Directorate of Critical Care
The Royal Infirmary and St John's Hospital

NHS Lothian

Empirical Initial Antimicrobial Guideline (See Lothian UHD Guideline also)

- **Early appropriate antimicrobial therapy with source control[1] improves survival.**
- **Take appropriate samples for culture before starting antimicrobials.**
- ***Consider recent antibiotic therapy[2]* and previous microbiology results.**

Infection	Preferred empirical treatment (IV unless otherwise stated)	Renal/CVVH adjustment
Community-acquired pneumonia (CURB65 ≥3)	**Co-amoxiclav** 1.2g tid ***WITH* clarithromycin** 500mg bd Consider **oseltamivir** in 'flu season'	✔ Consider ✔
Aspiration pneumonia	**Early** (< 5 days hospitalisation): **amoxicillin** 1g tid ***WITH* metronidazole** 500mg tid **Late** (hospitalisation ≥ 5 days): **piperacillin-tazobactam** 4.5g tid[3,4] Consider **vancomycin**[5]	✔ ✗ ✔ ✔
Hospital-acquired chest infection/VAP[7]	**Piperacillin-tazobactam** 4.5g tid[3,4] **OR Ciprofloxacin** 400mg bd[6] ***WITH* vancomycin**[5]	✔ ✔
Intra-abdominal sepsis	**Amoxicillin** 1g tid ***WITH* gentamicin** (See LUHD guidelines for dosing and further advice) ***WITH* metronidazole** 500mg tid **IF Severe AKI / on CVVH** use **Piperacillin-tazobactam** 4.5g bd[3,4] If prolonged perforation consider antifungal (usually **fluconazole**)	✔ ✔ ✗ ✔ ✔
Line-related sepsis	**Vancomycin[5] WITH ONE OF:** **ciprofloxacin** 400mg bd[6] ***OR* piperacillin-tazobactam** 4.5g tid[3,4] Consider antifungal (usually **fluconazole** - see antifungal guidelines)	✔ ✔ ✔
Dental Abscess	**Co-amoxiclav** 1.2g tid **Alternative**: **Ceftriaxone** 2g bd ***WITH* metronidazole** 500mg tid	✔ Consider
Life or Limb threatening soft tissue infection (*Surgical debridement is the mainstay of Rx*)	**Flucloxacillin** 2g qid ***WITH* benzylpenicillin** 2.4g 4 hourly (x6/day) ***WITH* clindamycin** 0.6-1.2g qid ***WITH* gentamicin** (See LUHD guidelines for dosing and further advice) ***WITH* metronidazole** 500mg tid Consider cutaneous anthrax Penicillin allergy: Contact Microbiology (See also UHD guidance)	✔ ✔ ✗ ✔ ✗
Sepsis: unknown origin	**Amoxicillin** 1g tid ***WITH* gentamicin** (See LUHD guidelines for dosing and further advice) ***WITH* metronidazole** 500mg tid **IF Severe AKI / on CVVH** use **Piperacillin-tazobactam** 4.5g bd[3,4] ***Consider* vancomycin**[5]	✔ ✔ ✗ ✔ ✔
Meningitis	**Ceftriaxone** 2g **bd**. Give **dexamethasone** 10mg qid before or within 4 hours of first antibiotic dose, stop if pneumococcal infection not confirmed. In patients >50 years, pregnant or immunosuppressed, add **amoxicillin** 2g 6 hrly (or **co-trimoxazole** if penicillin allergic) to cover Listeria. Consider adding **aciclovir** 10mg/kg tid to cover HSV encephalitis.	Consider ✔ ✔ ✔

Notes.

1. **Source control** includes removing lines, draining pus, debriding tissue and definitive operations
2. Take a **history of antibiotic use** in last 3 months, consider using a different class of antibiotics.
3. Piperacillin-tazobactam may be more effective if given as an **extended infusion**. See specific guideline.
4. Consider using meropenem 1g tid rather than piperacillin-tazobactam if recent treatment with co-amoxiclav / pip-taz, or if previous microbiology results suggest multi-resistant organisms.
5. **Consider whether vancomycin is required**, e.g. Gram-positive cover when used along with ciprofloxacin.
6. For severe VAP (especially Pseudomonal and potentially in other severe infections) **consider using more frequent doses of piperacillin-tazobactam (4.5g qid) and ciprofloxacin (400mg tid).**
7. Yeasts in respiratory specimens are usually colonisers and do not normally require antifungals.
8. **Aim to de-escalate therapy** in light of culture results during the microbiology round.
9. **Length of treatment for VAP is generally 7 days**, although may be 5 days if rapid response or doubtful infection. Severe Pseudomonal VAP may need up to 14 days and combination therapy should be considered.
10. **Renal impairment –** may need dose adjustment. See BNF and Renal Dosing Handbook.
11. **Penicillin Allergy**: see UHD Antimicrobial Prescribing Guidelines and current BNF.
    a) Serious allergy i.e. anaphylaxis Ciprofloxacin 400mg bd iv **PLUS** vancomycin* (**PLUS** metronidazole for intra-abdominal sepsis).
    b) if minor or questionable allergy (e.g. minor rash occurring >72h after antibiotic started) it is acceptable to use ceftriaxone or meropenem. See BNF 5.1.1. (Penicillins).

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Review by: Dec 2015

Title: Empirical Antimicrobial Guideline	
ID: EAG240215v5	**Authors:** IF Laurenson, M Dunn, DG Swann, S Moultrie, K Macsween, C Hannah, C Walker
Category: Infections	**Document Version:** 1
Status Draft/Final: Final	**Review Date:** Dec 2015
Authoriser: QIT, Infection Group	**Date Authorisation:** Dec 2014
Date added to Intranet:	
Key words: Infection, Sepsis, Antibiotic, Antimicrobial	