

Managing common infections in adults

Prescribing information

These guidelines do not include all the prescribing information for all the drugs. Please refer to the [BNF](#) or consult a pharmacist for appropriate use in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding.

Children

These guidelines do not include prescribing information for children. Please refer to the [BNF for Children](#) and the North West Paediatric Allergy, Immunology and Infection Group (NWPALIG) [Antimicrobial Paediatric Guidelines](#) for appropriate use in children.

Self-care

Treatments marked as ^[OTC] are available to buy from pharmacies. Patients can be advised to purchase them as self-care where appropriate.

Guidelines about COVID-19

Use [COVID-specific guidance issued by NICE](#) during the COVID pandemic.

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Upper respiratory tract infections

Influenza

Annual vaccination is essential for all those 'at risk' of influenza. [1]

Antivirals are not recommended for healthy adults. [1]

At risk patients include: pregnant (and up to 2 weeks post-partum); children under 6 months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; chronic neurological, renal or liver disease; diabetes mellitus, morbid obesity (BMI > 40). [1]

PHE or DH will advise when influenza is considered to be circulating in the community. To check the current situation, please log onto PHE.

Last updated: Dec 2019

Treat at risk patients when influenza is circulating in the community or in a care home where influenza is likely. [1] Treatment must be started within 48 hours of symptoms. [4]

Treatment: oseltamivir 75 mg BD for 5 days.

Prophylaxis: oseltamivir 75 mg OD for 10 days.

Reduced dose of oseltamivir is required if CrCl < 60 mL/minute.

With severe immunosuppression, treatment will be dependent on the main circulating strain. Please see advice from PHE.

Labyrinthitis

Antibiotics not indicated. [4]

Last updated: Dec 2019

Laryngitis, acute

Antibiotics not indicated. [4]

Last updated: Dec 2019

Otitis externa, acute

Caution: topical neomycin has been known to cause ototoxicity and must not be used if there is a suspicion of ear drum perforation.

If cellulitis or disease extends outside ear canal, or systemic signs of ear infection, start oral antibiotic and refer to exclude malignant otitis externa. [1, 4]

Laboratory diagnosis: not indicated unless there are signs of cellulitis.

Last updated: Dec 2019

First line: analgesia for pain relief and apply localised heat (such as a warm flannel). [1,2,3]

Second line: ^[OTC] acetic acid 2% (Ear Calm®) 1 spray TDS for 7 days [1,3,4]

Third line: topical neomycin sulphate with corticosteroid (Betnesol-N®, Otomize®, Otosporin®) 3 drops TDS (1 spray TDS for Otomize®) for 7 days. [1,2]

Tympanic membrane perforation: ciprofloxacin 2 mg/ml (Cetraxal®) ear drops 0.25 ml twice a day for 7 days (off-label use).

If cellulitis or extensive infection to outside of ear canal: flucloxacillin 500 mg QDS for 7 days. [4]

Penicillin allergy: clarithromycin 500 mg BD for 7 days. [4]

Otitis media, acute

Evidence does not support routine use of antibiotics. Consider back up prescription for antibiotics.

Acute otitis media (AOM) resolves in 60% of cases in 24 hours without antibiotics, which only reduce pain at 2 days (NNT 15) and do not prevent deafness. 80% of cases will resolve within 72 hours. [2,4]

Offer immediate antibiotic to:

- People who are systemically unwell but do not require admission.
- People at high risk of serious complications because of significant heart, lung, renal, liver or neuromuscular disease, immunosuppression or cystic fibrosis, and young children who were born prematurely. [4]

Depending on severity, consider offering immediate antibiotic prescription to:

- Children younger than 2 years of age with bilateral AOM. [1,2,4]
- Otorrhoea in all ages. [1,2,4]

Laboratory diagnosis: not routinely indicated.

[TARGET respiratory tract infection leaflet](#) [4]

[NICE acute otitis media 2-page visual summary](#) [4]

Last updated: Dec 2019

Optimise analgesia.

First line: amoxicillin 500 mg TDS for 5 days. [1,2,3,4]

Penicillin allergy: clarithromycin 500 mg BD for 5 days **or** erythromycin (preferred in pregnancy) 500 mg QDS for 5 days.

Second line: co-amoxiclav 500/125 mg TDS for 5 days. [1,2,3]

Parotid gland infection

Caution: suppurative parotitis is potentially life threatening. Most patients require initial IV antibiotic treatment.

Ensure patient is hydrated. [4]

Last updated: Dec 2019

If oral treatment is considered appropriate: flucloxacillin 1 g QDS for 14 days **and** metronidazole 400 mg TDS for 14 days.

Penicillin allergy: clindamycin 450 mg QDS for 14 days.

Perichondritis

Perichondritis confined to the pinna can be managed in primary care, but cellulitis spreading across the face needs referral to the local ENT unit and often results in admission for intravenous antibiotics due to the risk of haematogenous intracranial spread. [4]

Most frequent causative agent is *Pseudomonas aeruginosa*. Less frequently *Staphylococcus aureus* can also be involved.

Consider referring patient to ENT due to risk of complications such as abscess formation or necrosis. Often associated with ear piercing, foreign body has to be removed.

Last updated: Dec 2019

First line: ciprofloxacin 500 mg BD for 7 days.

In cases of cellulitis: refer and consider addition of flucloxacillin 500 mg QDS or clindamycin 300 mg QDS until ENT assessment.

Scarlet fever

Prompt treatment with appropriate antibiotics significantly reduces the risk of complications. Vulnerable individuals (immunocompromised, the comorbid, or those with skin disease) are at increased risk of developing complications. [1,4]

Notify the local Public Health England (PHE) centre once a working diagnosis of scarlet fever is made.

Last updated: Dec 2019

Optimise analgesia and give safety netting advice. [1]

First line: phenoxymethylpenicillin 500 mg QDS for 10 days. [1,4]

Penicillin allergy: clarithromycin 500 mg BD for 5 days [4].

Sinusitis, acute

Avoid antibiotics where possible as 80% of cases resolve in 14 days without, and they only offer marginal benefit after 7 days. [1,2,3]

Symptoms < 10 days: no antibiotic. [1,3,4]

Symptoms with no improvement > 10 days: no antibiotic or back up antibiotic if several of the following are present: discoloured or purulent nasal discharge, severe localised unilateral pain, fever or marked deterioration after initial milder phase.

Serious signs and symptoms: immediate antibiotic. [1,3,4]

Refer to hospital if signs and symptoms of acute sinusitis associated with any of the following:

- Severe systemic infection.
- Intraorbital or periorbital complications including periorbital oedema or cellulitis, a displaced eyeball, double vision, ophthalmoplegia, or newly reduced visual acuity.
- Intracranial complications including swelling over the frontal bone, symptoms or signs of meningitis, severe frontal headache or focal neurological signs. [4]

[TARGET respiratory tract infection leaflet](#) [4]

[NICE Sinusitis 2-page visual summary](#) [4]

Last updated: Dec 2019

First line: phenoxymethylpenicillin 500 mg QDS for 5 days. [1,4]

Penicillin allergy: doxycycline 200 mg on day 1, then 100 mg daily for 5 days in total [1,2,3,4] **or**

clarithromycin 500 mg BD for 5 days [1,4] **or**

erythromycin (preferred in pregnancy) 500 mg QDS or 1000 mg BD for 5 days. [1,4]

Second line (or first line if systemically very unwell or high risk of complications): co-amoxiclav 500/125 mg TDS for 5 days. [1,2,3,4]

Advise paracetamol or ibuprofen for pain.

Consider high-dose nasal corticosteroid (off-label use) [1,3,4]: mometasone 100 micrograms (2 sprays) into each nostril twice a day for at least one month depending on the disease course. [5]

Chronic sinusitis: antibiotics are not routinely indicated except for acute exacerbations. Complex cases managed by secondary care.

Sore throat, acute

Avoid antibiotics: 82% of cases resolve in seven days without, and pain is only reduced by 16 hours. [2, 3, 4]

Use FeverPAIN or Centor to assess symptoms:

FeverPAIN 0-1 or Centor 0-2: no antibiotic.

FeverPAIN 2-3: no or back-up antibiotic.

FeverPAIN 4-5 or Centor 3-4: immediate or back-up antibiotic. [1]

Systemically very unwell or high risk of complications: immediate antibiotic or refer to secondary care. [1]

Take a throat swab only in persistent or relapsed infections lasting 3-4 weeks. [CKS, 4]

[TARGET respiratory tract infection leaflet](#) [4]

[NICE sore throat 2-page visual summary](#) [4]

Last updated: Aug 2020

Consider self-care and safety netting or a back-up prescription. [4]

First choice: phenoxymethylpenicillin 500 mg QDS or 1000 mg BD for 10 days.

Severe symptoms: phenoxymethylpenicillin 1000 mg QDS for 10 days.

Penicillin allergy: clarithromycin 500 mg BD for 5 days **or** erythromycin (preferred in pregnancy) 500 mg QDS or 1000 mg BD for 5 days.

Lower respiratory tract infections

COPD, acute exacerbation

Many exacerbations are not caused by bacterial infections so will not respond to antibiotics. [1]

Treat exacerbations promptly with antibiotics if purulent sputum and increased shortness of breath, or increased sputum volume, or both. Risk factors for antibiotic resistant organisms include co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months.

Where a person is receiving a long-term antibiotic for prophylaxis, treatment should be with an antibiotic from a different class. [1]

Antibiotics are less effective if only one symptom present. [4]

Note: low doses of penicillins are more likely to lead to resistance. Do not use fluoroquinolones (ciprofloxacin, ofloxacin) first line because they may have long term side effects and there is poor pneumococcal activity. Reserve all fluoroquinolones (including levofloxacin) for proven resistant organisms. [1]

Laboratory testing: obtain sputum sample for culture wherever possible [2,4]. Review antibiotic choice with culture result.

[NICE COPD \(acute exacerbations\) 2-page visual summary](#) [4]

Last updated: Dec 2019

First line: amoxicillin 500mg TDS for 5 days **or** doxycycline 200 mg on day 1, then 100 mg daily for 5 days in total **or** clarithromycin 500mg BD for 5 days.

Second line: use alternative first choice. [1]

Alternative for people at higher risk of treatment failure: co-amoxiclav 500/125 mg TDS for 5 days **or** levofloxacin (consider safety issues) 500mg OD for 5 days [1] **or** *if unable to use any other antibiotic and only after discussion with a specialist,* co-trimoxazole 960mg BD for 5 days. [1]

Note: azithromycin may be recommended by a respiratory specialist for prevention of exacerbation of COPD. This recommended long-term use is for its immunomodulatory and lung remodelling properties and not its anti-infective action. [4]

Bronchiectasis (non-cystic fibrosis), acute exacerbation

Empirical antibiotics should be started if there is worsening cough, increased sputum volume, viscosity or purulence, or increased breathlessness while awaiting sputum microbiology. [2] If previous culture results are available, treat based on sensitivities.

People who may be at higher risk of treatment failure include people who've had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications. [1]

Where a person is receiving a long-term antibiotic, treatment should be with an antibiotic from a different class. [1] Do not routinely offer antibiotic prophylaxis to prevent exacerbations. [1] Seek specialist advice for preventing exacerbations in people with repeated acute exacerbations. [1]

Note: low doses of penicillins are more likely to lead to resistance. Do not use fluoroquinolones (ciprofloxacin, ofloxacin) first line because they may have long term side effects and there is poor pneumococcal activity. Reserve all fluoroquinolones (including levofloxacin) for proven resistant organisms. [1]

Laboratory diagnosis: send a sputum sample for culture and susceptibility testing. [1,2,4]

[NICE bronchiectasis \(non-CF\) 3-page visual summary](#) [4]

Last updated: Dec 2019

When current susceptibility data is available, choose antibiotics accordingly.

Select a course length based on severity of bronchiectasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment. [1]

First choice (empirical): amoxicillin (preferred in pregnancy) 500mg TDS for 7-14 days **or** doxycycline 200 mg on day 1, then 100 mg daily for 7-14 days in total **or** clarithromycin 500mg BD for 7-14 days.

Alternative (empirical) for people at higher risk of treatment failure: co-amoxiclav 500/125mg TDS for 7-14 days **or** levofloxacin (consider safety issues, off-label use) 500 mg OD or BD for 7-14 days.

Cough, acute

Acute cough with upper respiratory tract infection: no antibiotic. [1]

Acute bronchitis: no routine antibiotic. [1] Antibiotics of little benefit if there is no co morbidity. [2,3,4]

Acute cough and higher risk of complications (at face-to-face examination): immediate or back-up antibiotic. [1]

Acute cough and systemically very unwell (at face to face examination): immediate antibiotic. [1]

Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated. [1]

[TARGET respiratory tract infection leaflet](#) [4]

[NICE cough \(acute\) 2-page visual summary](#) [4]

Last updated: Dec 2019

First line: self-care and safety netting advice. Symptoms can last 3 weeks. [4]

First line antibiotic: doxycycline 200 mg on day 1, then 100 mg daily for 5 days in total. [1]

Alternative first line antibiotic: [1] amoxicillin (preferred in pregnancy) 500 mg TDS for 5 days **or** clarithromycin 500mg BD for 5 days **or** erythromycin (preferred in pregnancy) 500 mg QDS or 1000 mg BD for 5 days.

Pneumonia, aspiration [6]

Last updated: Dec 2019

First line: metronidazole 400mg TDS for 7 days **and** amoxicillin 500mg TDS for 7 days.

Penicillin allergy: clarithromycin 500 mg BD for 7 days and metronidazole 400 mg TDS for 7 days.

Pneumonia, community-acquired

COVID-19 [Managing suspected or confirmed pneumonia in adults in the community](#) [NG165]

Assess severity in adults based on clinical judgement guided by mortality risk score (CRB65). [1]

- Low severity – CRB65 0 – suitable for home treatment.
- Moderate severity – CRB65 1 or 2 – consider hospital assessment.
- High severity – CRB65 3 or 4 – urgent hospital admission. If patient refuses, consider referral to Hospital@Home or contact microbiology.

CRB65 score is calculated by giving 1 point for each of the following prognostic features:

- Confusion (new onset).
- Respiratory rate ≥ 30 /min.
- BP systolic < 90 mmHg or diastolic ≤ 60 mmHg.
- Age ≥ 65 .

Alternative first choice antibiotics should be considered if the first choice antibiotic is unsuitable, for example, for penicillin allergy or an atypical pathogen is suspected.

Laboratory diagnosis: send sputum for culture and sensitivity if CRB > 2 and managed in the community.

[NICE pneumonia \(community acquired\) 3-page visual summary](#) [4]

Last updated: Aug 2020

Review antibiotic treatment after 5 days with the aim to stop. If slow clinical response, consider extending the course length. If clinical deterioration, consider hospital admission.

Low severity, first choice: amoxicillin 500 mg TDS for 5 days (higher doses can be used, see [BNF](#)).

Low severity, alternative first choice: doxycycline 200 mg on day 1, then 100 mg daily for 5 days in total **or** clarithromycin 500 mg BD for 5 days **or** erythromycin (preferred in pregnancy) 500 mg QDS for 5 days.

Moderate severity, first choice: amoxicillin 500 mg TDS for 5 days (higher doses can be used, see BNF) **and** either clarithromycin 500 mg BD for 5 days or erythromycin (preferred in pregnancy) 500 mg QDS for 5 days.

Moderate severity, alternative first choice: doxycycline 200 mg on day 1, then 100 mg daily for 5 days in total **or** clarithromycin 500 mg BD for 5 days.

Tuberculosis

TB care should be provided directly by an infectious diseases or respiratory physician with experience in managing the disease. TB medications are dispensed by TB specialist doctors and nurses from community and hospital clinics. TB medications are not routinely prescribed or dispensed by other primary care providers. In the occasional circumstances where this is required, arrangements can be made in partnership with the TB clinical and specialist nursing team.

Important: TB drugs have many recognised drug interactions, side effects, and cautions. This is particularly important when the TB drugs are not prescribed or dispensed in primary care, as the drugs may not be recorded in the GP clinical system or pharmacy patient medication records and so alerts may not be issued.

TB drugs are occasionally used for other non-TB indications.

Laboratory diagnosis: if TB or mycobacterium suspected, send 3 early morning sputum samples for AFB testing.

Last updated: Dec 2019

Discuss with specialist.

Whooping cough

Note: confirmed cases of pertussis should be notified to Public Health England, but treatment should be commenced as soon as possible and not withheld until advice is sought.

Laboratory testing

< 2 weeks from symptom onset, throat, pernasal, or nasopharyngeal swab for PCR **and** culture.

Between 2 and 3 weeks from symptom onset, throat, pernasal or nasopharyngeal swab for PCR **and** culture. Serology may also be sent.

> 3 weeks from symptom onset, serology (or oral fluid kit for children aged 2-17 years – discuss with local health protection team).

Last updated: Dec 2019

Treatment should be given to:

- any person in whom the clinician suspects pertussis infection or
- any person with an acute cough lasting for ≥ 14 days without an apparent cause plus one or more of the following:
 - paroxysms of coughing,
 - post-tussive vomiting,
 - inspiratory whoop.

First line: clarithromycin 500 mg BD for 7 days.

Macrolide allergy: co-trimoxazole (not in pregnancy) 960 mg BD for 7 days.

Urinary tract infections

Lower urinary tract infection

Non-pregnant women with uncomplicated lower UTI

Consider offering a back-up (delayed) antibiotic prescription for low severity symptoms and low risk of complications.

[TARGET UTI leaflet](#)

[NICE UTI \(lower\) 3-page visual summary](#) [4]

Last updated: Dec 2019

First line: *if eGFR \geq 45 ml/minute*, nitrofurantoin 100 mg MR BD for 3 days **or** *if there is low risk of resistance*, trimethoprim 200 mg BD for 3 days.

Alternative: *if not used 1st line*, nitrofurantoin 100 mg MR BD for 3 days (if eGFR \geq 45 ml/minute) **or** pivmecillinam 400 mg STAT then 200 mg TDS for a total of 3 days **or** fosfomycin 3 g single dose sachet.

Trimethoprim resistance and a liquid formulation is required: cefalexin 500 mg TDS for 3 days.

Non-pregnant women with complicated lower UTI

UTI may be complicated due to an abnormal genitourinary tract or impaired host defences:

- Stent or splint (urethral, ureteral, renal) or nephrostomy.
- Post-void residual urine of > 100 ml.
- An obstructive uropathy of any aetiology (upper and lower urinary tracts), e.g., bladder outlet obstruction (including neurogenic urinary bladder), stones and tumour.
- Vesicoureteric reflux or other functional abnormalities.
- Urinary tract modifications/deviation, such as an ileal loop or pouch.
- Chemical or radiation injuries of the uroepithelium.
- Peri- and postoperative UTI, including renal transplantation.
- Poorly controlled diabetes.
- Immunosuppression.

[TARGET UTI leaflet](#)

[NICE UTI \(lower\) 3-page visual summary](#) [4]

Last updated: Dec 2019

First line: cefalexin 500 mg TDS 7 days.

Alternative: *with culture results and susceptibility*, co-amoxiclav 500/125 mg TDS for 7 days **or** *with culture results and susceptibility*, trimethoprim 200 mg BD for 14 days **or** ciprofloxacin 500 mg BD 7 days.

Pregnant women with symptomatic lower UTI

Send urine for culture and review antibiotic choice with results; change antibiotic if bacteria are resistant regardless of treatment response.

[TARGET UTI leaflet](#)

[NICE UTI \(lower\) 3-page visual summary](#) [4]

Last updated: Dec 2019

First line: *avoid at term*, * nitrofurantoin 100 mg MR BD for 7 days (if eGFR \geq 45 ml/minute).

* May cause neonatal haemolysis. Avoid from 37 weeks of pregnancy.

Alternative: *with culture results and susceptibility*, amoxicillin 500 mg TDS for 7 days **or** *if eGFR < 45 ml/min and non-severe penicillin allergy*, cefalexin 500 mg TDS for 7 days.

Pregnant women with asymptomatic bacteriuria

Screen for bacteriuria.

Confirm clearance of infection 7 days after completing treatment and request a follow-up MSU at each antenatal clinic appointment.

[NICE UTI \(lower\) 3-page visual summary](#) [4]

Last updated: Dec 2019

Based on culture results and susceptible bacteria

*Avoid at term, * nitrofurantoin 100 mg MR BD for 7 days (if eGFR \geq 45 ml/minute)*

or

amoxicillin 500 mg TDS for 7 days **or**

non-severe penicillin allergy, cefalexin 500 mg TDS for 7 days.

* May cause neonatal haemolysis. Avoid from 37 weeks of pregnancy.

Adult men with lower UTI

Send MSU for culture and susceptibility testing. Consider urology referral to screen out an underlying cause.

Consider alternative diagnoses including pyelonephritis or acute prostatitis if not responded to first choice antibiotic.

[NICE UTI \(lower\) 3-page visual summary](#) [4]

Last updated: Dec 2019

First line: *if eGFR \geq 45 ml/minute*, nitrofurantoin 100 mg MR BD for 7 days **or** trimethoprim 200 mg BD for 7 days.

Alternative with culture results and susceptibility: pivmecillinam 400 mg STAT then 200 mg TDS for a total of 7 days **or**

non-severe penicillin allergy, cefalexin 500 mg TDS for 7 days.

Pyelonephritis (upper urinary tract), acute

Refer to hospital patients with severe systemic infection. Consider referring those who are: dehydrated or unable to take oral fluids; pregnant; at risk of complicated UTI.

[NICE pyelonephritis 3-page visual summary](#)

Last updated: Aug 2020

First line: cefalexin 500 mg TDS for 7 days **or**

with culture results and susceptibility, co-amoxiclav 500/125 mg TDS for 7 days **or**

with culture results and susceptibility, trimethoprim 200 mg BD 14 days **or**

ciprofloxacin 500 mg BD for 7 days.

In pregnancy: low threshold for hospitalisation, cefalexin 500 mg TDS for 7 days.

Prostatitis, acute

Refer severe systemic infection (any of the high-risk criteria from the NICE guideline on sepsis), or complications, such as acute urinary retention or suspected prostatic abscess, or symptoms that are not improving 48 hours after starting the antibiotic.

Review antibiotic treatment after 14 days and either stop or continue for a further 14 days if needed based on history, examination findings, urine or blood tests.

If antibiotic choices are not suitable, discuss alternative options with a local microbiologist. Ofloxacin may be preferable if a sexually transmitted infection is suspected.

[NICE prostatitis 2-page visual summary](#)

Last updated: Dec 2019

First line: ciprofloxacin 500 mg BD for 14 days then review **or** ofloxacin 200 mg BD for 14 days then review.

Alternative: *with culture results and susceptibility*, trimethoprim 200 mg BD for 14 days then review **or** *only after discussion with a specialist*, co-trimoxazole 960 mg BD for 14 days then review.

Catheter-associated urinary tract infection

Definition of catheter associated UTI

At least **two of the following** with no other recognised cause **or** at least **one of the following and a positive urine culture** and no other recognised cause: fever ($> 38^{\circ}\text{C}$); suprapubic tenderness; altered mental status; malaise; lethargy; tenderness over the kidneys; pelvic pain; acute haematuria.

There is a high incidence of bacteriuria with long-term catheters. Antibiotics do not eliminate bacteria but leads to resistant organisms. Send urine culture and treat only if bacteriuria is associated with systemic symptoms (e.g. pyrexia, rigor) or pyelonephritis is likely.

Do not dipstick catheter urine.

Do not use the presence or absence of odorous or cloudy urine alone to differentiate catheter-associated asymptomatic bacteriuria from catheter associated UTI.

Do not use pyuria as an indicator for catheter associated UTI.

Refer patients with severe systemic infection to hospital. Consider referring those who are dehydrated or unable to take oral fluids, pregnant, at risk of complicated UTI, or suffering recurrent catheter associated UTIs.

Do not use prophylactic antibiotics for catheter changes unless there is a history of catheter change associated UTI or trauma.

Nitrofurantoin is not suitable and unlikely to be effective if there is clinical suspicion of upper UTI – treat with antibiotics used for pyelonephritis.

Laboratory diagnosis: intermittent self-catheterisation specimens should be labelled as “MSU”.

[NICE catheter-associated UTI 2-page visual summary](#)

Last updated: Dec 2019

Supportive measures

- Check that the catheter drains correctly and is not blocked.
- If the catheter has been in place for > 7 days, consider changing it before or when starting antibiotic treatment.
- Ensure high fluid intake or when this cannot be assured perform regular bladder washout using 0.9% saline.
- Review the need for continued catheterisation.

First line: *no clinical suspicion of upper UTI*, nitrofurantoin 100 mg MR BD for 7 days (if $\text{eGFR} \geq 45$ ml/minute) **or**

if there is low risk of resistance, trimethoprim 200 mg BD for 7 days **or** *with culture results and susceptibility*, amoxicillin 500 mg TDS for 7 days.

Alternative: pivmecillinam 400 mg STAT then 200 mg TDS for a total of 7 days.

Suspected upper UTI: follow antibiotic choices as pyelonephritis.

In pregnancy: cefalexin 500 mg TDS for 7 days.

Recurrent urinary tract infection

Recurrent UTI is two proven UTIs in six months or three in 12 months.

Consider urology referral to screen out an underlying cause.

Use single dose prophylaxis only where there is a well-defined trigger. Confirm eradication of previous uropathogen by a negative culture before starting long term prophylaxis.

Consider the risk of pulmonary, hepatic and neurological toxicity. Perform baseline spirometry, LFT and renal function tests before prescribing long-term nitrofurantoin.

Amoxicillin has higher resistance rates and is not licensed for preventing UTIs.

[NICE recurrent UTI 2-page visual summary](#)

Last updated: Aug 2020

Give advice on behavioural and personal hygiene measures and self-care to reduce the risk of UTI before considering prophylaxis.

Choose from these agents based on previous sensitivities.

If behavioural or self-care measure fail: if $eGFR \geq 45$ ml/minute, nitrofurantoin 100 mg single dose when exposed to a trigger or 100 mg at night **or** trimethoprim 200 mg single dose when exposed to a trigger or 100 mg at night.

Alternative: amoxicillin 500 mg single dose when exposed to a trigger or 250 mg at night (unlicensed) **or** cefalexin 500 mg single dose when exposed to a trigger or 125 mg at night.

Review at three months and stop at six months.

Meningitis

Suspected meningococcal disease [15]

Give intramuscular injection only if venous access cannot be found.

Last updated: Jul 2021

Arrange emergency medical transfer to hospital by telephoning 999.

Administer a single dose of parenteral benzylpenicillin (intravenously or intramuscularly) at the earliest opportunity, but do not delay urgent transfer to hospital.

Adults: IV or IM benzylpenicillin 1.2 g STAT

Withhold benzylpenicillin if the person has a clear history of penicillin anaphylaxis (a history of a rash following penicillin is not a contraindication).

Prevention of secondary case of meningitis

Only prescribe following advice from Public Health Doctor. To contact PHE North West Health Protection Team Cheshire and Merseyside phone 0344 225 0562 option 1.

Expert advice is available for managing clusters of meningitis. Please alert the appropriate organisation to any cluster situation.

Out of hours Public Health England phone 0151 434 4819 ask for public health on call.

Last updated: Dec 2019

Gastrointestinal tract infections

Candidiasis, oral

Oral candidiasis is rare in immunocompetent adults. Consider undiagnosed risk factors, including HIV. Consider offering testing for HIV in unexplained or severe or recurrent cases.

Topical azoles are more effective than topical nystatin. Topical treatments should not be swallowed immediately but kept in the mouth as long as possible.

Check carefully for drug interactions with both miconazole oral gel and fluconazole.

Laboratory testing: mouth swabs only indicated in severe or recurrent infection.

Last updated: Dec 2019

First choice: miconazole 20 mg/g oral gel 2.5ml QDS for 7 days. Continue for 7 days after symptoms have cleared.

If not tolerated: nystatin 100,000 units/ml suspension 1 ml QDS (half in each side) for 7 days. Continue for 2 days after symptoms have cleared.

Severe or extensive candidiasis: fluconazole capsules 50 mg OD for 7 days. For persistent infection continue for a further 7 days.

HIV, immunocompromised or unusually difficult infection: fluconazole capsules 100 mg OD for 7 days. For persistent infection continue for a further 7 days.

Cholecystitis, acute

Caution: hospital admission is usually recommended as serious complications can occur.

Last updated: Dec 2019

Provide symptomatic relief prior to admission. [4]

Only if treatment in the community is appropriate

First choice: co-amoxiclav 500/125 mg TDS for 7 days.

Penicillin allergy: ciprofloxacin 500 mg BD for 7 days **and** metronidazole 400 mg TDS for 7 days.

Diverticulitis, exacerbations

Treatment of uncomplicated diverticulitis includes a low residue diet and bowel rest. [2] Antibacterial drugs are recommended only when the patient presents with signs of infection or is immunocompromised; there is no evidence to support routine administration. [2]

Consider admission for severe cases. [4] Review within 48 hours or sooner if symptoms deteriorate. Arrange admission if symptoms persist or deteriorate. [4]

Laboratory testing: stool specimen only if infectious complication suspected to exclude bacterial gastroenteritis.

[NICE diverticular disease 2-page visual summary](#)

Last updated: Dec 2019

Suspected infection or immunocompromised: co-amoxiclav 500/125 mg TDS for 5 days. [12]

Non-severe penicillin allergy: cefalexin 500 mg TDS for 5 days **and** metronidazole 400 mg TDS for 5 days. [12]

Severe penicillin allergy: ciprofloxacin 500 mg BD for 5 days **and** metronidazole 400 mg TDS for 5 days.

Helicobacter pylori

Always test for *H. pylori* using stool antigen testing before giving antibiotics. [1]
Treat all positives if known duodenal ulcer, gastric ulcer, or low grade MALToma. [1,2]

Do not offer eradication for gastro-oesophageal reflux disease. [1,2]

Do not use clarithromycin, metronidazole or a fluoroquinolone if used in the past year for any infection. [1,2,4]

Retest for *H. pylori* using a breath or stool test post duodenal ulcer, post gastric ulcer, or relapse after second line therapy. Consider referral for endoscopy and culture. [1,2]

Laboratory testing: stool antigen testing.

Last updated: Dec 2019

Always use a PPI. [1,2] Always treat for 7 days or MALToma for 14 days. [1,2,4]

First line: PPI BD **and**
amoxicillin 1000 mg BD **and**
either clarithromycin 500 mg BD or metronidazole 400 mg BD.

Penicillin allergy: PPI BD **and**
clarithromycin 500 mg BD **and**
metronidazole 400 mg BD.

Penicillin allergy and previous clarithromycin: PPI BD **and**
bismuth subsalicylate 525 mg QDS (use Pepto-Bismol chewable tablets 2 QDS) **and**
metronidazole 400 mg BD **and**
tetracycline 500 mg QDS.

Second line: PPI BD **and**
amoxicillin 1000 mg BD **and**
either clarithromycin 500 mg BD or metronidazole 400 mg BD (whichever was not used first line).

Previous clarithromycin and metronidazole: PPI BD **and**
amoxicillin 1000 mg BD **and**
tetracycline 500 mg QDS (or, if tetracycline cannot be used, levofloxacin 250 mg BD).

Penicillin allergy and no previous fluoroquinolone: PPI BD **and**
metronidazole 400 mg BD **and**
levofloxacin 250 mg BD.

Penicillin allergy and previous fluoroquinolone: PPI BD **and**
bismuth subsalicylate 525 mg QDS (use Pepto-Bismol chewable tablets 2 QDS) **and**
metronidazole 400 mg BD **and**
tetracycline 500 mg QDS.

Infectious diarrhoea

Campylobacter

Notifiable to Public Health England. [4] Antibiotic therapy is not usually indicated unless patient is systemically unwell. [1]

Consider antibiotics in patients with:

- Severe symptoms (high fever, bloody diarrhoea, > 8 stools/day).
- Immunocompromise.
- Worsening symptoms.
- Symptoms lasting longer than 7 days.

If the symptoms are severe or prolonged, take advice from the consultant gastroenterologist or consultant microbiologist. [3]

Last updated: Dec 2019

Encourage fluid intake. Consider oral rehydration salt solution for adults at increased risk of a poor outcome. [8]

If antibiotic treatment is considered appropriate: clarithromycin 250-500 mg BD for 7 days.

Clostridioides difficile

Risk assess the requirement for antibiotics, PPIs, and anti-peristaltic agents. Discontinue use where possible. [1,2,3,4]

Definition of severe: temperature > 38.5 °C, white cell count > 15 x 10⁹ /L, rising creatinine, or signs and symptoms of severe colitis.

For people with swallowing difficulties: vancomycin powder is licensed for oral use and can be used to prepare a solution for oral or enteral use. Reconstitute one 500 mg vial with 10 ml of water for injection. Write the date and time on a label and attach label to the reconstituted vial. Withdraw 2.5 ml (125 mg) from the reconstituted vial and mix in 30 ml of water. Store remaining reconstituted vial in fridge. Discard after 24 hours. One 500 mg vial provides four 125 mg doses (one day's treatment).

Laboratory testing: stool specimen for *C. difficile* toxin detection. If toxin is not detected but there is evidence of a toxigenic strain of *C. difficile* (reported with a comment that it's a "potential toxin producer"), treatment for infection should be commenced only if no other likely cause for the patient's diarrhoea.

Last updated: Aug 2020

First episode and not severe: oral vancomycin 125 mg QDS for 10 days.

Second episode or severe first episode (or known type 027): oral vancomycin 125 mg QDS for 10 days. [1,2,3,4]

Following a discussion with a gastroenterologist or microbiologist: oral vancomycin may be titrated up to 500 mg QDS.

More than two episodes or deteriorating clinically: contact consultant microbiologist for advice on the possible use of fidaxomicin. Refer to [BNF Fidaxomicin](#) for dosing information.

Diarrhoea or gastroenteritis

Food poisoning is notifiable to Public Health England. [4] Usually viral and self-limiting. [4] Antibiotics only tend to prolong the carrier state, do not shorten the duration of illness and may be contraindicated.

Laboratory testing, send a stool specimen if:

- Patient is systemically unwell.
- There is blood or pus in the stool. **Sample essential.**
- Patient is immunocompromised.
- History of recent hospitalization or antibiotic treatment or both.
- Recent foreign travel to anywhere other than Western Europe, North America, Australia, or New Zealand.
- Persistent diarrhoea and giardiasis are suspected.
- There is uncertainty about the diagnosis of gastroenteritis.
- Advised by Public Health England.

Last updated: Dec 2019

Encourage fluid intake. Consider oral rehydration salt solution for those at increased risk of a poor outcome. [2,8]

Antimotility agents (e.g. loperamide) should only be considered for short term management of symptoms (1-2 days) in the absence of fever or bloody diarrhoea. [4]

Review and stop any prokinetic treatment. [4]

Giardiasis

Consider 'blind' treatment of family contacts only if they are symptomatic. [4]

Last updated: Dec 2019

Encourage fluid intake. Consider oral rehydration salt solution for adults at increased risk of a poor outcome. [8]

Suspected or confirmed giardia: metronidazole 2 g OD for 3 days or 400 mg TDS for 5 days. [1]

Salmonella

Notifiable to Public Health England. [4] For most cases antibiotic treatment is not indicated. [2,4]

If systemically unwell, immunocompromised, or prosthetic vascular grafts seek microbiology advice. [2,4] If they are a food handler seek Public Health England advice. [2]

Laboratory testing: stool specimen. Please indicate if patient has had recent travel.

Last updated: Dec 2019

Encourage fluid intake. Consider oral rehydration salt solution for adults at increased risk of a poor outcome. [8]

Threadworm

Washing hands and scrubbing nails before eating and after visiting the toilet are essential. A bath in the morning removes ova laid overnight.

Treat all household contacts at the same time and advise hygiene measures for two weeks:

- hand hygiene; pants at night; morning shower, including perianal area and
- wash sleepwear, bed linen, and dust, vacuum on day one. [1,2,4]

Laboratory diagnosis: laboratory confirmation not usually indicated. Discuss with local microbiology laboratory if required.

Last updated: Dec 2019

First line: mebendazole 100 mg STAT 1 dose. Repeat in 2 weeks if persistent. [1,2,4]

In pregnancy (at least in the first trimester): only hygiene measures for 6 weeks. [1]

Traveller's diarrhoea

Standby treatment for traveller's diarrhoea must not be prescribed at NHS expense. [2,4] Consider standby antimicrobial only for patients at high risk of severe illness or visiting high-risk areas. [1,2]

Prophylaxis is rarely, if ever, indicated. [1]

Laboratory testing: stool specimen.

Last updated: Dec 2019

Standby (private prescription only): azithromycin 500 mg OD for 3 days. [1]

Prophylaxis or treatment: bismuth subsalicylate 525 mg QDS for 2 days (use Pepto Bismol chewable tablets 2 QDS).

Suspected dental infections in primary care (outside dental settings)

Non-dental primary care prescribers are not licensed and are not indemnified to treat suspected dental infections

Patients presenting to non-dental primary care services with dental problems should be directed to their regular dentist or, if this is not possible, to the NHS 111 service (in England) who will be able to provide details of how to access emergency dental care. In Cheshire and Merseyside there is also an emergency dental helpline (0161 476 9651) which operates from 9.00 am to 9.30 pm every day including weekends and Bank Holidays.

Note: antibiotics do not cure toothache. First line treatment is with paracetamol or ibuprofen, or both. Codeine has no proven efficacy for toothache.

[PHE \(2019\). Patient information leaflet: antibiotics don't cure toothache.](#)

Abscess, dental

Antibiotics are not appropriate in cases where the infection is localised to the peri-radicular tissues as this indicates that the infection is being adequately managed by the immune system. In these cases, the abscess is mostly isolated from the circulation, resulting in very little antibiotic penetration.

Regular analgesia dosed appropriately should be advised until a dentist can be seen for urgent drainage.

Antibiotics are only required if immediate drainage is not achieved using local measures or in cases of spreading infection (swelling, cellulitis, lymph node involvement) or systemic involvement (fever, malaise) or a high risk of complications.

Patients with severe odontogenic infections (cellulitis, plus signs of sepsis; difficulty in swallowing; impending airway obstruction) should be referred urgently for hospital admission to protect airway, for surgical drainage and for IV antibiotics.

Last updated: Dec 2019

If antibiotics are indicated: amoxicillin 500 mg TDS for up to 5 days. Review at 3 days. Doses can be doubled in severe infection.

Penicillin allergy: clarithromycin 500 mg BD for up to 5 days. Review at 3 days.

If spreading infection (lymph node involvement or systemic signs, that is, fever or malaise): add metronidazole 400 mg TDS for up to 5 days, review at 3 days.

Mucosal ulceration and inflammation (simple gingivitis)

There are no indications for the prescribing of systemic antimicrobials for the management of gingivitis.

The primary cause for mucosal ulceration or inflammation (aphthous ulcers; oral lichen planus; herpes simplex infection; oral cancer) needs to be evaluated and treated.

Superficial infections of the mouth are often helped by warm mouthwashes which have a mechanical cleansing effect and cause some local hyperaemia. However, to be effective, they must be used frequently and vigorously.

Last updated: Dec 2019

First line: simple saline mouthwash PRN (half a teaspoon of salt dissolved in a glass of warm water) **or**

chlorhexidine gluconate 0.2% mouthwash, rinse or gargle with 10ml BD for 1 minute (do not use within 30 minutes of toothpaste) **or**

hydrogen peroxide 6% solution, dilute 15 ml in half a glass of warm water and rinse or gargle 2-3 times a day for 2-3 minutes.

Always spit out mouthwashes after use. Use until lesions resolve or less pain allows for oral hygiene. Reversible discoloration of teeth and tongue may occur with chlorhexidine mouthwash.

Necrotising ulcerative gingivitis, acute

Refer to dentist for scaling and hygiene advice.

Prescribe a mouthwash for plaque control.

Only commence metronidazole if there are systemic signs and symptoms.

Last updated: Dec 2019

First line: chlorhexidine gluconate 0.2% mouthwash, rinse or gargle with 10 ml BD for 1 minute (do not use within 30 minutes of toothpaste) **or**

hydrogen peroxide 6% solution, dilute 15ml in half a glass of warm water and rinse or gargle 2-3 times a day for 2-3 minutes.

Always spit out mouthwashes after use. Use until pain allows for oral hygiene. Reversible discoloration of teeth and tongue may occur with Chlorhexidine Mouthwash.

If antibiotics are indicated: metronidazole 400 mg TDS for 3 days.

Pericoronitis (soft tissues surrounding the crown of a partially erupted tooth)

Refer to dentist for irrigation and debridement.

Use antiseptic mouthwash if pain and trismus limit oral hygiene.

If severe local swelling, systemic symptoms or trismus, prescribe antibiotics.

Last updated: Dec 2019

First line: chlorhexidine gluconate 0.2% mouthwash, rinse or gargle with 10 ml BD for 1 minute (do not use within 30 minutes of toothpaste) **or**

hydrogen peroxide 6% solution, dilute 15 ml in half a glass of warm water and rinse or gargle 2-3 times a day for 2-3 minutes.

Always spit mouthwashes out after use. Use until pain allows for oral hygiene.

If antibiotics are indicated: metronidazole 400 mg TDS for 3 days **or** *if metronidazole can't be used*, amoxicillin 500 mg TDS for 3 days.

Prophylaxis against endocarditis

Antibiotic prophylaxis against infective endocarditis is not recommended routinely for people undergoing dental procedures. (NICE CG64, SDCEP, FGDP).

Chlorhexidine mouthwash should not be offered as prophylaxis against infective endocarditis to people at risk of infective endocarditis undergoing dental procedures.

Any episodes of infection in people at risk of infective endocarditis should be investigated and treated promptly to reduce the risk of endocarditis developing. [NICE CG64]

SDCEP (2018). [Antibiotic Prophylaxis Against Infective Endocarditis](#).

Last updated: Dec 2019

The vast majority of patients at increased risk of infective endocarditis will not be prescribed prophylaxis as per NICE CG64. However, for a very small number of patients, it may be prudent to consider antibiotic prophylaxis (non-routine management), in consultation with the patient and their cardiologist or cardiac surgeon.

Note: GPs would not routinely be involved in this decision or asked to prescribe. This responsibility lies with the dental practitioner.

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