Appendix 2: Antibiotic dosing guidelines

NB Antibiotic doses in this guideline are appropriate for empirical treatment or sensitive organisms only. For any organism categorised as 'I' (Susceptible – increased exposure), seek further advice or refer to local policy for appropriate dose selection' (see NHS GGC Clinical Guidelines Portal)

PIPERACILLIN/TAZOBACTAM (FORMERLY TAZOCIN®):

Dosing & Scheduling:	• 90 mg/kg (max 4.5g) four times a day (dose banded as per pharmacy chart) • Vial size 2.25g, 4.5g • Give by IV bolus over 3-5 mins* * In cases where isolate is reported as 'I' (increased exposure), prolonged infusion may be required • Renal Impairment: ▪ Dose adjustments required for GFR 50ml/min or less. Refer to Renal Drug Database

GENTAMICIN:

Dosing & Scheduling:	Gentamicin dosing in patients with normal renal function: ▪ Gentamicin 7mg/kg/once daily (max 500mg/dose) ▪ Overweight/obese patients: Dose as per ideal or ideal adjusted body weight (Consult Pharmacy for further advice) ▪ Trisomy 21 patients (***use with caution, discuss before prescribing***): ▪ In patients treated with platinum compounds or high dose Methotrexate regimens, use only when clinically indicated ▪ Give by IV infusion in 50 – 100ml Sodium Chloride 0.9% over 30 minutes ▪ Measure level after 1st dose Trough: Plasma samples at 18-24 hrs post-dose ▪ If trough level is >1mg/L, the dosing interval is normally increased by 12 hours. Please discuss further dosing with pharmacy/microbiology ▪ If trough level >2mg/L, patient is unsuitable for pulsed dosing regimen, and subsequent doses should be guided by levels ▪ If there is no change in dosage regimen or renal function, repeat trough levels every 4 days only Renal Impairment: ▪ Use with caution. Dose reduction required for GFR 70ml/min or less ▪ Initial dose: In AKI, give a single dose of 5mg/kg, await trough before prescribing any further doses In chronic renal failure, give a single dose of 2.5mg/kg. Consult renal/pharmacy for monitoring and further dosing advice.

MEROPENEM:

Dosing & Scheduling:	• 20 mg/kg tds (max 1g/dose). Can increase to 40 mg/kg in severe infections (max 2g/dose). • Give as IV bolus over 5 minutes or infuse over 15-30 minutes (dilute 1g in at least 50 ml Sodium Chloride 0.9% or Glucose 5%) • *Renal Impairment:* Dose adjustments required for GFR 50ml/min or less. Refer to Renal Drug Database.

CIPROFLOXACIN:

Dosing & Scheduling:	• Ciprofloxacin may be used in children where the benefit is considered to outweigh any potential risk. • **NB: Committee on Safety of Medicines (CSM) warning: Quinolone antibiotics may lower seizure threshold & may induce convulsions in patients with or without previous history. There are rare reports of aortic aneurysm/dissection. In patients with known heart valve disease, careful benefit/risk assessment is essential** • Tendon damage is a rare side effect of quinolone antibiotics. This risk is increased by concomitant use of steroids. If tendinitis is suspected, discontinue immediately. • Ciprofloxacin can prolong the QT interval – consider additive effect when used alongside other supportive therapies • Dosing regimen for treatment: ▪ Intravenous: 1month – 18 years 10mg/kg three times a day (maximum dose of 400mg) ▪ Oral: 20mg/kg bd (max 750mg/dose) • Available preparations: ▪ Tablets: 100mg, 250mg, 500mg, 750mg tablets; ▪ Oral Suspension: 250mg/5ml ▪ Premixed solution for IV infusion: 2mg/ml (50ml & 100ml bags available) • Oral absorption is good but do not use with oral Magnesium, Calcium, or Iron supplements as these affect absorption. Nasogastric feeds should be stopped for 2 hours before and after each dose. • Infuse undiluted IV over 30-60 minutes - flush with Sodium Chloride 0.9%. • Renal Impairment: ▪ Dose adjustments required for GFR 30ml/min or less. Refer to Renal Drug Database

VANCOMYCIN:

Dosing & Scheduling:	***Intermittent Infusion – use Paediatric Vancomycin Infusion Chart*** *Loading dose:* *<6mo 15mg/kg, 6mo-18y 20mg/kg* *Maintenance dose:* *0-6mo* *10mg/kg 6hrly* *>6mo-≤12y* *15mg/kg 6hrly* *12-18y* *15mg/kg 8hrly* *Prescribe on inpatient drug administration chart as 'see chart for dosing'. Prescribe all doses as per guidance on Vancomycin chart.* *Trough before 3rd dose, thereafter every 2-3 days* *Infuse over 2-3 hours* ***Continuous Infusion*** *Loading dose as for Intermittent Infusion (if switching from intermittent infusion, give 15mg/kg when next scheduled dose is due)* *Maintenance dose: start at 50mg/kg/24hrs immediately after loading dose* *Prescribe on inpatient drug administration chart as 'see chart for dosing'. Represcribe each day on fluid administration chart according to levels.* *Trough 18-24 hours after starting maintenance infusion* • Target trough: 15-20mg/L • Renal Impairment: ▪ Use with caution. Dose reduction required for GFR 50ml/min or less

TEICOPLANIN:

Dosing & Scheduling:	• Child > 2 months: 10mg/kg every 12 hours for 3 doses then 10mg/kg daily. Child < 2 months: 16mg/kg for 1 dose, then 8mg/kg daily 24 hours after loading dose. • For *empirical* use, no proven organism – Max dose 800mg • For treatment of proven sensitive organism – Max dose 1200mg • Administration: Slow IV bolus or infusion over 30 mins diluted in Sodium Chloride. • Renal impairment: ▪ Dose adjustments required for GFR 80ml/min or less. Refer to Renal Drug Database ▪ No monitoring routinely required unless requested by microbiology

AMBISOME MEROPENEM:

Dosing & Scheduling:	• Dosing regimen: dependent on clinical situation. • 3 mg/kg/day with proven or highly suspicious fungal infection (doses of up to 5 mg/kg/day have been used for proven infections). • Infuse in Glucose 5% ONLY at a concentration of 0.2-2.0 mg/ml. If dose ≥5mg/kg infuse over 2 hours otherwise 1 hour. • Renal impairment: ▪ No dose adjustments regardless of degree of renal impairment. Due to the size of AmBisome liposomes, there is no renal elimination