# NHS Grampian Protocol For The Treatment of Common Infections in Adults in Primary Care

<table>
<thead>
<tr>
<th>Lead Author/Co-ordinator:</th>
<th>Reviewer:</th>
<th>Approver:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist Pharmacists - Antibiotics</td>
<td>Chair of Antimicrobial Management Team</td>
<td>Chair of Medicines Guidelines and Policies Group</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Signature:</th>
<th>Signature:</th>
<th>Signature:</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Signature]</td>
<td>[Signature]</td>
<td>[Signature]</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Identifier:</th>
<th>Review Date:</th>
<th>Approval Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHSG/Protocol/EmpPs/MGPG1058</td>
<td>November 2022</td>
<td>November 2019</td>
</tr>
</tbody>
</table>

Uncontrolled When Printed

Version 6

Executive Sign-Off:

This document has been endorsed by the Director of Pharmacy and Medicines Management

[Signature]
This controlled document shall not be copied in part or whole without the express permission of the author or the author’s representative.

**Title:** NHS Grampian Protocol For The Treatment of Common Infections in Adults in Primary Care

**Unique Identifier:** NHSG/Protocol/EmpPs/MGPG1058, (Summary) Version 6

**Replaces:** NHSG/Guid/EmpP/MGPG/858 (Summary), Version 5.1

**Lead Author/Co-ordinator:** Specialist Pharmacist - Antibiotics

**Subject (as per document registration categories):** Prescribing Policy

**Key word(s):** Antibiotic, Antibiotics, Antimicrobial, Antimicrobials, Infection, Infections, Empirical Therapy, Primary Care

**Process Document: Policy, Protocol, Procedure or Guideline:** Protocol (Antimicrobial Prescribing Protocol for Primary Care)

**Document application:** NHS Grampian – Primary Care

**Purpose/description:** To provide recommendations for 1st line antibiotic choice(s) for the management of common infections in primary care.

**Group/Individual responsible for this document:** Antimicrobial Management Team

**Policy statement:** It is the responsibility of all staff to ensure that they are working to the most up to date and relevant policies, protocols procedures.

**Responsibilities for ensuring registration of this document on the NHS Grampian Information/ Document Silo:**

**Lead Author/Co-ordinator:** Development Pharmacist – Medicines Management

**Physical location of the original of this document:** Pharmacy and Medicines Directorate, Westholme

**Job title of creator of this document:** Specialist Pharmacists - Antibiotics

**Job/group title of those who have control over this document:** Specialist Pharmacists - Antibiotics
Responsibilities for disseminating document as per distribution list:

Lead Author/Co-ordinator: Specialist Pharmacists - Antibiotics

Responsibilities for implementation:

Organisational: Operational Management Team and Chief Executive
Sector General Managers, Medical Leads and Nursing Leads
Departmental: Clinical Leads
Area: Line Manager

Review frequency and date of next review:
Review every 3 years
Date of next review: November 2022

Responsibilities for review of this document:

Lead Author/Co-ordinator: Specialist Pharmacists - Antibiotics

Revision History:

<table>
<thead>
<tr>
<th>Revision Date</th>
<th>Previous Revision Date</th>
<th>Summary of Changes (Descriptive summary of the changes made)</th>
<th>Changes Marked* (Identify page numbers and section heading)</th>
</tr>
</thead>
<tbody>
<tr>
<td>October 2019</td>
<td>June 2017</td>
<td>See version control statements - Appendix 1</td>
<td>p1-4</td>
</tr>
</tbody>
</table>
NHS Grampian Protocol For The Treatment Of Common Infections In Adults In Primary Care

Note: Doses are oral unless otherwise stated, and apply to normal renal and hepatic function.

For information on the use of antibiotics in pregnant or breastfeeding women, or in patients with renal or hepatic impairment please refer to BNF and individual medicines SmPC (information in individual drug monographs).

Aims: To provide guidance for the treatment of common infections in adults within Primary Care, taking into account the bacterial susceptibility patterns in Grampian. To minimise the emergence of bacterial resistance and healthcare associated infection in the community and to encourage the rational and cost effective use of antibiotics.

Principles of Treatment
1. Prescribe an antibiotic only when there is likely to be a clear clinical benefit.
2. It is important to use correct dose and appropriate course length modified as required for age, weight, renal function and infection severity.
3. Do not prescribe an antibiotic for viral sore throat, simple coughs and colds.
4. Consider delayed prescriptions for acute self-limiting upper respiratory tract infections if symptoms suggest an antibiotic may be indicated.
5. Lower the threshold for prescribing antibiotics in immunocompromised or those with multiple co-morbidities; consider culture/seek advice.
6. Limit prescribing for telephone consultations to exceptional cases.
7. Use simple generic antibiotics if possible. Avoid broad spectrum antibiotics (e.g. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase the risk of C difficile, MRSA and resistant UTIs. Be aware of MHRA Quinolone Warnings.
8. Where a ‘best guess’ therapy has failed or special circumstances exist, microbiological advice can be obtained from the duty microbiologist via ARI switchboard (0345 456 6000).

Clarithromycin is now preferred over erythromycin due to more convenient twice daily dosing, better tolerability and similar cost. However, there is more evidence supporting the safety of erythromycin in pregnancy.

Prescribers are reminded that any treatment choices should be patient specific. If the treatment choices listed in the table below are unsuitable for the patient or the indication is not listed please consult https://www.antimicrobialcompanion.scot/nhs-grampian/primary-care-guidance/ or https://www.nice.org.uk/about/what-we-do/our-programmes/nice-guidance/antimicrobial-prescribing-guidelines or seek specialist advice from the duty microbiologist via ARI switchboard or antibiotic pharmacists via email grampian.antibioticpharmacists@nhs.net/page 3933.

### INDICATION | COMMENTS | FIRST-CHOICE TREATMENT | ALTERNATIVE TREATMENT | DURATION
--- | --- | --- | --- | ---
**Suspected Sepsis**
*Including meningitis/meningococcal septicaemia*
| Pre-hospital administration of IV cefotaxime if: |
| a) Presence of clinical signs of infection. |
| b) National Early Warning Score (NEWS) is ≥5. |
| c) Delay of arrival at hospital >1 hour. |
| d) No history of anaphylaxis to beta lactam antibiotics. |
| Transfer all patients to hospital immediately. |
| Cefotaxime IV 2g |
| Ideally IV but IM if a vein cannot be found. |
| Single dose |

**Prevention of secondary case of meningitis:** Only prescribe following advice from Public Health Consultant

### Urinary Tract Infections

**Note:** People >65 years: do not treat asymptomatic bacteriuria; it is common but is not associated with increased morbidity. *Catherin in situ: antibiotics will not eradicate bacteriuria; only treat if systemically unwell or pyelonephritis likely. For antibiotics see ‘pyelonephritis’.* Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma.

| Uncomplicated UTI (i.e. no fever or flank pain) | Non-pregnant women - Back up antibiotic (if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic. |
| Increasing incidence of multi-resistant *E. coli* with extended-spectrum beta-lactamase (ESBL) enzymes, so perform culture in all treatment failures. |
| Advise paracetamol or ibuprofen for pain. |
| Trimethoprim 200mg 2 x daily |
| Nitrofurantoin 100 mg m/r 2 x daily OR 50mg 4 x daily |
| 3 days (7 days for men) |

| UTI in pregnancy | Send MSU for culture. Short-term use of nitrofurantoin in pregnancy is unlikely to cause problems to the foetus. Trimethoprim use in pregnancy is now unlicensed. Avoid trimethoprim if low folate status or taking folate antagonist (e.g. antiepileptic or proguanil). |
| Nitrofurantoin (avoid in 3rd trimester) 100mg m/r 2 x daily OR 50mg 4 x daily |
| Trimethoprim (unlicensed indication; avoid in 1st trimester) 200mg 2 x daily |
| 7 days |

| Pyelonephritis | Send MSU for culture. |
| Co-trimoxazole 960mg 2 x daily [unlicensed indication] |
| Co-amoxiclav 625mg 3 x daily |
| 7 days (10-14 days if abnormality of renal tract) |
# NHS Grampian Protocol for the Treatment of Common Infections in Adults in Primary Care

## LOWER RESPIRATORY TRACT INFECTIONS

**Note:** Reserve all quinolones (including levofloxacin) for infections proven resistant to empiric choices. Refer to [MHRA Quinolone Warning](#).

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>COMMENTS</th>
<th>FIRST-CHOICE TREATMENT</th>
<th>ALTERNATIVE TREATMENT</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute cough, bronchitis</td>
<td>Antibiotics of little benefit if no co-morbidity. Symptom resolution can take 3 weeks. Refer to NICE Acute Cough guideline if higher risk of complications or systemically unwell.</td>
<td>No antibiotic recommended.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute infective exacerbation of COPD</td>
<td>Treat exacerbations promptly if purulent sputum and dyspnoea and/or increased sputum volume. Consider sputum sample for culture and delayed prescription.</td>
<td>Amoxicillin 500mg 3 x daily</td>
<td>Doxycycline 200mg on day 1 then 100mg daily OR Clarithromycin 500mg 2 x daily</td>
<td>5 days</td>
</tr>
<tr>
<td>Community-acquired pneumonia</td>
<td>Start antibiotics immediately. Use CRB65 score to assess severity. If no response in 48 hours consider admission. If CRB65 =1 or 2 consider need for hospital admission. If at home clinically assess need for dual therapy for atypicals.</td>
<td>Amoxicillin 500mg 3 x daily</td>
<td>Doxycycline 200mg on day 1 then 100mg daily OR Clarithromycin 500mg 2 x daily</td>
<td>5 days</td>
</tr>
</tbody>
</table>

## UPPER RESPIRATORY TRACT INFECTIONS: Consider delayed antibiotic prescriptions.

| PHARYNGITIS / SORE THROAT / TONSILLITIS         | Avoid antibiotics as 90% resolve in 7 days without and pain only reduced by 16 hours. If FeverPAIN score: Fever in last 24h, Purulence, Attend rapidly under 3 days, severely Inflamed tonsils, No cough or coryza. Score 0-1: no antibiotic. Score 2-3: no or back-up antibiotic. Score 4 or more: immediate antibiotic if severe, or 48h back-up prescription. Systemically very unwell or high risk of complications: immediate antibiotic. You need to treat 200 patients to prevent one case of otitis media, and >4000 patients to prevent one quinsy. | Phenoxyemethylpenicillin 500mg 4 x daily or 1g 2 x daily for 5 days OR if recurrent or high suspicion/ confirmation of streptococcal throat infection: for 10 days Clarithromycin 500mg 2 x daily for 5 days | See individual antibiotics                                                                 |          |
| OTITIS MEDIA                                    | Optimise analgesia. Avoid antibiotics as 60% are better in 24 hours without: they only reduce pain in 2 days and do not prevent deafness. Consider immediate or back-up antibiotics for pain relief only if: - <2 years with bilateral acute otitis media - All ages with otorrhoea. Systemically very unwell or high risk of complications: immediate antibiotic. | Amoxicillin 500mg 3 x daily                                                          | Clarithromycin 500mg 2 x daily                                                                | 5 days   |
| ACUTE SINUSITIS                                 | Avoid antibiotics as 80% resolve in 14 days without, and they only offer marginal benefit after 7 days. Use adequate analgesia. Local symptoms ≤10 days: no antibiotic Local symptoms with no improvement >10 days: - consider high dose nasal steroid for 14 days; - no antibiotic or delayed antibiotic NB If no nasal discharge – sinusitis is unlikely. Systemically very unwell or high risk of complications: immediate antibiotic. | Refer to comments before prescribing. Amoxicillin 500mg 3 x daily (use 1g if severe) OR Phenoxymethylpenicillin 500mg 4 x daily | Refer to comments before prescribing. Doxycycline 200mg on day 1 then 100mg daily                                                                   | 5 days   |

## SKIN/SOFT TISSUE INFECTIONS

<p>| IMPETIGO                                        | For extensive, severe, or bullous impetigo, use oral antibiotics. Reserve topical antibiotics for very localised lesions &amp; avoid repeated courses to reduce the risk of resistance. | If localised: Fusidic acid 2% cream topically 3-4 x daily OR Mupirocin 2% ointment (only if MRSA) topically 3 x daily | If widespread: Fluloxacin 500mg 4 x daily OR Clarithromycin 500mg 2 x daily | 5 days for topical 7 days oral |          |</p>
<table>
<thead>
<tr>
<th>INDICATION</th>
<th>COMMENTS</th>
<th>FIRST-CHOICE TREATMENT</th>
<th>ALTERNATIVE TREATMENT</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKIN/SOFT TISSUE INFECTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eczema</td>
<td>If no visible signs of infection, use of antibiotics (alone or with steroids) encourages resistance and does not improve healing. In eczema with visible signs of infection, use treatment as for impetigo.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cellulitis</td>
<td>If patient afebrile and healthy other than cellulitis, fluocoxacillin alone may be used. If water exposure or face involved, discuss with microbiology. If febrile and ill, admit for IV treatment.</td>
<td>Fluocoxacillin 500mg 4x daily (may be increased to 1g 4 times daily if necessary)</td>
<td>Clarithromycin 500mg 2x daily</td>
<td>5 - 7 days</td>
</tr>
<tr>
<td>Leg ulcers</td>
<td>Ulcers always colonised. Antibiotics do not improve healing unless active infection. If active infection (cellulitis, increased pain, pyrexia, purulent exudate, odour) send pre-treatment swab, prescribe as per cellulitis and review antibiotics after culture results.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>GENITAL TRACT INFECTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herpes zoster</td>
<td>If pregnant/immunocompromised seek advice.</td>
<td>Aciclovir 800mg 5x daily</td>
<td>Valaciclovir 1g 3x daily (if poor compliance)</td>
<td>7 days</td>
</tr>
<tr>
<td><strong>GASTRO-INTESTINAL TRACT INFECTIONS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infectious diarrhoea</td>
<td>Antibiotic therapy not usually indicated. Contact microbiology if severe or prolonged illness or are immunocompromised</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Clostridium difficile</strong></td>
<td>No test of cure required</td>
<td>Stop unnecessary antibiotics and/or PPIs to re-establish normal flora. Review and stop anti-motility agents and laxatives. Admit if severe: T &gt;38.5; WCC &gt;15, rising creatinine or signs/symptoms of severe colitis.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1st episode and NO severity markers</td>
<td>Metronidazole 400mg oral 3 x daily</td>
<td>Vancomycin 125mg oral 4 x daily</td>
<td>10- days</td>
</tr>
<tr>
<td></td>
<td>2nd episode (or no improvement after 5 days of metronidazole)</td>
<td>Ciprofloxacin 500mg 2 x daily</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Note: If STI diagnosed then refer to Sexual Health Service (SHS) -0345 337 9900 for partner notification and advice if required.

### Bites

- **Animal/human**
  - Human: thorough irrigation is important. Antibiotic prophylaxis is advised.
  - Assess risk of tetanus, rabies, HIV, hepatitis B & C.
  - Cat: always give prophylaxis.
  - Doxycycline contraindicated in pregnancy.
- **Dog**
  - Give prophylaxis if: puncture wound; bite to hand, foot, face, joint, tendon, or ligament; immunocompromised; cirrhotic; asplenic; or presence of prosthetic valve/joint.
- **Cat**
  - Always give prophylaxis.

### Purulent Conjunctivitis

- Most bacterial conjunctivitis is self-limiting. 65% resolve on placebo by day 5. It is usually unilateral with yellow-white mucopurulent discharge but may spread. Treat only if severe. Fusidic acid has less gram-negative activity.
- Chloramphenicol 0.5% drops 2 hourly for 2 days then reducing to 4 x daily AND/OR 1% ointment at night (3-4 x daily if used alone)
- Fusidic acid 1% gel 2 x daily (treatment for cellulitis, increased pain, pyrexia, purulent exudate, odour) send pre-treatment swab, prescribe as per cellulitis and review antibiotics after culture results.

### Vaginal candidiasis

- All topical and oral azoles give >80% cure.
- In pregnancy avoid oral azole – use Clotrimazole 100mg pessary at night for 6 days.
- Azole 500mg pessary OR 10% 5g vaginal cream
- Fluconazole 150mg orally
- One dose (topical treatment at night)

### Bacterial vaginosis

- Avoid 2g dose in pregnancy and breastfeeding. Topical treatment gives similar cure rates but is more expensive. 7 days results in fewer relapses than 2g stat at 4 weeks.
- Metronidazole 400mg twice daily for 7 days OR 2g as single dose
- Metronidazole 0.75% vaginal gel 5g applicatorful at night for 5 days
- See individual antibiotics

### Uncomplicated genital Chlamydia infection in men and women

- Refer to SHS clinic and www.bashhguidelines.org
- In pregnancy or breastfeeding: azithromycin is most effective option but is an unlicensed indication.
- Doxycycline contraindicated in pregnancy.
- Doxycycline 100mg 2x daily for 7 days
- Azithromycin 1g single dose (1 hour before or 2 hours after food) followed by 500mg daily for a further 2 days
- See individual antibiotics

### Acute bacterial prostatitis

- Review antibiotic treatment after 14 days and either stop or continue for a further 14 days if needed. Note that bacterial infection (acute and chronic) account for <5% of all prostatitis diagnoses; their precise incidence is unknown.
- NB: Admit if IV therapy required.
- Co-trimoxazole 960mg 2 x daily [unlicensed indication]
- Ciprofloxacin 500mg 2 x daily
- 14 days then review
Appendix 1: Version Control Statements

Changes from Version 5.1 (August 2017)

Whole Document
Title changed to NHS Grampian Protocol For The Treatment of Common Infections in Adults in Primary Care
Paediatric information removed and now in separate Guidance Notes. References to full guideline removed.

Introductory Text
2. Erythromycin changed to clarithromycin.
3. Nitrofurantoin – 50mg tablets added back.
4. Trimethoprim removed as alternative treatment and BASSH guideline taken out as no longer available.
5. Acute Otitis Media – Added ‘Systemically very unwell or high risk of complications: immediate antibiotic. Erythromycin changed to clarithromycin.

Skin/Soft Tissue Infections
1. Impetigo – Added to reserve topical antibiotics for localised lesions and ‘avoid repeated courses’. Added formulation and strength for mupirocin. Erythromycin changed to clarithromycin.
2. Cellulitis - Added ‘Facial (non-dental) co-amoxiclav 625mg 3 x daily. Erythromycin changed to clarithromycin.
3. Purulent Conjunctivitis – Added note ‘Treat only if severe’.
4. Bites – changed 1st line for both animal and human to co-amoxiclav in line with PHE and acute sector guidelines. Alternative treatment doxycycline + metronidazole. Guidance notes changed to correspond to PHE. Added note to review patient after 24-48 hours if given penicillin allergy option.
5. Genital Tract Infections
Telephone number updated
1. Vaginal candidiasis – cure rate for azoles amended to >80%.
2. Urinary Tract Infections
1. Uncomplicated UTI – Added ‘Non-pregnant women – Back up antibiotic (if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic. Advised ‘Advise paracetamol or ibuprofen for pain’. Nitrofurantoin – 50mg tablets added back in as option as more cost-effective than m/t.
2. UTI in Pregnancy – Added ‘Trimepram use in pregnancy is now unlicensed’ but no change to local antibiotic choices.
3. Pyelonephritis – Comment removed ‘Admit if no response in 24 hours. For serious or potentially life-threatening infection consider cipofloxacin (500mg twice daily) and review after 24 hours when micro results available’. Reference to main guidance removed. Duration amended to 7 days with 10-14 days if abnormality of renal tract.

Lower Respiratory Tract Infections
1. Notes – Removed ‘Low doses of penicillins are more likely to select out resistance’ Amended wording about quinolones and added link to MHRA warning.
2. Acute cough/bronchitis – removed ‘consider delaying antibiotic by 7 days’. Added ‘Refer to NICE Acute Cough guideline if higher risk of complications or systemically unwell’.
4. Community-Acquired Pneumonia – Amended: If CRB65 =1 or 2 consider need for hospital admission. Added ‘If at home clinically assess need for dual therapy for atypicals’. Doxycycline moved above macrolide and stat terminology removed.

Upper Respiratory Tract Infections
1. Pharyngitis/Upper Throat/Tonsillitis – Removed ‘Lower relapse with 10 days penicillin than 7 days in those <18yrs’. Dosing amended to 500mg x 4 daily or 1g x 2 daily. Duration amended to 5 days or if recurrent or high suspicion/confimation of streptococcal throat infection for 10 days. Erythromycin changed to clarithromycin.
2. Acute Otitis Media – Added ‘Systemically very unwell or high risk of complications: immediate antibiotic. Erythromycin changed to clarithromycin.
3. Acute Sinusitis – Added notes on when an antibiotic should be prescribed. Erythromycin changed to clarithromycin moved to first choice treatment. Duration changed to 5 days.

Glossary
SAPG Scottish Antimicrobial Prescribing Group
NICE National Institute for Health and Care Excellence
PHE Public Health England

References
1. SAPG recommendations (or position statement) on pre-hospital parenteral antibiotic therapy in adults with suspected sepsis in NHS Scotland. August 2018
2. NICE/PHE Summary of antimicrobial prescribing guidance – managing common infections. September 2019
3. Fluoroquinolone antibiotics: new restrictions and precautions for use due to very rare reports of disabling and potentially long-lasting or irreversible side effects. MHRA 21/3/19