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Management & treatment of common infections
Guidance for Primary Care April 2024

Summary of antimicrobial guidance
Managing common infections

NHS Somerset

Aims

- to provide a simple, empirical approach to the treatment of common infections
- to promote the safe, effective and economic use of antibiotics
- to minimise the emergence of bacterial resistance in the community

Principles of Treatment

1. This guidance is based on best available evidence, but practitioners should use their professional judgement patients should be involved in decisions about their treatment.
2. It is important to initiate antibiotics as soon as possible for severe infection.
3. Prescribe an antibiotic only when there is likely to be a clear clinical benefit, giving alternative, non-antibiotic self-care advice where appropriate.
4. If a person is systemically unwell with symptoms or signs of serious illness or is at high risk of complications: give immediate antibiotic. Always consider possibility of sepsis and refer to hospital if severe systemic infection.
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. Consider a 'No', or 'Back-up/delayed', antibiotic strategy for acute self-limiting mild UTI symptoms and upper respiratory tract infections including sore throat, common cold, cough and sinusitis. (See patient leaflets "Treating your infection").
8. Limit prescribing over the telephone to exceptional cases.
9. Use simple antibiotics prescribed generically whenever 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.
10. Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.
11. Avoid widespread use of topical antibiotics, especially those agents also available as systemic preparations, e.g. fusidic acid; in most cases, topical use should be limited.
12. Always check for antibiotics allergies. Unless otherwise stated, 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.
13. Refer to the BNF and individual SPCs for further dosing and interaction information (e.g. interaction between macrolides and statins) if needed and please check for hypersensitivity.
14. For further advice (i.e. empirical therapy failure, special circumstances, etc.) contact the Consultant Medical Microbiologists at Musgrove Park Hospital ☎ Direct number - 01823 343765 or out of hours switchboard 01823 333444
15. This guidance should not be used in isolation, it should be supported with patient information about safety netting, back-up/delayed antibiotics, self-care, infection severity and usual duration, clinical staff education, and audits. Materials are available on the RCGP TARGET website.
16. See the NHS Somerset ICB webpage for signposting to evidence based information resources when prescribing in pregnancy and lactation. Other useful resources : Drugs in pregnancy information (BUMPS) and Breastfeeding information links (SPS)

Jump to the infection group you want by clicking on the link below

No information on **NEONATAL INFECTIONS**
in this document - discuss with secondary care (see NICE guidance)

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
UPPER RESPIRATORY TRACT INFECTIONS: Consider 'back-up/delayed' antibiotic prescribing				
Acute Sore Throat Centor FeverPAIN NICE NG84 NICE NG84 2-page visual summary RTI self-care patient leaflet Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Advise paracetamol, or if preferred and suitable, ibuprofen for pain, self-care, and safety net. Medicated lozenges may help pain in adults. Use **FeverPAIN** or **Centor** to assess symptoms; score 1 point for each element of the criteria. **FeverPAIN**: **Fever** in last 24h ((≥36.9 °C), **P**urulent tonsils, patient **A**ttending rapidly (≤ 3 days after onset of symptoms), severely **I**nflamed tonsils, **N**o cough or coryza. **Centor**: tonsillar exudate, tender anterior lymphadenopathy or lymphadenitis, history of fever (>38.0 °C), absence of cough. Likelihood streptococci: **FeverPain 0-1 or Centor 0-2:** 13-18% **FeverPain 2-3:** 34-40% **FeverPAIN 4-5 or Centor 3-4:** 62-65% Refer to hospital if: severe systemic infection, or severe complications.	FeverPAIN 0-1 or Centor 0-2: no antibiotic strategy, self-care & safety net FeverPAIN 2-3: no or 'back-up/delayed' antibiotic prescription FeverPAIN 4-5 or Centor 3-4: immediate or 'back-up/delayed' antibiotic prescription. **Systemically very unwell or high risk of complications:** immediate antibiotic. Phenoxymethylpenicillin *Penicillin allergy:* Clarithromycin (caution in elderly with heart disease) OR Erythromycin (preferred if pregnant)	500mg QDS *If severe:* 1000mg QDS 250mg BD *If severe:* 500mg BD 250mg-500mg QDS or 500mg-1000mg BD	5-10 days 5 days 5 days
Influenza PHE Influenza Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Annual vaccination is essential for all those "at risk" of influenza**. Antivirals are not recommended for healthy adults. **Treat patients in "at risk group" or at serious risk of developing complications** 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. Note: dose adjustments are required for renal dysfunction and use in children. **At risk population:** pregnant women (and up to 2 weeks post-partum); children under 6 months; adults 65 years or older; chronic respiratory disease (including COPD and asthma); significant cardiovascular disease (not hypertension); severe immunosuppression; chronic neurological, renal or liver disease; diabetes mellitus; morbid obesity (BMI≥40). See the PHE Influenza guidance for the treatment of patients under 13 years. In severe immunosuppression, or oseltamivir resistance, use zanamivir 10mg BD (2 inhalations by diskhaler for up to 10 days) and seek advice.			
Scarlet fever (GAS) See updated guidance about IGAS on the ICB webpage https://nhssomerset.nhs.uk/prescribing-and-medicines-management/antimicrobial/ PHE	Suspected scarlet fever can be confirmed by taking a throat swab for culture of GAS, although a negative throat swab does not exclude the diagnosis. Consider taking a throat swab in patients with clinically suspected scarlet fever and in children with an undiagnosed febrile illness without an obvious focus of infection. **Prompt treatment** with appropriate antibiotics significantly reduces the risk of complications. Prescribe antibiotics without waiting for the culture result if scarlet fever is clinically suspected. Advise exclusion from nursery / school / work for **24 hours** after the commencement of appropriate antibiotic treatment. Observe vulnerable individuals (immunocompromised i.e. diabetes, women in the puerperal period, chickenpox; the comorbid or those with skin disease) as they are at increased risk of developing invasive infection. **Optimise analgesia and give safety netting advice.** **Notify** Devon, Cornwall and Somerset Health Protection Team, Tel: 0344 225 3557 or out of hours via the Musgrove Park Hospital switchboard on ☎01823 333444.	Phenoxymethylpenicillin *Penicillin allergy:* Clarithromycin OR Erythromycin (preferred if pregnant)	**Phenoxymethylpenicillin** ≤1mth 12.5mg/kg (max. 62.5mg) QDS 1mth-<1yr 62.5mg QDS 1-<6yrs 125mg QDS 6-<12yrs 250mg QDS 12-<18yrs 250-500mg QDS ≥18yrs 500mg QDS **Clarithromycin** 1mth-11yrs (body weight up to 8kg) 7.5mg/kg BD 1mth-11yrs (body-weight 8-11kg) 62.5mg BD 1mth-11yrs (body-weight 12-19kg) 125mg BD 1mth-11yrs (20-29kg) 187.5mg BD 1mth-11yrs (30-40kg) 250mg BD 12-17yrs 250-500mg BD ≥18yrs 250-500mg BD **Erythromycin** 1mth-23mths 125mg QDS or 250mg BD 2-7yrs 250mg QDS or 500mg BD 8-17yrs 250-500mg QDS or 500-1000mg BD ≥18yrs 250-500mg QDS or 500-1000mg BD	10 days 5 days 5 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Acute Otitis Media *(child doses)* BNFc CKS NICE 2-page visual summary NICE NG91 NICE Otovent® RTI self-care patient leaflet	Regular paracetamol or ibuprofen for pain (right dose for age or weight at the right time and maximum doses for severe pain). **Otigo ear drops** (phenazone/lidocaine hydrochloride) 40 mg/10 mg/g) are included in the formulary for local symptomatic treatment and relief of pain in the following diseases of the middle ear without tympanic perforation: - acute, congestive otitis media; - otitis in influenza, the so called viral bullous otitis; - barotraumatic otitis. Otigo ear drops are suitable for adults or children. They are contraindicated in infectious or traumatic perforation of the tympanic membrane (including myringotomy). Groups who may be more likely to benefit from antibiotics: **Children and young people with acute otitis media and otorrhoea** **Children under 2 years with acute infection in both ears**. **Otherwise:** no or back-up antibiotic. **Systemically very unwell or high risk of complications:** immediate antibiotic. For detailed information refer to NICE 2-page visual summary	*First line:* No antibiotic strategy, self-care, safety net. Consider **Otigo** eardrops for pain relief. *Second line:* *First option:* Amoxicillin *Penicillin allergy or intolerance:* Clarithromycin OR Erythromycin (preferred if pregnant) *Second option:* Co-amoxiclav (if worsening symptoms on first antibiotic choice taken for at least 2-3 days)	***Child doses:*** **Amoxicillin** 1-11mths 125mg TDS 1-4yrs 250mg TDS 5-17yrs 500mg TDS **Clarithromycin** 1mth-11yrs: up to 8kg 7.5mg/kg BD 8-11kg 62.5mg BD 12-19kg 125mg BD 20-29kg 187.5mg BD 30-40kg 250mg BD or 12-17yrs 250mg BD (500mg BD in severe infection) ***Child doses*:** **Erythromycin** 1mth-1yr 125mg QDS or 250mg BD 2-7yrs 250mg QDS or 500mg BD 8-17yrs 250mg-500mg QDS or 500mg-1000mg BD **Co-amoxiclav** 1-11mths 0.25mL/kg of 125/31 suspension TDS 1-5yrs 5mL or 0.25mL/kg of 125/31 suspension TDS 6-11yrs 5mL or 0.15mL/kg of 250/62 suspension TDS 12-17yrs 250/125 or 500/125 TDS	5-7 days 5-7 days 5-7 days 5-7 days
Otitis Media with Effusion (Glue ear) NICE Otovent® NICE NG 233 Otitis media with effusion in under 12s	Interventions could include auto-inflation devices, hearing aids or grommets. See NICE Consider autoinflation device Otovent® nasal balloon to relieve otitis media with effusion: initially 3 inflations per day for each affected nostril. Lasts 2-3 weeks (each latex balloon may be inflated 20 times before needing replacement			
Infection post grommet insertion	If grommets have been inserted advise water precautions to keep the ear dry. Ear discharge is a common problem and ear infection can occur which may require antibiotic treatment with a non-ototoxic antibiotic eardrop.	**Ciprofloxacin 0.3% with dexamethasone 0.1% eardrops** *(Off label Use)*	4 drops BD (children≥6 months)	5-7 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Acute Otitis Externa CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**First line:** analgesia for pain relief and apply localised heat (such as a warm flannel). **Second line:** topical acetic acid or topical antibiotic +/- steroid: similar cure at 7 days. **If cellulitis or disease extends outside ear canal**, or systemic signs of infection: start oral flucloxacillin and refer to exclude malignant otitis externa. Topical aminoglycoside preparations are contraindicated in people with a perforated tympanic membrane, or a tympanostomy tube in situ because of the risk of ototoxicity If possible perforation of the tympanic membrane, or if pseudomonas infection has been identified then ciprofloxacin and dexamethasone are a non-ototoxic anti-pseudomonal drop with anti-inflammatory properties. CKS *Ciprofloxacin if sensitive will be reported by microbiology as 'I'. Seek alternative from specialist centre if reported as R* If there is a history of suspected contact sensitivity to a topical ear preparation, advise to avoid all preparations with the same class of drug associated with the reaction. For example, if neomycin is thought to have caused a sensitivity reaction, all preparations containing aminoglycosides should be avoided. CKS *Note: precautions with use of Betnesol-N® or Otomize® in small babies and children: - Prolonged use in babies may cause the adrenal gland to stop working properly - Open wounds or damaged skin: the antibiotic component can cause permanent, partial or total deafness if used on open wounds or damaged skin. This possibility should be borne in mind if high doses are given to small children or infants. Reassess patients who fail to respond to the initial therapeutic option within 48-72 hours to confirm diagnosis of acute otitis externa. For those with proven pseudomonas infection and no response to ciprofloxacin then gentamicin containing eardrops may be required plus referral to ENT for microsuction / wick to remove debris. These drops are otherwise non-formulary If no response to treatment in general, then also refer to ENT for further care. *Consider the antifungal agents such as clotrimazole eardrops for fungal infections*.	*First line:* No antibiotic strategy, self-care, safety net *Second line:* *First option* ✚ *(available OTC)* Topical acetic acid 2% (EarCalm®) *Second option:* Ciprofloxacin 0.3% / dexamethasone 0.1% ear drops **particularly for patients with possible perforation in whom aminoglycosides should be avoided and in patients with canal inflammation and pseudomonas** **OR** Betnesol-N® drops (betamethasone 0.1% neomycin 0.5%) (consider safety issues if perforated tympanic membrane) OR Otomize® spray (neomycin sulphate 0.5% dexamethasone 0.1% glacial acetic acid 2.0%) (consider safety issues if perforated tympanic membrane) *If cellulitis, disease extending outside the ear canal or systemic signs of infection:* Flucloxacillin	1 spray TDS *(adults and children aged ≥ 12 years)* *4 drops BD* *(adults and children ≥1 year)* 2 - 3 drops TDS-QDS *(can be given to babies and small children; take clinical precautions*see side note)* 1 spray TDS *(adults and children aged ≥ 2 years)* *Refer to management of Cellulitis for dosing (p25)*	7 days 7 days 7 days (min) to 14 days (max) 7 days (min) to 14 days (max) (should be continued until 2 days after symptoms have resolved) 7 days
Sinusitis (acute) CKS NICE NG79 NICE NG79 2-page visual summary RTI self-care patient leaflet Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Advise paracetamol or ibuprofen for pain. Little evidence that nasal saline or nasal decongestants help, but people may want to try them. **Symptoms 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 such as if several of: purulent nasal discharge; severe localised unilateral pain; fever; marked deterioration after initial milder phase. Consider high-dose nasal steroid if over 12 years old. **At any time, if: high-risk of complications, evidence of systemic upset (e.g. fever, worsening pain) or more serious signs and symptoms**: immediate antibiotic. **If suspected complications**: e.g. sepsis, intraorbital, periorbital or intracranial: refer to secondary care.	*First line:* No antibiotic strategy, self-care, safety net *Second line:* *First option:* Phenoxymethylpenicillin *Penicillin allergy:* Doxycycline (not in under 12's or if pregnant/ breastfeeding) OR Clarithromycin (caution in elderly with heart disease) OR Erythromycin (preferred if pregnant) *Second option:* (for high-risk of complications, or persistent or worsening symptoms) Co-amoxiclav	500mg QDS 200mg stat on day 1 then 100mg OD 500mg BD 250mg-500mg QDS or 500mg-1000mg BD 500/125mg TDS	5 days 5 days 5 days 5 days 5 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
LOWER RESPIRATORY TRACT INFECTIONS				TOP
Note: low doses of penicillins are more likely to select for resistance. ***Do not*** *use quinolones (ciprofloxacin, ofloxacin) first line due as there is poor pneumococcal activity and used should be avoided as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation. Reserve all quinolones (including levofloxacin) for proven resistant organisms.*				
Cough (acute) NICE NG120 2-page visual summary NICE NG120 RTI self-care patient leaflet Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	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). ✚ *(available OTC)*. 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. See also the NICE guideline on pneumonia for prescribing antibiotics in adults with acute bronchitis who have had a C-reactive protein (CRP) test (CRP<20mg/l: no routine antibiotic, CRP 20 to 100mg/l: back-up antibiotic, CRP>100mg/l: immediate antibiotic).*	*First line:* No antibiotic strategy, self-care, safety net *Adults Second line:* Doxycycline (not in under 12's or if pregnant/ breastfeeding) *Adults Third line:* Amoxicillin (preferred if pregnant) OR Clarithromycin (caution in elderly with heart disease) OR Erythromycin (preferred if pregnant) *Children Second line:* Amoxicillin *Children Third line:* Clarithromycin OR OR Erythromycin OR Doxycycline (not in under 12's)	200 mg stat on day 1, then 100mg OD 500mg TDS 250mg-500mg BD 250mg-500mg QDS or 500mg-1000mg BD **Amoxicillin** 1-11mths 125mg TDS 1-4yrs 250mg TDS 5-17yrs 500mg TDS **Clarithromycin** 1mth-11yrs: up to 8kg 7.5mg/kg BD 8-11kg 62.5mg BD 12-19kg 125mg BD 20-29kg 187.5mg BD 30-40kg 250mg BD or 12-17yrs 250mg BD (500mg BD in severe infection) **Erythromycin** 1mth-23mths 125mg QDS or 250mg BD 2-7yrs 250mg QDS or 500mg BD 8-17yrs 250mg-500mg QDS or 500mg-1000mg BD **Doxycycline** 12-17yrs 200mg OD on the first day, then 100 mg once a day for 4 days (5-day course in total)	5 days 5 days 5 days 5 days 5 days 5 days 5 days
Acute exacerbation of COPD NICE NG114 2-page visual summary NICE NG120 Gold *Continued on next page*	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.*	**When current susceptibility data available: choose antibiotics accordingly** *First option:* Doxycycline (not if pregnant/ breastfeeding) OR Amoxicillin *Penicillin allergy:* Clarithromycin (caution in elderly with heart disease)	200mg stat on day 1, then 100mg OD 500mg TDS 500 mg BD	5 days 5 days 5 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Acute exacerbation of COPD continued		*Second option (no improvement in symptoms on first choice taken for at least 2 to 3 days; guided by susceptibilities when available)* Use alternative first choice *Third option or if at higher risk of treatment failure:* Co-trimoxazole	960mg BD	5 days
Acute exacerbation of bronchiectasis (non-cystic fibrosis) NICE NG117 3-page visual summary NICE NG117 Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	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.	**When current susceptibility data available: choose antibiotics accordingly** *First choice empirical treatment:* Amoxicillin (preferred if pregnant) OR Doxycycline (not in under 12's, or if pregnant/ breastfeeding) *Penicillin allergy:* Clarithromycin (caution in elderly with heart disease) *Alternative choices & children: seek specialist advice*	500mg TDS 200mg stat on day 1, then 100mg OD 500 mg BD	7-14 days 7-14 days 7-14 days
Managing suspected or confirmed pneumonia in adults in the community during the COVID-19 pandemic NICE guideline NG191 Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	As **COVID-19 pneumonia is caused by a virus**, antibiotics are ineffective. **Do not offer an antibiotic for treatment or prevention if** COVID-19 is likely to be the cause and symptoms are mild. **Offer an oral antibiotic for treatment of pneumonia if** people who can or wish to be treated in the community if: -the likely cause is bacterial or -it is unclear whether the cause is bacterial or viral and symptoms are more concerning or -they are at high risk of complications because, for example, they are older or frail, or have a pre-existing comorbidity such as immunosuppression or significant heart or lung disease (for example bronchiectasis or COPD), or have a history of severe illness following previous lung infection.	When antibiotic treatment is appropriate: *First option:* Doxycycline *(not if pregnant/ breastfeeding)* *Alternative:* Amoxicillin	200 mg stat on day 1, then 100 mg OD 500mg TDS	5 days 5 days
Community-acquired pneumonia - treatment in the community NICE NG138 3-page visual summary NICE NG138 (Hospital acquired NICE NG139 3-page visual summary NICE NG139) Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Assess severity in adults** based on clinical judgment guided by mortality risk score CRB65 *(click on hyperlink for NICE guidance)* to guide mortality risk, place of care and antibiotics. Each CRB65 parameter scores 1: **C**onfusion (AMT≤8, or new disorientation in person, place or time); **R**espiratory rate ≥ 30breaths/min; **B**P systolic <90 or diastolic ≤ 60; Age ≥**65**; **Score 0:** low severity, consider home-based care; always give safety net advice and likely duration of symptoms, e.g. cough 6 weeks. **Score 1-2:** moderate severity, consider acute hospital assessment or admission. **Score 3-4: high severity, urgent acute hospital admission.** Give immediate IM benzylpenicillin if delayed admission/life threatening, and seek risk factors for *Legionella* and *Staph. aureus* infection.	**If CRB65=0:** *First option (low severity or non-severe in children):* Doxycycline (not in under 12s or if pregnant/ breastfeeding) *Second option (low severity nor on-severe in children):* Amoxicillin OR *Penicillin allergy:* Clarithromycin OR Erythromycin (preferred if pregnant)	200 mg stat on day 1, then 100 mg OD 500 mg TDS (higher doses can be used, see BNF) 500 mg BD 500mg QDS	5 days (Stop antibiotics after 5 days unless microbiological results suggest a longer course is needed or the person is not clinically stable)

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Continued on next page ***Community-acquired pneumonia*** *- treatment in the community continued*	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. If symptoms or signs of pneumonia start within 48 hours of hospital admission follow community acquired pneumonia for choice of antibiotic. 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. Otherwise, antibiotic choice should be based on specialist microbiological advice (co-trimoxazole 960mg BD is the preferred second option). Clinically assess need for dual therapy for atypicals. Mycoplasma infection is rare in over 65s. **Assess severity in children** based on clinical judgement.			
MENINGITIS NICE NG143 fever guidelines				TOP
Suspected meningococcal disease PHE Meningococcal disease	**Transfer all patients to acute hospital immediately.** If time before admission to acute hospital, if suspected meningococcal septicaemia or non-blanching rash, give IV or IM benzylpenicillin as soon as possible. Do not give IV antibiotics if there is a definite history of anaphylaxis; rash is not a contraindication. The alternative is IV or IM cefotaxime which has a low risk of cross-reaction and risk of untreated meningococcal disease may be greater.	IV or IM benzylpenicillin *If penicillin allergy:* IV or IM cefotaxime	IV or IM Child <1 yr: 300 mg Child 1-9yrs: 600 mg Adult/child 10+yrs: 1.2grams IV or IM Child 1mth to <12 yrs: 50mg/kg Adults/child ≥ 12yrs: 1gram	Stat dose (give IM if vein cannot be accessed)
Prevention of secondary case of meningitis	Only prescribe following advice from SW Health Protection Team, Tel: 0300 3038162 (option 1 then option 1, out of hours advice 03003038162 (option 1). Out of hours via the Musgrove Park Hospital switchboard on ☎01823 333444.			
SEPSIS NICE sepsis guideline NG51				TOP
Suspected 'red flag' sepsis NICE NG51 UK Sepsis Trust NEWS2 Neutropenic sepsis/ immunocompromised (microguide.global))	NICE guideline was updated Jan 2024 with tables for evaluating risk level. This information has been incorporated into the UK Sepsis Trust resources or see Appendix 7 of this guideline for General Practice and Telephone Triage Sepsis Screening & Action Tools. Acute hospital setting, acute mental health setting or ambulance should use the national early warning score (NEWS2) to assess people with suspected sepsis who are aged 16 or over, are not and have not recently been pregnant. **Transfer all suspected 'red flag sepsis' patients to acute hospital immediately.** If time to treatment in hospital is likely to be more than 1 hour it is recommended that the first dose of antibiotic is administered by a primary care clinician (if possible after obtaining blood cultures). **Avoid ceftriaxone in the neonates.** Risk of anaphylaxis is low ≈ 0.1%-0.0001%; 2nd and 3rd generation cephalosporins are unlikely to be associated with cross reactivity due to different structure to penicillin. A Neutropenic Sepsis Alert Card is given to all patients receiving chemotherapy. This acts as a patient specific directive for immediate antibiotic delivery by an IV trained nurse in acute hospital to help prevent delays in antibiotic treatment in this patient group.	If time to treatment in hospital is likely to be more than 1 hour Cefotaxime *Alternatively, if not available:* Ceftriaxone	IV or IM Neonates to children <12 yrs: 50mg/kg Adults and children ≥ 12yrs: 1gram IV Children 9-11 yrs (≥50 kg), 12–17yrs & adults: 1-2grams IM Children 1mth–11yrs (<50 kg): 50–80 mg/kg Children 9-11 years (≥50 kg), 12–17yrs & adults: 1-2grams	Stat

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
URINARY TRACT INFECTIONS - refer to PHE UTI guidance for diagnosis information (see Appendix 3) *Note: as antibiotic and Escherichia coli bacteraemia in the community is increasing,* ***ALWAYS give safety net and self-care advice,*** *and consider risks for resistance.*				TOP
Catheter in situ: antibiotics will not eradicate asymptomatic bacteriuria; only treat if systemically unwell or pyelonephritis likely. Do not use prophylactic antibiotics for catheter changes unless there is a history of catheter-change-associated UTI or trauma (NICE & SIGN guidance). Take sample if new onset of delirium, or one or more symptoms of UTI.				
Lower urinary tract infection in non-pregnant women and men (aged ≥ 16 yrs) NICE NG109 lower UTI NICE NG109 3-page visual summary PHE UTI: diagnostic tools for primary care TARGET UTI leaflet for older adults UTI self-care patient leaflet Breastfeeding information links (SPS) Nitrofurantoin: reminder of the risks of pulmonary and hepatic adverse drug reactions - GOV.UK (www.gov.uk)	First exclude other genitourinary causes of urinary symptoms. In all, check for new signs of pyelonephritis, systemic infection, or risk of suspected sepsis. Share self-care and safety-netting advice using UTI self-care patient leaflet. (Appendix 2) Advise paracetamol or ibuprofen for pain. 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. **Non-pregnant women:** back up antibiotic (to use if no improvement in 48 hours or if symptoms worsen at any time) or immediate antibiotic. In **women <65yrs** using symptoms and dipsticks to help diagnose UTI (Appendix 3): no individual or combination is completely reliable in diagnosing UTI, thus severity of symptoms and safety-netting are important in all. Use signs/symptoms of: a) dysuria b) new nocturia, c) cloudy urine to guide treatment. If, ❖ ≥ 2 these symptoms: likely UTI; consider immediate antibiotic OR back-up if mild symptoms and not pregnant ❖ 1 sign/symptom: possible UTI; urine dipstick to increase diagnostic certainty ❖ None of the three: UTI less likely; use urine dipstick if other severe urinary symptoms (frequency, urgency, haematuria, suprapubic tenderness) In **men < 65 years** consider prostatitis; always send midstream urine before antibiotics are taken. Dipsticks are poor at ruling out infection. Negative for both nitrite and leucocyte makes UTI less likely, especially if symptoms are mild. In **women and men >65 years: Do not perform urine dipsticks** (Appendix 3), due to unreliability. "Asymptomatic bacteriuria" is common and not harmful, and although it causes a positive urine dipstick, antibiotics are not beneficial and may cause harm. Think sepsis and exclude pyelonephritis. Check for new urinary symptoms//signs, and if suggestive of UTI always send urine culture. If mild symptoms, consider back-up antibiotics in women without catheters and low risk of complications. Share self-care and safety-netting advice using TARGET UTI leaflet for older adults. **If indwelling URINARY CATHETER for > 7 days:** -check for catheter blockage AND consider catheter removal -**do not perform urine dipsticks** -if treating for a UTI consider changing or removal as soon as possible and before giving antibiotic -send sample from mid-stream urine or urine from new catheter.	**RESISTANCE FACTORS:** **Low risk of resistance:** younger women with acute UTI and no resistance risks (as listed below). **Risk factors for increased resistance include:** abnormalities of genitourinary tract, renal impairment, care home resident, recurrent UTI (2 in last 6 months; ≥ 3 in last 12 months), hospitalisation for > 7days in last 6 months, unresolving urinary symptoms, recent travel to a country with increased antimicrobial resistance, previous UTI resistant to trimethoprim, cephalosporins or quinolones. **If increased resistance risk**, send urine for culture and susceptibilities, and always give safety net advice. *Second line*: perform culture in all **treatment failures**.		
		Uncomplicated UTI and <70 years-old: *First option (if GFR ≥45mls/min):* Nitrofurantoin *If low risk of resistance:* Trimethoprim *Second option:* Pivmecillinam (a penicillin)	100mg m/r caps BD 200mg BD 400mg STAT then 200mg TDS	Women 3 days If catheterised give 7 days for all antibiotics) Men 7 days (all antibiotics)
		Risk of resistance, frail and/or associated co-morbidity: *First option (if GFR ≥45mls/min):* Nitrofurantoin *Second option and/or GFR<45mls/min:* Pivmecillinam (a penicillin) **Avoid Trimethoprim**	100mg m/r caps BD 400mg STAT then 200mg TDS	Women 3 days. If catheterised give 7 days for all antibiotics) Men 7 days (all antibiotics)
		If increased risk of resistance: (contact microbiologist if advice required) Fosfomycin (as Monuril®)	Women: 3grams stat; consider repeating 72 hours later if fails (unlicensed) and send MSU Men: 3grams stat, plus second 3grams dose 72 hours later (unlicensed)	
		In ***treatment failure:*** always perform culture. **Men second optio**n: consider alternative diagnoses i.e. STI, bladder symptoms, obstruction, etc. If true UTI base antibiotic choice on recent culture and susceptibility results. **Pivmecillinam is first option if previous history of Trimethoprim resistance** **Pivmecillinam** is first option for community multi-resistant Extended-spectrum Beta-lactamase *E. coli.* **Fosfomycin as Monuril®** (women: 3g stat; men: 3g stat plus 2nd 3g dose 72 hours later) may be an option – contact microbiologist if advice required. **Pivmecillinam** *cannot* be used in penicillin allergy. **Amoxicillin resistance is common**, therefore ONLY use if culture confirms susceptibility (usual dose 500mg TDS, 3 days for women and 7 days for men). **Nitrofurantoin:** if GFR 30-45ml/min, only use as a short-course (3 to 7 days), if resistance to other antibiotics and no alternative. **If Nitrofurantoin MR 100mg capsules stock is unavailable** the most cost-effective alternative is Nitrofurantoin 50mg tablets (1 QDS).		

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Recurrent UTI in women (non-pregnant) (2 episodes in last 6 months and/or ≥ 3 UTIs in last 12 months) NICE NG112 recurrent UTI NICE NG112 2-page visual summary PHE UTI: diagnostic tools for primary care TARGET UTI leaflet for older adults UTI leaflet Breastfeeding information links (SPS)	**Review all at 3-6 months or more often.** **First line:** advise about behavioural and personal hygiene measures, and self-care (may wish to try **D-mannose** (2 grams OD) **or cranberry supplements** as despite lacking evidence, appear to be generally well-tolerated and safe. For postmenopausal women, if no improvement, consider local oestrogen (applied vaginally) review within 12 months. **Second line:** if no improvement, consider single-dose antibiotic prophylaxis for exposure to trigger. **Third line:** if no improvement or no identifiable trigger, consider a trial of daily antibiotic prophylaxis. Consider methenamine if no renal or hepatic impairment. -Nightly prophylaxis reduces UTIs but adverse effects and long term compliance poor. -Nitrofurantoin can potentially lead to pulmonary or hepatic toxicity. Nitrofurantoin: reminder of the risks of pulmonary and hepatic adverse drug reactions - GOV.UK (www.gov.uk) -Methenamine hippurate (Hiprex®) has been locally approved as an option. *Note:* patients already taking prophylactic antibiotics should only be switched if failure/ resistance in urinary isolate/ drug intolerance or complication. *Safety issue with trimethoprim: can cause hyperkalaemia, particularly in the elderly, patients with renal impairment or in patients receiving ACE inhibitors, angiotensin receptor blockers or potassium sparing diuretics. Close monitoring of potassium is advised if trimethoprim is prescribed: 2-3 x a week for the first 2 weeks, then fortnightly, and if no abnormalities detected consider standard routine monitoring. Also monitor LFT and FBC.	**Third line if recent culture sensitive:** Nitrofurantoin *(if GFR ≥45mls/min):* (note: as per January 2020 **100mg standard tablets 1x nocte** is the most cost-effective option for prophylaxis) OR *Trimethoprim OR consider: Methenamine hippurate	100mg single dose OR 50-100mg 200mg single dose OR 100mg 1 gram	For all: review recurrence rate and need when exposed to a trigger OD at night for 3-6 months when exposed to a trigger OD at night for 3-6 months *Prophylaxis* BD (may be increased to TDS if catheterised) for 3-6 months
UTI in pregnancy NICE NG109 lower UTI NICE NG109 3-page visual summary PHE UTI: diagnostic tools for primary care UTI patient information leaflet Drugs in pregnancy information (BUMPS)	Obtain midstream urine for culture before antibiotics are taken; start antibiotics in all with significant bacteriuria, even if asymptomatic. Review choice of antibiotic when microbiological results are available. (see Appendix 3) Treatment of asymptomatic bacteriuria in pregnant women: choose from nitrofurantoin (avoid at term; may produce neonatal haemolysis), amoxicillin or cefalexin based on recent culture and susceptibility results. For alternative choices or recurrent UTI: consult local microbiologist and choose antibiotics based on culture and susceptibility results.	*First line:* (If GFR ≥45mls/min) Nitrofurantoin – avoid at term *Second line:* (If no improvement in symptoms on first line taken for at least 48 hours, or when first line not suitable): Amoxicillin (only if culture results available and susceptible) OR Cefalexin	100 mg m/r caps BD 500 mg TDS 500 mg BD	7 days 7 days 7 days
UTI in children and young people <16yrs *(child doses)* BNFc NICE NG109 lower UTI antimicrobial prescribing NICE NG109 3-page visual summary NICE NG224 Urinary tract infection in under 16s: diagnosis and management *Continued overleaf*	**Immediately refer the following to a paediatric specialist (parenteral antibiotics may be required)** • **Infants <3 months with suspected UTI** • **Babies and children at high risk of serious illness** **Consider** referring babies and children over 3 months with **upper UTI** to a paediatric specialist. In the above cases -send a urine sample for urgent microscopy and culture (do not delay if sample not obtained). -manage fever in line with NICE guideline on fever in under 5s. -consider "Could this be sepsis?" see NICE guideline on sepsis: recognition, diagnosis and early management **Test** where symptoms and signs of UTI present. **Consider testing** if unwell and suspicion of UTI **Do not routinely test** if symptoms and signs indicate other infection.	***Lower UTI:*** *First line:* Trimethoprim (if low risk of resistance) OR Nitrofurantoin (if GFR ≥45mls/min)	***Child doses*** **Trimethoprim** 3-5 mths 4mg/kg (max. 200mg/dose) or 25mg BD 6mths-5yrs 4mg/kg (max. 200mg/dose) or 50mg BD 6-11yrs 4mg/kg (max. 200mg/dose) or 100mg BD 12-15yrs 200mg BD ***Nitrofurantoin*** 3mths-11yrs 750micrograms/kg QDS 12-15yrs Immediate-release formulations: 50mg QDS or MR 100mg BD ***Child doses:*** **Pivmecillinam if ≥ 40kg**	Lower UTI: 3 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
UTI in children and young people <16yrs *(continued)* NICE NG111 Pyelonephritis (acute) NICE NG111 Pyelonephritis (acute) 3-page visual summary PHE UTI: diagnostic tools for primary care	Table 1 **Symptoms and signs that increase the likelihood that a urinary tract infection (UTI) is present** •Painful urination (dysuria) •More frequent urination •New bedwetting •Foul smelling (malodorous) urine •Darker urine •Cloudy urine •Frank haematuria (visible blood in urine) •Reduced fluid intake •Fever •Shivering •Abdominal pain •Loin tenderness or suprapubic tenderness •Capillary refill longer than 3 seconds •Previous history of confirmed urinary tract infection **Symptoms and signs that decrease the likelihood that a UTI is present** •Absence of painful urination (dysuria) •Nappy rash •Breathing difficulties •Abnormal chest sounds •Abnormal ear examination •Fever with known alternative cause **Suspected UTI in child 3 months- 3 years** Perform a urine dipstick test If leukocyte esterase and nitrite are **both negative: do not give antibiotics** If leukocyte esterase **or** nitrite, **or both** are **positive**: send the urine sample for culture and **give antibiotics**. **Suspected UTI in child > 3 years use the following urine testing strategy:** 1. **Perform a urine dipstick** based on the signs and symptoms (see Table 1) 2. **Use the table below with dipstick test result** to determine next steps. Table 2 Urine dipstick testing strategies for children 3 years or older Urine dipstick test result / Strategy Leukocyte esterase and nitrite are both positive / Assume the child has a urinary tract infection (UTI) and give them antibiotics. If the child has a high or intermediate risk of serious illness or a history of previous UTI, send a urine sample for culture. Leukocyte esterase is negative and nitrite is positive / Give the child antibiotics if the urine test was carried out on a fresh urine sample. Send a urine sample for culture. Subsequent management will depend on the result of urine culture. Leukocyte esterase is positive and nitrite is negative / Send a urine sample for microscopy and culture. Do not give the child antibiotics unless there is good clinical evidence of a UTI (for example, obvious urinary symptoms). A positive leukocyte esterase result may indicate an infection outside the urinary tract that may need to be managed differently. Leukocyte esterase and nitrite are both negative / Assume the child does not have a UTI. Do not give the child antibiotics for a UTI or send a urine sample for culture. Explore other possible causes of the child's illness. Dipstick testing for leukocyte esterase and nitrite is diagnostically as useful as microscopy and culture, and can safely be used. If **urine sample for culture** is recommended, then avoid delay and send sample as soon as possible and within 24 hours. Ideally take urine sample before antibiotics are given but do not delay antibiotics if urine sample can't be obtained and high risk of serious illness. Use clean catch urine sample where possible. **Send urine samples for culture if any of the following apply.** The child • is thought to have acute upper UTI (pyelonephritis) • has a high to intermediate risk of serious illness • is under 3 months old • has a positive result for leukocyte esterase or nitrite • has recurrent UTI	*Second line:* Pivmecillinam (a penicillin) **if ≥ 40kg** OR Amoxicillin (if susceptible) OR Cefalexin ***Upper UTI***: *First line:* Cefalexin OR Co-amoxiclav (only if culture results available and susceptible)	400mg STAT then 200mg TDS **Amoxicillin** 3-11mths 125mg TDS 1-4yrs 250mg TDS 5-15yrs 500mg TDS **Cefalexin** 3-11mths 12.5mg/kg BD or 125mg BD 1-4yrs 12.5mg/kg BD or 125mg TDS 5-11yrs 12.5mg/kg BD or 250mg TDS 12-15yrs 500mg BD **Cefalexin** 3-11mths 12.5mg/kg BD or 125mg BD (25 mg/kg BD-QDS [max 1gram per dose QDS] for severe infections) 1-4yrs 12.5mg/kg BD or 125mg TDS (25 mg/kg BD-QDS [max 1gram per dose QDS] for severe infections) 5-11yrs 12.5mg/kg BD or 250mg TDS (25 mg/kg BD-QDS [max 1gram per dose QDS] for severe infections) 12-15yrs 500mg BD/TDS can increase to 1-1.5 gram per dose TDS-QDS in severe infections **Co-amoxiclav** *125/31mg SF suspension:* 3-11mths 0.25mL/kg TDS (doubled in severe infection) 1-5yrs 0.25mL/kg or 5ml TDS (doubled in severe infection) *250/62mg SF suspension:* 6-11yrs 0.15mL/kg or 5ml TDS (doubled in severe infection) *Tablets* 12-15yrs 250/125mg TDS (500/125mg TDS in severe infection)	Lower UTI: 3 days Upper UTI 7-10 days Upper UTI 7-10 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
	• has an infection that does not respond to treatment within 24 to 48 hours, if no sample has already been sent • has clinical symptoms and signs but dipstick tests do not correlate **Interpreting urine test results:** Pyuria and bacteriuria both positive: Assume UTI, start antibiotics Positive pyuria, negative bacteria: Start antibiotics if symptoms or signs of UTI Negative pyuria, positive bacteria: Assume UTI, start antibiotics Pyuria and bacteria both negative: Assume no UTI Assume that babies and children who have **bacteriuria** but **no systemic symptoms** or signs have lower UTI. Assume upper UTI (pyelonephritis) rather than lower UTI if • bacteriuria and fever of 38°C or higher **or** • bacteriuria, fever lower than 38°C and loin pain or tenderness. Do not use antibiotics to treat asymptomatic bacteriuria in babies and children. Use clinical criteria for decision making if a urine test does not support findings, because in a small number of cases, this may be the result of a false negative. **Other diagnostic tests:** do not use CRP alone to differentiate upper UTI from lower UTI. **When to ultrasound:** ❖ if proven UTI is atypical (seriously ill, poor urine flow, abdominal or bladder mass, raised creatinine, septicaemia, failure to respond to antibiotic within 48 hours, non-E.coli infection): ultrasound all children in acute phase and undertake renal imaging within 4-6 months if under 3 years ❖ ALL ages with recurrent UTI ❖ for children under 6 months OR those with non-E.coli UTI: ultrasound within 6 weeks if UTI not atypical AND responding to antibiotic Use a DMSA scan 4-6 months after acute infection if subsequent UTI whilst waiting consider doing it sooner. Self-care: advise OTC analgesics for pain relief and drinking enough fluids to avoid dehydration. Ensure that children who have had a UTI have access to clean toilets when needed and do not have to delay voiding unnecessarily. **Prophylactic antibiotics** Do not routinely give prophylactic antibiotics following first time UTI or when there is asymptomatic bacteriuria. **Recurrent UTIs or abnormal imaging** -refer for assessment by paediatric specialist. Consult local microbiologist and choose antibiotics based on culture and susceptibility results.			

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Acute pyelonephritis (upper urinary tract) in non-pregnant women and men (aged ≥ 16 yrs) NICE NG111 Pyelonephritis (acute) NICE NG111 Pyelonephritis (acute) 3-page visual summary PHE UTI: diagnostic tools for primary care Breastfeeding information links (SPS)	If previous or current MRGNO/ ESBL discuss with microbiology or consider admission. If admission not needed, send mid-stream urine for culture and susceptibility, and start antibiotics. If no response within 24 hours, admit. **If ESBL risk** and with microbiology advice consider IV antibiotic via outpatients. *Safety issues with quinolones: Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.	Cefalexin OR Co-amoxiclav (only if culture results available and susceptible) OR Trimethoprim (only if culture results available and susceptible) OR *Ciprofloxacin (consider safety issues)	500 mg BD-TDS (up to 1 gram to 1.5 grams TDS-QDS for severe infections) 500/125 mg TDS 200mg BD 500mg BD	7-10 days 7-10 days 14 days 7 days
Acute prostatitis NICE NG110 Prostatitis (acute) NICE NG110 Prostatitis (acute) 2-page visual summary PHE UTI: diagnostic tools for primary care	Send a mid-stream urine sample for culture and start antibiotics. Advise paracetamol (+/- low-dose weak opioid) for pain, or ibuprofen if preferred and suitable. Quinolones achieve higher prostate concentration levels. *Safety issue with trimethoprim and co-trimoxazole: can cause hyperkalaemia, particularly in the elderly, patients with renal impairment or in patients receiving ACE inhibitors, angiotensin receptor blockers or potassium sparing diuretics. Close monitoring of potassium is advised if trimethoprim or co-trimoxazole is prescribed: 2-3 x a week for the first 2 weeks, then fortnightly, and if no abnormalities detected consider standard routine monitoring. Also monitor LFT and FBC. **Safety issues with quinolones: Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.	**Use guided susceptibilities when available** *First line:* Trimethoprim (if susceptible) (*consider safety issue) Ciprofloxacin (if susceptible) (**consider safety issues) OR Ofloxacin (if susceptible) (**consider safety issues) *Second line:* *(after discussion with specialist)* *Co-trimoxazole (*consider safety issue) OR Levofloxacin	200mg BD 500 mg BD 200mg BD 960mg BD 500mg OD	14 days then review and either stop or continue for a further 14 days if needed (based on history, symptoms, clinical examination, urine and blood tests)

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
GASTRO-INTESTINAL TRACT INFECTIONS				TOP
Oral candidiasis CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Topical azoles** are more effective than topical nystatin. Oral candidiasis is rare in immunocompetent adults; consider undiagnosed risk factors including HIV. Use 50mg fluconazole if extensive/severe candidiasis; if HIV or immunocompromised use 100mg fluconazole.	Miconazole oral gel ✚ *(available OTC for children aged ≥4mths)*	4-24mths 1.25 ml (1/4 measuring spoon) QDS (hold in mouth; after food) Adults and children ≥2yrs 2.5 ml (1/2 measuring spoon) QDS (hold in mouth; after food)	7 days; continue for 7 days after resolved
		or if not tolerated: Nystan® suspension	1ml (100,000 units) QDS after meals (half in each side)	7 days; continue for 2 days after resolved
		Fluconazole capsules	50mg OD	7 days; further 7 days if persistent
Infectious diarrhoea Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Check travel, food, hospitalisation and antibiotic history. Fluid replacement is essential. Refer previously healthy children with acute painful or bloody diarrhoea, to exclude *E. coli* 0157 infection. **Antibiotic therapy is not usually indicated unless patient is systemically unwell.** If the patient is systemically unwell, or if pregnant, initiate treatment on advice of microbiologist. If systemically unwell and campylobacter suspected (e.g. undercooked meat and abdominal pain), consider clarithromycin (caution in elderly with heart disease) 250-500 mg BD for 5–7 days if treated early (within 3 days). Send stool specimens from suspected cases of food poisoning and after antibiotic use. Please notify suspected cases of food poisoning to, and seek advice from, Devon, Cornwall and Somerset Health Protection Team, Tel: 0344 225 3557or out of hours via the Musgrove Park Hospital switchboard on ☎01823 333444.			
Giardiasis BNF BNFc Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Give advice on rehydration and preventing spread of infection. Ensure that close contacts of the patient are also examined for giardiasis and treated if infected. Perform a stool sample analysis, if indicated, and consider the need for antibiotics. Check BNFc for children's doses (3-days course). Consider need for hospital admission.	*First line:* Metronidazole	400mg oral TDS	5 days
Acute diverticulitis NICE NG147 2-page visual summary NICE NG147 Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	There is no robust evidence to support the use antibiotics for treating diverticulitis in primary care. Prescribers are therefore advised to exercise careful clinical judgment and keep the use of antibiotics to the necessary minimum. Contact microbiology if pregnant or breastfeeding. This local guidance takes into account safety, cost-effectiveness and antimicrobial resistance, and stratifies treatment based on episode severity: -**Mild** - symptoms of diverticulitis with no inflammatory response; no antibiotics required; advise fluid intake and analgesia if required -**Mild to moderate** - symptoms of diverticulitis with evidence of inflammatory response = 2 or more SIRS criteria: Temp > 38.3ºC or < 36.0ºC, Pulse > 90/min, RR > 20/min, New confusion/drowsy, Glucose > 7.7mmol/L (non-diabetic patient), WBC > 12 or < $4x10^9$/L -**Moderate to severe** – acute hospital assessment/ admission.	**If immunocompromised and in some other clinical circumstances *it may be* appropriate to treat mild to moderate episodes:** Doxycycline PLUS Metronidazole	200mg stat then 100mg OD 400mg TDS	7 days - review within 48 hours

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Helicobacter pylori NICE CG184 GORD and dyspepsia in adults NICE PPI doses PHE *H.pylori* in dyspepsia: test and treat Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Always test for *H.pylori* before giving antibiotics. Treat all positives, if known DU, GU or low grade MALToma. In non-ulcer dyspepsia NNT is 14. Do not offer eradication for GORD. Do not use clarithromycin, metronidazole or quinolone if used in the past year for any infection. Use clarithromycin with caution in elderly patients with heart disease. **Retest for *H. pylori*** post DU/GU, or relapse after second line therapy: using urea breath test (UBT) or stool antigen test (SAT); consider referral for endoscopy and culture. Seek advice from a gastroenterologist if eradication of *H pylori* is not successful with second-line treatment. See PHE guidance for testing for *Helicobacter pylori* in dyspepsia on Appendix 8 to this guidance. *Safety issues with quinolones: Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.	**Always use PPI TWICE DAILY: esomeprazole 20mg, lansoprazole 30mg, omeprazole 20-40mg, pantoprazole 40mg or rabeprazole 20mg**		
		1st line: (PPI +) Amoxicillin + either Clarithromycin OR Metronidazole	 1gram BD 500mg BD 400mg BD	First line 7 days *MALToma* 14 days
		1st line - Penicillin allergy: (PPI +) Clarithromycin + Metronidazole	 500mg BD 400mg BD	
		1st line - Penicillin allergy with previous exposure to Clarithromycin: (PPI +) Bismuth subsalicylate (Pepto-Bismol® chew tab) 'off-label' + Metronidazole + Tetracycline hydrochloride	 2x262.5mg QDS 400mg BD 500mg QDS	
		2nd line (still have symptoms after 1st line eradication): (PPI +) Amoxicillin + either Clarithromycin OR Metronidazole (whichever was not 1st line)	 1gram BD 500mg BD 400mg BD	
		2nd line - previous exposure to Clarithromycin + Metronidazole: (PPI +) Amoxicillin + either Tetracycline OR *Levofloxacin	 1g BD 500mg QDS	
		2nd line - Penicillin allergy <u>without</u> previous exposure to Quinolone: (PPI +) Metronidazole + *Levofloxacin	 400mg BD 250mg BD	
		2nd line - Penicillin allergy <u>with</u> previous exposure to Quinolone: (PPI +) Bismuth subsalicylate (Pepto-Bismol® chew tab) 'off-label' + Metronidazole + Tetracycline	 2x262.5mg QDS 400mg BD 500mg QDS	

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Clostridioides difficile **(C. difficile)** **(see Appendix 6)** **NICE guidance NG 199** **PHE** Pregnancy information – see NICE and manufacturers information. Limited evidence for pregnancy from resources use SPC. Breastfeeding - limited info, see Lactmed: Vancomycin Fidaxomicin ***Continued overleaf***	**NICE guidance changes 2021.** There is no longer a place for oral metronidazole in NICE recommendations. This guidance applies to adults> 18yrs of age. For children and young people under 18 years, treatment should be started by, or after advice from, a microbiologist, paediatric infectious diseases specialist or paediatric gastroenterologist. Manage fluid loss and symptoms associated with suspected or confirmed *C. difficile* infection as for acute gastroenteritis. Do not offer antimotility medicines such as loperamide. Review the need to continue other antibiotics, PPIs and antiperistaltic agents (e.g codeine, loperamide), any medicines that may cause problems if people are dehydrated, such as non-steroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors, angiotensin-2 receptor antagonists and diuretics and discontinue use where possible. If an antibiotic is still essential, consider changing to one with a lower risk of causing *C. difficile* infection **Oral vancomycin** is first line treatment of a first episode of Clostridium difficile of any severity. It will be available in Community pharmacies providing the Specialist medicines service. If there are still difficulties obtaining oral vancomycin, the nominated pharmacy should put in an urgent order for same day delivery. NICE suggest it may take 7 days to show improvement with first line vancomycin. If no improvement with vancomycin, or if evidence of severe CDI continues or life-threatening infection, discuss with secondary care as below. **Microbiology input - fidaxomicin** Fidaxomicin is an AMBER drug only for use on the recommendation of a microbiologist. It will be available in Community pharmacies but will need to be ordered in and is not part of the specialist meds service. **Fidaxomicin will not be routinely stocked by pharmacies so the prescribing clinician should contact the nominated pharmacy and ask them to place an urgent order for same day delivery using wholesaler express delivery/courier if required, which can be claimed as an out of pocket expense. Review the patient's condition closely and consider hospital referral. If antibiotics have been started for suspected C. difficile infection, and subsequent stool sample tests do not confirm C. difficile infection, consider stopping these antibiotics.	**First episode:** *First line* Vancomycin *Second line and only after advice from microbiology:* Fidaxomicin *See notes about urgent supplies.*** Seek specialist advice if first- and second-line antibiotics are ineffective **Further episode within 12 weeks of symptom resolution (RELAPSE*):** Fidaxomicin *only after advice from microbiology. See notes about urgent supplies.* **Further episode more than 12 weeks after symptom resolution (RECURRENCE*):** Vancomycin OR Fidaxomicin *only after advice from microbiology. See notes about urgent supplies.*	125mg oral QDS 200mg oral BD 200mg oral BD 125mg oral QDS 200mg oral BD	10 days 10 days 10 days 10 days 10 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Clostridioides difficile **(C. difficile)** Continued	**Referral** Refer people in the community with suspected or confirmed *C. difficile* infection to hospital if they are severely unwell, or their symptoms or signs worsen rapidly or significantly at any time. Refer urgently if the person has a life-threatening infection. Consider referring people in the community to hospital if they could be at high risk of complications or recurrence because of individual factors such as age, frailty or comorbidities. If first or second-line antibiotics are ineffective seek urgent review by surgical/GI/microbiology NICE guidance 2021- Tapered, pulsed vancomycin not recommended Extended pulsed fidaxomicin not recommended Prebiotics and probiotics not recommended – for prevention Bezlotoxumab not recommended Consider a faecal microbiota transplant for a recurrent episode of C. difficile infection in adults who have had 2 or more previous episodes – GPs to discuss with secondary care *NICE guidance definitions			
Traveller's diarrhoea CKS	Prophylaxis rarely, if ever, indicated.Consider **standby** antimicrobial only for patients at high risk of severe illness,or visiting high risk areas.	*Standby:* Azithromycin tablet *Prophylaxis/treatment:* Bismuth subsalicylate (Pepto-Bismol®) *(available OTC)*	500mg OD 2 tablets QDS	1-3 days 2 days
Threadworm CKS Breastfeeding information links (SPS)	**Treat all household contacts at the same time. Advise hygiene measures for two weeks** (hand hygiene, pants at night, morning shower including perianal area). Wash sleepwear, bed linen, and dust and vacuum. **Child <6 months** add perianal wet wiping or washes 3-hourly during day.	**Child ≥6 months:** Mebendazole ('off-label' if < 2yrs) **Child <6 months or pregnant** (at least in first trimester): Only hygiene measures for 6 weeks	100mg stat	1 dose, repeat in 2 weeks if persistent
GENITAL TRACT INFECTIONS Contact UKTIS (Tel. 0844 892 0909 or use TOXBASE®) for information on foetal risks if patient is pregnant				TOP
STI screening BASHH	People with risk factors should be screened for chlamydia, gonorrhoea, HIV and syphilis. Refer individual and partners to GUM clinic or Sexual Health Clinic. Risk factors: < 25 years old, no condom use, recent (<12 months)/frequent change of partner, symptomatic or infected partner, area of high HIV. SWISH are also currently offering online home STI testing for patients who want to get tested and **do not** have any symptoms. Patients can access via this website https://www.freetest.me/landing/swish/swishservice			
Chlamydia trachomatis/ urethritis/ cervicitis BASHH Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	*Opportunistically screen all patients aged 15 to 24 years for chlamydia annually and on change of sexual partner.* *If positive, treat index case, refer to GUM SWISH services: https://swishservices.co.uk/ swish@somersetFT.nhs.uk / booking line 0300 124 5010 and initiate partner notification, testing and treatment.* *As single dose azithromycin has led to increased resistance in GU infections, doxycycline should be used first line for chlamydia and urethritis.* *Advise patient 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).* *This is likely to reduce the risk of selecting/inducing macrolide resistance if exposed to Mycoplasma genitalium or Neisseria gonorrhoeae which would make these infections more difficult to treat.*	*First line:* *First option:* (contraindicated in pregnancy) Doxycycline *Second option/pregnant/ breastfeeding/allergy/intolerance:* Azithromycin tablet ('off-label' use in pregnancy) *Please see next page for more options*	100mg BD 1000mg (2x500mg tabs) then 500mg OD for 2 days	7 days stat 2 days (total 3 days)

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
	If chlamydia, test for reinfection at 3 to 6months following treatment if under 25years; or consider if over 25years and high risk of re-infection. ***Second line, pregnancy, breastfeeding, allergy or intolerance**: azithromycin is most effective. As lower cure rate in pregnancy, test for cure at least 6 weeks after end of treatment.* ***In individuals with rectal chlamydia, Lymphogranuloma Venereum (LGV) must be excluded**. Please refer to GUM. SWISH contacts: https://swishservices.co.uk/ / booking line 0300 124 5010* *Refer all patients with symptomatic urethritis (urethral discharge) 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.* ***Refer to GUM SWISH services if recurrent or persistent Non-gonococcal urethritis (NGU).*** **Safety issues with quinolones:* *Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.*	*Second line:* *First option* Erythromycin Ofloxacin (contraindicated in pregnancy) Also note safety issues with quinolones.* *Alternative second option if pregnant or breastfeeding –* Amoxicillin	 500mg BD 200mg BD or 400mg OD 500mg TDS	 10-14 days 7 days 7 days
Epididymo-orchitis BASHH **CKS**	*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. SWISH contacts: https://swishservices.co.uk/ / booking line 0300 124 5010.* *Considerations:* *-Exclusion torsion* *-Consider mumps* *-Consider TB if from high-prevalence area* **Safety issues with quinolones:* *Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation.*	**Low risk only** *First line:* Doxycycline *Second line:* *Ofloxacin OR If quinolones contraindicated: Co-amoxiclav ***If high risk or likely gonorrhoea (+ refer to GUM)*** Ceftriaxone IM PLUS Doxycycline	 100mg BD 200mg BD 625mg TDS 1000mg IM 100 BD	 10-14 days 14 days 10 days Stat 10-14 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Vaginal candidiasis BASHH CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	All topical and oral azoles give over 80% cure. **Pregnancy:** avoid oral azoles and use intravaginal treatment. The 7 day courses are more effective than shorter ones. Seek advice in the event of treatment failure with other safer options. bumps - best use of medicine in pregnancy (medicinesinpregnancy.org) **Recurrent (>4 episodes per year):** 150mg oral fluconazole every 72 hours for 3 doses induction, followed by one dose once a week for 6 months maintenance. *Effect on latex condoms and diaphragms not known. **Product damages latex condoms and diaphragms.	TOPICAL *Clotrimazole ✚ *(all available OTC if aged ≥16 & <60 and not pregnant/risk of pregnancy)* ORAL (Avoid in pregnancy/risk of pregnancy) Fluconazole capsule ✚ *(available OTC if aged ≥16 & <60 and not pregnant/risk of pregnancy or breastfeeding)* *If recurrent:* Fluconazole capsule (If relapse between maintenance doses consider fluconazole 150mg twice-weekly or 50mg fluconazole daily)	500mg pessary Or 200mg pessary 1ON Or 100mg pessary 1ON *(first option in pregnancy/risk of pregnancy)* OR 5g vaginal cream 10% 150mg orally Induction: 150mg every 72 hours Followed by maintenance: 150mg once a week	stat 3 nights 6 nights stat stat 3 doses (days 1, 4 & 7) 6 months
Bacterial vaginosis BASHH CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Oral metronidazole is as effective as topical treatment and is cheaper. Seven days treatment results in fewer relapses than 2g stat at 4 weeks. **Pregnant:** avoid 2g metronidazole stat dose. Treating partners does not reduce relapse. Dequalinium chloride (Fluomizin®) is an option when initial treatment is not effective or well tolerated.	*First line:* oral Metronidazole OR Metronidazole 0.75% vaginal gel OR Clindamycin 2% vaginal cream *Second line:* Lactic acid gel (Balance Activ BV®) used in place of clindamycin for treatment only (for prophylaxis: self-care and buy OTC✚) Or Dequalinium chloride (Fluomizin®)	400mg BD Or 2000mg 5g applicatorful at night 5g applicatorful at night One single use tube at night 10mg vaginal tablet OD	7 days stat 5 nights 7 nights 7 nights 6 days
Genital herpes BASHH Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Advise: saline bathing, analgesia, and topical lidocaine for pain, and discuss transmission. **First episode:** treat within five days if new lesions or systemic symptoms and refer to GUM. **Recurrent:** self-care if mild, or immediate short course antiviral treatment, or suppressive therapy if more than 6 episodes per year. **Pregnancy**: Genital herpes in pregnancy please refer to SWISH/obstetric teams	*If indicated:* *First line:* Aciclovir *Second line:* Valaciclovir	400mg TDS *If recurrent:* 800mg TDS 1x500mg BD	5 days 2 days 5 days
Gonorrhoea BASHH Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS) *Continued overleaf*	**Antibiotic resistance is now very high. Please refer to GUM for cultures before treatment, test of cure and partner notification**. SWISH contacts: https://swishservices.co.uk/ swish@somersetFT.nhs.uk / booking line 0300 124 5010. The move to ceftriaxone monotherapy represents a major change from the 2011 guideline. A high level of vigilance through use of culture, follow up of patients and test of cure coupled with maintenance of strong surveillance is vital in order to monitor the impact of this approach. Use Ciprofloxacin only If susceptibility is known prior to treatment and the isolate is sensitive to ciprofloxacin at all sites of infection.	Susceptibility NOT known: Ceftriaxone Susceptibility KNOWN prior to treatment: Ciprofloxacin oral tablet	1000mg IM as single dose 500mg tablet as a single dose	Stat Stat

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Trichomoniasis BASHH CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Oral treatment needed as extravaginal infection is common. Treat partners and refer to GUM SWISH service for other STIs. **Pregnant/ breastfeeding**: avoid 2grams stat dose metronidazole. Consider clotrimazole for symptom relief (not cure) if metronidazole declined.	Metronidazole *Pregnancy (for symptoms not cure):* Clotrimazole	400mg BD or 2 grams (more adverse effects) 100mg pessary at night	5-7 days stat 6 nights
Pelvic Inflammatory Disease BASHH CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Delaying treatment increases risk of long-term sequelae.** Refer woman and sexual contacts to GUM service. SWISH contacts: https://swishservices.co.uk/ swish@somersetFT.nhs.uk / booking line 0300 124 5010. **Raised CRP** supports diagnosis, absent pus cells in HVS smear good negative predictive value. **Exclude:** ectopic pregnancy, acute appendicitis, endometriosis, UTI, irritable bowel, complicated ovarian cyst, functional pain. Moxifloxacin has greater activity against likely pathogens, but **always test for gonorrhoea and chlamydia, and *Mycoplasma genitalium***. If gonococcal PID likely (partner has gonorrhoea; sex abroad; severe symptoms), use regimen with ceftriaxone, as resistance to quinolones is high. Ofloxacin and moxifloxacin should be avoided in patients who are at high risk of gonococcal PID because of increasing quinolone resistance in the UK. Quinolones are not licensed in under 18's. Of the three recommended PID treatment regimens, moxifloxacin provides the highest microbiological activity against *M. genitalium*. *****Safety issues with quinolones: Avoid use of quinolones as recommended by the MHRA Drug Safety Update (March 2019) based on evidence that they may be very rarely associated with disabling, long lasting or potentially irreversible adverse reactions affecting musculoskeletal and nervous system. Fluoroquinolone treatment should be discontinued at the first signs of a serious adverse reaction, including tendon pain or inflammation. #Due to limited clinical data, moxifloxacin is contraindicated in patients with impaired liver function (Child Pugh C) and in patients with transaminases increase > 5 fold ULN. Patients should be advised to contact their doctor prior to continuing treatment if signs and symptoms of fulminant hepatic disease develop such as rapidly developing asthenia associated with jaundice, dark urine, bleeding tendency or hepatic encephalopathy.	*First line :* Ceftriaxone IM PLUS Doxycycline PLUS Metronidazole *Second line:* *First option:* Metronidazole PLUS *Ofloxacin *Second option:* #*Moxifloxacin alone (first line for *M. genitalium* associated PID)	 1000mg IM 100mg BD 400mg BD 400mg BD 400mg BD 400mg OD	 stat 14 days 14 days 14 days 14 days 14 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
SKIN INFECTIONS				TOP
Acne NICE guidance Acne Vulgaris NG198 Somerset Prescribing Formulary – topical and oral preparations for Acne Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	• All topical agents listed here are contraindicated in under 12s. When discussing treatment choices with a person with childbearing potential, cover: • Topical retinoids and Trifarotene are contraindicated during pregnancy and when planning a pregnancy. • Oral tetracyclines are contraindicated during pregnancy and when planning a pregnancy. • Oral retinoids such as Isotretinoin are powerful teratogens and carry significant safety risks. They require specialist oversight who have expertise in the use of systemic retinoids and a full understanding of the risks of isotretinoin therapy and monitoring requirements (including for signs of depression). They are RED hospital only medications in Somerset (see MHRA Drug Safety Update). Due to a HIGH risk of serious congenital malformations with oral isotretinoin any use in women and girls must be within the conditions of the MHRA Pregnancy Prevention Programme, also see this Drug Safety Update • If the person has the potential to become pregnant then they will need to use effective contraception or choose an alternative treatment to these options. • The formulary page has suitable topical preparations for patients who are pregnant or breastfeeding. **Many topical and oral medications listed are not suitable for children under 12. Seek further advice** **Treatment recommendations** **1st line options:** Offer a 12-week course of one of the **first line treatment options.** Discuss the importance of completing the course of treatment, because positive effects can take 6 to 8 weeks to become noticeable. ****Review after 12 weeks as follows;**. - treatment failure – try another 12 week option If oral plus topical treatment in combination, then at 12 weeks review as follows - acne cleared up - consider stopping oral and treat 12 weeks with topical. - acne improved but not clear – continue both for a further 12 weeks. -second 12 week failure consider referral to dermatology team. **Only in exceptional circumstances continue treatment with oral or topical antibiotics beyond 6 months.** **DO NOT USE:** • monotherapy with a topical antibiotic • monotherapy with an oral antibiotic • a combination of a topical antibiotic and an oral antibiotic.	**First line options** **Acne- Any severity** Topical adapalene with topical benzoyl peroxide, *Epiduo*® 0.1%/2.5% gel or 0.3%/2.5% gel) Or Topical tretinoin with topical clindamycin *Treclin*® 0.025%/1% gel Or Trifarotene *Aklief*® 50microgram/g cream (This is a retinoid derivative, so similar restrictions to topical retinoids.) **Mild to moderate acne** Topical benzoyl peroxide with topical clindamycin *Duac Once Daily*® 3%/1% gel: or 5%/1% gel **Moderate to severe acne** Topical adapalene / benzoyl peroxide *Epiduo*® 0.1%/2.5% gel or 0.3%/2.5% gel) **PLUS** Lymecycline 408mg Or Doxycycline 100mg OR Topical azelaic acid as *Skinoren*®20% cream or as *Finacea*®15%gel **PLUS** Lymecycline 408mg Or Doxycycline 100mg **Second line options** **Topical benzoyl peroxide** as *Acnecide*® 5% gel. ✚ (Consider use if the first line topical treatments are contraindicated or the person wishes to avoid using a topical retinoid, or an antibiotic (topical or oral). (*Acnecide gel is a P medicine and can be purchased in pharmacy.*) **Second line** **Oral antibiotics** For people with moderate to severe acne who cannot tolerate or have contraindications to oral lymecycline or oral doxycycline, **consider replacing the medicines in the combination treatments with** Erythromycin *(Second line due to resistance problems)*	Many topical and oral medications listed are not suitable for children under 12 years of age. Apply once daily in the evening Apply once daily in the evening. Apply once daily in the evening. Apply once daily in the evening Apply once daily in the evening One daily One daily Apply once daily in the evening One daily One daily Apply once or twice daily 250mg- 500mg BD	12 weeks ** 12 weeks ** 12 weeks** 12 weeks** 12weeks** 12weeks** 12weeks**

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Acne (Continued – see previous page for initial treatments)	**Maintenance treatment** Consider maintenance treatment with a fixed combination of topical adapalene and topical benzoyl peroxide if a history of frequent relapse after treatment. If not tolerated, or contraindicated, consider topical monotherapy with adapalene, azelaic acid, or benzoyl peroxide. (Note - benzoyl peroxide can be purchased in a pharmacy.) **Review maintenance treatments for acne after 12 weeks to decide if they should continue.** **Definitions** **Mild to moderate acne** people who have 1 or more of: • any number of non-inflammatory lesions (comedones) • up to 34 inflammatory lesions (with or without non-inflammatory lesions) • up to 2 nodules. **Moderate to severe acne** People who have either or both of: • 35 or more inflammatory lesions (with or without non-inflammatory lesions) • 3 or more nodules. **Polycystic Ovary Syndrome** • Treat acne using a first-line treatment option. • If the chosen first-line treatment is not effective, consider adding ethinylestradiol with cyproterone acetate (co-cyprindiol) or an alternative combined oral contraceptive pill to their treatment, review at 6 months and discuss continuation or alternative treatment options. • Consider referring people with acne and polycystic ovary syndrome with additional features of hyperandrogenism to an appropriate specialist. **Referrals** Urgently refer people with **acne fulminans** on the same day to the on-call hospital dermatology team, to be assessed within 24 hours. Refer people to a consultant dermatologist-led team if any of the following apply: • there is diagnostic uncertainty about their acne • they have acne conglobata • they have nodulo-cystic acne. Consider referring if • mild to moderate acne that has not responded to 2 completed courses of treatment. • moderate to severe acne which has not responded to previous treatment that contains an oral antibiotic • acne with scarring • acne with persistent pigmentary changes • acne or scarring is contributing to persistent psychological distress or a mental health disorder. Consider referral to mental health services if a person with acne experiences significant psychological distress or a mental health disorder, including those with a current or past history of: • suicidal ideation or self-harm • a severe depressive or anxiety disorder • body dysmorphic disorder	**Maintenance treatment** Topical adapalene with Topical benzoyl peroxide, *Epiduo*® 0.1%/2.5% gel or 0.3%/2.5% gel) Or Second line Topical adapalene 0.1% cream or gel (*Differin*®) Or Topical azelaic acid as *Skinoren*®20% cream or as *Finacea*®15%gel Or Topical benzoyl peroxide as *Acnecide*® 5% gel. ✚	Apply once daily in the evening Apply once daily in the evening Apply once daily in the evening Apply once or twice daily	Review maintenance treatments after 12 weeks to decide if they should continue.

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Impetigo **NICE guidance NG 153** **CKS** Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Localised non-bullous impetigo** First line: Topical antiseptic Second line: Use topical antibiotic – **only if** impetigo is around eyes or when hydrogen peroxide or sulfadiazine (Flamazine®) is unsuitable or ineffective **Widespread non-bullous impetigo** Treat with oral antibiotics. (Topical and oral antibiotics are both effective but antimicrobial resistance to topical agents can develop rapidly. **Try to reserve topical antibiotics for treatment of non-bullous impetigo around the eye.)** **Bullous impetigo or systemically unwell or at high risk of complication** *Oral antibiotics only* Hydrogen peroxide 1% cream (topical antiseptic) is as effective as topical antibiotics for treating impetigo. Do not offer combination treatment with topical and oral antibiotics. Reassess treatment if symptoms worsen or have not improved after treatment – see **NICE guidance** **Microbiological sampling** -For impetigo that recurs frequently: send a skin swab for microbiological testing **and** consider taking a nasal swab and starting treatment for decolonisation -For impetigo that is worsening or has not improved after completing a course of topical antibiotics - Seek microbiology advice if MRSA confirmed. **Refer to hospital if** -any signs of more serious illness such as cellulitis - widespread impetigo in patients who are immunocompromised - bullous impetigo in babies aged 1year or younger -impetigo recurs frequently - patients are systemically unwell with high risk of complications **Referral to a consultant in Communicable Disease Control is required** if there is a significant local outbreak (for example, in a nursing home or school). **Recurrent superficial skin infections** ie blepharitis, nostril infections and soft tissue infections including abscesses – consider *PVL s.aureus* (see guidance below)	See Key Points before selecting treatment. Topical antiseptic Hydrogen peroxide 1% cream Or Sulfadiazine 1% cream (Flamazine®) (Do not use either product around eyes.) If around the eyes consider Fusidic acid 2% cream Or if fusidic acid resistance suspected or confirmed Mupirocin 2% nasal ointment **Avoid recurrent use or extended duration of treatment with topical antibiotics** *Oral antibiotics* First line: Flucloxacillin Penicillin allergy or flucloxacillin unsuitable: Clarithromycin (caution in elderly with heart disease) Or Erythromycin (in pregnancy if penicillin allergy)	Apply BD –TDS Apply TDS Apply TDS Apply TDS For children's doses – see **NICE guidance** 500mg QDS 250mg BD Can increase to 500mg BD if needed for severe infections 250-500mg QDS	(5 day course is appropriate for most people but topical or oral antibiotics can be increased to 7 day course based on clinical judgement of severity and number of lesions) 5 days 5 days 5 days
PVL *S. aureus* PHE PVL-SA	Panton-Valentine Leukocidin (PVL) is a toxin produced by 20.8-46% of *S. aureus* from boils/abscesses. PVL strains are rare in healthy people, but can cause severe invasive infections. **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 (MSM); more than one case in a home or close community (school children; military personnel; nursing home residents; household contacts).			
Cold sores CKS	**Most resolve after 5 days without treatment.** Topical antivirals applied prodromally can reduce duration by 12-18 hours. **If frequent, severe, and predictable triggers:** consider oral prophylaxis: aciclovir 400mg, twice daily, for 5-7 days.			

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Eczema Secondary bacterial infection of eczema. NICE guidance NG 190 Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	For people who are not systemically unwell, do not routinely offer either a topical or oral antibiotic for secondary bacterial infection of eczema. Antibiotics provide limited benefits and there is a risk of antimicrobial resistance with repeated courses of antibiotics **Due to localised resistance to topical fusidic acid the Somerset guidance differs to NICE guidance for topical treatment options.** Manage underlying eczema and flares with treatments such as emollients and topical corticosteroids, whether antibiotics are offered or not. Be aware that: • the symptoms and signs of secondary bacterial infection of eczema can include: weeping, pustules, crusts, no response to treatment, rapidly worsening eczema, fever and malaise • not all eczema flares are caused by a bacterial infection, so will not respond to antibiotics, even if weeping and crusts are present • eczema is often colonised with bacteria but may not be clinically infected • eczema can also be infected with herpes simplex virus (eczema herpeticum). **Reassess** (see NICE) if: • Patients become systemically unwell or have pain that is out of proportion to the infection • Their symptoms worsen rapidly or significantly at any time • Their symptoms have not improved after completing a course of antibiotics **Refer to hospital if :** they have any symptoms or signs suggesting a more serious illness or condition, such as necrotising fasciitis or sepsis **Refer or seeking specialist advice** if patients with secondary bacterial infection of eczema **:** • have spreading infection that is not responding to oral antibiotics • are systemically unwell • are at high risk of complications • have infections that recur frequently **Consult a microbiologist** if meticillin-resistant *Staphylococcus aureus* is suspected or confirmed. **Recurrent superficial skin infections** ie blepharitis, nostril infections and soft tissue infections including abscesses – consider *PVL s.aureus* (see guidance below).	See Key Points before selecting treatment. If choosing between a topical or oral antibiotic **consider the extent and severity of symptoms or signs and also the risk of complications**. (Topical might be more appropriate if the infection is localised and not severe). Consider patient preferences, possible adverse effects, previous topical antibiotic use and local antimicrobial resistance data. In people who are systemically unwell, offer an oral antibiotic for secondary bacterial infection of eczema *Topical antibiotics* Silver sulfadiazine cream 1% (Flamazine) (Do not use product around eyes.) *Oral antibiotics* First line: Flucloxacillin Penicillin allergy or flucloxacillin unsuitable: Clarithromycin Alternative if penicillin allergy or flucloxacillin is unsuitable, and the person is pregnant: Erythromycin	For children's doses – see NICE Guidance . For children under 1 month, antibiotic choice is based on specialist advice *Apply TDS* *ADULT DOSES* 500mg QDS 250mg BD (Can increase to 500mg BD if needed for severe infections) 250-500mg QDS	(5 day course is appropriate for most people but topical or oral antibiotics can be increased to 7 day course based on clinical judgement of severity and number of lesions) 5 days 5-7 days 5 -7 days 5 -7 days
Secondary bacterial infections of psoriasis, chicken pox, shingles and scabies NICE guidance NG 190	No evidence found on use of antibiotics in managing secondary bacterial infections of other common skin conditions such as psoriasis, chicken pox, shingles and scabies. Seek specialist advice, if needed.	No antibiotic treatment recommended by NICE, further research required.		

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Leg ulcer NICE NG152 2-page visual summary NICE NG152 PHE	**Most ulcers are colonised by bacteria. Few ulcers are clinically infected.** **Antibiotics do not improve healing unless active infection** (only consider if redness or swelling spreading beyond the ulcer, localised warmth, increased pain, pyrexia). Do not take a sample for microbiological testing at initial presentation, even if the ulcer might be infected. If the infection is worsening or not improving as expected, consider microbiological testing. Review antibiotics after culture results.	**Eczema** Secondary bacterial infection of eczema Flucloxacillin *Penicillin allergy:* Clarithromycin (caution in elderly with heart disease) Erythromycin (in pregnancy) *Penicillin allergy and taking statins:* Doxycycline	1000mg QDS (reduce to 500mg QDS if intolerant) 500mg BD 500mg QDS 200mg stat on day 1, then 100mg OD	7 days (review at 48-72hrs or as appropriate)
Cellulitis and erysipelas NICE NG141 3-page visual summary NICE NG141 "Guidelines for the Management of Cellulitis in Adults in Somerset" (Appendix 4) CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	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. 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. **P**atient afebrile and healthy other than cellulitis, use oral flucloxacillin alone in adequate dose. **If river or sea water exposure:** discuss with microbiologist. **Cellulitis rarely causes sepsis in the absence of necrotising infection.** Seek alternative diagnosis in septic patient and, if necessary, refer/admit. Adding clindamycin does not improve outcomes. **Erysipelas:** often facial and unilateral. Use flucloxacillin for non-facial erysipelas – see Appendix 4.	Flucloxacillin *Penicillin allergy:* Clarithromycin (caution in elderly with heart disease) Or Erythromycin (in pregnancy) *Penicillin allergy and taking statins:* Doxycycline (not in under 12's or if pregnant/ breastfeeding) *Facial near eyes or nose (non-dental):* Co-amoxiclav *Penicillin allergy and facial near eyes or nose (non-dental):* Clarithromycin (caution in elderly with heart disease) AND Metronidazole (only add in for children if anaerobes suspected)	1gram QDS (reduce to 500mg QDS if intolerant) 500mg BD 500mg QDS 200mg stat then on day one, 100mg OD 500/125 mg TDS 500mg BD 400mg TDS	7 days (review at 48-72hrs or as appropriate) (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.)
Diabetic Foot Infections NICE NG19 3-page visual summary NICE NG19 MPH & YDH guideline "Acute foot problems in patients with diabetes" Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS) *Continued overleaf*	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 >0.5cm around the wound; local tenderness or pain; local warmth; purulent discharge. Severity can be classified as mild/moderate/severe and should be managed according to grading. Ulceration with no evidence of infection***, even with colonisation*** should not be treated with antibiotics. Foot care and off-loading advised. **Mild** **Inclusion:** Other causes of inflammatory response **excluded**, such as trauma, gout, acute Charcot neuro-osteoarthropathy, fracture, thrombosis and venous stasis. Local infection involving only the skin and subcutaneous tissue; *if erythema, must be 0.5 cm to less than 2 cm around the wound* **Exclusion:** deep structure involvement, presence of wet gangrene, ascending cellulitis or signs of sepsis	**Mild** infections can generally be managed in primary care. **Moderate** consider acute hospital referral and / or need for imaging to exclude osteomyelitis**.** **Severe** refer to secondary care as treatment will need to be as per acute trust guidelines **Mild** Flucloxacillin or If allergic to penicillin Doxycycline (not in under 12's or if pregnant/ breastfeeding) If pregnant AND penicillin allergy Erythromycin	1000mg QDS (off label use) 200mg STAT then 100mg OD (in patients >80kg 200mg STAT then 100mg BD or 200mg OD) 500mg QDS	7 days with review and up to a further 7 days may be needed based on clinical assessment. Remember, skin does take time to return to normal, and full resolution at 7 days is not expected.

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Diabetic Foot Infections *(continued from previous page)*	**Moderate** **Inclusion:** Other causes of inflammatory response excluded, such as trauma, gout, acute Charcot neuro-osteoarthropathy, fracture, thrombosis and venous stasis. Localised superficial infection with an area of erythema >2cm around the ulcer; AND/OR an ulcer with signs of localised infection, involving deeper tissues (fascia, tendon, bone or joint) **Exclusion:** ascending cellulitis/ lymphatic streaking OR signs of sepsis/systemic involvement. **Consider if acute hospital is required.** **Discuss with senior colleague or the acute hospital service.** **Prior to treatment**: **Culture:** All appropriate samples should be obtained wherever possible prior to treatment, particularly where the patient is systemically well. This will enable targeted therapy and improve patient outcomes. Samples: MRSA swab, deep wound tissue / swab, blood cultures if appropriate. Check for any positive microbiology. **Severe** Superficial or deep infections with any of the following: Lymphatic streaking and/or signs of sepsis/ systemic inflammatory response. Please arrange for URGENT acute hospital input. **If osteomyelitis is suspected, refer to secondary care.** **Mild** infections can generally be managed in primary care. **Moderate** consider acute hospital referral and / or need for imaging to exclude osteomyelitis**.** **Severe** refer to secondary care as treatment will need to be as per acute trust guidelines When choosing an antibiotic, take account of severity, risk of complications, previous microbiological results and antibiotic use, and patient preference. Consider other possible diagnoses, such as pressure sores, gout or non-infected ulcers, any symptoms or signs suggesting a more serious illness or condition, such as limb ischaemia, osteomyelitis, necrotising fasciitis or sepsis. Reassess people with a suspected diabetic foot infection if symptoms worsen rapidly or significantly at any time, do not start to improve within 1 to 2 days, or the person becomes systemically very unwell or has severe pain out of proportion to the infection. **Do not offer antibiotics to prevent diabetic foot infection**.	**Moderate** Consider if acute hospital admission is required If the person can take oral medicines, and the severity of their condition does not require intravenous antibiotics. Co-trimoxazole +/- Metronidazole If co-trimoxazole contraindicated Co-amoxiclav (metronidazole not required)	960mg BD PO 400mg TDS PO 625mg TDS	**48-72 hour review** Review all cultures to target therapy. If ***improvement*** noted and no positive microbiology continue current therapy. If patient ***not improving,*** consider acute admission. **Course length** will depend on severity and deep tissue involvement. 7-14 days if no deep tissue involvement. 6 weeks will be required for osteomyelitis, but treatment can be given orally. Skin takes some time to return to normal, and full resolution of symptoms after a course of antibiotics is not expected. Review the need for continued antibiotics regularly.

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Bites (human and animal) **NICE 184**	Thorough irrigation important for all bites. Assess the risk of tetanus, rabies or a bloodborne viral infection and take appropriate action See table below for whether prophylactic antibiotics are recommended. **Do not offer antibiotics if the skin is not broken.**	Prophylactic and treatment options ORAL ANTIBIOTICS *First choice:* Co-amoxiclav (Seek specialist advice for alternative first-choice oral antibiotics in pregnancy) *Penicillin allergic or co-amoxiclav unsuitable:* Azithromycin PLUS metronidazole *OR* Doxycycline PLUS Metronidazole (Do not use doxycycline in pregnancy, b/ feeding or <12s.) Refer to NICE 184 for children and under 18s).	250/125 mg or 500/125 mg TDS Children 6months-11 yrs 10mg per kg OD (See BNFC) Adults and children 12yrs+ 500mg OD Child 2 months- 11years 7.5mg per kg TDS (max 400mg per dose) Adults and children 12yrs + 400mg TDS Adults and children 12yrs + 200 mg on first day, then 100 mg or 200 mg daily 400 mg TDS	**Prophylaxis** 3 days **Treatment** 5 days (Course length of treatment antibiotics can be increased to 7 days (with review) based on clinical assessment of the wound 3days 5days **Prophylaxis** 3 days **Treatment** 5 days
Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Consider admission if:** • refer to hospital if there are signs of a serious illness or a penetrating wound involving bones, joints, tendons or vascular structures • symptoms or signs of infection develop or worsen rapidly or significantly at any time • there is no improvement within 24 to 48 hours of starting treatment • the person becomes systemically unwell • there is severe pain that is out of proportion to the infection. • consider referral or seeking specialist advice if, for example, the person: is systemically unwell, has an infection after prophylactic antibiotics, cannot take, or has an infection that is not responding to oral antibiotics. **Other animals -** Seek specialist advice from a microbiologist for bites from a wild or exotic animal (including birds and non-traditional pets), or domestic animal bites (including farm animal bites) that you are unfamiliar with. **Microbiological sampling - If there is discharge (purulent on non-purulent take a swab for microbiological testing. Review antibiotic treatment based on results.**			(Course length of treatment antibiotics can be increased to 7 days (with review) based on clinical assessment of the wound, for example, if there is significant tissue destruction or it has penetrated bone, joint, tendon or vascular structures.)
Scabies BASHH CKS Outbreaks – UKHSA guidance Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS) *Continued overleaf*	**First choice permethrin**: treat **whole** body from ear/chin downwards and under nails. **If using permethrin** and patient is under 2 years, elderly or immunosuppressed, or **if treating with malathion:** also treat face and scalp. **Home and sexual contacts**: treat within 24 hours. If permethrin is not available, Somerset Medicines Programme board (MPB) has approved topical ivermectin (Soolantra cream 45g - off license) as second line treatment for scabies. *In a small number of patients the excipients may cause skin reactions so this should be discussed when gaining informed consent.*	*First line:* Permethrin *If permethrin allergy:* Malathion Unlicensed – see key points *Second line*: Ivermectin 1% cream (Soolantra 10mg/g) Note – unlicensed indication and safety in children and pregnant women not established.	5% cream 0.5% aqueous liquid 1% topical applied to all areas of the body from the neck down and washed off after 8-14 hours. 1 x 45g tube per treatment	2 applications, 1 week apart One treatment Repeat after 1 week if symptoms persist

Antibiotic prophylaxis for an uninfected bite

Type of bite	Bite has not broken the skin	Bite has broken the skin but not drawn blood	Bite has broken the skin and drawn blood
Human bite	Do not offer antibiotics	Consider antibiotics if it is in a high-risk area or person at high risk	Offer antibiotics
Cat bite	Do not offer antibiotics	Consider antibiotics if the wound could be deep	Offer antibiotics
Dog or other traditional pet bite	Do not offer antibiotics	Do not offer antibiotics	Offer antibiotics if it has caused considerable, deep tissue damage or is visibly contaminated (for example, with dirt or a tooth) Consider antibiotics if it is in a high-risk area or person at high risk

High-risk areas include the hands, feet, face, genitals, skin overlying cartilaginous structures or an area of poor circulation

People at high risk include those at risk of a serious wound infection because of a co-morbidity (such as diabetes, immunosuppression, asplenia or decompensated liver disease)

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Scabies *(continued from previous page)*	Oral Ivermectin 3mg tablet **S**afety in children weighing less than 15kg and pregnant women not established. May be prescribed in line with MSN_2023_083 if 1st or 2nd Line topical treatments not available OR Third line treatment for the management of outbreaks unresponsive to topical permethrin or topical ivermectin but **only** on the advice of microbiology / PH specialist (unlicensed indication) UKHSA guidance on the management of scabies cases and outbreaks in long-term care facilities and other closed settings - GOV.UK (www.gov.uk) **For advice on outbreaks** contact the SW Health Protection Team - email : swhpt@ukhsa.gov.uk or phone 0300 303 8162 (option 1, then choose the non-clinical line option). Out of hours advice 0300 303 8162 (option 1)	*Third line:* Ivermectin 3mg tablets See Key Points	Usual adult dose 200micrograms per kg per dose.	One dose or repeated doses – depending on advice of microbiology / PH specialist
Mastitis CKS Breastfeeding information links (SPS)	Antibiotics are not always required. Self-help measures e.g. continuation of breastfeeding or expressing will aid resolution of 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.	Flucloxacillin *If allergic to penicillin:* Erythromycin OR Clarithromycin	500mg QDS 250-500mg QDS 500mg BD	10 to 14 days
Fungal (dermatophyte) infection – skin CKS body & groin CKS foot CKS scalp Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Topical treatment for most fungal skin and nail infections are low priority and suitable for **self-care**. ✚ *Available OTC* **Most cases:** use terbinafine as fungicidal; treatment time shorter and more effective than with fungistatic imidazole or undecenoates. If candida possible, use imidazole. **If intractable, or scalp: send skin scrapings. If infection confirmed: use oral terbinafine or itraconazole.** **Scalp:** oral therapy indicated, and discuss with specialist.	Topical terbinafine ✚ *(available OTC)* OR Topical imidazole (such as clotrimazole 1% or miconazole 2%) ✚ *(available OTC)* For athlete's foot: Topical undecenoates (such as tolnaftate) powder ✚ *(available OTC)*	1% OD-BD 1% OD-BD OD-BD	for 1-2 weeks after healing (i.e. total 3-4 weeks) for 1-2 weeks after healing (i.e. total 4-6 weeks) continue for at least 1 week after healing (i.e. total 4-6 weeks)
Fungal (dermatophyte) infection –nail CKS	Topical treatment for most fungal skin and nail infections are low priority and suitable for **self-care**. ✚ *Available OTC* Stop treatment when continual, new, healthy, proximal nail growth. **Take nail clippings**; start therapy only if infection is confirmed. Oral terbinafine is more effective than oral azoles. Liver reactions rare (0.1 to 1%) with oral antifungals. If candida or non-dermatophyte infection 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.	***Superficial only*** Amorolfine 5% nail lacquer ✚ *(available OTC)* *First line:* Terbinafine (oral) *Second line:* Itraconazole (oral)	1-2x/weekly fingers toes 250 mg OD fingers toes 200 mg BD fingers toes	6 months 12 months 6 weeks 12 weeks 1 week a month 2 courses 3 courses
Varicella zoster/ chicken pox CKS PHE **Herpes zoster/ shingles** CKS PHE *Continued overleaf*	**Pregnant/immunocompromised/neonate: seek urgent specialist advice.** **Chicken pox:** 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. Advise taking paracetamol for pain relief ✚ *Available OTC* **Shingles:** treat if > 50 years (post-herpetic neuralgia (PHN) rare if < 50years) and within 72 hours of rash; or if 1 of the following: active ophthalmic, Ramsey Hunt, eczema, non-truncal involvement, moderate or severe pain, moderate or severe rash.	*If indicated:* *First line for chickenpox and shingles:* Aciclovir *Second line for shingles if poor compliance (not for children):* Valaciclovir	800 mg five times a day 2x500mg TDS	7 days

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
Shingles *(continued from previous page)*	Shingles treatment if not within 72 hours: consider starting antiviral drug up to one week after rash onset, if high risk of severe shingles, continued vesicle formation, older age, immunocompromised, or severe pain. (Please note that Famciclovir is non-formulary)			
Insect and Spider Bites and Stings NICE guidance NG 182 (For Tick bites and Lyme disease see below)	Most insect bites and stings will not need antibiotics and secondary infection is rare. Rapid onset inflammatory/ allergic reactions e.g. skin redness and itching are common and may last for up to 10 days. Advise to avoid scratching to reduce inflammation and risk of infection. If signs or symptoms of a systemic allergic reaction treat follow NICE guidance anaphylaxis. Consider referral for people who : -are systemically unwell, or who have extreme pain at the site of the 'insect bite'. This may be an early sign of necrotising fasciitis -are severely immunocompromised and have signs or symptoms of infection -have had a previous systemic allergic reaction to the same type of bite or sting -have a bite or sting in the mouth, throat or around the eyes -have a bite or sting from an unusual or exotic insect or spider -have a fever or persistent lesions after a bite of sting outside the UK. (Possibility or rickettsia, malaria.) If the bite is a known or suspected tick bite consider the possibility of **Lyme Disease** (see section below). Erythema Migrans (bullseye rash) is a diagnostic sign of Lyme disease. If there are signs of infection see **Cellulitis and Erysipelas** section of this guidance.	Selfcare - do not offer antibiotics to people who do not have symptoms or signs of infection. Selfcare - oral antihistamines (in people over 1 year) may help to relieve itching. Refer patient to a community pharmacist for further advice.		
Tick bites (Lyme disease) NICE NG95 Lyme disease NICE NG95 Lyme disease visual summary BMJ antibiotic choices infographic CKS BNF Lyme disease PHE Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	If history of a recent tick bite but otherwise well: -Prophylactic antibiotics are not routinely recommended in Europe. -Advise to seek immediate medical advice if develop symptoms of Lyme disease. -Erythema migrans at the site of a tick bite is diagnostic of Lyme and should be treated with antibiotics without blood tests. Laboratory tests should only be performed where these is evidence of neurological, cardiac or joint involvement. Microbiology will advise on positive results. Specialist advice should be sought when: -Despite antibiotic treatment, symptoms are persisting and getting worse -Erythema migrans not present but has symptoms suggestive of Lyme disease and a recent history of a tick bite or possible exposure to ticks -There is neurological, cardiac involvement, or arthritis, acrodermatitis chronica atrophicans; severe symptoms i.e. syncope, breathlessness, or chest pain – consider admission -There are any other persistent symptoms. **If immunocompromised**, consider prophylactic doxycycline (2x100mg stat). Risk increased if high prevalence area and the longer tick is attached to the skin. Only give prophylaxis within 72 hours of tick removal. Give safety net advice about erythema migrans and other possible symptoms that may occur within one month of tick removal.	*First line* – suitable for Lyme with or without focal symptoms, and Lyme carditis: Doxycycline (unlicensed indication) (not if pregnant/ breastfeeding) *Second line:* *First option* – suitable for Lyme with or without focal symptoms: Amoxicillin (especially for children, pregnancy & breastfeeding) *Second option* – suitable for Lyme without focal symptoms: Azithromycin *(Do not use azithromycin to treat people with cardiac abnormalities associated with Lyme disease because of its effect on QT interval)*	Adult/child ≥ 12yrs: 100mg BD or 200mg OD Child under 45kg aged ≥9yrs & <12yrs: 5 mg/kg in 2 divided doses on day 1 followed by 2.5 mg/kg daily in 1 or 2 divided doses; For severe infections, up to 5 mg/kg daily Adult: 1000mg TDS Child <9yrs and/or ≤ 33kg: 30mg/kg TDS Adult: 500mg OD Child ≤ 50kg: 10mg/kg OD	21 days 21 days 17 days

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Epidermoid and pilar cysts ('sebaceous' cysts) EBI Benign skin lesion	Advise **self-care** measures. All benign skin lesion removals, other than those requiring removal because of features suspicious of dysplasia/malignancy are not routinely funded by NHS Somerset ICB.	**Infected cyst** Flucloxacillin *If allergic to penicillin:* Clarithromycin (caution in elderly with heart disease)	500mg QDS 500mg BD	7 days 7 days
Boils and carbuncles CKS PHE PVL-SA Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Advise **self-care** measures. Fluctuant boils or carbuncles: consider incision and drainage. Consider a course of oral antibiotics if: fever, cellulitis, facial lesion, the lesion is a carbuncle, pain or severe discomfort, or if there are other comorbidities (diabetes or immunosuppression). Persistent, severe or recurrent presentations may occasionally be associated with PVL-producing Staph aureus infection.	Flucloxacillin *If allergic to penicillin:* Clarithromycin (caution in elderly with heart disease)	500mg QDS 500mg BD	7 days 7 days
EYE INFECTIONS				TOP
Conjunctivitis CKS Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	**Bacterial conjunctivitis:** usually unilateral and characterised by red eye with mucopurulent, not watery discharge. 65% and 74% resolve on placebo by days 5 and 7**.** **Most bacterial conjunctivitis is self-limiting so first line treatment is selfcare.** **Prescribe antibacterial treatment only if severe**, as most cases are viral or self-limiting. Third and fourth line options are reserved for severe conjunctivitis only when Chloramphenicol not tolerated. Consider referral to a specialist as an option **Contact lenses should not be worn by patients with bacterial conjunctivitis** Fusidic acid gel eye drops has no gram-negative activity and is **not recommended locally** due to rising resistance and in cost.	***First line**: Selfcare* – bath/clean eyelids with cotton wool dipped in sterile saline or boiled (cooled) water, to remove crusting. ***Second line**:* Chloramphenicol 0.5% eye drops ✚ *(available OTC for adults and children ≥ 2yrs old))* (MHRA update July 21 – NOT CONTRAINDICATED in children < 2yrs) PLUS chloramphenicol 1% eye ointment ✚ *(available OTC for adults and children ≥ 2yrs old))* ***Third line**:.* Ciprofloxacin 0.3% eyedrops (preserved) Licensed all ages Or Ofloxacin 0.3% eyedrops (Exocin) (preserved) Licensed for all ages but safety and effectiveness < 1yr of age not established **Fourth line** **Azithromycin 1.5% eye drops** (preservative free)	1 drop in each eye 2 hourly for 2 days, then reduce frequency to QDS at night 1 drop every 2 hours for 2 days then reduce to 1 drop QDS 1-2 drops in the affected eye(s) every two to four hours for 2 days and then four times daily. 1 drop BD for 3 days	for 48 hours after resolution (7-10 days) 7 days The length of treatment should not exceed 10 days 3 days
Blepharitis Moorfields Eye Hospital NHS Foundation Trust BNF PHE PVL-SA Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Advise **self-care** measures. **First line:** advise twice daily eye lid hygiene for symptom control, even when symptom free or using medication: ✚ *(available OTC)* -warm compresses -eye lid massage and scrubs -lid margin hygiene -gentle washing, and -avoiding cosmetics. **Second line:** if hygiene measures are ineffective after 2 weeks, consider topical antibiotic e.g. chloramphenicol eye ointment; if this does not resolve blepharitis consider contacting microbiology. **Recurrent blepharitis** and keratoconjunctivitis may occasionally be associated with PVL-producing *S. aureus* infection. **Signs of meibomian gland dysfunction**, or acne rosacea: consider oral antibiotics.	*First line:* **Dry eye** Hypromellose 0.3% eye drops 10ml OR Hypromellose 0.5% eye drops 10ml *Second line:* Chloramphenicol 1% eye ointment *Third line:* Oral oxytetracycline OR Oral doxycycline	1-2 drops TDS 1-2 drops TDS BD 500mg BD 250mg BD 100mg OD 50mg OD	Review as appropriate 6-week trial 4 weeks (initial) 8 weeks (maint) 4 weeks (initial) 8 weeks (maint)

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Chalazion (meibomian cyst) Moorfields Eye Hospital NHS Foundation Trust EBI Benign skin lesions	**SELF-CARE:** advise twice daily eye lid cleansing twice using a warm compress followed by gentle massage Often resolves within a few months and most will re-absorb within 2 years. NHS Somerset ICB does not routinely commission surgical removal of chalazion.	**Acute infection** Chloramphenicol 1% eye ointment	TDS	7-14 days
Stye Moorfields Eye Hospital NHS Foundation Trust	Most styes will disappear within a few days or weeks without treatment. **First line: SELF-CARE:** advise gently holding a warm compress against the eye,and cleaning the base of the eyelashes twice daily. In severe cases consider chloramphenicol eye ointment. If cellulitis spreads through the eyelid consider Co-amoxiclav 500/125 mg TDS for 7 days.	**Second line:** ✚ *(available OTC)* Chloramphenicol 1% eye ointment	TDS to QDS	7 days
Ocular herpes simplex keratitis NICE CKS guidance	**Refer all cases of suspected ocular herpes simplex infection to an emergency eye service** Somerset ACES scheme **or eye casualty for same-day assessment and specialist management**. **Do not initiate drug treatment while awaiting specialist ophthalmic assessment.** **If emergency same-day assessment is not possible or practical, seek specialist advice from an ophthalmologist** regarding initiating drug treatment such as topical antivirals in primary care. Optometrists participating in the Somerset ACES scheme have the appropriate training and expertise and should be able to arrange for a patient assessment within 24 hours of referral (or self-referral). Some can initiate topical antiviral treatment (private prescription) or can provide an immediate report to the GP about recommended treatment. **Specialist diagnosis** of ocular herpes simplex may be made by: • Slit-lamp examination which may show corneal vesicles. • Corneal or skin scrapings, or a viral swab, which can be analysed by viral culture and/or polymerase chain reaction (PCR), to detect herpes simplex virus (HSV) DNA. **Advice to the patient** • Advise that herpes simplex virus is easily transmitted to other people. • Recommend avoiding touching the lesions where possible, and wash hands with soap and water immediately if needed • Advise the person not to use contact lenses until 24 hours after all symptoms have resolved. • Provide patient information leaflets **Specialist management of ocular herpes simplex may include:** • Warm compresses for uncomplicated blepharoconjunctivitis. • Topical and/or oral antiviral drug treatment for epithelial keratitis. • Antiviral combination treatment with topical corticosteroids for stromal keratitis — topical corticosteroids are added cautiously for necrotizing stromal keratitis once the overlying epithelial defect has healed, to reduce progression and shorten the duration of keratitis. Additional specialist treatments may include cycloplegics, topical antibiotics, and drugs for glaucoma. • Long-term oral antiviral drug prophylaxis for people with recurrent epithelial or stromal keratitis. • Surgical treatment after the acute infection has resolved, where a sight-threatening scar remains.	**First line** Ganciclovir 0.15% Eye Ointment (Virgan) **Contains** benzalkonium chloride which can cause eye irritation. Do not use in pregnancy or if breastfeeding Not for use in patients under 18 years of age. **Second line** Aciclovir agepha 3% eye ointment. **Does not** contain benzalkonium chloride. Can be used in pregnancy, or if breastfeeding. Can be used in children.	Instil one drop of gel in the inferior conjunctival sac of the eye to be treated, 5 times a day until complete corneal re-epithelialisation then one drop 3 instillations a day for 7 days after healing. 1cm ribbon of ointment should be placed inside the lower conjunctival sac 5 times a day (at approximately 4 hourly intervals).	Treat 5 times a day until complete corneal re-epithelialisation then 3 times a day for a further 7 days after healing. The treatment does not usually exceed 21 days Treat until healed completely then a further 3days.

ILLNESS	KEY POINTS	TREATMENT	ADULT DOSE (unless otherwise stated)	DURATION OF TREATMENT
SUSPECTED DENTAL INFECTIONS - treated in primary care outside dental setting**.** Guidance derived from the Scottish Dental Clinical Effectiveness Programme (SDCEP) 2013 Guidelines. New website https://www.sdcepdentalprescribing.nhs.scot/ TOP				
This guidance is not designed to be a definitive guide to oral conditions. It is intended for GPs for the management of acute oral conditions pending being seen by a dentist or dental specialist. GPs should not routinely be involved in dental treatment and, if possible, advice should be sought from the patient's dentist, who should have an answer-phone message with details of how to access treatment out-of-hours, or telephone 111 (NHS 111 service in England).				
Note: Antibiotics do not cure toothache. First line treatment is with paracetamol and/or ibuprofen; codeine is not effective for toothache. Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)				
Mucosal ulceration and inflammation (simple gingivitis)	Temporary pain and swelling relief can be attained with saline mouthwash (½ tsp salt dissolved in glass 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. **Antibiotics are not indicated.**	*First line:* Simple saline mouthwash *Second line:* ✚ *(available OTC)* Chlorhexidine gluconate mouthwash 0.2% *(do not use within 30 mins of toothpaste)* *Third line:* ✚ *(available OTC)* Hydrogen peroxide mouthwash BP 6%	½ tsp salt dissolved in glass warm water Rinse mouth for 1 minute BD with 5 ml diluted with 5-10 ml water Rinse mouth for 2-3 mins BD-TDS with 15ml diluted in ½ glass warm water	Always spit out after use. Use until lesions resolve or less pain allows oral hygiene
Acute necrotising ulcerative gingivitis Drugs in pregnancy information (BUMPS) Breastfeeding information links (SPS)	Refer to dentist for scaling and oral hygiene advice. Antiseptic mouthwash if pain limits oral hygiene. Commence metronidazole in the presence of systemic signs and symptoms.	*First line:* Metronidazole *Second line:* Amoxicillin *If treatment failure with amoxicillin:* Co-amoxiclav *PLUS (if pain limits oral hygiene)* *First line:* ✚ *(available OTC)* Chlorhexidine gluconate mouthwash 0.2% *(do not use within 30 mins of toothpaste)* *Second line:* ✚ *(available OTC)* Hydrogen peroxide mouthwash BP 6%	400mg TDS 500mg TDS 500mg/125mg TDS Rinse mouth for 1 minute BD with 5 ml diluted with 5-10 ml water Rinse mouth for 2-3 mins BD-TDS with 15ml diluted in ½ glass warm water	3 days 3 days 3 days Until less pain allows oral hygiene
Pericoronitis	Refer to dentist for irrigation and debridement. If persistent swelling or systemic symptoms use metronidazole or amoxicillin. Note that rarely anaerobes may not respond to amoxicillin; in patients who fail this treatment co-amoxiclav (250mg/125mg TDS for 5 days) is an option. Use antiseptic mouthwash if pain and trismus limit oral hygiene.	Metronidazole OR Amoxicillin PLUS *if pain limits oral hygiene)* *First line:* ✚ *(available OTC)* Chlorhexidine gluconate mouthwash 0.2% *(do not use within 30 mins of toothpaste)* *Second line:* ✚ *(available OTC)* Hydrogen peroxide mouthwash BP 6%	400mg TDS OR 500mg TDS Rinse mouth for 1 minute BD with 5 ml diluted with 5-10 ml water Rinse mouth for 2-3 mins BD-TDS with 15ml diluted in ½ glass warm water	3 days 3 days Until less pain allows oral hygiene
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, Ludwigs angina, etc) should be referred urgently to acute hospital 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.			
	If pus is present, refer for drainage, tooth extraction or root canal. Send pus for investigation. **If spreading infection** (lymph node involvement, or systemic signs i.e. fever or malaise) ADD metronidazole. **True penicillin allergy:** use clarithromycin (caution in elderly with heart disease). **If severe:** refer to acute hospital.	Phenoxymethylpenicillin *OR* Amoxicillin *PLUS (if spreading infection):* Metronidazole *Penicillin allergy:* Metronidazole	500mg to 1000mg QDS 500mg to 1000mg TDS 400mg TDS 400mg TDS	Up to 5 days (review patients whose symptoms do not improve as expected after 3 days)
ABBREVIATIONS				TOP
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.				

Appendix 1 – 'Back-up/delayed prescribing' patient leaflet – Respiratory Tract Infection (RCGP/TARGET v9.6 Nov 2020)

Available at http://www.rcgp.org.uk/clinical-and-research/toolkits/target-antibiotic-toolkit.aspx

Public Health England

TREATING YOUR INFECTION – RESPIRATORY TRACT INFECTION (RTI)

NHS

Your infection	Most are better by
☐ Middle-ear infection	8 days
☐ Sore throat	7-8 days
☐ Sinusitis	14-21 days
☐ Common cold	14 days
☐ Cough or bronchitis	21 days (a cough caused by COVID-19 may differ)
Other infection:	..... days

How to look after yourself and your family

- Have plenty of rest.
- Drink enough fluids to avoid feeling thirsty.
- Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both).
- Fever is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable as a result of a fever.
- Use a tissue and wash your hands with soap to help prevent spread of your infection to your family, friends and others you meet.

If you develop these symptoms, consider if you may have COVID-19

Common symptoms of COVID-19 to look out for are:

1. A loss of, or change to your sense of smell or taste
2. A high temperature (over 38°C, feeling hot to touch on chest or back)
3. A new continuous cough (coughing a lot for more than an hour, or three or more coughing episodes within 24 hours)

- If you have any of these symptoms book a COVID-19 test, stay at home and self-isolate for 10 days or until you get a negative test result (www.gov.uk/get-coronavirus-test).
- Anyone you live with, and anyone in your support bubble, must also stay at home for 14 days from the start of your symptoms, or until you get a negative test result.
- Call 111 or visit www.111.nhs.uk/covid-19 if you are worried or not sure what to do.

Visit www.gov.uk/coronavirus or www.nhs.uk for more information

When to get help

If you or your child has any of these symptoms, are getting worse or are sicker than you would expect (even if your/their temperature falls), trust your instincts and seek medical advice urgently from NHS 111 or your GP. If a child under the age of 5 has any of symptoms 1–3 go to A&E immediately or call 999.

1. If your skin is very cold or has a strange colour, or you develop an unusual rash.
2. If you have new feelings of confusion or drowsiness, or have slurred speech.
3. If you have difficulty breathing. Signs that suggest breathing problems can be:
   - breathing quickly
   - turning blue around the lips and the skin below the mouth
   - skin between or above the ribs getting sucked or pulled in with every breath.
4. If you develop a severe headache and are sick.
5. If you develop chest pain.
6. If you have difficulty swallowing or are drooling.
7. If you cough up blood.
8. If you are passing little to no urine.
9. If you are feeling a lot worse.

Less serious signs that can usually wait until the next available appointment:

10. If you are not starting to improve a little by the time given in 'Most are better by'
11. Children with middle-ear infection: if fluid is coming out of their ears or they have new deafness.
12. Mild side effects such as diarrhea: seek medical attention if you are concerned.

Back-up antibiotic prescription to be collected after ☐ days only if you are not starting to feel a little better or you feel worse, from: ☐

- Colds, most coughs, sinusitis, ear infections, sore throats, and other infections often get better without antibiotics, as your body can usually fight these infections on its own.
- Taking any antibiotics makes bacteria that live inside your body more resistant. This means that antibiotics may not work when you really need them.
- Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight, other symptoms, or being sick if you drink alcohol with metronidazole.
- Find out more about how you can make better use of antibiotics and help keep this vital treatment effective by visiting **www.nhs.uk/keepantibioticsworking**

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

Keep Antibiotics Working

Appendix 2 Target UTI leaflet

TARGET

TREATING YOUR INFECTION – URINARY TRACT INFECTION (UTI)

NHS

For women under 65 years with suspected lower urinary tract infections (UTIs) or lower recurrent UTIs (cystitis or urethritis)

Possible urinary signs & symptoms	The outcome	Recommended care	Types of urinary tract infection
Key signs/symptoms: **Dysuria:** Burning pain when passing urine (wee) **New nocturia:** Needing to pass urine in the night **Cloudy urine:** Visible cloudy colour when passing urine **Other signs/symptoms to consider:** **Frequency:** Passing urine more often than usual **Urgency:** Feeling the need to pass urine immediately **Haematuria:** Blood in your urine **Suprapubic pain:** Pain in your lower tummy **Other things to consider:** **Recent sexual history** • Inflammation due to sexual activity can feel similar to the symptoms of a UTI • Some sexually transmitted infections (STIs) can have symptoms similar to those of a UTI **Changes during menopause** • Some changes during the menopause can have symptoms similar to those of a UTI	**Non-pregnant women:** ☐ **If none or only one of: dysuria, new nocturia, cloudy urine; AND/OR vaginal discharge** • UTI much less likely • You may need a urine test to check for a UTI • Antibiotics less likely to help • Usually lasts 5 to 7 days ☐ **If 2 or more of: dysuria, new nocturia, cloudy urine; OR bacteria detected in urine; AND NO vaginal discharge** • UTI more likely; antibiotics should help • You should start to improve within 48 hours • Symptoms usually last 3 days **Pregnant women:** Always request urine culture ☐ **If suspected UTI**	☐ **Self-care and pain relief.** • Symptoms may get better on their own ☐ **Delayed or backup prescription with self-care and pain relief** Start antibiotics if symptoms: • Get worse • Do not get a little better with self-care within 48 hours ☐ **Immediate** antibiotic prescription plus self-care ☐ **If mild symptoms, delayed or back-up antibiotic prescription** plus self-care ☐ **Immediate** antibiotic prescription plus self-care	UTIs are caused by bacteria getting into your urethra or bladder, usually from your gut. Infections may occur in different parts of the urinary tract. **Kidneys (make urine)** Infection in the upper urinary tract • Pyelonephritis (pie-lo-nef-right-is). Not covered in this leaflet and always needs antibiotics **Bladder (stores urine)** Infection in the lower urinary tract • Cystitis (sis-tight-is). **Urethra (takes urine out of the body)** Infection or inflammation in the urethra • Urethritis (your-ith-right-is)

If you think you may have COVID-19 then please visit http://www.gov.uk/coronavirus or http://www.nhs.uk for the latest guidance and information

Self-care to help yourself get better more quickly	Options to help prevent a UTI	Antibiotic resistance	When should you get help? Contact your GP practice or contact NHS
• Drink enough fluids to stop you feeling thirsty. Aim to drink 6 to 8 glasses • Avoid too much alcohol, fizzy drinks or caffeine that can irritate your bladder • Take paracetamol or ibuprofen at regular intervals for pain relief, if you have had no previous side effects • There is currently no evidence to support taking cranberry products or cystitis sachets to improve your symptoms • Consider the risk factors in the 'Options to help prevent UTI' column to reduce future UTIs	**It may help you to consider these risk factors:** • **Stop bacteria spreading from your bowel into your bladder.** Wipe from front (vagina) to back (bottom) after using the toilet. • **Avoid waiting to pass urine.** Pass urine as soon as you need to. • Go for a **wee after having sex to** flush out any bacteria that may be near the opening to the urethra. • **Wash** the external vagina area with water before and after sex to wash away any bacteria that may be near the opening to the urethra. • **Drink** enough fluids to make sure you wee regularly throughout the day, especially during hot weather. **If you have a recurrent UTI, the following may help** • **Cranberry products and D-mannose:** There is some evidence to say that these work to help prevent recurrent UTI • **After the menopause:** Topical hormonal treatment may help; for example, vaginal pessaries. • Antibiotics at night or after sex may be considered	Antibiotics can be lifesaving. **But antibiotics are not always needed for urinary symptoms.** ↓ Antibiotics taken by mouth, **for any reason,** affect our gut bacteria making some resistant. ↓ This may make future UTI more difficult to treat ↓ Common **side effects** to taking antibiotics include thrush, rashes, vomiting and diarrhoea. Seek medical advice if you are worried. ↓ **Keep antibiotics working;** only take them when advised by a health professional. This way they are more likely to work for a future UTI.	**The following symptoms are possible signs of serious infection and should be assessed urgently.** Phone for advice if you are not sure how urgent the symptoms are. 1. You have shivering, chills and muscle pain 2. You feel confused, or are very drowsy 3. You have not passed urine all day 4. You are vomiting 5. You see blood in your urine 6. Your temperature is above 38ºC or less than 36ºC. 7. You have kidney pain in your back just under the ribs 8. Your symptoms get worse 9. Your symptoms are not starting to improve within 48 hours of taking antibiotics

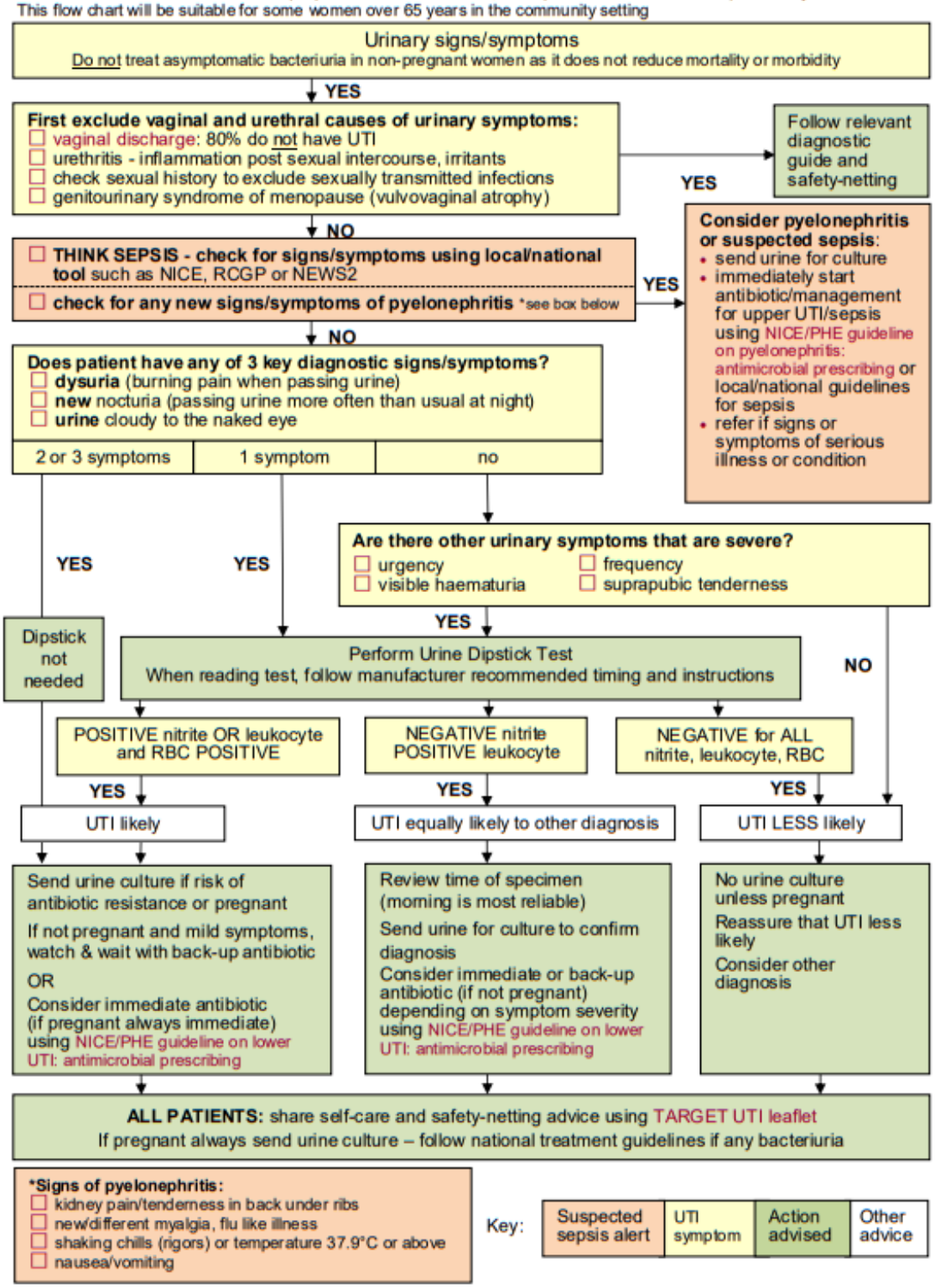
Keep Antibiotics Working

Appendix 3 - Diagnosis of UTIs – quick reference guides

Diagnosis of urinary tract infections: quick reference tool for primary care.

Flowchart for women (under 65 years) with suspected UTI

Excludes women with recurrent UTI (2 episodes in last 6 months, or 3 episodes in last 12 months) or urinary catheter
This flow chart will be suitable for some women over 65 years in the community setting



Last review: Nov 2018. Next review: Nov 2021. Last update: October 2020. 1
Version: 3.0 Under 65 TARGET

Table summary: diagnostic points for women under 65 years

Excludes women with recurrent UTI (2 episodes in last 6 months or 3 episodes in last 12 months) or urinary catheter

This flow chart will be suitable for some women over 65 years in the community setting

Using symptoms and dipsticks to help diagnose UTI: no individual or combination are completely reliable in diagnosing UTI, thus severity of symptoms and safety-netting are important in all

First exclude other genitourinary causes of urinary symptoms

- ☐ 75 to 80% with vaginal discharge will not have UTI
- ☐ in sexually active check sexual history for STIs for example chlamydia and gonorrhoea
- ☐ urethritis - urinary symptoms may be due to urethral inflammation post sexual intercourse, irritants, or STIs
- ☐ genitourinary symptoms of menopause/atrophic vaginitis/vaginal atrophy

In all, check for new signs of pyelonephritis, systemic infection, or risk of suspected sepsis

If pyelonephritis or suspected sepsis: send urine for culture to inform definitive treatment and immediately start antibiotic using NICE/PHE guideline on pyelonephritis: antimicrobial prescribing or local/national guidelines for sepsis; refer if signs or symptoms of serious illness or condition

In women <65yrs use signs/symptoms of dysuria, new nocturia or cloudy urine to guide treatment

- ☐ **2 or more** of these 3 signs/symptoms in general practice are likely to have a UTI: consider immediate antibiotic, or back-up if mild symptoms and woman is not pregnant
- ☐ **1** sign/symptom: UTI possible as 68% will have a culture confirmed UTI ($\geq 10^6$ cfu/L) therefore use urine dipstick to increase diagnostic certainty
- ☐ **none** of the 3: UTI less likely - use urine dipstick if other severe urinary symptoms (frequency, urgency, haematuria, suprapubic tenderness)

Dysuria, new nocturia or cloudy urine present	% of GP patients with suspected UTI presenting with these sign/symptoms	% with these symptoms who have culture confirmed UTI ($\geq 10^6$ cfu/L)	Suggested management
All 3	29%	82%	Consider immediate antibiotic (if pregnant always immediate) OR back-up if mild symptoms and not pregnant
≥2	71%	74%	
1	25%	68%	Use urine dipstick to increase diagnostic certainty
None	4%	not specified	Use urine dipstick if other severe urinary symptoms

For antibiotic choice: use NICE/PHE guideline on lower UTI: antimicrobial prescribing; **check history to determine resistance risk**

Using urine dipsticks to predict UTI in women <65 years with only 0 or 1 of dysuria, new nocturia, cloudy urine increases the diagnostic certainty, and reduces unnecessary antibiotics

Follow the manufacturer's guidance for accurate use of urine dipstick tests, including test timing requirements

- ☐ positive nitrite OR positive leukocyte and blood: UTI likely - offer empirical antibiotics for lower UTI OR if not pregnant and milder symptoms consider back-up antibiotic with self-care and safety-netting
- ☐ leukocyte positive but nitrite negative: UTI equally likely to other diagnosis - review time of specimen (morning is best); send urine for culture; use back-up (if not pregnant) or immediate antibiotic depending on symptom severity
- ☐ ALL nitrite, leukocyte and blood negative: UTI less likely – no urine culture unless pregnant; consider other diagnosis; reassure; give self-care and safety-netting advice

If pregnant and any bacteriuria: always offer immediate antibiotics and send urine culture; follow NICE/PHE guideline on lower UTI: antimicrobial prescribing

ALL patients: share self-care and safety-netting advice using TARGET UTI leaflet

For all patients please refer to the information and reference tables in joint NICE/PHE guidance: NICE guidelines on UTI (lower): antimicrobial prescribing or NICE guidelines on pyelonephritis (acute): antimicrobial prescribing

Diagnostic points for men under 65 years

Asymptomatic bacteriuria is rare in men <65yrs[4C]

Consider other genitourinary causes of urinary symptoms

- in sexually active, check sexual history for STIs for example chlamydia and gonorrhoea[7C,22D]
- urethritis due to urethral inflammation post sexual intercourse, irritants, or STIs[7C]

Check for pyelonephritis, prostatitis, systemic infection, or suspected sepsis using local policy[10C,11A,12C]

- urinary symptoms with fever or systemic symptoms in men are strongly suggestive of prostatic involvement or pyelonephritis[1D,24B+,25D]
- acute prostatitis may present with feverish illness of sudden onset, symptoms of prostatitis (low back, suprapubic, perineal, or sometimes rectal pain), symptoms of UTI (dysuria, frequency, urgency or retention), or exquisitely tender prostate on rectal examination[22D, 23D]
- recurrent or relapsing UTI in men should prompt referral to urology for investigation[26D,27C]

Diagnostic points in men

- to confirm diagnosis always send a mid-stream urine sample for culture, collected before antibiotics are given[18A+,26D]
- do not use urine dipsticks to rule out infection as they are unreliable for this[28B+]
- a urine dipstick test with positive nitrites makes UTI more likely in men (PPV 96%). Negative for both nitrite and leucocyte makes UTI less likely, especially if symptoms are mild[1D,28B+]
- if suspected UTI, offer immediate treatment according to NICE/PHE guideline on lower UTI: antimicrobial prescribing and review choice of antibiotic with pre-treatment culture results[4C,18A+,24B+,26D]

For all patients please refer to the information and reference tables in joint NICE/PHE guidance: NICE guidelines on UTI (lower): antimicrobial prescribing, NICE guidelines on pyelonephritis (acute): antimicrobial prescribing, or NICE guideline on prostatitis (acute): antimicrobial prescribing

Urinary tract infection: diagnostic tools for primary care - GOV.UK (www.gov.uk) October 2020

Diagnosis of urinary tract infections: quick reference tool for primary care.

Flowchart for suspected UTI in catheterised adults or those over 65 years

Urinary signs/symptoms, abnormal temperature, non-specific signs of infection

Yes

Do not perform urine dipsticks: Dipsticks become more unreliable with increasing age over 65 years. By 80 years half of older adults in care, and **most** with a urinary catheter, will have bacteria present in the bladder/urine without an infection. This "asymptomatic bacteriuria" is not harmful, and although it causes a positive urine dipstick, antibiotics are not beneficial and may cause harm

ALL

Consider Genitourinary Syndrome of Menopause (vulvovaginal atrophy), urethritis, sexually transmitted infections, and prostatitis

THINK SEPSIS - check for signs/symptoms using local or national tool
Such as NICE, RCGP or NEWS2

Yes →

Consider sepsis OR pyelonephritis
- send urine for culture before antibiotics are taken
- immediately start antibiotic/management for upper UTI/sepsis using NICE/PHE guideline on pyelonephritis: antimicrobial prescribing or local/national guidelines for sepsis, considering resistance risk
- if urinary catheter: consider removing or changing as soon as possible
- refer if signs/symptoms of serious illness or condition

CHECK for signs/symptoms of pyelonephritis
- ☐ kidney pain/tenderness in back, under ribs
- ☐ new/different myalgia, flu-like illness
- ☐ nausea/vomiting
- ☐ shaking chills (rigors)
  OR temp over 37.9°C OR 36°C or below

rule out other cause *see box below

No

CHECK ALL FOR NEW signs/symptoms of UTI
- ☐ new onset dysuria alone

OR 2 or more:
- ☐ temperature 1.5°C above patient's normal twice in the last 12 hours
- ☐ new frequency or urgency
- ☐ new incontinence
- ☐ new or worsening delirium/debility
- ☐ new suprapubic pain
- ☐ visible haematuria

If fever and delirium/debility only: consider other causes before treating for UTI (*see box below)

If urinary catheter: also check for catheter blockage AND consider catheter removal or replacement

Yes →

UTI LIKELY: share self-care and safety-netting advice using TARGET UTI leaflet
- always send urine culture if feasible before antibiotics are taken, as greater resistance in older adults
- if mild symptoms consider back-up antibiotics in women without catheters and low risk of complications
- offer immediate antibiotics using NICE/PHE guideline on lower OR catheter-associated UTI: antimicrobial prescribing
- if urinary catheter for over 7days consider changing (if possible remove) as soon as possible, but do not delay antibiotics
- review antibiotic choice and culture result, use narrow-spectrum antibiotics if possible

No

CHECK for other causes of delirium if relevant (PINCH ME)
- ☐ **P:** Pain
- ☐ **I:** other Infection
- ☐ **N:** poor Nutrition
- ☐ **C:** Constipation
- ☐ **H:** poor Hydration
- ☐ **M:** other Medication
- ☐ **E:** Environment change

Yes →

Consider other local/national resources for delirium management
Give safety-netting advice about consulting if:
- worsening symptoms
- no improvement 48 hrs after starting antibiotics
- signs of pyelonephritis
- any symptom/sign of sepsis

CHECK ALL for other localised symptoms/signs
*Two or more symptoms or signs of:
- ☐ respiratory tract infection
- ☐ gastrointestinal tract infection
- ☐ skin and soft tissue infection

Yes → Follow local diagnostic and treatment guidance

All

No

Advise "watchful waiting" with further investigation for other causes

All → **If worsening signs or symptoms consider:** admission or start/change antibiotic

Key: Suspected sepsis alert | UTI symptom | Action advised | Other advice

Last review: Nov 2018. Next review: Nov 2021. Last update: October 2020. 1
Version: 3.0 Over 65 TARGET

Table summary: catheterised adults or those over 65 years with suspected UTI

Men and women over 65 years may present with:

- ☐ localised signs or symptoms of a UTI including new onset dysuria; incontinence; urgency
- ☐ temperature: 38°C or above; 36°C or below; 1.5°C above normal twice in the last 12 hours
- ☐ non-specific signs of infection: for example delirium; loss of diabetic control

Do not perform urine dipstick as they become more unreliable with increasing age over 65 years
By 80 years half of older adults in care, and most with a urinary catheter, will have bacteria present in the bladder/urine without an infection. This "asymptomatic bacteriuria" is not harmful, and although it causes a positive urine dipstick, antibiotics are not beneficial and may cause harm
Consider: Genitourinary Syndrome of Menopause (vulvovaginal atrophy) as can present with dysuria.
Also consider risk of urethritis, prostatitis or STI

Use symptoms and signs to determine the most appropriate management
First think sepsis: check for signs using local or national tool such as NICE, RCGP or NEWS2
Exclude pyelonephritis checking for any one sign:

- ☐ kidney pain/tenderness in back, under ribs
- ☐ new/different myalgia, or flu-like symptoms
- ☐ nausea/vomiting
- ☐ shaking chills (rigors) or temp over 37.9°C or 36°C or below

If signs of sepsis or pyelonephritis
(if no kidney pain rule out other localised infection **see symptoms of other infection box below*):

- send urine for culture before antibiotics are taken
- assess antibiotic resistance risk and immediately start antibiotic for upper UTI/sepsis using NICE/PHE guideline on pyelonephritis: antimicrobial prescribing or local/national guidelines for sepsis
- if urinary catheter for more than 7 days: consider changing (if possible remove) as soon as possible but do not delay antibiotics
- refer if signs or symptoms of serious illness or condition

Then check all for NEW URINARY symptoms/signs

- ☐ NEW onset dysuria alone

OR 2 or more new:

- ☐ temperature: 1.5°C above normal twice in the last 12 hours
- ☐ new frequency or urgency
- ☐ new incontinence
- ☐ new or worsening delirium/debility
- ☐ new suprapubic pain
- ☐ visible haematuria

If fever and delirium/debility only: consider other infections before treating for UTI

If urinary symptoms suggest UTI:

- always send urine culture if feasible before antibiotics are taken, as greater resistance in older adults
- if mild symptoms consider back-up antibiotics in women without
- catheters and low risk of complications
- consider immediate antibiotics for lower UTI
- offer immediate antibiotic in men or if urinary catheter
- consider antibiotic resistance risk using patient history
- for antibiotic choice use NICE/PHE guideline on lower UTI: antimicrobial prescribing OR NICE/PHE guideline on catheter-associated UTI: antimicrobial prescribing

If indwelling URINARY CATHETER for over 7 days: check for catheter blockage AND consider catheter removal

- consider changing (if possible remove) catheter as soon as possible but do not delay antibiotics
- **leaking or blocked long-term indwelling catheters:** offer antibiotic treatment if signs/symptoms UTI;
- check bag positioning, constipation, see guidance for other causes
- **at catheter change:** only consider antibiotic prophylaxis if trauma or symptomatic UTI after previous changes

Check all for 2 or more signs or symptoms suggesting other infection

- ☐ respiratory tract infection: shortness of breath; cough or sputum production; new pleuritic chest pain
- ☐ gastrointestinal tract infection: nausea/vomiting; new abdominal pain; new onset diarrhoea
- ☐ skin and soft tissue infection: new redness; warmth

Follow diagnostic and treatment guidance if infection suspected

Check all for other causes of DELIRIUM (PINCH ME) and manage as needed

- ☐ **P: Pain**
- ☐ **I:** other **I**nfection
- ☐ **N:** poor **N**utrition
- ☐ **C: C**onstipation
- ☐ **H:** poor **H**ydration
- ☐ **M:** other **M**edication
- ☐ **E: E**nvironment change

- using PINCH ME can help identify other potential underlying causes of delirium superimposed on dementia. It can be used in different clinical settings
- consider other local/national delirium management resources
- **Advise watchful waiting, with further investigation if needed**

Share self-care and safety-netting advice using TARGET UTI leaflet for older adults

Safety-netting to seek advice if:

- ☐ worsening symptoms
- ☐ signs of pyelonephritis
- ☐ signs/symptoms of sepsis
- ☐ no improvement after 48 hours

Self-care advice

- ☐ drink enough fluids to avoid feeling thirsty and to keep urine pale
- ☐ take paracetamol regularly up to 4 times daily for pain/fever relief
- ☐ ways of preventing further episodes of UTI

Please refer to the information and reference tables in joint NICE/PHE guidance: NICE guidelines on UTI (lower): antimicrobial prescribing or NICE guidelines on pyelonephritis (acute): antimicrobial prescribing or NICE/PHE guideline on catheter-associated UTI: antimicrobial prescribing

Sending urine for culture and interpreting results in ALL adults

Review need for culture when considering treatment

Send a urine for culture in:
- over 65 year olds if symptomatic and antibiotic given[1B-]
- pregnancy: for routine antenatal tests, or if symptomatic[2B+]
- suspected pyelonephritis or sepsis[3C]
- suspected UTI in men[4A+]
- failed antibiotic treatment or persistent symptoms[5A+, 6A+, 7B-]
- recurrent UTI (2 episodes in 6m or 3 in 12m)[5A+]
- if prescribing antibiotic in someone with a urinary catheter[9A+]
- as advised by local microbiologist

Consider risk factors for resistance and send urine for culture if:
- abnormalities of genitourinary tract[8C]
- renal impairment[8C]
- care home resident[5A+]
- hospitalisation for > 7 days in last 6m[5A+]
- recent travel to a country with increased resistance[5A+]
- previous UTI resistant[5A+, 6B-]

If prescribing an antibiotic, review choice when culture and antibiotic susceptibility results are available

Sampling in all men and women

Women: mid-stream urine (NHS choices) and holding the labia apart may help reduce contamination but if not done, sample can still be sent for culture[1B+, 3A+, 3B+, 4D, 5B-, 6A-] Do not cleanse with antiseptic, as bacteria may be inhibited[7B-]
Elderly frail: only take urine sample if symptomatic and able to collect good sample. If incontinent, clean catch in disinfected container and condom catheters for men may be viable options but little evidence to support[9A-]
Men: advise on how to take a mid-stream specimen (NHS choices)[1B+, 4D, 7B-]
People with urinary catheters: collect from newly placed catheter using aseptic technique if changed, drain a few mL of residual urine from tubing before using sampling port, then collect a fresh sample from catheter sampling port[1B+, 9A+]

Culture urine within 4 hours of collection, refrigerate, or use boric acid preservative. Boric acid can cause false negative culture if urine not filled to correct mark on specimen bottle and can affect urine dipstick tests)[1B+, 4D, 9A-]

How do I interpret a urine culture result if I suspect a UTI?

Culture should be interpreted in parallel to severity of signs/symptoms. False negatives/positives can occur
Do <u>not treat</u> asymptomatic bacteriuria unless pregnant as it does not reduce mortality or morbidity[1C, 2D, 3A+]

Urine culture results <u>in patients with urinary symptoms</u> that usually indicate UTI:
- many labs use growth of 10^7-10^8 cfu/L (10^4-10^5 cfu/mL) to indicate UTI[4B+]
- lower counts can also indicate UTI <u>if patient symptomatic:</u>
  - strongly symptomatic women - single isolate $\geq 10^5$ cfu/L ($\geq 10^2$ cfu/mL) in voided urine[4B+, 5B+]
  - in men counts as low as 10^6 cfu/L (10^3 cfu/mL) of a pure or predominant organism[4B+]
  - any single organism $\geq 10^7$ cfu/L ($\geq 10^4$ cfu/mL)[4B+]
  - *Escherichia coli* or *Staphylococcus saprophyticus* $\geq 10^6$ cfu/L ($\geq 10^3$ cfu/mL)[4B+]
  - $\geq 10^8$ cfu/L ($\geq 10^5$ cfu/mL) mixed growth with 1 dominant organism[4B+]

Epithelial cells/mixed growth:
- the presence of epithelial cells is not necessarily an indicator of perineal contamination, culture result should be interpreted with symptoms and repeated if significance is uncertain[6B-]
- mixed growth may indicate perineal contamination; however, a small proportion of UTIs may be due to genuine mixed infection. Consider a re-test if symptomatic[4B+, 7B+]

Red cells: may be present in UTI[4B+, 6D]
- chemical tests may be more sensitive than microscopy as a result of the detection of haemoglobin released by haemolysis[4B+]
- refer patients with persistent haematuria post-UTI to urology[9A+]

White blood cells/ leucocytes:
- white cells $\geq 10^7$ WBC/L ($\geq 10^4$ WBC/mL) are considered to represent inflammation in urinary tract, this includes the urethra[4B+]
- white cells can be present in older people with asymptomatic bacteriuria, as the immune system does not differentiate colonisation from infection[4B+]

Sterile pyuria:
- in sterile pyuria, consider *Chlamydia trachomatis* (especially if 16 to 24 years), other vaginal infections, other non-culturable organisms including TB or renal pathology[4B+]
- if recurrent pyuria with UTI symptoms, discuss with local microbiologist as lower counts down to 10^5 cfu/L (10^2 cfu/mL) may be significant. Higher volume of urine may need to be cultured, including for fastidious organisms[4B+]

Follow up: Do not send follow-up urine unless pregnant, or advised by the laboratory
If UTI recurrent , refer or seek specialist advice on further investigation/management for[9A+, 10A+]**:** pregnant women; men aged 16 years and over; recurrent upper UTI; recurrent lower UTI (unknown underlying cause); children under 16 years (see NICE guidance on UTI in under 16s: diagnosis and management)

People with unexplained persistent haematuria or suspected cancer, please see NICE guideline on suspected cancer: recognition and referral for other referral criteria and considerations[10A+]

For all patients: consider antibiotic susceptibility results and resistance when deciding on management and reviewing antibiotic treatment.
Please refer to joint NICE/PHE guidance: NICE/PHE guidelines on UTI (lower): antimicrobial prescribing; or NICE/PHE guidelines on pyelonephritis (acute): antimicrobial prescribing; or NICE/PHE guideline on catheter-associated UTI: antimicrobial prescribing

Flowchart for infants/children under 16 years with suspected UTI

Consider UTI in any sick child and every young child with unexplained fever

Check temperature and symptoms in all infants/children
- unexplained fever 38°C or more OR
- loin pain/ tenderness suggesting pyelonephritis

YES → **Consider referral** to a paediatric specialist
Test urine within 24 hours
If urine test positive, treat with antibiotic using NICE/PHE guideline on pyelonephritis: antimicrobial prescribing

NO ↓

Management depends on age and symptoms

Infants younger than 3 months:
Most common symptoms: fever, vomiting, lethargy, irritability, poor feeding, failure to thrive
Less common: abdominal pain, jaundice, haematuria, offensive urine

→ **Refer urgently** to paediatric specialist care AND send a urine sample for urgent microscopy and culture

Infant or child over 3 months with suspected UTI:
Most common symptoms: fever, frequency, dysuria, abdominal pain, loin tenderness, vomiting, poor feeding, dysfunctional voiding, changes to continence
Less common: lethargy, irritability, haematuria, offensive urine, failure to thrive, malaise, cloudy urine

→ Perform a urine dipstick test

POSITIVE nitrite AND POSITIVE leucocyte	POSITIVE nitrite NEGATIVE leucocyte	NEGATIVE nitrite POSITIVE leucocyte	NEGATIVE nitrite AND NEGATIVE leucocyte
Treat as UTI AND start antibiotic **Send urine for culture if:** • under 3 years • suspected pyelonephritis • risk of serious illness • past UTI • no response to treatment and urine sample not already sent	**Treat as UTI** AND start antibiotic if dipstick on fresh urine sample Send urine for culture to confirm diagnosis and reassess with result Repeat urine if not fresh (as old samples can give false positives)	**Send urine for culture** **Under 3 years:** start antibiotic and reassess with culture result **Over 3 years**: only start antibiotics if good clinical evidence of UTI; leucocytes may indicate infection outside urinary tract	**UTI unlikely** Do not start antibiotics Exclude other causes **Send urine for culture if:** • suspected pyelonephritis • risk of serious illness • under 3 months • recurrent UTI • no response to treatment within 24-48 hours and urine sample not sent • symptoms and dipsticks results do not correlate

In ALL follow NICE/PHE guideline on lower UTI: antimicrobial prescribing, safety-net and give self-care advice: advise carer to bring the infant or child for reassessment if the infant or child is not improved or worse after 24–48 hours

Refer to NICE CG54 for other things to consider in suspected UTI in children
For treatment refer to joint NICE/PHE guidance: NICE/PHE guidelines on UTI (lower): antimicrobial prescribing or NICE/PHE guidelines on pyelonephritis (acute): antimicrobial prescribing

Key:	Urgent alert	UTI signs/symptoms	Action advised	Other advice

Last review: Nov 2018. Next review: Nov 2021. Last update: October 2020. 1
Version: 3.0 Under 16 TARGET

Key points for infants/children under 16 years with suspected UTI

Sampling in children:

- if sending a urine culture, obtain sample before starting antibiotics
- if child has alternative site of infection do not test urine unless remains unwell - then test within 24 hours
- in infants/toddlers, clean catch urine advised; gentle suprapubic cutaneous stimulation using gauze soaked in cold fluid helps trigger voiding; clean catch urine using potties cleaned in hot water with washing up liquid; nappy pads cause more contamination, and parents find bags more distressing
- if non-invasive not possible consider: catheter sample, or suprapubic aspirate (with ultrasound guidance)
- culture urine within 4 hours of collection, if this is not possible refrigerate, or use boric acid preservative. Boric acid can cause false negative culture if urine not filled to correct mark on specimen bottle

Interpretation of culture results in children:

- single organism $\geq 10^6$ cfu/L (10^3 cfu/mL) may indicate UTI in voided urine
- any growth from a suprapubic aspirate is significant
- pyuria $\geq 10^7$ WBC/L (10^4 WBC/mL) usually indicate UTI, especially with clinical symptoms but may be absent

Other diagnostic tests: do not use CRP to differentiate upper UTI from lower UTI

Ultrasound:

- if proven UTI is atypical (seriously ill, poor urine flow, abdominal or bladder mass, raised creatinine, septicaemia, failure to respond to antibiotic within 48 hours, non-*E.coli* infection): ultrasound all children in acute phase and undertake renal imaging within 4-6 months if under 3 years
- ALL ages with recurrent UTI
- for children under 6 months OR those with non-*E.coli* UTI: ultrasound within 6 weeks if UTI not atypical AND responding to antibiotics

Refer to NICE CG54 **for other things to consider in suspected UTI in children**

For treatment refer to joint NICE/PHE guidance: NICE guidelines on UTI (lower): antimicrobial prescribing or NICE guidelines on pyelonephritis (acute): antimicrobial prescribing

Grading quick reference tool recommendations

The strength of each recommendation is qualified by a letter in parenthesis. This is an altered version of the grading recommendation system used by SIGN.

Study design	Recommendation grade
Good recent systematic review and meta-analysis of studies	A+
One or more rigorous studies; randomised controlled trials	A-
One or more prospective studies	B+
One or more retrospective studies	B-
Non-analytic studies, for example case reports or case series	C
Formal combination of expert opinion	D

This quick reference tool was originally produced in 2002 by the South West GP Microbiology Laboratory Use Group, in collaboration with the British Infection Association, general practitioners, nurses and specialists in the field. This quick reference tool was reformatted in 2017 in line with PHE recommendations. For detailed information regarding the comments provided and action taken, contact TARGETAntibiotics@phe.gov.uk. Public Health England works closely with the authors of the Clinical Knowledge Summaries.

If you would like to receive a copy of this quick reference tool with the most recent changes highlighted, for detailed information regarding the search strategies implemented and full literature search results, or for any further information regarding the review process and those involved in the development of this quick reference tool, please email TARGETAntibiotics@phe.gov.uk

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Any conflicts of interest have been declared and considered prior to the development and dissemination of this quick reference tool. For any detailed information regarding declared conflicts of interest, please email TARGETAntibiotics@phe.gov.uk

Appendix 4 (Dr BB v6 21/11/17)

GUIDELINES FOR THE MANAGEMENT OF CELLULITIS IN ADULTS IN SOMERSET

Yeovil District Hospital NHS
NHS Foundation Trust

Taunton and Somerset NHS
NHS Trust

NHS
Somerset
Clinical Commissioning Group

Author: Dr Robert Baker, Lead for Antimicrobial Prescribing, Musgrove Park and Yeovil District Hospitals, and Somerset CCG. On behalf of the Taunton and Somerset Antimicrobial Prescribing Group.

Scope: This guideline is intended to replace all previous guidelines for the management of cellulitis in Somerset, in the interests of standardised management across the county.

The recommendations are evidence-based and take account of susceptibility of the principle organisms causing cellulitis in Somerset.

It should be noted that a key purpose of these guidelines is to prevent the unnecessary use of intravenous antibiotics in uncomplicated cellulitis. There is no evidence that oral antibiotics are inferior for cellulitis, and a 2010 Cochrane Review cites weak evidence that the oral route is superior, so long as antibiotic choice and dose are appropriate. Admission subjects the patient to unnecessary risks of immobilisation and healthcare associated infection, as well as cost.

Slow response is not an indication for admission or intravenous antibiotics; treatment may be intensified with oral agents.

Cellulitis is easily diagnosed clinically but may be confused with many other skin conditions; consider alternative diagnoses especially if bilateral

- Venous eczema - skin is typically itchy as well as crusting or scaling; more likely to be **bilateral**
- Lower leg oedema - with secondary blistering; usually **bilateral**
- Post thrombotic syndrome
- Gout

Red flag differentials

- Deep venous thrombosis
- Necrotising fasciitis – Disproportionate pain+++, patient looks unwell
- Orbital cellulitis

Diagnosis of uncomplicated cellulitis requiring antibiotics

YES

Are any **two** of the following present in addition to cellulitis?

1) Temperature >38.3 or <36°c; 2) Pulse >90 bpm; 3) Respiratory Rate >20/min; 4) Acute confusion, disorientation, reduced conscious level

YES → Referral to Acute Trust – Follow Cellulitis guidelines available on acute trust's intranet

NO

Is there any suspicion of necrotising fasciitis (disproportionate pain) OR Any ONE **RED FLAG** sepsis sign: 1) Systolic BP <90mmHg; 2) Pulse >130 bpm; 3) Respiratory Rate >25/min; 4) O2 sats<91% (in the absence of COPD)

YES → "Blue Light" 999 referral to Acute Trust with clear handover - Urgent senior review

Hyperlink to NHS England Sepsis Patient Safety Alert

Follow Cellulitis guidelines available on acute trust's intranet

NO

Does the patient have any of the following?

- Facial or ophthalmic cellulitis unless mild
- Cellulitis associated with:
  - hand injury;
  - severe burns;
  - fresh or sea-water injury;
  - human or animal bites/scratches
- Injecting recreational drug users with infections **at the injection site**
- Diabetic foot.
- **Severe** lymphangitis, blistering or large affected area
- Significant immunosuppression/ neutropaenia
- Worsening diabetic control through infection
- **Severe** hepatic or renal dysfunction
- Peripheral vascular disease causing ischaemic limb

YES → ***Consider*** referral to Acute Trust

Follow Cellulitis guidelines available on acute trust's intranet

NO

THIS PATIENT IS SUITABLE FOR ORAL ANTIBIOTICS

Consider Community Hospitals for patients who cannot be managed at home for non-medical reasons. Occasionally oral antibiotics may be unsuitable. This may be due to drug allergies, bacterial resistance to oral agents, or the oral route being unavailable. Such cases are rare and should be discussed with the hospital team and the consultant microbiologist. Under these conditions or if patients are discharged early, acute hospitals will supply a full course of IV antibiotics and clear arrangements made for administration either at home or in a community/acute hospital outpatient department.

EMPIRIC ANTIBIOTIC CHOICES

It is **NOT** possible to diagnose the organisms causing cellulitis or skin ulcers based on the colour or smell of exudate. Antibiotics **MUST NOT** be chosen on that basis.
Treatment may be modified if an organism is identified and sensitivities available. Microbiology: 01823343765
Tinea pedis may be entry route; treat if present

1 – Very mild superficial cellulitis or impetigo

Hydrogen peroxide 1% cream or Sulfadiazine cream (Flamazine®) topically TDS 5-7days (**NOT** fusidic acid)

→ Note: Sulfadiazine cream is NOT active against MRSA

2 – If Oral systemic antibiotics are required

Flucloxacillin 1g QDS orally for 7 days
Review days 3 & 5 or as appropriate

NB – may be extended to 10-14 days in those who are slow to respond

→ Some patients may not be able to tolerate this dose due to nausea – if so, reduce to 500mg QDS OR treat as if penicillin allergic

IF PENICILLIN ALLERGIC OR MRSA COLONISED (Check sensitivities)
Doxycycline 200mg then 100mg OD for 7 days
Review days 3 & 5 or as appropriate

NB - if intolerant of Doxycycline **OR** MRSA R to tetracycline

→ Primary Care: Clarithromycin 500mg BD for 7 days (check sensitivity)

Secondary care in-patient: Co-trimoxazole 960mg BD for 7 days (Unlicensed indication; check sensitivity) **STOP IF RASH**

NB - **IF PREGNANT**

→ Clarithromycin 500mg BD for 7 days

- **The total duration of the antibiotic course should be a minimum of 7 days, and may need to be longer**
- **Failure to improve – review diagnosis**
- **Review should be performed every 48-72 hours, by GP/ in MAU/ in EAU**
- **If the condition deteriorates during the treatment course, fully reassess the patient and discuss with Microbiology. The patient is likely to require treatment intensification or a change of antibiotic therapy. Admission/ IV antibiotics are only required for sepsis (cardiovascular instability).**

Appendix 5

Methicillin Resistant Staphylococcus Aureus (MRSA) Decolonisation Policy (SR Feb-16)

If clinical infection is suspected and medical staff are unable to follow the NHS Somerset MRSA treatment and decolonisation, they must discuss treatment options with a Consultant Microbiologist.

Where there is clinical infection, decolonisation treatment should be undertaken **in addition** to any systemic treatment given.

Topical decolonisation treatment must be commenced immediately, using nasal **and** skin preparations as below.

This is used for 5 days (if using Naseptin® then this nasal cream must be continued for an additional 5 days) then stopped for 2 days and the patient is re-screened on day 8 to determine if the patient is still MRSA positive.

Mupirocin (*Bactroban®*) Nasal Ointment: twice daily to nostrils for at least 5 days *(Note: if Mupirocin nasal treatment is unavailable the second line treatment is Neomycin sulphate & chlorhexidine dihydrochloride (Naseptin®) Nasal Cream four times daily for 10 days)*

PLUS

***Octenisan®* 500ml bottle: Once daily body wash (including hair wash on day 3)**

If the patient remains positive after the first and a second course of decolonisation, a third course of topical treatment should be carried out as above, followed by a further screen. After three unsuccessful courses of decolonisation, the NHS Somerset Infection Control Team or a Consultant Microbiologist must be contacted to discuss further options.

For patients in community hospitals, decolonisation therapy must be prescribed and staff must record decolonisation as per the Topical Therapy Chart.

The NHS Somerset Infection Control Team can be contacted for further advice via the ICB switchboard on ☎01935 384000, and Consultant Microbiologist can be contacted via MPH switchboard ☎01823 333444.

Further advice (and documents, including topical therapy chart) is also available on the Infection control page of the NHS Somerset ICB website .

Appendix 6 – Flow chart for the management of suspected CDI
First episode, relapse or recurrence

NB. Severe CDI may present with abdominal distention, ileus and little or no diarrhoea

Diarrhoea AND one of the following

Positive *C.difficile* GDH/PCR/toxin test **OR** histological evidence of pseudomembranous colitis OR results of *C.difficile* tests pending AND clinical suspicion of CDI

NB. Anti-motility agents should **not** be prescribed in acute CDI

Discontinue non-*C.difficile*-treatment antibiotics, antimotility meds and ideally discontinue gastric acid suppressants to allow normal intestinal flora to be re-established. Review any medicines that may cause problems if people are dehydrated, such as non-steroidal anti-inflammatory drugs, angiotensin-converting enzyme inhibitors, angiotensin-2 receptor antagonists and diuretics.

Suspected and confirmed cases must be isolated

First episode – any severity

Oral vancomycin

125 mg QDS 10 days (Pharmacies providing the Specialist Meds Service will keep oral vancomycin in stock).

See full guidance for second-line option

Relapse – further episode within 12 weeks of resolution of symptoms

Discuss with Microbiology

Fidaxomicin (AMBER)

200mg BD 10 days

Prescribing clinician should contact nominated pharmacy and ask to place an urgent order for same day delivery

Recurrence – further episode AFTER 12 weeks of resolution of symptoms

Discuss with Microbiology

Oral Vancomycin 125mg QDS 10 days OR

Fidaxomicin (AMBER)

200mg BD 10 days

Prescribing clinician should contact nominated pharmacy and ask to place an urgent order for same day delivery

Clinical monitoring of patient is required

Symptoms improving

Diarrhoea should resolve in 1-2 weeks

Relapse or recurrence occurs in ~20% after first episode
50-60% after second episode

Symptoms not improving or if evidence of severe CDI continues or life-threatening infection

If **multiple recurrences,** especially if evidence of malnutrition, wasting etc.

Request URGENT review from SURGICAL/GI/MICRO/ID consultation

Appendix 7 – UK Sepsis Trust General Practice Sepsis Screening & Action Tools and Telephone Triage Screening and Action Tools

(version UKST2024 1.0)

SEPSIS SCREENING TOOL GENERAL PRACTICE — UNDER 5

01 START THIS CHART IF THE CHILD LOOKS UNWELL, IF PARENT IS CONCERNED OR PHYSIOLOGY IS ABNORMAL e.g.PEWS

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Indwelling lines / IVDU / broken skin
- ☐ Recent trauma / surgery / invasive procedure

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Urine
- ☐ Skin / joint / wound
- ☐ Indwelling device
- ☐ Brain
- ☐ Surgical
- ☐ Other

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

03 ANY RED FLAG PRESENT?

YES

- ☐ Mental state or behaviour is acutely altered
- ☐ Doesn't wake when roused / won't stay awake
- ☐ Looks very unwell to healthcare professional
- ☐ SpO2 < 90% on air or increased O2 requirements
- ☐ Severe tachypnoea (see chart)
- ☐ Severe tachycardia (see chart)
- ☐ Bradycardia (<60 bpm)
- ☐ Non-blanching rash / mottled / ashen / cyanotic

YES → **RED FLAG SEPSIS**

START GP BUNDLE

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Not behaving normally
- ☐ Reduced activity / very sleepy
- ☐ Parental or carer concern
- ☐ Moderate tachypnoea (see chart)
- ☐ Moderate tachycardia (see chart)
- ☐ SpO_2 < 92% or increased O_2 requirement
- ☐ Nasal flaring
- ☐ Capillary refill time ≥ 3 seconds
- ☐ Reduced urine output (<1 ml/kg/h if catheterised)
- ☐ Leg pain / cold extremities
- ☐ Temperature <36°C

YES → USE CLINICAL JUDGEMENT TO DETERMINE WHETHER PATIENT CAN BE MANAGED IN COMMUNITY SETTING. IF TREATING IN THE COMMUNITY CONSIDER:

- PLANNED SECOND ASSESSMENT +/- BLOODS
- SPECIFIC SAFETY NETTING ADVICE

NO AMBER FLAGS: ROUTINE CARE AND GIVE SAFETY-NETTING ADVICE:

GP RED FLAG BUNDLE:

DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

IF TRANSIT TIME >1H GIVE IV ANTIBIOTICS

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'. Where possible a written handover is recommended including observations and antibiotic allergies.

Age (years)	Tachypnoea (breaths per minute)		Tachycardia (beats per minute)	
	Severe	Moderate	Severe	Moderate
<1	≥60	50-59	≥160	150-159
1-2	≥50	40-49	≥150	140-149
3-4	≥40	35-39	≥140	130-139

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UKST 2024 1.0 PAGE 1 OF 1

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SEPSIS SCREENING TOOL GENERAL PRACTICE — AGE 5-11

01 START THIS CHART IF THE CHILD LOOKS UNWELL, IF PARENT IS CONCERNED OR PHYSIOLOGY IS ABNORMAL e.g. PEWS

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Indwelling lines / IVDU / broken skin
- ☐ Recent trauma / surgery / invasive procedure

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Urine
- ☐ Skin / joint / wound
- ☐ Indwelling device
- ☐ Brain
- ☐ Surgical
- ☐ Other

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

03 ANY RED FLAG PRESENT?

YES

- ☐ Mental state or behaviour is acutely altered
- ☐ Doesn't wake when roused / won't stay awake
- ☐ Looks very unwell to healthcare professional
- ☐ SpO2 < 90% on air or increased O2 requirements
- ☐ Severe tachypnoea (see chart)
- ☐ Severe tachycardia (see chart)
- ☐ Bradycardia (<60 bpm)
- ☐ Non-blanching rash / mottled / ashen / cyanotic

YES → **RED FLAG SEPSIS**

START GP BUNDLE

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Not behaving normally
- ☐ Reduced activity / very sleepy
- ☐ Parental or carer concern
- ☐ Moderate tachypnoea (see chart)
- ☐ Moderate tachycardia (see chart)
- ☐ SpO_2 < 92% or increased O_2 requirement
- ☐ Nasal flaring
- ☐ Capillary refill time ≥ 3 seconds
- ☐ Reduced urine output (<1 ml/kg/h if catheterised)
- ☐ Leg pain / cold extremities
- ☐ Temperature <36°C

YES → USE CLINICAL JUDGEMENT TO DETERMINE WHETHER PATIENT CAN BE MANAGED IN COMMUNITY SETTING. IF TREATING IN THE COMMUNITY CONSIDER:

- PLANNED SECOND ASSESSMENT +/- BLOODS
- SPECIFIC SAFETY NETTING ADVICE

NO AMBER FLAGS: ROUTINE CARE AND GIVE SAFETY-NETTING ADVICE:

GP RED FLAG BUNDLE:

DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

IF TRANSIT TIME >1H GIVE IV ANTIBIOTICS

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'. Where possible a written handover is recommended including observations and antibiotic allergies.

Age (years)	Tachypnoea (breaths per minute)		Tachycardia (beats per minute)	
	Severe	Moderate	Severe	Moderate
5	≥29	24-28	130	120-129
6-7	≥27	24-26	120	110-119
8-11	25	22-24	115	105-114

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UKST 2024 1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL GENERAL PRACTICE

AGE 12-15

01 START THIS CHART IF YOUNG PERSON LOOKS, IF PARENT IS CONCERNED OR HAS ABNORMAL PHYSIOLOGY e.g. PEWS

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → **SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS**

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Respiratory rate ≥ 25 per minute
- ☐ Needs O2 (40% +) to keep SpO2 ≥ 92%
- ☐ Systolic BP ≤ 90 mmHg (or drop of >40 from normal)
- ☐ Heart rate ≥ 130 per minute
- ☐ Not passed urine in 18 hours (<0.5ml/kg/hr if catheterised)
- ☐ Non-blanching rash / mottled / ashen / cyanotic

YES → **RED FLAG SEPSIS**

START GP BUNDLE

04 ANY AMBER FLAG PRESENT?

NO

- ☐ Family report abnormal behaviour or mental state
- ☐ Reduced functional ability
- ☐ Respiratory rate 21-24
- ☐ Systolic BP 91-100 mmHg
- ☐ Heart rate 91-129 or new dysrhythmia
- ☐ SpO_2 ≤ 92% or increased O_2 requirement
- ☐ Not passed urine in 12-18 h (<0.5ml/kg/hr if catheterised)
- ☐ Immunocompromised
- ☐ Signs of infection including wound infection
- ☐ Temperature <36°C

YES → **USE CLINICAL JUDGEMENT TO DETERMINE WHETHER PATIENT CAN BE MANAGED IN COMMUNITY SETTING. IF TREATING IN THE COMMUNITY CONSIDER:**

- **PLANNED SECOND ASSESSMENT +/- BLOODS**
- **SPECIFIC SAFETY NETTING ADVICE**

NO AMBER FLAGS: ROUTINE CARE AND GIVE SAFETY-NETTING ADVICE:

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

CALL 999 IF ANY OF:

- **S**lurred speech or confusion
- **E**xtreme shivering or muscle pain
- **P**assing no urine (in a day)
- **S**evere breathlessness
- **'I feel I might die'**
- **S**kin mottled, ashen, blue or very pale

GP RED FLAG BUNDLE:

DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER
IF TRANSIT TIME >1H GIVE IV ANTIBIOTICS

Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'. Where possible a written handover is recommended including observations and antibiotic allergies.

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UKST 2024 1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL GENERAL PRACTICE

AGE 16+

01 START THIS CHART IF THE PATIENT LOOKS UNWELL OR HAS ABNORMAL PHYSIOLOGY

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Age > 75
- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → **SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS**

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Respiratory rate ≥ 25 per minute
- ☐ Needs O2 (40% +) to keep SpO2 ≥ 92% (≥88% in COPD)
- ☐ Systolic BP ≤ 90 mmHg (or drop of >40 from normal)
- ☐ Heart rate ≥ 130 per minute
- ☐ Not passed urine in 18 hours (<0.5ml/kg/hr if catheterised)
- ☐ Non-blanching rash / mottled / ashen / cyanotic

YES → **RED FLAG SEPSIS**

START GP BUNDLE

04 ANY AMBER FLAG PRESENT?

NO

- ☐ Family report abnormal behaviour or mental state
- ☐ Reduced functional ability
- ☐ Respiratory rate 21-24
- ☐ Systolic BP 91-100 mmHg
- ☐ Heart rate 91-129 or new dysrhythmia
- ☐ SpO_2 ≤ 92% or increased O_2 requirement
- ☐ Not passed urine in 12-18 h (<0.5ml/kg/hr if catheterised)
- ☐ Immunocompromised
- ☐ Signs of infection including wound infection
- ☐ Temperature <36°C

YES → **USE CLINICAL JUDGEMENT TO DETERMINE WHETHER PATIENT CAN BE MANAGED IN COMMUNITY SETTING. IF TREATING IN THE COMMUNITY CONSIDER:**

- **PLANNED SECOND ASSESSMENT +/- BLOODS**
- **SPECIFIC SAFETY NETTING ADVICE**

NO AMBER FLAGS: ROUTINE CARE AND GIVE SAFETY-NETTING ADVICE:

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

CALL 999 IF ANY OF:

- **S**lurred speech or confusion
- **E**xtreme shivering or muscle pain
- **P**assing no urine (in a day)
- **S**evere breathlessness
- **'I** feel I might die'
- **S**kin mottled, ashen, blue or very pale

GP RED FLAG BUNDLE:

DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

IF TRANSIT TIME >1H GIVE IV ANTIBIOTICS

Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'. Where possible a written handover is recommended including observations and antibiotic allergies.

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UKST 2024 1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL GENERAL PRACTICE

PREGNANT
OR UP TO 4 WEEKS POST-PREGNANCY

01 START THIS CHART IF THE PATIENT LOOKS UNWELL OR PHYSIOLOGY IS ABNORMAL

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Urine
- ☐ Infected caesarean / perineal wound
- ☐ Breast abscess
- ☐ Abdominal pain / distension
- ☐ Chorioamnionitis / endometritis

NO → **SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS**

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Systolic BP ≤ 90 mmHg (or drop of >40 from normal)
- ☐ Heart rate ≥ 130 per minute
- ☐ Respiratory rate ≥ 25 per minute
- ☐ Needs O_2 (40% or more) to keep SpO_2 ≥ 92%Non-
- ☐ blanching rash / mottled / ashen / cyanotic
- ☐ Not passed urine in 18 hours (<0.5ml/kg/hr if catheterised)

YES → **RED FLAG SEPSIS**
START GP BUNDLE

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Acute deterioration in functional ability
- ☐ Family report mental status change
- ☐ Respiratory rate 21-24
- ☐ Heart rate 100-129 or new dysrhythmia
- ☐ Systolic BP 91-100 mmHg
- ☐ Has had invasive procedure in last 6 weeks
- ☐ Temperature < 36°C
- ☐ Has diabetes or impaired immunity
- ☐ Close contact with GAS
- ☐ Prolonged rupture of membranes
- ☐ Offensive vaginal discharge
- ☐ Not passed urine in 12-18 h (<0.5ml/kg/hr if catheterised)

YES → **USE CLINICAL JUDGEMENT TO DETERMINE WHETHER PATIENT CAN BE MANAGED IN COMMUNITY SETTING. IF TREATING IN THE COMMUNITY CONSIDER:**

- **PLANNED SECOND ASSESSMENT +/- BLOODS**
- **SPECIFIC SAFETY NETTING ADVICE**

NO AMBER FLAGS: ROUTINE CARE AND GIVE SAFETY-NETTING ADVICE:

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

CALL 999 IF ANY OF:

- **S**lurred speech or confusion
- **E**xtreme shivering or muscle pain
- **P**assing no urine (in a day)
- **S**evere breathlessness
- **'I feel I might die'**
- **S**kin mottled, ashen, blue or very pale

GP RED FLAG BUNDLE:

DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER
IF TRANSIT TIME >1H GIVE IV ANTIBIOTICS

Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'. Where possible a written handover is recommended including observations and antibiotic allergies.

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UKST 2024 1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL TELEPHONE TRIAGE

UNDER 5

01 START IF CHILD SOUNDS VERY UNWELL OR ANY OF THE FOLLOWING ARE REPORTED:

- ☐ Abnormal temperature
- ☐ Appears to be breathing more quickly or slowly than normal
- ☐ Altered mental state – include sleepy, irritable, drowsy or floppy
- ☐ Abnormally pale / bluish skin or abnormally cold hands or feet
- ☐ Reduced wet nappies or reduced urine output

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Indwelling lines / broken skin
- ☐ Recent trauma / surgery / invasive procedure

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

03 ANY RED FLAG PRESENT?

YES

- ☐ No response to social cues
- ☐ Doesn't wake when roused / won't stay awake
- ☐ Weak, high-pitched or continuous cry
- ☐ Grunting or bleating noises with every breath
- ☐ Finding it much harder to breathe than normal
- ☐ Very fast breathing / 'pauses' in breathing
- ☐ Skin that's very pale, mottled, ashen or blue
- ☐ Rash that doesn't fade when pressed firmly
- ☐ Temperature <36°C (check 3 times in 10 min)
- ☐ If under 3 months, temperature ≥ 38°C

YES → **RED FLAG SEPSIS START BUNDLE**

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Not responding normally / no smile
- ☐ Parental concern
- ☐ Wakes only with prolonged stimulation
- ☐ Significantly decreased activity
- ☐ Having to work hard to breathe
- ☐ Poor feeding in infants
- ☐ Reduced urine output
- ☐ Leg pain
- ☐ Cold feet or hands

YES → **FURTHER INFORMATION AND REVIEW REQUIRED:**

- ARRANGE URGENT FACE-TO FACE ASSESSMENT USING CLINICAL JUDGEMENT TO DETERMINE APPROPRIATE CLINICAL ENVIRONMENT

NO AMBER FLAGS: GIVE SAFETY-NETTING ADVICE:

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

CALL 999 IF ANY OF:

- Is breathing very fast
- Has a 'fit' or convulsion
- Looks mottled, bluish or pale
- Has a rash that does not fade when you press it
- Is very lethargic or difficult to wake
- Feels abnormally cold to touch

TELEPHONE TRIAGE BUNDLE:

THIS IS TIME-CRITICAL – IMMEDIATE ACTION REQUIRED: DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew
Advise crew to pre-alert as 'Red Flag Sepsis'

THE UK SEPSIS TRUST

UKST 2024 TT1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL TELEPHONE TRIAGE

AGE 5-11

01 START IF CHILD SOUNDS VERY UNWELL OR ANY OF THE FOLLOWING ARE REPORTED:

- ☐ Abnormal temperature
- ☐ Appears to be breathing more quickly or slowly than normal
- ☐ Altered mental state – include sleepy, irritable, drowsy or floppy
- ☐ Abnormally pale / bluish skin or abnormally cold hands or feet
- ☐ Reduced wet nappies or reduced urine output

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Indwelling lines / broken skin
- ☐ Recent trauma / surgery / invasive procedure

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Urine
- ☐ Skin / joint / wound
- ☐ Indwelling device
- ☐ Brain
- ☐ Surgical
- ☐ Other

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Doesn't wake when roused / won't stay awake
- ☐ Not doing / interested in anything at all
- ☐ Unable to catch breath / difficult to speak
- ☐ Very fast breathing / 'pauses' in breathing
- ☐ Skin that's very pale, mottled, ashen or blue
- ☐ Rash that doesn't fade when pressed firmly
- ☐ Temperature <36°C (check 3 times in 10 min)

YES → **RED FLAG SEPSIS START BUNDLE**

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Behaving abnormally / not wanting to play
- ☐ Parental concern
- ☐ Having to work hard to breathe
- ☐ Reduced urine output
- ☐ Leg pain
- ☐ Cold feet or hands

YES → **FURTHER INFORMATION AND REVIEW REQUIRED:**

- ARRANGE URGENT FACE-TO FACE ASSESSMENT USING CLINICAL JUDGEMENT TO DETERMINE APPROPRIATE CLINICAL ENVIRONMENT

NO AMBER FLAGS: GIVE SAFETY-NETTING ADVICE:

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

CALL 999 IF ANY OF:

- Is breathing very fast
- Has a 'fit' or convulsion
- Looks mottled, bluish or pale
- Has a rash that does not fade when you press it
- Is very lethargic or difficult to wake
- Feels abnormally cold to touch

TELEPHONE TRIAGE BUNDLE:

THIS IS TIME-CRITICAL – IMMEDIATE ACTION REQUIRED: DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'

THE UK SEPSIS TRUST

UKST 2024 TT 1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL TELEPHONE TRIAGE

AGE 12-15

01 ARE THERE CLUES THAT THIS YOUNG PERSON MAY BE SERIOUSLY ILL?

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Age > 75
- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

02 COULD THIS BE DUE TO AN INFECTION?

YES

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → **SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS**

03 ANY RED FLAG PRESENT?

YES

- ☐ Objective evidence of new or altered mental state
- ☐ Unable to stand / collapsed
- ☐ Unable to catch breath / barely able to speak
- ☐ Very fast breathing
- ☐ Skin that is very pale, mottled , ashen or blue
- ☐ Rash that doesn't fade when pressed firmly
- ☐ Recent chemotherapy
- ☐ Not passed urine in previous 18 hours

YES → **RED FLAG SEPSIS START BUNDLE**

04 ANY AMBER FLAG PRESENT?

NO

IF IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Behavioural change / reduced activity
- ☐ Immunosuppressed
- ☐ Trauma / surgery / procedure in last 8 weeks
- ☐ Breathing harder work than normal
- ☐ Reduced urine output
- ☐ Temperature <36°C
- ☐ Signs of wound infection
- ☐ Not passed urine in previous 12-18 hours

YES → **FURTHER INFORMATION AND REVIEW REQUIRED:**

- ARRANGE URGENT FACE-TO FACE ASSESSMENT USING CLINICAL JUDGEMENT TO DETERMINE APPROPRIATE CLINICAL ENVIRONMENT

NO AMBER FLAGS: ROUTINE CARE AND GIVE NETTING SAFETY ADVICE

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

999 IF ANY OF:

- **S**lurred speech or confusion
- **E**xtreme shivering or muscle pain
- **P**assing no urine (in a day)
- **S**evere breathlessness
- 'I feel I might die'
- **S**kin mottled, ashen, blue or very pale

TELEPHONE TRIAGE BUNDLE:

THIS IS TIME-CRITICAL – IMMEDIATE ACTION REQUIRED: **DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER**

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'.

THE UK SEPSIS TRUST

UKST 2024 TT1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL TELEPHONE TRIAGE

AGE 16+

01 ARE THERE CLUES THAT THE PATIENT MAY BE SERIOUSLY ILL?

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Age > 75
- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Recent trauma / surgery / invasive procedure
- ☐ Indwelling lines / IVDU / broken skin

YES

02 COULD THIS BE DUE TO AN INFECTION?

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Brain
- ☐ Urine
- ☐ Surgical
- ☐ Skin / joint / wound
- ☐ Other
- ☐ Indwelling device

NO → SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS

YES

03 ANY RED FLAG PRESENT?

- ☐ Objective evidence of new or altered mental state
- ☐ Unable to stand / collapsed
- ☐ Unable to catch breath / barely able to speak
- ☐ Very fast breathing
- ☐ Skin that is very pale, mottled , ashen or blue
- ☐ Rash that doesn't fade when pressed firmly
- ☐ Recent chemotherapy
- ☐ Not passed urine in previous 18 hours

YES → **RED FLAG SEPSIS START BUNDLE**

NO

04 ANY AMBER FLAG PRESENT?

IF UNDER 17 & IMMUNITY IMPAIRED TREAT AS RED FLAG SEPSIS

- ☐ Behavioural change / reduced activity
- ☐ Immunosuppressed
- ☐ Trauma / surgery / procedure in last 8 weeks
- ☐ Breathing harder work than normal
- ☐ Reduced urine output
- ☐ Temperature <36°C
- ☐ Signs of wound infection
- ☐ Not passed urine in previous 12-18 hours

YES → **FURTHER INFORMATION AND REVIEW REQUIRED:**

- ARRANGE URGENT FACE-TO FACE ASSESSMENT USING CLINICAL JUDGEMENT TO DETERMINE APPROPRIATE CLINICAL ENVIRONMENT

NO AMBER FLAGS: ROUTINE CARE AND GIVES SAFTEY NETTING ADVICE

CALL 111 IF CONDITION CHANGES OR DETERIORATES.
SIGNPOST TO AVAILABLE RESOURCES AS APPROPRIATE

999 IF ANY OF:

- **S**lurred speech or confusion
- **E**xtreme shivering or muscle pain
- **P**assing no urine (in a day)
- **S**evere breathlessness
- 'I feel I might die'
- **S**kin mottled, ashen, blue or very pale

TELEPHONE TRIAGE BUNDLE:

THIS IS TIME-CRITICAL – IMMEDIATE ACTION REQUIRED: DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'.

THE UK SEPSIS TRUST

UKST 2024 TT1.0 PAGE 1 OF 1

SEPSIS SCREENING TOOL TELEPHONE TRIAGE

PREGNANT
OR UP TO 4 WEEKS POST-PREGNANCY

01 ARE THERE CLUES THAT THE PATIENT IS SERIOUSLY UNWELL?

RISK FACTORS FOR SEPSIS INCLUDE:

- ☐ Recent trauma / surgery / invasive procedure
- ☐ Impaired immunity (e.g. diabetes, steroids, chemotherapy)
- ☐ Indwelling lines / IVDU / broken skin

YES

02 COULD THIS BE DUE TO AN INFECTION?

LIKELY SOURCE:

- ☐ Respiratory
- ☐ Breast abscess
- ☐ Urine
- ☐ Abdominal pain / distension
- ☐ Infected caesarean / perineal wound
- ☐ Chorioamnionitis / endometritis

NO → **SEPSIS UNLIKELY, CONSIDER OTHER DIAGNOSIS**

YES

03 ANY RED FLAG PRESENT?

- ☐ Objective evidence of new or altered mental state
- ☐ Unable to catch breath, barely able to speak
- ☐ Very fast breathing and struggling for breath
- ☐ Unable to stand / collapsed
- ☐ Skin that's very pale, mottled, ashen or blue
- ☐ Rash that doesn't fade when pressed firmly
- ☐ Not passed urine in last 18 hours

YES → **RED FLAG SEPSIS START BUNDLE**

NO

04 ANY AMBER FLAG PRESENT?

- ☐ Behavioural / mental status change
- ☐ Acute deterioration in functional ability
- ☐ Patient reports breathing is harder work
- ☐ Has had invasive procedure in last 6 weeks (e.g. CS, forceps delivery, ERPC, cerclage, CVs, miscarriage, termination)
- ☐ Temperature < 36°C
- ☐ Has diabetes or gestational diabetes
- ☐ Close contact with GAS
- ☐ Prolonged rupture of membranes
- ☐ Bleeding / wound infection
- ☐ Offensive vaginal discharge

YES → **FURTHER INFORMATION AND REVIEW REQUIRED:**

- ARRANGE URGENT FACE-TO FACE ASSESSMENT USING CLINICAL JUDGEMENT TO DETERMINE APPROPRIATE CLINICAL ENVIRONMENT

NO AMBER FLAGS: GIVE SAFETY NETTING ADVICE CONSIDER OBSTETRIC ASSESSMENT

TELEPHONE TRIAGE BUNDLE:

THIS IS TIME-CRITICAL – IMMEDIATE ACTION REQUIRED: DIAL 999 AND ARRANGE BLUE LIGHT TRANSFER

COMMUNICATION: Ensure communication of 'Red Flag Sepsis' to crew. Advise crew to pre-alert as 'Red Flag Sepsis'.

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UKST 2024 TT 1.0 PAGE 1 OF 1

Appendix 8 - Test for *Helicobacter pylori* in dyspepsia - Quick reference guide for primary care (PHE July 2017)

NICE

- Patients over the age of 55, with recent onset, unexplained and persistent dyspepsia (over 4-6 weeks) should be referred urgently for endoscopy to exclude cancer.[1D]

WHEN SHOULD I TEST FOR *HELICOBACTER PYLORI*?

- Patients with uncomplicated dyspepsia unresponsive to lifestyle change and antacids, following a single one month course of proton pump inhibitor (PPI), without alarm symptoms.[2D,3A-,4A-,5A-,6A-]
  Note: Options should be discussed with patients, as the prevalence of HP in developed countries is falling,[7B+,8B-,9B+] and is lower than 15% in many areas in the UK.[10B+,11D] A trial of PPI should usually be prescribed before testing, unless the likelihood of HP is higher than 20%[11A-] (older people; people of North African ethnicity;[8B-,9B+] those living in a known high risk area), in which case the patient should have a test for HP first, or in parallel with a course of PPI.
- Patients with a history of gastric or duodenal ulcer/bleed who have not previously been tested.[11C]
- Patients before taking NSAIDs, if they have a prior history of gastro-duodenal ulcers/bleeds.
  Note: Both HP and NSAIDs are independent risk factors for peptic ulcers, so eradication will not remove all risk.[11A-]
- Patients with unexplained iron-deficiency anaemia, after negative endoscopic investigation has excluded gastric and colonic malignancy, and investigations have been carried out for other causes, including: cancer; idiopathic thrombocytopenic purpura; vitamin B12 deficiency.[11D]

WHEN SHOULD I NOT TEST FOR *HELICOBACTER PYLORI*?

- Patients with proven oesophagitis, or predominant symptoms of reflux, suggesting gastro-oesophageal reflux disease (GORD).[2D,11D,12A+]
- Children with functional dyspepsia.[13A+,14A+]

WHICH NON-INVASIVE TEST SHOULD BE USED IN UNCOMPLICATED DYSPEPSIA?

- Urea breath tests (UBTs)[15A+,16C,17B+] and stool antigen tests (SATs) are the preferred tests.[11A+]

Urea Breath Test (UBT): most accurate test.[2D,15A+,16C,17B+]
- needs a prescription and staff time to perform

Stool Helicobacter Antigen Test (SAT): check test availability.[18A+,19A+]
- pea-sized piece of stool sent to local laboratory

→ **DO NOT** perform UBT or SAT within two weeks of PPI,[20B+,21B+] or four weeks of antibiotics,[19A+,22A+] as these drugs supress bacteria and can lead to false negatives.

Serology: whole blood in plain bottle; low cost, lower accuracy.[2D,16A-,23A+]
- not recommended for most patients, and positives should be confirmed by a second test such as UBT, SAT[24D] or biopsy[11D,15A+]
- has very good negative predictive value at current; low prevalence in the developed countries[7B+,8B-,9B+,10B+,11D]
- most useful in patients with acute gastrointestinal bleed, to confirm negative UBT or SAT, when blood and PPI use interacts with tests[19A+]
- detects IgG antibody;[25A+] does not differentiate active from past infection[19A+]

→ **DO NOT** use near patient serology tests, as they are not accurate.[2D,11D,16A-]

→ **DO NOT** use serology post-treatment.

→ **DO NOT** use serology in the elderly or in children.[13A+,14A+]

WHEN SHOULD I TREAT *HELICOBACTER PYLORI*?

HP POSITIVE → Treat *H. pylori*.[2D,11D,22A+,26B-]

HP NEGATIVE → Reassure, as NPV of all tests is >95%.[16C] → Only retest for HP if DU, GU, family history of cancer, MALToma, or if test was performed within two weeks of PPI, or four weeks of antibiotics.[21B+,27C] → If *H. pylori* negative, treat as functional dyspepsia. Step down to lowest dose PPI or H_2A needed to control symptoms. Review annually, including PPI need.[2D,28D]

ASYMPTOMATIC post-HP treatment[2D,3A-,4A-]

- As 64% of patients with functional dyspepsia will have persistent recurrent symptoms, do not routinely offer re-testing after eradication.[2D]

- if compliance poor, or high local resistance rates[11D,29B-]
- persistent symptoms, and HP test performed within two weeks of taking PPI, or within four weeks of taking antibiotics[19A+,20B+,21B+,22C]
- patients with an associated peptic ulcer, after resection of an early gastric carcinoma or MALT lymphoma[2D,11D,26C]
- patients requiring aspirin, where PPI is not co-prescribed[2D]
- patients with severe persistent or recurrent symptoms, particularly if not typical of GORD[11D,26C]

→

- UBT is most accurate[15A+,16C]
- SAT is an alternative[15A+,18A+]

↓

Wait at least four weeks (ideally eight weeks) after treatment.[11D,19A+] If acid suppression needed use H_2 antagonist.[39D]

↓

Use second-line treatment if UBT or SAT remains positive[2D]

DO NOT use serology for re-testing[2D,15A+,16C]

WHAT SHOULD I DO IN ERADICATION FAILURE?

- Reassess need for eradication.[2D] In patients with GORD or non-ulcer dyspepsia, with no family history of cancer or peptic ulcer disease, a maintenance PPI may be appropriate.[2D,26C]

WHEN SHOULD I REFER FOR ENDOSCOPY, CULTURE AND SUSCEPTIBILITY TESTING?

- Patients in whom the choice of antibiotic is reduced due to hypersensitivity, known local high resistance rates, or previous use of clarithromycin, metronidazole, and a quinolone.[2A-,11D,28D]
- Patients who have received two courses of antibiotic treatment, and remain HP positive.[2D,11D,28D]
- For any advice, speak to your local microbiologist, or the *Helicobacter* Reference Laboratory.

GRADING OF GUIDANCE RECOMMENDATIONS

The strength of each recommendation is qualified by a letter in parenthesis. This is an altered version of the grading recommendation system used by SIGN.

STUDY DESIGN	RECOMMENDATION GRADE
Good recent systematic review and meta-analysis of studies	A+
One or more rigorous studies; randomised controlled trials	A-
One or more prospective studies	B+
One or more retrospective studies	B-
Non-analytic studies, eg case reports or case series	C
Formal combination of expert opinion	D