Contents

Introduction 3
Top Tips for Better Antibiotic Prescribing 3
Further Information /Contact Numbers 3
Key Messages 4
Self Care 4
Educational Messages for Patients 4
Healthcare Associated Infections 6
Antibiotic Resistance 7
Clostridium difficile 7
ESBLs 8
MRSA 8
Sepsis 9
Antibiotic Use in Pregnancy 10
Penicillin Allergy 10
Common Prescribing Dilemmas 10
- fluoroquinolones 10
- macrolides 11
- nitrofurantoin 11
- trimethoprim & co-trimoxazole 11

Treatment Tables

Upper Respiratory Tract Infections 13
Lower Respiratory Tract Infections 15
Meningitis 19
Urinary Tract Infections 20
Gastro-intestinal Tract Infections 26
Genital Tract Infections 30
Skin/Soft Tissue Infections 33
Eye Infections 38
Dental 38
Resources 40
Information on MRSA screening and decolonisation 41
Treating Your Infection form 43
Introduction

Healthcare associated infection is a major challenge to modern healthcare and patient safety. The UK has higher rates of some healthcare associated infections such as MRSA compared to certain European countries and Mid-Essex is no exception. Careful antibiotic prescribing is a key element which has been focused on as part of the National Quality Premiums. These include the number of antibiotic items prescribed per STAR-PU (target ≤0.965), the percentage of broad spectrum antibiotics prescribed compared to the total antibiotic prescriptions (target ≤ 10%), and the number of trimethoprim items prescribed to patients over 70 years old (target < 7813 items).

Cases of severe colitis associated with Clostridium difficile disease post- antibiotics continue however. We need to maintain our focus on controlling antibiotic prescriptions through monitoring of the use of broad spectrum antibiotics, our biggest challenge is Co-amoxiclav. Prolonged courses of nitrofurantoin and trimethoprim are also a problem.

This updated edition of the formulary gives current recommendations for the antibiotic treatment of common infections encountered in primary care. It takes into account national guidance on the subject as well as local antibiotic resistance patterns. Key Messages on p5 details those areas where an antibiotic is NOT recommended. The formulary also has an expanded section on antimicrobial resistance and healthcare associated infections.

Suggestions for duration of treatment and dosage are made. It is important to ensure that optimal dosing at the upper end of the licensed dosage range is used, to prevent the emergence of antibiotic resistance. In the majority of instances the route of administration is oral. Further information is available in the British National Formulary, the BNF for children or from a consultant microbiologist (contact numbers are given on the next page).

For full prescribing information please refer to the Summary of Product Characteristics for each medicine.

Please try and keep antibiotic prescribing to the essential minimum.

Top Tips for Better Antibiotic Prescribing

- Ensure that antibiotics are not prescribed when there is no clinical indication to suggest that it is necessary e.g. viral upper respiratory tract infections
- Use ‘Non-Prescription’ forms and delayed prescriptions where appropriate
- Ensure that appropriate doses are prescribed
- Ensure that full courses are completed by patients
- Be guided by local sensitivity results. Help with interpretation of results is always available from your local microbiologist
- Shorten unnecessarily long courses e.g. cystitis
- Avoid inappropriate broad-spectrum antibiotics
- Avoid inappropriate repeat prescriptions without microbiological confirmation e.g. repeat courses
- Avoid antibiotics if glandular fever is suspected

For Further Information

Broomfield Hospital – Microbiology 01245 515019

Colchester Hospital University NHS Foundation Trust Hospital (switchboard, ask for microbiology)
Key messages

- Keep antibiotic prescribing to the essential minimum:
  - Acute sore throat – AVOID ANTIBIOTICS as 90% resolve in 7 days without and pain only reduced by 16 hours.
  - Acute otitis media – AVOID ANTIBIOTICS as 60% are better in 24 hours without. Only reduce pain at 2 days (NNT15) and do not prevent deafness.
  - Acute Rhinosinusitis – AVOID ANTIBIOTICS as 80% resolve in 14 days without and they only offer marginal benefit after 7 days (NNT15).
  - Acute cough, bronchitis – Antibiotics offer little benefit if no co-morbidity.
  - Fungal nail infections – Take nail clippings; start therapy only if infection is confirmed by laboratory.

- Consider the use of a ‘delayed prescription’ where appropriate
- Consider a ‘Treating Your Infection form (see page 25)
- Prescribe an antibiotic only when there is likely to be a clear clinical benefit and for as short a time as possible
- Do not prescribe an antibiotic for viral sore throat, simple coughs and colds; provide a ‘Non-Prescription’ form if helpful
- Where antibiotics are prescribed, ensure effective dosage at the upper end of the licensed dosage range
- Limit prescribing over the telephone to exceptional cases
- Use simple generic antibiotics first whenever possible
- Avoid topical antibiotics which are also available for systemic use e.g. fusidic acid
- Use amoxicillin first-line for chest infections. Streptococcus pneumoniae remains the most common cause of lower respiratory tract infection in Mid-Essex. The great majority of isolates are susceptible to amoxicillin; doxycycline and rifampicin is an alternative, especially if MRSA positive

Self-Care

Promote Self Care where appropriate. Refer to the Self Care sections highlighted throughout the guideline. Treatments that are often available to purchase over the counter include:

- Analgesics (painkillers) for short-term use
- Topical antifungal treatment for short term minor ailments
- Cold sore treatment
- Colic treatment
- Cough and cold remedies
- Eye treatments/lubricating products
- Head lice treatment and scabies treatment
- Threadworm tablets
- Topical acne treatment
- Warts and verruca treatment

Educational messages for patients

Many patients expect a prescription as part of the consultation; some do not and are just seeking reassurance that no antibiotics are required. Where there is no need for a prescription a “Non-Prescription” form explaining the natural progression of the infection may suffice. Patients may be reluctant to wait for a few days to see if there has been an improvement before a prescription is offered as this may require a further visit to the surgery. The practice of issuing advice linked to a delayed prescription may be helpful in these cases.
Examples of patient information leaflets are available at [DH-Website](https://www.gov.uk/government/publications/european-antibiotic-awareness-day-and-antibiotic-guardian-posters-and-leaflets)

The following approaches and evidence to discuss with patients may be helpful:

- Half of all antibiotics in primary care are given for respiratory tract infections, a high proportion of which are caused by viral pathogens
- Serious complications following minor infections are very rare in otherwise healthy individuals. The evidence to suggest that antibiotics reduce these complications is weak
- Delayed prescriptions given to patients requesting antibiotics for self-limiting conditions may be reassuring. Studies have shown that these are often not redeemed
- Antibiotic prescribing in self-limiting conditions can reinforce patient belief that antibiotics are beneficial and encourage future consultation. Education will help reduce unnecessary future attendance
- Make full use of patient information leaflets to provide reassurance.
Healthcare associated infections

- Healthcare associated infections (HCAIs) are often acquired as a result of healthcare intervention within a hospital, but also in other healthcare settings.
- They affect both patients and healthcare workers.
- Medical interventions are associated with a risk of infection for several reasons:
  a. The underlying illness can leave the patient more vulnerable to infection
  b. The underlying illness can impair the immune system
  c. Treatments, including medication, may leave the patient more vulnerable to infections
  d. Invasive procedures provide opportunities for micro-organisms to enter the body and cause infection
  e. The use of antibiotics to treat one infection can enable other micro-organisms to colonise the patient
  f. The widespread use of antibiotics to treat infection can encourage antibiotic-resistant micro-organisms to emerge

Increasingly complex care is now provided in clinics or the patient's own home and these are also associated with risks of infection. HCAIs are often linked to invasive procedures as they provide a route into the body for a wide range of micro-organisms including those carried by the patient on their skin and external mucosa.

The infections which receive the most public attention are caused by antibiotic resistant micro-organisms such as meticillin-resistant Staphylococcus aureus (MRSA). Whilst having the same effect on patients as non-antibiotic resistant strains they may have a particular characteristic that enables them to spread easily. Such infections are more difficult to treat. Following treatment with antibiotics these antibiotic-resistant micro-organisms can replace a patient's normal flora with no sign of active infection. These patients then become a reservoir of antibiotic resistant micro-organisms which can be transferred to other people.

HCAIs can cause considerable anxiety to patients and their relatives. They can extend the patient's stay in hospital, affect their quality of life and cause prolonged illness or disability. In some cases they may cause, or contribute to, the patient's death.

There are a number of measures which can minimise the risk of an HCAI. They seek to prevent the transmission of micro-organisms between patients and also the entry of micro-organisms into the body during invasive procedures or other treatments. Micro-organisms may be transferred on the hands of healthcare workers or by touching contaminated products or surfaces.

It is important to:

- Wash or decontaminate hands between contact with patients
- Have systems in place to avoid introducing or transmitting infection during invasive procedures including insertion and management of invasive device
- Use protective clothing thus minimising the risk of transfer via clothing
- Ensure regular cleaning so that micro-organisms are not allowed to build up in the environment
- Ensure the correct use of antibiotics to minimise the risk of antibiotic resistant micro-organisms emerging and to reduce the risk of patients developing disease caused by Clostridium difficile
**Antibiotic Resistance**

Antibiotic resistance is perhaps an inevitable consequence of the use of antibiotics and thus inappropriate prescribing must be minimised to delay its development and spread.

The increasing prevalence of antibiotic resistance is a major cause for concern and has led to the development of strategies that aim to address the problem including rational antibiotic prescribing in the primary care setting.

Some strains of bacteria are inherently resistant to antibiotic agents. However, other bacterial strains may develop resistance through mutation or transfer of resistance-encoding genetic material from different strains.

When treating a patient with antibiotics, only those infecting bacteria that are susceptible to the antibiotic used will be killed. Those that are not will have a selective advantage in the presence of that antibiotic. Under optimal conditions bacteria may double in number every 20–30 minutes and thus the potential for the formation of a resistant colony is great. Of particular concern is the potential for the development and spread of multi-resistance, where bacteria become resistant to several different classes of antibiotic agents.

The likelihood of resistance being reduced or reversed seems to vary with the particular organisms and the antibiotic involved. The rate of increase in resistance depends partly on how much of the antibiotic is used. Reducing antibiotic use is therefore likely to reduce the rate at which new resistance accumulates. In the absence of new antibiotics for tackling the problem of resistance, it can be seen that the appropriate and judicious use of antibiotics in all settings remains a priority.

**Clostridium difficile**

*Clostridium difficile*, the major cause of antibiotic-associated diarrhoea and colitis, is a healthcare associated intestinal infection that mostly affects elderly patients with other underlying diseases. The main risk is to those with one or more of the following factors:

- Being over 65 years of age
- Having previous antibiotics in the last two to three months
- Being debilitated
- Being immunosuppressed
- Having a hospital admission in the last two to three months
- Having a recent *C. difficile* infection

*C. difficile* is an anaerobic bacterium present in the gut of less than 5% of healthy adults. It is common in the intestine of babies and infants, but does not cause disease because its toxins do not damage their immature intestinal cells.

*C. difficile* can cause diarrhoea, ranging from a mild disturbance to a very severe illness with ulceration and bleeding from the colon (colitis) and at worst, perforation of the intestine leading to peritonitis. It can be fatal. Generally, it is only able to do this when the normal, healthy intestinal bacteria have been killed off by antibiotics.

Patients with *C. difficile* produce large numbers of spores in their liquid faeces which can cause aerosol and contact contamination in the general environment. These can survive for a long time. People can become infected by touching contaminated surfaces or faecal material. The spores are not killed by alcohol based products and thus hand washing and the use of chlorine-based disinfectant cleaning agents are important.

Most infections arise in community settings, but can also occur in hospitals.

Patients who have been treated with broad spectrum antibiotics within about the last three months are at greatest risk of *C. difficile* disease and thus the prescribing of these medications within the community may affect the outcome for a patient who is admitted to hospital at a later date. For this reason GPs are urged to restrict their use as much as possible.
Antibiotics and *Clostridium difficile* infection
Antibiotic exposure is associated with a significantly higher risk of *C. diff* infection than no antibiotics. Risk of infection is greatest with:

1. Clindamycin
2. Quinolones
3. Cephalosporins
4. Penicillins
5. Macrolides
6. Sulphonamides or trimethoprim

PPIs and the risk of *Clostridium difficile* infection
Research shows that:

- Proton pump inhibitors (PPIs) are associated with near doubling of the likelihood of *C. diff* infection
- Co-administration of PPIs and antibiotic increases the risk of *C. diff* infection beyond that conferred by either treatment alone
- *C. diff* infection risk is increased after even short duration of PPI use

Commencing antibiotic therapy for *Clostridium difficile* infection
Antibiotic therapy for *C. diff* infection should be commenced as soon as possible, within 48 hours of prescribing. If pharmacies are unable to supply, the prescription should be returned to the patient to try an alternative pharmacy. The patient’s GP should be informed of any delay in supply and initiation of antibiotic therapy.

Extended Spectrum Beta Lactamase producing bacteria
Extended Spectrum Beta-Lactamases (ESBLs) are enzymes that can be produced by a number of bacteria. Until recently, the numbers of patients affected remained small and the problem showed little sign of growing. However, a new class of ESBL has emerged and these have been widely detected among *Escherichia coli* bacteria. These ESBL-producing *E. coli* are able to resist penicillins and cephalosporins. It is thought that the ESBL-producing bacteria are acquired months or even years before they cause a problem, living harmlessly in the gut until the patient becomes ill or requires antibiotics.

ESBL-producing bacteria occur particularly in patients who have had multiple courses of antibiotics and with underlying structural abnormalities. Patients on long-term treatment with nitrofurantoin and/or trimethoprim are particularly affected. Use effective doses of antibiotics with good tissue penetration for as short a time as possible. Do not use long-term antibiotics as this will likely lead to resistance.

MRSA
*Staphylococcus aureus* is a bacterium that colonises human skin and mucosa. It can cause severe disease, particularly if there is an opportunity for the bacteria to enter the body. Skin and wound infections, urinary tract infections, pneumonia and bacteraemia may develop. Most strains of the bacterium are sensitive to many antibiotics, and infections can be effectively treated. However some *S. aureus* bacteria are resistant to the antibiotic meticillin; meticillin-resistant *S. aureus* (MRSA).

*S. aureus* is present on the skin or nostrils of about one third of the population. Prevalence of MRSA in UK is estimated as <1% of patients living at home rising to 22% of patients in a care home whilst 82% of those with MRSA infection are ≥60 years.

It is important to distinguish between colonisation and infection due to MRSA. Colonisation of a wound will not prevent healing and does not require antibiotic therapy.
Patients with recurrent *Staphylococcus aureus* infection (MRSA or MSSA) should always have decolonisation and this may need repeating. Always ensure decolonisation of patients with MRSA or MSSA immediately prior to any surgical procedure such as hip replacement or cataract removal. The following regimen is recommended:

- Octenisan™ wash solution for patients attending Broomfield or Colchester Hospitals used once a day for bathing and hair wash. Use up to time of admission.
  
*plus*

- Mupirocin nasal ointment (Bactroban™), applied to the internal surfaces of the nostrils three times daily for ten days.

The primary care information document on MRSA screening and decolonisation prior to planned hospital admission can be found on page 23.

When there is clinical evidence of infection, antibiotic therapy may be indicated in addition to decolonisation.

When antibiotics are indicated in a patient who is MRSA positive, for any reason, use antibiotics which also cover MRSA (e.g. doxycycline +/- rifampicin).

Further advice on the treatment of MRSA may be obtained from the consultant microbiologist (01245 515019).

Advice on infection control aspects in the community, including care homes, is available from local Infection Control Nurses or the Essex Health Protection Team. For details see page 4.

**Sepsis**

Sepsis is a medical emergency. It is responsible for 37,000 deaths annually in the UK and sepsis has a fivefold higher mortality than STEMI or stroke. It is essential that sepsis is recognised early for the patient to reach hospital soon enough to avoid serious complication or death.

A high degree of vigilance is required for early identification of the septic patient. As well as the general impression at the time of initial assessment, the presence of abnormal observations should be enough to initiate evaluation for sepsis.

NICE guidance (the recognition, diagnosis and management of severe sepsis) is in development and is anticipated to be published in 2016. Please refer to the NICE website for further information.

The UK Sepsis Trust have produced a toolkit for primary care which aims to make GPs and other primary care clinicians familiar with sepsis. It advises on specific safety netting in patients presenting with signs and symptoms of infection, ensuring that appropriate further assessment is undertaken and time-critical care is delivered rapidly when necessary.

**General Practice Sepsis Screening and Action Tool**

This tool, produced by the UK Sepsis Trust, should be applied to all patients who are not pregnant who have a suspected infection or whose clinical observations are outside of normal limits.

**Patient groups to consider screening:**

- With clinical evidence of systemic infection (such as recent history of fever)
- In whom you are considering antibiotic prescription or stewardship discussion
- You suspect to have ‘flu’
- You suspect to have gastroenteritis
- Who are obviously unwell without clear cause
- Who are elderly or immunosuppressed and present with signs of infection
- Who have deteriorated on antibiotic therapy
Antibiotic Use in Pregnancy

General recommendations are not useful as each patient requires individual consideration.

Further advice is included in the BNF under the individual drug section, from the SPC for individual product available from the emc or in the prescribing notes or specific advice is available from a consultant microbiologist.

Penicillin Allergy

Check the history, which is often inaccurate. Patients commonly report minor skin reactions and stomach upsets as penicillin allergy. There is, however, no 'low dose' test for allergy as the allergic or anaphylactic response is not dose related.

There is little evidence to suggest that the substitution of a cephalosporin is of benefit and they should be used with caution in penicillin allergic patients. The quoted incidence of cross-reactions is up to 10% although true reactions are probably rarer.

Penicillins and the cephalosporins must be avoided where there is a history of immediate hypersensitivity reactions i.e. anaphylaxis, angioneurotic oedema or urticaria.

See individual treatment tables for suitable alternative medication

Common Prescribing Dilemmas

Fluoroquinolones

The long term adverse effects of quinolones are less well established compared to other agents such as penicillins and these drugs are all involved in drug interactions. Of particular concern are tendonitis and tendon rupture with ciprofloxacin, levofloxacin, moxifloxacin and ofloxacin. The interaction of ciprofloxacin and theophyllines is potentially life threatening.
The MHRA has warned that quinolones may induce convulsions in patients with or without a history of convulsions; taking NSAIDs at the same time may also induce them. They should be used with caution in patients with a history of epilepsy or conditions that predispose to seizures.

More recently the EMA has conducted a review of quinolone and fluoroquinolone antibiotics and now recommends that the prescribing information includes the disabling and potentially permanent side effects and advises patients to stop treatment with a fluoroquinolone antibiotic at the first sign of a side effect involving muscles, tendons or joints and the nervous system.

Restrictions on the use of fluoroquinolone antibiotics means that they should not be used:
• to treat infections that might get better without treatment or are not severe (such as throat infections);
• to treat non-bacterial infections, e.g. non-bacterial (chronic) prostatitis;
• for preventing traveller’s diarrhoea or recurring lower urinary tract infections (urine infections that do not extend beyond the bladder);
• to treat mild or moderate bacterial infections unless other antibacterial medicines commonly recommended for these infections cannot be used.

Importantly, fluoroquinolones should generally be avoided in patients who have previously had serious side effects with a fluoroquinolone or quinolone antibiotic. They should be used with special caution in the elderly, patients with kidney disease and those who have had an organ transplantation because these patients are at a higher risk of tendon injury. Since the use of a corticosteroid with a fluoroquinolone also increases this risk, combined use of these medicines should be avoided.

**Macrolides**
For most indications where a macrolide is recommended, clarithromycin is now the drug of choice. As per the treatment tables, erythromycin is now only recommended for penicillin allergic children with otitis media and for the treatment of chlamydia where the patient is pregnant/breastfeeding. Note that *Haemophilus influenzae* is intrinsically resistant to erythromycin.

Evidence indicates that clarithromycin is better tolerated than erythromycin. There is no convincing evidence to support any differences in the tolerability of different formulations of erythromycin.

*There is no reason to use the more expensive modified release form of clarithromycin.*

**Nitrofurantoin**
May be used with caution if a patient has an eGFR between 30 and 44mL/min to treat uncomplicated lower UTI caused by suspected or proven multi-drug resistant bacteria and only if potential benefit outweighs risk. Nitrofurantoin and pivmecillinam are only licensed for uncomplicated lower UTIs and are not suitable for people with upper UTI symptoms or blocked catheter.

**Trimethoprim & co-trimoxazole interaction with methotrexate**
Co-trimoxazole is now rarely used as it is associated with a number of rare but serious side effects. Trimethoprim, a constituent, is still used, mainly for urinary tract infections.

The use of methotrexate tablets for a number of medical conditions has increased over recent years. All patients are given a supplement of folic acid to help the body withstand the effects of the methotrexate and reduce some of the side effects.

The National Patient Safety Authority (NPSA) has issued a Patient Safety Alert which states that a patient should not take co-trimoxazole or trimethoprim whilst taking methotrexate as the medications can interact.
Aims

- To provide a simple, empirical approach to the treatment of common infections based on our local community and sensitivity patterns.
- To promote the safe, cost-effective and appropriate use of antimicrobials by targeting those who may benefit most
- To minimise the emergence of antimicrobial resistance in the community

Principles of Treatment

1. This guidance is based on the best available evidence at the time of development. Its application must be modified by professional judgement, based on knowledge about individual patient co-morbidities, potential for drug interactions and involve patients in management decisions.
2. It is important to initiate antibiotic as soon as possible in severe infection or in those immunocompromised, particularly if sepsis is suspected. Refer to the NICE guideline [NG51] Sepsis: recognition, diagnosis and early management for further information.
3. This guidance should not be used in isolation; it should be supported with patient information about safety netting, back-up/delayed antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. The RCGP TARGET antibiotics toolkit is available via the RCGP website.
4. The majority of this guidance provides dose and duration of treatment for ADULTS. Doses may need modification for age, weight and renal function. Refer to appropriate paediatric sources for information on paediatric doses.
5. Refer to BNF for further dosing and interaction information (e.g. interaction between macrolides and statins), ALWAYS check for hypersensitivity/allergy.
6. Have a lower threshold for antibiotics in immunocompromised or in those with multiple co-morbidities; send samples for culture and seek advice.
7. Prescribe an antimicrobial only when there is likely to be a clear clinical benefit, giving alternative, non-antibiotic self-care advice where appropriate.
8. Consider a no, or delayed, antibiotic strategy for acute self-limiting upper respiratory tract infections (e.g. acute sore throat, acute cough and acute sinusitis) and mild UTI symptoms.
9. ‘Blind’ antibiotic prescribing for unexplained pyrexia usually leads to further difficulty in establishing the diagnosis.
10. Limit prescribing over the telephone to exceptional cases.
11. 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 Urinary Tract Infections (UTIs).
12. Avoid widespread use of topical antibiotics (especially those agents also available as systemic preparations, in most cases, topical use should be limited).
13. If diarrhoea or vomiting occurs due to an antibiotic or the illness being treated, the efficacy of hormonal contraception may be impaired and additional precautions should be recommended.
14. Clarithromycin is now recommended over erythromycin, except in pregnancy and breastfeeding. It has fewer side-effects and twice daily rather than four times daily dosing promotes compliance. Statins should be withheld when macrolide antibiotics are prescribed.
15. In pregnancy, take specimens to inform treatment. Penicillins, cephalosporins and erythromycin are not associated with increased risk of spontaneous abortion. If possible, avoid tetracyclines, quinolones, aminoglycosides, azithromycin (except in chlamydial infection), clarithromycin and high dose metronidazole (2g stat) unless the benefits outweigh the risks. 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. If you are unsure about a particular drug’s use in pregnancy contact the Medicines Optimisation team for further advice.
16. Annual vaccination is essential for all those at clinical risk of severe influenza. For information on Immunisation against infectious disease refer to The Green Book.
17. For information on causative pathogens, refer to PHE guidance: Management of infection guidance for primary care for consultation and local adaptation.
### Upper Respiratory Tract Infections

#### Influenza

- **NICE-Influenza**
  - Annual vaccination is essential for all those “at risk” of influenza. Antivirals are not recommended for healthy adults. Treat “at risk” patients with five 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 six months; adults 65 years or older; 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 BD5 (two inhalations TWICE daily by diskhaler for up to 10 days) and seek advice.

#### Acute Sore Throat

- **NICE-CVS**
- **FeverPAIN**
- **Treating your infection patient leaflet**

  **AVOID ANTIBIOTICS or consider back-up/ delayed antibiotic prescription.**
  - 82% of cases resolve in 7 days without antibiotics and pain is only reduced by 16 hours.
  - Use **FeverPAIN** Score to assess. Criteria include: Fever in last 24h, Purulence, Attend rapidly under 3 days, severely Inflamed tonsils, No cough or coryza.
  - **Score 0-1:** 13-18% streptococci isolation - use NO antibiotic strategy
  - **Score 2-3:** 34-40% streptococci isolation, use 3 day delayed antibiotic strategy
  - **Score 4-5:** 62-65% streptococci isolation.
  - Use clinical judgement to assess severity on baseline symptoms (difficulty swallowing, runny nose, cough, headache, muscle ache, interference with normal activities) and use immediate antibiotic or 48 hour short delayed antibiotic prescription.
  - Always share self-care advice & safety net.

  **First Line:**
  - Fever Pain 0-1: Self Care see [NHS Choices](https://www.nhs.uk/conditions/sore-throat/

  **Second Line:**
  - Fever pain 2-3: delayed prescription of phenoxymethylpenicillin
  - Phenoxymethylpenicillin (oral) 500 mg QDS OR 1g BD (if mild) for 5-10 days
  - If severe (refer to comments): 500mg BD for 5 days

  **Second Line:**
  - Fever pain 2-3: delayed prescription of clarithromycin
  - Clarithromycin (oral) 250 mg BD for 5 days
  - If severe (refer to comments): 500mg QDS for 10 days

  **Second Line:**
  - Fever pain 2-3: delayed prescription of erythromycin
  - Erythromycin (oral) 250 mg – 500 mg QDS for 5 days.

#### Scarlet Fever (GAS)

- **PHE scarlet fever**

  **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

  **1st line (if mild): analgesia**
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>No allergy</td>
<td>Second line: Phenoxymethylpenicillin (oral) 500 mg QDS for 10 days</td>
<td>Second line: Clarithromycin (oral) 250 mg-500mg BD for 5 days</td>
</tr>
<tr>
<td>Primary Care</td>
<td>Penicillin allergy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GUI 201904V6.0FINAL</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Acute Otitis Media**  
Acute otitis media is a self-limiting condition that mainly affects children. Symptoms usually last 3 days but can last up to 1 week. Most children and young people get better within 3 days without antibiotics. Antibiotics make little difference to symptoms (no improvement in pain at 24 hours). Complications such as mastoiditis are rare. Consider back up prescription if symptoms do not start to improve within 3 days or if they worsen rapidly or significantly at any time.

**NICE guideline**

| Cure rates similar at 7 days for topical acetic acid or antibiotic +/- steroid. |
| If cellulitis or disease extending outside ear canal or systemic signs of infection, start oral antibiotics and refer to exclude malignant OE |
| Consider use of topical ciprofloxacin in recurrent cases or where pseudomonas is suspected |

**Acute Otitis Externa**  
First line: use analgesia and apply localised heat (eg a warm flannel)  
Second line: topical acetic acid or topical antibiotic +/- steroid: similar cure at 7 days

**CKS OE**

| First-line: self-care analgesia for pain relief and advice to apply localised heat (e.g. a warm flannel). |
| If cellulitis or disease extending outside ear canal or systemic signs of infection, start oral antibiotics and refer to exclude malignant OE |
| Consider use of topical ciprofloxacin in recurrent cases or where pseudomonas is suspected |

**Acute Rhino-sinusitis**  
Symptoms <10 days: do not offer antibiotics as most resolve in 14 days

| First Line: Self Care see NHS Choices |
| If cellulitis: flucloxacillin (oral) 250mg QDS for 7 days |
| If severe: 500mg QDS for 7 days |

Developing invasive infection.  
This is a notifiable disease.
### Infection

<table>
<thead>
<tr>
<th><strong>NICE CKS</strong></th>
<th><strong>Comments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Treated your infection patient leaflet</strong></td>
<td><strong>Without. Antibiotics only offer marginal benefit after 7 days. Symptoms &gt;10 days: no antibiotic, or back-up/delayed 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 infection, refers to secondary care. Self-care: paracetamol/ibuprofen for pain/fever. Consider high-dose nasal steroid if &gt;12 years. Nasal decongestants or saline may help some. Consider prescribing a high-dose nasal corticosteroid for 14 days for adults and children aged 12 years and over with symptoms for around 10 days or more, but being aware that nasal corticosteroids: • may improve symptoms but are not likely to affect how long they last • could cause systemic effects, particularly in people already taking another corticosteroid • may be difficult for people to use correctly -consider providing patient information leaflet on usage</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>First Choice Antibiotics</strong></th>
<th><strong>Pregnancy and Breastfeeding</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Allergy</strong></td>
<td><strong>Penicillin Allergy</strong></td>
</tr>
<tr>
<td><strong>Second Line: (delayed antibiotic) phenoxymethylpenicillin (oral) 500mg QDS for 5 days If very unwell or worsening start/switch to co-amoxiclav 625mg TDS for 5 days</strong></td>
<td><strong>Second Line: (delayed antibiotic) Doxycycline (oral) 200mg STAT then 100mg OD for a total of 5 days</strong></td>
</tr>
<tr>
<td>Metamidine nasal spray 200mcg BD for 14 days (with or without an oral antibiotic)</td>
<td><strong>For 2nd line choice of antibiotic or worsening contact local medical infection team (refer to page 16 for contact details). Metamidine nasal spray 200mcg BD for 14 days if benefit outweighs risk.</strong></td>
</tr>
</tbody>
</table>

### Lower Respiratory Tract Infections

**Note:** Low doses of penicillins are more likely to select out resistance, we recommend 500mg of amoxicillin Do not use quinolone (ciprofloxacin, ofloxacin) first line due to poor pneumococcal activity. Reserve all quinolones (including levofloxacin) for proven resistant organisms.

<table>
<thead>
<tr>
<th><strong>Acute Cough, Bronchitis</strong></th>
<th><strong>Consider no or 7 day back up/delayed antibiotic with self-care and safety</strong></th>
<th><strong>First line: Self Care and safety netting advice, see NHS Choices</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td></td>
</tr>
<tr>
<td>Acute Exacerbation of COPD</td>
<td>Treat exacerbations promptly with antibiotics if purulent sputum and increased shortness of breath and/or increased sputum volume. Risk factors for antibiotic resistant organisms include co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months. Previous microbiology should be reviewed if at risk of resistance.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Allergy</strong></td>
<td><strong>Penicillin Allergy</strong></td>
</tr>
<tr>
<td>Second line: Doxycycline (oral) 200 mg STAT, then 100 mg OD (total 5 days treatment)</td>
<td>Second line: Amoxicillin (oral) 500 mg TDS for 5 days</td>
</tr>
<tr>
<td>OR</td>
<td>Second line: Doxycycline (oral) 200 mg STAT, then 100 mg OD (total 5 days treatment)</td>
</tr>
<tr>
<td><strong>Penicillin Allergy</strong></td>
<td><strong>No Allergy</strong></td>
</tr>
<tr>
<td>Second line: Amoxicillin (oral) 500 mg TDS for 5 days</td>
<td></td>
</tr>
<tr>
<td>Second line: Clarithromycin 250 - 500 mg BD for 5 days</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Antibiotic Choice in Children:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amoxicillin (total 5 days treatment)</td>
</tr>
<tr>
<td>Clarithromycin OR Erythromycin OR Doxycycline (not in under 12s) (total 5 days treatment)</td>
</tr>
<tr>
<td>Amoxicillin (total 5 days treatment)</td>
</tr>
<tr>
<td>Erythromycin (total 5 days treatment)</td>
</tr>
</tbody>
</table>

General Advice:
- Netting and advise that symptoms can last 3 weeks. Antibiotics are of little benefit if no co-morbidity.
- Symptom resolution can take 3 weeks.
- Acute cough with upper respiratory tract infection: no antibiotic.
- Acute bronchitis: no routine antibiotic.
- Acute cough and higher risk of complications (at face-to-face examination): immediate or back-up antibiotic.
- Acute cough and systemically very unwell (at face to face examination): immediate antibiotic.

Consider immediate antibiotics if > 80 years old and ONE of: hospitalisation in past year, oral steroids, diabetic, congestive heart failure, serious neurological disorder/stroke OR > 65 years with TWO of the above.

Consider CRP testing if antibiotic treatment is being considered. No antibiotics if CRP<20mg/L and symptoms for > 24 hours; delayed antibiotics if CRP 20-100mg mg/L or immediate antibiotics if > 100mg/L.

Treat exacerbations promptly with antibiotics if purulent sputum and increased shortness of breath and/or increased sputum volume. Risk factors for antibiotic resistant organisms include co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months. Previous microbiology should be reviewed if at risk of resistance.

Rescue Pack (for initial management of exacerbation)
Prescribe prednisolone 5mg tablets - Take SIX tablets in the morning for 7-14 days and Amoxicillin 500mg capsules (unless allergic – see below for antibiotic choice) - Take ONE capsule THREE times a day for 5 days.
NB: this dosing schedule differs from the dosing schedule for acute bronchitis.
If a patient is using two or more packs in a year they need a specialist review.
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antibiotics should be used to treat exacerbations of COPD associated with a history of more purulent sputum. Patients with exacerbations without more purulent sputum do not need antibiotic therapy unless there is consolidation on a chest radiograph or clinical signs of pneumonia. Oral corticosteroids should be considered in patients with a significant increase in breathlessness which interferes with daily activities. Consider an antibiotic for people with an acute exacerbation of COPD, but only after taking into account:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• the severity of symptoms, particularly sputum colour changes and increases in volume or thickness beyond the person's normal day-to-day variation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• whether they may need to go into hospital for treatment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• previous exacerbation and hospital admission history, and the risk of developing complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• previous sputum culture and susceptibility results</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• the risk of antimicrobial resistance with repeated courses of antibiotics.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amoxicillin 500mg TDS for 5 days</td>
<td>Doxycycline (oral) 200mg OD on day 1 then 100mg OD for 4 further days</td>
<td>Amoxicillin (oral) 500mg TDS for 5-7 days</td>
<td>Erythromycin (oral) 250mg – 500mg QDS for 5-7 days</td>
</tr>
<tr>
<td>If risk factors present: Co-amoxiclav (oral) 625mg TDS for 5 days OR Co-trimoxazole 960mg BD for 5 days</td>
<td>If risk factors present: Levofloxacin (oral) 500mg OD for 5 days OR Co-trimoxazole 960mg BD for 5 days</td>
<td>If risk factors present, contact microbiology</td>
<td>If risk factors present, contact microbiology</td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Community acquired pneumonia treatment in the community | BTS guidelines Use CRB65 score in conjunction with clinical judgement to help guide and review: Each parameter scores 1: Confusion (AMT≤8); Respiratory rate >30/min; BP systolic <90mmHg or diastolic ≤ 60mmHg; Age ≥65.  
Score 3-4: urgent hospital admission  
Score 1-2: intermediate risk consider hospital assessment  
Score 0: low risk consider home based care  
Provide safety net advice and likely duration of symptoms: fever for 1 week, sputum production for up to 4 weeks, cough up to 6 weeks, most symptoms resolve with 3 months and may take up to 6 months to get back to normal. Atypical mycoplasma infection is rare in > 65 years.  
Failure to improve or worsening within 48 hours, consider hospital treatment or chest X-ray. When life threatening infection, GP should administer antibiotics. Benzylpenicillin 1.2 gram IV or amoxicillin 1 gram orally are preferred agents. | Refer to hospital if CRB65≥3  
If CRB65=1,2 & AT HOME, clinically assess need for antibiotic cover for atypicals: Amoxicillin (oral) 500 mg TDS  
AND Clarithromycin (oral) 500 mg BD for 7 days depending on severity  
OR Doxycycline alone (oral) 200 mg STAT on day 1 then 100 mg OD for a total of 7 days  
If CRB65=0: Amoxicillin (oral) 500 mg TDS for 5 days with safety netting advice; to return for review within 3 days; continue for a total of 7 days if no improvement or worsening.  
OR Doxycycline (oral) 200 mg STAT on day 1, then 100 mg OD for 4 days; review at 3 days; total 7-10 days if poor response | Refer to hospital if CRB65 ≥ 1  
If CRB65=1, 2 and at home:  
Doxycycline(oral) 200 mg STAT on day 1 then 100 mg OD for a total of 7 -10 days  
If CRB65=0:  
Clarithromycin (oral) 500mg BD 5 days with safety netting advice; to return for review within 3 days; continue for a total of 7-10 days if no improvement or worsening.  
OR  
Doxycycline (oral) 200mg STAT on day 1 then 100mg OD for 4 days; review at 3 days; total 7-10 days if poor response | If CRB65=0:  
Amoxicillin(oral) 500 mg TDS for 7-10 days  
To return for review at 3 days; if not improving or worsening refer to hospital  
If CRB65=0:  
Erythromycin (oral) 250 mg – 500 mg QDS for 7-10 days.  
To return for review at 3 days; if not improving or worsening refer to hospital |
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
</table>
| Bronchiectasis: Acute exacerbation (non-cystic fibrosis) | Obtain a sputum sample from people with an acute exacerbation of bronchiectasis and send for culture and susceptibility testing. Offer an antibiotic to people with an acute exacerbation of bronchiectasis. When choosing an antibiotic, take account of:  
- the severity of symptoms  
- previous exacerbation and hospital admission history, and the risk of developing complications  
- previous sputum culture and susceptibility results. When results of sputum culture and susceptibility testing are available:  
  - review the choice of antibiotic and  
  - only change the antibiotic according to susceptibility results if bacteria are resistant and symptoms are not already improving (using a narrow-spectrum antibiotic wherever possible). | Amoxicillin 500mg TDS for 7 – 14 days  
Alternative antibiotic choice (if person at higher risk of treatment failure) for empirical treatment in the absence of current susceptibility data (guided by most recent sputum culture and susceptibilities where possible)  
Co-amoxiclav 625mg TDS for 7 – 14 days | Amoxicillin 500mg TDS for 7 – 14 days  
Erythromycin 250-500mg QDS for 7 – 14 days |
| MENINGITIS (NICE fever guidelines) |
| Suspected meningococcal disease | Transfer all patients to hospital immediately. IF time before admission, and non-blanching rash, give IV benzylpenicillin or cefotaxime, unless definite history of hypersensitivity | IV or IM benzylpenicillin  
Age 10+ years: 1200 mg  
Children 1 - 9 yr: 600 mg  
Children <1 yr: 300 mg  
Stat dose | Erythromycin 250-500mg QDS for 7 – 14 days |
<p>| Prevention of secondary case of meningitis: Only prescribe following advice from Public Health Doctor | Give IM if vein cannot be found |</p>
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
</tbody>
</table>

**INFECTION**

**COMMENTS**

**FIRST CHOICE ANTIBIOTICS**

**PREGNANCY AND BREASTFEEDING**

<table>
<thead>
<tr>
<th>Infection</th>
<th>Comments</th>
<th>First Choice Antibiotics</th>
<th>Pregnancy and Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
</tbody>
</table>

**URINARY TRACT INFECTIONS**— refer to PHE diagnostic quick reference guide, 2018

**Note:** As antimicrobial resistance and Escherichia coli bacteraemia is increasing, use nitrofurantoin first line for uncomplicated lower UTI. Always give safety net and self-care advice, and consider risks for resistance. **Give TARGET UTI leaflet**

**People >65 years:** do not treat asymptomatic bacteriuria; it is common but is not associated with increased morbidity

**Catheter in situ:** 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 (**NICE** & **SIGN** guidance).

There is a risk of resistance with recurrent short or continuous courses of antibiotics such as trimethoprim and nitrofurantoin.

Public Health England issued a [diagnostic quick reference guide for UTI in primary care, 2018](#). The key messages from this document are:

- Escherichia coli blood stream infections increased by 22% between 2013 and 2017
- Department of Health aims to halve Gram Negative Bloodstream Infections by 2020.
- The NHS Quality Premium (QP) for 2017/2019 has set CCGs targets of reducing E.coli bacteraemia and inappropriate antibiotic prescribing
- Surveillance shows that previous UTIs, urinary catheterisation, hospitalisation, antibiotics in the previous month and older age are key risk factors for these infections
- Do not use dip-sticks in patients 65 or over
- Always take an MSU in this group prior to using antibiotics
- Always check results and alter as appropriate
- Never use antibiotics based on a dip stick result in patients 65 or over

**UTI in adults (no fever or flank pain)**

<table>
<thead>
<tr>
<th>PHE URINE</th>
<th>SIGN</th>
<th>CKS women</th>
<th>CKS men</th>
<th>RCGP UTI Toolkit</th>
<th>SAPG UTI</th>
<th>PHE URINE</th>
<th>CKS UKTIS</th>
</tr>
</thead>
</table>
| **Women treat empirically if severe / or ≥ 3 symptoms OR with mild / or ≤ 2 symptoms AND**
| a) Urine NOT cloudy 97% negative predictive value (NPV), do not treat unless other risk factors for infection,
| b) If cloudy urine use dipstick to guide treatment. Nitrite plus blood or leucocytes has 92% positive predictive value; nitrite, leucocytes, blood all negative 76% NPV
| c) Consider a back-up / delayed antibiotic option
| d) Advise on pain relief
| **Men: Consider prostatitis and send pre-treatment MSU OR if symptoms mild/non-**
| **First line for women and men:** Nitrofurantoin (oral) 100mg MR twice daily if GFR over 45ml/min. Use nitrofurantoin 1st line as resistance and community multi-resistant Extended-spectrum Beta-lactamase E. coli are increasing.
| Nitrofurantoin is contraindicated if eGFR < 45 mL/min or if known G6PD deficiency or in acute porphyria.
| Alternative 1st line agents for women and men: Trimethoprim (oral) 200 mg BD (local resistance is high, therefore only recommend if patient has low risk factors for resistance or if sensitivity of this is known).
| **Prompt treatment for seven days to prevent progression to pyelonephritis. Send MSU for culture and review antibiotics already prescribed based on results.**
| Nitrofurantoin is contraindicated in pregnant patients at term (38 to 42 weeks’ gestation), during labour and delivery, or when the onset of labour is imminent because of the possibility of haemolytic anaemia due to immature erythrocyte enzyme systems (glutathione instability).
| - This drug should be used during pregnancy up to 38 weeks’ gestation only if the benefit outweighs the risk.
| Do not prescribe trimethoprim for pregnant women with established folate deficiency, or low dietary folate intake, or those taking folate antagonists (e.g. antiepileptics or proguanil)
### INFECTION

Specific, use negative dipstick to exclude UTI.

Always provide safety net advice.

In treatment failure: always perform culture.

Low risk of resistance: younger women with acute UTI and no risk.

Risk factors for increased resistance include: care home resident, recurrent UTI, hospitalisation anywhere >7 days within the last 12 months, unresolved urinary symptoms, recent travel to a country with increased antimicrobial resistance (outside Northern Europe and Australasia), previous known UTI resistant to trimethoprim, cephalosporins or quinolones.

If increased resistance risk send culture for susceptibility testing & give safety net advice.

>65 years: treat if fever ≥38°C, or 1.5°C above base twice in 12 hours, and >1 other symptom.

People > 65 years: do not treat asymptomatic bacteriuria; it is common but is not associated with increased morbidities.

### COMMENTS

**Catheter in situ adults**

NICE: UTI (catheter associated)

Advise people with catheter-associated UTI about using paracetamol for pain.

Advise people with catheter-associated UTI about drinking enough fluids to avoid dehydration.

**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 or currently being treated for a UTI. Take sample if new onset of delirium, or one or more symptoms of UTI and exclude other sources of infection if systemically unwell. If

<table>
<thead>
<tr>
<th>If NO upper UTI symptoms</th>
<th>If NO upper UTI symptoms</th>
</tr>
</thead>
<tbody>
<tr>
<td>First line: Nitrofurantoin (oral) MR 100mg BD for 7 days if eGFR ≥45ml/min</td>
<td>First line: Nitrofurantoin (oral) MR 100mg BD for 7 days if eGFR ≥45ml/min</td>
</tr>
</tbody>
</table>

**Alternative 1st line agents for women and men if no upper UTI symptoms:**

Trimethoprim (oral) 200 mg BD for 7 days (local resistance is high, therefore only)

### FIRST CHOICE ANTIBIOTICS

<table>
<thead>
<tr>
<th></th>
<th>No Allergy</th>
<th>Penicillin Allergy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second choice options for women</td>
<td>Nitrofurantoin (oral) 100mg MR twice daily for 3 days if GFR over 45ml/min and not used as first line</td>
<td>OR</td>
</tr>
<tr>
<td></td>
<td>Pivmecillinam (oral) 400mg STAT then 200mg TDS for 3 days total</td>
<td>Note: Pivmecillinam is not active against Ps aeruginosa or enterococci</td>
</tr>
<tr>
<td></td>
<td>If GFR&lt;45ml/min or elderly consider pivmecillinam or fosfomycin (3g stat in women).</td>
<td>NOTE: Fosfomycin should only be prescribed on the advice of a microbiologist following culture sensitivity results for the treatment of complicated ESBL producing urinary tract infections</td>
</tr>
</tbody>
</table>

### PREGNANCY AND BREASTFEEDING

Treat for 7 days:

1st line: Nitrofurantoin (oral) 100mg m/r BD, unless at term

2nd line: Amoxicillin oral (if culture results available and susceptible) 500mg TDS OR Cefalexin (oral) 500 mg BD Risk of C. difficile.

### Treatment duration:

**Women:** 3 days

**Men:** 7 days – repeat urine sample after antibiotics and consider urology referral.

Referral to hospital may be indicated in non-responding, severe or recurrent infection or suspicion of underlying urinary tract abnormality.

Contact microbiologist
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
<tr>
<td>the catheter has been in place for more than 7 days, consider changing it before/when starting antibiotic treatment.</td>
<td>recommend if patient has low risk factors for resistance or if sensitivity of this is known). OR Amoxicillin (oral) (only if susceptible) 500mg TDS for 7 days</td>
<td>high, therefore only recommend if patient has low risk factors for resistance or if sensitivity of this is known). If Upper UTI symptoms</td>
<td></td>
</tr>
<tr>
<td>Second line: Pivmecillinam 400mg STAT then 200mg TDS for total 7 days</td>
<td>Cefalexin 500mg BD or TDS (up to 1-1.5g TDS to QDS for severe infections) for 7-10 days OR Co-amoxiclav (oral) (only if susceptible) 625mg TDS for 7-10 days OR Trimethoprim (only if susceptible) 200mg BD for 14 days OR Ciprofloxacin (oral) 500mg BD for 7 days</td>
<td>Trimethoprim (only if susceptible) 200mg BD for 14 days OR Ciprofloxacin (oral) 500mg BD for 7 days</td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Acute Prostatitis</td>
<td>Send MSU for culture and start antibiotics. Review choice of antibiotics after 1 week based on culture results once available. 4 week course may prevent chronic prostatitis. Quinolones achieve higher prostate levels. Review antibiotic treatment after 14 days and either stop the antibiotic or continue for a further 14 days if needed, based on an assessment of the person's history, symptoms, clinical examination, urine and blood tests. Advise people with acute prostatitis about using paracetamol (with or without a low-dose weak opioid, such as codeine) for pain, or ibuprofen if this is preferred and suitable. Advise people with acute prostatitis about drinking enough fluids to avoid dehydration.</td>
<td>Treatment duration 14 days, then review for continuation of further 14 days First line: Ciprofloxacin (oral) 500mg BD or ofloxacin 200mg BD Alternative first line (guided by susceptibilities): trimethoprim 200mg BD Second line (after discussion with specialist): Levofloxacin 500mg OD OR Co-trimoxazole 960mg BD</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
| Lower UTI in Children | Urgently refer children < 3 months old for assessment If ≥ 3 months old, obtain a urine sample from children and young people with lower UTI before antibiotics are taken, and dipstick test or send for culture and susceptibility testing:  
  - If nitrate positive and fresh sample, start antibiotics and send for microscopy, culture and sensitivity (MC+S).  
  - If leucocyte only positive, may be indicative of infection outside urinary tract, send MSU for MC+S, initiate antibiotics if there is good clinical evidence of UTI.  
  - If nitrate and leucocyte negative, consider another cause for illness. Imaging: only refer if child <6 months, or recurrent or atypical UTI | See BNF-C for doses  
First line: trimethoprim (oral) OR Nitrofurantoin (oral)  
If susceptible, amoxicillin (oral)  
Second line: Cefalexin (oral)  
3 days treatment | See BNF-C for doses  
First line: trimethoprim (oral) OR Nitrofurantoin (oral)  
For 2nd line choice of antibiotic contact microbiology  
3 days treatment |
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper UTI in children</td>
<td>Refer to paediatrics to obtain a urine sample for culture; assess signs of systemic infection; consider systemic antimicrobials</td>
<td>See BNF-C for doses Cefalexin OR Co-amoxiclav (oral) (only if susceptible) 7-10 days treatment</td>
<td>Contact microbiology</td>
</tr>
<tr>
<td>PHE UTI CKS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NICE: UTI in under 16s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NICE: pyelonephritis (acute)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Catheter in situ Children</td>
<td>Urgently refer children &lt; 3 months old for assessment</td>
<td>See BNF-C for doses First line: Trimethoprim (oral) (local resistance is high, therefore only recommend if patient has low risk factors for resistance or if sensitivity of this is known). OR Amoxicillin (only if susceptible) OR Cefalexin OR Co-amoxiclav (only if susceptible)</td>
<td>Contact microbiologist</td>
</tr>
<tr>
<td>NICE: UTI (catheter associated)</td>
<td>Advise people with catheter-associated UTI about using paracetamol for pain. Advise people with catheter-associated UTI about drinking enough fluids to avoid dehydration. 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 or currently being treated for a UTI. If the catheter has been in place for more than 7 days, consider changing it before/when starting antibiotic treatment.</td>
<td>See BNF-C for doses First line: Trimethoprim (oral) (local resistance is high, therefore only recommend if patient has low risk factors for resistance or if sensitivity of this is known). OR Amoxicillin (only if susceptible) OR Cefalexin OR Co-amoxiclav (only if susceptible)</td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------</td>
</tr>
</tbody>
</table>
| Acute pyelonephritis CKS NICE: pyelonephritis (acute) | If admission not needed, send MSU for culture & sensitivities, and start antibiotics. Review MSU results once available and adjust treatment appropriately if necessary.  
If no response within 24 hours, seek advice if ESBL risk and with microbiology advice consider fosfomycin  
Advise people with acute pyelonephritis about using paracetamol for pain, with the possible addition of a low-dose weak opioid such as codeine for people over 12 years. Advise people with acute pyelonephritis about drinking enough fluids to avoid dehydration. | Cefalexin 500mg TWO to THREE times daily (up to 1 to 1.5g THREE or FOUR times a day for severe infections) for 7-10 days  
OR  
Co-amoxiclav (oral) 625mg TDS for 7-10 days  
OR  
Ciprofloxacin (oral) 500mg BD for 7 days  
OR if MSU results show susceptibility consider switch to:  
Trimethoprim (oral) 200mg BD for 14 days  
Contact microbiology if 2nd line agent required | Consider referring or seeking specialist advice for women if they are pregnant  
Cefalexin 500mg TWO to THREE (up to 1-1.5g THREE or FOUR times a day for severe infections) for 7-10 days  
Contact microbiology for advice |
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recurrent UTI in women (2 in 6 months or ≥ 3 proven UTIs/year)</td>
<td>Consider STI screen and Urology referral where necessary. Refer or seek microbiologist advice on further investigation and management for: - Women with recurrent upper UTI - Women with recurrent lower UTI when underlying cause unknown For women with recurrent UTI who are not pregnant, consider a trial of antibiotic prophylaxis only if behavioural and personal hygiene measures, and vaginal oestrogen (in postmenopausal women) are not effective or not appropriate. For women with recurrent UTI who are not pregnant, ensure that any current UTI has been adequately treated then consider single-dose antibiotic prophylaxis for use when exposed to an identifiable trigger For women with recurrent UTI who are not pregnant and have had no improvement after single-dose antibiotic prophylaxis or have no identifiable triggers, ensure that any current UTI has been adequately treated then consider a trial of daily antibiotic prophylaxis</td>
<td>First line: Advise simple measures, including hydration &amp; ibuprofen for symptom relief. Cranberry products, which can be purchased from pharmacies and health food stores, work for some women, but good evidence is lacking. Consider the lowest effective dose of vaginal oestrogen (for example, estriol cream) for postmenopausal women with recurrent UTI if behavioural and personal hygiene measures alone are not effective or not appropriate. Second line: <strong>Following trigger exposure</strong> (off label) take STAT single dose Third line: Prophylaxis once daily at night and review at 3 months.</td>
<td>Contact microbiology for advice on treating recurrent UTIs in pregnant, breastfeeding women and women trying to conceive.</td>
</tr>
<tr>
<td>Recurrent UTI in men</td>
<td>Contact microbiology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recurrent UTI in children</td>
<td>Contact microbiology</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GASTRO INTESTINAL TRACT INFECTIONS**
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral Candidiasis</td>
<td>Topical azoles are more effective than topical nystatin. Oral candidiasis is rare in immunocompetent adults; consider undiagnosed risk factors, including HIV. Use 50 mg fluconazole if extensive/severe candidiasis; if HIV or immunocompromised, use 100 mg fluconazole</td>
<td>Miconazole oral gel 2.5ml of 24mg/ml QDS (hold in mouth after food) for 7 days; continue for 7 days after resolved, If miconazole not tolerated nystatin suspension 1ml; 100,000units/mL QDS (half in each side) for 7 days; continue for 2 days after symptoms resolved Fluconazole oral tablets 50mg OD OR 100mg OD for 7 days; a further 7 days if persistent</td>
<td>No Allergy</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Penicillin Allergy</td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Eradication of H Pylori</td>
<td>Treat all positives, if known DU, GU, or low grade MALToma. 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. <strong>Penicillin allergy</strong>: use PPI PLUS clarithromycin PLUS metronidazole. If previous clarithromycin, use PPI PLUS bismuth salt PLUS metronidazole PLUS tetracycline hydrochloride. <strong>Relapse and no penicillin allergy</strong>: use PPI PLUS amoxicillin PLUS clarithromycin or metronidazole (whichever was not used first line). <strong>Relapse and previous metronidazole and clarithromycin</strong>: use PPI PLUS amoxicillin PLUS either tetracycline OR levofloxacin (if tetracycline not tolerated). <strong>Relapse and penicillin allergy (no exposure to quinolone)</strong>: use PPI PLUS metronidazole PLUS levofloxacin. <strong>Relapse and penicillin allergy (with exposure to quinolone)</strong>: use PPI PLUS bismuth salt PLUS metronidazole PLUS tetracycline. Retest for H. pylori: post DU/GU, or relapse after second-line therapy, using UBT or SAT, consider referral for endoscopy and culture.</td>
<td>Always use PPI PPI BD (use cheapest) PLUS Amoxicillin 1g BD AND Clarithromycin 500mg BD or metronidazole 400mg BD <strong>Previous clarithromycin</strong> PPI BD PLUS bismuth subsalicylate 525mg QDS + metronidazole 400mg BD + tetracycline hydrochloride 500mg QDS</td>
<td>PPI BD PLUS bismuth subsalicylate 525mg QDS + metronidazole 400mg BD + tetracycline hydrochloride 500mg QDS</td>
</tr>
<tr>
<td>Infectious Diarrhoea</td>
<td>Refer previously healthy children with acute painful or bloody diarrhoea to exclude <em>E. coli</em> 0157 infection. Normal feeding should be restarted as soon as possible; there is no evidence that fasting will have any benefit Fluid replacement is essential Travel history should be reported if stool sample sent</td>
<td>Antibiotic therapy usually not indicated unless systemically unwell as it only reduces diarrhoea by 1-2 days and can cause resistance. If systemically unwell and campylobacter suspected (e.g. undercooked meat and abdominal pain), consider clarithromycin 250–500 mg BD for 5–7 days if treated early (within 3 days).</td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>--------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
</tbody>
</table>
| **Clostridium Difficile DH** PHE | Stop unnecessary antibiotics, PPIs, and antiperistaltic agents. Fluids and electrolytes should be replaced. Mild cases (<4 episodes of diarrhoea/day) may respond without metronidazole; 70% respond to metronidazole in 5 days; 92% respond to metronidazole in 14 days. **If severe (T>38.5, or WWC>15, rising creatinine, or signs/symptoms of severe colitis):** treat with oral vancomycin, - review progress closely, and consider hospital referral. | **First episode:** metronidazole (oral) 400-500mg TDS for 10-14 days  
**Severe/type 027/recurrent:** oral vancomycin 250mg QDS for 14 days then 125mg QDS for one further week  
**Recurrent or second line:** seek advice from microbiology | No Allergy | Penicillin Allergy |
| **Travellers' Diarrhoea** | Prophylaxis rarely, if ever, indicated. Consider **stand-by** antimicrobial only for patients at high risk of severe illness, or visiting high risk areas. | **Stand-by:** azithromycin 500mg OD for 1-3 days  
**Prophylaxis/treatment:** Bismuth subsalicylate 2 tablets QDS for 2 days | No Allergy | Penicillin Allergy |
| **Diverticulitis CKS** | For mild, uncomplicated diverticulitis, manage patient at home with paracetamol, clear fluids & oral antibiotics. Prescribe broad-spectrum antibiotics to cover anaerobes and Gram-negative rods | **Co-amoxiclav 625mg TDS for 7 days**  
**Ciprofloxacin 500mg BD for 7 days AND metronidazole 400mg TDS for 7 days** | No Allergy | Penicillin Allergy |
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threadworm</td>
<td>CKS threadworm</td>
<td>All patients over 6 months: mebendazole (off-label if &lt;2yrs) 100mg STAT dose, but repeat in 2 weeks if infestation persists Child &lt;6 mths: mebendazole is unlicensed, use hygiene measures alone for 6 weeks</td>
<td>No Allergy</td>
</tr>
<tr>
<td></td>
<td>Treat all household contacts at the same time PLUS advise hygiene measures for 2 weeks (hand hygiene, pants at night, morning shower (include perianal area)) PLUS wash sleepwear, bed linen, and dust, and vacuum on day one</td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
</tbody>
</table>

**GENITAL TRACT INFECTIONS** Contact [UKTIS](https://www.uktis.org) for information on foetal risks if patient is pregnant.

<p>| STI testing and treatment | People with risk factors should be screened for chlamydia, gonorrhoea, HIV, syphilis. Refer individual and partners to GUM service. Risk factors: &lt; 25yr, no condom use, recent (&lt;12mth)/frequent change of partner, symptomatic partner, area of high HIV. |  |  |</p>
<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia Trichomatis/urethritis</td>
<td>Opportunistically screen all sexually active patients aged 15 to 24 years for chlamydia annually and on change of sexual partner. If positive, treat index case, refer to GUM and initiate partner notification, testing and treatment. As single dose azithromycin has led to increased resistance in GU infections, doxycycline should be used first line for chlamydia and urethritis. Advise patient to abstain from sexual intercourse for 7 days after treatment. Test positives for reinfection at 3 months following treatment. <strong>Second line, pregnant, breastfeeding, allergy, or intolerance:</strong> azithromycin is most effective. As lower cure rate in pregnancy, test for cure at least 3 weeks after end of treatment. Consider referring all patients with symptomatic urethritis to GUM as testing should include Mycoplasma genitalium and Gonorrhoea. If M.genitalium is proven, use doxycycline followed by azithromycin using the same dosing regimen.</td>
<td><strong>First line</strong> Doxycycline 100mg BD for 7 days</td>
<td><strong>First line</strong> Doxycycline 100mg BD for 7 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Second line</strong> Azithromycin 1g STAT then 500mg OD for 2 days (total 3 days treatment)</td>
<td><strong>Second line</strong> Azithromycin 1g STAT then 500mg OD for 2 days (total 3 days treatment)</td>
</tr>
<tr>
<td>Epididymitis</td>
<td>For suspected epididymitis in men over 35 years with low risk of STI (under 35 or High risk, refer GUM)</td>
<td>Ofloxacin 200mg BD for 14 days or doxycycline 100mg BD for 10-14 days or ciprofloxacin 500mg BD for 10 days</td>
<td>Not applicable</td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>-------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Vaginal Candidiasis</strong></td>
<td>All topical and oral azoles give 70% cure</td>
<td><strong>Clotrimazole 500mg pessary STAT or 100mg pessary ON for 6 nights</strong></td>
<td><strong>In pregnancy:</strong> avoid oral azoles and use intravaginal treatment for 7 days</td>
</tr>
<tr>
<td>BASHH PHE CKS</td>
<td>Recurrent (&gt;4 episodes per year): 150mg oral fluconazole every 72 hours for three doses induction, followed by one dose once a week for six months maintenance</td>
<td><strong>or oral fluconazole 150mg STAT</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Recurrent:</strong> fluconazole 150mg 72 hourly for 3 doses then 150mg ONCE weekly for 6 months (induction/maintenance)</td>
<td></td>
</tr>
<tr>
<td><strong>Bacterial Vaginosis</strong></td>
<td>Oral metronidazole (MTZ) is as effective as topical treatment but is cheaper. Less relapse with 7 day than 2g stat at 4 weeks. Treating partners does not reduce relapse</td>
<td><strong>Oral metronidazole 400mg BD for 7 days or 2g STAT</strong></td>
<td><strong>Pregnant/breastfeeding:</strong> avoid 2g stat.</td>
</tr>
<tr>
<td>BASHH NHS conditions CKS</td>
<td></td>
<td><strong>Or Metronidazole 0.75% vaginal gel 5g applicator at night for 5 days</strong></td>
<td><strong>Or Metronidazole 400mg BD for 7 days</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Or Clindamycin 2% cream 5g applicator at night for 7 nights</strong></td>
<td><strong>Or Metronidazole 0.75% vaginal gel 5g applicator at night for 5 days</strong></td>
</tr>
<tr>
<td><strong>Genital herpes</strong></td>
<td>Advise: Saline bathing, analgesia or topical lidocaine for pain and discuss transmission. 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.</td>
<td><strong>First line:</strong> <strong>Oral acyclovir 400mg TDS for 5 days (800mg TDS for 2 days if recurrent)</strong></td>
<td></td>
</tr>
<tr>
<td>BASHH Anogenital herpes</td>
<td></td>
<td><strong>OR Valaciclovir 500mg BD for 5 days</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>OR Famciclovir 250mg TDS for 5 days (1g BD for 1 day if recurrent)</strong></td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>No Allergy</strong></td>
<td><strong>Penicillin Allergy</strong></td>
</tr>
<tr>
<td><strong>Gonorrhoea</strong> BASHH</td>
<td>Antibiotic resistance is now very high. Use IM ceftriaxone if susceptibility not known prior to treatment. Use Ciprofloxacin only if susceptibility is known prior to treatment and the isolate is sensitive to ciprofloxacin at all sites of infection. Refer to GUM. Test of cure is essential.</td>
<td>Ceftriaxone 1g IM STAT OR Ciprofloxacin (only if known to be sensitive) 500mg oral STAT</td>
<td></td>
</tr>
<tr>
<td><strong>Trichomoniasis</strong> BASHH NHS conditions CKS</td>
<td>Oral treatment needed as extravaginal infection common. Treat partners and refer to GUM service. In pregnancy or breastfeeding avoid 2g single dose metronidazole. Consider clotrimazole for symptom relief (not cure) if metronidazole declined.</td>
<td>Metronidazole 400mg BD for 5-7 days OR 2g STAT</td>
<td>Metronidazole 400mg BD for 5-7 days <em>Pregnancy for symptoms</em> Clotrimazole 100 mg pessary at night 6 nights</td>
</tr>
<tr>
<td><strong>Pelvic Inflammatory Disease</strong> RCOG BASHH, CKS</td>
<td>Refer women and sexual contacts to GUM. Raised CRP supports diagnosis, absent pus cells in HVS smear good negative predictive value. <em>Exclude</em>: ectopic pregnancy, appendicitis, endometriosis, UTI, irritable bowel, complicated ovarian cyst, functional pain. Moxifloxacin has greater activity against likely pathogens, but always test for gonorrhoea, chlamydia, and <em>M. genitalium</em>. If <em>M. genitalium</em> tests positive use moxifloxacin.</td>
<td><strong>First line therapy:</strong> Ceftriaxone 1g IM STAT PLUS Metronidazole 400mg BD orally for 14 days PLUS Ofloxacin 400mg BD for 14 days <strong>Second line therapy:</strong> Metronidazole 400mg BD orally for 14 days PLUS Ofloxacin 400mg BD for 14 days OR Moxifloxacin alone 400mg OD for 14 days (first line for <em>M. genitalium</em> associated PID)</td>
<td></td>
</tr>
</tbody>
</table>

**SKIN INFECTIONS** – Refer to RCGP skin infections online training. For MRSA infection, discuss therapy with microbiologist
### Infection

<table>
<thead>
<tr>
<th>Infection</th>
<th>Comments</th>
<th>First Choice Antibiotics</th>
<th>Pregnancy and Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Impetigo</strong>&lt;br&gt;CKS PHE Impetigo</td>
<td><strong>Localised Lesions only:</strong> topical antibiotics to reduce risk of resistance.&lt;br&gt;Only use mupirocin if caused by MRSA.&lt;br&gt;<strong>Extensive, severe or bullous:</strong> Use oral antibiotics for 7 days</td>
<td>Flucloxacillin (oral) 250 – 500mg QDS for 7 days&lt;br&gt;<strong>Topical</strong>&lt;br&gt;Fusidic acid TDS (thinnly) for 5 days if essential and organism sensitive, but note that use promotes rapid resistance&lt;br&gt;Mupirocin TDS for 5 days (if MRSA)&lt;br&gt;Oral clarithromycin (if organism sensitive) 250-500mg BD for 7 days&lt;br&gt;Note the benefit of regular staph decolonisation in this group of patients</td>
<td>Flucloxacillin (oral) 250 – 500mg QDS for 7 days&lt;br&gt;Erythromycin (oral) 250-500mg QDS for 7 days</td>
</tr>
<tr>
<td><strong>Eczema</strong>&lt;br&gt;CKS</td>
<td>If no visible signs of infection, use of antibiotics (alone or with steroids) encourages resistance and does not improve healing&lt;br&gt;In eczema with visible signs of infection, use oral flucloxacillin or clarithromycin/erythromycin, or topical treatment (as in impetigo)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Acne</strong>&lt;br&gt;CKS</td>
<td><strong>Mild (open and closed comedones) or moderate (inflammatory lesions):</strong>&lt;br&gt;<strong>First line:</strong> self-care (wash with mild soap; do not scrub; avoid make-up).&lt;br&gt;<strong>Second-line:</strong> topical retinoid or benzoyl peroxide.&lt;br&gt;<strong>Third-line:</strong> add topical antibiotic, or consider addition of oral antibiotic.&lt;br&gt;<strong>Severe (nodules and cysts):</strong> add oral antibiotic (for 3 months max) and refer.</td>
<td>First-line: self care&lt;br&gt;Second-line:&lt;br&gt;Topical retinoid thinly OD for 6-8 weeks&lt;br&gt;<strong>OR</strong>&lt;br&gt;Benzoyl peroxide 5% cream OD-BD for 6-8 weeks&lt;br&gt;Third-line:&lt;br&gt;Topical clindamycin 1% cream, thinly BD for 12 weeks&lt;br&gt;If treatment failure/severe:&lt;br&gt;Oral tetracycline 500mg BD for 6-12 weeks&lt;br&gt;<strong>OR</strong>&lt;br&gt;Oral doxycycline 100mg OD for 6-12 weeks</td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>-----------</td>
<td>----------</td>
<td>--------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td><strong>Cellulitis and erysipelas</strong>&lt;br&gt;CREST cellulitis</td>
<td><strong>Class I:</strong> patient afebrile and healthy other than cellulitis, use oral flucloxacillin alone. Seek advice.&lt;br&gt;<strong>Class II:</strong> patient febrile and ill, or comorbidity, admit for IV treatment, or use outpatient parenteral antimalicrobial therapy.&lt;br&gt;<strong>Class III:</strong> if toxic appearance, admit. Adding clindamycin does not improve outcomes.&lt;br&gt;Deep pain may indicate severe streptococcal sepsis and will require IV therapy. Admit patients urgently in such circumstances for early surgical review. Do not prescribe topical antibiotics. There is no published evidence to support their use, and widespread use is likely to increase antibiotic resistance.&lt;br&gt;<strong>Erysipelas:</strong> often facial and unilateral. Use flucloxacillin for non-facial erysipelas.</td>
<td>Flucloxacillin 500mg QDS for 7 days, if slow response continue for further 7 days&lt;br&gt;Facial (non dental): Co-amoxiclav 625mg TDS for 7 days, if slow response continue for a further 7 days&lt;br&gt;Clarithromycin 500mg BD for 7 days, if slow response continue for a further 7 days&lt;br&gt;Flucloxacillin 500mg QDS for 7 days, if slow response continue for further 7 days&lt;br&gt;Clarithromycin 500mg BD for 7 days, if slow response continue for a further 7 days&lt;br&gt;Flucloxacillin 500mg QDS for 7 days, if slow response continue for further 7 days</td>
<td>Flucloxacillin 500mg QDS for 7 days, if slow response continue for further 7 days</td>
</tr>
<tr>
<td><strong>Leg Ulcer</strong>&lt;br&gt;PHE Venous leg ulcers</td>
<td>Ulcers are always colonised. Antibiotics do not improve healing unless active infection (purulent exudate/odour; increased pain, cellulitis; pyrexia). Always culture before starting treatment.</td>
<td>Flucloxacillin 500mg QDS for 7 days, if slow response, swab and consider need for Gram negative cover.&lt;br&gt;<strong>OR</strong> Clarithromycin 500mg BD for 7 days, if slow response, swab and consider need for Gram negative cover.</td>
<td>Flucloxacillin 500mg QDS for 7 days, if slow response, review microbiology results and treat accordingly if antibiotics considered essential.</td>
</tr>
</tbody>
</table>

**Non-healing:** antimicrobial reactive oxygen gel may reduce bacterial load. Seek microbiology guidance.
### Antibiotics

#### Primary Care GUI 201904V6.0 FINAL

<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>PVL PHE</td>
<td>Panton-Valentine Leukocidin (PVL) is a toxin produced by 20.8-46% of S. aureus from boils/abscesses. PVL strains are rare in healthy people but severe. Suppression therapy should only be started after primary infection has resolved, as ineffective if lesions are still leaking. Risk factors for PVL: Recurrent skin infections, invasive infections, MSM, if there is more than one case in a home or close community (school children, military personnel, nursing home residents, household contacts).</td>
<td>Prophylaxis or treatment all: Co-amoxiclav 375-625mg TDS for 7 days</td>
<td>Human: Metronidazole 400mg TDS for 7 days PLUS clarithromycin 250-500mg BD for 7 days Animal: Metronidazole 400mg TDS for 7 days PLUS doxycycline 100mg BD for 7 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If pregnant, and rash after penicillin: ceftriaxone 1-2g OD IV or IM</td>
</tr>
<tr>
<td>Bites:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CKS</td>
<td>Human: thorough irrigation is important. Antibiotic prophylaxis is advised. Assess risk of tetanus, rabies, HIV, and hepatitis B and C. Cat: always give prophylaxis. Dog: give prophylaxis if: puncture wound; bite to hand, foot, face, joint, tendon, or ligament; immunocompromised; cirrhotic; asplenic; or presence of prosthetic valve/joint. Penicillin allergy: Review all at 24 and 48 hours, as not all pathogens are covered.</td>
<td>Prophylaxis or treatment all: Co-amoxiclav 375-625mg TDS for 7 days</td>
<td>Human: Metronidazole 400mg TDS for 7 days PLUS clarithromycin 250-500mg BD for 7 days Animal: Metronidazole 400mg TDS for 7 days PLUS doxycycline 100mg BD for 7 days</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If pregnant, and rash after penicillin: ceftriaxone 1-2g OD IV or IM</td>
</tr>
<tr>
<td>Scabies</td>
<td>First choice permethrin: Treat whole body from ear/chin downwards, and under nails. If using permethrin and patient is under 2 years, elderly or immunosuppressed, or if treating with malathion: also treat face and scalp. Home/sexual contacts: treat within 24 hours.</td>
<td>Permethrin 5% cream for 2 applications 1 week apart If allergy: malathion 0.5% aqueous liquid for 2 applications 1 week apart</td>
<td></td>
</tr>
<tr>
<td>CKS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mastitis</td>
<td>S. aureus is the most common infecting pathogen. Suspect if woman has: a painful breast, fever and/or malaise, a tender, red breast. Breastfeeding: oral antibiotics are appropriate where indicated. Women should continue feeding, including from the affected breast.</td>
<td>Flucloxacillin 500mg QDS for 10-14 days</td>
<td>Flucloxacillin 500mg QDS for 10-14 days</td>
</tr>
<tr>
<td>CKS</td>
<td></td>
<td></td>
<td>Erythromycin 250-500mg QDS for 10-14 days OR Clarithromycin 500mg BD for 10-14 days</td>
</tr>
<tr>
<td>Mastitis</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFECTION</td>
<td>COMMENTS</td>
<td>FIRST CHOICE ANTIBIOTICS</td>
<td>PREGNANCY AND BREASTFEEDING</td>
</tr>
<tr>
<td>---------------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Dermatophyte infection</td>
<td>Most cases: use terbinafine as fungicidal, treatment time shorter and more effective than with fungistatic imidazoles or undecenoates. If candida possible, use imidazole. If <strong>intractable, or scalp:</strong> send skin scrapings, and if infection confirmed: use oral terbinafine or itraconazole. <strong>Scalp:</strong> oral therapy, and discuss with specialist.</td>
<td>Topical terbinafine 1% OD-BD for 1-4 weeks or topical imidazole 1% OD-BD for 4-6 weeks or (athlete’s foot only): topical undecenoates (Mycota®) OD-BD for 4-6 weeks</td>
<td></td>
</tr>
<tr>
<td>skin-nail infections</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dermatophyte infection-nail</td>
<td>Take nail clippings; start therapy only if infection is confirmed. Oral terbinafine is more effective than oral azole. Liver reactions 0.1 to 1% with oral antifungals. If candida or non-dermatophyte infection is confirmed, use oral itraconazole. Topical nail lacquer is not as effective. <strong>To prevent recurrence:</strong> apply weekly 1% topical antifungal cream to entire toe area. Children: seek specialist advice.</td>
<td><strong>First line:</strong> terbinafine 250mg OD for 6 weeks (fingers) or 12 weeks (toes) Second line: itraconazole 200mg BD for 7 days every month: fingers 2 courses; toes 3 courses</td>
<td>Stop treatment when continual, new, healthy, proximal nail growth.</td>
</tr>
<tr>
<td>CKS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella Zoster/Chickenpox</td>
<td>Pregnant/immunocompromised/ neonate: seek urgent specialist advice. Chickenpox: consider aciclovir if: onset of rash &lt;24 hours, and 1 of the following: &gt;14 years of age; severe pain; dense/oral rash; taking steroids; smoker. Give paracetamol for pain relief. <strong>Shingles:</strong> treat if &gt;50 years (PHN rare if &lt;50 years) and within 72 hours of rash, or if 1 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 hours: consider starting antiviral drug up to 1 week after rash onset, if high risk of severe shingles or continued vesicle formation; older age; immunocompromised; or severe pain.</td>
<td>Aciclovir 800mg FIVE times daily for 7 days Second line for shingles if compliance a problem, as ten times cost Valaciclovir 1g TDS for 7 days or famciclovir 250-500mg TDS OR 750mg BD for 7 days</td>
<td>Pregnant: Seek urgent specialist advice</td>
</tr>
<tr>
<td>PHE Varicella</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Varicella Zoster/Chickenpox</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PCDs Herpes zoster</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Aciclovir 800mg FIVE times daily for 7 days

Second line for shingles if compliance a problem, as ten times cost Valaciclovir 1g TDS for 7 days or famciclovir 250-500mg TDS OR 750mg BD for 7 days

Pregnant: Seek urgent specialist advice

Pregnant: Seek urgent specialist advice
### INFECTION

#### Tick bites (Lyme disease)

**PHE**

**Prophylaxis:** not routinely recommended in Europe.

**In pregnancy,** consider amoxicillin.

**If immunocompromised,** consider prophylactic doxycycline. Risk increased if high prevalence area and the longer tick is attached to the skin. Only give prophylaxis within 72 hours of tick removal. Give safety net advice about erythema migrans and other possible symptoms that may occur within 1 month of tick removal.

<table>
<thead>
<tr>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>No Allergy</strong></td>
<td><strong>Penicillin Allergy</strong></td>
</tr>
<tr>
<td>Prophylaxis Doxycycline 200mg STAT</td>
<td>Prophylaxis Doxycycline 200mg STAT</td>
</tr>
<tr>
<td>Contact microbiology</td>
<td>Contact microbiology</td>
</tr>
</tbody>
</table>

#### Treatment:

**Tick bites:** Treat erythema migrans empirically; serology is often negative early in infection.

For other suspected Lyme disease such as neuroborreliosis (CN palsy, radiculopathy) seek advice.

<table>
<thead>
<tr>
<th><strong>No Allergy</strong></th>
<th><strong>Penicillin Allergy</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Doxycycline 100mg BD for 21 days</td>
<td>Doxycycline 100mg BD for 21 days</td>
</tr>
<tr>
<td>Amoxicillin 1g TDS for 21 days</td>
<td>Contact microbiology</td>
</tr>
</tbody>
</table>

#### 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 BD for 5-7 days.

### EYE INFECTIONS

**Conjunctivitis**

**CKS**

**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 days 5 and 7.

**Third line:** fusidic acid as it has no Gram-negative activity.

**First-line:** Self care and OTC lubricant eye drops.

Bath/clean eyelids with cotton wool dipped in saline or boiled (cooled) water, to remove crusting.

**Second line:**

Chloramphenicol 0.5% eye drops (available OTC for patients aged 2 years and above) 2 hourly for 2 days, then reduce frequency to 3-4 times daily and continue until 48 hours after resolution OR Chloramphenicol 1% ointment (available OTC for patients aged 2 years and above) 3-4 times daily or just at night if using eye drops and continue until 48 hours after resolution

**Third line:**

Fusidic acid 1% gel BD and continue until 48 hours after resolution
## INFECTION

<table>
<thead>
<tr>
<th>INFECTION</th>
<th>COMMENTS</th>
<th>FIRST CHOICE ANTIBIOTICS</th>
<th>PREGNANCY AND BREASTFEEDING</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>No Allergy</td>
<td>Penicillin Allergy</td>
</tr>
<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. <strong>Signs of meibomian gland dysfunction, or acne rosacea</strong>: consider oral antibiotics.</td>
<td>First line: self care</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Second line: chloramphenicol 1% ointment (available OTC for patients aged 2 years and above) BD for a 6 week trial</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Third line (excluding pregnancy and breastfeeding): Oral oxytetracycline 500mg BD for 4 weeks (initial) then 250mg BD for 8 weeks (maintenance) OR Oral doxycycline 100mg OD for 4 weeks (initial) then 50mg OD for 8 weeks (maintenance)</td>
<td></td>
</tr>
</tbody>
</table>

### DENTAL INFECTIONS

GPs should not be involved in prescribing antibiotics for dental treatment. Patients should be directed to their regular dentist or if this is not possible 111. Most dental conditions require dental input rather than antibiotics. Advise regular analgesia until a dentist can be seen. Also refer to:

- NHS choices topic on [Dental Abscess](https://www.nhs.uk/conditions/dental-abscess/
- British Dental Association [FAQs for Patients and the Public](https://www.bda.org/contact-us/faq)
The following references were used when developing these guidelines:

This guidance was initially developed in 1999 by practitioners in South Devon, as part of the S&W Devon Joint Formulary Initiative, and Cheltenham & Tewkesbury Prescribing Group. The guidance has been updated regularly as significant research papers, systematic reviews and guidance have been published.

Resources
1. The BNF and the BNF for children
2. Hospital Microbiologists
   Management of infection guidance for primary care. For consultation and local adaptation. The Health Protection Agency has useful information and leaflets. This guidance aims to provide a simple approach to the treatment of common infections to minimise the emergence of bacterial resistance in the community and to encourage the rational and cost effective use of antibiotics
   Antibioticresistance/DH_082512 This website contains information about the Department of Health Antibiotic Resistance campaigns and provides copies of patient information leaflets and posters
5. http://cks.nice.org.uk/#?char=A Clinical knowledge summaries provides treatment guidance and patient information leaflets for many conditions including common infections
6. http://www.nntonline.net/ Discusses URTI and ear infections, is simple, practical and provides patient information
Quick Reference Guide for Primary Care  
Meticillin Resistant Staphylococcus aureus (MRSA)

WHEN IS PRIMARY CARE INVOLVED?

All UK hospitals are increasing their pre-admission clinics to select and screen patients for MRSA prior to elective admission.

- GPs may be asked to screen and/or decolonise community patients to assist with their admission
- OR on advice from the Infection Prevention and Control Teams (MECCG, MEHT)

MRSA SCREENING

Which patients should I screen for MRSA?

**High risk of MRSA carriage**

- IF patient is previously known to be MRSA positive  
- IF patient is transferred directly from any hospital, care home or Health Care setting  
- IF patient has been in hospital within the last six months  
- IF patient with long term device (e.g. urinary catheter)  
- IF patient with chronic skin breaks  
- IF patient known to be diabetic and has a wound  
- IF partner/spouse/carer is known to be MRSA positive  
- IF known to be a renal dialysis patient  
- IF a healthcare worker from community or acute setting  
- IF Immuno-suppressed patient

How do I screen a patient for MRSA?

In most cases, patients should be swabbed as close to elective admission as possible.

**Swab anterior nares (nose), throat, perineum, any skin breaks, wounds and indwelling devices.**

Use separate swab for each site. Use a blue topped transport medium swab.

Wipe swab around inside rim of patient’s nose for 5 seconds. Label the bacteriology form ‘MRSA screen’.

LABORATORY REPORT

Positive cultures will report “MRSA isolated”

DECOLONISATION OF MRSA

The aim is to reduce MRSA below detection level at time of risk to decrease chance of infection and spread.

Suppression should take place in the 10 days prior to operation.

Nasal and skin treatments only suppress MRSA; therefore always advise admitting ward of patient’s MRSA status to allow appropriate pre-operative preparation and prophylaxis.

Systemic treatment should only be prescribed in line with local policy.

How do I suppress MRSA?

Use both nasal and skin decolonisation regimens

<table>
<thead>
<tr>
<th>Area</th>
<th>Regimen</th>
<th>Instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nasal</td>
<td>2% mupirocin in paraffin base 3 times a day for 10 days</td>
<td>Apply pea-sized amount to inner surface of each nostril. Massage nostrils to spread ointment. Patients should be able to taste mupirocin at back of throat.</td>
</tr>
<tr>
<td>Skin</td>
<td>Antibacterial wash daily for 10 days (i.e. Octenisan or Aquasept)</td>
<td>Moisten skin and apply undiluted antibacterial wash then rinse. Particularly apply to known carriage sites (axilla, groin &amp; perineum). Wash hair alternate days using antibacterial wash on alternate days. After washing, use clean towels, sheets &amp; clothing. Launder items separately to other family members using as high a temperature as fabric allows.</td>
</tr>
</tbody>
</table>

To reduce persistent MRSA carriage, treat underlying skin conditions (e.g. eczema, dermatitis), remove and/or replace invasive devices and treat skin breaks. Where necessary, seek advice from Dermatologist.

POST-DECOLONISATION SCREENING

How do I know if a patient’s MRSA has been suppressed?

MEHT policy does not require clearance screening, do not re-swab after decolonisation.

For all other hospitals please refer to their hospital policy regarding requirement for clearance screens prior to admission.

Where practical, standard infection control procedures should be followed. MRSA positive patients undergoing medical or nursing procedures in primary care (e.g. wound dressings, minor surgery) should be seen at the end of the list.

A patient information leaflet is available from:  

Reproduced by kind permission of South West GP Microbiology Laboratory User Group in collaboration with GPs & experts in the field
**Recommendations**

There is a lack of good quality evidence in the literature regarding which patients and which body sites should be screened and current practice is varied.¹ Recommendations of the Joint Working Party for BSAC, HIS and ICNA are that the following sites should be sampled: anterior nares, skin lesions or wounds, sites of catheters, catheter urine, groin/perineum, tracheostomy and other skin breaks and sputum from patients with a productive cough.¹ However, carriage is most common in the nares and most patients who are positive at other sites are also positive in the nares.⁷

**Definitions**

MEHT – Mid Essex Hospitals Trust
MECCG – Mid Essex Clinical Commissioning Group

References available on request.
### Treating your infection

<table>
<thead>
<tr>
<th>Your infection</th>
<th>Usually lasts</th>
<th>How to treat yourself better for these infections, now and next time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Middle-ear infection</td>
<td>4 days</td>
<td>* Have plenty of rest. * Drink enough fluids to avoid feeling thirsty. * Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both). * Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable as a result of a fever. * Use a tissue and wash your hands well to help prevent spread of your infection to your family, friends and others you meet. * Other things you can do suggested by GP or nurse:</td>
</tr>
<tr>
<td>Sore throat</td>
<td>7 days</td>
<td>1. to 8. are possible signs of serious illness and should be assessed urgently. Phone for advice if you are not sure how urgent the symptoms are. 2. If you develop a severe headache and are sick. 3. If your skin is very cold or has a strange colour, or you develop an unusual rash. 4. If you feel confused or have slurred speech or are very drowsy. 4. If you have difficulty breathing. Signs that suggest breathing problems can include:</td>
</tr>
<tr>
<td>Common cold</td>
<td>10 days</td>
<td>o breathing quickly</td>
</tr>
<tr>
<td>Sinusitis</td>
<td>18 days</td>
<td>o turning blue around the lips and the skin below the mouth</td>
</tr>
<tr>
<td>Cough or bronchitis</td>
<td>3 weeks</td>
<td>o skin between or above the ribs getting sucked or pulled in with every breath.</td>
</tr>
<tr>
<td>Other infection:</td>
<td>........ days</td>
<td>5. If you develop chest pain. 6. If you have difficulty swallowing or are drooling. 7. If you cough up blood. 8. If you are feeling a lot worse.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Less serious signs that can usually wait until the next available GP appointment: 9. If you are not starting to improve a little by the time given in the ‘Usually lasts’ column. 10. In children with middle-ear infections if fluid is coming out of their ears for more than 10 days or if they have new deafness. 11. Other</td>
</tr>
</tbody>
</table>

### Back-up antibiotic prescription to be collected after **[ ]** days only if you are not starting to feel a little better or you feel worse. Collect from:  **[ ]** GP reception  **[ ]** GP or nurse  **[ ]** Pharmacy

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
- Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting and pledging at www.antibioticguardian.com

Never share antibiotics and always return any unused antibiotics to a pharmacy for safe disposal.

Leaflet developed in collaboration with these professional societies.
<table>
<thead>
<tr>
<th>Previous version</th>
<th>Key Changes</th>
</tr>
</thead>
</table>
| Mid Essex Antibiotic Guidelines, January 2013        | Updated according to Public Health England Guidelines  
Document management added                                                                                                                               |
| Mid Essex Antibiotic Guidelines, January 2015        | Updated according to Public Health England Guidelines  
Added TARGET Treating Your Infection leaflet  
UTI guidance updated outside of PHE guidelines in consultation with local microbiologist  
Inclusion of NHSE antibiotic quality premium data showing the percentage of co-amoxiclav, cephalosporins and quinolones items against all antibiotic items across Mid Essex  
Added Diverticulitis indication  
Document management added                                                                                                                               |
| Mid Essex Antibiotic guidelines, July 2017           | Updated according to Public Health England guidelines                                                                                                                                                    |
| Mid Essex Antibiotic guidelines, June 2018           | Amended UTI in adults section to reflect Public Health England guidelines, and continued with local microbiology recommendation for UTI in children and pregnancy.                                                                 |
| Mid Essex Antibiotic guidelines, July 2018           | Updated to incorporate NICE guidance published October 2018 to February 2019. Reformatted table to make more user friendly and informative on choice                                                                 |