INFECTION	1ST LINE	PENICILLIN ALLERGY	DURATION
CHEST			
Community acquired pneumonia (CAP) **Non –Severe : †CURB 65 score 0-1** and **NOT previously treated with antibiotics**	Amoxicillin po 500mg tds	Doxycycline po 200mg STAT then 100mg -200mg daily OR Clarithromycin po 500mg bd	5 - 7 days
Community acquired pneumonia (CAP) **Non –Severe : †CURB 65 score 2** **OR** **Curb 65 score 0-1** **AND previously treated with antibiotics**	Amoxicillin po/iv 500mg – 1g tds plus Clarithromycin po/iv 500mg bd	Doxycycline po 200mg STAT then 100mg -200mg daily OR Levofloxacin po/iv 500mg daily	5-7 days
Community acquired pneumonia (CAP) **Moderate –* Severe:** **†CURB 65 score 3 to 5**	Co-amoxiclav iv 1.2g tds plus Clarithromycin iv 500mg bd (if legionella strongly suspected, consider adding levofloxacin♣)	**Non-severe penicillin allergy** Ceftriaxone iv 2g daily plus Clarithromycin iv 500mg bd ***♦Severe penicillin allergy*** Levofloxacin iv 500mg bd	10-14 days Severe legionella infections (14-21 days)
Mycoplasma/Chlamydial pneumonia	Clarithromycin po/iv 500mg bd		14 days
COPD exacerbation	Amoxicillin po 500mg tds	Doxycycline po 200mg STAT then 100mg daily OR Clarithromycin po 500mg bd	5 days
Early-onset Hospital acquired pneumonia **(less than 5 days after admission to hospital)** *including aspiration pneumonia*	Co-amoxiclav po 625mg tds or Co-amoxiclav iv 1.2g tds (depending on severity)	Levofloxacin po/iv 500mg daily *(for aspiration pneumonia add metronidazole iv 500mg tds)*	5 - 7 days
Late-onset Hospital acquired pneumonia **(more than 5 days after admission to hospital)** **OR** **(Moderate - *Severe)** **(if recently prescribed antibiotics or colonised with resistant organisms – speak to Microbiology)**	Piperacillin/Tazobactam (Tazocin) iv 4.5g tds +/ - Amikacin iv 15mg/kg/ STAT dose for severe infection	**Non-severe penicillin allergy** Meropenem iv 1g tds ***♦severe penicillin allergy - contact Microbiology***	10-14 days

♦See overleaf for definition of severe and non-severe penicillin allergy

†CURB-65 is the severity scoring acronym used to determine the management of CAP in patients admitted to hospital. Each risk factor scores one point: **C**onfusion (Abbreviated Mental Test (AMT) score of 8 or less); **U**rea >7mmol/L; **R**espiratory rate ≥ 30/min; **B**lood pressure (SBP< 90mmHg or DBP≤ 60mmHg); **A**ge ≥ 65yrs

***Severe symptoms refer to a SIRS (Systemic inflammatory response syndrome) score of two or more**. SIRS criteria:
Temperature >38°C or <36°C; Heart rate >90 beats/min; Respiratory rate >20 breaths/min or $PaCO_2$<4.3 kPa; WBC <4 x 10^9/L or >12 x 10^9/L or >10% immature forms.

♣ Caution – risk of QT prolongation with macrolide-quinolone combination: avoid in patients at risk of arrythmias

Please note: CURB65 is a guide and may not be applicable for all patients e.g. young patients presenting with pneumonia. This is also <u>not relevant</u> in patients incapable of mounting an adequate host response to infection.

IV versus Oral Antibiotics

- IV antibiotics should only be initiated in patients with severe symptoms or where no equivalent oral antibiotics are available or where the oral administration is contra-indicated/compromised.
- IV to oral switch should be considered in a patient who has shown clear evidence of improvement with the following features:
  1. Resolution of fever for >24hrs
  2. Pulse rate <100beats/min
  3. Resolution of tachypnoea
  4. Resolution of hypotension
  5. Clinically hydrated and taking oral fluids
  6. No concerns over gastrointestinal absorption
  7. Absence of hypoxia
  8. Improving white cell count (WCC)
  9. Non-bacteraemic infection

INFECTION	1ST LINE	PENICILLIN ALLERGY	DURATION
SKIN AND SOFT TISSUE			
Cellulitis (mild)	Amoxicillin po 500mg tds **plus** Flucloxacillin po 500mg qds	Clarithromycin po 500mg bd	7 days
Cellulitis (moderate/severe)	Benzylpenicillin iv 1.2g qds **plus** Flucloxacillin iv 1g qds	Vancomycin iv (see vancomycin guidelines for dose) +/- Sodium fusidate po 500mg tds	Usually 7 days iv then po to continue (speak with pharmacist for po options)
If signs of necrotising fasciitis, immediately seek urgent surgical review and consult Microbiology			
Surgical wound (without MRSA or spreading cellulitis)	Flucloxacillin iv/po 1g qds	Vancomycin iv (see vancomycin guidelines for dose) OR Doxycycline po 200mg daily	Variable
Human/Animal bites	Co-amoxiclav po 625mg tds	Clindamycin po 300mg qds	7 days
GASTROINTESTINAL			
Clostridium difficile (mild / moderate)	Metronidazole po 400mg tds	Treatment failure/relapse should be discussed with microbiology	10 days
Clostridium difficile (severe)	Vancomycin po 250mg qds and discuss with microbiology		10-14 days
Biliary sepsis	Co-amoxiclav iv 1.2g tds	Ciprofloxacin po 500mg bd **plus** Metronidazole iv 500mg tds	Variable
Community acquired Intra-abdominal sepsis (secondary to possible GI perforation)	Co-amoxiclav iv 1.2g tds	**Non-severe penicillin allergy** Ceftriaxone iv 2g daily **plus** metronidazole iv 500mg tds ***♦Severe penicillin allergy*** Ciprofloxacin iv 400mg bd **plus** metronidazole iv 500mg tds	Review at 48hrs
Post-surgical intra-abdominal sepsis **First-line:** **(<u>No</u> previous antibiotic treatment course)**	Co-amoxiclav iv 1.2g tds **plus** Amikacin iv 15mg/kg/STAT ***Review after 48hrs – contact Microbiology if no improvement***	**Non-severe penicillin allergy** Ceftriaxone iv 2g daily **plus** Metronidazole iv 500mg tds **plus** Amikacin iv 15mg/kg/STAT ***♦Severe penicillin allergy*** Tigecycline iv 100mg STAT followed by 50mg bd	Review at 48hrs
Post-surgical intra-abdominal sepsis **Second-line:** **(Previous antibiotic treatment course or severe sepsis)**	Piperacillin/Tazobactam (Tazocin) iv 4.5g tds **plus** Amikacin iv 15mg/kg/STAT ***Review after 48hrs –contact Microbiology if no improvement***	**Non-severe penicillin allergy** Meropenem iv 1g tds ***♦Severe penicillin allergy*** Tigecycline iv 100mg STAT followed by 50mg bd	Review at 48hrs

URINARY TRACT INFECTIONS

(See separate UTI guideline in addition on intranet)

INFECTION	1ST LINE	PENICILLIN ALLERGY OR 2ND LINE CHOICE
Community acquired Lower UTI in Women - NOT Pregnant, No catheter	If <u>no</u> previous antibiotic treatment: Trimethoprim po 200mg bd for 3 days	If previous antibiotic treatment: Nitrofurantoin po 50-100mg qds for 7 days (If renal impairment – contact Microbiology)
Community acquired Lower UTI in Pregnant women	Cephalexin po 500mg tds for 7 days ***♦ (Not suitable in severe penicillin allergy)***	Trimethoprim po 200mg bd for 7 days (avoid in 1st trimester) OR Nitrofurantoin po 50-100mg qds for 7 days (avoid in last trimester)
Community acquired Pyelonephritis in Women or men	Co-amoxiclav iv 1.2g tds for 12 -24hrs +/- Amikacin iv 15mg/kg STAT *(then switch to oral as per micro sensitivities for 14 days)*	Ciprofloxacin iv 400mg bd for 12 -24hrs +/- Amikacin iv 15 mg/kg/STAT *(then switch to oral as per micro sensitivities for 7 days)*
Community acquired Male lower UTI	If <u>no</u> previous antibiotic treatment: Trimethoprim po 200mg bd for 7 days	If previous antibiotic treatment: Nitrofurantoin po 50-100mg qds for 7 days (If renal impairment – contact Microbiology)
Hospital acquired UTIs	Firstly check past microbiology results – please refer to separate UTI guideline	
Patients with long-term indwelling catheters	***(See separate UTI guideline for management of lower UTI and pyelonephritis in longterm catheters on intranet)***	

CNS AND ENT

(See separate meningitis guidelines in addition on intranet)

INFECTION	1ST LINE	PENICILLIN ALLERGY OR 2ND LINE CHOICE	DURATION
Meningitis	Ceftriaxone iv 2g bd (<u>plus</u> aciclovir iv 10mg/kg tds if encephalitic) URGENTLY contact microbiology after starting antibiotics	**Non-severe penicillin allergy** Ceftriaxone iv 2g bd (<u>plus</u> aciclovir iv 10mg/kg tds if encephalitic ***♦Severe penicillin allergy*** Chloramphenicol iv 25mg/kg 6-hourly	Variable

Meningitis & Corticosteroid therapy:
Consider the use of dexamethasone in adolescents and adults with suspected *Streptococcus pneumoniae* meningitis. Administer before or with the first dose of antibiotic:
IV dexamethasone 0.15mg/kg 6hourly for 4 days
Avoid dexamethasone in: septic shock, meningococcal septicaemia, immunocompromised patients and meningitis post surgery.

Meningitis and duration of treatment:

Micro-organism	Typical course lengths (days)
Neisseria meningitidis	7
Haemophilus influenzae	10
Streptococcus pneumoniae	10-14
Aerobic Gram-negative bacilli	21
Listeria monocytogenes	≥ 21
Culture negative	10

INFECTION	1ST LINE	PENICILLIN ALLERGY OR 2ND LINE CHOICE	DURATION
Conjunctivitis	Chloramphenicol eye ointment qds	Chloramphenicol eye drops 2-6 hrly dependant on severity	48 hrs after resolution
Oral candidiasis	Fluconazole po 50mg od	Nystatin liquid po 1ml qds	7 days
Post-splenectomy prophylaxis	Amoxicillin po 500mg od **plus** vaccines (see intranet)	Clarithromycin po 500mg od **plus** vaccines (see intranet)	Life-long

Antibiotics and Durations

When prescribing an antibiotic, always specify a review date or stop date.

Here are some additional durations for indicated not specified overleaf

Indication	Duration
Staphylococcus aureus **bacteraemia (no endocarditis)**	
• **Source removed :**	• **14 days**
• **Source unknown or non-removable source:**	• **28 days**
Enterobacteriaceae bacteraemia (e.g. *Escherichia coli, Klebsiella pneumoniae*)	
• **Source removed :**	• **7 days**
• **Source unknown or non-removable source:**	• **14 days**
Osteomyelitis	
• **Acute infection**	• **4-6 weeks**
• **Chronic infections**	• **at least 12 weeks**

Restricted List Antimicrobials

As part of the Trust's strategy to minimise the development on antibiotic resistance there is a restricted antimicrobials list. These agents are only to be prescribed under the direction of Medical Microbiology *unless these are used as part of an ARG agreed protocol/guidelines*:

Antibiotics

- Amikacin
- Colistin
- Ertapenem
- Imipenem
- Linezolid
- Meropenem
- Piperacillin / Tazobactam (Tazocin®)
- Rifampicin (excluding TB therapy)
- Sodium fusidate (fusidic acid)
- Synercid
- Teicoplanin
- Temocillin
- Tigecycline
- Tobramycin
- Vancomycin (both IV and po route)

Antifungals

- Caspofungin
- Lipid based amphotericin (Ambisome ®)
- Posaconazole
- Voriconazole

Clostridium Difficile and Antibiotics

To reduce the risk factors for *Clostridium difficile* disease the following antibiotics should only to be prescribed under the direction of Medical Microbiology *unless these are used as part of an ARG agreed protocol/guidelines*:

All cephalosporins
(e.g. cefuroxime , ceftazidime , ceftriaxone)

All fluoroquinolones

Allergy Information

- Patient's allergy status MUST always be checked prior to prescribing and administering antibiotics.
- The **exact nature** and **severity** of any reported allergy should be ascertained. A distinction should be made between intolerance, e.g. diarrhoea, nausea and vomiting, and 'true' allergy
- For all true penicillin allergy, it is important to differentiate between type 1 and non-type 1 reactions – please see table below
- Nursing staff must contact the medical team immediately if the patient develops any signs or symptoms of an allergic reaction.

Characteristics of penicillin allergy	Type 1 (severe)	Non Type 1 (non-severe)
Timing of onset	Usually 1-4hrs from onset (up to 72hrs)	More than 72hrs from exposure
Clinical signs	Anaphylaxis Laryngeal oedema Wheezing/ bronchospasm Angiooedema Urticaria Diffuse erythema	Maculopapular rash Morbilliform rash Drug fever Contact dermatitis SJS/TEN

- **For individuals with type 1 allergy:**
  -Penicillins (listed in the red section below): contra-indicated - DO NOT USE

  -Non-penicillin betalactams (listed in amber section below): caution – see below

Antibiotics Contra-indicated in All True Penicillin Allergic Patients (Type 1 and non-type 1 reactions)

amoxicillin, ampicillin, benzylpenicillin (Penicillin G), co-amoxiclav (Augmentin®), flucloxacillin, phenoxymethylpenicillin (Penicillin V), piperacillin/tazobactam (Tazocin®), temocillin, ticarcillin/clavulanic acid (Timentin®)

Antibiotics Cautioned or AVOID in Patients with history of Severe Penicillin Allergy

For type 1 reactions: Do not use unless at the discretion of a medical microbiologist – please contact microbiology

cefalexin, ceftazidime, cefixime, ceftriaxone, cefotaxime, cefuroxime, ertapenem, meropenem, imipenem, aztreonam

Antibiotics Considered Safe in Penicillin Allergic Patients

amikacin, azithromycin, ciprofloxacin, clarithromycin, clindamycin, cotrimoxazole, doxycycline, erythromycin, gentamicin, levofloxacin, linezolid, metronidazole, moxifloxacin, nitrofurantoin, rifampicin, sodium fusidate, Synercid®, teicoplanin, tetracycline, tigecycline, trimethoprim, tobramycin, vancomycin

Leaflet produced by Ms Lisa Boateng (Microbiology Pharmacist) August 2011 on behalf of the BLT Antimicrobial Review Group (ARG)

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Adult Empiric Antibiotic Treatment Guideline August 2011

Antibiotic Prescribing Standards

Key Performance Indicators

1. **Indication** must be clearly stated in the medical notes
2. **Stop/review date** must be indicated on the drug chart
3. **Restricted antibiotics** must be approved by Microbiology unless prescribed as per specialist protocol

For further antimicrobial guidance please contact:
Medical Microbiology SpR via switchboard
Microbiology Pharmacist on 14-60135 or bleep 0893

Please also refer to the full intranet guidelines
Go to Trust Intranet home page
Click on → **A-Z**
→ **A**ntimicrobial guidelines

NB: Please seek specific advice for patients who are pregnant or breastfeeding unless otherwise stated

IMPORTANT:
Always review treatment in light of microbiology results if available.
Consider the possibility of resistant organisms, e.g. MRSA and ESBL, especially if recurrent admissions/recent antibiotic therapy.