**
- **Usually unilateral and characterised by red eye with mucopurulent not watery discharge.**
- **Fusidic acid has less Gram-negative activity.**

### First line treatment: advise regular cleansing and hygiene measures

- **If severe:**
  - **Chloramphenicol 0.5% drops Daytime: instil every 2 hours for 2 days then reduce to every 4 hours Plus**
  - **Chloramphenicol 1% ointment nocte**

### 2nd line treatment:

- **Fusidic acid 1% gel applied BD**
- **Duration: to continue for 48 hours after symptom resolution**

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*Approved on behalf of NHS Fife by the Fife Area Drugs & Therapeutics committee
 Issued by: NHS Fife Antimicrobial Management Team
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**Vaginal candidiasis**

All topical and oral azoles give 75% cure rate.

Avoid oral azoles in pregnancy.

Use intravaginal clotrimazole 100mg pessary nocte for 6 nights.

**Clostridium difficile Infection (CDI)**

**IN ALL CASES**

- Patients should be fully assessed by a doctor when they are identified as being *C. difficile* positive.
- Appropriate infection control measures should be taken until patient has been asymptomatic for 48 hours.
- The need for any currently prescribed antibiotics should be reviewed and if possible stopped. If they do need to be continued the narrowest spectrum agent suitable for the indication should be used.
- Antimotility agents should be stopped.
- PPIs should be reviewed and stopped or replaced with a H2 blocker if possible.
- Laxatives should be stopped.
- Fluid, electrolyte and nutritional status should be assessed and replaced/supplemented if indicated.
- Treatment should be initiated as soon as CDI is suspected.

**Treatment depends on severity and whether or not the patient has been treated before.**

**Bacterial vaginosis**

Oral metronidazole is as effective as topical treatment but is cheaper.

A 2 gram stat dose of metronidazole may be prescribed if concerns about compliance but there is less relapse at 4 weeks with 2 gram stat dose.

Avoid 2g stat dose in pregnancy & breast feeding.

**Chlamydia trachomatis/Urhethritis**

Opportunistically screen all aged 15-25yrs.

Treat and refer to Sexual Health clinic for full screen.

Treat partners or refer to Sexual Health for partner notification if partner(s) not in same practice or patient unable/unwilling to inform them about testing and treatment.

In pregnancy & breast feeding azithromycin is the most effective option but is ‘off label’ (see SIGN 109 for other options). Seek advice from Sexual Health regarding test of cure for pregnant women.

**Epididymitis / Epididymo-orchitis**

Always test for *N. gonorrhoea* and *Chlamydia* (discuss dual PCR testing with duty microbiologist).

Refer to Sexual Health for partner notification if partner(s) not in same practice or patient unable/unwilling to inform them about testing and treatment.

Avoid metronidazole 2g stat dose in pregnancy & breast feeding.

Consider clotrimazole for symptom relief (not cure) if metronidazole treatment declined.

**Trichomoniasis**

Treat partners simultaneously and refer to Sexual Health clinic.

Refer to Sexual Health for partner notification if partner(s) not in same practice or patient unable/unwilling to inform them about testing and treatment.

Avoid metronidazole 2g stat dose in pregnancy & breast feeding.

**Pelvic Inflammatory Disease (PID)**

Refer women and contacts to Sexual Health clinic.

Refer to Sexual Health for partner notification if partner(s) not in same practice or patient unable/unwilling to inform them about testing and treatment.

Always test for *N. gonorrhoea* and *Chlamydia* (discuss dual PCR testing with duty microbiologist).

28% of gonorrhoea isolates are now resistant to quinolones.

If gonorrhoea likely (e.g. partner has it, severe symptoms, sex abroad) use ceftriaxone regimen or refer to Sexual Health for treatment.

**SEVERE DISEASE:**

All patients with symptoms/signs of severe CDI should be discussed with an Infection Diseases Consultant or Microbiologist.

Symptoms/signs that indicate severe disease include a temperature >38.5°C, blood or mucus in the stool, abdominal distension (suggestive of colonic dilatation), acute abdomen, clinical signs of dehydration, and if blood results known WCC >15 X10^9/L, acutely rising serum creatinine or creatinine >1.5 times baseline.

Immunocompromised patients should also be managed as severe cases.

**NON-SEVERE DISEASE and 1st episode of CDI:**

- Non-severe cases (i.e. patient symptomatic but does not meet any of the criteria for severe CDI) may be managed at home depending on co-morbidity and social circumstances.

Treat with oral metronidazole 400mg 8 hourly for 10 days.

If no improvement after 5 days of metronidazole, change to oral vancomycin 125mg 6 hourly for 10 days.

In cases of metronidazole allergy/intolerance and in cases of pregnancy/breastfeeding use oral vancomycin 125mg 6 hourly for 10 days.

**RECURRENTS** can occur and these cases should be discussed with the microbiologist.

**ASYMPTOMATIC:** Asymptomatic *C. difficile* toxin positive patients do not require treatment.

Test of clearance is not indicated for *C. difficile* positive patients.

Stool sample should not be sent within 28 days of a positive result and will not be tested.

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