



NEONATAL

**DIGOXIN**

This document should be read in conjunction with this [DISCLAIMER](#)

**Highly Restricted:** Requires Cardiologist approval before commencing




 **HIGH RISK Medication**

<b>Presentation</b>	Ampoule: 50microg/2mL (Lanoxin Infant®) Paediatric Elixir: 50microg/mL
<b>Classification</b>	Cardiac Glycoside
<b>Indication</b>	Congestive heart failure, atrial fibrillation, supraventricular tachycardia <ul style="list-style-type: none"> <li>• Increases myocardial contractility and cardiac output</li> <li>• Slows AV conduction</li> <li>•</li> </ul>
<b>Contraindications</b>	<ul style="list-style-type: none"> <li>• Ventricular fibrillation</li> <li>• Second or third degree heart block (without pacemaker)</li> <li>• Hypertrophic obstruction</li> <li>• cardiomyopathy</li> <li>• Cor pulmonale</li> <li>• Constrictive pericarditis</li> </ul>
<b>Precautions</b>	<ul style="list-style-type: none"> <li>• SVT involving accessory pathway (Wolff- Parkinson- White syndrome)</li> <li>• Hyperthyroidism</li> <li>• Hypothyroidism</li> <li>• Electrolyte imbalance</li> <li>• Acidosis</li> <li>• Hypoxia</li> <li>• Direct Current cardioversion</li> </ul>

<b>Dose</b>	<p><b><u>All Indications</u></b></p> <p><b>Oral/IV:</b></p> <p><b>Loading dose: Dose Divided into 3 administrations</b></p> <p><b>Loading dose should ONLY be used under the direction of the cardiologist.</b></p> <table border="1" data-bbox="480 456 1461 667"> <thead> <tr> <th>Corrected Gestational Age</th> <th>Dose</th> </tr> </thead> <tbody> <tr> <td>&lt;34 weeks</td> <td>15-25 microgram/kg</td> </tr> <tr> <td>≥34 weeks</td> <td>30-40 microgram/kg</td> </tr> </tbody> </table> <p>Give ½ total loading dose initially, then ¼ total loading dose in 8 hours and last ¼ loading dose in 8 hours.</p> <p><b>Maintenance dose:</b></p> <p>4-5microg/kg/dose every 12 hours</p> <p><i>Note: Oral bioavailability is 80% of intravenous. Use lower dose in range for intravenous use.</i></p>	Corrected Gestational Age	Dose	<34 weeks	15-25 microgram/kg	≥34 weeks	30-40 microgram/kg
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<b>Dose Adjustment</b>	<p>Adjust dose based on clinical response.</p> <p>Reduce dose in renal impairment.</p>						
<b>Compatible Fluids</b>	<p>Glucose 5%. Glucose 10%, Sodium Chloride 0.9%</p>						
<b>Preparation</b>	<p><b><u>IV:</u></b></p> <p>Use undiluted if possible</p> <p>If dilution required, contents of ampoule must be diluted at least fourfold.</p> <p><b><i>Dilution:</i></b></p> <p>Add 2mL(50 microgram) of digoxin to 8mL of diluent to make final volume of 10mL Concentration = 50microgram/10mL = <u>5microgram/mL</u></p> <p><b><u>Oral:</u></b></p> <p>Use undiluted</p>						

<b>Administration</b>	<p><b><u>IV</u></b> Inject over 5 to 10 minutes. Do <b><u>NOT</u></b> flush the syringe after administration to avoid inadvertent overdose</p> <p><b><u>Oral</u></b> Give at the same time each day and consistently with regards to feeds</p>
<b>Adverse Reactions</b>	<p>Feeding intolerance , vomiting, diarrhoea, bradycardia, dysrhythmias</p> <p><b><u>Note:</u></b> <i>Factors influencing toxicity:</i> hypoxia, acid-base imbalance, hypocalcaemia, hypokalaemia, hypomagnesaemia</p>
<b>Monitoring</b>	<p>Digoxin has narrow therapeutic range. Serum digoxin concentration is not an absolute indicator of absence/presence of toxicity. Interpret values in conjunction with clinical signs and symptom</p> <p><b><i>Sampling time:</i></b> at least 6 hours post dose</p> <p><b><u>Therapeutic range:</u></b> <b>Heart failure:</b> 0.5- 0.8 micrograms/L <b>Atrial fibrillation:</b> use lowest dose that treats symptoms rather than aiming for specific digoxin concentration</p> <p><b><u>Toxic level:</u></b> &gt;2micrograms/L</p> <p><b><i>Time to steady state:</i></b> 1 week</p> <ul style="list-style-type: none"> <li>• Monitor serum electrolytes and renal function</li> <li>• Continuous cardiac monitoring is recommended</li> </ul>
<b>Storage</b>	<p>Ampoule: Store below 25°C, protect from light Infusion solution: Stable for up to 6 hours at 25°C</p>
<b>Interactions</b>	<p>Digoxin interacts with a number of medications – contact Pharmacy for further information.</p> <p>Medications that affect renal function (e.g. captopril, indomethacin) may increase digoxin exposure.</p>

<b>Notes</b>	Continuous cardiac monitoring is recommended
<b>References</b>	<p>Society of Hospital Pharmacists of Australia. Digoxin. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2017 [cited 2019 Jun]. Available from: <a href="http://aidh.hcn.com.au">http://aidh.hcn.com.au</a></p> <p>Clinical Pharmacology. Tampa, FL: Gold Standard, Inc. 2015 [ cited. Available from: <a href="http://www.clinicalpharmacology-ip.com/help/faq/citing_clinical_pharmacology.htm">http://www.clinicalpharmacology-ip.com/help/faq/citing_clinical_pharmacology.htm</a>]</p> <p>Moffett BS, Garner A, Zapata T, Orcutt J, Niu M, Lopez KN. Serum digoxin concentrations and clinical signs and symptoms of digoxin toxicity in the paediatric population. <i>Cardiology in the Young</i>. 2016; 26:493-8.</p> <p>Pharmaceutical Society of Australia. Australian Pharmaceutical Formulary and Handbook: The Everyday Guide to Pharmacy Practice. 22<sup>nd</sup> ed. Deakin West, ACT: Pharmaceutical Society of Australia; 2012 p.viii, 664p.</p> <p>Lilley L, Legge D. Paediatric injectable guidelines. 5th ed. Melbourne (Victoria): The Royal Children's Hospital; 2016. 90</p> <p>Truven Health Analytics. Digoxin. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2019 [cited 2019 Aug 04]. Available from: <a href="https://neofax.micromedexsolutions.com/">https://neofax.micromedexsolutions.com/</a></p> <p>Lexicomp. Digoxin drug information. In: UpToDate [Internet]. Alphen aan den Rijn (Netherlands): Wolters Kluwer; 2017 [cited 2017 Ju 08]. Available from: <a href="https://www.uptodate.com/">https://www.uptodate.com/</a>.</p>

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