Wirral Clinical Commissioning Group NHS | Wirral Community NHS Trust | MIDLANDS AND LANCASHIRE COMMISSIONING SUPPORT UNIT

2017

Wirral Antimicrobial Guidelines and Management of Common Infections in Primary Care

Strategies to Optimise Prescribing of Antimicrobials in Primary Care

Adapted from the Pan Mersey Antimicrobial Guidelines 2015
and the Public Health England "Management of infection guidance for primary care for consultation and local adaptation" May 2017

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Antimicrobial Guidelines and Management of Common Infections in Primary Care

Introduction

The 'Antimicrobial Guidelines and Management of Common Infections in Primary Care' has been designed with three aims in mind:

- To encourage rational and evidence-based use of antibiotics
- To minimise the emergence of bacterial resistance
- To provide a simple, pragmatic approach to the management of common infections in primary care

Antimicrobials should only be prescribed when there is proven or strongly suspected bacterial infection and in all cases the benefit of administering the medicine should be considered in relation to the risk involved. This is particularly important during pregnancy, when breastfeeding, using drugs in children and the elderly, and considering documented allergies to antimicrobials previously prescribed. These guidelines are **not** based on costs. **Some of the recommendations in this guideline are unsuitable for pregnant women (unless otherwise stated). Please refer to BNF for alternative antimicrobials in pregnancy.**

Management of an infection will not always mean prescribing an antimicrobial drug. Prescribers using this guide will have the best chance of using the most effective strategy first.

Things you can do to make a difference:

- **Don't prescribe antibiotics for viral sore throats, simple coughs and colds.**
- **Use this guideline to reduce the risk of antimicrobial resistance by avoiding unnecessary use of broad spectrum antimicrobials such as cephalosporins, quinolones, clindamycin and co-amoxiclav.**
- **Limit prescribing for uncomplicated cystitis to three days in non-pregnant, otherwise fit women of child-bearing age.**
- **Avoid widespread use of topical antibiotics, especially when available systemically.**
- **Don't prescribe antibiotics over the telephone, other than in exceptional cases.**
- **Don't list antibiotics on your repeat prescribing system, other than in exceptional cases.**
- **Use this guide, and consider using a delayed prescription where this has been shown to be effective.**
- **Using patient information leaflets can reduce antibiotic use. See useful references on page 4.**
- **Always check previous positive microbiology results prior to starting antibiotics. The empirical regimes in this guideline cover most organisms, however, if the patient has a history of multi-resistant organisms not covered by this guideline, please contact the microbiology department:**

MicroPath automated switchboard 01244 362500 option 3 (WUTH microbiology) **during normal working hours**
Or
2) Arrowe Park Switchboard 0151 678 5111 if **out-of-hours**

This Antimicrobial Guide aims to produce rational prescribing by the individual practitioner for their patients and is based upon advice contained in the Pan Mersey Antimicrobial Guidelines 2015 and Public Health England "Management of infection guidance for primary care for consultation and local adaptation" May 2017. The British National Formulary (BNF) and Summary of product Characteristics (SPC) provide additional information on the side effects and contraindications of all the drugs listed.

Doses in this guideline are for adults unless otherwise stated. *Paediatric doses are included in the table at the end of the guideline; refer to the Children's BNF for further information* https://www.medicinescomplete.com/mc/bnfc/current/

Useful References

Public HealthEngland. Management of Infection Guidance for Primary Care. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/612743/Managing_common_infections.pdf

RCGP TARGET Antibiotics Toolkit

The toolkit has been developed by the RCGP, PHE and The Antimicrobial Stewardship in Primary Care (ASPIC) in collaboration with professional societies including GPs, pharmacists, microbiologists, clinicians, guidance developers and other stakeholders.

The aim of the toolkit is to provide a central resource for clinicians and commissioners about safe, effective, appropriate and responsible antibiotic prescribing.

http://www.rcgp.org.uk/clinical-and-research/target-antibiotics-toolkit.aspx

European Antibiotics Awareness Day

A collection of campaign materials used for the 2016 awareness day is available from: http://ecdc.europa.eu/en/eaad/Pages/Home.aspx

Laboratory sensitivity reports

Please note that sensitivities for antimicrobials other than those recommended in these guidelines may be reported, but **should only be prescribed where the guideline choices are inappropriate**. Empirical treatment should always be used according to these guidelines unless sensitivities indicate otherwise.

"Help your Microbiology Department to help you".
Including as much clinical information as possible on the sample request form will allow the most appropriate sensitivities to be reported e.g. type of urine sample, antimicrobials already tried, pregnancy, significant co-morbidities such as chronic kidney disease, allergies.

Penicillin allergy

All medical and non-medical prescribers are reminded of the advice contained in the **BNF** https://www.medicinescomplete.com/mc/bnf/current/

Individuals with a history of anaphylaxis, urticaria or rash **immediately** after penicillin administration are at risk of ***immediate hypersensitivity*** to a penicillin; these individuals **should not receive a penicillin**. Patients who are allergic to one penicillin will be allergic to all because the hypersensitivity is related to the basic penicillin structure. **As patients with a history of immediate hypersensitivity to penicillins may also react to cephalosporins and other beta-lactam antimicrobials, they should not receive these antimicrobials.**

Individuals with a history of a minor rash (i.e. non-confluent, non-pruritic rash restricted to a small area of the body) or a rash that occurs more than 72 hours after penicillin administration are *probably not allergic to penicillin* and in these individuals penicillin should not be withheld unnecessarily for serious infections. The possibility of an allergic reaction should, however, be borne in mind. Other beta-lactam antibiotics (including cephalosporins) can be used in these patients.

Antibiotics in pregnancy

In pregnancy take specimens to inform treatment, use the guidelines or seek specialist advice. Penicillins, cephalosporins and erythromycin are not associated with increased risks. If possible, avoid tetracyclines, quinolones, aminoglycosides, azithromycin, clarithromycin, high dose metronidazole (2g stat) unless the benefits outweigh the risks. Short term use of nitrofurantoin is not expected to cause foetal problems (theoretical risk of neonatal haemolysis). Trimethoprim is also unlikely to cause problems unless poor dietary folate intake, or taking another folate antagonist.

Clostridium difficile infection – risk assessment and reduction strategies

Clostridium difficile can be present in the gut without causing illness. It is estimated that 66% of infants and 3% of healthy adults carry Clostridium difficile. In some circumstances, Clostridium difficile can produce toxins that cause Clostridium difficile infection [CDI]. The spectrum of CDI ranges from mild diarrhoea to severe colitis/ toxic megacolon and can be life threatening.

Risk factors for CDI include:

- Recent treatment with antibiotics (especially broad-spectrums)
- Recent treatment with acid suppressants, particularly PPIs
- Serious underlying disease +/- immunosuppression
- Age > 65 years

Environmental contamination with C. difficile spores has been documented in healthcare establishments, including care homes, and can persist for many months, with carpets and soft furnishings acting as potential reservoirs for infection of a susceptible patient. **Alcohol gels are ineffective against C. difficile spores.**

Care homes have residents registered with various GP practices and so individual prescribers may be unaware that there have been cases of C. difficile in a specific home. Even when the staff of the home rigorously apply infection control procedures, it is still vital that ALL PRESCRIBERS continue to follow the advice in the current **Primary Care Antimicrobial Guide**.

Recent experience in the care home sector locally has highlighted the continuing need for **ALL PRESCRIBERS** to be cautious when prescribing antibiotics or PPIs, ***particularly for the elderly***.

Advice on infection prevention and control of C. difficile can be obtained from the Wirral Community Infection Prevention and Control team or via the Wirral Community Trust website at:
http://www.wirralct.nhs.uk/infection-prevention-and-control

For prescribing information for C. difficile infection, please consult the recommendations within this guide on page 21.

References

Department of Health and Health Protection Agency (2009) **Clostridium difficile infection: How to deal with the problem.** Department of Health, Jan 2009. www.dh.gov.uk/publications

Public Health England Topics A-Z Clostridium difficile https://www.gov.uk/health-protection/infectious-diseases

Public Health England (2013) Updated guidance on the management and treatment of Clostridium difficile infection. May 2013 https://www.gov.uk/government/publications/clostridium-difficile-infection-guidance-on-management-and-treatment

MRSA bacteraemia and decolonisation – risk assessment and reduction strategies

Known risk factors for MRSA bacteraemia:

- **Invasive indwelling devices – such as indwelling urinary catheter**
- **Chronic illness – especially diabetes, renal dysfunction, impaired immunity**
- **Chronic skin conditions**
- **Wounds / non intact skin**
- **Antimicrobial therapy especially 3rd generation cephalosporins and fluoroquinolones**
- **Advanced age**
- **Previous hospitalisation**
- **Male gender**

Screening for MRSA

Early identification of patients at risk of MRSA bacteraemia may prevent them from becoming septic and requiring hospital admission. Local Infection Prevention and Control procedures should be followed for screening patients.

Decolonisation therapy (also known as suppression)

For patients known to have MRSA, decolonisation may be indicated. The purpose of decolonisation is to lower the burden of MRSA in the nose and on the skin in order to reduce the risk of bacteraemia / other severe infections and to reduce transmission.

MRSA can develop resistance to the products used for decolonisation. Therefore decolonisation therapy should only be used when there is a clear indication.

Always follow the local Infection Prevention and Control procedures for decolonisation therapy.

The Wirral MRSA decolonisation and risk assessment tool can be found at this address:
http://www.wirralct.nhs.uk/attachments/article/49/MRSA_DecolonisationLeaflet_V1.pdf

The Wirral MRSA policy can be found at the following address:
http://www.wirralct.nhs.uk/images/ICP10_MRSA_Policy_August_2014.pdf

PVL producing Staphylococcus aureus

Panton – Valentine Leukocidin (PVL) is a toxin produced by some strains of Staphylococcus aureus (both MRSA and MSSA). They can occasionally cause severe infections such as

bacteremia or necrotizing pneumonia. Young healthy people can be affected especially those living in communal settings or partaking in contact sports.
A history of recurrent boils / pus producing skin infection is an indication of PVL. If you suspect PVL please take samples and specifically request PVL testing as not all laboratories routinely test for PVL. For further advice contact the Infection Prevention and Control Team / Microbiologist. Further information can be found on page 38.

FOR ADVICE ON MRSA SUPPRESSION, PLEASE REFER TO LOCAL POLICY OR CONTACT THE LOCAL INFECTION PREVENTION and CONTROL TEAM on 0151 604 7750 or email ipc.wirralct@nhs.net

References

Public Health England (2010) MRSA: information for patients
https://www.gov.uk/government/publications/mrsa-information-for-patients

Public Health England (2013). Panton-Valentine Leukocidin (PVL): guidance, data and analysis
https://www.gov.uk/government/collections/panton-valentine-leukocidin-pvl-guidance-data-and-analysis

Eye, Ear, Nose and Throat

Management of acute sore throat

90% of cases resolve in 7 days without antibiotics. However, clinicians should consider the potential for bacterium Group A β-haemolytic streptococcus (GABHS) infection.

Clinical prediction for the presence or absence of Group A β-haemolytic streptococcus in acute sore throat in adults (GABHS)

The Centor Criteria

- Tonsillar exudate
- Tender anterior cervical lymphadenopathy
- Absence of cough
- Current pyrexia > 38º C

✓ The presence of 3 out of 4 of the Centor criteria have a positive predictive value of 40-60% for GABHS

✓ The absence of 3 out of 4 of the Centor criteria has a negative predictive value of 80%

Recommendations

- If the patient has three or four of the Centor criteria present treat with antibiotics
- If the patient has only one or two of the Centor criteria present do not treat with antibiotics
- Risk of GABHS is higher in age group 3 – 14 years
- Provide analgesics and antipyretics if necessary regardless of the presence of these criteria
- If in doubt, consider using a delayed prescription.

NB. Public Health England (May 2017) also recommend the FeverPAIN Score.
This scores the following:

- Fever in last 24 hours
- No cough or coryza
- Symptom onset ≤3 days
- Purulent tonsils
- Severely inflamed tonsils

https://ctu1.phc.ox.ac.uk/feverpain/index.php
http://www.mdcalc.com/feverpain-score-strep-pharyngitis/

The use of delayed prescriptions

- Giving out antibiotics automatically for sore throat increases the number of future consultations for the same symptoms
- For every 9 patients not automatically given antibiotics one future consultation is avoided.
- See NICE Clinical Guideline 69 for information on the average total length of common respiratory tract infections

http://www.nice.org.uk/nicemedia/pdf/cg69fullguideline.pdf

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Acute viral sore throat	**No antibiotic indicated.** **Issue Patient Information Leaflet (PIL) on viral sore throats.** **If in doubt, use of delayed prescription is an option.**	Use CENTOR to guide diagnosis (or FeverPAIN Score – see above). If using CENTOR then if 3 or 4 present treat as for bacterial sore throat (see below). N.B. If symptoms persist refer to ENT
Acute laryngitis	**No antibiotic indicated.** **Issue Patient Information Leaflet (PIL) on viral sore throats.** **See useful references page 4.**	
Acute bacterial sore throat	Phenoxymethylpenicillin 500mg qds for **10** days Alternatively use phenoxymethylpenicillin 1g bd for 10 days. **In penicillin allergy:** Clarithromycin 500mg bd for **5** days	Take a throat swab if centor criteria apply and in persistent infections lasting 3 to 4 weeks or in family or institutional outbreaks. Also consider using FeverPAIN Score.
Scarlet Fever	Phenoxymethylpenicillin 500mg qds for **10** days In penicillin allergy prescribe clarithromycin 500mg bd for **10** days	
Acute sinusitis	Use symptomatic relief (analgesia) before prescribing antibiotics. Amoxicillin 500mg tds for 7 days or 1g tds for 7 days for more severe infections **or** Doxycycline 200mg stat. then 100mg od for 7 days in total (For penicillin allergic children under 12 use clarithromycin for 7 days instead of doxycycline) **For persistent symptoms** Co-amoxiclav 625mg tds for 7 days	Avoid antibiotics as 80% resolve in 14 days without, and they only offer marginal benefit after 7 days.
Chronic sinusitis	Refer to ENT and treat according to advice.	

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Conjunctivitis	**First line (if severe):** Chloramphenicol 0.5% eye drops 2 hourly for 2 days then 4 hourly (whilst awake) **and** Chloramphenicol 1% ointment at night **Second line:** Fusidic acid 1% gel twice daily (N.B. this preparation is now expensive. Cost at time of publication is £29.06 for 5g. It also has less Gram-negative activity) Treat for 48 hours after resolution.	**Treat if severe, as most viral or self-limiting. Bacterial conjunctivitis is usually unilateral and also self-limiting.** 65% of cases resolve using placebo by day 5. For neonatal infections, take a swab for Chlamydia prior to initiation of therapy. If no response after 3 days then refer.

Management of acute otitis media (AOM)

- Consider whether admission or referral is necessary. **For children younger than 3 months of age with acute otitis media (AOM),** maintain a low threshold for admission.
- Treat pain and fever with paracetamol or ibuprofen if there are no contraindications.
- **Consider whether antibiotics are required. For most people with suspected acute AOM,** advise a no antibiotic prescribing strategy or a delayed antibiotic prescribing strategy.
- **For children younger than 3 months of age with AOM,** maintain a low threshold for prescribing antibiotics.

Offer an immediate antibiotic prescription to:

- People who are systemically very unwell (but who do not require admission).
- People at high risk of serious complications because of significant heart, lung, renal, liver, or neuromuscular disease, immunosuppression, or cystic fibrosis, and young children who were born prematurely.
- People whose symptoms of AOM have already lasted for 4 days or more and are not improving.

Depending on severity, consider offering an immediate antibiotic prescription to:

- Children younger than 2 years of age with bilateral AOM.
- Children with perforation and/or discharge in the ear canal (otorrhoea) associated with AOM.

Children under the age of 2 years are more at risk than older children. If antibiotics are withheld, careful surveillance is recommended (see references below).
See NICE Clinical Guideline 160 for information on managing fever in children under 5 years
https://www.nice.org.uk/guidance/cg160?unlid=460435393201622823154 9
See NICE Clinical Guideline 69 for information on prescribing antibiotics for self-limiting respiratory tract infections in adults and children in primary care (includes AOM)
https://www.nice.org.uk/guidance/cg69

Clinical diagnosis	**Treatment advice**	**Comments and guidelines for lab testing**
Acute otitis media	First line treatment is paracetamol or ibuprofen and observe If no improvement after 72 hours; Amoxicillin 500mg tds for **5** days **In penicillin allergy:** Clarithromycin 500mg bd for **5** days	AOM resolves in 60% of cases in 24 hours without antibiotics, which only reduce pain at 2 days (NNT15) and do not prevent deafness. Consider 2 or 3 day delayed or immediate antibiotics for pain relief if: <2 years AND bilateral AOM (NNT4) or bulging membrane and ≥ 4 marked symptoms. All ages with otorrhoea (NNT3) Antibiotics to prevent mastoiditis NNT>4000
Chronic otitis media		Refer to ENT

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Otitis externa	Firstly use aural toilet (if available) and analgesia. **First line:** Acetic acid 2% (EarCalm®) 1 spray tds for **7** days. **Second line:** Neomycin sulphate with corticosteroid 3 drops tds, 7 days minimum to 14 days maximum **For cellulitis or extensive infection outside of the ear canal:** Flucloxacillin 500mg qds for **5** days **In penicillin allergy:** Clarithromycin 500mg bd for **5** days	NB: EarCalm® is available over the counter. It is recommended that patients should purchase this item. **Caution:** Topical neomycin has been known to cause ototoxicity and must not be used if there is a suspicion of ear drum perforation. If cellulitis or disease extending outside ear canal, start oral antibiotics and refer. In severe infection of the pinna, swab to exclude pseudomonas.

Respiratory Tract Infections

Management of acute bronchitis in otherwise healthy adults: Recommendations

- Exclude pneumonia as a likely diagnosis using patient history and physical examination. The NICE clinical guideline on feverish illness in children (CG160) may be used to aid the diagnosis in children: https://www.nice.org.uk/guidance/cg160?unlid=460435393201622823154 9
- Low doses of penicillins are more likely to select out resistance. PHE recommend 500mg of amoxicillin.
- **Do NOT use a quinolone (ciprofloxacin, ofloxacin) first line due to poor pneumococcal activity. Reserve all quinolones (including levofloxacin) for proven resistant organisms.**
- Provide a patient information leaflet explaining the limitations of antibiotics for this indication. **More than 90% of cases of acute bronchitis do not have a bacterial cause.**
- **Purulent sputum can arise from either viral or bacterial infection. The presence of purulent sputum is not a predictor of bacterial infection.**
- Consider using a delayed prescription for antibiotics.
- Annual immunisation against influenza and pneumococcal infection should be offered to all at-risk patients including patients over 65 years.
- **Mycoplasma infection is rare in >65 years of age.**

See NICE Clinical Guideline 69 Respiratory tract infections – antibiotic prescribing: Prescribing of antibiotics for self-limiting respiratory tract infections in adults and children in primary care.
http://www.nice.org.uk/nicemedia/pdf/cg69fullguideline.pdf

Management of lower respiratory tract infection

When a clinical diagnosis of community-acquired pneumonia is made in primary care, determine whether patients are at low, intermediate or high risk of death using the CRB-65 score. Further information is available in the NICE Clinical Guideline 191 Pneumonia: Diagnosis and management of community- and hospital-acquired pneumonia in adults
http://www.nice.org.uk/guidance/cg191

The **CRB-65 score** may be used as a tool to predict the severity of community acquired pneumonia in adults: Each scores 1:
Confusion (recent) abbreviated Mental Test score less than 8, or new disorientation in person, place or time; **R**espiratory rate >30 breaths per minute; **BP** systolic <90mmHg or diastolic ≤ 60mmHg; Age >**65**; **Patients are stratified for risk of death as follows:** Score 0: low risk (<1% mortality risk), suitable for home treatment; Score 1-2: intermediate risk (1 to 10% mortality risk), consider hospital assessment or admission **Score 3-4: high risk (>10% mortality risk), urgent hospital admission** **Always give safety net advice and likely duration of symptoms.**

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Community acquired Pneumonia in adults	**Low risk CRB-65 = 0:** Amoxicillin 500 mg tds for **5** days. Review at 3 days and extend to 7-10 days if poor response **If penicillin allergic:** Clarithromycin 500mg bd for **5** days or Doxycycline 200mg stat then 100mg od for **5** days in total. Review at 3 days and extend to 7-10 days if poor response **Intermediate risk** **CRB-65 = 1 or 2 and at home. Clinically assess need for dual therapy for atypical infection.** Amoxicillin 500mg tds for **7-10** days **AND** Clarithromycin 500mg bd for **7-10** days **or** Doxycycline alone 200mg stat then 100mg od for **7-10** days in total	Explain to patients treated in the community, and when appropriate their families or carers, they should seek further medical advice if symptoms do not begin to improve within 3 days of starting the antibiotic, or earlier if their symptoms are worsening. http://www.nice.org.uk/guidance/cg191 Explain to patients with community-acquired pneumonia that after starting treatment their symptoms should steadily improve, although the rate of improvement will vary with the severity of the pneumonia, and most people can expect that by: **1 week:** fever should have resolved **4 weeks:** chest pain and sputum production should have substantially reduced **6 weeks:** cough and breathlessness should have substantially reduced **3 months:** most symptoms should have resolved but fatigue may still be present **6 months:** most people will feel back to normal. Only a small range of pathogens causes CAP, with *Streptococcus pneumoniae* being the most frequent. The frequency of pathogens can vary in specific patient groups. Mycoplasma infections are less frequent in the elderly. Administer Benzylpenicillin 1.2g IM/IV or amoxicillin 1g orally immediately where the illness is considered to be life threatening or if there are likely to be delays (>6 hours) in admission (BTS guidelines 2015) https://www.brit-thoracic.org.uk/guidelines-and-quality-standards/community-acquired-pneumonia-in-adults-guideline/annotated-bts-guideline-for-the-management-of-cap-in-adults-2015/

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Community acquired pneumonia in children 0-3 months	Seek paediatric specialist advice.	https://www.brit-thoracic.org.uk/document-library/clinical-information/pneumonia/paediatric-pneumonia/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-children-update-2011/
> 3 months	Consider using traffic light assessment tool in the NICE guideline on Feverish Illness in Children to assess the need for admission to hospital. Seek specialist advice on treatment or referral where appropriate. Amoxicillin tds for **5-7** days **Or in penicillin allergy:** Clarithromycin bd for **5-7** days	https://www.nice.org.uk/guidance/cg160?unlid=460435393201622823154 9 https://www.brit-thoracic.org.uk/document-library/clinical-information/pneumonia/paediatric-pneumonia/bts-guidelines-for-the-management-of-community-acquired-pneumonia-in-children-update-2011/
Acute cough, bronchitis in otherwise healthy adults	**Likely to be viral and does not require antibiotics.** If antibiotics are indicated: Amoxicillin 500mg tds for **5** days **or** Doxycycline 200mg stat then 100mg daily for **5** days in total	**Symptom resolution can take 3 weeks. Consider use of delayed antibiotic prescription and advice leaflet.**

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Acute cough, bronchitis with existing co-morbidities and adults over 65 or 80.	Refer to NICE CKS guidance. Consider prescribing antibiotics if the person is: Systemically very unwell, at high risk of serious complications because of a pre-existing comorbid condition such as heart, lung, kidney, liver or neuromuscular disease, or immunosuppression or is older than 65 years of age with two or more of the following, or older than 80 years with one or more of the following: • Hospital admission in the previous year. • Type 1 or type 2 diabetes mellitus. • Known congestive heart failure. • Concurrent use of oral corticosteroids. **First line:** Amoxicillin 500 mg tds for 5 days **Penicillin allergy:** Doxycycline 200 mg stat then 100 100mg OD for a total of 5 days. **If contra-indicated:** Clarithromycin 500 mg bd for 5 days.	https://cks.nice.org.uk/chest-infections-adult#!scenario
Acute infective exacerbations of chronic obstructive pulmonary disease	Amoxicillin 500mg tds for **5** days **or** Doxycycline 200mg stat then 100mg od for **5** days in total **or** Clarithromycin 500mg bd for **5** days Co-amoxiclav should be reserved for patients with risk factors for antimicrobial resistance e.g. co-morbid disease, severe COPD, frequent exacerbations, antibiotics in last 3 months. Co-amoxiclav 625mg tds for **5** days	**Treat exacerbations promptly with antibiotics if purulent sputum** and **increased shortness of breath** and/or **increased sputum volume.** Antibiotics are less effective if only one symptom present**.** **Obtain sputum sample wherever possible (before second line antibiotic used).** For further information refer to the Wirral COPD guidelines: http://mm.wirral.nhs.uk/guidelines/

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Acute viral exacerbations in asthma		Antibiotics not indicated. Symptomatic treatment only
Viral coughs and cold		**Antibiotics not indicated.** Symptomatic treatment only. Cough may persist for several weeks
Whooping cough	**Suspected case of pertussis:** any person in whom a clinician suspects pertussis infection or any person with an acute cough lasting for 14 days or more, without an apparent cause plus one or more of the following: • paroxysms of coughing • post-tussive vomiting • inspiratory whoop **Prescribe an antibiotic if the onset of cough is within the previous 21 days** Clarithromycin 500mg bd for **7** days **If allergic to macrolides**: Co-trimoxazole 960mg bd for **7** days (not in pregnancy). This is off-label.	Treatment of children does not affect duration of illness, but may control the spread of infection as untreated children shed organism for many weeks. Non-infectious coughing may continue for several weeks. **NB:** Cases of pertussis should be notified to Public Health England but treatment should be commenced as soon as possible and not withheld until advice is sought. **For further information:** https://www.gov.uk/government/publications/pertussis-guidelines-for-public-health-management-in-a-healthcare-setting
Bronchiolitis / croup in children		**Antibiotics NOT indicated.** Symptomatic treatment only.
Infective exacerbation of Bronchiectasis	Discuss with appropriate Specialist.	Always send a sputum sample.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Influenza	Refer to most recent supporting information from PHE. https://www.gov.uk/government/collections/seasonal-influenza-guidance-data-and-analysis	Avoid antiviral use in otherwise healthy adults. Treatment **must** be started within 48 hours of onset of symptoms of Influenza Like Illness (ILI). PHE or DH will advise when influenza is considered to be circulating in the community. To check current situation log onto
Tuberculosis	Discuss with specialist	Contact: Wirral TB Service wih-tr.tbservice@nhs.net 0151 604 7224 Internal Extension: 2548 All TB Medicines to be prescribed by TB service.

Gastrointestinal Infections

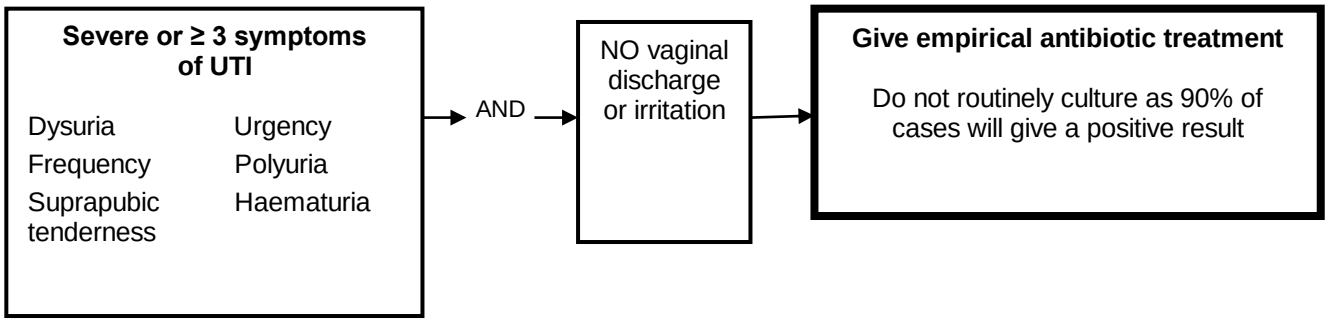
Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Acute diarrhoea and vomiting **(NB. Food poisoning is notifiable to Consultant in Health Protection)** **(see also Clostridium difficile section)**	Oral rehydration therapy is the mainstay of treatment. Children aged less than six months may be recommended to use rehydration sachets, in older age groups clear fluids are adequate. NB: Rehydration sachets are available over the counter and it is recommended that these items are purchased. Antimotility agents e.g. loperamide should only be recommended for short-term management of symptoms (1-2 days) in the absence of fever or bloody diarrhoea and only for adults and children over 12 years. NB: loperamide is available over the counter and it is recommended that this item should be purchased. **Antimotility agents must NOT be used if Clostridium difficile infection is suspected.** Review and stop any pro-kinetic treatment.	**Usually viral and self-limiting.** Antibiotics only tend to prolong the carrier state, do not shorten the duration of illness and may be contraindicated. Antibiotics should only be commenced on advice of microbiologist or consultant in Health Protection or Infection Prevention and Control. Check travel, food, hospitalisation and antibiotic history. (**Clostridium difficile** is associated with disruption of normal bowel flora). Suggest stool specimen in: 1. Patients with inflammatory bowel disease. 2. Immunosuppressed patients. 3. Patients with hypochlorhydria. 4. Severe symptoms or diarrhoea longer than three days. 5. Bloody diarrhoea - sample essential. Antibiotics may be contraindicated (e.g. *E coli* 0157). 6. Recent foreign travel. 7. Post antibiotic therapy and hospitalisation. 8. Suspected food poisoning. 9. Food handlers.
Campylobacter enteritis **N.B. Notifiable to Consultant in Health Protection**		**Antibiotic treatment not usually indicated unless the symptoms are systemic and prolonged.** Initiate treatment on the advice of microbiologist if the patient is systemically unwell.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Salmonellosis **N.B. Notifiable to Consultant in Health Protection**		**Antibiotic treatment not usually indicated.** Initiate treatment on the advice of microbiologist if the patient is systemically unwell.
Clostridium difficile (confirmed)	Stop unnecessary antimicrobials and/or PPIs. **First episode** Metronidazole 400–500 mg tds for 10–14 days **Second episode/severe/type 027** Oral vancomycin 125 mg qds for 10–14 days **Recurrent disease** Oral vancomycin 125mg qds for 10-14 days (consider taper) Fidaxomicin 200mg bd for 10 days Fidaxomicin may also be considered for patients with severe CDI who are considered at high risk for recurrence but use should be discussed with the Consultant Microbiologist.	**May occur up to eight weeks after antibiotic treatment**. Consider hospital referral if severe symptoms and to rule out toxic colitis. Severe symptoms include: T>38.5 ^{o}C, or WCC>15 or rising creatinine or signs/symptoms of severe colitis. PHE Guidance on management of C. difficile May 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/321891/Clostridium_difficile_management_and_treatment.pdf Testing for clearance of toxin is not required. Antimotility agents e.g. loperamide should NOT be recommended. For further information: http://www.wirralct.nhs.uk/infection-prevention-and-control
Giardia lamblia	**Metronidazole** Adults: 2g single dose daily for **3** days Children: 1-3 years 500mg daily for **3** days 3-7 years 600-800mg daily for **3** days 7-10 years 1g daily for **3** days	Consider ‘blind’ treatment of family contacts only if they are symptomatic.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Threadworms, pinworms *(Enterobius vermicularis)*	Mebendazole 100mg stat. For adults and children > 6 months; as re-infection is very common, a second dose may be given after 2 weeks. **NB** this is an unlicensed use for children under 2 years < 6 months; use hygiene measures alone for 6 weeks. Add perianal wet wiping or washes 3 hourly during the day.	All members of the family require treatment at the same time. Good hygiene is needed to avoid re-infection. For two weeks, ensure hand hygiene, wearing underwear at night, morning shower/bath (include perianal area) PLUS wash sleepwear, bed linen, and dust/vacuum on day one. Washing hands and scrubbing nails before eating and after visiting the toilet are essential.
Acute cholecystitis	Consider symptomatic analgesia prior to admission.	Urgently admit to hospital anyone with suspected acute cholecystitis.
Acute exacerbation of diverticulitis	Co-amoxiclav 625mg tds for **7** days If penicillin allergic: Ciprofloxacin 500mg bd **PLUS** metronidazole 400mg tds, both for **7** days	Consider admission for severe cases. Review within 48 hours or sooner if symptoms deteriorate. Arrange admission if symptoms persist or deteriorate.

Urinary Tract Infections

Diagnostic algorithm for UTI in adults
(Please note: this algorithm is NOT for catheterised patients)



*NPV =(Negative Predictive Value) i.e. proportion of people with a negative test who do not have a UTI
**PPV = (Positive Predictive Value) i.e. proportion of people with a positive test who have a UTI
Source: Modified from PHE Guidance for primary care on diagnosing and understanding culture results for urinary tract infection (UTI) https://www.gov.uk/government/publications/urinary-tract-infection-diagnosis

WHEN SHOULD I SEND A URINE SAMPLE FOR CULTURE?

- **Pregnancy:** If symptomatic, for investigation of possible UTI. In all at first antenatal visit - as asymptomatic bacteriuria is associated with pyelonephritis and premature delivery.
- Suspected **pyelonephritis** *(loin pain and fever).*
- Suspected **UTI in men.**
- Impaired host defences e.g. poorly controlled diabetes, immunosuppression.
- Suspected **UTI in infants and children.**
- **Failed antibiotic treatment or persistent symptoms.** *E. coli* with Extended-spectrum Beta-lactamase enzymes are increasing in the community.
  ESBLs are multi-resistant but usually remain sensitive to nitrofurantoin or fosfomycin.
- Patients with **recurrent UTI**, abnormalities of genitourinary tract (e.g. calculus, neurogenic bladder, vesico-ureteric reflux) or renal impairment are more likely to have a resistant strain.
- Ensure that urine from catheterised patients is only taken if features of systemic infection are present. **The specimen should be designated as CSU rather than MSSU.**

OTHER CONSIDERATIONS

See NICE Guideline NG12 Suspected cancer: recognition and referral
https://www.nice.org.uk/guidance/ng12

Antimicrobial resistance in UTIs

As antimicrobial resistance and Escherichia coli bacteraemia is increasing, always give safety net and self-care advice, and consider risks for resistance. Give the TARGET UTI leaflet.

Risk factors for increased resistance in UTIs include: care home resident, recurrent UTI (2 in six months; ≥3 in 12 months), hospitalisation >7days in the last 6 months, unresolving urinary symptoms, recent travel to a country with increased antimicrobial resistance, previous known UTI resistant to trimethoprim, cephalosporins or quinolones.
If resistance risk send culture for susceptibility testing and give safety net advice.
Low risk of resistance: younger women with acute UTI and no resistance risks.

Fluid Intake

Ensure that fluid intake is adequate if a UTI is suspected or present.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Asymptomatic bacteriuria in people > 65 years	Do not treat asymptomatic bacteriuria. Do not send urine for culture unless there are 2 or more signs of infection, especially dysuria, fever >38ºc or new incontinence.	It is a common presentation but not associated with increased morbidity.
Uncomplicated UTI in adult women (no fever or flank pain)	**For all suspected UTIs, ensure adequate hydration.** **With severe or ≥3 symptoms** **First line:** Nitrofurantoin 100mg MR bd or 50mg qds for **3** days Use nitrofurantoin first line if GFR over 45ml/min. If GFR is 30-45ml/min, use only if no alternative and in resistance. **Second line (only if there is low risk of resistance):** Trimethoprim 200mg bd for **3** days Three day course of trimethoprim is appropriate for patients with GFR >30 (CKD stages 1,2 and 3). If first and second line options are unsuitable: Pivmecillinam may also be considered but is not routinely reported by the laboratory (unless highlighted on the request or a resistant organism is identified). Pivmecillinam 400mg loading dose and thereafter 200mg tds for **3** days in total. Use 400mg if resistance risk. **In situations where none of the above are appropriate then consider** Cefalexin 500mg bd for **3** days **With mild or ≤2 symptoms. Consider pain relief and delayed prescription.**	Do not culture routinely. In sexually active women with urinary symptoms always consider *Chlamydia trachomatis.* Asymptomatic bacteriuria in adults should **NOT** be treated except in pregnancy. Renal impairment is unlikely in a young healthy woman. **Treatment failure**: perform culture in all cases and give **safety net advice.** **Risk factors for increased resistance include:** see notes above. **In Renal Impairment** **Pivmecillinam** GFR 10-50ml/min: dose as in normal renal function. GFR <10ml/min: dose as in normal renal function but be aware that accumulation could occur in severe renal impairment. Additionally, pivmecillinam is unlikely to work in people with little residual kidney function as it works by renal excretion into the bladder where its site of action is. **Cefalexin** GFR 20-50ml/min: dose as in normal renal function. GFR 10-20ml/min: prescribe 250mg – 500mg every 8-12 hours. GFR <10ml/min: prescribe 250–500 mg every 8–12 hours.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Complicated cystitis in adult women aged >65 years	In adult women aged >65 years of age, if there is concern regarding impaired bladder emptying and/or residual urine, consideration should be given to extending the therapy to 5 days	For repeated UTIs, ensure that previous microbiology results are reviewed before antibiotic selection.
UTI in Pregnant Women	**First line:** Nitrofurantoin 100mg MR bd or 50mg qds for **7** days except at term Amoxicillin may be suitable where the isolate is sensitive. **Second line:** Trimethoprim 200mg bd for **7** days Off label use. Avoid trimethoprim if low folate status or taking a folate antagonist (e.g. antiepileptic or proguanil). Avoid in first trimester of pregnancy unless confident that adequate folate supplementation is in place (5mg folic acid daily until 12th week of pregnancy). **Third line:** Cefalexin 500mg bd for **7** days	Send MSSU for culture and repeat MSSU after treatment completed. Confirmed asymptomatic bacteriuria in pregnancy should be treated. Nitrofurantoin should not be used at term (during labour and delivery) because of the theoretical possibility of haemolytic anaemia in the foetus or in the newborn infant due to immature erythrocyte enzyme systems.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
UTI in Men (no fever or flank pain)	**First line:** Nitrofurantoin 100mg MR bd or 50mg qds for **7** days Use nitrofurantoin first line if GFR over 45ml/min. If GFR is 30-45ml/min, use only if no alternative and in resistance. **Second line (only if there is low risk of resistance):** Trimethoprim 200mg bd for **7** days Seven day course of trimethoprim is appropriate for patients with GFR >30 (CKD stages 1,2 and 3). **Treatment failure:** Always be guided by culture results. Pivmecillinam may also be considered but is not routinely reported by the laboratory (unless highlighted on the request or a resistant organism is identified). Pivmecillinam 400mg loading dose and thereafter 200mg tds for 7 days in total. Use 400mg if resistance risk. **In situations where none of the above are appropriate then consider** Cefalexin 500mg bd for 7 days	**Consider prostatitis and send pre-treatment MSSU. If symptoms are mild/non-specific, use negative dipstick to exclude UTI.** Always consider Chlamydia in sexually active age group, and send urine for Chlamydia/Gonorrhoea testing at same time as MSSU. **Avoid PSA testing – levels will be raised.** For further detail regarding pivmecillinam and cephalexin dosing in renal impairment, please see under "uncomplicated UTI in adult women (no fever or flank pain).

RECURRENT UTI in ADULTS

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Recurrent UTI in non-pregnant women 2 in 6 months or (≥3 UTIs/year)	To reduce recurrence simple measures including hydration and cranberry products should be advised. Rescue packs and post-coital prophylaxis could be discussed as possible alternatives to long-term antibiotic prophylaxis. In situations where there is recurrent UTI and all appropriate investigations have been completed then consider a trial of night-time prophylaxis for a limited amount of time, such as 3 - 6 months and then review recurrence rate and continued need.**This should only be when other measures have been exhausted.** Results of recent urine cultures should be reviewed prior to selecting an antibiotic for long term prophylaxis. Nitrofurantoin 50 - 100mg nocte **or** Trimethoprim 100mg nocte	Send MSSU in all cases of recurrent infection and alter empirical antibiotic choice according to culture and sensitivity results, if necessary. Referral pathways include Uro-gynaecology and Urology. Specialist input is needed to exclude any physical abnormalities. Lifestyle advice to be provided. Advise of risk in first trimester of pregnancy if post-coital use of trimethoprim. **Nitrofurantoin** On long-term therapy, monitor liver function and monitor for pulmonary symptoms, especially in the elderly (discontinue if deterioration in lung function). **Please note:** Methenamine hippurate 1g bd could be considered, although limited evidence. Duration of treatment is 6 months.
Recurrent UTI in Men		Submit MSSU and refer to Urology

WOMEN and MEN with CATHETERS

- **Treat the patient, not the urine.**
- **Do not treat asymptomatic bacteriuria in those with indwelling catheters,** as bacteriuria is very common and antibiotics increase side effects and antibiotic resistance.
- **Consider need for continued catheterisation.**
- Treatment does not reduce mortality or prevent symptomatic episodes, but increases side effects and antibiotic resistance.
- Only send urine for culture in catheterised patients if there are features of systemic infection. Ensure that in this instance the specimen is designated as CSU (rather than MSSU). However, always:
  - Exclude other sources of infection.
  - Check that the catheter drains correctly and is not blocked.
  - If the catheter has been in place for more than 7 days, consider changing it during antibiotic treatment.

Do not give antibiotic prophylaxis for catheter changes unless history of symptomatic UTIs due to catheter change.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Bladder catheter in situ	Treat only if associated with systemic symptoms, E.g. pyrexia, rigors. Review the need for continued catheterisation. Prophylactic treatment is not recommended in catheterised patients with recurrent UTIs.	1. Ensure high fluid intake. 2. Where adequate fluid intake cannot be assured and catheter maintenance indicated, use saline. 3. There is a high incidence of bacteriuria with long-term catheters. Antibiotics do not eliminate these, but lead to the growth of resistant organisms. 4. Dipstick testing should not be performed on CSU specimens (SIGN guidelines). 5. Culture of urine is not normally advised. 6. Antibiotics will not eradicate asymptomatic bacteriuria: only treat if systemically unwell or pyelonephritis likely. Do not use prophylactic antibiotics for catheter changes unless history of catheter-change associated UTI or trauma.

CHILDREN

Consider UTI in any sick child and every young child with unexplained fever
Refer to NICE Guideline CG54

Infants and children who have bacteriuria and either a temperature of ≥38°C or with loin pain/tenderness should be considered to have acute pyelonephritis/upper urinary tract infection. All other infants and children who have bacteriuria but no systemic symptoms or signs should be considered to have cystitis/lower urinary tract infection.

For children's doses refer to pages 45-47.

Ensure fluid intake is adequate.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
UTI in infants < 3 months		**Refer immediately to Paediatrician.**
Cystitis / Lower UTI – Infants and children ≥ 3 months	Treat if positive nitrite on dipstick Trimethoprim bd for **3** days at treatment dose Or nitrofurantoin bd or qds for 3 days at treatment dose Second line: Cefalexin tds for **3** days	Always submit a pre-treatment urine sample, clean catch if possible. **If recurrent infection or systemically unwell, refer to Paediatrician.**
Acute pyelonephritis / Upper UTI - Infants and children ≥ 3 months	Refer to Paediatrician to assess for signs of systemic infection and to consider IV antibiotics.	Always submit urine sample, clean catch if possible.

Other Urological Infections in Adults		
Clinical diagnosis	**Treatment advice**	**Comments and guidelines for lab testing**
Acute pyelonephritis in adults	Ciprofloxacin 500mg bd for **7** days **Or** co-amoxiclav 625mg tds for **7** days If the laboratory report shows sensitivity then an alternative option is trimethoprim 200mg bd for 14 days.	Submit MSSU and consider blood culture and **admission**. Prescribe analgesia for pain and fever. If no response within 24 hours, seek advice
Epididymo-orchitis		See Genito-urinary Infections section.
Prostatitis	**First line**: Ciprofloxacin 500mg bd for **28** days **Second line**: Trimethoprim 200mg bd **28** days	Prolonged treatment required. Consider Chlamydia infection.
Urethritis		Refer to GUM/Sexual Health Service and submit MSSU.

Genito-urinary Infections

Sexual Health Wirral
Website: sexualhealthwirral.nhs.uk
Appointment number 03001235474 - Professional advice = Option 2
Address: Gemini Centre, St Catherine's Health Centre, Derby Road, Birkenhead, CH42 0LQ

Children
Be guided by swab and culture sensitivity as often there are unexpected pathogens such as H influenzae, pneumococci or group A streptococci present.
Consider all possible causes including foreign bodies and abuse. If abuse suspected refer urgently to paediatricians and consider safeguarding issues.

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
Vaginal Discharge **a) Candidiasis**	Fluconazole 150mg oral stat dose **or** Clotrimazole pessary 500mg nocte stat or 10% cream nocte stat **and** 1% cream tds for **7** days **In pregnancy** avoid oral azoles and use clotrimazole 100mg pessary at night for **6** nights or miconazole 2% cream 5g intravaginally bd for **7** days	Investigate recurrent cases (4 or more episodes annually) and refer if appropriate. Please note the Wirral CCG Self Care policy. Patients are expected to purchase these items over-the-counter (where appropriate). Care should be taken when using an applicator to avoid physical damage to the cervix. Some women prefer to insert pessaries by hand when pregnant.
b) Trichomonas vaginalis	Metronidazole 400mg bd for **5 - 7** days or 2g stat dose **In pregnancy or breastfeeding** avoid 2g single dose metronidazole. Seek specialist advice if the woman is unable or unwilling to take metronidazole during pregnancy or breastfeeding. Consider clotrimazole 100mg pessary at night for 6 nights for symptom relief (not cure) only if metronidazole refused (NB. this has no activity against trichomonas).	MUST be referred to Sexual Health Wirral for contact tracing and follow-up. Sexual partners should be treated simultaneously.

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
c) Bacterial vaginosis	Metronidazole 400mg bd for **7** days or 2g stat dose (NB. there is greater relapse with 2g dose) **In pregnancy or breastfeeding** avoid metronidazole 2g dose. Clindamycin 2% cream 5g applicator at night for **7** nights Or metronidazole 0.75% vaginal gel 5g applicatorful at night for **5** nights	Refer to Sexual Health Wirral if symptoms do not improve, there are frequent recurrences or if diagnosis is uncertain as Trichomonas may cause similar symptoms.
Candida balanitis	Clotrimazole cream 1% or · miconazole cream 2% bd until symptoms settle. If marked inflammation is present then hydrocortisone 1% could be added.	Check for underlying problems.
Pelvic sepsis / pelvic inflammatory disease	Ofloxacin 400mg bd for **14** days **plus** Metronidazole 400mg bd for **14** days **OR** Doxycycline 100mg bd for **14** days **plus** metronidazole 400mg bd for **14** days	Consider Chlamydia/Gonorrhoea infection. Send Vaginal swab for CT/GC testing. MUST be referred to Sexual Health Wirral for contact tracing and follow-up. It may be preferable to <u>initiate</u> treatment in primary care if there would be a delay of >24h until the patient was assessed by Sexual Health Wirral. If gonorrhoea likely, refer to Sexual Health Wirral.

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
Chlamydia infection Urine or vaginal swab positive result. NB: treatment and follow up for rectal, eye or throat samples could be different – refer to Sexual Health Wirral	Azithromycin 1g stat **or** Doxycycline 100mg bd for **7** days If at risk of pregnancy: Azithromycin 1g stat (most effective but off-label use) or Erythromycin 500mg qds for **7** days Or Amoxicillin 500mg tds for **7** days Test of cure (TOC)is not routinely recommended following completion of treatment but should be performed in pregnancy. TOC should be performed no earlier than three weeks after completion of treatment.	Treat partners and refer to Sexual Health Wirral service Rectal infections should be treated with Doxycycline first line. LGV should be considered in symptomatic rectal Chlamydia, ask specialist advice. Look for signs of PID or epididymitis and refer to appropriate guidance. Exclude other STI. If gonorrhoea is not reasonably excluded, use of azithromycin alone may contribute to development of resistance. Patients should be advised that they should refrain from any sexual activity until they and their partner(s) have completed treatment. N.B. May be asymptomatic or mild symptoms of infection. https://www.bashhguidelines.org/media/1045/chlamydia-2015.pdf

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
Epididymitis in men	**<u>Causative Organisms</u>** Risk factors for: Sexually transmitted infection • Age less than 35 years • More than one sexual partner in the past 12 months • Urethral discharge Risk factors for Enteric organisms associated with lower urinary tract infections: • Age 35 years or older • Low risk sexual history • History of penetrative anal intercourse • Recent urological instrumentation or catheterisation Ofloxacin 200mg bd for **14** days or Doxycycline 100mg bd for **14** days	Always consider Chlamydia/Gonorrhoea and send urine for Chlamydia/Gonorrhoea testing at the same time as MSSU. Sexual history is imperative. If new sexual partner and high risk of STI then refer to Sexual Health Wirral for follow up and contact tracing.

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
Epididymo-orchitis	If >35 years old and there is low suspicion of STI: Ciprofloxacin 500mg bd for **10** days if likely to be due to enteric organisms	Sexual history is imperative. If < 35 years old or if high suspicion of sexually transmitted infection at any age: refer to Sexual Health Wirral Submit MSSU. All patients with sexually transmitted epididymo-orchitis should be screened for other sexually transmitted infections such as chlamydia or gonorrhoea. If >35 years old and low suspicion of STI, treat empirically. Recent investigations or catheterisation are risk factors. All patients with urinary tract pathogen confirmed epididymo-orchitis should be investigated for structural abnormalities and urinary tract obstruction by a urologist https://www.bashhguidelines.org/media/1062/3546.pdf
Genital herpes (primary cases only) Refer all patients to Sexual Health Wirral for virological confirmation. Phone them on the same day.	Aciclovir 400mg tds for **5** days	It is preferable to initiate treatment in primary care if there would be a delay of >24h until the patient was assessed in Sexual Health Wirral. The same treatment would be advised for recurrent genital herpes.
Postpartum endometritis and **Endometritis following Gynae procedure or surgery**	New/changed and offensive discharge within 10 days post-partum or post-gynae procedure: Co-amoxiclav 625mg tds for **7** days **In non-severe penicillin allergy:** Cefalexin 500mg tds plus metronidazole 400mg tds for **7** days	Refer patients with significant systemic symptoms or if symptoms fail to improve after 7 days.

Skin Infections

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Impetigo	Reserve topical antibiotics for very localised lesions to reduce the risk of resistance. Fusidic Acid 2% ointment tds for **5** days, Or for **MRSA only**, topical mupirocin 2% tds for **5** days. Flucloxacillin 500mg qds for **7** days **In penicillin allergy:** Clarithromycin 250- 500mg bd for **7** days Or for **MRSA only**: Doxycyline 200mg od on day 1 followed by 100mg od for another 6 days (i.e. **7** days in total)	Advise on importance of personal hygiene e.g. not to share towels, flannels etc. Avoid topical steroids or long term topical antibiotic use. Further advice may be obtained from the community infection control nurse.
Cellulitis / Erysipelas	**Class I:** patient has no signs of systemic toxicity and no uncontrolled co-morbidities. **Class II:** patient is systemically unwell or has co-morbidities. Admit for IV treatment, or use OPAT. **Class III:** patient has significant systemic upset, such as acute confusion, tachycardia, tachypnoea, hypotension or unstable co-morbidities. Admit. **In Class I:** Use flucloxacillin 500mg qds for **7** days **In penicillin allergy:** Clarithromycin 500mg bd for **7** days **If on statins:** Use doxycycline 200mg stat then 100mg od for 7 days **If un-resolving:** Use clindamycin 300-450mg qds for 7 days	**Consider admission if febrile and unwell. If river or sea water exposure, discuss with microbiologist**. Review response to treatment after 7 days. If slow response, continue for further 7 days. Avoid clindamycin if previous history of Clostridium difficile infection.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Facial Cellulitis	Co-amoxiclav 625mg tds for **7** days **In penicillin allergy:** Clarithromycin 500mg bd for **7** days	**Consider admission if febrile and unwell. If river or sea water exposure, discuss with microbiologist**. Review response to treatment after 7 days. If slow response, continue for further 7 days.
Post-operative wound infections	Flucloxacillin 500mg qds for **7** days. **In penicillin allergy:** Clarithromycin 500mg bd for **7** days	Swab wound for culture and sensitivity. Consider nature of operation and likely pathogens including MRSA status. Consider hospital admission and discuss with medical microbiologist. Post-operative infections involving a prosthetic implant then refer back to surgeon.
Boils	If cellulitis has been excluded antibiotics not indicated. Drainage is advised.	*(Also see recurrent boils)*
Recurrent boils associated with carriage of *Staph. aureus*	Topical antiseptic for one week – see page 7. Mupirocin 2% nasal ointment tds for **5** days	Swabs to confirm nasal carriage of *Staphylococcus aureus.* Ask for PVL testing to be carried out.
Leg ulcers	If active infection: Flucloxacillin 500mg qds for **7** days **In penicillin allergy:** Clarithromycin 500mg bd for **7** days If slow response, continue for a further **7** days	Ulcers are always colonised. Check MRSA status. Antibiotics do not improve healing unless active infection. If active infection (cellulitis/increased pain/pyrexia/purulent exudate/odour), send pre-treatment swab. Review antibiotics after culture results. Active infection if cellulitis / increased pain/pyrexia/purulent exudate/odour. Refer to wound care formulary or tissue viability nurse.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
PVL (Panton-Valentine Leukocidin)	If found suppression therapy should be given. Contact Wirral IPC Team for advice.	PVL is a toxin produced by 20.8 to 46% of *S.aureus* from boils/abscesses. These bacteria rarely cause severe invasive infections in healthy people. Send swabs if boils/abscesses. Close contact in communities or sport and poor hygiene increase risk.
Bites (human or animal) Prophylaxis **Treatment (or prophylaxis)**	**For human:** Antibiotic prophylaxis is advised. See under treatment (or prophylaxis) below. **For animal:** Always use prophylaxis if cat bite/puncture wound. If bite from another animal then give prophylaxis if bite to hand, foot, face, joint, tendon, ligament, immunocompromised, diabetic, asplenic, cirrhotic, presence of prosthetic value or prosthetic joint. Co-amoxiclav 375 to 625mg tds for **7** days **In penicillin allergy (age greater than 12):** Metronidazole 400mg tds for **7** days **PLUS** Doxycycline 100 mg bd for **7** days **Children under 12 years with penicillin allergy:** Azithromycin for **7** days **plus** Metronidazole for 7 days.	**Refer serious bites (especially in children) to AED** **Adequate wound toilet is essential. Consider surgical debridement if required.** Assess HIV/Hepatitis B and C risk for human bites. Assess rabies risk for animal bites occurring abroad. Assess tetanus immunisation status. Review at 24 and 48 hours N.B. Consider risk of blood borne virus transmission. Further guidance available from Public Health England https://www.gov.uk/health-protection/infectious-diseases
In growing toe nail infection	Flucloxacillin 500mg qds for **7** days **In penicillin allergy:** Clarithromycin 500mg bd for **7** days	Wound debridement. Lateral nail ablation recommended when infection settled if problem is recurrent.

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Superficial skin and soft tissue infections **Paronychia**	Flucloxacillin 500mg qds for **7** days **In penicillin allergy:** Clarithromycin 500mg bd for **7** days If infection due to MRSA, use doxycycline 100mg bd for 7 days	Wound debridement if suspected foreign body and swab. Consider prescribing antibiotics if incision and drainage: • Is not required (because the lesion is non-fluctuant). • Was performed, but the person has signs of cellulitis or fever, or has other comorbidities (such as diabetes or immunosuppression). Use sensitivity results to guide therapy.
Herpetic lesions: **a) Chicken pox / Varicella zoster**	**Children**: antiviral treatment not recommended < 14 years **Adults and adolescents >14 years**: If onset of rash <24hrs or severe pain or dense/oral rash or secondary household case or steroids or smoker consider: Aciclovir 800mg five times a day for **7** days	Virus is highly communicable. Admit patient urgently if immunocompromised Seek advice from obstetrician for pregnant patients with chicken pox. Contacts: For babies under one month old contact microbiologist for advice. Non-immune pregnant contacts may be offered specific immunoglobulin. Contact microbiologist for advice. http://www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/ChickenpoxVaricellaZoster/GeneralInformation/
b) Shingles / Varicella zoster	Aciclovir 800mg five times a day for **7** days if within 72 hours of onset of rash Second line if compliance a problem, as ten times the cost. Valaciclovir 1g tds for **7**days Or famciclovir 500mg tds or 750mg bd for **7** days	Treatment **not normally** recommended unless over 50 years and within 72 hours of rash or if active ophthalmic, or Ramsey Hunt Syndrome, or eczema. **Refer urgently if ocular involvement** For details of the National Shingles Immunisation Programme go to: **https://www.gov.uk/government/collections/shingles-vaccination-programme**

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
c) Oral Herpes	Cold sore resolve after 7-10 days without treatment. Aciclovir 5% cream five times a day for **5** days **at first sign of attack. Please note the Wirral CCG Self Care policy. Patients should purchase this item over the counter.**	Cold sores do not normally require antiviral treatment. Topical antivirals reduce duration by 12-24 hours. Mainstay for primary acute oral herpes stomatitis is oral fluids.
Mastitis	Prescribe an oral antibiotic if the woman has a nipple fissure that is infected, symptoms have not improved (or are worsening) after 12–24 hours despite effective milk removal, and/or breast milk culture is positive. If breast milk culture results are available, treat with an antibiotic that the organism is sensitive to. If breast milk culture results are not available then use: Flucloxacillin 500mg qds for 10 - **14** days if clinical evidence of infection. **In penicillin allergy:** Erythromycin 250-500mg qds for **14** days Flucloxacillin and erythromycin are acceptable in breastfeeding women because the low levels in breast milk are unlikely to cause adverse effects in the infant **Advise the woman to seek immediate medical advice if** symptoms fail to settle after 48 hours of antibiotics treatment	The most common cause of mastitis is ineffective attachment at the breast. It is **essential** that this is corrected otherwise the problem will persist and secondary problems may result despite antibiotic treatment. Advise use of simple analgesia. Warm compress on the breast, or bathing/showering in warm water, may relieve pain and help milk to flow. Breastfeeding should continue if possible (including from the affected breast).

Fungal Infections

Clinical diagnosis	Treatment advice	Comments and guidelines for lab testing
Oral Candidiasis <u>Breast-feeding mothers</u> Consider diagnosis of oral thrush in baby if painful breast-feeding cannot be resolved. Treat nipple surface and baby's mouth simultaneously.	Miconazole oral gel 20mg/ml 2.5ml in the mouth after food qds, retained near oral lesions before swallowing, for 7 days or until 2 days after symptoms resolved. If miconazole not tolerated then: Nystatin oral suspension 100 000 units 4 times a day usually for 7 days, and continued for 48 hours after lesions have resolved. For children's doses please see page 46. Miconazole oral gel unlicensed for infants < 4 months Miconazole 2% cream applied to nipple and areola after feeds. Any visible cream should be wiped away before the next feed but washing is not required.	**NB must confirm patient is NOT on warfarin therapy** Correct precipitating causes e.g. antibiotics, inhaled corticosteroids (review technique, issue spacer, advise mouth rinsing). Consider possibility of serious underlying systemic illness. HIV testing should be considered.
Candida associated angular stomatitis / cheilitis	Miconazole 2% cream 2 – 4 times daily continuing for 2 days after lesions healed	Commonly associated with denture stomatitis. May be seen in nutritional deficiency or HIV infection. If failure to respond to 1–2 weeks of treatment investigate the possibility of underlying disease.

CNS

Clinical diagnosis	Treatment advice/ adult dosages	Comments and guidelines for lab testing
Bacterial meningitis / Meningococcal septicaemia **Notifiable immediately to Consultant in Health Protection**	**Transfer all patients to hospital immediately.** If time before hospital admission, and non-blanching rash, give IV benzylpenicillin or cefotaxime, unless definite history of hypersensitivity. Benzylpenicillin IV/IM prior to admission: < 1 year 300mg stat 1-9 years 600mg stat > 10 years 1.2g stat **OR** Cefotaxime IV/IM prior to admission: <12 years 50mg/kg stat >12 years 1 gram stat	**Give IM only if venous access unavailable.** In this instance allergy means a clear history of anaphylaxis. A history of rash following penicillin is not a contraindication. Close contacts of meningococcal infection will be offered chemoprophylaxis by Consultant in Health Protection.

Treatment of Splenectomy Patients

Patients who suffer with asplenia or hyposplenia are at increased risk of overwhelming bacterial infection. Infection is most commonly pneumococcal but other organisms such as Haemophilus influenzae type b and meningococci may be involved.

This risk is greatest in the first two years following splenectomy and is greater amongst children but persists into adult life.

Vaccination schedule (updated in line with Green Book)
All patients with absent or dysfunctional spleens should be fully vaccinated according to the national schedule.
It is recommended that the prescriber should check the Green Book online for the most up to date recommendations.
https://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book

Practical Schedule for immunising individuals with asplena or splenic dysfunction (adapted from the Green Book)

First diagnosed under 1 year of age
Children should be fully immunised according to the national schedule, and should also receive:
Two doses of MenACWY vaccine at least one month apart during infancy;
One additional dose of PCV13 and one dose of MenACWY conjugate vaccine two months after the 12-month vaccinations; and
One additional dose of Hib/MenC and one dose of PPV231 after the second birthday.

First diagnosed at 12 to 23 months of age
If not yet administered, give the routine 12-month vaccines: Hib/MenC, PCV13, MMR and MenB, plus:
One additional dose of PCV13 and one dose of MenACWY conjugate vaccine two months after the 12-month vaccinations; and
One additional dose of Hib/MenC and one dose of PPV23 after the second birthday.
If not already received, two primary doses of MenB vaccine should be given two months apart at the same visit as the other vaccinations.

First diagnosed from 2 years to under 10 years of age
Ensure children are immunised according to the national schedule, and they should also receive:
One additional dose of Hib/MenC and one dose of PPV23; followed by:
One dose of MenACWY conjugate vaccine two months later.
If not already received, two primary doses of MenB vaccine should be given two months apart at the same visit as the other vaccinations.

First diagnosed at age 10 years onwards
Older children and adults, regardless of previous vaccination, should receive:
One dose of Hib/MenC and one dose of PPV23; followed by:
One dose of MenACWY conjugate vaccine one month later.
If not already received, two primary doses of MenB vaccine should be given one month apart at the same visit as the other vaccinations.

All patients: Should receive the annual influenza vaccine each season.

Please note: Patients with splenic dysfunction should receive boosters of PPV at five yearly intervals.

Prophylactic antibiotics should be offered to all patients.

Lifelong antibiotic prophylaxis is appropriate for high-risk groups including those individuals:

- aged less than 16 years or greater than 50 years
- with inadequate serological response to pneumococcal vaccination,
- a history of previous invasive pneumococcal disease,
- splenectomy for underlying haematological malignancy, particularly in the context of on-going immunosuppression.

Low-risk patients should be counselled as to the risks and benefits of prophylaxis, particularly where adherence is an issue.

Lifelong compliance with prophylactic antibiotics is problematic. If the patient does not continue to be at high risk as per the criteria above, the patient must have antibiotic prophylaxis until at least 2 years after splenectomy. If not deemed to be high-risk then the pros and cons of taking lifelong antibiotic prophylaxis need to be discussed with each individual patient.

If compliance is a problem, the patient must be advised to have an emergency supply of amoxicillin or erythromycin to take in the event of fever as well asbeing advised to seek medical attention urgently.

Phenoxymethylpenicillin is preferred unless cover is also needed against Haemophilus influenza for a child (in which case, give amoxicillin) or if the patient is allergic to penicillin, give erythromycin).

Phenoxymethylpenicillin	Children 1-11 months Children 1 – 4 years Children 5 years – 17 years Adult	62.5mg bd 125mg bd 250mg bd 250mg bd
Amoxicillin **(if cover also needed for *Haemophilus influenzae*)**	Child 1 month – 4 years Child 5 -11 years Child 12 – 17 years Adult	125mg bd 250mg bd 500mg bd 500mg bd
Erythromycin **(if penicillin-allergic)** NB: antibiotic prophylaxis is not fully reliable	Child 1 month – 1 year Child 2 - 7 years Child 8 – 17 years Adult	125mg bd 250mg bd 500mg bd 500mg bd

Adapted from BNF

Other measures to reduce risk include:

- ✓ Patients should be asked to consult if they have a febrile illness and may be given a stock of antibiotics to start treatment by themselves. They should carry a card and/or Medic-Alert bracelet or necklace.
- ✓ When travelling abroad patients should obtain advice from a reputable travel advice centre (e.g. Liverpool School of Tropical Medicine) to ensure precautions are adequate and up to date.

- ✓ Patients should avoid malaria (which is more severe in asplenic patients) by avoiding malaria areas or, if going to such areas, adhere scrupulously to antimalarial prophylaxis and anti-mosquito precautions.
- ✓ Avoid tick bites as there is a risk of Babesiosis and Lyme disease.

For the Splenectomy Leaflet and Card see link below:
https://www.gov.uk/government/publications/splenectomy-leaflet-and-card

Children's Doses for antimicrobials recommended in this guideline

See Children's BNF http://www.bnf.org/bnf/index.htm

Amoxicillin	1 – 11 months 1 – 4 years 5 - 11 years 12–17 years	125mg tds increased if necessary up to 30 mg/kg 3 times daily 250mg tds increased if necessary up to 30 mg/kg 3 times daily 500mg tds increased if necessary up to 30 mg/kg (max 1g per dose) 3 times daily 500mg tds increased if necessary up to 1g tds, use increased dose in severe infections
Azithromycin	Child 6 months–17 years Child 6 months–17 years (body-weight 15–25 kg) Child 6 months–17 years (body-weight 26–35 kg) Child 6 months–17 years (body-weight 36–45 kg) Child 6 months–17 years (body-weight 46 kg and above)	10 mg/kg once daily (max. per dose 500 mg) for 3 days. 200 mg once daily for 3 days. 300 mg once daily for 3 days. 400 mg once daily for 3 days. 500 mg once daily for 3 days.
Benzylpenicillin by IV or IM single injection for suspected meningitis **prior to urgent transfer to hospital**	1 - 11 months 1 – 9 years 10 – 17 years	300mg 600mg 1.2gram Administer as single dose prior to urgent transfer to hospital so long as does not delay transfer
Cefalexin	1 – 11 months 1 - 4 years 5 - 11 years 12 – 17 years	12.5 mg/kg twice daily or 125mg bd 12.5 mg/kg twice daily or 125mg tds 12.5 mg/kg twice daily or 250mg tds 500mg bd or tds
Cefixime	6 – 11 months 1 – 4 years 5 – 9 years 10 – 17 years	75mg daily 100mg daily 200mg daily 200 – 400mg daily, alternatively 100 – 200mg bd
Clarithromycin	1 month – 11 years: Body-weight under 8kg Body-weight 8–11kg Body-weight 12–19kg Body-weight 20-29kg Body-weight 30-40kg 12 – 17 years	 7.5mg/kg bd 62.5mg bd 125mg bd 187.5mg bd 250mg bd 250mg bd increased if necessary to 500mg bd for severe infection
Clindamycin	Child	3-6mg/kg 4 times a day (max. per dose 450mg)

Co-amoxiclav	1 – 11 months 1 – 5 years 6 – 11 years 12 -17 years	0.25ml/kg of 125/31 suspension tds 5ml of 125/31 suspension tds 5ml of 250/62 suspension tds One 250/125 tablet tds **Use double dose in severe infection for all ages**
Co-amoxiclav dose for twice daily (400/57) suspension	2 months – 1 year 2 - 6 years (13 – 21kg) 7 – 12 years (22 – 40kg) 12 – 17 years (≥41kg)	0.15ml/kg of 400/57 suspension bd 2.5ml of 400/57 suspension bd 5ml of 400/57 suspension bd **Use double dose in severe infection** 10ml bd, increased to 10ml tds in severe infection.
Flucloxacillin	1 month - 1 year 2 – 9 years 10 - 17 years	62.5 - 125mg qds 125 - 250mg qds 250 - 500mg qds **Consider using cefalexin liquid as an alternative to flucloxacillin liquid due to very poor palatability**
Metronidazole	Anaerobic infections 1 month 2 months – 11 years 12 – 17 years Pelvic inflammatory disease 12 – 17 years	 7.5mg/kg bd 7.5mg/kg (max per dose 400mg) tds 400mg tds 400mg bd
Miconazole oral gel	Unlicensed use under 4 months (or 5-6 months of life of an infant born pre-term) Neonate (oral fungal infections only) Child 1 month–1 year Child 2–17 years	 1ml 2 – 4 times daily smeared around the mouth after feeds 1.25ml 4 times a day smeared around the mouth after feeds 2.5ml 4 times a day after food; retain near lesions before swallowing
Nitrofurantoin	Child 3 months–11 years Child 12–17 years	750micrograms/kg 4 times daily for 3–7 days 50mg 4 times daily for 3–7 days; if using MR medicine then 100mg MR twice daily
Nystatin oral suspension	Child	**Neonate** 100 000 units 4 times a day usually for 7 days, and continued for 48 hours after lesions have resolved, to be given after feeds. **Child** 100 000 units 4 times a day usually for 7 days, and continued for 48 hours after lesions have resolved.

Phenoxymethyl-penicillin (Penicillin V)	1 – 11 months 1 - 5 years 6 – 11 years 12 – 17 years	62.5mg qds 125mg qds 250mg qds **Dose can be increased to ensure 12.5mg/kg qds** 500mg qds (max 1 gram qds) **Dose can be increased to ensure max 1g qds**
Trimethoprim treatment prophylaxis	Child 4 weeks to 11 years OR 4 – 5 weeks 6 weeks – 5 months 6 months – 5 years 6 – 11 years 12 – 17 years Child 4 weeks to 11 years OR 4 – 5 weeks 6 weeks – 5 months 6 months – 5 years 6 – 11 years 12 – 17 years	4mg/kg (max per dose 200mg) bd 4mg/kg (max per dose 200mg) bd 25mg twice daily 50mg twice daily 100mg twice daily 200mg twice daily 2mg/kg (max per dose 100mg) nocte 2mg/kg (max per dose 100mg) nocte 12.5mg nocte 25mg nocte 50mg nocte 100mg nocte

Referral to Out-patient Parenteral Antimicrobial Therapy (OPAT) Service

Contact Consultant Microbiologist for new OPAT referrals (Mon-Fri 9-5pm)
General microbiology advice is available out of hours – see page 54 for contact details
OPAT nurse contact information – For help with referral/IV access:
Bleep 7090 via APH switchboard
Phone: 0151 678 5111 Ext. 8986
OPAT team email: wih-tr.OPATTeam@nhs.net

The referral form is completed via a phone call to Single Point of Access. For further information please go to the Community Guide:
http://mm.wirral.nhs.uk/document_uploads/other-topics/OPAT-Service-Community-Guide-V3-16.06.17.pdf

Acceptance criteria for referral into OPAT service

Inclusion criteria (All must apply)

- Medically stable and fit for discharge (as assessed by medical team, registrar or above) *or* medically stable and fit to remain within community setting (as assessed by GP)
- Able to understand and consent to OPAT (*where patients lack mental capacity to consent treatment can be administered in patients best interests based on individual holistic assessment)*
- Safe and appropriate IV access
- Registered with a GP on the Wirral
- Age >18
- Definitive diagnosis known.
- The patient must agree to comply with all aspects of the treatment plan, including making themselves available at stated times for delivery of therapy
- Suitable home environment for the preparation and administration of intravenous therapies.

Caution: History of anaphylactic reaction from any cause unless agreed by OPAT team in collaboration with responsible clinician. Patient should be risk assessed prior to referral.

Exclusion criteria (Any one of these will exclude the patient)

- History of allergy to agent being administered or related agent
- Known risk of sudden death
- Immunocompromised / neutropenic
- Septic (i.e. 2 or more of the following; heart rate >90bpm, temp >38.3^{o}c or <36 ^{o}c, respiratory rate >20 breaths per minute, WCC >12x10^{9}/L or <4 x 10^{9}/L or new altered mental state
- Unable to communicate / confusion
- Intravenous drug misuser

Referring Clinician's Responsibilities

Outpatient antibiotic therapy (OPAT) service – advice for secondary care early discharge
For the OPAT service to be accessed, the GP must

- provide a summary of the patients diagnosis and relevant past history to the microbiologist
- confirm patient is medically stable and meets all eligible criteria
- obtain informed verbal consent from patient and document in notes
- read the OPAT protocol and understands the ongoing responsibilities
    - e.g. follow up at the end of planned treatment and weekly review if duration of treatment is >7days
- must contact Single point of access (SPA) to complete OPAT referral with relevant clinical information including current and recent medications ensure outcomes from patient follow up are communicated to the OPAT team
- provide input to weekly OPAT MDT review as required

- issue FP10 for antibiotic & diluents, issue PMAC for antibiotic & diluents

Note – if the above requirements are not met, the patient may be removed from the OPAT service

Approved antibiotics for use and initiation in primary and secondary care (on OPAT advice)

Amoxicillin
Co-amoxiclav
Ceftriaxone
Ceftazidime
Ertapenem
Flucloxacillin
Meropenem
Piperacillin/tazobactam (Tazocin)
Temocillin
Teicoplanin

The following may be used if initiated in secondary care ONLY on advice from OPAT.
Daptomycin
Linezolid
Metronidazole
Note: Antibiotics that cannot be administered as a bolus injection and require >30 minute infusion cannot be administered in the community.

IV stock holding Hub Pharmacies

Pharmacy	Contact No	Opening Hours							
		Mon	Tue	Wed	Thurs	Fri	Sat	Sun	B Holiday
Asda Bromborough Welton Road CH62 3QP	0151 346 2500	08:00 - 23:00	07:00 - 23:00	07:00 - 23:00	07:00 - 23:00	07:00 - 23:00	07:00 - 22:00	10:00 - 16:00	10:00 - 16:00
Asda Liscard Sea View Road Ch45 4NZ	0151 691 2221	08:00 - 22:00	08:00 - 22:00	08:00 - 22:00	08:00 - 22:00	08:00 - 22:00	08:00 - 22:00	10:00 - 16:00	10:00 - 16:00
Lloyds Arrowe Park Hospital Arrowe Park Road CH49 5PE	0151 677 6449	08:30 - 22:00	08:30 - 22:00	08:30 - 22:00	08:30 - 22:00	08:30 - 22:00	08:30 - 22:00	09:00 - 22:00	09:00 - 22:00
Medicx Pharmacy St Catherine's Hospital Church Road CH42 0LQ	0151 601 3132	07:30 - 22:00	07:30 - 22:00	07:30 - 22:00	07:30 - 22:00	07:30 - 22:00	08:00 - 22:00	08:30 - 22:00	10:00 - 22:00

Antimicrobial Prophylaxis

Endocarditis

Refer to the NICE Clinical Guideline Number 64 issued in March 2008 (updated July 2016) – Prophylaxis against infective endocarditis.

https://www.nice.org.uk/guidance/cg64/chapter/Recommendations

Regard people with the following cardiac conditions as being at risk of developing infective endocarditis:

- Acquired valvular heart disease with stenosis or regurgitation.
- Valve replacement.
- Structural congenital heart disease, including surgically corrected or palliated structural conditions, but excluding isolated atrial septal defect, fully repaired ventricular septal defect or fully repaired patent ductus arteriosus, and closure devices that are judged to be endothelialised.
- Hypertrophic cardiomyopathy.
- Previous infective endocarditis.

Offer people at risk of infective endocarditis clear and consistent information about prevention, including:

- The benefits and risks of antibiotic prophylaxis, and an explanation of why antibiotic prophylaxis is no longer routinely recommended
- The importance of maintaining good oral health.
- Symptoms that may indicate infective endocarditis and when to seek expert advice.
- The risks of undergoing invasive procedures, including non-medical procedures such as body piercing or tattooing.

Do not offer antibiotic prophylaxis against infective endocarditis:

- To people undergoing dental procedures.
- To people undergoing non-dental procedures at the following sites:
    - upper and lower gastrointestinal tract.
    - genitourinary tract; this includes urological, gynaecological and obstetric procedures, and childbirth.
    - upper and lower respiratory tract; this includes ear, nose and throat procedures and bronchoscopy.

Do not offer chlorhexidine mouthwash as prophylaxis against infective endocarditis to people at risk undergoing dental procedures.

Investigate and treat promptly any episodes of infection in people at risk of infective endocarditis to reduce the risk of endocarditis developing.

Offer an antibiotic that covers organisms that cause infective endocarditis if a person at risk ofinfective endocarditis is receiving antimicrobial therapy because they are undergoing a gastrointestinal or genitourinary procedure at a site where there is a suspected infection.

Malaria

Malaria prophylaxis should **not** be prescribed on an NHS prescription form. Patients should be advised to purchase their medicines from a pharmacy where it often costs less than the prescription charge. Mefloquine, *Maloprim®, Malarone®* and doxycycline are 'prescription only medicines' which should be provided on private prescription. Where doxycycline is prescribed for chemoprophylaxis of malaria it should only be prescribed privately.

Local Community Pharmacists have access to up to date advice about appropriate regimes and can advise travellers accordingly.

The length and timing of commencement of prophylaxis is determined by the regime required. Regular GP literature also provides updated advice on the choice of antimalarials for different regions of the world. Further information is available from Liverpool School of Tropical Medicine **- 0151 705 3100** or from hospital pharmacy medicines information services. A pre-travel clinic service is available by appointment but adults attending may incur a charge.

Other resources are:
http://www.nathnac.org/travel/

http://www.fitfortravel.nhs.uk/home.aspx

Prophylactic medicines **do not provide absolute** protection against malaria. Personal protection against being bitten using mosquito nets, insect repellents and appropriate clothing is also important.

For more information Wirral CCG Travel Policy can be found at this link:

http://mm.wirral.nhs.uk/document_uploads/policies/Travel-Policy-2017.pdf

Current statutorily notifiable diseases and food poisoning (2010)

These infections must be reported to Public Health England (see useful contact numbers)

Acute encephalitis
Acute meningitis
Acute poliomyelitis
Acute infectious hepatitis
Anthrax
Botulism
Brucellosis
Cholera
Diphtheria
Enteric fever (typhoid or paratyphoid fever)
Food poisoning
Haemolytic uraemia syndrome (HUS)
Infectious bloody diarrhoea
Invasive group A streptococcal disease
Legionnaires' disease
Leprosy
Malaria
Measles
Meningococcal septicaemia
Mumps
Plague
Rabies
Rubella
SARS
Scarlet fever
Smallpox
Tetanus
Tuberculosis
Typhus
Viral haemorrhagic fever (VHF)
Whooping cough
Yellow fever

Useful Contact Numbers - Medical Microbiologists

Where therapy has failed or special circumstances exist, advice can be obtained from Wirral Medical Microbiology, which operates a 24 hour, 365 day clinical microbiology service. Please feel free to phone the Microbiology Department by either contacting:

1) MicroPath automated switchboard 01244 362500 option 3 (WUTH microbiology) during normal working hours

Or

2) Arrowe Park Switchboard 0151 678 5111 if out-of-hours

Public Health England switchboard 0344 225 1295 option 1, option 1, option 1

Out of hours advice for health professionals: To contact a public health professional in an emergency out of hours; in the evenings, at weekends or during bank holidays, please phone: 0151 706 2000 ask for “Public Health on call”

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