

**Kanamycin (Km)****DRUG CLASS: AMINOGLYCOSIDE**

<b>Activity against TB, mechanism of action, and metabolism</b>	<b>Bactericidal;</b> has strong anti-TB activity. Cross-resistance with amikacin and some data suggesting cross-resistance with capreomycin; inhibits protein synthesis.
<b>Dose</b>	<p><b>Adults:</b> 15 mg/kg/day in a single daily dose, 5–7 days per week (maximum dose is generally 1 gram, but a large, well-built person could receive more and should have concentrations monitored).</p> <p><b>&gt;59 years of age:</b> 10 mg/kg/dose (max 750 mg) 5–7 times per week or 2–3 times per week after initial period. Alternatively, 15 mg/kg/dose, 3 times per week.</p> <p><b>Children:</b> 15–30 mg/kg/day (max 1 gram) 5–7 days per week.</p> <p><b>Renal failure/dialysis:</b> 12–15 mg/kg/dose, 3 times weekly.</p> <p><b>Markedly obese individuals</b> should have an adjusted dose due to the decreased distribution of extracellular fluids in adipose tissues. Dosing based on actual weight will give suprathereapeutic concentrations.</p> <p><b>For dosing, use adjusted weight as follows:</b> Ideal body weight + 40% of excess weight  Ideal body weight (men): 50 kg plus 2.3 kg/inch over 5 ft  Ideal body weight (women): 45 kg plus 2.3 kg/inch over 5 ft  <i>If possible, concentrations should be followed closely.</i></p>
<b>Route of administration</b>	IV or IM; not absorbed orally.
<b>Preparation</b>	250 mg/ml in vials of 500 mg or 1 gram; 1 gram in 3 ml vial; or 75 mg/vial for infants. Can be mixed with D5W or normal saline for intravenous infusion. Adult IV doses should be mixed in at least 100 ml of fluid, and paediatric IV doses should be mixed to a concentration of at least 5 mg/ml. For intravenous administration, infuse over 60 minutes for adults; 1–2 hours for children.
<b>Storage</b>	Store in the refrigerator.
<b>Oral absorption</b>	Not absorbed orally; 40–80% of the dose is absorbed intramuscularly.
<b>CSF penetration</b>	Minimal and variable CSF penetration – slightly better with inflamed meninges.

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<b>Special circumstances</b>	<p><b>Use in pregnancy/breastfeeding:</b> Generally avoided in pregnancy due to documented congenital deafness. Can be used while breastfeeding.</p> <p><b>Use in renal disease:</b> Use with caution. Concentrations should be monitored for patients with impaired renal function. Interval adjustment is recommended for renal impairment or dialysis. See section above for dosage under renal disease or dialysis. The drug is variably cleared by haemodialysis.</p> <p><b>Use in hepatic disease:</b> Drug concentrations are not affected by hepatic disease (except a larger volume of distribution for alcoholic cirrhotic patients with ascites). Presumed to be safe in severe liver disease; however, use with caution because patients with severe liver disease may progress rapidly to hepatorenal syndrome.</p> <p><b>Diuretic use:</b> Coadministration of loop diuretics and aminoglycoside antibiotics carries an increased risk of ototoxicity.</p>
<b>Adverse reactions</b>	<p>Nephrotoxicity: Appears to be more nephrotoxic than streptomycin.</p> <p>Ototoxicity (hearing loss) and vestibular toxicity: Increases with advanced age and prolonged use; appears to occur slightly more commonly with kanamycin than with streptomycin and about the same frequency as amikacin. Kanamycin seems to have slightly less vestibular toxicity.</p>
<b>Contraindications</b>	<p><b>Pregnancy</b> (congenital deafness seen with streptomycin and kanamycin use in pregnancy); <b>hypersensitivity to aminoglycosides</b>; caution with renal, vestibular or auditory impairment; patients with intestinal obstructions.</p>
<b>Monitoring</b>	<p>Monitor renal function by documenting creatinine at least monthly (more frequently if renal or hepatic impairment is present); document creatinine clearance if there is baseline renal impairment or any other concern; document baseline and monthly audiology exam. Question patient regularly about vestibular complaints and perform serial vestibular exams. Document peak and trough concentrations at baseline if there is any question about renal function. Some experts monitor aminoglycoside concentrations routinely, regardless of renal function. Monitor concentrations serially for patients with impaired renal function.</p>
<b>Alerting Symptoms</b>	<p>Instruct patients to inform their health care provider right away if any of the following occurs:</p> <ul style="list-style-type: none"><li>• Problems with hearing, dizziness or balance</li><li>• Rash or swelling of your face</li><li>• Trouble breathing</li><li>• Decreased urination</li><li>• Watery or bloody diarrhoea</li><li>• Swelling, pain, or redness at your IV site</li><li>• Muscle twitching or weakness.</li></ul>

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