

# Community Antibiotic Guidelines – for common infections

Coventry & Warwickshire  
Area Prescribing Committee



Clinical Guideline

## Aims are:

1. To provide a simple, effective set of guidelines for the treatment of infection in adults in the community
2. To control the use of antibiotics in the community in parallel with in-patient use
3. To minimise the use of antibiotics that are the highest risk for *C. difficile* including cephalosporin, quinolones and co-amoxiclav

## Before using the antibiotic guideline, review the following points:

- Collect appropriate specimens before starting antibiotics
- Review previous microbiology results, in particular MRSA, *Clostridium difficile* or ESBL producing coliforms. Treatment may need to be adjusted if these are found
- Antibiotics should be given at regular intervals – e.g. qds should be given at 6 hourly intervals if possible
- Doses given are for oral administration unless specified otherwise
- This guideline is intended for **adults with normal renal function**

## Note on *Clostridium difficile* diarrhoea:

- All antibiotics have the potential of causing *Clostridium difficile* diarrhoea
- This risk is much increased with the use of broad-spectrum antibiotics such as co-amoxiclav, ceftriaxone and ciprofloxacin
- The use of these broad-spectrum antibiotics should only be considered if narrow-spectrum antibiotics cannot be given or are not efficacious in a particular condition.

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For further advice please contact the Medical Microbiologist at your local trust

For advice related to genitourinary issues please contact a GUM physician at your local trust

## References:

1. Joint Formulary Committee (2020) British National Formulary. Available at: <http://www.medicinescomplete.com> Accessed: 02.2020
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3. Coventry and Warwickshire Microbiology, Coventry and Warwickshire Pathology Services (2019) Adult Antibiotic Guidelines, eLibrary ID Reference No; CG11686
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5. Public Health England (1 June 2013) Guidance: Updated guidance on the management and treatment of *Clostridium difficile* infection Last updated September 2019. Available at; <https://www.gov.uk/government/publications/clostridium-difficile-infection-guidance-on-management-and-treatment> Accessed: 02.2020
6. Public Health England & British Infection Society / Royal College of General Practitioners. Management of infection Guidance for primary care consultation and local adaptation. Last updated August 2020. Available at: <https://www.gov.uk/government/publications/managing-common-infections-guidance-for-primary-care> Accessed: 02.2020

## Important Notes

### Penicillin allergy

Penicillins are part of the beta-lactam family and include:

- Penicillin (penicillin V, benzyl penicillin)
- Amoxicillin and ampicillin
- Co-amoxiclav (*Augmentin*, i.e. amoxicillin and clavulanic acid)
- Flucloxacillin
- Pivmecillinam (mecillinam)
- Cefalexin

Nausea, vomiting or diarrhoea are common side effects of any antibiotic, and do not, by themselves, constitute an allergic reaction. They are **NOT** a contraindication for penicillin use.

Genuine penicillin allergy takes the form of an urticarial rash or anaphylaxis/ angioedema.

### Rash reaction to penicillin

There is around 15% probability that patients with penicillin allergy will be allergic to cephalosporins such as Cefalexin.

### Anaphylaxis/Angioedema to penicillin

An anaphylactic reaction related to histamine release occurs 30 - 60 minutes after administration of penicillin.

Symptoms may include erythema or pruritis, angioedema, hypotension or shock, urticaria, wheezing or rhinitis.

An accelerated allergic reaction occurs 1 - 72 hours after previous administration of penicillin: symptoms may include erythema or pruritis, angioedema, urticaria, wheezing or rhinitis (particular caution if symptoms include laryngeal oedema).

**Patients with anaphylaxis to penicillin should never** be given any beta-lactam antibiotic (cephalosporins or carbapenems).

### Unknown/uncorroborated history of penicillin allergy

For patients who are unable to give a clear history of penicillin allergy reaction, please try, where possible, to gain collateral history from relatives including antibiotic use history.

### Fluoroquinolone Antibiotics Warning

Fluoroquinolones (Ciprofloxacin, levofloxacin, moxifloxacin, ofloxacin) can cause very rare but disabling and potentially long-lasting or irreversible side effects.

**Scale of the risk** - A review of EudraVigilance database identified **286 cases** of serious adverse reactions reported as disabling and lasting for 30 days or more, without any alternative explanations, from **across the EU over a 21-year period**.

**It is estimated that more than 300 million daily doses of fluoroquinolone antibiotics are dispensed every year in the EU.**

The details of the warning against fluoroquinolones can be found here: <https://www.gov.uk/drug-safety-update/fluoroquinolone-antibiotics-new-restrictions-and-precautions-for-use-due-to-very-rare-reports-of-disabling-and-potentially-long-lasting-or-irreversible-side-effects#new-restricted-indications>

Fluoroquinolones in these guidelines are used where better alternatives, in essentially patients allergic to penicillins, cannot be found. You may wish to discuss these risks with the patient.

# Antibiotic prescribing in a penicillin allergic patient

## Antibiotic Colour Coding

As a patient safety feature, all antibiotics are colour coded to aid the prescriber to distinguish between penicillins (a subclass of beta-lactams) in which case they cannot be given in known penicillin prophylaxis, other beta lactams (cephalosporins and carbapenems) which might be given in a patient with minor penicillin allergy under caution and non-beta-lactam related antibiotics that can be given regardless of the penicillin allergy status of the patient.

- **RED** - all penicillins, these should not be given to a known penicillin allergic patient.
- **Amber** - other beta-lactams (Penicillin related) which might be given to a patient with minor penicillin allergy with caution
- **Green** - All non-beta-lactam related antibiotics that can be given to penicillin allergic patients regardless of the nature of allergy

The colour coding of antibiotics in the guidelines are summarised below.

### CONTRAINDICATED – DO NOT USE if patient has a Penicillin Allergy

Amoxicillin	Penicillin G (Benzyl Penicillin)
Benzylpenicillin	Penicillin V (Phenoxymethypenicillin)
Co-Amoxiclav (Augmentin®)	Piperacillin/Tazobactam (Tazocin®)
Flucloxacillin	Pivmecillinam



### AVOID

If a patient has a severe Penicillin Allergy  
e.g. Anaphylaxis or Steven Johnson's syndrome

Aztreonam	Cefuroxime
Cefalexin	Ertapenem
Cefotaxime	Meropenem
Cetazidime	Imipenem Plus Cilastatin
Ceftriaxone	

**USE IN CAUTION** – if a patient  
minor rash or GI disturbance



### CAN USE – if patient has a Penicillin Allergy

Amikacin	Doxycycline	Ofloxacin	Vancomycin
Azithromycin	Erythromycin	Oxytetracycline	
Chloramphenicol	Fosfomicin	Rifampicin	
Ciprofloxacin	Gentamicin	Sodium Fusidate	
Clarithromycin	Linezolid	Teicoplanin	
Clindamycin	Metronidazole	Tigecycline	
Colistin	Moxifloxacin	Tobramycin	
Co-Trimoxazole	Nitrofurantoin	Trimethoprim	

## Central Nervous System Infections

Urgent hospital admission essential: Administer parenteral antibiotic dose if time and availability allows

Do not delay admission to hospital

	Drug	Dose & duration of treatment
Bacterial meningitis	<b>Benzy penicillin</b> <i>If penicillin allergy use: Ceftriaxone</i>	1.2 g stat intravenous (preferred) or intramuscular 2g stat intravenous - <b>Avoid in severe penicillin allergy</b>

## Dental Infections

Patients with dental problems should be referred to a dental practitioner  
Antibiotics should only be considered if dentist unavailable and acute need exists

	Drug	Dose & duration of treatment
Tooth Abscess	Amoxicillin oral	500 mg to 1g tds for up to 5 days; review at 3 days
	<i>If penicillin allergy use:</i> Clarithromycin oral	500 mg bd for 5 days; review at 3 days

## Ear, Nose, Throat (ENT) Infections

**Acute otitis media** - before considering antibiotic prescribing please note that;

This is a self-limiting condition, can be caused by viruses and bacteria, symptoms last 3-7 days, complications are rare

**Most cases are viral and require supportive management with analgesia alone.** 80-90% respond without antibiotics

- Only patients with otorrhoea or those systemically very unwell are likely to benefit from antibiotics
- Refer to [NICE guidelines NG91](#) for acute otitis media

	Drug	Dose & duration of treatment
Acute otitis media	<b>Amoxicillin oral</b>	500 mg tds for 5-7 days
	<i>If penicillin allergy use: Clarithromycin oral</i>	500 mg bd for 5-7 days

**Otitis externa** - Aural toilet and analgesia should be first line management.

Oral antibiotics may be considered for people with severe infections or at risk of severe infections eg:

- Furunculosis or cellulitis spreads beyond the ear canal to the pinna, neck, or face
- There are systemic signs of infection, such as fever
- The person has a medical condition which is associated with increased risk of severe infection (such as diabetes mellitus, or compromised immunity)

Should there be pus causing swelling and pain, incision and drainage may be required

If oral antibiotics are required, use **flucloxacillin** 500 mg-1g qds or clarithromycin 500 mg bd in case of penicillin allergy **otherwise treat as per the table below.**

If clinical suspicion of malignant otitis externa - discuss with ENT and a microbiologist

	Drug	Dose & duration of treatment
Otitis externa	<i>First line:</i> Topical acetic acid 2% ear spray (OTC preparation) or <b>Topical Neomycin sulphate</b> + corticosteroid eg. betamethasone 0.1% + neomycin sulphate 0.5% ear drops	1 spray topically at least tds up to 2-3 hourly for max 7 days 2 - 3 drops tds-qds for up to 7 days
	<i>Second line:</i> Topical Locorten-Vioform®	2 - 3 drops bd for 7 days
Otitis externa with obvious cellulitis	<b>Flucloxacillin oral</b> <i>If penicillin allergy use: Clarithromycin oral</i>	500 mg -1g qds for 5 days 500 mg bd for 5 days

**Sinusitis** - Consider symptomatic treatment first or delayed antibiotic dispensing in collaboration with the patient

If clinical evidence or concern of severe infection **discuss with ENT and Microbiology. Before considering antibiotic prescribing note that:**

- Most cases of acute sinusitis do not require antibiotics especially if presenting with symptoms for ≤10 days
- Usual course of sinusitis is 2-3 weeks
- Antibiotics make little difference to duration of symptoms
- Withholding antibiotics is unlikely to lead to complications
- Factors indicating possible bacterial infection are - Symptoms > 10 days, discoloured or purulent nasal discharge, severe localised unilateral teeth or jaw pain, fever, marked deterioration after an initial milder phase

NICE guidelines: <https://www.nice.org.uk/guidance/ng79/resources/visual-summary-pdf-4656316717>

<https://www.nice.org.uk/guidance/ng79/chapter/Recommendations#managing-acute-sinusitis>

	Drug	Dose & duration of treatment
Acute Sinusitis	<i>First line:</i> <b>Phenoxyethylpenicillin (Pen V) oral</b> <i>If penicillin allergy use: Doxycycline oral</i>	500 mg qds for 5 days 200 mg loading dose then 100 mg od for 4 further days (5 days total course)
	<i>First line:</i> <i>If systemically very unwell, symptoms and signs of a more serious illness or condition, or at high risk of complications:</i> <b>Co-amoxiclav oral</b> <i>If penicillin allergy use: In pregnancy Erythromycin oral</i>	625 mg tds for 5 days 500 mg qds for 5 days
	<i>Second line:</i> <i>If worsening symptoms on first choice taken for at least 2 to 3 days -</i> <b>Co-amoxiclav oral</b>	625 mg tds for 5 days

**Pharyngitis/Tonsillitis** - Consider symptomatic treatment first or delayed antibiotic dispensing in collaboration with the patient

**Before considering antibiotic prescribing note that:**

- This is a self-limiting condition usually caused by viruses
- Symptoms last up to 1 week
- Patients feel better within 1 week whether the cause is viral or bacterial
- **Antibiotics make little difference on how long symptoms last**
- Complications are unlikely even when antibiotics are not given

People who are likely to benefit from antibiotics have **FeverPAIN score** of 2 or 3

NICE guidelines: <https://www.nice.org.uk/guidance/ng84/chapter/terms-used-in-the-guideline#feverpain-criteria>

<https://www.nice.org.uk/guidance/ng84/resources/visual-summary-pdf-4723226606>

	Drug	Dose & duration of treatment
Pharyngitis/ tonsillitis	<b>Phenoxyethylpenicillin (Pen V)</b> <i>If penicillin allergy use: Clarithromycin</i>	500 mg qds for 5-10 days depending on severity 500 mg bd for 5 days

## Eye Infections

**First line treatment:** Bathe / clean eyelids with cotton wool dipped in sterile saline (0.9% sodium chloride) / boiled (cooled) water, to remove crusting.  
Treat only if severe infections as most cases are viral or self-limiting.

	Drug	Dose & duration of treatment
Bacterial Conjunctivitis	<i>Second line/penicillin allergy use:</i> Chloramphenicol 0.5% drops	One drop every 2 hours for the first 48 hours and then every 4 hours thereafter for 5 days

# Gastrointestinal Infections

- Gastroenteritis** - Send stool sample if food poisoning or for *C.difficile* if recent antibiotic use or hospital stay
- Fluid replacement essential.
  - Antibiotics not usually necessary unless immunocompromised or prolonged symptoms
  - Check travel, food, hospitalisation and antibiotic history

**Clostridium difficile** – discuss with microbiologist if advice needed. Repeat samples are usually unnecessary

### Diarrhoea risk stratification of antibiotics

#### Antibiotics associated with high risk of *C.difficile* diarrhoea

- Clindamycin
- Cephalosporins ( eg cefuroxime, ceftriaxone, cefotaxime)
- Quinolones (eg ciprofloxacin, levofloxacin)
- Penicillin combinations (eg.Co-amoxiclav, piperacillin-tazobactam (Tazocin® ))
- Carbapenems (eg meropenem, ertapenem)

#### Antibiotics associated with lower risk of *C.difficile* diarrhoea

- Aminoglycosides (eg. Gentamicin)
- Tetracyclines (eg. Doxycycline)
- Narrow spectrum penicillins (eg. Phenoxymethylpenicillin (Pen V), Benzylpenicillin)

All antibiotics in general have been associated with *C.difficile* diarrhoea.

Proton pump inhibitors (PPI) have also been shown to increase the risk of *C.difficile* diarrhoea and therefore any patient with *C.difficile* diarrhoea should have their antibiotics and PPI reviewed with a view of stopping them or switching to a safer alternative.

Stop precipitating antibiotic if possible - **contact Microbiologist immediately** if precipitating antibiotic(s) cannot be stopped (refer to table below)

Severity	Features	Drug, dose & duration of treatment
Mild	Typically ≤ 3 motions/day, Type 5 - 7 on Bristol Stool Chart normal WBC count	No specific treatment may be indicated <b>Metronidazole oral</b> 400 mg tds for 14 days if specific treatment indicated
Moderate	Typically 3 – 5 motions/day, WBC count 10 – 15 x 10 <sup>9</sup> /L	<b>Metronidazole oral</b> 400 mg tds for 14 days, if no response after 48 hours, change to <b>Vancomycin oral</b> 125 mg qds for 14 days
Severe or recurrent Infection:	<i>Any one of the following:</i> WBC >15x10 <sup>9</sup> /L, Temp >38.5°C, Acute rising creatinine 50% above baseline Abdominal or radiological signs of severe colitis (number of motions less reliable)	<b>Vancomycin oral</b> 125 mg qds for 14 days  <b>If not responding discuss with Microbiologist urgently</b> <a href="#">Assess patient for sepsis - Sepsis Risk Stratification tool (NICE NG51)</a> refer patient for critical care review if patient falls in the high risk category
a) If complications of hypotension, ileus or toxic megacolon – refer to gastroenterologist/ surgeon(s)		
b) Refer to gastroenterologist/ surgeon (see below) hospital review	<i>Complications:</i> Hypotension partial ileus CT scan evidence of severe colitis	<b>Vancomycin oral</b> 500 mg qds for 14 days <b>plus</b> <b>Metronidazole IV</b> 500 mg tds Check lactate. If >4mmol for critical care
c) Refer to gastroenterologist/ surgeon (see below) hospital review	<i>Complications:</i> Complete ileus or toxic megacolon	As for <b>b) Vancomycin</b> to be given via a nasogastric tube or rectal installation Do serum lactate Consider colectomy – best performed before serum lactate rises >5

#### Avoid use of **Liquid Metronidazole** as it contains sorbitol which acts as a laxative

Review and stop if possible other antibiotics and PPIs - Avoid antimotility drugs such as loperamide in acute infection. Supportive therapy particularly fluid replacement is vital. Refer to hospital urgently if acutely unwell, if the patient cannot maintain hydration or if signs of serious complications e.g. colitis - **contact Microbiologist immediately** if precipitating antibiotic(s) cannot be stopped.

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/321891/Clostridium\\_difficile\\_management\\_and\\_treatment.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321891/Clostridium_difficile_management_and_treatment.pdf)

**Persistent Diarrhoea despite 20 days' treatment:** If the patient is stable, the daily number of Types 5-7 motions has decreased, the WBC is normal, and there is no abdominal pain or distension, the persistent diarrhoea may be due to post-infectious non-specific causes. The patient may be treated with an anti-motility agent such as loperamide. Patient should be closely observed for evidence of response and to ensure there is no evidence of colonic dilatation.

### Clostridium difficile diarrhoea relapse treatment

First relapse: **Vancomycin oral** 125 mg qds for 14 days

Subsequent relapses: **Vancomycin oral** 125 mg qds for 14 days, followed if necessary by tapering regime regimen is - following usual dose of:

125 mg qds for 14 days it is given at 125 mg bd for 7 days, 125 mg od for 7 days, then 125 mg every 2-3 days for 2-8 weeks) **OR** refer to hospital for faecal transplant should be considered - discuss with microbiologist

### Helicobacter pylori eradication

**Testing** - *H.pylori faecal antigen should be tested where persistent dyspepsia of unknown aetiology*

Send stool for antigen testing

- To reduce false-negative results, patients should be off antibiotics for four weeks, and PPIs for one to two weeks, prior to testing
- The specificity of the stool antigen testing may decrease in the presence of active bleeding from peptic ulcers
- Eradication can be confirmed with stool antigen testing

Refer to NICE guidelines: <https://www.nice.org.uk/guidance/cg184/chapter/recommendations#helicobacter-pylori-testing-and-eradication>

	Drug	Dose & duration of treatment
Eradication Regimen	Proton Pump Inhibitor <b>Amoxicillin oral</b> plus <b>Clarithromycin oral</b>	<i>see table</i> → 1g bd plus 500 mg bd treat for 7 days
	<i>If penicillin allergy use:</i> Proton Pump Inhibitor plus <b>Clarithromycin oral</b> plus <b>Metronidazole oral</b>	<i>see table</i> → 250 mg bd plus 400 mg bd treat for 7 days
	<i>If penicillin anaphylaxis use:</i> Proton Pump Inhibitor plus <b>Levofloxacin oral</b> plus <b>Metronidazole oral</b>	<i>see table</i> → 500 mg bd plus 400 mg bd treat for 7 days
Giardia	<b>Metronidazole oral</b>	400 mg tds for 5 days
Diverticulitis	<b>Co-amoxiclav oral</b>	625mg tds for 5-7 days
	<i>If penicillin allergy use:</i> <b>Ciprofloxacin oral</b> plus <b>Metronidazole oral</b>	500 mg bd plus 400 mg tds for 5-7 days
Cryptosporidium	Antibiotics not indicated except in immunocompromised There is spontaneous recovery within a few weeks in immunocompetent patients Seek specialist advice for immunocompromised patients	

Recommended Proton Pump Inhibitor	Dosage
Lansoprazole	30 mg bd
Omeprazole	20-40 mg bd

*If patient requires IV administration this would be an indication for the patient to be referred to hospital*

## Genital Tract Infections

	Drug	Dose & duration of treatment
Bacterial Vaginosis	<b>Metronidazole oral</b> <i>Intravaginal option: Metronidazole 0.75% topical gel</i> <i>Intravaginal alternative option: Clindamycin 2% topical cream</i>	400 mg bd for 7 days Once at night for 5 nights Once at night for 7 nights
Vaginal Candidiasis	<i>First line: Clotrimazole pessary 500mg stat plus clotrimazole 1% cream if co-existing vulvitis</i> <i>In non-pregnant women: Second line: Fluconazole 150 mg orally stat</i>	
Trichomoniasis Refer to GUM & treat simultaneously	<i>First line: Metronidazole oral</i> <i>Second line: Metronidazole oral</i>	400 mg bd for 5 to 7 days 2g as a single dose
<b>Avoid high dose metronidazole in pregnancy</b>		

### Pelvic Inflammatory Disease

- Refer the woman with her partner/s to GUM for STI screening
- Rule out ectopic pregnancy before treating in the community
- Send MSU and urine specimen for Chlamydia trachomatis and gonorrhoea NAAT if sexual history suggestive of STI

	Drug	Dose & duration of treatment
Pelvic Inflammatory Disease outpatient regimens	Intramuscular <b>Ceftriaxone plus</b> <b>Doxycycline oral plus</b> <b>Metronidazole oral</b> <i>If penicillin anaphylaxis use:</i> <b>Azithromycin oral plus</b> <b>Doxycycline oral plus</b> <b>Metronidazole oral</b>	1g single dose plus 100 mg bd for 14 days plus 400 mg bd for 14 days 2g stat plus 100 mg bd for 14 days plus 400 mg bd for 14 days

**Note:** There is cross reactivity between penicillin and cephalosporins. Patients with skin hypersensitivity to penicillin may be given cephalosporins if there is no history of allergy to cephalosporins.

**Patients with anaphylaxis to penicillin should NEVER be given any beta-lactams**

Website link addresses are: NICE guidance for management of pelvic inflammatory disease:

<https://cks.nice.org.uk/topics/pelvic-inflammatory-disease/#!scenarioRecommendation:1>

British Association for Sexual Health and HIV (BASHH) : <https://www.bashh.org/guidelines>

updated BASHH guidelines: <https://www.bashhguidelines.org/media/1217/pid-update-2019.pdf>

	Drug	Dose & duration of treatment
Chlamydia trachomatis	<b>Doxycycline</b>	100 mg bd for 7 days <b>AVOID doxycycline in pregnancy</b>
<b>Note:</b> Refer patient with partner/s to GUM for STI screening. Partner/s needs treating simultaneously		

## Parasitic Infections

	Drug	Dose & duration of treatment
Threadworm	Mebendazole oral	100 mg as a single dose repeated after 14 days if reinfection
Ascaris (roundworm)	Mebendazole oral	100 mg bd for 3 days
Scabies	Permethrin 5% cream topical <i>If Permethrin allergy use:</i> Malathion 0.5% aqueous liquid topical	2 applications a week apart

## Respiratory Tract Infections

Most infective exacerbations are viral in origin. Consider antibiotics if at least two of the following are present – increased sputum volume, increased sputum purulence, dyspnoea.

	Drug	Dose & duration of treatment
Infective exacerbation of COPD	<b>Amoxicillin oral</b> <i>If penicillin allergy use: Doxycycline oral</i>	500 mg tds for 5 days 200 mg on day one then 100 mg daily for a further 4-6 days
<b>Note:</b> Where exacerbation is truly due to bacterial infection, some patients may require longer duration of treatment of up to 14 days		

	Drug	Dose & duration of treatment
Community Acquired Pneumonia <small>Consider whether hospital admission needed</small>	<b>Amoxicillin oral</b> <i>If penicillin allergy use: Clarithromycin oral</i>	500 mg tds for 5 days; 7-10 days if poor response 500 mg bd for 5-7 days

### Diagnosis and Assessment:

Clinically, pneumonia can be difficult to differentiate from bronchitis, but it is unlikely when the vital signs such as temperature, pulse and respiration are normal, particularly in the setting of normal findings on chest examination.

Assess severity using British Thoracic Society CRB-65 criteria to decide on course of treatment

#### Score 1 point for each feature present:

Confusion            Mini mental test score of 8 or less OR new disorientation in person, time or place  
Respiratory rate     $\geq 30/\text{min}$   
Blood pressure     systolic BP  $<90$  mmHg OR diastolic BP  $\leq 60$  mmHg  
Age                     $\geq 65$  years

#### Score:

0            Likely suitable for home treatment  
1 or 2      Consider hospital supervised treatment  
3 or 4      Refer to hospital immediately for treatment as severe pneumonia

	Drug information
Acute bronchitis	Often viral - antibiotics not generally indicated

## Skin & Soft Tissue Infections

If previous microbiology samples show MRSA (Meticillin-resistant *Staphylococcus aureus*) or there is a likelihood of MRSA colonisation, treatment should be adjusted accordingly to cover MRSA.

Discuss with microbiology if needed:

- if doxycycline-resistant MRSA previously isolated
- Skin/soft tissue infection where MRSA is a likely cause, review with antibiotic sensitivities where possible

**Mild:** No systemic illness and >2 symptoms/signs of inflammation and cellulitis <2 cm around wound confined to subcutaneous tissue only

**Moderate:** No systemic illness and lymphangitis or deep tissue infection involving subcutaneous tissue, fascia, tendon or bone or abscess or cellulitis >2 cm around the wound

**Severe:** - Evidence of systemic illness and lymphangitis or

- deep tissue infection involving subcutaneous tissue, fascia, tendon or bone or abscess or
- cellulitis >2 cm around the wound

**Refer patient to hospital** (if severe infection, may require IV antibiotics)

	Drug	Dose & duration of treatment
Mild Cellulitis & Wound infections (non-severe)	<b>Flucloxacillin oral</b> <i>If penicillin allergy &amp; or if known MRSA positive use:</i> <b>Doxycycline oral</b>	500 mg - 1g qds for 7 days  200 mg od for 7 days
Moderate Cellulitis & Wound infections (non-severe)	<b>Flucloxacillin oral</b> <i>If penicillin allergy &amp; or if known MRSA positive use:</i> <b>Doxycycline oral</b>	500 mg - 1g qds for 7 days  200 mg od for 7 days
Impetigo  a contagious bacterial infection of the skin, usually caused by <i>Staphylococcus aureus</i> infection	<b>First line: Hydrogen peroxide 1% antiseptic cream</b>	Apply 2 or 3 times a day for 5 to 7 days based on clinical judgement, depending on the severity and number of lesions. Antiseptic cream available to purchase OTC to be used as short course.
	<b>Second line: Topical fusidic acid 2% cream</b>	Apply 3 times a day for 5 to 7 days* based on clinical judgement, depending on the severity and number of lesions *Use if the antiseptic cream, is ineffective (or inappropriate) and the condition is localised with no systemic effects and no complications.
	<b>Third line: Flucloxacillin oral</b>  <i>If penicillin allergy use: Clarithromycin oral</i>	500 mg qds for 5 to 7 days* based on clinical judgement, depending on the severity and number of lesions.  250 mg - 500 mg bd for 5 to 7 days* based on clinical judgement, depending on the severity and number of lesions.  *If topical treatment is still not effective or if it is bullous impetigo, or there are systemic effects / complications present, use a short course of <b>oral antibiotics</b>

**Note:** Good hygiene measures help prevent spread of impetigo to other areas of the body and to other people.

The guidance **does not** recommend the combination use of oral antibiotic plus antiseptic / antibiotic cream – use only one or the other.

	Drug	Dose & duration of treatment
Leg Ulcers	<b>Flucloxacillin oral</b> <i>If penicillin allergy use: Doxycycline oral</i> <i>For pregnant women use: Erythromycin</i>	500 mg - 1g qds for 5 to 7 days 200 mg od for 5 to 7 days – <b>Avoid doxycycline in pregnancy</b> 500 mg 4 times a day for 7 days

**Note:** Antibiotics are not generally appropriate and do not improve healing; few leg ulcers are clinically infected. Bacteria will always be present colonising the ulcer. Culture swabs and antibiotics only indicated if evidence of clinical infection, e.g. increased pain, cellulitis, and pyrexia or ulcer enlargement (redness or swelling spreading beyond the ulcer), localized warmth.

	Drug	Dose & duration of treatment
Animal bites Antibiotics are always indicated: - Check if tetanus vaccination up to date - Consider if anti rabies prophylaxis required (e.g. bitten abroad; bat bites)	<b>Co-amoxiclav oral</b> <i>If penicillin allergy use:</i> <b>Metronidazole plus Doxycycline</b>	625 mg tds for 7 days  400 mg tds plus 200 mg od for 7 days
Human bites Assess risk of: - Tetanus - HIV - Hepatitis B & C	<b>Co-amoxiclav oral</b> <i>If penicillin allergy use:</i> <b>Metronidazole plus Clarithromycin oral</b>	625 mg tds for 7 days  400 mg tds plus 500 mg bd for 7 days
Human and animal bites to the <u>hand where the dermis has been breached</u> should always be referred to plastic or orthopaedic surgeons for appropriate management		

### References:

1. NICE guideline (NG 153) Impetigo: antimicrobial prescribing. Published date: February 2020 Available at: <https://www.nice.org.uk/guidance/ng153> Accessed 4th March 2020
2. NICE guideline [NG 152] Leg ulcer infection: antimicrobial prescribing Published date: February 2020 Available at: <https://www.nice.org.uk/guidance/ng152> Accessed: 4<sup>th</sup> March 2020

# Urinary Tract Infections (UTI)

There are increasing problems with Extended Spectrum -Lactamase (ESBL) producing “coliforms”. Apart from possible sensitivity to nitrofurantoin, there is often no oral option to treat these organisms. *Contact the Medical Microbiologist for advice if needed.*

Adults >65 may be found to have asymptomatic bacteriuria (growth of bacteria from urine without symptoms of UTI).

**This should NOT be treated as there is no increased morbidity.**

Sending an MSU is recommended in pregnant women and men

### Dipsticks and UTI Diagnosis

**Do not do dipstick** in men and women over 65 years with suspected UTI

- Dipsticks are unreliable in those above age 65 years presenting with features of UTI.
- Up to 50% of those above 65 years old may have asymptomatic bacteriuria and this **does not require antibiotic treatment**

Use the Public Health England (PHE) flow chart to manage those over 65 years old presenting with urinary symptom – the flow chart is found [here](#)

**Dipsticks can be used** in women less than 65 years old presenting with urinary symptoms by following the PHE flow chart found [here](#)

- Women less than 65 years old presenting with 2 or 3 key diagnostic signs/symptoms of dysuria (burning pain when passing urine), new nocturia (passing urine more often than usual at night) and urine cloudy to the naked eye should have a mid-stream urine (MSU) sample urine culture sent for routine microscopy and culture.

### DO NOT TREAT:

- patients for UTI purely on the basis of a positive urine dipstick result
- asymptomatic bacteriuria (positive urine culture) or positive urine dipstick (nitrites and/or leucocytes) without clinical symptoms in non-pregnant patients.

Pregnant women would need further evaluation

If patient has recurrent UTIs, discuss the case with Microbiology and **DO NOT** prescribe prophylactic antibiotics.

**DO NOT** give antibiotic prophylaxis for insertion or changing of catheter

### Cautions with use in renal failure:

- Nitrofurantoin (contraindicated if eGFR <45ml/min/1.73m<sup>2</sup> but check [MHRA guidance](#));
- Trimethoprim (eGFR 15-30ml/min - use half normal dose after 3 days; eGFR <15ml/min - use half normal dose)

	Drug	Dose & duration of treatment
Uncomplicated Urinary Tract Infection (Cystitis)  Non-pregnant women and men over 16 years	<i>First line:</i> Nitrofurantoin oral	100 mg MR bd or 50mg qds for 3 days ( <i>depending on availability and/or cost if female, 7 days if male (if eGFR ≥45 ml/minute)</i> <i>Avoid if eGFR &lt; 45ml/min/1.73m<sup>2</sup> - check <a href="#">MHRA guidance</a></i>
	<i>Second line:</i> Pivmecillinam oral	400 mg initial dose, then 200 mg tds for a total of 3 days in females, 7 days if male
	<i>Second line: If penicillin allergy use:</i> Fosfomycin oral	3 g single dose sachet Give second dose after 3 days in men – <b>note:</b> unlicensed use <i>if high resistance risk. (note: Fosfomycin oral is unlicensed in men but can be given on microbiologist recommendation)</i>
	<i>Third line:</i> Fosfomycin oral	3 g single dose sachet Give second dose after 3 days in men – <b>note:</b> unlicensed use <i>if high resistance risk. (note: Fosfomycin oral is unlicensed in men but can be given on microbiologist recommendation)</i>
	<i>Third line: If penicillin allergy use:</i> Trimethoprim oral	200 mg bd for 3 days if female, 7 days if male

**Note:** The suggested antibiotics are for empirical therapy.

- Where antibiotic sensitivities are available, please choose the most appropriate antibiotic for the patient.
- An alternative antibiotic **should only** be used if for some reason none of the above agents can be used.
- Trimethoprim resistance is high but if culture results indicate that the isolate is sensitive to Trimethoprim, then this can be used if appropriate

### References:

1. NICE guidance UTI: <https://www.nice.org.uk/guidance/ng109/resources/visual-summary-pdf-6544021069>
2. Algorithm for management of suspected lower UTI in non-pregnant women: Public health England (PHE) UTI: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/829721/Diagnosis\\_of\\_urinary\\_tract\\_infections\\_UTI\\_diagnostic\\_flowchart.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/829721/Diagnosis_of_urinary_tract_infections_UTI_diagnostic_flowchart.pdf)
3. Sign guidelines: [https://www.sign.ac.uk/assets/sign88\\_algorithm\\_non\\_pregnant\\_women.pdf](https://www.sign.ac.uk/assets/sign88_algorithm_non_pregnant_women.pdf)

- Women with recurrent UTI's should be considered for Secondary Care (Urology) opinion
- Causes should be investigated and treated where appropriate (e.g. Post-coital cystitis)
- Antibiotic prophylaxis should only be initiated on the recommendation from Secondary Care via verbal Consultant advice or after Secondary Care referral

Recurrent UTI is defined as 'three or more episodes of urinary tract infection in the last 12 months confirmed by a urine culture and sensitivity testing (MSU). It **does not** include episodes of bacteriuria without UTI symptoms (asymptomatic bacteriuria) which appears to play a protective role in preventing symptomatic recurrence so should **not** be treated (EXCEPT in pregnant women).

Healthcare professionals should not prescribe antibiotic prophylaxis to adults with long-term indwelling catheters to prevent urinary tract infection unless there is a history of recurrent or severe urinary tract infection.

#### Urine Dipstick Test:

This test should not routinely be performed on patients with:

- An indwelling catheter
- Urostomy bag
- Care home residents

Where clinical signs of infection are present a urine sample should be sent for culture and analysis.

#### Preventing recurrent UTIs:

- Offer a 6 month course of low dose continuous antibiotic treatment.
- Patients should be reviewed by Secondary Care 3 - 6 months after commencing prophylaxis.
- Prophylaxis antibiotics should be stopped after 6 months (unless advised otherwise by a Consultant in exceptional circumstances).
- The patient will have a further review in Secondary Care 6 months after stopping the prophylaxis.

	Drug	Dose & duration of treatment
Prophylaxis in non-pregnant adult women with recurrent UTIs	<i>First line:</i> Nitrofurantoin oral (immediate-release)	50 mg to 100 mg every night (modified-release nitrofurantoin is not licensed for prophylaxis) <i>Avoid if GFR &lt;45ml/min</i>
	<i>Second line:</i> Trimethoprim oral Cephalexin oral	100 mg every night (only after sensitivities confirmed) 250 mg every night may used when the above are contraindicated or not tolerated
UTI in Pregnancy	<i>First line:</i> Nitrofurantoin oral	100 mg MR bd for 7 days (if eGFR ≥45 ml/minute) <i>Avoid at term- may produce neonatal haemolysis</i> <b>Caution:</b> <u>do not</u> use close to term as can cause haemolysis in patients with G6PD deficiency. Foetal erythrocytes have little reduced glutathione and there is a theoretical possibility that haemolysis may occur.
	<i>Second line:</i> Cefalexin oral	500 mg bd for 7 days
	<i>Third line:</i> Amoxicillin oral	500 mg tds for 7 days (only if culture results available and susceptible)
	<i>Fourth line:</i> Trimethoprim oral	200 mg bd for 7 days (only if culture results available and susceptible) <i>Avoid in 1<sup>st</sup> trimester</i> <b>Caution:</b> <u>do not</u> use in first trimester or if the pregnant patient is folate deficient, has a predisposition to folate-deficiency, or is taking another folate antagonist such as an anti-epileptic or proguanil.

#### References:

1. NICE Clinical Knowledge Summaries Urinary Tract Infection (Lower) –Women Last Revised December 2019 <https://cks.nice.org.uk/urinary-tract-infection-lower-women>
2. Dason, S., Dason, J.T. and Kapoor, A. (2011) Guidelines for the diagnosis and management of recurrent urinary tract infection in women. *Canadian Urological Association Journal*(5), 316-322

## Catheter-associated UTI (CAUTI)

Catheterised patients – do not swab catheters send catheter specimen of urine (CSU) only if systemically unwell or signs of pyelonephritis.

- Patients with a urinary catheter in-situ may have asymptomatic bacteriuria
- **Unless patient is symptomatic of CAUTI or systemically septic please DO NOT institute empiric antibiotic treatment.**
- Source of micro-organism may be
  - Endogenous (meatal, rectal or vaginal)
  - Exogenous (contamination of hands of healthcare personnel during catheter insertion or manipulation of the collecting system)

Must ensure that:

- catheters are only inserted for appropriate indications
- catheters are in-situ for only as long as needed
- catheter insertion is undertaken with aseptic technique
- following catheter insertion, a closed drainage system is maintained
- unobstructed urine flow is maintained
- hand hygiene and standard IP&C precautions are taken when handling the catheter

No antibiotic prophylaxis is required for urinary catheter insertion

	Drug	Dose & duration of treatment
Catheter-associated UTI (CAUTI)	Non-pregnant women and men if no upper UTI symptoms use: <b>Nitrofurantoin oral</b>	100 mg MR bd (if eGFR $\geq$ 45ml/min) for 7 days
<p><b>Note:</b> Caution should be exercised in patients with chronic neurological conditions such as <b>Parkinson's disease</b>. Urinary tract infection may manifest only as a deterioration in their neurological condition. In these cases therefore, an otherwise unexplained deterioration in the Parkinson's accompanied by a positive urine dip should trigger consideration of early treatment. A mid-stream urine should still be sent for confirmation of the diagnosis and to inform the clinician about antibiotic sensitivity.</p>		

	Drug	Dose & duration of treatment
Acute Pyelonephritis <b>Always send an MSU</b>	<i>Non-pregnant women and men use:</i> <b>Cefalexin oral</b> <i>If penicillin allergy use:</i> <b>Ciprofloxacin oral</b>	500 mg tds for 7-10 days 500 mg bd for 7 days
<p><b>Note:</b> Pyelonephritis is a severe condition and hospital admission for IV antibiotics is often needed</p> <ul style="list-style-type: none"> <li>- Consider admission if acutely unwell or failure to respond to antibiotics after 24 hours.</li> <li>- Ambulatory care referral is available in some areas.</li> </ul>		

	Drug	Dose & duration of treatment
Acute Prostatitis <b>Always send an MSU</b>	<u>First line:</u> <b>Ciprofloxacin oral</b>	500 mg bd for 14 days then review
	<u>Second line:</u> <i>(after discussion with specialist)</i> <b>Co-trimoxazole oral</b>	960 mg bd for 14 days then review

### References:

1. NICE NG110: Prostatitis (acute): antimicrobial prescribing <https://www.nice.org.uk/guidance/ng110>
2. NICE CKS Scrotal pain and swelling-Scenario: Epididymo-orchitis: <https://cks.nice.org.uk/scrotal-pain-and-swelling#!scenario:4>

## Viral Infections

	Drug	Dose & duration of treatment
Cold sores	<b>Usually resolve after 7-10 days without treatment</b> Do not routinely prescribe topical antiviral preparations, such as aciclovir. These preparations can be purchased over-the-counter, and may be used by some people if they find them helpful, from the time of onset of prodromal symptoms before vesicles appear, if possible, until lesions have healed.	
Shingles (Zoster)	<u>First line:</u> Aciclovir oral	800 mg 5 times a day for 7 days - <b>seek advice if pregnant</b>
	<u>Second line:</u> Seek advice from virologists	
Chicken Pox	Aciclovir oral	800 mg 5 times a day for 7 days

**Note:** Aciclovir should ideally be started within 24 hours of appearance of rash in adults, although should not be withheld if presentation is later, especially in smokers, pregnant women, immunosuppressed people or if on steroids. Patients should be advised to report symptoms that may suggest complications e.g. chest symptoms, dense rash with or without mucosal lesions, appearance of new lesions after 6 days, neurological symptoms, haemorrhagic rash or bleeding – if any exist, consider urgent hospital assessment.

Any immunosuppressed person should be referred for specialist assessment.

Chickenpox can be particularly severe in the second half of pregnancy, in smokers, those with chronic lung disease or on steroids. Although aciclovir is unlicensed for use in pregnancy, the risk of severe complications is likely to outweigh the risks of giving aciclovir (National Teratology Information Service reports no increased risk of adverse fetal or congenital effects with aciclovir use at any stage of pregnancy).