UCDMC ADULT AMINOGLYCOSIDE DOSING AND MONITORING GUIDELINES

DOSING

Cockroft-Gault equation: CrCl (mL/min) = [(140 – Age) x weight†/(72 x Scr)] x (0.85 if female)
†If total body weight (TBW) > 30% of ideal body weight (IBW), use adjusted body weight (ABW)
If TBW < IBW, use TBW

ABW = IBW + 0.4 x (TBW – IBW)

IBW: Males = 50 kg + 2.3 kg for every inch > 60 inches
Females = 45 kg + 2.3 kg for every inch > 60 inches

1. Extended-Interval or Once-Daily Dosing

Preferred dosing strategy for patients requiring gram-negative antimicrobial activity unless patient falls into one of the exceptions categories

Renal Function	Gentamicin/Tobramycin	Amikacin
CrCl ≥ 90 mL/min	7 mg/kg IV q24hr	20 mg/kg IV q24hr
CrCl 50 – 89 mL/min	5 mg/kg IV q24hr	15 mg/kg IV q24hr
CrCl 25 – 49 mL/min	2.5 mg/kg IV q24hr	7.5 mg/kg IV q24hr
CrCl < 25 mL/min or hemodialysis patient	Contact clinical pharmacist	Contact clinical pharmacist

1.1. Exceptions: The dosing recommendations above should not be applied in: endocarditis, pregnancy, myasthenia gravis, mycobacterium infections such as tuberculosis, and burn patients.

1.2. When to draw levels for patients on once-daily dosing

Draw a single 8-hr random level after the 2nd or 3rd dose. A nomogram (see page 4 and 5) is available for interpretation of levels drawn at other times during the dosing intervals (6 to 14 hours post-dose).
Desired 8-hr post-dose serum level:

5 – 7 mg/kg IV q24hr	Gentamicin/tobramycin	2 – 5 mg/L
	Amikacin	5 – 15 mg/L
2.5 mg/kg IV q24hr	Gentamicin/tobramycin	2.5 – 5 mg/L
	Amikacin	7 – 15 mg/L

2. Synergy dose for gram-positive infections:

	Gentamicin/Tobramcyin
CrCl >90 ml/min	1mg/kg IV q8h or 1.5mg/kg IV q12h
CrCl 50 – 90 mL/min	60 – 90 % of normal dose IV q8-12hr
CrCl 10 – 49 mL/min	30 – 70% of normal dose IV q12hr
CrCl < 10 mL/min	Contact clinical pharmacist

Desired trough concentration: 0.5-2mg/L.

Do not use the attached normogram for multiple daily dosing.

3. Renal impairment:

Patients who are in renal failure, receiving dialysis, or have unstable renal function or acute kidney injury should initially be dosed with one time doses of aminoglycosides, and therapeutic drug monitoring needs to be utilized to guide further dose administrations.

4. Monitoring

Drug levels are indicated in patients who:

1. Will receive ≥ 5 days of therapy and one of the following:
    a. Have significant risk of treatment failure (meningitis, septic shock, massive fluid overload, burns)
    b. Have significant risk of toxicity (age > 50 years, concomitant nephrotoxins such as vancomycin or amphotericin B, liver failure, malnutrition)
    c. Unstable renal function, acute kidney injury, chronic kidney disease, or renal impairment (CrCl < 50 mL/min)

OR

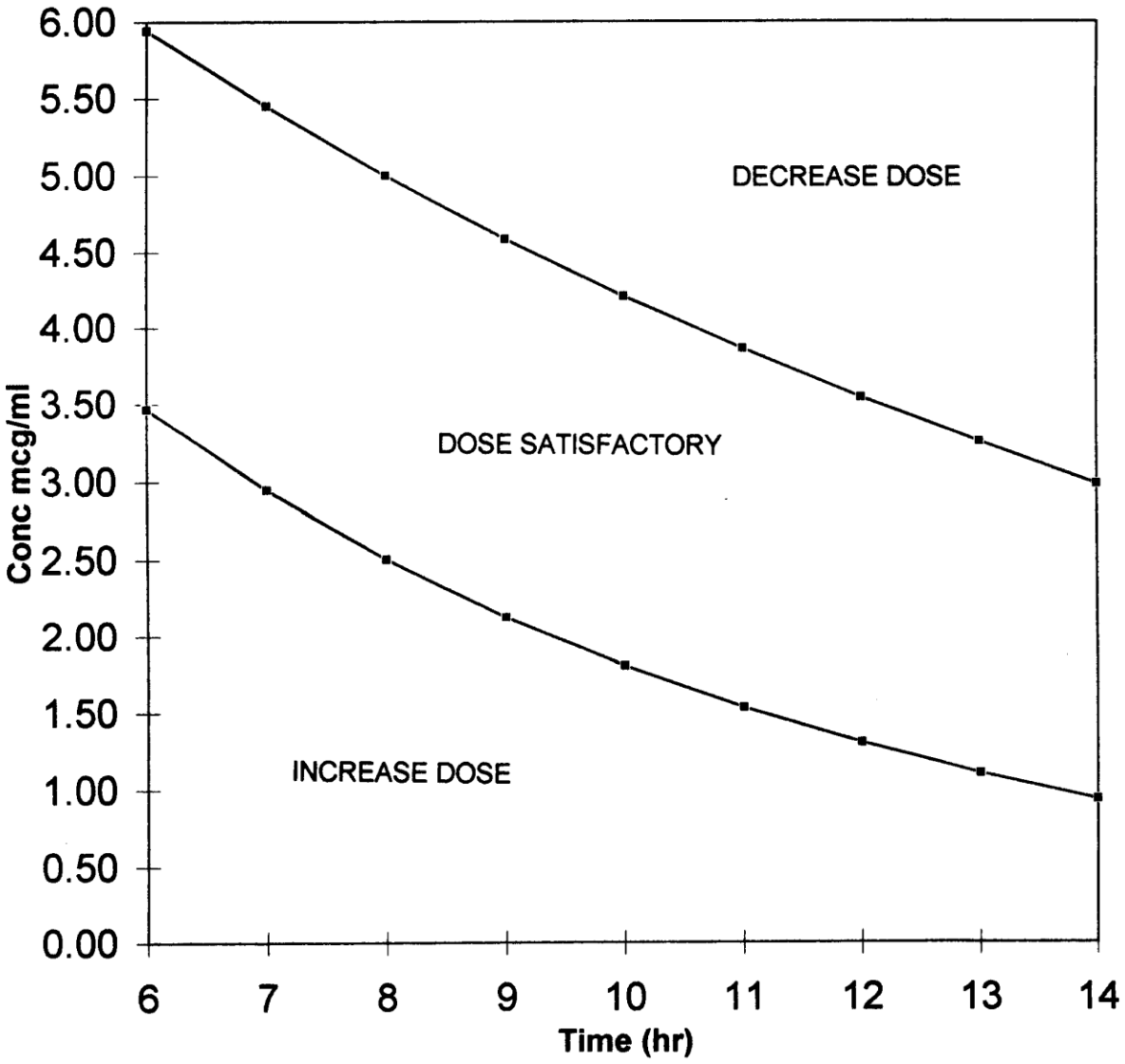
2. Will receive long-term therapy (> 7 days) Repeat levels at least every week.

Ordering of drug levels can be delayed in patients who:

- Are being treated empirically and culture results may lead to discontinuation of the drug
- Have previously obtained levels which can be used for accurate dosing calculations (assuming renal function has remained stable)
- Are being treated for a UTI at a reduced dosage

For any additional dosing/monitoring assistance, please contact the ID pharmacist

Aminoglycoside Dosing Nomogram - 2.5 mg/kg



Aminoglycoside Dosing Nomogram: 5-7 mg/kg