



Antimicrobial Prescribing Primary care guidelines

December 2021

These guidelines are aimed for use by suitably trained healthcare professionals working within Bedfordshire, Luton and Milton Keynes primary care sector

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Introduction

Principles of treatment

1. These guidelines summary table are based on the best available evidence but use professional judgement and involve patients in management decisions.
2. These guidelines should not be used in isolation; it should be supported with patient information about safety netting, back-up antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. Materials are available on the RCGP **TARGET** website.
3. Prescribe an antibiotic only when there is likely to be clear clinical benefit, giving alternative, non-antibiotic self-care advice, where appropriate.
4. If person is systemically unwell with symptoms or signs of serious illness or is at high risk of complications: give immediate antibiotic. Always consider the possibility of sepsis and refer to hospital if severe systemic infection is suspected.
5. Use a lower threshold for antibiotics in immunocompromised, or in those with multiple morbidities; consider culture/specimens and seek advice.
6. In severe infection, or immunocompromised, it is important to initiate antibiotics as soon as possible, particularly if **sepsis** is suspected. If patient is not at moderate to high risk for sepsis, give information about symptom monitoring, and how to access medical care if they are concerned.
7. Where an empirical therapy has failed, or special circumstances exist contact your local microbiologist for advice.
 - Luton and Dunstable Hospital: (01582) 497318 / 497319
 - Bedford Hospital: (01234) 795913
 - Milton Keynes Hospital: 01908 995 782/779
8. Use simple, generic antibiotics if possible. Avoid broad spectrum antibiotics (for example co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase the risk of *Clostridium difficile*, MRSA and resistant **UTIs**.
9. Avoid widespread use of topical antibiotics, especially if those agents also available systemically (for example fusidic acid); in most cases, topical use should be limited.
10. Always check for hypersensitivity and if patient is genuinely allergic to penicillin use the recommended alternative(s) listed.
11. A dose and duration of treatment for adults is usually suggested, but may need modification for age, weight, renal function, or if immunocompromised. In severe or recurrent cases, consider a larger dose or longer course. Children's doses are provided when appropriate but refer to the children's BNF for full information.
12. Avoid use of quinolones unless benefits outweigh the risk as new 2018 evidence indicates that they may be rarely associated with long lasting disabling neuromuscular and skeletal side effects.
13. Refer to the **BNF** for further dosing and interaction information (for example the macrolides).

Allergies

All patients should have an allergy history recorded including the date and nature of reaction where possible.

Penicillin allergy

Patients with a documented penicillin allergy should be reviewed to exclude a non-immunological adverse reaction, e.g. diarrhoea or vomiting.

All beta-lactams including Cephalosporins and Carbapenems should be avoided if the allergy history suggests angioedema (blistering or swelling,) bronchospasm, or urticaria (itchy rash) within minutes to hours after penicillin administration (type 1 hypersensitivity reaction), or a severe delayed reaction, e.g. serum sickness like reaction (vasculitic rash) drug rash with eosinophilia and systemic symptoms (DRESS) Stevens-Johnson syndrome / toxic epidermal necrolysis or if the allergy history is unclear.

Cephalosporins may be used with caution in other types of allergic reactions.

Co-trimoxazole – Co-trimoxazole contains trimethoprim and a sulphur-based product. Check for allergies to sulphur before prescribing.

Drug safety information

The following are a non-exhaustive list of recent MHRA alerts:

[Fluoroquinolone antibiotics: new restrictions and precautions for use due to very rare reports of disabling and potentially long-lasting or irreversible side effects - GOV.UK](#) March 2019

Among other recommendations, HCPs are advised to advise patients to stop treatment at the first signs of a serious adverse reactions, such as tendinitis or tendon rupture, muscle pain, muscle weakness, joint pain, joint swelling, peripheral neuropathy, and central nervous effects, and to contact their doctor immediately for further advice.

[Systemic and inhaled fluoroquinolones: small increased risk of aortic aneurysm and dissection; advice for prescribing in high-risk patients - GOV.UK](#) Nov 2018

Use after a careful risk-benefit assessment in patients at risk of aortic aneurysm and dissection.

[Systemic and inhaled fluoroquinolones: small risk of heart valve regurgitation; consider other therapeutic options first in patients at risk - GOV.UK](#) Dec 2020

[Erythromycin: caution required due to cardiac risks \(QT interval prolongation\); drug interaction with rivaroxaban - GOV.UK](#) Dec 2020

Erythromycin should not be given to patients with a history of QT interval prolongation or ventricular cardiac arrhythmia, including torsade de pointes, or patients with electrolyte disturbances.

Upper Respiratory Tract Infections

Acute Sore Throat

Advise paracetamol, or if preferred and suitable, ibuprofen for pain. Medicated lozenges may help pain in adults.

Sore throats caused by streptococcal bacteria are more likely to benefit from antibiotics. Use FeverPAIN tool to help identify the people in whom this is more likely:

Fever pain criteria (score 1 each)
• Fever (during previous 24 hours)
• Purulence (pus on tonsils)
• Attend rapidly (within 3 days after onset)
• Inflamed tonsils (severe)
• No cough / coryza

Interpretation of score	
0-1	No antibiotics
2-3	No / back up antibiotic
4-5	Immediate / back up antibiotic

For systemically unwell or high risk of complications: immediate antibiotic.

Always give **self-care advice** and **safety net**.

	Drug	Adult dose	Child dose	Duration
1 st line	Phenoxymethylpenicillin (penicillin V)	500mg QDS or 1g BD	BNF for Children	5-10 days*
2 nd line (penicillin allergy)	Clarithromycin OR	250 - 500mg BD	BNF for Children	5 days
	Erythromycin (in pregnancy)	250 - 500mg QDS or 500mg – 1g BD	BNF for Children	5 days

* 5 days for symptomatic cure, 10 days may increase the chance of microbiological cure.

Useful link: [NICE sore throat \(acute\): antimicrobial prescribing visual summary](#)

Influenza

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

Antivirals are not recommended for healthy adults.

Treat 'at risk' patients with **5 days oseltamivir 75mg BD**, when influenza is circulating in the community, and ideally within 48 hours of onset (36 hours for zanamivir treatment in children), or in a care home where influenza is likely.

In severe immunosuppression, or oseltamivir resistance, use zanamivir 10mg BD (2 inhalations twice daily by diskhaler for up to 10 days) and seek advice.

At risk: [pregnant](#) (and up to 2 weeks post-partum,) children under 6 months, adults ≥65 years, 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.)

See the [PHE Influenza](#) guidance for the treatment of patients under 13 years.

Scarlet fever

Scarlet fever is caused by *Streptococcus pyogenes*, or group A streptococcus (GAS). **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.

	Drug	Adult dose	Child dose	Duration
1 st line	Phenoxymethylpenicillin (Penicillin V)	500mg QDS	BNF for Children	10 days
2 nd line (penicillin allergy)	Clarithromycin	250-500mg BD	BNF for Children	5 days

Acute Otitis Media

Advise: acute otitis media lasts about 3 days but can last up to 1 week.
Manage symptoms with **self-care**. **Regular analgesia for pain and avoid antibiotics.**
(Those with otorrhea or those aged <2 years are most likely to benefit from antibiotics, as below.)

Presentation	Recommendation
Otorrhea or <2 years with bilateral infection	No, back-up or immediate antibiotic
Otherwise	No or back-up antibiotic
Systemically unwell / high risk of complications	Immediate antibiotic

Always give **self-care advice** and **safety net**.

	Drug	Child dose	Duration
1 st line	Amoxicillin	BNF for Children	5-7 days
2 nd line (due to penicillin allergy)	Clarithromycin OR	BNF for Children	(7 days for more severe / recurrent infection)
	Erythromycin (in pregnancy)	BNF for Children	
2 nd line (worsening symptoms on 1 st choice taken for at least 2-3 days)	Co-amoxiclav	BNF for Children	

Useful link: [NICE, Otitis media \(acute\): antimicrobial prescribing visual summary](#)

Acute Otitis Externa			
	Drug	Dose	Duration
1 st line	Avoid antibiotic. Analgesia, self-care advice and apply localised heat, eg. hot flannel.		
2 nd Line (OTC) for Adults & Children >12 yrs	Acetic acid (2%) (EarCalm®) spray OR	2 sprays TDS and after swimming / showering / bathing. Max. frequency every 2-3 hours.	7 days max. (Excessive use may result in fungal infection)
Adults & Children	Betametasone sodium phosphate 0.1% & neomycin sulphate 0.5% (Betnesol N ear, eye, nose drops)	2 – 3 drops TDS / QDS	7-14 days

If cellulitis or disease extending outside ear canal, or systemic signs of infection start treatment for cellulitis and refer to ENT to exclude malignant otitis externa.

Acute Sinusitis				
Self-care				
<ul style="list-style-type: none"> Consider paracetamol or ibuprofen for pain or fever Little evidence that nasal saline / nasal decongestants help but people may want to try 				
Sinusitis usually lasts 2-3 weeks. Antibiotics make little difference to how long symptoms last or the number of people whose symptoms improve.				
Presentation		Recommendation		
Symptoms ≤10 days		No antibiotic.		
Symptoms & no improvement for >10 days		No antibiotic or back-up depending on likelihood of bacterial cause*. Consider a high dose nasal corticosteroid (if ≥12years) (off-label use)		
Systemically unwell / high risk of complications		Immediate antibiotic		
Give safety net advice.				
*Bacterial cause may be more likely if several of the following are present: symptoms >10 days, discoloured or purulent nasal discharge, severe localised unilateral pain (particularly pain over the teeth and jaw,) fever, marked deterioration after an initial milder phase.				
	Drug	Adult dose	Child dose	Duration
1 st line	Phenoxymethylpenicillin (Penicillin V)	500mg QDS	BNF for Children	5 days
2 nd line (penicillin allergy)	Doxycycline (not for < 12 years or pregnancy) OR	200mg on first day, then 100mg OD	BNF for Children	
	Clarithromycin OR	500mg BD	BNF for Children	
	Erythromycin (in pregnancy)	250-500mg QDS or 500mg-1g BD	BNF for Children	
Alternative (or 1 st line if systemically very unwell or high risk of complications)	Co-amoxiclav	500/125 TDS	BNF for Children	
Useful link: NICE: Sinusitis (acute): antimicrobial prescribing visual summary				

Lower Respiratory Tract Infections

Acute cough

Acute coughs are usually self-limiting but can last up to 3 to 4 weeks. Usually caused by a viral uRTI, eg cold & flu. But may also be caused by bronchitis (LRTI) which may be viral or bacterial. NICE suggest:

uRTI, not systemically unwell or at higher risk of complications	No antibiotics
Acute bronchitis, not systemically unwell or at higher risk of complications	No antibiotics
Higher risk of complications at face-to-face examination	Back-up or immediate antibiotics
Systemically very unwell at face-to-face examination	Immediate antibiotics

Patients at higher risk of complications include:

- People with a pre-existing co-morbidity
- Young children born prematurely
- >80years and 1 of the following or >65 years with 2 of the following:
 - hospitalisation in the past year
 - taking oral steroids
 - type 1 or 2 diabetic
 - congestive heart failure

Counsel on **self-care** & provide **safety netting**

Patients may wish to try the following, with limited evidence:

Honey (over 1s,) the herbal medicine pelargonium (in over 12s,) OTC cough medicine containing the expectorant guaifenesin (in over 12s,) OTC cough medicines containing cough suppressants, except codeine (in over 12s.)

Do not offer a mucolytic, oral or inhaled bronchodilator, oral or inhaled corticosteroid unless otherwise indicated.

	Drug	Adult dose	Child dose	Duration
1st line (Adults) (Alternate 2 nd line choice in children)	Doxycycline (not to be used in children under 12 or pregnancy)	200mg on first day, then 100mg OD		5 days
1st line (Children) (Alternate 2 nd line in Adults)	Amoxicillin (preferred in pregnancy) OR	500mg TDS		
2 nd line (All)	OR Clarithromycin	250-500mg BD		
	Erythromycin (preferred in pregnancy)	250-500mg QDS or 500mg-1g BD		

Useful link: [NICE: Cough \(acute\): antimicrobial prescribing visual summary](#)

Acute exacerbation of bronchiectasis (non-cystic fibrosis)

An acute exacerbation of bronchiectasis is a sustained worsening of symptoms from a person's stable state.

1. Send a sputum sample for culture and susceptibility testing
2. Offer an antibiotic – take account of:
 - the severity of symptoms
 - previous sputum culture and susceptibility results (previous resistant or atypical bacteria are associated with a higher risk of treatment failure.)
 - previous exacerbations, hospitalisations and risk of complications.

Give oral first line if possible, (if IV required refer to hospital / local IV at home pathway if appropriate.) Course length is based on severity of bronchiectasis, exacerbation history, severity of symptoms, previous culture and susceptibility results, and response to treatment. Give safety net advice.

3. Review choice of antibiotic
 - Only change antibiotic according to susceptibility results if bacteria are resistant and symptoms are not already improving, use narrower spectrum antibiotics where possible
- Reassess at any time if symptoms worsen rapidly or significantly, taking account of:
 - Other possible diagnosis, eg pneumonia
 - Symptoms or signs of something more serious such as cardiorespiratory failure or sepsis
 - Previous antibiotic use, which may have led to resistant bacteria
- Seek specialist advice if:
 - Symptoms do not improve with repeated courses of antibiotics
 - Bacteria are resistant to oral antibiotics
- Do not routinely offer antibiotic prophylaxis to prevent exacerbations. Seek specialist advice for management of repeated exacerbations.

	Drug	Adult dose	Child dose	Duration
Be guided by recent culture and susceptibility where possible				
1 st line	Amoxicillin (preferred if pregnant) OR	500mg TDS		7-14 days
	Doxycycline (not to be used in children under 12 or pregnancy) OR	200mg on first day, then 100mg OD		
	Clarithromycin	500mg BD		
Alternative choice (if person at higher risk of treatment failure)*	Co-amoxiclav OR	500/125mg TDS		
	Levofloxacin (in adults on specialist advice, consider safety issues) OR	500mg OD or BD	-	
	Ciprofloxacin (in children, on specialist advice, consider safety issues.)	-		

*Higher risk of failure if: repeated courses of antibiotics, previous sputum culture with resistant or atypical bacteria, or have a higher risk of developing complications.

Useful link: [NICE Bronchiectasis \(acute exacerbation\): antimicrobial prescribing visual summary](#)

Chronic Obstructive Pulmonary Disease (COPD) Exacerbation

COPD is frequently exacerbated by causes other than bacteria. Consider an antibiotic **ONLY** after taking into account the severity of symptoms including:

- Sputum colour changes and increases in volume or thickness from usual
- Need for hospitalisation
- Previous exacerbations, hospitalisations and risk of complications
- Previous sputum culture and susceptibility results
- Risk of resistance with repeated courses

Consider that some patients may have antibiotic rescue packs at home as part of their exacerbation action plan.

Provide **safety netting** advice.

If sputum sample sent, **review antibiotic choice** based on the results.

	Drug	Adult dose	Duration
1 st line (Empirical treatment or be guided by recent sputum C&S)	Amoxicillin OR	500mg TDS (increased in severe infection to 1g TDS)	5 days
	Doxycycline OR	200mg on first day, then 100mg OD (see BNF for severe infection)	
	Clarithromycin	500mg BD	
2 nd line	Alternate first choice, as above.		
Alternative choice if patient at higher risk of treatment failure* (Be guided by susceptibilities where available)	Co-amoxiclav OR	500/125mg TDS	5 days
	Co-trimoxazole (only if susceptible, consider safety issues) OR	960mg BD	
	Levofloxacin (With specialist advice, consider safety issues)	500mg OD	

*Repeated courses of antibiotics / previous or current sputum culture with resistant bacteria / at higher risk of developing complications.

Useful link: [NICE: COPD \(acute exacerbation\): antimicrobial prescribing visual summary](#)

Covid-19

Antibiotics should not be used for preventing or treating COVID-19 unless there is clinical suspicion of additional bacterial co-infection.

Do not use azithromycin to treat COVID-19.

Do not offer an antibiotic for preventing secondary bacterial pneumonia in people with COVID-19.

If a person in the community has suspected or confirmed secondary bacterial pneumonia, start antibiotic treatment as soon as possible, see community acquired pneumonia for choices.

Community Acquired Pneumonia (CAP)

In **adults** use CRB65 score to guide mortality risk, place of care, and antibiotics.

Each CRB65 parameter scores one:

Confusion (AMT<8, or new disorientation in person, place or time)

Respiratory rate >30/min

BP systolic <90 or diastolic ≤ 60

Age > 65

Score 0 (low severity): suitable for home-based care and antibiotics

Score 1-2 (moderate severity): hospital assessment or admission

Score 3-4 (high severity): urgent hospital admission

In **children and young people** severity is based on clinical assessment.

Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected.) When choosing an antibiotic, take account of severity, risk of complications, local antimicrobial resistance and surveillance data, recent antibiotic use and microbiological results. Give **safety net** advice.

If respiratory sample sent, review antibiotic choice with result.

	Drug	Adult dose	Child dose	Duration
Adult low severity (CRB 65 = 0) or Children Non- severe				
1 st line	Amoxicillin	500mg TDS		5 days
2 nd line (penicillin allergy / atypical suspected)	Doxycycline (not for < 12 years or pregnancy) OR	200mg on first day, then 100mg OD		
	Clarithromycin OR	500mg BD		
	Erythromycin (in pregnancy)	500mg QDS		
Adult moderate severity (CRB65 = 1-2)				
1 st line	Amoxicillin PLUS (if atypical pathogen suspected)	500mg TDS (higher doses can be used, see BNF)	-	5 days
	Clarithromycin OR	500mg BD		
	Erythromycin (if pregnant)	500mg QDS		
2 nd line (penicillin allergy)	Doxycycline OR	200mg on first day, then 100mg OD		
	Clarithromycin	500mg BD		
Children severe				
1 st line (alternatively IV in hospital: details via the link below)	Co-amoxiclav PLUS (if atypical pathogen suspected)	-		5 days
	Clarithromycin OR	-		
	Erythromycin (in pregnancy)	-		
If adult severe oral choice needed refer to the link below.				
Useful link: NICE: Pneumonia (community-acquired): antimicrobial prescribing visual summary				

Urinary Tract infections

Lower UTI

Advise paracetamol or ibuprofen for pain and drinking enough fluid to avoid dehydration.

Antibiotic prescribing strategy

Non-pregnant women: Back up antibiotic (to use if no improvement in 48 hours or symptoms worsen at any time) or immediate antibiotic

Pregnant women, men, children or young people: Immediate antibiotic

When considering antibiotics, take account of:

- severity of symptoms
- previous urine C&S
- previous antibiotic use which may have led to resistant bacteria
- risk of complications
- local antimicrobial resistance data.

Send midstream urine for C&S for pregnant women and men.

For under 16s, send urine for C&S or dipstick in line with [NICE guideline on urinary tract infection in under 16s: diagnosis and management](#)

Guidance on the diagnosis of UTI in different patient groups produced by PHE is available at [Diagnosis of urinary tract infections - quick reference tool for primary care \(publishing.service.gov.uk\)](#)

If people have symptoms of pyelonephritis (such as fever) or a complicated UTI, refer to acute pyelonephritis for antibiotic choices.

Safety net / reassess at any time if symptoms worsen rapidly or significantly or do not improve in 48 hours of taking antibiotics. Send a urine sample if not already done so.

Asymptomatic bacteriuria: is significant levels of bacteria in urine with no UTI symptoms

- Screened for and treated in pregnant women because risk factor for pyelonephritis and premature delivery
- Not screened for or treated in non-pregnant women, men, children or young people

For detailed information see useful links below.

NON-PREGNANT WOMEN (over 16 years)

	Drug	Adult dose	Duration
1 st line	Nitrofurantoin (if eGFR ≥ 45 ml/min) (May be used with caution if eGFR 30-44ml/min to treat uncomplicated lower UTI caused by suspected or proven MDR bacteria and only if potential benefit outweighs risk) OR	100mg m/r BD (or 50mg QDS if unavailable)	3 days
	Pivmecillinam (a penicillin)	400mg initial dose, then 200mg TDS	
2 nd line (if no improvement in symptoms on 1 st line after ≥ 48 hours / 1 st line inappropriate)	Nitrofurantoin (if eGFR ≥ 45 ml/min) OR	100mg m/r BD (or 50mg QDS if unavailable)	3 days
	Pivmecillinam OR	400mg initial dose, then 200mg TDS	
	Trimethoprim – if low risk of resistance*	200mg BD	
	Fosfomycin	3g	Single dose

*A lower risk of resistance may be more likely if not used in the past 3 months, previous urine culture suggests susceptibility (but this was not used), and in younger people in areas where local epidemiology data suggest resistance is low. A higher risk of resistance may be more likely with recent use and in older people in residential facilities

Useful links: [NICE: UTI \(lower\): antimicrobial prescribing visual summary](#)

[PHE: urinary tract infection: diagnostic tools for primary care](#)

Lower UTI			
MEN (over 16 years)			
	Drug	Adult dose	Duration
1 st line	Nitrofurantoin (Avoid at term. Use if eGFR \geq 45ml/min)	100mg M/R BD (or 50mg QDS if unavailable)	7 days
2 nd line	Trimethoprim	200mg BD	
3 rd line	Consider alternative diagnoses and follow recommendations in the NICE antimicrobial prescribing guidelines on acute pyelonephritis or acute prostatitis, basing antibiotic choice on recent culture and susceptibility results.		
PREGNANT WOMEN (over 12 years)			
	Drug	Adult dose	Duration
1 st line	Nitrofurantoin (Avoid at term. Use if eGFR \geq 45ml/min)	100mg m/r BD (or 50mg QDS if unavailable)	7 days
2 nd line	Amoxicillin (only if culture results available and susceptible) OR	500mg TDS	
	Cefalexin	500mg BD	
Treatment of asymptomatic bacteriuria in pregnant women: choose from nitrofurantoin (avoid at term), amoxicillin or cefalexin based on recent culture and susceptibility results			
CHILDREN (\geq3 MONTHS) & YOUNG PEOPLE (under 16 years)			
Refer children <3months to paediatric specialist			
	Drug	Child dose	Duration
1 st line	Trimethoprim (if low risk of resistance) OR		3 days
	Nitrofurantoin (if eGFR \geq 45ml/min) Use tablets or capsules where possible, (cost pressure.)		
2 nd line (if worsening symptoms on 1 st line after \geq 48 hours / 1 st line inappropriate)	Nitrofurantoin (if eGFR \geq 45ml/min) (if not used 1 st) OR		
	Amoxicillin (only if culture results available and susceptible) OR		
	Cefalexin		
Useful links: NICE: UTI (lower): antimicrobial prescribing visual summary PHE: urinary tract infection: diagnostic tools for primary care NICE guideline on urinary tract infection in under 16s: diagnosis and management			

Catheter associated urinary tract infection

Antibiotic treatment is **not routinely needed for asymptomatic bacteriuria** in people with a urinary catheter. Most catheters are colonised with organisms therefore the use of urine dipsticks are not recommended routinely.

Offer an antibiotic to catheterised patients with symptoms suggestive of a UTI.

- Culture the urine as more drug resistant organisms are common in these patients.
- Consider **removing** or, if not possible, **changing the catheter** if it has been in place for more than 7 days.
- **But do not delay antibiotic treatment.**

Advise drinking enough fluids to avoid dehydration and self-care, paracetamol for pain.

When prescribing antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data.

Safety net: Seek medical help if symptoms worsen or do not start to improve within 48 hours.

Do not routinely offer antibiotic prophylaxis to people with a short-term or long-term catheter.

For detailed information click on the links below.

NON-PREGNANT WOMEN / MEN

	Drug	Adult dose	Duration
1 st line, if no upper UTI symptoms	Nitrofurantoin (if eGFR ≥45 ml/minute) OR	100mg m/r BD (or if unavailable 50mg QDS)	7 days
	Trimethoprim (if low risk of resistance*) OR	200mg BD	
	Amoxicillin (only if culture results available and susceptible)	500mg TDS	
2 nd choice if no upper UTI symptoms	Pivmecillinam	400mg initial dose, then 200mg TDS	
1 st choice if upper UTI symptoms (for 1 st line IV options refer to the visual summary – useful link)	Cefalexin OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7 to 10 days
	Co-amoxiclav (only if culture results available and susceptible) OR	500/125mg TDS	
	Trimethoprim (only if culture results available and susceptible) OR	200mg BD	14 days
	Ciprofloxacin (consider safety issues)	500mg BD	7 days

PREGNANT WOMEN

1 st line oral (for 2 nd line and 1 st line IV options refer to the visual summary – useful link)	Cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7 to 10 days
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*A lower risk of resistance may be more likely if not used in the past 3 months, previous urine culture suggests susceptibility (but this was not used), and in younger people in areas where local epidemiology data suggest resistance is low. A higher risk of resistance may be more likely with recent use and in older people in residential facilities

Useful links: [NICE: UTI \(catheter\): antimicrobial prescribing visual summary](#)
[PHE: urinary tract infection: diagnostic tools for primary care](#)

Catheter associated urinary tract infection

CHILDREN (≥3 MONTHS) & YOUNG PEOPLE

Refer children <3months to paediatric specialist

	Drug	Child dose	Duration
1 st line oral (for 1 st line IV options refer to the visual summary – useful link)	Trimethoprim (if low risk of resistance) OR	BNF for Children	7-10 days
	Amoxicillin (only if culture results available and susceptible) OR	BNF for Children	
	Cefalexin OR	BNF for Children	
	Co-amoxiclav (only if culture results available and susceptible)	BNF for Children	

Useful links: [NICE: UTI \(catheter\): antimicrobial prescribing visual summary](#)

[PHE: urinary tract infection: diagnostic tools for primary care](#)

Recurrent UTI

In non-pregnant women this is 2 UTIs in 6 months or ≥3 in a year.

First advise about behavioural and personal hygiene measures, hydration and self-care (with D-mannose or cranberry products) to reduce the risk of UTI.

For postmenopausal women, if no improvement, consider vaginal oestrogen (review within 12 months).

For non-pregnant women, if no improvement, consider single-dose antibiotic prophylaxis for exposure to a trigger, including post-coital (review within 6 months.)

For non-pregnant women (if no improvement or no identifiable trigger) or with **specialist advice for pregnant women, men, children or young people**, consider a trial of daily antibiotic prophylaxis (review within 6 months).

	Drug	Adult dose	Child dose	Duration
1 st line	Nitrofurantoin (avoid at term) – if eGFR ≥45ml/min OR	100mg single dose when exposed to trigger or 50 to 100mg at night.	BNF for Children	Review, with a view to stopping, at 6 months
	Trimethoprim (avoid in pregnancy)	200mg single dose when exposed to a trigger or 100mg at night	BNF for Children	
2 nd line	Amoxicillin OR	500mg single dose when exposed to a trigger or 250mg at night	BNF for Children	
	Cefalexin	500mg single dose when exposed to a trigger or 125mg at night	BNF for Children	

Useful links: [NICE: UTI \(recurrent\): antimicrobial prescribing visual summary](#)

[PHE: urinary tract infection: diagnostic tools for primary care](#)

[NICE guideline on urinary tract infection in under 16s: diagnosis and management](#)

Acute Pyelonephritis (upper urinary tract)

Send a midstream urine for culture and susceptibility testing.

Advise drinking enough fluid, paracetamol (+/- low-dose weak opioid) for pain for those over 12.
Offer an antibiotic.

When prescribing antibiotics, take account of severity of symptoms, risk of complications, previous urine culture and susceptibility results, previous antibiotic use which may have led to resistant bacteria and local antimicrobial resistance data.

If patient has had an ESBL organism cultured in the last 12 months, you may consider discussing with a Microbiologist for suitable antibiotic choice.

People at higher risk of complications include those with abnormalities of the genitourinary tract or underlying disease (such as diabetes or immunosuppression.)

Avoid antibiotics that don't achieve adequate levels in renal tissue, such as nitrofurantoin.

Safety net: Seek medical help if symptoms worsen or do not start to improve within 48 hours.

For detailed information see useful links below.

NON-PREGNANT WOMEN / MEN

	Drug	Adult dose	Duration
1 st line oral antibiotics (for 1 st line IV options refer to the visual summary – useful link)	Cefalexin OR	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7-10 days
	Co-amoxiclav (only if culture results available and susceptible) OR	500/125 TDS	
	Trimethoprim (only if culture results available and susceptible) OR	200mg BD	14 days
	Ciprofloxacin (consider safety issues)	500mg BD	7 days

PREGNANT WOMEN

1 st line oral (for 1 st line IV options refer to the visual summary – useful link)	Cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	7-10 days
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CHILDREN (≥3 MONTHS) & YOUNG PEOPLE

Refer children <3months to paediatric specialist

	Drug	Child dose	Duration
1 st line oral (for 1 st line IV options refer to the visual summary – useful link)	Cefalexin OR		7-10 days
	Co-amoxiclav (only if culture results available and susceptible)		

Useful links: [NICE: Pyelonephritis \(acute\): antimicrobial prescribing](#)

[PHE: urinary tract infection: diagnostic tools for primary care](#)

[NICE guideline on urinary tract infection in under 16s: diagnosis and management](#)

Acute Prostatitis

Advise paracetamol (+/- low-dose weak opioid) for pain, or ibuprofen if preferred and suitable.

Send a midstream urine sample for culture and susceptibility testing and offer an antibiotic.

Review results and adjust treatment as appropriate.

Review antibiotic treatment after 14 days and either stop antibiotics or continue for a further 14 days if needed (based on assessment of history, symptoms, clinical examination, urine and blood tests).

For detailed information click on the useful link below.

	Drug	Adult dose	Duration
1 st line. Be guided by susceptibilities when available.	Ciprofloxacin (consider safety issues) OR	500mg BD	14 days and then review
	Ofloxacin (consider safety issues) OR	200mg BD	
	Trimethoprim (if fluoroquinolone not appropriate; seek specialist advice)	200mg BD	
2 nd line (After discussion with a specialist)	levofloxacin (consider safety issues) OR	500mg OD	
	co-trimoxazole	960mg BD	

Useful link: [NICE: Prostatitis \(acute\): antimicrobial prescribing visual summary](#)

Gastrointestinal infections

Oral candidiasis				
Topical azoles are more effective than topical nystatin.				
Oral candidiasis is rare in immunocompetent adults, consider undiagnosed risk factors, including HIV.				
	Drug	Adult dose	Child dose	Duration
1 st line	Miconazole gel	2.5ml of 24mg/ml QDS (hold in mouth after food)		7 days. Continue for 7 days after resolution.
2 nd line (if not tolerated)	Nystatin suspension	1ml of 100,000units/ml QDS (half in each side)	As per adult	7 days. Continue for 2 days after resolved.
Alternative if extensive / severe	Fluconazole	50mg OD		7-14 days
Alternative if HIV / immunocompromised	Fluconazole	100mg OD		

Infectious Diarrhoea
Viruses account for the majority of cases. Both viral and bacterial infections are self-limiting .
Antibiotic therapy is not usually indicated unless patient is systemically unwell.
Possible bacterial pathogens include: campylobacter spp., shigella spp., salmonella spp., E coli O157.
Refer previously healthy children with acute painful or bloody diarrhoea, to exclude <i>E. coli</i> O157 infection
If systemically unwell and campylobacter suspected (such as undercooked meat and abdominal pain), consider clarithromycin 250mg to 500mg BD for 5 to 7 days, if treated early (within 3 days.)
Consider sending a stool specimen for bacterial culture: if diarrhoea is of prolonged duration, if there is a history of recent foreign travel or in cases of immunodeficiency.
Please notify suspected cases of food poisoning / infectious bloody diarrhoea to PHE.
If giardia is confirmed or suspected, tinidazole 2g single dose is the treatment of choice
Traveller's diarrhoea
Prophylaxis is rarely, if ever indicated. Consider standby antibiotics only for those visiting remote / high risk areas or people at high risk of severe illness. If appropriate use Azithromycin 500mg OD for 1-3 days, (private prescription as this is not treatment for a current condition.)
For prophylaxis or treatment consider bismuth subsalicylate (Pepto-Bismol) tablets, which are available OTC at a pharmacy, 2 tablets QDS for 2 days.

Clostridioides difficile infection

Take a stool sample and treat based on a positive result or pending the test result with a clinical suspicion.

Two tests are run: GDH antigen test and toxin test. Patients found to be GDH positive and toxin negative are carriers. (They may also require treatment if symptomatic.)

Do not take repeat stool samples following diagnosis or after treatment (C difficile can remain in the stools for long periods. When the patient is asymptomatic it is not significant.)

For children and young people, treatment should be started by, or after advice from, a microbiologist or paediatrician.

For adults, consider seeking specialist advice before starting treatment.

When commencing treatment:

Assess:

- Whether it is a first or further episode
- Severity of infection
- Individual risk factors for complications or recurrence, eg. age, frailty, or comorbidities.

Review:

- Any **existing antibiotics**: stop unless essential. If essential, consider changing to one with a lower risk of *C. difficile* infection.
- Any proton pump inhibitors, other medicines with gastrointestinal activity or adverse effects (such as laxatives) & medicines that may cause problems if people are dehydrated (such as NSAIDs & diuretics.)

Advise:

- Drinking enough fluids
- Good hygiene measures & environmental cleaning
- Safety netting if symptoms get worse.

Do not offer antimotility medicines such as loperamide.

Offer treatment as below. If antibiotics have been started for suspected *C. difficile* infection, and subsequent stool sample tests do not confirm infection, consider stopping these antibiotics.

	Drug	Adult dose	Duration
1 st line for 1 st episode of mild, moderate or severe	Vancomycin	125mg QDS	10 days
2 nd line	Discuss with microbiologist any patient not improving with Vancomycin.		
For further episode within 12 weeks of symptom resolution (relapse)	Fidaxomicin (Discuss first with a microbiologist)	200mg BD	10 days
For further episode >12 weeks after symptom resolution (recurrence)	Vancomycin	125mg QDS	

For any further advice discuss with a microbiologist.

Useful link: [NICE, Clostridioides difficile infection: antimicrobial prescribing visual summary](#)

Threadworm

Treat all household contacts at the same time. Advise hygiene measures for 2 weeks. (hand hygiene, pants at night, morning shower, including perianal area.) Wash sleepwear, bed linen and dust and vacuum. For child <6 months, add perianal wet wiping or washes 3 hourly.

	Drug	Adult dose	Child dose	Duration
Adult / Child >6 months	Mebendazole (available OTC for children > 2 years and adults)	100mg stat		1 dose. Repeat in 2 weeks if persistent
Child <6 months or pregnant women (at least 1 st trimester)	Hygiene measures only for 6 weeks.			

Acute diverticulitis

If systemically well:

- Consider no antibiotics. Simple analgesia & provide safety netting advice.

If systemically unwell / immunosuppressed / significant co-morbidity:

- Give oral antibiotics if patient does not meet the criteria for referral for suspected complicated acute diverticulitis.

	Drug	Adult dose	Duration
1 st line	Co-amoxiclav	500/125mg TDS	*5 days
Penicillin allergy (Cephalosporins not suitable if allergy history is of angioedema, blistering or swelling, bronchospasm or urticaria or if allergy history is unclear)	Cefalexin PLUS	500mg TDS	
	Metronidazole	400mg TDS	
Alternative	Trimethoprim PLUS	200mg BD	
	Metronidazole	400mg TDS	

*A longer course may be needed on clinical assessment

Useful link: [Overview | Diverticular disease: diagnosis and management | Guidance | NICE](#)

Genital tract infections

STI Screening

People with risk factors should be screened for chlamydia, gonorrhoea, HIV and syphilis. Refer individuals and partners to GUM.

Risk factors: <25 years; no condom use; recent/frequent change of partner; symptomatic or infected partner; area of high HIV.

Local services include iCaSH (integrated Contraception and Sexual Health) for Bedfordshire and Milton Keynes [Home \(icash.nhs.uk\)](http://icash.nhs.uk) and Luton Sexual Health for Luton [Luton Sexual Health – Providing sexual health advice and guidance to the town](#)

See iCaSH for patient information leaflets.

Both services offer free STI screening postal kits.

Chlamydia trachomatis / urethritis

Opportunistically screen all sexually active patients aged 15 to 24 years annually and on change of sexual partner.

If positive, treat, refer to GUM and initiate partner notification, testing and treatment.

Advise patient with chlamydia to abstain from sexual intercourse until doxycycline is completed or for 7 days after treatment with azithromycin (14 days after azithromycin started and until symptoms resolved if urethritis).

If chlamydia, test for reinfection at 3 to 6 months if under 25 years or consider if over 25 years and high risk.

Second line, pregnant, breastfeeding, allergy, or intolerance: 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 and advise to avoid sex for 14 days after start of treatment and until symptoms have resolved.

Vulvo vaginal swabs are the specimen of choice for women. First catch urine is the sample of choice for urethral chlamydia in men.

	Drug	Adult dose	Duration
1 st line	Doxycycline (not in pregnancy)	100mg BD	7 days
1 st line in pregnancy / allergy or intolerance to tetracyclines	Azithromycin	1g stat on day one then 500mg OD for 2 days	3 days

Gonorrhoea

Refer to GUM.

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

Test of cure is essential. A positive TOC should be discussed with the Sexual Health team for advice.

	Drug	Adult dose	Duration
1 st line.	Ceftriaxone injection	1g via deep IM injection. Reconstitute with Lidocaine 1%. See SPC for full details.	Single dose
Only if known to be Ciprofloxacin sensitive prior to treatment	Ciprofloxacin	500mg PO	Single dose

For patients with chlamydia co-infection add on Chlamydia treatment.

If IM Ceftriaxone is contraindicated or refused by the patient, consult with microbiology / sexual health.

Genital herpes

Advise: saline bathing, analgesia, or topical lidocaine for pain, and discuss transmission.

First episode: treat within 5 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 6 episodes per year.

	Drug	Adult dose	Duration
1 st line	Aciclovir OR	400mg TDS	5 days
2 nd line	Valaciclovir	500mg BD	5 days
If recurrent	Aciclovir	800mg TDS	2 days

Bacterial vaginosis

Oral metronidazole is as effective as topical treatment and is cheaper.

7 days results in fewer relapses than 2g stat at 4 weeks.

Pregnant/breastfeeding: avoid 2g dose. Treating partners does not reduce relapse.

	Drug	Adult dose	Duration
1 st line	Metronidazole PO	400mg BD or 2g stat	7 days or Single dose
2 nd line	Metronidazole 0.75% vaginal gel OR	5g applicator at night	5 nights
	Clindamycin 2% vaginal cream	5g applicator at night	7 nights

Trichomoniasis

Oral treatment needed as extra-vaginal infection common.

Treat partners and **refer to GUM** for other STIs.

Pregnant/breastfeeding: avoid 2g single dose Metronidazole.

Offer Clotrimazole for symptom relief (not cure) **if** metronidazole declined / contraindicated.

	Drug	Adult dose	Duration
1 st line	Metronidazole	400mg BD Or 2g (more adverse effects)	5 to 7 days or Single dose
Pregnancy (as above, to treat symptoms)	Clotrimazole	100mg PV pessary at night	6 nights

Vaginal candidiasis

All topical and oral azoles give over 80% cure.

Pregnant: avoid oral azoles, the 7-day courses are more effective than shorter ones.

	Drug	Adult dose	Duration
1 st line	Clotrimazole OR	500mg PV pessary	Single dose (available OTC)
	Clotrimazole OR	100mg PV pessary at night	6 nights (available OTC)
	Fluconazole	150mg PO	Single dose (available OTC)
Recurrent (>4 episodes per year)	Fluconazole	150mg every 72 hours for 3 doses, followed by 1 dose once a week for 6 months	6 months

Epididymitis

Usually due to Gram-negative enteric bacteria in men over 35 years with low risk of STI.

If under 35 years or STI risk, refer to GUM.

	Drug	Adult dose	Duration
1 st line	Doxycycline OR	100mg BD	10 to 14 days
	Ofloxacin OR	200mg BD	14 days
	Ciprofloxacin (not appropriate if STI risk)	500mg BD	10 days

Pelvic inflammatory disease

Refer women and sexual contacts to GUM.

Raised CRP supports diagnosis, absent pus cells in HVS smear good negative predictive value.

Exclude: 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 *M. genitalium*.

If M. genitalium tests positive use moxifloxacin.

	Drug	Adult dose	Duration
1 st line	Ceftriaxone PLUS	1g IM	Single dose
	Metronidazole PLUS	400mg BD	14 days
	Doxycycline	100mg BD	
2 nd line	Metronidazole PLUS	400mg BD	14 days
	Ofloxacin OR	400mg BD	
	Moxifloxacin alone	400mg OD	14 days

CNS infection

Suspected meningococcal disease

Transfer all patients to hospital immediately.

If time before hospital admission, if suspected meningococcal septicaemia or non-blanching rash, give IV benzylpenicillin as soon as possible. Do not give IV antibiotics if there is a definite history of anaphylaxis; rash is not a contraindication.

Please notify suspected cases of acute meningitis to PHE.

	Drug	Adult dose	Child dose
1 st line	Benzylpenicillin IV or IM	1.2g stat	<1 year: 300mg stat 1 to 9 years: 600mg stat ≥10 years: 1.2g stat

Prevention of secondary case of meningitis

Only prescribe following advice from your local health protection specialist/consultant (East of England): ☎ 0300 3038537.

Out of hours: contact on-call doctor: ☎ 01603 481221.

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

Public Health England, Colindale (tel: 0208 200 4400)

Skin & Soft tissue infections

Cold sores

Most resolve after 5 days without treatment. Topical antivirals applied prodromally can reduce duration by 12 to 18 hours.

If frequent, severe, and predictable triggers: consider oral prophylaxis: Aciclovir 400mg BD for 5 to 7 days.

PVL-Staphylococcus Aureus

Panton-Valentine leukocidin (PVL) is a toxin produced by 20.8 to 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; men who have sex with men, if there is more than one case in a home or close community (school children; military personnel; nursing home residents; household contacts).

Impetigo

Localised non-bullous impetigo:

Hydrogen peroxide 1% cream (other topical antiseptics are available but no evidence for impetigo.)

If hydrogen peroxide unsuitable or ineffective, short-course topical antibiotic.

Widespread non-bullous impetigo:

Short-course topical or oral antibiotic.

Take account of person's preferences, practicalities of administration, previous use of topical antibiotics because **antimicrobial resistance can develop rapidly** with extended or repeated use, and local antimicrobial resistance data.

Bullous impetigo, systemically unwell, or high risk of complications:

Short-course oral antibiotic.

Do not offer combination treatment with a topical and oral antibiotic to treat impetigo.

	Drug	Adult dose	Child dose	Duration
Topical antiseptic	Hydrogen peroxide 1%	BD or TDS	BNF <i>for Children</i>	*5 days
Topical antibiotic 1 st choice	Fusidic acid 2%	TDS	BNF <i>for Children</i>	
2 nd line if fusidic acid resistance suspected or confirmed	Mupirocin 2%	TDS	BNF <i>for Children</i>	
Oral antibiotic 1 st line	Flucloxacillin	500mg QDS	BNF <i>for Children</i>	
Penicillin allergy	Clarithromycin OR	250mg BD	BNF <i>for Children</i>	
	Erythromycin (in pregnancy)	250-500mg QDS	BNF <i>for Children</i>	

*5 days is appropriate for most, can be increased to 7 days based on clinical judgement.

Useful link: [NICE: Impetigo: antimicrobial prescribing visual summary](#)

Eczema (secondary bacterial infections)

Manage underlying eczema and flares with treatments such as emollients and topical corticosteroids, whether antibiotics are given or not.

Symptoms and signs of secondary bacterial infection can include: weeping, pustules, crusts, no response to treatment, rapidly worsening eczema, fever and malaise.

Not all flares are caused by a bacterial infection, so will not respond to antibiotics.

Eczema is often colonised with bacteria but may not be clinically infected.

Do not routinely take a skin swab.

If MRSA suspected or confirmed – consult microbiologist.

Presentation	Recommendation
Not systemically unwell	Do not routinely offer either a topical or oral antibiotic. (If an antibiotic is offered, when choosing between a topical or oral antibiotic, take account of patient preferences, extent and severity of symptoms or signs, possible adverse effects, and previous use of topical antibiotics because antimicrobial resistance can develop rapidly with extended or repeated use.)
Systemically unwell	Oral antibiotic. See cellulitis section if appropriate.

	Drug	Adult dose	Child dose	Duration
Topical antibiotic (If topical is appropriate.) For localised infections only	Fusidic acid 2%	TDS		5 to 7 days
Oral antibiotic 1 st line	Flucloxacillin	500mg QDS		
Penicillin allergy	Clarithromycin OR	250mg BD (500mg in severe)		
	Erythromycin (in pregnancy)	250-500mg QDS		

Useful link: [NICE: Secondary bacterial infection of eczema: antimicrobial prescribing visual summary](#)

Mastitis

S. aureus is the most common infecting pathogen. Suspect if woman has: a painful breast; fever and/or general malaise; a tender, red breast.

Breastfeeding: oral antibiotics are appropriate, where indicated. Women should continue feeding, including from the affected breast.

	Drug	Adult dose	Duration
1 st line	Flucloxacillin	500mg QDS	10-14 days
Penicillin allergy	Erythromycin OR	250-500mg QDS	
	Clarithromycin	500mg BD	

Cellulitis and erysipelas

- Exclude other causes of skin redness (inflammatory reactions or non-infectious causes.)
- Consider marking extent of infection with a single-use surgical marker pen.
- Offer an antibiotic. Consider severity, site of infection, risk of uncommon pathogens, any microbiological results and MRSA status. Infection around eyes or nose is more concerning because of serious intracranial complications.

Advise:

- Skin will take time to return to normal after finishing antibiotics.
- Safety netting

For alternative choice antibiotics for severe infection or suspected or confirmed MRSA infection discuss with a Microbiologist. See also useful link to NICE visual summary at the foot of the table.

Do not routinely offer antibiotics to prevent recurrent cellulitis or erysipelas.

	Drug	Adult dose	Child dose	Duration
1st line	Flucloxacillin	500mg to 1g QDS	BNF <i>for Children</i>	5 to 7 days*
Penicillin allergy or flucloxacillin unsuitable	Clarithromycin OR	500mg BD	BNF <i>for Children</i>	
	Erythromycin (in pregnancy) OR	500mg QDS	BNF <i>for Children</i>	
	Doxycycline (adults only) OR	200mg on day 1, then 100mg OD	-	
	Co-amoxiclav (children only)	-	BNF <i>for Children</i>	
If infection near eyes or nose:	Co-amoxiclav	500/125mg TDS	BNF <i>for Children</i>	7 days*
If infection near eyes or nose (penicillin allergy)	Clarithromycin AND	500mg BD	BNF <i>for Children</i>	
	Metronidazole (in children only if anaerobes suspected)	400mg TDS	BNF <i>for Children</i>	

*A longer course (up to 14 days in total) may be needed but skin takes time to return to normal after finishing antibiotics. Full resolution at 5 to 7 days is not expected.

Useful link: [NICE: Cellulitis and erysipelas: antimicrobial prescribing visual summary](#)

Diabetic foot infection

In diabetes, all foot wounds are likely to be colonised with bacteria.

Diabetic foot infection has **≥ 2 of**: local swelling or induration; erythema; local tenderness or pain; local warmth; purulent discharge.

Severity classification

Mild	local infection with 0.5 to <2cm erythema
Moderate	local infection with >2cm erythema or involving deeper structures (such as abscess, osteomyelitis, septic arthritis or fasciitis)
Severe	local infection with signs of a systemic inflammatory response.

Start antibiotic treatment as soon as possible.

Take samples for microbiological testing before, or as close as possible to, the start of treatment.

When choosing an antibiotic, take account of severity, risk of complications, previous microbiological results and antibiotic use, and patient preference.

Do not offer antibiotics to prevent diabetic foot infection.

	Drug	Adult dose	Duration
Mild infection 1 st line	Flucloxacillin	500mg to 1g QDS	7 days*
Penicillin allergy	Clarithromycin OR	500mg BD	
	Erythromycin (in pregnancy) OR	500mg QDS	
	Doxycycline	200mg on day 1, then 100mg OD (can be increased, see BNF)	

For antibiotic choices for moderate or severe infection, infections where *Pseudomonas aeruginosa* or MRSA is suspected or confirmed, and IV antibiotics refer to the NICE guidelines via useful link below.

*A longer course (up to a further 7 days) may be needed based on clinical assessment. However, skin does take time to return to normal, and full resolution at 7 days is not expected.

Useful link: [NICE: Diabetic foot infection: antimicrobial prescribing visual summary](#)

Leg ulcer infection

Manage any underlying conditions to promote ulcer healing.

Offer an antibiotic **only** when there are symptoms or signs of infection (such as redness or swelling spreading beyond the ulcer, localised warmth, increased pain or fever). Few leg ulcers are clinically infected, but most are colonised by bacteria.

When prescribing antibiotics, take account of severity, risk of complications and previous antibiotic use.

Be aware that it will take time for the infection to resolve (full resolution would not be expected until **after** the antibiotic course is completed.)

	Drug	Adult dose	Duration
1 st line	Flucloxacillin	500mg-1g QDS	7 days
Penicillin allergy / Flucloxacillin unsuitable	Doxycycline OR	200mg on day 1, then 100mg OD, (can be increased to 200mg OD.)	
	Clarithromycin OR	500mg BD	
	Erythromycin (in pregnancy)	500mg QDS	
2 nd line (guided by C&S when available)	Co-amoxiclav OR	500/125 TDS	7 days
	Co-trimoxazole	960mg BD	

For antibiotic choices **if severely unwell or MRSA suspected or confirmed**, refer to link below.

Useful link: [NICE: Leg ulcer infection: antimicrobial prescribing visual summary](#)

Scabies

Permethrin & Malathion: Treat whole body including face, scalp and under nails.

Home/sexual contacts: treat within 24 hours.

	Drug	Adult dose	Child dose	Duration
1 st line	Permethrin 5% cream	As above		2 applications, 1 week apart.
Permethrin allergy	Malathion 0.5% aqueous liquid	As above		

Insect bites and stings

Most insect bites or stings will not need antibiotics.

Do not offer an antibiotic if there are no symptoms or signs of infection.

If there are symptoms or signs of infection, see cellulitis and erysipelas.

Human and animal bites

Offer an antibiotic for a human or animal bite if there are symptoms or signs of infection, such as increased pain, inflammation, fever, discharge or an unpleasant smell. Take a swab for microbiological testing if there is discharge (purulent or non-purulent) from the wound.

Do not offer antibiotic prophylaxis if a human or animal bite has not broken the skin.

Human bite:

Offer antibiotic prophylaxis if the human bite has broken the skin and drawn blood.

Consider antibiotic prophylaxis if the human bite has broken the skin but not drawn blood if it is in a high-risk area or person at high risk.

Cat bite:

Offer antibiotic prophylaxis if the cat bite has broken the skin and drawn blood.

Consider antibiotic prophylaxis if the cat bite has broken the skin but not drawn blood if the wound could be deep.

Dog or another traditional pet bite (excluding cat bite)

Do not offer antibiotic prophylaxis if the bite has broken the skin but not drawn blood.

Offer antibiotic prophylaxis if the bite has broken the skin and drawn blood if it has caused considerable, deep tissue damage or is visibly contaminated (for example, with dirt or a tooth).

Consider antibiotic prophylaxis if the bite has broken the skin and drawn blood if it is in a high-risk area or person at high risk.

	Drug	Adult dose	Child dose	Duration
1 st line	Co-amoxiclav	250/125 or 500/125 TDS		3 days for prophylaxis. 5 days for treatment.
Penicillin allergy	Doxycycline (not to be used in children under 12 or pregnancy) PLUS	200mg on day 1, then 100mg or 200mg OD		
	Metronidazole	400mg TDS		
Pregnancy	Seek specialist advice			

*course length can be increased to 7 days (with review) based on clinical assessment of the wound.

Useful link: [NICE: Human and animal bites: antimicrobial prescribing visual summary](#)

Tick bites (Lyme disease)

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

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

	Drug	Adult dose	Child dose	Duration
1 st line	Doxycycline	100mg BD	BNF for Children	21 days
Alternative	Amoxicillin	1g TDS	BNF for Children	

Dermatophyte infection: skin

Most cases: use terbinafine as fungicidal, treatment time shorter and more effective than with fungistatic imidazoles or undecenoates. If candida possible, use imidazole.

If intractable, or scalp: send skin scrapings, and if infection confirmed: use oral terbinafine or itraconazole.

Scalp: oral therapy and discuss with specialist.

	Drug	Adult dose	Child dose	Duration
1 st line	Topical terbinafine OR	1% OD to BD	BNF for Children	1 to 4 weeks
	Topical imidazole (eg. Clotrimazole)	1% BD	BNF for Children	4 to 6 weeks
Alternative in athlete's foot (available OTC)	Topical undecenoates (such as Mycota®)	OD to BD		

Dermatophyte infection: nail

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.

To prevent recurrence: apply weekly 1% topical antifungal cream to entire toe area.

Children: seek specialist advice.

	Drug	Adult dose	Child dose	Duration
1 st line	Terbinafine	250mg OD	BNF for Children	Fingers: 6 weeks Toes: 12 weeks
2 nd line	Itraconazole	200mg BD	-	1 week a month Fingers: 2 courses Toes: 3 courses

Stop treatment when continual, new, healthy, proximal nail growth.

Acne vulgaris

First-line treatment options: offer a course of 1 of the options, taking account of severity, preferences, and advantages/disadvantages of each option. Completing the course is important because positive effects can take 6 to 8 weeks.

Do not use: monotherapy with a topical antibiotic, monotherapy with an oral antibiotic, or a combination of a topical antibiotic and an oral antibiotic.

Review first-line treatment at 12 weeks.

Only continue a topical or oral antibiotic for more than 6 months in exceptional circumstances. Review at 3 monthly intervals and stop the antibiotic as soon as possible.

For detailed information see the [NICE guideline on acne vulgaris](#).

	Drug	Adult dose	Child dose	Duration
First line: Fixed topical combination of adapalene with benzoyl peroxide (for any acne severity, not in under 9s) OR	0.1% adapalene/ 2.5% benzoyl peroxide OR 0.3% adapalene/2.5% benzoyl peroxide OD (thinly in the evening)	OD (thinly in the evening)	BNF for Children	12 weeks
Fixed topical combination of tretinoin with clindamycin (for any acne severity, not in under 12s) OR	0.025% tretinoin/ 1% clindamycin	OD (thinly in the evening)	BNF for Children	
Fixed topical combination of benzoyl peroxide with clindamycin (for mild to moderate acne, not in under 12s) OR	3% benzoyl peroxide/1% clindamycin OR 5% benzoyl peroxide/1% clindamycin	OD (in the evening)	BNF for Children	
Fixed topical combination of adapalene with benzoyl peroxide AND either oral lymecycline or oral doxycycline (for moderate to severe acne, not in under 12s) OR	0.1% adapalene/ 2.5% benzoyl peroxide OR 0.3% adapalene/2.5% benzoyl peroxide AND lymecycline OR doxycycline	OD (in the evening)	BNF for Children	
		408mg OD OR 100mg OD	BNF for Children	
Topical azelaic acid AND either oral lymecycline or oral doxycycline (for moderate to severe acne, not in under 12s)	15% or 20% azelaic acid AND lymecycline OR doxycycline	BD	BNF for Children	
		408mg OD OR 100mg OD	BNF for Children	
Alternative: topical benzoyl peroxide (if 1 st line contraindicated, or to avoid topical retinoids or an antibiotic.)	5% benzoyl peroxide OD to BD		BNF for Children	

Varicella zoster (chickenpox) / Herpes zoster (shingles)

Pregnant / immunocompromised / neonate: seek urgent specialist advice.

Chickenpox:

Give paracetamol for pain relief and consider aciclovir if:

Onset of rash <24 hours **and** 1 of the following:

- >14 years of age
- severe pain
- dense/oral rash
- taking steroids
- smoker

Shingles:

Treat if >50 years (post herpetic neuralgia is rare if <50 years) and within 72 hours of rash, or if 1 of:
<ul style="list-style-type: none"> • active ophthalmic
<ul style="list-style-type: none"> • Ramsey Hunt
<ul style="list-style-type: none"> • eczema
<ul style="list-style-type: none"> • non-truncal involvement
<ul style="list-style-type: none"> • moderate or severe pain
<ul style="list-style-type: none"> • moderate or severe rash

If > 72 hours: consider starting up to 1 week after rash onset if:
<ul style="list-style-type: none"> • high risk of severe shingles or continued vesicle formation
<ul style="list-style-type: none"> • older age
<ul style="list-style-type: none"> • immunocompromised
<ul style="list-style-type: none"> • severe pain

	Drug	Adult dose	Child dose	Duration
1 st line for both	Aciclovir	800mg 5 times a day		7 days
2 nd line	Valaciclovir	1g TDS		

Eye infections

Conjunctivitis				
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.				
	Drug	Adult dose	Child dose	Duration
1 st line	Bath / clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting			
2 nd line	Chloramphenicol 0.5% eye drops OR	2 hourly for 2 days, then reduce to 3 to 4 times daily.		48 hours after resolution
	Chloramphenicol 1% eye ointment	3 or 4 times daily or once daily at night if using antibiotic eye drops during the day.		
3 rd line (has less gram-negative cover)	Fusidic acid 1% gel	BD		

Blepharitis				
Use 2 nd line topical antibiotic if hygiene measures are ineffective after 2 weeks.				
If signs of meibomian gland dysfunction or acne rosacea, consider oral antibiotics.				
	Drug	Adult dose	Child dose	Duration
1 st line	lid hygiene for symptom control including: warm compresses, lid massage and scrubs, gentle washing, avoiding cosmetics.			
2 nd line	Topical Chloramphenicol	1% ointment BD		6 week trial
3 rd line	PO Oxytetracycline OR	500mg BD then 250mg BD		4 week (initial) 8 weeks (maint)
	PO Doxycycline	100mg OD then 50mg OD		4 week (initial) 8 weeks (maint)

Suspected dental infections (outside dental settings)

Derived from the [Scottish Dental Clinical Effectiveness Programme \(SDCEP\) 2013 Guidelines](#). This guidance is not designed to be a definitive guide to oral conditions, as GPs should not be involved in dental treatment. Patients presenting to non-dental primary care services with dental problems should be directed to their regular dentist, or if this is not possible, to the NHS 111 service (in England), who will be able to provide details of how to access emergency dental care.

Mucosal ulceration and inflammation (simple gingivitis)				
Temporary pain and swelling relief can be attained with saline mouthwash (½ tsp salt in warm water.) Use antiseptic mouthwash if more severe, and if pain limits oral hygiene to treat or prevent secondary infection. The primary cause for mucosal ulceration or inflammation (aphthous ulcers; oral lichen planus; herpes simplex infection; oral cancer) needs to be evaluated and treated.				
	Drug	Adult dose	Child dose	Duration
1 st line	Chlorhexidine 0.12 to 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10ml		Always spit out after use. Use until lesions resolve or less pain allows for oral hygiene
	Hydrogen peroxide 6%	2 to 3 minutes BD / TDS with 15ml in ½ a glass of warm water.		

Acute necrotising ulcerative gingivitis				
Refer to dentist for scaling and hygiene advice. Antiseptic mouthwash if pain limits oral hygiene.				
	Drug	Adult dose	Child dose	Duration
1 st line	Chlorhexidine 0.12 to 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10ml		Until pain allows for oral hygiene
	Hydrogen peroxide 6%	2 to 3 minutes BD / TDS with 15ml in ½ a glass of warm water.		
Alternative (if systemic signs and symptoms)	Metronidazole	400mg TDS		3 days

Pericoronitis

Refer to dentist for irrigation and debridement.

If persistent swelling or systemic symptoms, use metronidazole or amoxicillin.

Use antiseptic mouthwash if pain and trismus limit oral hygiene.

Drug	Adult dose	Child dose	Duration
Metronidazole OR	400mg TDS		3 days
Amoxicillin	500mg TDS		
Chlorhexidine 0.2% (do not use within 30 minutes of toothpaste) OR	1 minute BD with 10ml		Until less pain allows for oral hygiene
Hydrogen peroxide 6%	2 to 3 minutes BD / TDS with 15ml in ½ a glass of warm water.		

Dental abscess

Regular analgesia should be the first option until a dentist can be seen for urgent drainage, as repeated courses of antibiotics for abscesses are not appropriate. Repeated antibiotics alone, without drainage, are ineffective in preventing the spread of infection. Antibiotics are only recommended if there are signs of severe infection, systemic symptoms, or 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. The empirical use of cephalosporins, co-amoxiclav, clarithromycin, and clindamycin do not offer any advantage for most dental patients and should only be used if there is no response to first-line drugs.

	Drug	Adult dose	Child dose	Duration
1st line If pus is present refer for drainage, tooth extraction or root canal. Sent pus for investigation.	Amoxicillin OR	500mg to 1g TDS		Up to 5 days; review at 3 days
	Phenoxymethylpenicillin	500mg to 1g QDS		
If spreading infection (lymph node involvement or systemic signs, that is, fever or malaise) ADD	Metronidazole	400mg TDS		
Penicillin allergy If true allergy and severe infection, refer to hospital.	Clarithromycin	500mg BD		

References

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