



NEONATAL

# ALPROSTADIL (Prostaglandin E1)

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

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



 **HIGH RISK Medication**

**Alert** 1 microgram = 1000 nanograms

<b>Presentation</b>	Ampoule: 500 microgram/mL (Refrigerated)
<b>Classification</b>	Prostaglandin
<b>Indication</b>	To maintain patency of ductus arteriosus in neonates with congenital heart defects dependent on ductal shunting for oxygenation and perfusion until corrective surgery can be performed.  (Cyanotic heart disease, duct dependant lesions)
<b>Dose</b>	<b>Starting Dose:</b> 10 to 50 nanograms/kg/minute <ul style="list-style-type: none"> <li>If effective within 30 minutes, contact cardiologist for review of dose</li> </ul> <b>Maintenance Dose:</b> 2.5 to 10 nanograms/kg/minute <ul style="list-style-type: none"> <li>Aim for the lowest dose that maintains ductal patency</li> </ul>
<b>Monitoring</b>	Neonates receiving alprostadil for more than 120 hours, or maintained on high doses, should be closely monitored for evidence of antral hyperplasia, gastric outlet obstruction and cortical hyperostosis (e.g. widening fontanelles)  Aim for improving oxygen saturation, palpable femoral pulses and resolving acidosis.
<b>Dose Adjustment</b>	Aim for the lowest dose that maintains ductal patency. Apnoea may be less likely to occur at doses < 0.015microg/kg/min.
<b>Guidelines Resources</b> &	<a href="#">Congenital Diaphragmatic Hernia (CDH)</a> <a href="#">Transposition of the Great Arteries (TGA)</a> <a href="#">Coarctation of the Aorta (COA) &amp; Interrupted Aortic Arch (IAA)</a> <a href="#">NETS Persistent Pulmonary Hypertension of the Newborn (PPHM)</a>

<b>Compatible Fluids</b>	<p>Glucose 5% , Sodium Chloride 0.9%</p> <p><b><u>Alprostadil is not stable with Heparin</u></b></p>
<b>Preparation</b>	<p>Available from CIVAS (KEMH &amp; PCH)</p> <p><b><u>LOW CONCENTRATION: 10 nanograms/kg/minute</u></b></p> <p><b><i>First Dilution</i></b>  Draw up 1mL (500 microgram) of alprostadil and make up to 10mL with compatible fluid.</p> <p><b><i>Second Dilution</i></b>  From the 1<sup>st</sup> solution, withdraw 0.6 mL/kg body weight (30 microgram/kg) and dilute to 50mL with compatible fluid.  Final volume is 50mL.</p> <p>This will give the following infusion rate:  <u>1 mL/hour = 10 nanograms/kg/minute</u></p> <p><b><u>HIGH CONCENTRATION: 50 nanograms/kg/minute</u></b></p> <p><b><i>First Dilution</i></b>  Draw up 1mL (500 microgram) of alprostadil and make up to 10mL with compatible fluid.</p> <p><b><i>Second Dilution</i></b>  From the 1<sup>st</sup> solution, withdraw 3mL/kg body weight (150 microgram/kg) and dilute to 50mL with compatible fluid.  Final volume is 50mL.</p> <p>This will give the following infusion rate:  <u>1mL/hour = 50 nanograms/ kg/ minute</u></p> <p>The infusion solution may be further diluted if required.</p>
<b>Administration</b>	<p><b>IV Infusion:</b> Continuous Infusion.</p> <p>If volume infused is less than 0.5mL/hr, then it must be run in conjunction with glucose 5% or sodium chloride 0.9% infusion.</p>
<b>Adverse Reactions</b>	<p><b>Common:</b> Flushing, bradycardia, hypotension, fever, leucocytosis, hypoglycaemia, apnoea</p> <p><b>Serious :</b>Haemorrhage, Prolonged use, high doses - gastric outlet obstruction.</p>
<b>Storage</b>	<p><b>Ampoule:</b> Store at 2 to 8 °C. Do not freeze.</p> <p><b>Infusion solution:</b> Stable for 24 hours at 25 °C.</p>
<b>Interactions</b>	<p>Alprostadil is not stable with Heparin</p>

<b>Notes</b>	If undiluted alprostadil comes into direct contact with plastic, the solution may turn hazy and must be discarded. When preparing the infusion, draw up the diluent first to minimise contact of undiluted alprostadil with plastic.
<b>References</b>	<p>Truven Health Analytics. Alprostadil. In: NeoFax [Internet]. Greenwood Village (CO): Truven Health Analytics; 2018 [cited 2019 Sep 06]. Available from: <a href="https://neofax.micromedexsolutions.com/">https://neofax.micromedexsolutions.com/</a></p> <p>Takemoto CK, Hodding JH, Kraus DM. Pediatric &amp; neonatal dosage handbook with international trade names index : a universal resource for clinicians treating pediatric and neonatal patients. 24th ed. Hudson (Ohio): Lexicomp; 2401. 2, 95.</p> <p>Society of Hospital Pharmacists of Australia. Alprostadil. In: Australian Injectable Drugs Handbook [Internet]. [St Leonards, New South Wales]: Health Communication Network; 2019 [cited 2019 Sep 06]. Available from: <a href="http://aidh.hcn.com.au">http://aidh.hcn.com.au</a></p> <p>Neomed Formularies. Alprostadil. In: The Royal Hospital for Women [Internet]. [South Eastern Sydney, New South Wales; 2019 [cited 2019 Sep 06]. Available from: <a href="https://www.seslhd.health.nsw.gov.au/royal-hospital-for-women/neomed-formularies">https://www.seslhd.health.nsw.gov.au/royal-hospital-for-women/neomed-formularies</a></p> <p>American Society of Health-System Pharmacists. Alprostadil. In: AHSF Drug Information [Internet]. [Bethesda, Maryland]; 2019 [cited 2019 Sep 06]. Available from: <a href="http://online.statref.com.kelibresources.health.wa.gov.au/titles?FxId=141">http://online.statref.com.kelibresources.health.wa.gov.au/titles?FxId=141</a></p> <p>King Guide Publications, Inc. Alprostadil. In: King Guide to Parenteral Admixtures [Internet]. Napa, CA; 2019 [cited 2019 Sep 06]. Available from: <a href="http://www.kingguide.com.kelibresources.health.wa.gov.au">http://www.kingguide.com.kelibresources.health.wa.gov.au</a></p>

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