

Empirical First Line Antibiotic Therapy for Adult Patients

Guidance available via FirstPort and the 'Antimicrobial Companion' app – Apple APP store and PLAY store – select NHS Lanarkshire.

STOP AND THINK BEFORE YOU GIVE ANTIBIOTICS - Is antibiotic therapy required? – Lanarkshire is the highest prescriber of antibiotics in Scotland

Clostridium difficile infection associated with prescribing of: Cephalosporins, Co-amoxiclav, Clindamycin, and Quinolones (Ciprofloxacin, Levofloxacin)

REVIEW IV ANTIBIOTICS DAILY - IV therapy must have a documented review in medical notes within 72 hours

CULTURE BLOOD - (8-10mls each bottle) and appropriate source i.e. Urine, sputum, CSF, wound or venous access

SWITCH - Switch IV to oral when sepsis is resolving

SIMPLIFY - Review antibiotics and change to narrow spectrum once microbiology results are available

STOP - Observe indicated duration of therapy



IV THERAPY IS REQUIRED FOR SEPSIS OR OTHER SEVERE INFECTIONS – DOCUMENT INDICATION CLEARLY IN THE NOTES AND CARDEX AT POINT OF PRESCRIBING. DOCUMENT CLEAR EVIDENCE OF REVIEW IN NOTES WITHIN 72 HOURS

SEPSIS DEFINITIONS

SEPSIS: NEWS ≥ 5 (or 3 in one parameter) PLUS suspicion of infection

NEUTROPENIC SEPSIS: Neutropenic (<0.5 x 10⁹ neutrophils/L) PLUS one of the following; pyrexial (temperature > 38°C), clinically unwell even if afebrile (symptoms may include fever, sweats, chills, rigors, malaise, respiratory rate >20/min, HR > 90 bpm)

Lower respiratory tract	Urinary tract	Skin/soft tissue/Bone/joint	Diabetic foot infection	Gastro-intestinal	CNS infection/Meningitis	Severe systemic infection unknown source	Neutropenic Sepsis or Immunocompromised PLUS sepsis
<p>Community acquired Pneumonia (CAP) SEVERE CAP SEPSIS or CURB65 score⁶: ≥3 or ≥2 with one additional feature IV Amoxicillin 1g 8 hrly OR Co-amoxiclav 1.2g 8hrly (if treated previously) + ORAL Clarithromycin¹ 500mg 12hrly Penicillin Allergy Gentamicin³ IV Levofloxacin^{1,4} 500mg 12hrly (high oral bioavailability - consider switch at 24 hours) Total duration (IV/oral) 7-10 days (Pneumococcal) or 21 days (if confirmed Legionella)</p> <p>Aspiration Pneumonia IV Amoxicillin 1g 8 hrly (Penicillin allergy: Vancomycin³) + IV Metronidazole 500mg 8 hrly If severe: ADD Gentamicin³ Total duration (IV/oral) 7 days</p> <p>Hospital Acquired Pneumonia (occurring >48hrs post-admission or within 10 days of discharge) IV Co-amoxiclav 1.2g 8hrly + ORAL Clarithromycin 500mg¹ 12hrly +/- Gentamicin³ +/- Vancomycin³ Penicillin allergy: IV Levofloxacin^{1,4} 500mg 12 hrly (high oral bioavailability - consider switch at 24 hours) +/- Vancomycin³ Dependant on microbiology/recent antibiotics. Discuss with microbiologist if clinically indicated Total duration (IV/oral) 7 days</p> <p>Staphylococcal pneumonia suspected As per SEVERE Community acquired pneumonia And ADD IV Flucloxacillin⁵ 1g 6hrly on clinical condition/response Penicillin Allergy or MRSA suspected: As per SEVERE Community acquired pneumonia + Vancomycin³ Contact microbiology for advice Consider MRSA PVL (Panton-Valentine Leukocidin) and contact microbiology if risk factor present. (Nursing home, previous contact with PVL) Duration (IV/oral) - seek advice</p> <p>Severe exacerbation of COPD with pneumonia Follow Severe Community Acquired Pneumonia guidance</p>	<p>Upper UTI (UUTI/Pyelonephritis) Gentamicin³ +/- IV Amoxicillin 1g 8hrly Penicillin Allergy Gentamicin³ +/- Vancomycin³ Total duration (IV/oral) Women 7-10 days Men 14 days Consider prostate involvement and urology referral</p>	<p>Moderate to severe cellulitis/erysipelas or bone/joint infection Gentamicin³ For upper limb cellulitis or bone and joint infection – seek advice from orthopaedics IV Flucloxacillin⁵ 1-2g 6 hrly Penicillin Allergy or MRSA suspected: Vancomycin³ Total duration (IV/oral) Cellulitis 10-14 days Osteomyelitis/septic arthritis – seek advice</p> <p>Suspected necrotising fasciitis or severe or rapidly progressive infection in IDU CONSIDER URGENT DEBRIDEMENT/EXPLORATION AND INVOLVE MICROBIOLOGIST IV Flucloxacillin⁵ 2g 6 hrly + IV Benzylpenicillin 2.4g 4hrly + Gentamicin³ + IV Clindamycin 900mg 8hrly + IV Metronidazole 500mg 8hrly Penicillin allergy Omit Flucloxacillin and Benzylpenicillin</p>	<p>Notify diabetologist at first opportunity. Send specimen for culture and review previous microbiology.</p> <p>SEVERE infection IV Flucloxacillin⁵ 2g 6 hrly (Penicillin Allergy or MRSA suspected: Vancomycin³) + IV Clindamycin 600mg 6hrly + Gentamicin³ Total duration – seek advice</p> <p>MODERATE infection IV Flucloxacillin⁵ 2g 6hrly + IV Metronidazole 500mg 8hrly Penicillin Allergy: IV Clindamycin 600mg 6hrly Total duration - seek advice</p>	<p>Intra-abdominal/hepatobiliary/pelvic sepsis IV Amoxicillin 1g 8 hrly (Penicillin allergy: Vancomycin³) + IV Metronidazole 500mg 8 hrly + Gentamicin³ Total duration (IV/oral) 7 - 10 days Give all 3 recommended antibiotics otherwise the regimen may be ineffective</p> <p>Spontaneous Bacterial Peritonitis If Peritoneal white cell count >500/mm³ or >250 neutrophils/mm³ IV Co-amoxiclav 1.2g 8 hrly Penicillin Allergy: Discuss with microbiology/ID Total duration (IV/oral) 7 – 10 days</p>	<p>No penicillin allergy IV Ceftriaxone 2g 12hrly + Dexamethasone 10mg 6hrly If penicillin resistant pneumococcus suspected + Vancomycin³ If listeria suspected - over 60yrs, immunocompromised (including diabetic, alcohol excess) + IV Amoxicillin 2g 4hrly In pregnancy seek senior advice then discuss with microbiology/ID</p> <p>Penicillin intolerance/minor penicillin allergy (see box below for severe penicillin allergy/anaphylaxis) IV Ceftriaxone 2g 12hrly + Dexamethasone 10mg 6hrly If penicillin resistant pneumococcus suspected + Vancomycin³ If listeria suspected - over 60yrs, immunocompromised (including diabetic, alcohol excess) + IV Co-trimoxazole² 120mg/kg/day - split into 2-4 divided doses. (Adjust regimen dose/ frequency to allow simplest administration of 480mg/5ml vials) In pregnancy seek senior advice then discuss with microbiology/ID</p> <p>Clear history of Anaphylaxis with penicillin or Severe/True penicillin allergy Discuss urgently with microbiology/ID</p> <p>Possible encephalitis + IV Aciclovir 10mg/kg 8 hrly (use ideal body weight)</p> <p>Total duration (if clinically recovered) Meningococcal – 5 days Pneumococcal – 10 days Listeria – 21 days No pathogen - 10 days Dexamethasone for first 4 days Aciclovir – 10-14 days</p>	<p>IV Amoxicillin 1g 8 hrly (Penicillin Allergy or MRSA suspected: Vancomycin³) + IV Metronidazole 500mg 8 hrly + Gentamicin³ Give all 3 recommended antibiotics otherwise the regimen may be ineffective</p> <p>Possible infective endocarditis Send 3 sets of blood cultures Seek senior specialist advice</p> <p>No penicillin allergy IV Piperacillin/Tazobactam⁴ 4.5g 6 hrly + Gentamicin³ Consider staphylococcal infection ADD Vancomycin³ Consider fungal infection</p> <p>Penicillin intolerance/minor penicillin allergy (see box below for severe penicillin allergy/anaphylaxis) IV Vancomycin³ + IV Aztreonam 2g 6 hourly + IV Gentamicin³ Consider fungal infection</p> <p>Clear history of Anaphylaxis with penicillin or Severe/True penicillin allergy Vancomycin³ + IV Ciprofloxacin¹ 400mg 12hrly (high oral bioavailability - consider switch at 24 hours) + Gentamicin³ Consider fungal infection</p>	<p>Curb Score</p> <p>CURB65: Score 1 for each of:</p> <ul style="list-style-type: none"> Confusion new (AMT ≤8/10) Urea > 7 mmol/L RR ≥ 30/min BP SBP <90mmHg or DBP ≤60mmHg Age ≥65 <p>CURB 65 score may overestimate CAP severity in the elderly therefore correlate with sepsis criteria.</p> <p>Additional Adverse Prognostic Features:</p> <ul style="list-style-type: none"> SpO₂ <92% or PaO₂ <8kPa on any FAIO₂ Multi-lobar change on CXR <p>Doses may need to be adjusted in renal impairment Always check BNF for interactions Seek advice if patient pregnant</p> <ol style="list-style-type: none"> Check interactions in the BNF. Caution may prolong QT interval. Avoid Doxycycline and Co-trimoxazole if pregnant or breast feeding Gentamicin/Vancomycin refer to online calculators ALERT antibiotic needs ALERT form Monitor sodium See CURB65 definition above Reference: The Renal Drug Handbook 4th Edition, 2014

ORAL THERAPY USUALLY REQUIRED - DOCUMENT DURATION ON CARDEX

<p>Community acquired Pneumonia (CAP) MODERATE CAP CURB65 score⁶ = 2 Amoxicillin 500mg -1g 8 hrly + Clarithromycin¹ 500mg 12 hrly Penicillin allergy or Alternative required Doxycycline² 100mg 12 hrly Total duration 7 days</p> <p>Community Acquired Pneumonia (CAP) LOW SEVERITY CAP CURB65 score⁶ 0-1 Amoxicillin 500mg-1g 8 hrly Penicillin allergy or Alternative required Clarithromycin¹ 500mg 12 hrly OR Doxycycline² 200mg stat then 100mg daily Total duration 7 days</p> <p>Mild/Moderate Infective exacerbation of COPD Antibiotics if purulent sputum. Amoxicillin 500mg-1g 8 hrly Penicillin allergy or Alternative required Clarithromycin¹ 500mg 12 hrly OR Doxycycline² 200mg stat then 100mg daily Total duration 5 days</p>	<p>Lower UTI</p> <ul style="list-style-type: none"> Do not treat asymptomatic bacteruria in over 65s Use dipstick to guide treatment decisions in men and women under 65 with mild (≤2) symptoms of UTI Send urine culture <p>Trimethoprim 200mg 12 hrly OR Nitrofurantoin M/R 100mg 12hrly (avoid if CrCL <40ml/min)⁷ Total duration: Women 3 days Men 7 days</p> <p>Catheterised patients Only treat if systemically unwell or pyelonephritis likely.</p> <ul style="list-style-type: none"> Remove or replace catheter Send pre-treatment CSU Start empirical antibiotics <p>Antibiotics as above or guided by CSU Duration 7 days</p>	<p>Limited Soft tissue infection Flucloxacillin 1g 6 hrly Penicillin allergy Clarithromycin¹ 500mg 12 hrly Duration 7 days</p> <p>Human or animal infected bite Co-amoxiclav 625mg 8 hrly Penicillin allergy Doxycycline² 100mg 12 hrly + Metronidazole 400mg 8 hrly Duration 7 days</p>	<p>MILD infection Flucloxacillin⁵ 1g 6hrly Penicillin allergy: Clindamycin 450mg 6hrly Total duration - seek advice</p>	<p>Gastroenteritis No antibiotics required</p> <p>Clostridium difficile infection • Stop/simplify concomitant antibiotic(s) • Review/stop gastric acid suppression and antimotility agents</p> <p>Clostridium difficile infection Severe if: • Colonic dilation > 6cm • WCC >15 x 10⁹/L • Creatinine 1.5 x baseline</p> <p>Clostridium difficile infection Non-severe: Metronidazole 400mg 8 hrly Severe/Recurrence or not improving after 5 days Metronidazole: ORAL Vancomycin 125mg 6 hrly Ileus or hypotension + IV Metronidazole 500mg 8 hrly Total Duration 10 days</p>
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