Aims:
1. To provide a simple, empirical approach to the treatment of common infections
2. To promote the safe, effective and economic use of antibiotics
3. To minimise the emergence of bacterial resistance in the community.

Principles of Treatment:
1. This guidance is based on the best available evidence but use professional judgement and involve patients in management decisions
2. This guidance should not be used in isolation; it should be supported with patient information about safety netting, delayed/back –up antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. Materials are available on the RCGP TARGET website
3. Prescribe an antibiotic only when there is likely to be a clear clinical benefit, giving alternative, non-antibiotic self-care advice, where appropriate.
5. In severe infection, or immunocompromised, it is important to initiate antibiotics as soon as possible, particularly if sepsis is suspected. If patient is not at moderate to high risk for sepsis, give information about symptom monitoring, and how to access medical care if they are concerned.
6. Where an empirical therapy has failed or special circumstances exist, microbiology advice can be obtained from 01273 664619
7. Limit prescribing over the telephone to exceptional cases.
8. 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 Clostridium difficile, MRSA and resistant UTIs.
9. Always check for antibiotic allergies. A dose and duration of treatment for adults is usually suggested, but they may need modification for age, weight, renal function, or if immunocompromised. In severe or recurrent cases, consider a larger dose or longer course.
10. Refer to the BNF for further dosing and interaction information (e.g. the interaction between macrolides and statins), and check for hypersensitivity.
11. Have a lower threshold for antibiotics in immunocompromised, or in those with multiple morbidities; consider culture/specimens, and seek advice.
12. Avoid widespread use of topical antibiotics, especially in those agents also available systemically; in most cases, topical use should be limited.
13. In pregnancy, take specimens to inform treatment, where possible, AVOID tetracyclines, aminoglycosides, quinolones, azithromycin (except in chlamydial infection), clarithromycin and high dose metronidazole (2g) unless the benefits outweigh the risks. Penicillins, cephalosporins and erythromycin are safe in pregnancy. Short-term use of nitrofurantoin is not expected to cause foetal problems (theoretical risk of neonatal haemolysis). Trimethoprim is also unlikely to cause problems unless poor dietary folate intake, or taking another folate antagonist.
14. This guidance is developed alongside the NHS England Antibiotic Quality Premium. The required performance in 2017/19 is: a 10% reduction (or greater) in the number of E. coli blood stream infections across the whole health economy; a 10% reduction (or greater) in the trimethoprim: nitrofurantoin prescribing ratio for UTI in primary care, and a 10% reduction (or greater) in the number of trimethoprim items prescribed to patients aged 70 years or greater; sustained reduction of inappropriate prescribing in primary care.
15. We recommend clarithromycin locally over erythromycin as it has less side-effects, and greater compliance as twice rather than four times daily & generic tablets are similar cost.
16. Please find a Printable Self-assessment checklist for all prescribers to monitor your prescribing practice.
### Upper Respiratory Tract Infections

#### Flu

**Influenza** (PHE Influenza, NICE Influenza)  
Annual vaccinations essential for all those "at risk" of influenza. Antivirals are **not** recommended for healthy adults.  
**Treat at risk** patients with 5 days oseltamivir 75mg BD, when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children), or in a care home where influenza is likely.  
**At risk:** pregnant (including up to two weeks post-partum), children under 6 months, adults 65 years or over, chronic respiratory disease (including COPD and asthma) significant cardiovascular disease (not hypertension), severe immunosuppression, diabetes mellitus, chronic neurological, renal or liver disease, morbid obesity (BMI ≥40).  
See the PHE Influenza guidance for the treatment of patients under 13 years of age. In severe immunosuppression or oseltamivir resistance, use zanamivir 10mg BD (2 inhalations by Diskhaler for up to 10 days) and seek advice.

<table>
<thead>
<tr>
<th>Illness</th>
<th>Good Practice Points</th>
<th>Treatment</th>
<th>Adult Dose</th>
<th>Duration of Treatment</th>
</tr>
</thead>
</table>
| Flu     | **Avoid antibiotics** as 82% of cases resolve in 7 days, and pain is only reduced by 16 hours. Use **Fever PAIN** score: Fever in last 24 hours, purulence, rapid onset under 3 days, severely inflamed tonsils, no cough or coryza.  
**Score 0-1:** 13-18% streptococci, no antibiotic.  
**Score 2-3:** 34-40% streptococci - 3 day delayed antibiotic;  
**Score 4-5:** 62-65% streptococci - if severe, immediate antibiotic or 48 hour short delayed antibiotic  
**Advise paracetamol, self-care, & safety net.**  
Complications are rare: antibiotics to prevent Quinsy NNT>4000, otitis media NNT 200.  
10 days penicillin has lower relapse than 5 days in patient's under 18 years of age.  
**Prompt treatment** with appropriate antibiotics significantly reduces the risk of complications.  
Observe immunocompromised individuals (diabetes; women in the puerperal period; chickenpox) as they are at increased risk of developing invasive infection | **Fever PAIN 0-1:** self-care  
**If Fever PAIN 2-3:** delayed prescription of:  
**Fever PAIN 4-5:** immediate prescription of:  
**Penicillin allergy:** clarithromycin  
**Penicillin allergy:** clarithromycin  
**Penicillin allergy:** clarithromycin | **Fever PAIN 0-1:** self-care  
**If Fever PAIN 2-3:** delayed prescription of:  
**If Fever PAIN 4-5:** immediate prescription of:  
**Penicillin allergy:** clarithromycin  
**Penicillin allergy:** clarithromycin  
**Penicillin allergy:** clarithromycin | 500mg QDS  
500mg BD | 10 days  
5 days |

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**Author:** Fionnuala Plumart, Ellen Mason, Sam Lippett  
**Issue date:** Feb 19  
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**Editor:** Kristina Fowlie  
**Expiry date:** 2 years  
**Supersedes:** 8  
**Reviewer:** Jade Tomes  
**To be reviewed before expiry date if warranted**
## Upper Respiratory Tract Infections continued

<table>
<thead>
<tr>
<th>Illness</th>
<th>Good Practice Points</th>
<th>Treatment</th>
<th>Adult Dose</th>
<th>Duration of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acute Otitis Media (children)</strong></td>
<td><strong>Optimise analgesia</strong></td>
<td>amoxicillin</td>
<td><em>Child doses</em>&lt;br&gt;Neonate 7-28 days: 30mg/kg TDS&lt;br&gt;1 month-11 months: 125mg TDS&lt;br&gt;1-5 years: 250mg TDS&lt;br&gt;&gt;5 years: 500mg TDS</td>
<td>5 days</td>
</tr>
<tr>
<td>NICE RTIs</td>
<td><strong>AOM resolves in 60% of cases in 24 hours without antibiotics, which only reduce pain at 2 days (NNT 15) and do not prevent deafness</strong>&lt;br&gt;Consider 2 or 3 day delayed or immediate antibiotics for pain relief if:&lt;br&gt;&lt;2 years AND bilateral AOM (NNT 4), bulging membrane or symptom score &gt;8 for: fever; tugging ears; crying; irritability; difficulty sleeping; less playful; eating less (0 = no symptoms; 1 = a little; 2 = a lot)</td>
<td>Penicillin allergy:&lt;br&gt;clarithromycin</td>
<td>Child 1 month-11 years:&lt;br&gt;Body weight (BW) &lt;8kg: 7.5mg/kg BD&lt;br&gt;8-11kg: 62.5mg BD&lt;br&gt;12-19kg: 125mg BD&lt;br&gt;20-29kg: 187.5mg BD&lt;br&gt;30-40kg: 250mg BD</td>
<td>5 days</td>
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<tr>
<td></td>
<td><strong>All ages with otorrhoea NNT3</strong>&lt;br&gt;<strong>Abx to prevent mastoiditis NNT &gt;4000</strong></td>
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</tr>
<tr>
<td><strong>Acute Otitis Media (adults)</strong></td>
<td><strong>Optimise analgesia</strong></td>
<td>amoxicillin</td>
<td>500mg TDS&lt;br&gt;200mg stat then 100mg OD</td>
<td>5 days</td>
</tr>
<tr>
<td></td>
<td><strong>AOM resolves in 60% of patients in 24 hours without antibiotics, which only reduce pain at 2 days and do not prevent deafness</strong>&lt;br&gt;Consider 2 or 3 day delayed or immediate antibiotics for pain relief in otorrhoea</td>
<td>Penicillin allergy:&lt;br&gt;doxycycline</td>
<td></td>
<td>5 days</td>
</tr>
<tr>
<td><strong>Acute Otitis Externa</strong></td>
<td><strong>CKS OE</strong>&lt;br&gt;<strong>First line: analgesia for pain relief, and apply localised heat (e.g. a warm flannel)</strong>&lt;br&gt;<strong>Second line: topical acetic acid or topical antibiotic +/- steroid; similar cure at 7 days</strong>&lt;br&gt;If cellulitis or disease extends outside ear canal, or systemic signs of infection, start oral flucloxacillin &amp; refer to exclude malignant OE&lt;br&gt;*available OTC if &gt;12 years</td>
<td>EarCalm spray*&lt;br&gt;(acetic acid 2%) or Betnesol N or Otomize spray</td>
<td>1 spray TDS&lt;br&gt;3 drops TDS&lt;br&gt;1 dose TDS&lt;br&gt;500mg QDS</td>
<td>7 days&lt;br&gt;7-14 days&lt;br&gt;7 days</td>
</tr>
</tbody>
</table>

*Available OTC if &gt;12 years.
ILLNESS | GOOD PRACTICE POINTS | TREATMENT | ADULT DOSE | DURATION OF TREATMENT
--- | --- | --- | --- | ---
**UPPER RESPIRATORY TRACT INFECTIONS continued**
Sinusitis (acute)
This guidance summarises the NICE Sinusitis (acute) guidance published in July 2017, and the NICE RTIs guidance published in July 2008
**Symptoms <10 days:** do not offer antibiotics as most resolve in 14 days without, and antibiotics only offer marginal benefit after 7 days (NNT 15).
**Symptoms > 10 days:** no antibiotic, or back-up antibiotic if several of: purulent nasal discharge; severe localised unilateral pain; fever; marked deterioration after initial milder phase.
**Systemically very unwell, or more serious signs and symptoms:** immediate antibiotic.
**Suspected complications:** e.g. sepsis, intraorbital or intracranial refer to secondary care.
**Self-care:** paracetamol/ibuprofen for pain/fever. Consider high-dose nasal steroid if ≥12 years. Nasal decongestants or saline may help some.
No antibiotics: self-care
First line for delayed: phenoxymethyl/penicillin
**Penicillin allergy:**
doxycline
OR clarithromycin
First line choice if systemically unwell/high risk of complications or worsening after 2-3/7 first line (phenoxylone) treatment: co-amoxiclav
Mometasone nasal spray
500mg QDS
200mg stat then 100mg OD
500mg BD
All for 5 days
14 days
**LOWER RESPIRATORY TRACT INFECTIONS**
**Note:** Low doses of penicillins are more likely to select for resistance, we recommend 500mg of amoxicillin. Do not use quinolones (ciprofloxacin, ofloxacin) first line as there is poor pneumococcal activity. Reserve all quinolones (including levofloxacin) for proven resistant organisms.
Acute cough, bronchitis
NICE RTIs
Antibiotics have little benefit if no co-morbidity
Second line: 7day delayed antibiotic, safety net, and advise that symptoms can last 3 weeks.
Consider immediate antibiotics if > 80yr and ONE of: hospitalisation in past year, taking oral steroids, insulin-dependent diabetic, congestive heart failure; serious neurological disorder/stroke, OR > 65yrs with 2 of above
**Penicillin allergy:**
doxycline
First line: Self-care and safety netting advice
Second line: amoxicillin
500mg TDS
200mg stat then 100mg OD
5 days
5 days
Acute exacerbation of COPD
NICE COPD GOLD COPD
Treat with antibiotics if purulent sputum and increased shortness of breath and/or increased sputum volume.
Risk factors for antibiotic resistance: severe COPD (MRC>3); co-morbidity; frequent exacerbations; antibiotics in last 3 months.
First line: amoxicillin
Second line: doxycline
Third line: co-amoxiclav
500mg TDS
200mg stat then 100mg OD
625mg TDS
5 days
5 days
5 days
### Management of infection in primary care

**Adapted for local use**

<table>
<thead>
<tr>
<th>ILLNESS</th>
<th>GOOD PRACTICE POINTS</th>
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<th>ADULT DOSE</th>
<th>DURATION OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LOWER RESPIRATORY TRACT INFECTIONS continued</strong></td>
<td></td>
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</tr>
<tr>
<td>Community-acquired pneumonia</td>
<td>Use CRB65 score to guide mortality, place of care and antibiotics  Each CRB65 parameter scores 1: Confusion (AMT≤8 or new disorientation in person, place or time);  Respiratory rate &gt;30/min; BP systolic &lt;90 or diastolic ≤ 60; Age ≥ 65;  Score 0: low risk, suitable for home treatment;  Score 1-2: intermediate risk, consider hospital assessment;  Score 3-4: urgent hospital admission.  Give safety net advice and likely duration of different symptoms, e.g. cough 6 weeks. Mycoplasma infection is rare in &gt;65s</td>
<td>CRB65=0: amoxicillin OR doxycycline 500mg TDS 200mg stat then 100 mg OD</td>
<td>If CRB=0, use 5 days.</td>
<td></td>
</tr>
<tr>
<td><strong>URINARY TRACT INFECTIONS</strong></td>
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<tr>
<td><strong>Note:</strong> As antimicrobial resistance and <em>Escherichia coli</em> bacteraemia in the community is increasing, use nitrofurantoin first line, always give safety net and self-care advice, and consider risks for resistance. Give <strong>TARGET Manage your infection UTI leaflet</strong>, and refer to the <strong>PHE UTI guidance</strong> for diagnostic information.</td>
<td></td>
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</tr>
<tr>
<td>UTI in adults (lower)</td>
<td>All patients first line antibiotic: nitrofurantoin  if GFR ≥45mls/min;  if GFR30-44 only use if no alternative  Due to increased resistance of trimethoprim- it is not recommended that trimethoprim is prescribed empirically without evidence of sensitivity  Treat women with severe/≥ 3 symptoms: Women &lt;65 years (mild/ ≤ 2 symptoms): Pain relief, and consider /delayed antibiotic. If urine not cloudy, 97% NPV of no UTI  If urine cloudy, use dipstick to guide treatment: nitrite, leukocytes, blood all negative 76% NPV; nitrite plus blood or leukocytes 92% PPV of UTI  Men &lt; 65 years: consider prostatitis and send pre-treatment MSU, OR if symptoms mild or non-specific, use –ve dipstick to exclude UTI  &gt;65 years: treat if fever ≥38°C or 1.5°C above base twice in 12h AND ≥1 other symptom</td>
<td>First line: nitrofurantoin  If first line unsuitable <em>(e.g. if GFR &lt;45mls/min)</em> pivmecillinam **  If penicillin allergy: fosfomycin 100mg MR BD 400mg TDS (unlicensed)</td>
<td>For all treatment <em>(except fosfomycin)</em>  Women all ages: 3 days  Men: 7 days</td>
<td><strong>this is a penicillin</strong>  <strong>NB:</strong> If increased resistance risk, send culture with FIRST presentation for susceptibility testing &amp; give safety net advice.  If treatment failure: always perform culture</td>
</tr>
</tbody>
</table>

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**Author:** Fionnuala Plumart, Ellen Mason, Sam Lippett  
**Issue date:** Feb 19  
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### UTI patient with catheters: antibiotics will not eradicate asymptomatic bacteriuria; only treat if systemically unwell or pyelonephritis likely.

Do not use prophylactic antibiotics for catheter changes unless history of catheter-change-associated UTI or trauma. Take sample if new onset of delirium, or one or more symptoms of UTI.

<table>
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<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>UTI in pregnancy</td>
<td>Send MSU for culture; start empirical antibiotics in all with significant positive culture, even if asymptomatic. First line: nitrofurantoin unless at term Second line: trimethoprim; avoid if low folate status, or on folate antagonist Third line: cephalosporins, as risk of <em>C. diff</em></td>
<td>First line: nitrofurantoin (avoid at term) Second line: trimethoprim Third line: cefalexin</td>
<td>100mg MR BD</td>
<td>All for 7 days</td>
</tr>
<tr>
<td>UTI in pregnancy</td>
<td>SIGN UTI</td>
<td></td>
<td>200mg BD (off-label) <em>Give folic acid 5mg OD if 1st trimester</em></td>
<td></td>
</tr>
<tr>
<td>Acute prostatitis</td>
<td>Send MSU for culture and start antibiotics. 4-wk course may prevent chronic prostatitis Quinolones achieve higher prostate concentrations</td>
<td>First line: ciprofloxacin Second line: trimethoprim</td>
<td>500mg BD</td>
<td>28 days</td>
</tr>
<tr>
<td>Acute prostatitis</td>
<td>CKS</td>
<td></td>
<td>200mg BD</td>
<td>28 days</td>
</tr>
<tr>
<td>UTI in children</td>
<td>Child &lt;3 months: refer urgently for assessment. Child ≥ 3 months: use positive nitrite to guide antibiotic use: send pre-treatment MSU. Imaging: refer if child &lt;6 months, or recurrent or atypical UTI.</td>
<td>Lower UTI: First line: trimethoprim or nitrofurantoin Second line: cefalexin If organism susceptible: amoxicillin <em>Penicillin allergy:</em> ciprofloxacin if &gt; 1 year and IgE mediated penicillin allergy</td>
<td>See BNF for doses</td>
<td>Lower UTI 3 days</td>
</tr>
<tr>
<td>UTI in children</td>
<td>NICE UTI in under 16s</td>
<td></td>
<td>See BNF for doses</td>
<td></td>
</tr>
<tr>
<td>UTI in children</td>
<td></td>
<td></td>
<td>See BNF for doses</td>
<td></td>
</tr>
<tr>
<td>Acute pyelonephritis</td>
<td>If admission not needed, send MSU for culture &amp; susceptibility testing, and start antibiotics. If no response within 24 hours, seek advice. If ESBL risk and on advice from a microbiologist, consider IV antibiotics via outpatient parenteral antimicrobial therapy (OPAT) service.</td>
<td>co-amoxiclav or ciprofloxacin De-escalate spectrum of cover once MSU sensitivities known</td>
<td>500/125mg TDS</td>
<td>7 days</td>
</tr>
<tr>
<td>Acute pyelonephritis</td>
<td>CKS</td>
<td></td>
<td>500mg BD</td>
<td>7 days</td>
</tr>
</tbody>
</table>

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**Note:**
- UTI: Urinary Tract Infection
- MSU: Midstream Urine Sample
- CKS: Clinical Knowledge Summary
- BNF: British National Formulary
- ESBL: Extended-Spectrum β-Lactamase
- OPAT: Outpatient Parenteral Antimicrobial Therapy
- *C. diff*: *Clostridium difficile*
### Management of infection in primary care
Adapted for local use

**Brighton & Hove CCG**
**High Weald Lewes Havens CCG**

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**ILLNESS** | **GOOD PRACTICE POINTS** | **TREATMENT** | **ADULT DOSE** | **DURATION OF TREATMENT**
---|---|---|---|---
**URINARY TRACT INFECTIONS continued**

| Recurrent UTI in non pregnant women (2in 6 months or ≥ 3 UTIs/year) | First line: advise simple measures, including hydration; ibuprofen for symptom relief. cranberry products work for some women. See [TARGET UTI leaflet](#) | Choice should be driven by cultures | 100mg MR 500mg | At night or post-coital stat (off-label) 3-6 months, then review recurrence rate and need |
| | Second line: stand-by or post-coital antibiotics | Antibiotic prophylaxis: First line: nitrofurantoin Second line: ciprofloxacin Third line: refer for advice |
| | Third line: antibiotic prophylaxis. Ongoing prophylaxis is not encouraged and may drive resistance. Remember to review recurrence rate and need after 3-6 months |

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**MENINGITIS**

| Suspected meningococcal disease | Transfer all patients to hospital immediately. If time before hospital admission, and non-blanching rash, give IV benzylpenicillin or IV cefotaxime. Do not give IV antibiotics if there is a definite history of anaphylaxis. Rash is not a contraindication | IV or IM benzylpenicillin OR IV or IM cefotaxime | Age 10+ years: 1200mg Children 1-9 yrs: 600mg Children <1 yr: 300mg Age 12+ years: 1gram Child < 12 yrs: 50mg/kg | (give IM if vein cannot be found) |
| | | | | |
| Prevention of secondary case of meningitis: Only prescribe following advice from Public Health. Contact local HPA on 0344 225 3861 Option 1 or 0844 967 0069 out of hours. |

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**GASTRO-INTESTINAL TRACT INFECTIONS**

| Oral Candidiasis | Oral candidiasis is rare in immunocompetent adults; consider undiagnosed risk factors including HIV. | Mild-moderate Nystatin suspension Moderate- severe fluconazole oral capsules | 100.00units/ml 1ml QDS (half a ml in each side) 50mg OD extensive or severe candidiasis, HIV or immunosuppression use 100mg OD | 7 days or 2 days after symptoms cease 7 days (further 7 if persistent) |
| | | | | |
| **CKS Candida** | | | | |

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**Author** Fionnuala Plumart, Ellen Mason, Sam Lippett
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<tbody>
<tr>
<td><strong>GASTRO-INTESTINAL TRACT INFECTIONS continued</strong></td>
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</tr>
<tr>
<td>Eradication of <em>Helicobacter pylori</em></td>
<td>Treat all positives if known DU, GU, or low grade MAL.Toma  NNT in non-ulcer dyspepsia (14)  Do not offer eradication for GORD  Do not use clarithromycin metronidazole, or quinolone if used in the past year for any infection  If patient fits outside this guideline, please refer to microbiology</td>
<td>Always use PPI  First line: PPI with amoxicillin  plus metronidazole (MZ)  Second line: <em>(unable to tolerate MZ)</em> PPI with amoxicillin  plus clarithromycin</td>
<td>TWICE daily</td>
<td></td>
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<tr>
<td><strong>NICE GORD &amp; dyspepsia</strong></td>
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<tr>
<td><strong>PHE H.pylori</strong></td>
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<tr>
<td><strong>Diverticulitis</strong></td>
<td>Asses the need for admission.</td>
<td>co-amoxiclav</td>
<td>500/125mg TDS</td>
<td>5 days - 7 days</td>
</tr>
</tbody>
</table>
| **Infectious diarrhea**  
**PHE Diarrhoea**  
**CKS** | Refer previously healthy children with acute painful or bloody diarrhoea, to exclude *Escherichia coli* 0157 infection.  
**Antibiotic therapy is not indicated unless patient is системically unwell.** If systemically unwell and campylobacter suspected (e.g. undercooked meat and abdominal pain), consider clarithromycin 500mg BD for 5 days if very sick.  
Consider recent antibiotics / hospital admission and risk of *Clostridium difficile*  
**Clostridium difficile**  
**PHE** | Stop unnecessary antibiotics, PPIs and antiperistaltic agents. Admit if severe: T >38.5; WCC >15, rising creatinine or signs/symptoms of severe colitis | vancomycin oral | 125mg QDS | 10 - 14 days |
| **Traveller’s diarrhoea** | Prophylaxis rarely, if ever indicated. Only consider ***standby antimicrobial*** for patients at high risk of severe illness, or visiting high risk areas.  
***standby: azithromycin 500mg once daily for 3 days.*** | | | |
| **Threadworm**  
**CKS threadworm** | Treat all household contacts at the same time. Advise hygiene measures for 2 weeks (hand hygiene, pants at night, morning shower, including perianal area). Wash sleepwear, bed linen, and dust, and vacuum.  
*available OTC if ≥2yrs  
Child < 6 months, add perianal wet wiping or washes 3 hourly | >6 months  
First line: mebendazole*  
(off-label if <2yrs)  
<6 months or pregnancy  
(at least in 1st trimester): only hygiene measures for 6 weeks | 100mg | stat dose, repeat in 2 weeks if persistent |
### STI screening
People with risk factors should be screened for chlamydia, gonorrhoea, HIV, syphilis. Refer individual and partners to GUM. Risk factors: < 25y, no condom use, recent (<12mth) / frequent change of partner, symptomatic partner, area of high HIV.

### Chlamydia trachomatis/urethritis
**SIGN**
Opportunistically screen all aged 16-24yrs
Treat partners and refer to GUM. Repeat test for cure in all at three months.
Pregnancy/breastfeeding: azithromycin is most effective lower cure rate in pregnancy, test for cure at least 3 weeks after end of treatment.

<table>
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<th><strong>ADULT DOSE</strong></th>
<th><strong>DURATION OF TREATMENT</strong></th>
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</thead>
<tbody>
<tr>
<td>Doxycycline</td>
<td>100mg BD</td>
<td>7 days</td>
</tr>
<tr>
<td>Pregnancy/breastfeeding: azithromycin</td>
<td>1g</td>
<td>stat</td>
</tr>
</tbody>
</table>

### Vaginal candidiasis
**BASHH**
All topical and oral azoles give 70% cure
Pregnancy: avoid oral azoles and use intravaginal treatment for 7 days

<table>
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<tbody>
<tr>
<td>clotrimazole OR miconazole OR oral fluconazole</td>
<td>500mg pessary OR 5gr 10% cream 100mg pessary 150mg orally 150mg every 72 hours THEN 150mg once a week</td>
<td>stat 14 nights stat 3 doses 6 months</td>
</tr>
<tr>
<td>Recurrent: fluconazole (induction/maintenance)</td>
<td>400mg BD or 2gr stat 1x 5g applicator at night 1x 5g applicator at night</td>
<td>7 days/stat 5 nights 7 nights</td>
</tr>
</tbody>
</table>

### Bacterial vaginosis
**BASHH**
Oral metronidazole is as effective as topical treatment, and is cheaper
Seven days results in fewer relapses than 2 gr stat at 4 weeks
Pregnant/breastfeeding: avoid 2gr dose Treating partners does not reduce relapse

<table>
<thead>
<tr>
<th><strong>TREATMENT</strong></th>
<th><strong>ADULT DOSE</strong></th>
<th><strong>DURATION OF TREATMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>oral metronidazole OR metronidazole 0.75% vag gel OR clindamycin 2% crm</td>
<td>400mg BD or 2gr stat 1x 5g applicator at night 1x 5g applicator at night</td>
<td>7 days/stat 5 nights 7 nights</td>
</tr>
</tbody>
</table>

### Genital herpes
**BASHH**
**First episode:** treat within five days if new lesions or systemic symptoms, and refer to GUM.
**Recurrent:** self-care if mild, or immediate short course antiviral treatment, or suppressive therapy if more than six episodes per year.

<table>
<thead>
<tr>
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<th><strong>DURATION OF TREATMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>First line: oral aciclovir OR valaciclovir</td>
<td>400mg TDS 800mg TDS (if recurrent) 500mg BD</td>
<td>5 days 2 days 5 days</td>
</tr>
</tbody>
</table>

### Gonorrhoea
Antibiotic resistance is now very high. Test of cure is essential.

<table>
<thead>
<tr>
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<th><strong>DURATION OF TREATMENT</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>ceftriaxone if chlamydia positive or unknown ADD doxycycline</td>
<td>1gram IM 100mg BD</td>
<td>Stat 7 days</td>
</tr>
</tbody>
</table>
### ILLNESS | GOOD PRACTICE POINTS | TREATMENT | ADULT DOSE | DURATION OF TREATMENT
---|---|---|---|---
**GENITAL TRACT INFECTIONS continued**
Trichomoniasis **BASHH**
**Trichomoniasis**
- Oral treatment needed as extravaginal infection common. Treat partners, and refer to GUM for other STI’s
- Pregnancy/breastfeeding: avoid 2g single dose metronidazole, clotrimazole for symptom relief (not cure) if metronidazole declined
- Pregnancy
  - Symptoms: clotrimazole
  - Effective
  - 100mg pessary ON
  - 5 - 7 days stat
- Metronidazole
  - 400mg BD
  - 2g stat (more adverse effects)
  - 6 nights

Pelvic Inflammatory Disease **BASHH**
**PID**
- Refer woman & sexual contacts to GUM
- Always culture for gonorrhoea & chlamydia
- If gonorrhoea likely (partner has it; sex abroad; severe symptoms,) use regimen with ceftriaxone, as resistance to quinolones is high
- If pregnant, do not prescribe, refer to GUM
- Pregnancy
  - For symptoms:
    - Clotrimazole 40mg BD
    - 2g stat (more adverse effects)
    - 5 - 7 days
  - Metronidazole 400mg BD
  - 6 nights

Epididymitis and Epididymo-orchitis
- Usually due to gram- negative enteric bacteria in men over 35 years with low risk of STI.
- If under 35 years or STI risk refer to GUM
- For suspected epididymitis and epididymo-orchitis in men over 35 years with low risk of STI (high risk refer to GUM).
- Exclude testicular torsion.
- Obtain an MSU for sensitivity and culture and send urine for gonorrhoea and chlamydia NAAT.
- Ofloxacin
  - 200mg BD
  - 14 days
- Doxycycline
  - 100mg BD
  - 14 days

**SKIN INFECTIONS**

**Note:** refer to RCGP Skin infections online training for MRSA, discuss therapy with microbiologist.

**Impetigo** **PHE**
**Impetigo**
- Reserve topical antibiotics for very localised lesions to reduce risk of bacteria becoming resistant.
- Only use mupirocin if caused by MRSA.
- Extensive, severe, or bullous impetigo: oral antibiotics
- Topical fusidic acid
- MRSA: topical mupirocin
- 2% ointment TDS
- 500QDS
- 500mg BD
- 5 days

**Cold sore** **CKS cold sores**
- Most resolve after 5 days without treatment. Topical antivirals applied prodromally can reduce duration by 12-18 hours.
- If frequent, severe, and predictable triggers: consider oral prophylaxis: aciclovir 400mg, twice daily, for 5-7 days.

**Eczema** **NICE**
**Eczema**
- 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 in impetigo.
# Management of infection in primary care

Adapted for local use

<table>
<thead>
<tr>
<th>ILLNESS</th>
<th>GOOD PRACTICE POINTS</th>
<th>TREATMENT</th>
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<th>DURATION OF TREATMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKIN INFECTIONS continued</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acne vulgaris</td>
<td>Treatment is dependent on severity, mild moderate or severe (treat and refer)</td>
<td><strong>First line</strong> Self-care</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Mild (open and closed comedones) or moderate (inflammatory lesions)</td>
<td><strong>Second line</strong> topical retinoid OR benzoyl peroxide</td>
<td><strong>Apply OD</strong></td>
<td>6-8 weeks</td>
</tr>
<tr>
<td></td>
<td>First-line: self-care (wash with mild soap; do not scrub; avoid make-up)</td>
<td><strong>Third line</strong> topical clindamycin If failure/severe</td>
<td><strong>5% gel OD - BD</strong></td>
<td>6-8 weeks</td>
</tr>
<tr>
<td></td>
<td>Second-line: topical retinoid or benzoyl peroxide</td>
<td>oral lymecycline OR oral doxycycline</td>
<td><strong>1% gel/solution/lotion thinly BD</strong></td>
<td>12 weeks</td>
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<tr>
<td></td>
<td>Third line: add topical antibiotic, or consider addition or oral antibiotic.</td>
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<tr>
<td></td>
<td>Severe (nodules and cysts): add oral antibiotic (for 3 months max) and refer</td>
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<tr>
<td></td>
<td>Do not combine a topical antibiotic with oral antibiotic treatment</td>
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</tr>
<tr>
<td>Cellulitis and erysipelas</td>
<td>Class I: patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone. If river or sea water exposure: discuss with microbiologist.</td>
<td><strong>flucloxacillin</strong></td>
<td><strong>500mg QDS</strong></td>
<td>All for 7 days, If slow response continue for a further 7 days</td>
</tr>
<tr>
<td></td>
<td>Class II: patient febrile and ill, or comorbidity, consider admit for IV treatment or use OPAT.</td>
<td><strong>Penicillin allergy:</strong> clarithromycin <strong>Penicillin allergic and on statins:</strong> doxycycline</td>
<td><strong>500mg BD</strong></td>
<td>As for cellulitis</td>
</tr>
<tr>
<td></td>
<td>Class III: toxic appearance, admit. Erysipelas: Often facial and unilateral. Use flucloxacillin for non-facial erysipelas</td>
<td><strong>If unresolving clindamycin</strong></td>
<td><strong>200mg stat then 100mg OD</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Admission avoidance Cellulitis pathway</td>
<td><strong>If facial(non-dental): co-amoxiclav</strong></td>
<td><strong>300-450mg QDS</strong></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>500/125mg TDS</strong></td>
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<tr>
<td>Leg ulcer</td>
<td>Ulcers are always colonized. Antibiotics do not improve healing unless active infection (prurulent exudate/odour; increased pain; cellulitis; pyrexia)..&lt;br&gt;If active infection, send pre-treatment swab. Review antibiotics after culture results</td>
<td><strong>If active infection:</strong> flucloxacillin OR clarithromycin</td>
<td><strong>500mg QDS</strong></td>
<td>As for cellulitis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td><strong>500mg BD</strong></td>
<td></td>
</tr>
<tr>
<td>Bites</td>
<td>Human: Thorough irrigation is important. Assess risk of tetanus, rabies, HIV, hepatitis B&amp;C.</td>
<td><strong>prophylaxis / treatment all:</strong> co-amoxiclav</td>
<td><strong>625mg TDS</strong></td>
<td>7 days</td>
</tr>
<tr>
<td></td>
<td>Cat: Always give prophylaxis</td>
<td><strong>Penicillin allergy:</strong>&lt;br&gt;• cat/dog metronidazole&lt;br&gt;<strong>plus</strong> doxycycline</td>
<td><strong>400mg TDS</strong></td>
<td>7 days</td>
</tr>
<tr>
<td></td>
<td>Dog: Give prophylaxis if: puncture wound, bite to hand, foot, face, joint, tendon or ligament, immunocompromised, cirrhotic, asplenic or presence of prosthetic valve/joint</td>
<td><strong>human bite ciprofloxacin</strong>&lt;br&gt;<strong>plus</strong> clindamycin</td>
<td><strong>100mg BD</strong></td>
<td>7 days</td>
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<tr>
<td></td>
<td>Penicillin allergy: Review all at 24 and 48 hours, as not all pathogens are covered</td>
<td></td>
<td><strong>500mg BD</strong></td>
<td>7 days</td>
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<tr>
<td></td>
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<td></td>
<td><strong>300mg QDS</strong></td>
<td>7 days</td>
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</tbody>
</table>
### Post-operative wound infection

For the majority of cases, flucloxacillin is sufficient. Ensure prosthetic patients have a culture taken first before treatment is chosen. If infection is severe, or fails to respond, contact microbiology for advice.

- **Treatment:**
  - **Flucloxacillin**
  - **Penicillin allergy:** clarithromycin

- **Adult Dose:**
  - 500mg QDS
  - 500mg BD

- **Duration of Treatment:**
  - 7 days
  - 7 days

### Scabies

- **NHS Scabies**
  - Treat all home & sexual contacts within 24h
  - Treat whole body from ear/chin downwards and under nails.
  - If under 2/elderly: also treat face/scalp
  - **Home/sexual contacts:** treat within 24h

- **Treatment:**
  - **Permethrin**
  - **If allergy:** malathion

- **Dose:**
  - 5% cream
  - 0.5% aqueous liquid

- **Duration:**
  - 2 applications

### Mastitis

- **CKS Mastitis and breast abscess**
  - S. aureus is the most common infecting pathogen. Suspect if woman has: a painful breast; fever and/or general malaise; a tender, red breast.
  - Breastfeeding: oral antibiotics are appropriate, where indicated.
  - Women should continue feeding, including from the affected breast.

- **Treatment:**
  - **Flucloxacillin**
  - **Penicillin allergy:** erythromycin
  - **OR** clarithromycin

- **Adult Dose:**
  - 500mg QDS
  - 500mg QDS
  - 500mg BD

- **Duration of Treatment:**
  - 10 - 14 days

### Dermatophyte infection – skin

- **PHE Fungal skin and nail infections**
  - Most cases: Terbinafine is fungicidal; treatment time shorter than with fungistatic imidazoles.
  - If candida possible, use imidazole.
  - If intractable, or scalp, send skin scrapings

- **Treatment:**
  - **Topical terbinafine**
  - **OR** topical clotrimazole

- **For athlete’s foot:**
  - **Topical undecanoates (e.g. Mycota)**

- **Adult Dose:**
  - 1% apply OD - BD
  - 1% apply OD - BD

- **Duration of Treatment:**
  - 1 - 4 weeks
  - 4 - 6 weeks

### Dermatophyte infection – nail

- **CKS Fungal nail infection**
  - Take nail clippings; start therapy only if infection is confirmed by laboratory.
  - Oral terbinafine is more effective than oral azole. Liver reactions 0.1 to 1% with oral antifungals.

- **First line:**
  - **Terbinafine**

- **Second line:**
  - **Itraconazole**

- **Treatment:**
  - **Topical terbinafine**
  - **OR** topical clotrimazole

- **Stop treatment when continual, new healthy, proximal nail growth**

- **Adult Dose:**
  - 250mg OD
  - 200mg BD

- **Duration of Treatment:**
  - 6 weeks
  - 12 weeks

  - 2 courses
  - 3 courses

  - (1 course = 7 consecutive days treatment per month)
### ILLNESS: SKIN INFECTIONS continued

<table>
<thead>
<tr>
<th>Illness</th>
<th>Good Practice Points</th>
<th>Treatment</th>
<th>Adult Dose</th>
<th>Duration of Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Varicella zoster/chickenpox</td>
<td>Pregnant/ immunocompromised/ neonate: seek urgent specialist advice. Chickenpox: consider aciclovir if: onset of rash &lt;24h, &amp; one of the following: &gt;14 yrs; severe pain; dense/oral rash; taking steroids; smoker.</td>
<td>First line: aciclovir</td>
<td>800mg five times a day</td>
<td>7 days</td>
</tr>
<tr>
<td>Herpes zoster/shingles</td>
<td>Shingles: treat if &gt;50 yrs and within 72 hrs of rash (PHN rare if &lt;50 yrs); or if one of the following: active ophthalmic; Ramsey Hunt, eczema, non-truncal involvement, moderate or severe pain, moderate or severe rash. Shingles treatment if not within 72 hrs: consider starting antiviral drug up to one week after rash onset, if high risk of severe shingles or complications (continued vesicle formation; older age; immunocompromised; severe pain).</td>
<td>For shingles:</td>
<td>Second line: if compliance a problem, valaciclovir</td>
<td>1g TDS</td>
</tr>
</tbody>
</table>

### ILLNESS: EYE INFECTIONS

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<thead>
<tr>
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<th>Treatment</th>
<th>Adult Dose</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Conjunctivitis</td>
<td>First line: bath/clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting. Treat only if severe, as most cases are viral or self-limiting. Bacterial conjunctivitis: usually unilateral and also self-limiting: It is characterised by red eye with mucopurulent, not watery discharge. 65% and 74% resolve on placebo by day five and 7. Second line: Fusidic acid as it has less gram negative activity</td>
<td>First line: self-care (see left)</td>
<td>Second line: chloramphenicol 0.5% drops* OR chloramphenicol 1% ointment*</td>
<td>Third line: fusidic acid 1% gel</td>
</tr>
<tr>
<td>All: Continue for 48 hours after resolution</td>
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<tr>
<td>Blepharitis</td>
<td>First line: lid hygiene for symptom control, including: warm compresses; lid massage and scrubs; gentle washing; avoiding cosmetics. Second line: topical antibiotics if hygiene measures are ineffective after 2 weeks. Signs of Meibomian gland dysfunction or acne rosacea: consider oral antibiotics</td>
<td>First line: self-care</td>
<td>Second line: chloramphenicol 1% ointment</td>
<td>Third line: oral doxycycline</td>
</tr>
</tbody>
</table>
**Management of infection in primary care**
Adapted for local use

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</thead>
<tbody>
<tr>
<td>OTHER INFECTIONS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Prevention of infective endocarditis in dental procedures | ‘At risk’ patients:-  
• Prosthetic valve or prosthetic material used for cardiac repair  
• Previous endocarditis  
• Cyanotic heart disease | Amoxicillin  
OR  
Clindamycin orally | 2g stat dose  
600mg stat dose | one hour pre-procedure |

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**Suspected dental infections in primary care (outside dental setting)**

<table>
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</tr>
</thead>
<tbody>
<tr>
<td>Derived from the Scottish Dental Clinical Effectiveness Programme (SDCEP) 2013 Guidelines</td>
<td></td>
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<tr>
<td>This guidance is not designed to be a definitive guide to oral conditions, as GPs should not be involved in dental treatment. Patients presenting to non-dental primary care services with dental problems should be directed to their regular dentist, or if this is not possible, to the NHS 111 service (in England), who will be able to provide details of how to access emergency dental care.</td>
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<tr>
<td>Note: Antibiotics do not cure toothache. First line treatment is with paracetamol and/or ibuprofen; codeine is not effective for toothache.</td>
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</tbody>
</table>
| Mucosal ulceration and inflammation (simple gingivitis)  
SDCEP Dental problems | Temporary pain and swelling relief can be attained with saline mouthwash  
Use antiseptic mouthwash if more severe, & if pain limits oral hygiene to treat or prevent secondary infection. The primary cause for mucosal ulceration or inflammation (aphthous ulcers; oral lichen planus; herpes simplex infection; oral cancer) needs to be evaluated and treated. | Saline mouthwash  
Chlorhexidine 0.12-0.2%  
(Do not use within 30 mins of toothpaste) | ½ tsp salt dissolved in warm water  
1 minute BD with 10ml | All:  
Always spit out after use.  
Use until lesions resolve/less pain allows for oral hygiene |
| Acute necrotising ulcerative gingivitis | Refer to dentist for scaling and oral hygiene advice.  
Antiseptic mouthwash if pain limits oral hygiene.  
Commence metronidazole in the presence of systemic signs and symptoms. | Chlorhexidine 0.12-0.2%  
Metronidazole | See above dosing in mucosal ulceration  
400mg TDS | Until pain allows for oral hygiene  
3 days |
| Pericoronitis  
SDCEP Dental problems | Refer to dentist for irrigation and debridement.  
If persistent swelling or systemic symptoms, use metronidazole or amoxicillin.  
Use antiseptic mouthwash if pain and trismus limit oral hygiene. | Metronidazole  
OR  
Amoxicillin  
Chlorhexidine 0.2% | 400mg TDS  
500mg TDS  
See above dosing for mucosal ulceration | 3 days  
3 days  
Until pain allows for oral hygiene |
<table>
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<th>ADULT DOSE</th>
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</tr>
</thead>
</table>
| Dental abscess SDCEP Dental problems | • Regular analgesia should be first option until a dentist can be seen for urgent drainage, as repeated courses of antibiotics for abscess are not appropriate. Repeated antibiotics alone, without drainage, are ineffective in preventing the spread of infection.  
• Antibiotics are only recommended if there are signs of severe infection, systemic symptoms or high risk of complications.  
• Patients with severe odontogenic infections; (cellulitis, plus signs of sepsis; difficulty in swallowing; impending airway obstruction) should be referred urgently for admission to protect airway, for surgical drainage and for IV antibiotics.  
• The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer any advantage for most dental patients, and should only be used if there is no response to first line drugs. | amoxicillin  
*Penicillin allergy:* clarithromycin  
Severe, spreading infection: add metronidazole.  
Use clarithromycin in true penicillin allergy  
*If severe:* refer to hospital. | 500mg - 1gr TDS  
500mg BD  
400mg TDS | Up to 5 days review at 3 days |

If pus is present, refer for drainage, tooth extraction, or root canal. Send pus for investigation  
*If spreading infection:* (lymph node involvement or systemic signs, i.e. fever or malaise) ADD metronidazole.  
Use clarithromycin in true penicillin allergy  
*If severe:* refer to hospital.

REFERENCES

Adapted from PHE guidance: Management of infection guidance for primary care for consultation and local adaption  