Amikacin Dosing Guidelines (for patients ≥ 16 years)

Use only on the advice of an Infection Specialist
ALERT second line (protected) antimicrobial

Step 1: Calculate Renal Function

Use: MAXIMUM BODY WEIGHT (MBW) CREATININE CLEARANCE CALCULATOR*
available via Firstport: http://www.medednhsl.com/sites/phcalx/cockcroftgault-mbw.asp

Patient age, actual body weight, height and serum creatinine are required

Step 2: Calculate and Prescribe Dose

- Use patient's MBW CrCl from online calculator and actual body weight to calculate dose from the table below. Doses are capped at 1.5g daily.

MBW CrCl (ml/minute)*	Amikacin dose
20 - 29	5.5mg/kg 24 hourly
30 - 49	6mg/kg 24 hourly
50 - 70	12mg/kg 24 hourly
> 70	15mg/kg 24 hourly

Give daily dose by intravenous infusion over 1 hour in 100ml sodium chloride 0.9% or glucose 5%
Maximum dose of 1.5g/day

- Prescribe dose on Amikacin prescribing, administration and monitoring chart.
- Prescribe on drug cardex/HEPMA 'as per chart'.

Step 3: Monitoring Amikacin Target Concentrations

- Check trough (pre-dose) level and peak (1 hour post-dose) level within first 48 hours and every 2-3 days thereafter.
- Use yellow topped bottle and send **PAIRED** (trough and peak) samples to Biochemistry. Record exact times of doses and samples on request form and sample times on bottles.
- Blood samples are sent to Glasgow for processing. Please send **PAIRED** samples to Biochemistry before 12 noon where possible. If sent before this time, results will be available that evening.
- After 12 noon and at weekends, please phone Biochemistry before sending sample –samples may require to be sent to Glasgow by taxi to ensure prompt processing and results.
- Results only available on NHSGGC Clinical Portal. Access via NHSL Clinical Portal under 'Regional Portals'.

Approved by AMT: Feb 2020 | Approved by ADTC: May 2020 | Review Date: May 2023
Fran Kerr on behalf of AMT with thanks to Greater Glasgow and Clyde

Step 4: Interpreting Amikacin Concentrations

Amikacin target concentrations are dependent on renal function

If MBW CrCl ≥50ml/minutes:

- Trough (pre-dose): <2mg/L
- Peak (1 hour post-dose): >35mg/L

If MBW CrCl <50ml/minutes:

- Trough (pre-dose): <5mg/L
- Peak (1 hour post-dose): 15-30mg/L

- Dose requirements will change if renal function alters –check creatinine and eGFR daily.
- Seek advice from ward pharmacist (or on-call pharmacist if out of hours) if unsure how to interpret results or if making any changes to dosing regimen.
- Monitor daily for any vestibular or auditory dysfunction eg. NEW tinnitus, dizziness, poor balance, hearing loss, oscillating vision, unexplained nausea and/or vomiting.
  - If amikacin continues >3 days supply a patient information leaflet 'Amikacin and your ears'
  - If amikacin anticipated to continue >7days, suggest referral to audiology for assessment

Adjusting dosing based on levels (common scenarios)

Serum Levels	Action
Trough AND peak levels within range	• Continue current regimen • Re-check levels after a further 2-3 days if renal function stable
Trough level HIGH, peak level within range	• If a further dose has already been given, take a further trough level before the next dose is given • Do not give a further dose until the concentration is <2mg/l (or 5mg/l if CrCl <50ml/min) • Maintain current dose but extend dosing interval eg. 48 hourly dosing • Check trough and peak levels before and after next dose
Trough and peak levels HIGH	• Omit further doses until level <2mg/l (or 5mg/l if CrCl <50ml/min) • Reduce dose and/or extend dosing interval eg. 48 hourly dosing • Check trough and peak levels before and after next dose
Trough level within range, peak level LOW	• Increase dose (maximum 1.5g/day) • Check trough and peak levels before and after next dose
Trough level within range, peak level HIGH (where MBW CrCl <50ml/min)	• Reduce dose • Check trough and peak levels before and after next dose

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