Essex Partnership University
NHS Foundation Trust

SECTION 18: ANTIMICROBIAL PRESCRIBING

Formulary and Prescribing Guidelines

18.1 Aims

- To provide a simple, safe, effective, empirical, evidence based and cost effective approach to the treatment of common infections
- To minimise the emergence of bacterial resistance

18.2 Principles of Treatment

18.2.1 This guidance is based on the best available evidence[1,5]. Patients should be involved in the decision where appropriate with due consideration given to antimicrobial stewardship principles.

18.2.2 It is important to initiate antibiotics as soon as possible for severe infection. If sepsis is suspected, antibiotic treatment should be initiated within an hour preferably by transferring the patient to an acute hospital.

18.2.3 A dose and duration of treatment for adults is usually suggested, but may need modification for age, weight and renal function. In severe or recurrent cases consider a larger dose or longer course in line with guidelines and after consulting a microbiologist (if appropriate).

18.2.4 Have a lower threshold for antibiotics in immunocompromised patients or those with multiple morbidities; consider culture and seek advice.

18.2.5 Prescribe an antibiotic only when there is likely to be a clear clinical benefit. Prescriptions should state the indication and course length or review date on the medicines chart and in the patients' electronic record.

18.2.6 Consider a no, or delayed, antibiotic strategy for acute self-limiting upper respiratory tract infections e.g. sore throat, sinusitis, otitis media which are usually viral in nature.

18.2.7 Limit prescribing over the telephone to exceptional cases.

18.2.8 Use simple generic antibiotics if possible. Avoid broad spectrum antibiotics (e.g. co-amoxiclav, quinolones and cephalosporins) when narrow spectrum antibiotics remain effective, as they increase risk of *Clostridium difficile*, MRSA and resistant UTIs. There is specific guidance for treatment of *C.difficile* infection, see main table and linked visual reference summary.

18.2.9 Limit the use of topical antibiotics to localised skin infections (especially those agents also available as systemic preparations, e.g. fusidic acid). Specific guidance can be found in the main table and linked visual reference summary.

18.2.10 In pregnancy, take specimens to inform treatment; where possible AVOID tetracyclines, aminoglycosides, quinolones, *high dose* metronidazole (2 g). Short-term use of nitrofurantoin (at term, theoretical risk of neonatal haemolysis) is unlikely to cause problems to the foetus. Trimethoprim is also unlikely to cause problems unless poor dietary folate intake or taking another folate antagonist e.g. antiepileptic. Trimethoprim is unlicensed for use in pregnancy and folate supplementation is recommended particularly in the first trimester due to the theoretical risk of congenital malformations.

18.2.11 For information on the recognition and management of allergies, please refer to CG27 Medical Emergencies[10].

18.2.12 For further information on the antimicrobial choices below, for example dosing information in renal and/or hepatic impairment, please refer to the electronic BNF[2].

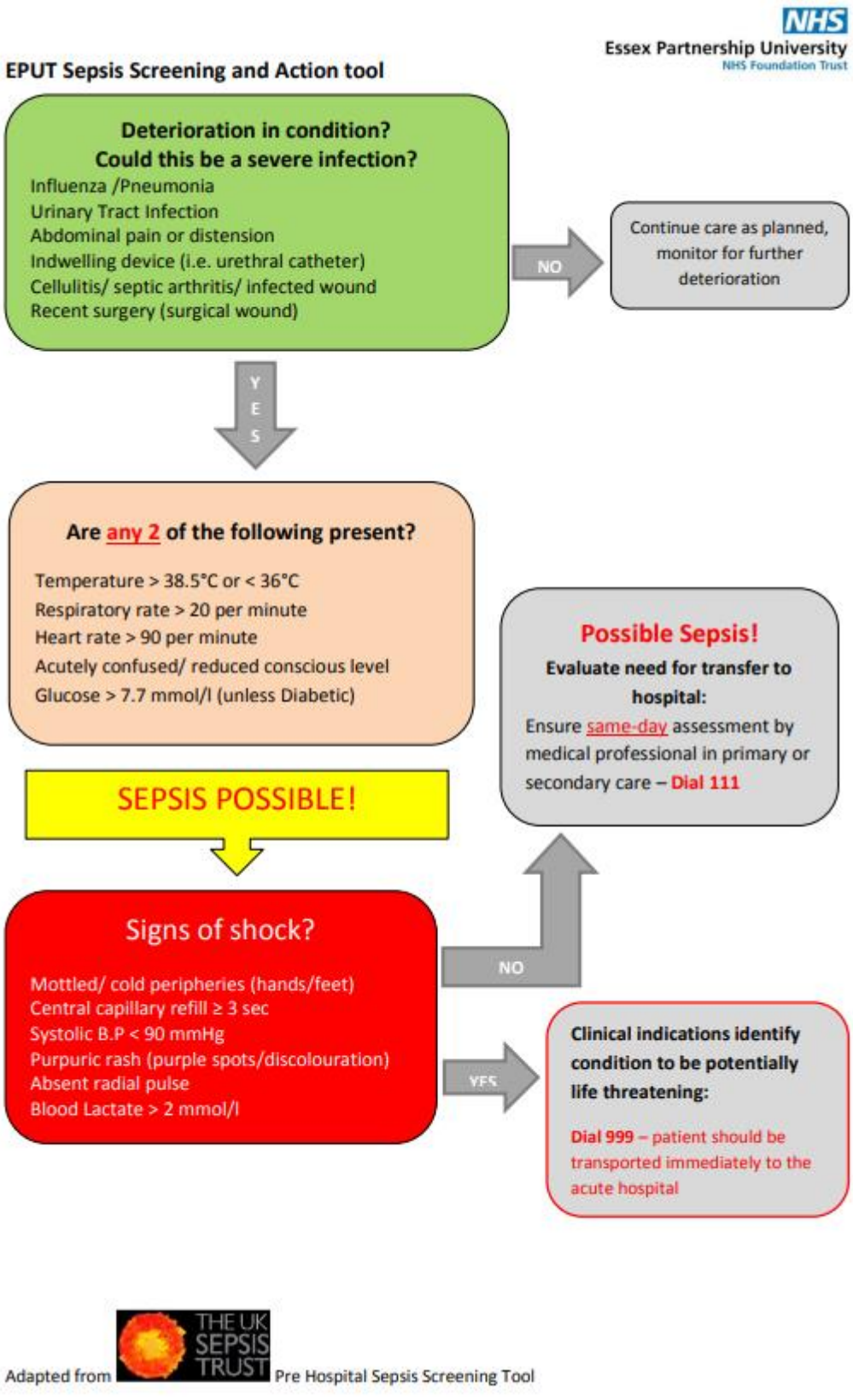
18.2.13 Antibiotics more likely to cause *C. difficile* infection are broad spectrum in nature and include quinolones, co-amoxiclav, cephalosporins and clindamycin but it is important to note that any antibiotic can cause *C. difficile*. If patients develop diarrhoea and *C. difficile* infection is suspected, discuss with the infection control team. and treat as per the guidance below.

18.2.14 Point-of-care tests for suspected UTIs are not currently recommended in primary or community care settings[14]. Further research is recommended to ascertain how accurate the tests are in identifying bacteria and testing for antibiotic susceptibility. They show promise but completion of ongoing studies will allow the risks and benefits to be understood fully.

18.3 Sepsis

Please refer to NICE Guideline 51[6] for full information on Sepsis.

Whenever a person presents with signs or symptoms that indicate possible infection think ‘could this be sepsis?’[7,8] CG87 provides information on sepsis pathways for both children and adults[9].


NHS
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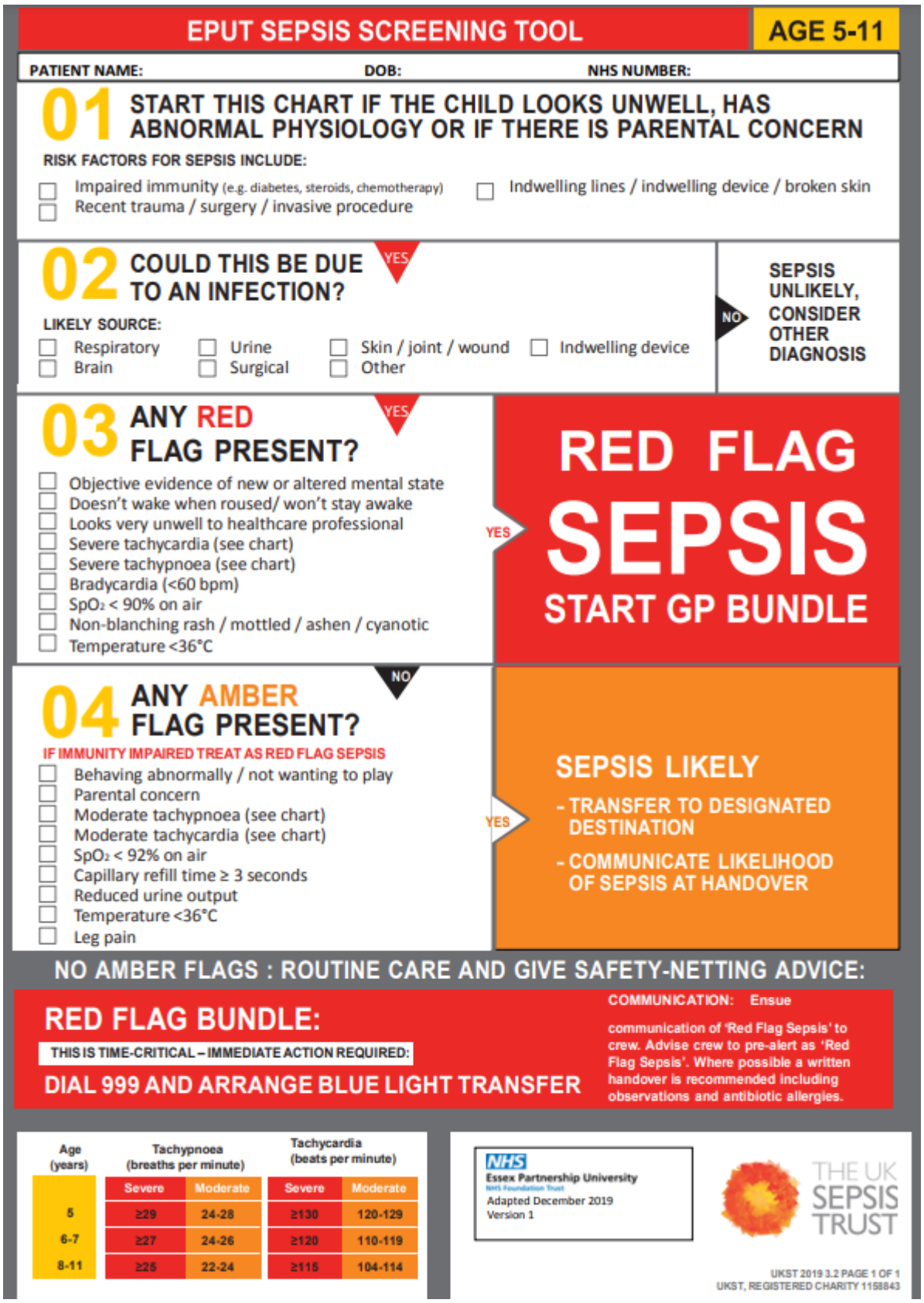
EPUT Sepsis Screening and Action tool
Deterioration in condition?
Could this be a severe infection?
Influenza /Pneumonia
Urinary Tract Infection
Abdominal pain or distension
Indwelling device (i.e. urethral catheter)
Cellulitis/ septic arthritis/ infected wound
Recent surgery (surgical wound)
NO
Continue care as planned, monitor for further deterioration
YES
Are any 2 of the following present?
Temperature > 38.5°C or < 36°C
Respiratory rate > 20 per minute
Heart rate > 90 per minute
Acutely confused/ reduced conscious level
Glucose > 7.7 mmol/l (unless Diabetic)
Possible Sepsis!
Evaluate need for transfer to hospital:
Ensure same-day assessment by medical professional in primary or secondary care – Dial 111
SEPSIS POSSIBLE!
Signs of shock?
Mottled/ cold peripheries (hands/feet)
Central capillary refill ≥ 3 sec
Systolic B.P < 90 mmHg
Purpuric rash (purple spots/discolouration)
Absent radial pulse
Blood Lactate > 2 mmol/l
NO
YES
Clinical indications identify condition to be potentially life threatening:
Dial 999 – patient should be transported immediately to the acute hospital
Adapted from THE UK SEPSIS TRUST Pre Hospital Sepsis Screening Tool



In particular, note the following NICE recommendations:

People with suspected sepsis are to be assessed using a structured set of observations to stratify risk of severe illness or death.

NG51 includes the following:

- a structured set of observations to stratify risk of severe illness or death can be found in NG51: https://www.nice.org.uk/guidance/NG51/chapter/Recommendations#stratifying-risk-of-severe-illness-or-death-from-sepsis :
    - refer to the lists in “Face-to-face assessment of people with suspected sepsis” in section 1.3 of NG51
    - refer to the lists in “Stratifying risk of severe illness or death from sepsis” in section 1.4 of NG51
    - refer to Table 1 below

Table 1 Risk stratification tool for adults, children and young people aged 12 years and over with suspected sepsis

Category	High risk criteria	Moderate to high risk criteria	Low risk criteria
History	Objective evidence of new altered mental state	History from patient, friend or relative of new onset of altered behaviour or mental state History of acute deterioration of functional ability Impaired immune system (illness or drugs including oral steroids) Trauma, surgery or invasive procedures in the last 6 weeks	Normal behaviour
Respiratory	Raised respiratory rate: 25 breaths per minute or more New need for oxygen (40% FiO_2 or more) to maintain saturation more than 92% (or more than 88% in known chronic obstructive pulmonary disease)	Raised respiratory rate: 21–24 breaths per minute	No high risk or moderate to high risk criteria met
Blood pressure	Systolic blood pressure 90 mmHg or less or systolic blood pressure more than 40 mmHg below normal	Systolic blood pressure 91–100 mmHg	No high risk or moderate to high risk criteria met
Circulation and hydration	Raised heart rate: more than 130 beats per minute Not passed urine in previous 18 hours. For catheterised patients, passed less than 0.5 ml/kg of urine per hour	Raised heart rate: 91–130 beats per minute (for pregnant women 100–130 beats per minute) or new onset arrhythmia Not passed urine in the past 12–18 hours For catheterised patients, passed 0.5–1 ml/kg of urine per hour	No high risk or moderate to high risk criteria met
Temperature		Tympanic temperature less than 36°C	
Skin	Mottled or ashen appearance Cyanosis of skin, lips or tongue Non-blanching rash of skin	Signs of potential infection, including redness, swelling or discharge at surgical site or breakdown of wound	No non-blanching rash

Sepsis: recognition, diagnosis and early management NICE guideline NG51 https://www.nice.org.uk/guidance/ng51

People with suspected sepsis in acute hospital settings and at least 1 of the criteria indicating high risk of severe illness or death to have an immediate review by a senior clinical decision-maker and antibiotics given within 1 hour if indicated.

People with suspected sepsis in acute hospital settings who need treatment to restore cardiovascular stability to have an intravenous fluid bolus within 1 hour of risk being stratified.

People with suspected sepsis in acute hospital settings who receive intravenous antibiotics or fluid bolus are seen by a consultant if their condition fails to respond within 1 hour of initial treatment.

Take into account that people with sepsis may have non-specific, non-localised presentations, for example feeling very unwell, and may not have a high temperature. Pay particular attention to concerns expressed by the person and their family or carers, for example changes from usual behaviour. Assess people who might have sepsis with extra care if they cannot give a good history (for example, people with English as a second language or people with communication problems).

Assess people with any suspected infection to identify:

- possible source of infection
- factors that increase risk of sepsis
- Any indications of clinical concern, such as new onset abnormalities of behaviour, circulation or respiration.

Refer all people with suspected sepsis outside acute hospital settings for emergency medical care by the most appropriate means of transport (usually 999 ambulance) if:

- they meet any high risk criteria (see tables 1, 2 and 3 of NICE Guideline 51) or
- they are aged under 17 years and their immunity is impaired by drugs or illness and they have any moderate to high risk criteria.

Assess all people with suspected sepsis outside acute hospital settings with any moderate to high risk criteria to:

- make a definitive diagnosis of their condition
- decide whether they can be treated safely outside hospital.

If a definitive diagnosis is not reached or the person cannot be treated safely outside an acute hospital setting, refer them urgently for emergency care.

Provide people with suspected sepsis, who do not have any high or moderate to high risk criteria, information about symptoms to monitor and how to access medical care if they are concerned.

18.4 Specific medicines warnings – refer to current BNF or Medicines Compendium (SPC) for full details

18.4.1 **Fluoroquinolone** [12] antibiotics (ciprofloxacin, levofloxacin, ofloxacin) can cause disabling and long-lasting/ irreversible side effects of muscles, tendons, bones (including tendonitis and tendon rupture) and the nervous system. They may also induce convulsions in patients with or without a history of convulsions and must only be prescribed in the following situations[16]:

-
- When other commonly recommended antibiotics are inappropriate:
    - There is resistance to first line antibiotics that are recommended for the infection

- First line antibiotics are contraindicated for the patient
- First line antibiotics have caused side effects requiring treatment to be stopped
- Treatment with first line antibiotics has failed

There is a rare risk of psychiatric reactions including depression and psychotic reactions which may lead to thoughts of suicide or suicide attempts in patients taking fluoroquinolones[15]. Prescribers are reminded to advise patients to be alert to mood changes, distressing thoughts or thoughts of suicide at any point of their treatment and to seek medical advice. Fluoroquinolones should be stopped immediately at the first sign of any of these side effects.

Co-administration with corticosteroids should be avoided since this could exacerbate fluoroquinolone-induced tendonitis and tendon rupture. Avoid use in patients who have previously had serious adverse reactions with fluoroquinolone antibiotic. Prescribe with special caution in people older than 60 years and for those with renal impairment or solid-organ transplants because they are at a higher risk of tendon injury.

Prescribers of fluoroquinolones should advise patients to stop treatment at the first signs of a serious adverse reaction, such as tendonitis or tendon rupture, muscle pain, muscle weakness, joint pain, joint swelling, peripheral neuropathy, and central nervous system effects, and to contact their doctor immediately for further advice. Fluoroquinolone treatment should be discontinued at the first sign of tendon pain or inflammation in patients and the affected limb or limbs appropriately treated (for example with immobilisation).

18.4.2 **Macrolide** antibiotics (clarithromycin, erythromycin, azithromycin) can cause QT prolongation [13] and are associated with events secondary to QT interval prolongation such as cardiac arrest and ventricular fibrillation.

The following should be noted when prescribing macrolides:

- reports of cardiotoxicity (QT interval prolongation) with macrolide antibiotics, in particular with erythromycin and clarithromycin
- macrolides **should not** be given to:
  - patients with a history of QT interval prolongation (congenital or documented acquired QT interval prolongation) or ventricular cardiac arrhythmia, including torsades de pointes
  - patients with electrolyte disturbances (hypokalaemia or hypomagnesaemia due to the risk of arrhythmia associated with QT interval prolongation)
- consider the potential benefit of treatment when prescribing in patients at increased risk of a cardiac event; patients in whom caution is needed are those with:

    - cardiac disease or heart failure
    - conduction disturbances or clinically relevant bradycardia
    - those concomitantly taking other medicines associated with QT interval prolongation
- direct patients to the patient information leaflet and remind at-risk patients of the importance of seeking medical attention if they develop signs or symptoms of a cardiac event
- macrolides are widely used in children, some of whom may have QT interval prolongation; therefore, consider the child's medical history and balance the treatment benefits against the potential risks
- macrolides may interact with direct acting oral anticoagulants (DOACs) and increase the risk of bleeding – consider this interaction when prescribing antibiotics and follow precautions in the product information if concomitant use is necessary
- The product information for edoxaban recommends a reduced dose of 30mg a day for patients on concomitant erythromycin. For dabigatran and apixaban, concomitant administration of P-gp inhibitors (and for apixaban, also CYP3A4 inhibitors) is expected to increase plasma concentrations, and raise blood concentrations when used concomitantly with another macrolide, clarithromycin.
- All patients prescribed macrolides with DOACs should be informed of the signs and symptoms of bleeding and be advised to seek medical advice should they occur.

18.4.3 **Nitrofurantoin[11]** can be used for short courses of 3 to 7 days in those with reduced renal function (eGFR between 30 and 44ml/minute/1.73m^2). Long term use of nitrofurantoin is not advised as it can cause pulmonary fibrosis, hepatic problems and peripheral neuropathy. Nitrofurantoin should be avoided at term in pregnancy as it can cause neonatal haemolysis. Prescribers are reminded to:

- Advise patients/carers to be aware of new or worsening respiratory symptoms
- Pulmonary reactions can occur with short or long term use and increased awareness is required in the first week of treatment
- Closely monitor those patients taking long term, particularly the elderly
- Be vigilant for signs of liver dysfunction, particularly with long term use (monitor LFTS)
- Be cautious when prescribing for those patients with pulmonary disease or hepatic dysfunction
- Advise patients to read the Patient Information Leaflet carefully

18.4.4 **Other antimicrobials[2]**

Co-amoxiclav is contraindicated in patients with a history of co-amoxiclav or penicillin associated jaundice or hepatic dysfunction. Hepatic events have been reported mostly in males and elderly patients and may be associated with prolonged treatment. Signs and

symptoms usually occur during or shortly after treatment but can occur several weeks after discontinuation.

Doxycycline can cause hepatotoxicity so care should be taken when it is co-administered with antiepileptics such as carbamazepine which can also cause hepatotoxicity. Doxycycline should be avoided if the patient is taking lithium as there is an increased risk of lithium toxicity.

Flucloxacillin can cause cholestatic jaundice which can occur up to two months after treatment has stopped. Prescribe with caution in those who have risk factors including concomitant administration of other medicines likely to cause hepatotoxicity.

Trimethoprim should not be used in patients concurrently taking methotrexate or those who have a low folate status e.g. patients taking folate antagonists such as antiepileptics. There is a teratogenic risk in the first trimester of pregnancy and the manufacturer advises to avoid.

18.5 Antimicrobial Prescribing Guidance

NICE National Institute for Health and Care Excellence

UK Health Security Agency

Public Health England

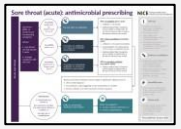
Summary of antimicrobial prescribing guidance – managing common infections

- See the British National Formulary (BNF) for appropriate use and dosing in specific populations, for example, hepatic impairment, renal impairment, pregnancy and breastfeeding.
- See the TARGET antibiotics toolkit - Summary of antimicrobial guidance page for accessible text summaries of the tables and links to full guidance.

Key: BNF for children Click to access doses for children Click to access NICE's printable visual summary

Jump to section on: Upper | Lower RTI | UTI | Meningitis | GI | Genital | Skin | Eye | Dental

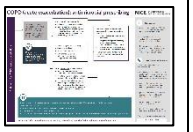
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Upper respiratory tract infections						
Acute sore throat	Advise paracetamol, or if preferred and suitable, ibuprofen for pain. Medicated lozenges may help pain in adults. Use FeverPAIN or Centor to assess symptoms:	**First choice**: phenoxymethylpenicillin	500mg QDS or 1000mg BD		5 to 10 days*	
		Penicillin allergy: clarithromycin **OR**	250mg to 500mg BD		5 days	

NICE UK Health Security Agency Last updated: Feb 2023	**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. **Systemically very unwell or high risk of complications:** immediate antibiotic. **5 days of phenoxymethylpenicillin may be enough for symptomatic cure; but a 10-day course may increase the chance of microbiological cure.* *For detailed information click the visual summary icon.*	erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	250mg to 500mg QDS or 500mg to 1000mg BD		5 days	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Influenza Last updated: June 2023 Status: Under review	For management guidance please refer to UKHSA guidance on Influenza: treatment and prophylaxis using anti-viral agents.					
Acute otitis media NICE UK Health Security Agency Last updated: Mar 2022	Regular paracetamol or ibuprofen for pain (right dose for age or weight at the right time and maximum doses for severe pain). Consider ear drops containing an anaesthetic and an analgesic for pain if an immediate antibiotic is not given and there is no ear drum perforation or otorrhoea. **Otorrhoea or under 2 years with infection in both ears**: no, back-up or immediate antibiotic. **Otherwise**: no or back-up antibiotic. **Systemically very unwell or high risk of complications**: immediate antibiotic. *For detailed information click on the visual summary.*	**First choice**: amoxicillin	-		5 to 7 days	
		Penicillin allergy: clarithromycin **OR**	-		5 to 7 days	
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	-			
		Second choice: co-amoxiclav	-		5 to 7 days	

Acute otitis externa Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Otitis externa

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Scarlet fever (GAS) Last updated: June: 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Scarlet Fever					
Sinusitis NICE UK Health Security Agency Last updated: Oct 2017	Advise paracetamol or ibuprofen for pain. Little evidence that nasal saline or nasal decongestants help, but people may want to try them. **Symptoms for 10 days or less**: no antibiotic. **Symptoms with no improvement for more than 10 days**: no antibiotic or back-up antibiotic depending on likelihood of bacterial cause. Consider high-dose nasal corticosteroid (if over 12 years). **Systemically very unwell or high risk of complications**: immediate antibiotic. *For detailed information click on the visual summary.*	**First choice**: phenoxymethylpenicillin	500mg QDS		5 days	
		Penicillin allergy: doxycycline (not in under 12s) **OR**	200mg on day 1, then 100mg OD		5 days	
		clarithromycin **OR**	500mg BD			
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	250 to 500mg QDS or 500 to 1000mg BD			
		Second choice or first choice if systemically very unwell or high risk of complications: co-amoxiclav	500/125mg TDS		5 days	
▼ Lower respiratory tract infections						
COVID-19 NICE Last updated: December 2021	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 use doxycycline to treat COVID-19 in the community. 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. In hospital, start empirical antibiotics if there is clinical suspicion of a secondary bacterial infection in people with COVID-19, see hospital-acquired pneumonia for choices. Start antibiotics as soon as possible after establishing a diagnosis of secondary bacterial pneumonia, and certainly within 4 hours. Start treatment within 1 hour if the person has suspected sepsis and meets any of the high-risk criteria for this outlined in the NICE guideline on sepsis. *For detailed information, see the NICE guideline on managing COVID-19*					

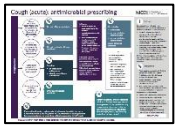
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute exacerbation of COPD NICE UK Health Security Agency Last updated: September 2024	Many exacerbations are not caused by bacterial infections so will not respond to antibiotics. Consider an antibiotic, but only after taking into account severity of symptoms (particularly sputum colour changes and increases in volume or thickness), need for hospitalisation, previous exacerbations, hospitalisations and risk of complications, previous sputum culture and susceptibility results, and risk of resistance with repeated courses. Some people at risk of exacerbations may have antibiotics to keep at home as part of their exacerbation action plan. *For detailed information click on the visual summary. See also the NICE guideline on COPD in over 16s.* ** See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.*	**First choice:** amoxicillin **OR**	500mg TDS (see BNF for severe infection)	-	5 days	
		doxycycline **OR**	200mg on day 1, then 100mg OD (see BNF for severe infection)	-		
		clarithromycin	500mg BD	-		
		Second choice: use alternative first choice				
		Alternative choice (if person at higher risk of treatment failure): co-amoxiclav **OR**	500/125mg TDS	-	5 days	
		co-trimoxazole **OR**	960mg BD	-		
		levofloxacin* (only if other alternative choice antibiotics are unsuitable; with specialist advice)	500mg OD	-		
		IV antibiotics *(click on visual summary)*				

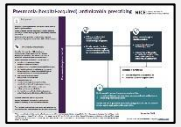
<table>
<tr><th rowspan="2">Infection</th><th rowspan="2">Key points</th><th rowspan="2">Medicine</th><th colspan="2">Doses</th><th rowspan="2">Length</th><th rowspan="2">Visual summary</th></tr>
<tr><th>Adult</th><th>Child</th></tr>
<tr><td rowspan="8">Acute exacerbation of bronchiectasis (non-cystic fibrosis)

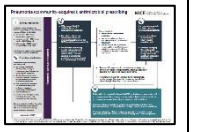
NICE

UK Health Security Agency

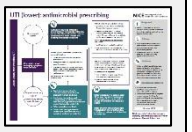
Last updated: September 2024</td><td rowspan="8">Send a sputum sample for culture and susceptibility testing.
Offer an antibiotic.
When choosing an antibiotic, take account of severity of symptoms and risk of treatment failure. People who may be at higher risk of treatment failure include people who've had repeated courses of antibiotics, a previous sputum culture with resistant or atypical bacteria, or a higher risk of developing complications.
Course length is based on severity of bronchiectasis, exacerbation history, severity of exacerbation symptoms, previous culture and susceptibility results, and response to treatment.
Do not routinely offer antibiotic prophylaxis to prevent exacerbations.
Seek specialist advice for preventing exacerbations in people with repeated acute exacerbations. This may include a trial of antibiotic prophylaxis after a discussion of the possible benefits and harms, and the need for regular review.
For detailed information click on the visual summary.
* See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.</td><td>First choice empirical treatment:
amoxicillin (preferred if pregnant) OR</td><td>500mg TDS</td><td rowspan="5"></td><td rowspan="3">7 to 14 days</td><td rowspan="8">  </td></tr>
<tr><td>doxycycline (not in under 12s) OR</td><td>200mg on day 1, then 100mg OD</td></tr>
<tr><td>clarithromycin</td><td>500mg BD</td></tr>
<tr><td>Alternative choice (if person at higher risk of treatment failure) empirical treatment:
co-amoxiclav OR</td><td>500/125mg TDS</td><td rowspan="4">7 to 14 days</td></tr>
<tr><td>levofloxacin* (adults only: only if co-amoxiclav is unsuitable; with specialist advice) OR</td><td>500mg OD or BD</td></tr>
<tr><td>ciprofloxacin* (children only: only if co-amoxiclav is unsuitable; with specialist advice)</td><td>-</td></tr>
<tr><td colspan="4">IV antibiotics (click on visual summary)</td></tr>
<tr><td colspan="4">When current susceptibility data available: choose antibiotics accordingly</td></tr>
</table>

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute cough NICE UK Health Security Agency Last updated: Feb 2019	Some people may wish to try honey (in over 1s), the herbal medicine pelargonium (in over 12s), cough medicines containing the expectorant guaifenesin (in over 12s) or cough medicines containing cough suppressants, except codeine, (in over 12s). These self-care treatments have limited evidence for the relief of cough symptoms. **Acute cough with upper respiratory tract infection**: no antibiotic. **Acute bronchitis**: no routine antibiotic. **Acute cough and higher risk of complications (at face-to-face examination)**: immediate or back-up antibiotic. **Acute cough and systemically very unwell (at face to face examination)**: immediate antibiotic. Higher risk of complications includes people with pre-existing comorbidity; young children born prematurely; people over 65 with 2 or more of, or over 80 with 1 or more of: hospitalisation in previous year, type 1 or 2 diabetes, history of congestive heart failure, current use of oral corticosteroids. Do not offer a mucolytic, an oral or inhaled bronchodilator, or an oral or inhaled corticosteroid unless otherwise indicated. *For detailed information click on the visual summary.*	**Adults first choice:** doxycycline	200mg on day 1, then 100mg OD	-	5 days	
		Adults alternative first choices: amoxicillin (preferred if pregnant) **OR**	500mg TDS	-		
		clarithromycin **OR**	250mg to 500mg BD	-		
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	250mg to 500mg QDS or 500mg to 1000mg BD	-		
		Children first choice: amoxicillin	-		5 days	
		Children alternative first choices: clarithromycin **OR**	-			
		erythromycin **OR**	-			
		doxycycline (not in under 12s)	-			

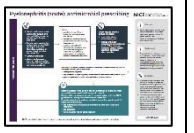
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Hospital-acquired pneumonia NICE UK Health Security Agency Last updated: September 2024	If symptoms or signs of pneumonia start within 48 hours of hospital admission, see community acquired pneumonia. Offer an antibiotic. Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected and person meets any high risk criteria – see the NICE guideline on sepsis). When choosing an antibiotic, take account of severity of symptoms or signs, number of days in hospital before onset of symptoms, risk of developing complications, local hospital and ward-based antimicrobial resistance data, recent antibiotic use and microbiological results, recent contact with a health or social care setting before current admission, and risk of adverse effects with broad spectrum antibiotics. No validated severity assessment tools are available. Assess severity of symptoms or signs based on clinical judgement. Higher risk of resistance includes relevant comorbidity (such as severe lung disease or immunosuppression), recent use of broad spectrum antibiotics, colonisation with multi-drug resistant bacteria, and recent contact with health and social care settings before current admission. If symptoms or signs of pneumonia start within days 3 to 5 of hospital admission in people not at higher risk of resistance, consider following community acquired pneumonia for choice of antibiotic. *For detailed information click on the visual summary.*	**First choice (non-severe and not higher risk of resistance):** co-amoxiclav	500/125 mg TDS		5 days then review	
		Adults alternative first choice (non-severe and not higher risk of resistance) Choice based on specialist microbiological advice and local resistance data **Options include:** doxycycline	200mg on day 1, then 100mg OD	-	5 days then review	
		cefalexin (caution in penicillin allergy)	500 mg BD or TDS (can increase to 1 to 1.5g TDS or QDS)	-		
		co-trimoxazole	960mg BD	-		
		levofloxacin* (only if switching from IV levofloxacin with specialist advice)	500mg OD or BD	-		
		Children alternative first choice (non-severe and not higher risk of resistance): clarithromycin Other options may be suitable based on specialist microbiological advice and local resistance data	-		-	

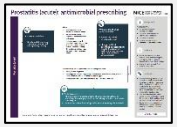
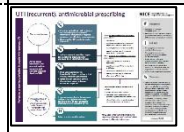
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
	**See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.*	**For first choice IV antibiotics (severe or higher risk of resistance) and antibiotics to be added if suspected or confirmed MRSA infection see visual summary**				
Community-acquired pneumonia NICE UK Health Security Agency Last updated: September 2024	Assess severity in adults based on clinical judgement and guided by a mortality risk score (CRB65 or CURB65) when these scores can be calculated: **low severity** – CRB65 0 or CURB65 0 or 1 **moderate severity** – CRB65 1 or 2 or CURB65 2 **high severity** – CRB65 3 or 4 or CURB65 3 to 5. 1 point for each parameter: **confusion**, (**urea** >7 mmol/l), **respiratory rate** ≥30/min, low systolic (<90 mm Hg) or diastolic (≤60 mm Hg) **blood pressure**, **age** ≥65. Assess severity in children based on clinical judgement. Offer an antibiotic. Start treatment as soon as possible after diagnosis, within 4 hours (within 1 hour if sepsis suspected and person meets any high risk criteria – see the NICE guideline on sepsis). When choosing an antibiotic, take account of severity, risk of complications, local antimicrobial resistance and surveillance data, recent antibiotic use and microbiological results. *For detailed information click on the visual summary.*	**First choice (low severity in adults or non-severe in children):** amoxicillin	500mg TDS (higher doses can be used, see BNF)		5 days*	
		Alternative first choice (low severity in adults or non-severe in children): doxycycline (not in under 12s) **OR**	200mg on day 1, then 100mg OD			
		clarithromycin **OR**	500mg BD			
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	500mg QDS			
		First choice (moderate severity in adults): amoxicillin **AND (if atypical pathogens suspected)**	500mg TDS (higher doses can be used, see BNF)	-	5 days*	
		clarithromycin **OR**	500mg BD	-		
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	500mg QDS	-		
		Alternative first choice (moderate severity in adults): doxycycline **OR**	200mg on day 1, then 100mg OD	-		
		clarithromycin	500mg BD	-		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
	**Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable.* ***See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects.*	**First choice (high severity in adults or severe in children):** co-amoxiclav **AND (if atypical pathogens suspected)**	500/125mg TDS		5 days*	
		clarithromycin **OR**	500mg BD			
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	500mg QDS			
		Alternative antibiotic if high severity, for penicillin allergy: levofloxacin**	500mg BD	-		
		IV antibiotics *(click on visual summary)*				

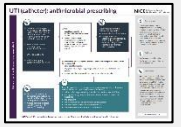
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Urinary tract infections						
Lower urinary tract infection NICE UK Health Security Agency Last updated: Oct 2018	Advise paracetamol or ibuprofen for pain. **Non-pregnant women**: back up antibiotic (to use if no improvement 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, 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 people have symptoms of pyelonephritis (such as fever) or a complicated UTI, see acute pyelonephritis (upper urinary tract infection) for antibiotic choices. *For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the UK Health Security Agency urinary tract infection: diagnostic tools for primary care.*	**Non-pregnant women first choice**: nitrofurantoin (if eGFR ≥45 ml/minute) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		trimethoprim (if low risk of resistance)	200mg BD	-		
		Non-pregnant women second choice: nitrofurantoin (if eGFR ≥45 ml/minute) **OR**	100mg m/r BD (or if unavailable 50mg QDS)	-	3 days	
		pivmecillinam (a penicillin) **OR**	400mg initial dose, then 200mg TDS	-	3 days	
		fosfomycin	3g single dose sachet	-	single dose	
		Pregnant women first choice: nitrofurantoin (avoid at term) – if eGFR ≥45 ml/minute	100mg m/r BD (or if unavailable 50mg QDS)	-	7 days	
		Pregnant women second choice: amoxicillin (only if culture results available and susceptible) **OR**	500mg TDS	-	7 days	
		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				
		Men first choice: trimethoprim **OR**	200mg BD	-	7 days	
		nitrofurantoin (if eGFR ≥45 ml/minute)	100mg m/r BD (or if unavailable 50mg QDS)	-		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
		Men second choice: consider alternative diagnoses basing antibiotic choice on recent culture and susceptibility results				
		Children and young people (3 months and over) first choice: trimethoprim (if low risk of resistance) **OR**	-			
		nitrofurantoin (if eGFR ≥45 ml/minute)	-			
		Children and young people (3 months and over) second choice: nitrofurantoin (if eGFR ≥45 ml/minute and not used as first choice) **OR**	-		-	
		amoxicillin (only if culture results available and susceptible) **OR**	-			
		cefalexin	-			

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute pyelonephritis (upper urinary tract) NICE UK Health Security Agency Last updated: September 2024	Advise paracetamol (+/- low-dose weak opioid) for pain for people 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. Avoid antibiotics that don't achieve adequate levels in renal tissue, such as nitrofurantoin. *For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the UK Health Security Agency urinary tract infection: diagnostic tools for primary care.* **See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.*	**Non-pregnant women and men first choice**: 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	-	7 to 10 days	
		trimethoprim (only if culture results available and susceptible) **OR**	200mg BD	-	14 days	
		ciprofloxacin* (only if other first-choice antibiotics are unsuitable)	500mg BD	-	7 days	
		Non-pregnant women and men IV antibiotics *(click on visual summary)*				
		Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7 to 10 days	
		Pregnant women second choice or IV antibiotics *(click on visual summary)*				
		Children and young people (3 months and over) first choice: cefalexin **OR**	-		-	
		co-amoxiclav (only if culture results available and susceptible)	-			
		Children and young people (3 months and over) IV antibiotics *(click on visual summary)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acute prostatitis NICE UK Health Security Agency Last updated: September 2024	Advise paracetamol (+/- low-dose weak opioid) for pain, or ibuprofen if preferred and suitable. Offer antibiotic. 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 visual summary* ** See the MHRA January 2024 advice on restrictions and precautions for using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects.*	**First choice** (guided by susceptibilities when available): ciprofloxacin* **OR**	500mg BD	-	14 days then review	
		ofloxacin* **OR**	200mg BD	-		
		Alternative first choice if fluoroquinolone antibiotic is not appropriate (seek specialist advice; guided by susceptibilities when available): trimethoprim	200mg BD	-		
		Second choice (after discussion with specialist): levofloxacin* **OR**	500mg OD	-	14 days then review	
		co-trimoxazole	960mg BD	-		
		IV antibiotics *(click on visual summary)*				
Recurrent urinary tract infection NICE UK Health Security Agency Last updated Dec 2024 Refer to NICE guideline (NG112) for details.	First advise about behavioural and personal hygiene measures, and self-care (with D-mannose or cranberry products) to reduce the risk of UTI. For women, trans men and non binary people with a female urinary system who are experiencing perimenopause, menopause who are post menopausal, consider vaginal oestrogen if behavioural and personal hygiene measures alone are not effective or appropriate. Review oestrogen use within 12 months. For non-pregnant women, if no improvement, consider single-dose antibiotic prophylaxis for exposure to a trigger (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	**First choice antibiotic prophylaxis**: trimethoprim (avoid in pregnancy) **OR**	200mg single dose when exposed to a trigger or 100mg at night		-	
		nitrofurantoin (avoid at term) - if eGFR ≥45ml/minute	100mg single dose when exposed to a trigger or 50 to 100mg at night		-	
		Antiseptic prophylaxis: Methenamine Hippurate (prescribed as Hiprex) **Note:** Methenamine is **non formulary** in EPUT and will require a non-formulary application prior to use	1g twice a day		-	

	(review within 6 months). *For detailed information click on the visual summary. See also the NICE guideline on urinary tract infection in under 16s: diagnosis and management and the UK Health Security Agency ~~urinary tract infection:~~ diagnostic tools for primary care.*	**Second choice antibiotic prophylaxis**: amoxicillin **OR**	500mg single dose when exposed to a trigger or 250mg at night		-	
		cephalexin	500mg single dose when exposed to a trigger or 125mg at night		-	

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Catheter-associated urinary tract infection NICE UK Health Security Agency Last updated: September 2024	Antibiotic treatment is not routinely needed for asymptomatic bacteriuria in people with a urinary catheter. 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 paracetamol for pain. Advise drinking enough fluids to avoid dehydration. Offer an antibiotic for a symptomatic infection. 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. Do not routinely offer antibiotic prophylaxis to people with a short-term or long-term catheter. *For detailed information click on the visual summary. See also the UK Health Security Agency urinary tract infection: diagnostic tools for primary care.* **See the MHRA January 2024 advice for restrictions and precautions on using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones*	**Non-pregnant women and men first choice 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	-		
		Non-pregnant women and men second choice if no upper UTI symptoms: pivmecillinam (a penicillin)	400mg initial dose, then 200mg TDS	-	7 days	
		Non-pregnant women and men first choice if upper UTI symptoms: 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	

	must now only be prescribed when other commonly recommended antibiotics are inappropriate.	ciprofloxacin* (only if other first-choice antibiotics are unsuitable)	500mg BD	-	7 days	
		Non-pregnant women and men IV antibiotics *(click on visual summary)*				
		Pregnant women first choice: cefalexin	500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections)	-	7 to 10 days	
		Pregnant women second choice or IV antibiotics *(click on visual summary)*				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
		Children and young people (3 months and over) first choice: trimethoprim (if low risk of resistance) **OR**	-			
		amoxicillin (only if culture results available and susceptible) **OR**	-		-	
		cefalexin **OR**	-			
		co-amoxiclav (only if culture results available and susceptible)	-			
		Children and young people (3 months and over) IV antibiotics *(click on visual summary)*				

▼ Meningitis

Suspected meningococcal disease Last updated: June 2023 Status: Under review	For management guidance please refer to Meningococcal disease: guidance on public health management - GOV.UK (www.gov.uk)

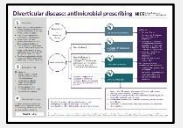
Prevention of secondary case of meningitis Last updated: June 2023 Status: Under review	For management guidance please refer to Meningococcal disease: guidance on public health management - GOV.UK (www.gov.uk)

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ **Gastrointestinal tract infections**						
Oral candidiasis Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Candida oral					
Infectious diarrhoea Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Gastroenteritis					
Traveller's diarrhoea Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Diarrhoea - prevention and advice for travellers					

Threadworm Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Threadworm

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
***Clostridioides difficile* infection** NICE UK Health Security Agency Last updated: Jul 2021	For suspected or confirmed *C. difficile* infection, see UK Health Security Agency's guidance on diagnosis and reporting. **Assess**: whether it is a first or further episode, severity of infection, individual risk factors for complications or recurrence (such as age, frailty or comorbidities). **Existing antibiotics**: review and stop unless essential. If still essential, consider changing to one with a lower risk of *C. difficile* infection. Review the need to continue: 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). Do not offer antimotility medicines such as loperamide. Offer an oral antibiotic to treat suspected or confirmed *C. difficile* infection. For adults, consider seeking prompt specialist advice from a microbiologist or infectious	**First-line for first episode of mild, moderate or severe:** vancomycin	125mg QDS	BNF for children	10 days	
		Second-line for first episode of mild, moderate or severe if vancomycin ineffective: fidaxomicin	200mg BD	BNF for children		
		For further episode within 12 weeks of symptom resolution (relapse): fidaxomicin	200mg BD	BNF for children		
		For further episode more than 12 weeks after symptom resolution (recurrence): vancomycin **OR**	125mg QDS	BNF for children		
		fidaxomicin	200mg BD	BNF for children		

	diseases specialist before starting treatment. For children and young people, treatment should be started by, or after advice from, a microbiologist, paediatric infectious diseases specialist or paediatric gastroenterologist. If antibiotics have been started for suspected *C. difficile* infection, and subsequent stool sample tests do not confirm infection, consider stopping these antibiotics. *For detailed information click on the visual summary.*	**For alternative antibiotics if first- and second-line antibiotics are ineffective or for life-threatening infection seek specialist advice (see visual summary)**				
Infection	**Key points**	**Medicine**	**Doses**		**Length**	**Visual summary**
			Adult	**Child**		
Helicobacter pylori Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/BNF treatment summaries: Helicobacter pylori infection					
Acute diverticulitis NICE Last updated: September 2024	**Acute diverticulitis and systemically well:** Consider no antibiotics, offer simple analgesia (for example paracetamol), advise to re-present if symptoms persist or worsen. **Acute diverticulitis and systemically unwell, immunosuppressed or significant comorbidity:** offer an antibiotic. Give oral antibiotics if person not referred to hospital for suspected complicated acute diverticulitis. Give IV antibiotics if admitted to hospital with	**First-choice (uncomplicated acute diverticulitis):** co-amoxiclav	500/125mg TDS	-	5 days*	
		Penicillin allergy or co-amoxiclav unsuitable: cefalexin (caution in penicillin allergy) **AND** metronidazole **OR**	cefalexin: 500mg BD or TDS (up to 1g to 1.5g TDS or QDS for severe infections) metronidazole: 400mg TDS	-		

	suspected or confirmed complicated acute diverticulitis (including diverticular abscess). If CT-confirmed uncomplicated acute diverticulitis, review the need for antibiotics. *For detailed information click on the visual summary.* ** A longer course may be needed based on clinical assessment.* *** See the MHRA January 2024 advice for restrictions and precautions on using fluoroquinolone antibiotics because of the risk of disabling and potentially long-lasting or irreversible side effects. Fluoroquinolones must now only be prescribed when other commonly recommended antibiotics are inappropriate.*	trimethoprim **AND** metronidazole **OR**	trimethoprim: 200mg BD metronidazole: 400mg TDS	-		
		ciprofloxacin** (only if switching from IV ciprofloxacin with specialist advice) **AND** metronidazole	ciprofloxacin: 500mg BD metronidazole: 400mg TDS			
		For IV antibiotics in complicated acute diverticulitis (including diverticular abscess) see visual summary				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
▼ Genital tract infections						
Epididymitis Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline for the management of Epididymo-orchitis					
Chlamydia trachomatis/ urethritis Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline for the management of Chlamydia					

Vaginal candidiasis Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline for the management of Vulvovaginal candidiasis
Bacterial vaginosis Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline for the management of Bacterial vaginosis

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Genital herpes Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline for the management of Anogenital herpes					
Gonorrhoea Last updated: June 2023 Status: Under review	For further management guidance please refer to the BASHH United Kingdom guideline for the management of Gonorrhoea					

Trichomoniasis Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom guideline on the management of Trichomonas vaginalis
Pelvic inflammatory disease Last updated: June 2023 Status: Under review	For further management guidance please refer to the BASHH United Kingdom national guideline on the management of Pelvic inflammatory disease

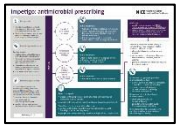
▼ Skin and soft tissue infections

Cold sores Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Herpes simplex - oral

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
PVL-SA Last updated: June 2023 Status: Under review	For management guidance please refer to UKHSA (PHE) PVL-Staphylococcus aureus infections: diagnosis and management					
Eczema (bacterial infection)	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	**If not systemically unwell, do not routinely offer either a topical or oral antibiotic**				
		Topical antibiotic (if a topical is appropriate). For localised infections only:				
		First choice: fusidic acid 2%	TDS		5 to 7 days	

NICE UK Health Security Agency Last updated: Mar 2021	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. **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:** Offer an oral antibiotic. If there are symptoms or signs of cellulitis, see cellulitis and erysipelas. For detailed information click on the visual summary.	**Oral antibiotic:**				
		First choice: flucloxacillin	500mg QDS		5 to 7 days	
		Penicillin allergy or flucloxacillin unsuitable: clarithromycin **OR**	250mg BD (can be increased to 500mg BD for severe infections)			
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	250mg to 500mg QDS			
		If MRSA suspected or confirmed – consult local microbiologist				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Impetigo NICE UK Health Security Agency	**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	**Topical antiseptic:**				
		hydrogen peroxide 1%	BD or TDS		5 days*	
		Topical antibiotic:				
		First choice: fusidic acid 2%	TDS		5 days*	
		Fusidic acid resistance suspected or confirmed: mupirocin 2%	TDS			
		Oral antibiotic:				
		First choice: flucloxacillin	500mg QDS			

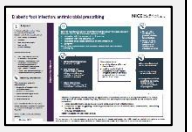
Last updated: Feb 2020	repeated use, and local antimicrobial resistance data. **Bullous impetigo, systemically unwell, or high risk of complications:** Short-course oral antibiotic. Do not offer combination treatment with a topical and oral antibiotic to treat impetigo. *For detailed information click on the visual summary.* **5 days is appropriate for most, can be increased to 7 days based on clinical judgement.*	**Penicillin allergy or flucloxacillin unsuitable:** clarithromycin **OR**	250mg BD		5 days*	
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	250 to 500mg QDS			
		If MRSA suspected or confirmed – consult local microbiologist				
Mastitis Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Mastitis and breast abscess					
Tick bites (Lyme disease) Last updated: June 2023 Status: Under review	For management guidance please refer to NICE NG95: Lyme disease					

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Scabies Last updated: June 2023 Status: Under review	For management guidance please refer to the BASHH United Kingdom national guideline on the management of Scabies					

Insect bites and stings NICE UK Health Security Agency Last updated: Sep 2020	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. *For detailed information click on the visual summary.*	-	-	-	-	
Leg ulcer infection NICE UK Health Security Agency Last updated: Feb 2020	Manage any underlying conditions to promote ulcer healing. Only offer an antibiotic 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. *For detailed information click on the visual summary.*	**First-choice:**				
		flucloxacillin	500mg to 1g QDS	-	7 days	
		Penicillin allergy or if flucloxacillin unsuitable:				
		doxycycline **OR**	200mg on day 1, then 100mg OD (can be increased to 200mg daily)	-	7 days	
		clarithromycin **OR**	500mg BD			
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm)	500mg QDS			
		Second choice:				
		co-amoxiclav **OR**	500/125mg TDS	-	7 days	
		co-trimoxazole (in penicillin allergy)	960mg BD			
		For antibiotic choices if severely unwell or MRSA suspected or confirmed, click on the visual summary				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Cellulitis and erysipelas	Exclude other causes of skin redness (inflammatory reactions or non-infectious causes). Consider marking extent of infection with a	**First choice:**				
		flucloxacillin	500mg to 1g QDS		5 to 7 days*	
		Penicillin allergy or if flucloxacillin unsuitable:				
		clarithromycin **OR**	500mg BD			

NICE UK Health Security Agency Last updated: Sept 2019	single-use surgical marker pen. Offer an antibiotic. Take account of 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. Do not routinely offer antibiotics to prevent recurrent cellulitis or erysipelas. *For detailed information click on the visual summary.* **A longer course (up to 14 days in total) may be needed but skin takes time to return to normal, and full resolution at 5 to 7 days is not expected.*	erythromycin (if macrolide needed in pregnancy; consider benefit/harm) **OR**	500mg QDS		5 to 7 days*	
		doxycycline (adults only) **OR**	200mg on day 1, then 100mg OD	-		
		co-amoxiclav (children only: not in penicillin allergy)	-			
		If infection near eyes or nose:				
		co-amoxiclav	500/125mg TDS		7 days*	
		If infection near eyes or nose (penicillin allergy):				
		clarithromycin **AND**	500mg BD			
		metronidazole (only add in children if anaerobes suspected)	400mg TDS		7 days*	
		For alternative choice antibiotics for severe infection, suspected or confirmed MRSA infection and IV antibiotics click on the visual summary				

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Diabetic foot infection NICE UK Health Security Agency Last updated: Oct 2019	In diabetes, all foot wounds are likely to be colonised with bacteria. Diabetic foot infection has at least 2 of: local swelling or induration; erythema; local tenderness or pain; local warmth; purulent discharge. Severity is classified as: **Mild**: local infection with 0.5 to less than 2cm erythema **Moderate**: local infection with more than 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. **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.* Do not offer antibiotics to prevent diabetic foot infection. *For detailed information click on the visual summary.*	**Mild infection: first choice**				
		flucloxacillin	500mg to 1g QDS	-	7 days*	
		Mild infection (penicillin allergy):				
		clarithromycin **OR**	500mg BD	-	7 days*	
		erythromycin (if macrolide needed in pregnancy; consider benefit/harm) **OR**	500mg QDS			
		doxycycline	200mg on day 1, then 100mg OD (can be increased to 200mg daily)			
		For antibiotic choices for moderate or severe infection, infections where *Pseudomonas aeruginosa* or MRSA is suspected or confirmed, and IV antibiotics click on the visual summary				

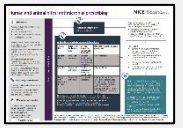
Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Acne vulgaris NICE Last updated: Jun 2021	**First-line treatment options**: offer a course of 1 of the options, taking account of severity, preferences, and advantages/disadvantages of each option. Completing the course is important because positive effects can take 6 to 8 weeks. Consider topical benzoyl peroxide monotherapy as an alternative if first-line treatment options are contraindicated, or to avoid topical retinoids or an antibiotic (topical or oral). **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.*	**First line**: fixed combination of topical adapalene with topical 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 evening)	BNF for children	12 weeks	*Not available. See the NICE guideline on acne vulgaris.*
		fixed combination of topical tretinoin with topical clindamycin (for any acne severity, not in under 12s) **OR**	0.025% tretinoin/ 1% clindamycin OD (thinly in the evening)	BNF for children		
		fixed combination of topical benzoyl peroxide with topical 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 combination of topical adapalene with topical 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 OD (in the evening) **AND** lymecycline 408mg OD **OR** doxycycline 100mg OD	BNF for children		

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
		topical azelaic acid **AND** either oral lymecycline or oral doxycycline (for moderate to severe acne, not in under 12s)	15% or 20% azelaic acid BD **AND** lymecycline 408mg OD **OR** doxycycline 100mg OD	BNF for children BNF for children		
		Alternative: topical benzoyl peroxide	5% benzoyl peroxide OD to BD	BNF for children		
Dermatophyte infection: skin Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Fungal skin infection - body and groin					
Dermatophyte infection: nail Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Fungal nail infection					

<table>
<tr><th>Infection</th><th>Key points</th><th>Medicine</th><th colspan="2">Doses</th><th>Length</th><th>Visual summary</th></tr>
<tr><th></th><th></th><th></th><th>Adult</th><th>Child</th><th></th><th></th></tr>
<tr><td rowspan="6">Human and animal bites

NICE

UK Health Security Agency

Last updated: Nov 2020</td><td rowspan="6">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 other 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.
For detailed information click on the visual summary.
*course length can be increased to 7 days (with review) based on clinical assessment of the wound.</td><td colspan="4">First choice:</td><td rowspan="6">  </td></tr>
<tr><td>co-amoxiclav</td><td>250/125mg or 500/125mg TDS</td><td>  </td><td>3 days for prophylaxis
5 days for treatment*</td></tr>
<tr><td colspan="4">Penicillin allergy or co-amoxiclav unsuitable:</td></tr>
<tr><td>doxycycline AND</td><td>200mg on day 1, then 100mg or 200mg daily</td><td rowspan="3">  </td><td rowspan="3">3 days for prophylaxis
5 days for treatment*</td></tr>
<tr><td>metronidazole</td><td>400mg TDS</td></tr>
<tr><td colspan="2">seek specialist advice in pregnancy</td></tr>
<tr><td colspan="5">IV antibiotics (click on visual summary)</td></tr>
</table>

Infection	Key points	Medicine	Doses		Length	Visual summary
			Adult	Child		
Varicella zoster/ chickenpox **Herpes zoster/ shingles** Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries - Chickenpox Or NICE/Clinical Knowledge Summaries - Shingles					
▼ **Eye infections**						
Conjunctivitis Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Conjunctivitis - infective					
Blepharitis Last updated: June 2023 Status: Under review	For management guidance please refer to NICE/Clinical Knowledge Summaries: Blepharitis					
▼ **Suspected dental infections in primary care (outside dental settings)**						
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 provided details of how to access emergency dental care. **For further information on this topic please refer to the:** College of General Dentistry and Faculty of Dental Surgery (FDS) of the Royal College of Surgeons of England - Antimicrobial Prescribing in Dentistry: Good Practice Guidelines.						
▼ **Abbreviations**						
BD, twice a day; eGFR, estimated glomerular filtration rate; IM, intramuscular; IV, intravenous; MALToma, mucosa-associated lymphoid tissue lymphoma; m/r, modified release; MRSA, methicillin-resistant *Staphylococcus aureus*; MSM, men who have sex with men; stat, given immediately; OD, once daily; TDS, 3 times a day; QDS, 4 times a day.						

18.6 Microbiology Support

For North Essex, microbiology advice can be sought from the microbiology team at Colchester General Hospital on 01206 747374. Dr Gillian Urwin is the Lead Microbiologist. Out of hours the on-call microbiologist can be contacted via 01206 747474.

For South Essex, please contact Southend Hospital Microbiology Department / on-call microbiologist via 01702 435555 (switchboard).

For West Essex, please contact The Princess Alexandra Hospital Microbiology Department via 01279 444455 (switchboard).

18.7 References

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18.