Empirical Antibiotic Formulary For Secondary Care (Adult)

Refer to NHS D&G Antimicrobial Handbook to access the complete document
Doses stated on this formulary are based on normal renal and hepatic function.
Always confirm the nature of drug allergy with the patient/ GP as it if often not a true allergy
Select the right tests and cultures before giving antibiotics, whenever possible
Document indication & review date/ duration of course. Review DAILY the clinical response, microbiology results and prescriptions- **CAN YOU SIMPLIFY, SWITCH OR STOP ANTIBIOTICS?**

Always check previous microbiology results and resistance

***All doses assume normal renal and hepatic function- refer to Renal Drug Database or SPC/BNF for dosing adjustments**

Antibiotic	IV doses	PO doses
Amoxicillin	1gram 8 hrly	1gram 8 hrly
Cefalexin	No IV option	500mg-1g 8 hrly
Co-trimoxazole	960mg 12 hrly	960mg 12 hrly
Doxycycline	No IV option	200mg stat then 100mg 12 hrly
Flucloxacillin	2grams 6 hrly	1gram 6 hrly
Metronidazole	500mg 8 hrly	400mg 8 hrly
Nitrofurantoin	No IV option	50mg 6hrly *(M/R if compliance issue)*
Trimethoprim	Consider co-trimoxazole	200mg 12 hourly

Important considerations

Gentamicin	Avoid in myasthenia gravis and decompensated liver disease
Quinolones	Patient Information Leaflet required on prescription Can prolong QTC and lower seizure threshold Reduced absoption with iron, calcium, magnesium, aluminium, zinc
Doxycycyline	Reduced absorption with iron, calcium, magnesium, aluminium, zinc
Macrolides	Can prolong QTC; P450 inhibitor- check interactions
Nitrofurantoin	Do not use if Creatinine Clearance (CrCl) <30mls/min

NHS Dumfries & Galloway

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Updated: 09/10/2025
Next review: 02/06/2027

Respiratory Tract Infection

Uncertain if LRTI or UTI
Send MSSU, sputum & viral throat swab. Do NOT prescribe Co-amoxiclav
No sepsis: PO Amoxicillin AND PO Nitrofurantoin. **If penicillin allergic:** PO Co-trimoxazole
Sepsis: IV Amoxicillin AND IV Gentamicin. **If penicillin allergic:** IV Cotrimoxazole +/- IV Gentamicin
Clarify diagnosis at 48 hours. Duration if remains uncertain: 5 days

Infective Exacerbation COPD
Antibiotic only if purulent sputum. Dual antibiotic therapy not recommended & increases risk of harm
- PO Doxycyline OR PO Amoxicillin (1st line choices) OR PO Clarithromycin (2nd choice) Duration: 5 days

Community Acquired Pneumonia (CAP)

Non-severe CAP (CURB65 score ≤2 and no sepsis)
• PO Amoxicilin; **If penicillin allergic:**• PO Doxycycline

Severe CAP (CURB score≥ 3 or more or any CURB65 score with sepsis)
• IV Amoxicillin OR IV Co-amoxiclav (If treated previously or adverse prognostic features)
AND ADD ATYPICAL COVER
• PO Doxycycline (as 1st choice) OR PO Clarithromycin (as 2nd choice; IV if absorption/ swallow issues.
Consider covering for atypicals for returning travellers or bird/ animal exposure
If penicllin allergic: • PO Levofloxacin (will cover atypicals)
Duration: 5 days

Confirmed Legionella Pneumonia
• PO Levofloxacin. Duration: 10-14 days (longer duration may be required in severe disease or immunocompromised)

Hospital Acquired Pneumonia
Early onset HAP (≤4 days from admission)
• Treat as CAP
Non-severe late onset HAP (≥ 5 days from admission)
• PO Doxycyline or
• PO Co-trimoxazole
Severe late onset HAP (> 5 days from admission)
• IV Co-trimoxazole AND
IV Gentamicin
Duration: 5 days

Tonsillitis- *Most cases are viral and do no require antibiotics*
Tonsillitis without sepsis:
PO Penicillin V
If penicillin allergic:
PO Clarithromycin
Duration: 10 days (Penicillin V); 5 days (Clarithromycin)
Tonsillitis with sepsis/ Quinsy *(drain abscess immediately)*:
IV Benzylpenicillin AND
IV Clindamycin
If penicillin allergic:
IV Vancomycin AND
IV Clindamycin
Duration: 10 days

Aspiration pneumonia
Aspiration pneumonitis does not require antibiotic unless secondary infection arises later in lungs. Prophylatic antibiotic are not recommended
If occur ≤4 days from admission (CAP):
• IV/PO* Amoxicillin OR
• PO* Doxycycline OR
•IV/PO*Clarithromycin
If occur≥ 5 days from admission (HAP):
PO* Doxycycline OR
IV/PO*Co-trimoxazole
(PO*if swallow safe)
Regardless of time of admission
If severely ill :
ADD IV Gentamicin
Only if at high risk of anaerobic (e.g. obvious dental/ periodontal disease, putrid sputum, or suspected lung abscess/ empyema):
ADD IV/PO* Metronidazole
Duration: 5 days

Urinary Infection

Lower UTI (males & non-pregnant females)
• PO Trimethoprim OR
• PO Nitrofurantoin OR
• PO Cefalexin
If severe penicillin allergy and CrCl<20mls/min:
• PO Ciprofloxacin
Duration: 3 days (females)
7 days (males)

Upper UTI/ pyelonephritis (males and non-pregnant females)
Without sepsis:
• PO Trimethoprim
With sepsis:
• IV Gentamicin up to 72hrs, then consider IVOST**
If CrCl<20mls/min:
• Single dose IV Gentamicin#
may be sufficient to cover up to 72hrs- follow gentamicin guidance <20mls/min, then consider IVOST**
Duration: 7 days

Catheter-associated UTI
Without sepsis:
• Stat IV Gentamicin prior to catheter removal, then IVOST**
Duration: 3 days (females)
7 days (males)
With sepsis:
• IV Gentamicin up to 72hrs, then consider IVOST**
Change catheter after 1st dose
If CrCl<20mls/min:
• Single dose IV Gentamicin#
may be sufficient to cover up to 72hrs- follow gentamicin guidance <20mls/min, then consider IVOST**
Duration: 7 days

****Refer to IVOST policy. If IVOST not suitable, refer to 'IV Gentamicin: What to do after 72 hours' policy OR discuss with infection specialist**

Acute prostatitis
• PO Trimethoprim OR
PO Ciprofloxacin
Duration: 14-28 days

Epididymo-orchitis
Sexual health screen recommended
• **≥35yrs:** PO Ofloxacin (1st choice) OR
PO Co-amoxiclav (2nd choice)
• **<35yrs:** PO Doxycycline
Duration: 14 days

Skin and soft tissue infection

Mild/ Moderate Cellulitis
• PO Flucloxacillin
If penicillin allergic:
• PO Doxycycline OR
• PO Co-trimoxazole
Duration: 5-7 days

Severe Cellulitis/ Erysipelas
For upper limb cellulitis, seek orthopaedic advice
Consider OPAT
- consult local management pathway
For in patient management:
• IV Flucloxacillin
If penicillin allergic:
• IV Vancomycin
If rapidly progressing:
ADD IV Clindamycin
Duration:7-10 days, depending on clinical progress

Animal bites
Consider BBV transmission, tetanus & rabies risk
Consider surgical review
See full document on links to risk stratification when prophylaxis indicated

Human bites
Assess HIV and hepatitis risk-prophylaxis as required

Non-severe:
• PO Co-amoxiclav
If penicillin allergic:
• PO Doxycycline AND
PO Metronidazole
Treatment: 5 days
Prophylaxis: 3 days
Severe:
• IV Co-amoxiclav
If penicillin allergic:
• IV Vancomycin AND
PO Metronidazole AND
PO Ciprofloxacin
Treatment: 7 days

Facial cellulitis
• IV Flucloxacillin AND
IV Clindamycin
If penicillin allergic:
• IV Vancomycin AND
IV Clindamycin
Duration: 7 days

Suspected Necrotising Fasciitis
This is an emergency
URGENT surgical/ orthopaedic/ infection specialist review. Urgent debridement/ exploration maybe required
Take blood culture and commence empirical treatment
In order of administration:
• IV Piperacillin/ Tazobactam (1st dose-bolus)
AND
IV Clindamycin AND
IV Gentamicin
If penicillin allergic:
TWO IV LINES REQUIRED
• IV Vancomycin AND
IV Clindamycin AND
IV Gentamicin AND
IV Metronidazole
Rationalise 48 to 72 hours of starting antibiotics

Surgical wound
Non- contaminated:
• IV Flucloxacillin
If penicillin allergic/MRSA suspected:
• PO Doxycycline
(If IV required give IV Co-trimoxazole)
If contaminated:
IV Flucloxacillin AND
PO* Metronidazole (*IV- if absorption/ swallow issues) AND IV Gentamicin
If penicillin allergic/ MRSA and contaminated:
IV Co-trimoxazole AND
PO Metronidazole/IV*
ADD IV Gentamicin if septic
Duration: 5-7 days

Pre Septal/ Orbital Cellulitis
This is an emergency.
Seek immediate specialist advice from Ophthalmology and ENT. Consider CT imaging & drainage
• IV Flucloxacillin
If intracranial extension:
IV Ceftriaxone
If penicillin allergic:
• IV Vancomycin AND
PO Ciprofloxacin
Duration: 10-14 days

Gastrointestinal infection

Clostrioides difficile infection
See CDI guideline in NHSD&G Antimicrobial handbook. Treat before lab confirmation if high clinical suspicion. Discontinue if CDI screen negative

Gastroenteritis
Confirm travel history/ other risk factors. Send sample. Antibiotics not normally required and may be deleterious in E.Coli 0157.Consider viral causes. If systemically unwell, discuss with infection specialist

Intra-abdominal infections
• IV Amoxicillin AND
IV Gentamicin AND
PO* Metronidazole **(*PO has about 95- 100% bioavailability; IV- if absorption/ swallow issues)**
If CrCl<20mls/min:
• IV Piperacillin-Tazobactam
If penicillin allergic:
• IV Vancomycin AND
IV Gentamicin AND
PO Metronidazole/ **IV***
If penicillin allergy and CrCl<20mls/min
• PO Ciprofloxacin/ **IV*** AND
PO Metronidazole**/ IV***
Duration: 5 days (assuming source control)
*Biliary tract infection- treatment as above except metronidazole not routinely required unless severe

Spontaneous bacteria peritonitis
If not receiving co-trimoxazole prophylaxis
• IV/ PO Co-trimoxazole
If receiving co-trimoxazole prophylaxis
• IV Piperacillin- Tazobactam
If penicillin allergic:
•PO Levofloxacin (*IV- only if absorption/ swallow issues)
Duration: 5-7 days

Decompensated chronic liver disease with sepsis unknown source
• IV Piperacillin-Tazobactam
If penicillin allergic:
• PO Levofloxacin/ IV*
Duration: 7 days

Bone and joint infection

Septic arthritis
Urgent orthopedic referral if underlying metal work or recent surgery. Ensure joint aspiration prior to antibiotics
Native joint:
• IV Flucloxacillin
If penicillin allergic or MRSA:
• IV Vancomycin
If high risk for gram negative infection e.g. immunocompromised, recurrent UTI or sickle cell disease: ADD IV Gentamcicn
Prosthetic joint:
• Discuss with infection specialist/ OPAT
Duration: Discuss with infection specialist

Osteomyelitis
• Take blood cultures (2 sets) prior to starting treatment. Discuss with infection specialist

Acute diabetic foot infection/ osteomyelitis
Assess ulcer size, probes to bone, neuropathy,PVD disease, MRSA risk. Notify Diabetologist. Send culture & review previous microbiology. Refer to full guidance to determine severity
Mild Infection:
• IV Flucloxacillin
If penicillin allergic:
• PO Doxycycline
Duration: 5-7 days
Moderate or Severe infection:
• IV Flucloxacillin **+/- see below**
If penicillin allergic:
• IV Vancomycin **+/- see below**
- **If high risk for Gram negative infection (e.g. recent antibiotics, sepsis, haemodynamic compromise, ischaemic limb, necrosis, gas forming:** ADD IV Gentamicin
- **If high risk for anaerobic infections (e.g. ischaemic limb/ necrosis/ gas forming):** ADD PO Metronidazole (IV- if absorption/ swallow issues)
- **If CrCl<20mls/min AND combination therapy required:** IV Piperacillin-Tazobactam
- **If penicillin allergic with CrCl<20mls/min:** Discuss with infection specialist

Duration: 7-14 days (if osteomyelitis, discuss duration with infection specialist)

Central nervous system infection

Check LP contraindications on full document
Obtain blood culture before giving antibiotics

Bacterial meningitis
• IV Ceftriaxone 2g BD
If severe penicillin allergic:
• IV Meropenem 2g TDS
ADD IV Dexamethasone 10mg* 6 hourly ***prescribe *3mls of 3.3mg/ml dexamethasone base on HEPMA***
If Listeria suspected, >55yrs, immunocompromised, alcohol excess, liver disease
· ADD IV Amoxicillin 2g 4hrly
If penicillin allergic:
· ADD IV Co-trimoxazole 30mg/kg 6hrly
Duration: Discuss with infection specialist

Viral meningitis
• Usually diagnosed after empirical management and exclusion of bacterial meningitis
• Stop antiviral if enteroviral or mumps meningitis is diagnosed and manage symptomatically
• Continuation of antiviral for HSV/VZV should be discussed with infection specialist

Viral encephalitis
• Consider if confusion or reduced level consciousness in suspected CNS infection.
• IV Aciclovir 10mg/kg 8 hrly (Use Adjusted body weight if BMI ≥30kg/m2)
• Discuss with infection specialist if suspecting HSV
Duration: 10-21 days

Endocarditis

Obtain 3 sets of blood cultures prior to antibiotics (spread over 48 hours if stable)
Discuss with infection specialist

Immunocompromised patients

Neutropenic sepsis
Obtain 2 sets of blood cultures. Consider infection source and review previous microbiology
Refer to guidance in NHS D&G Antimicrobial Handbook

? Systemic infection

Review all anatomical systems, perform CXR and consider other imaging and laboratory investigation
Review previous microbiology results
Sepsis of Unknown Origin
IV Amoxicillin AND
IV Gentamicin
If Penicillin allergic:
IV Vancomycin AND
IV Gentamicin
Duration: depends on source

Line infection

Peripheral line infection
REMOVE LINE
If localised infection at PVC site: PO Flucloxacillin OR
PO Doxycyline
Severe infected PVC exit site (+/- sepsis):
IV Flucloxacillin OR
IV Vancomycin

Central line infection
Discuss with infection specialist. Treatment depends on underlying organism
Duration: Discuss with infection specialist

Staphylococcus aureus bacteraemia (SAB)

Refer to SAPG SAB Fiull Guidance in NHS D&G Antimicrobial Handbook
Discuss with infection specialist
Duration: minimum 14 days of IV, total duration but will depend on source/ site of infection