### 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

<table>
<thead>
<tr>
<th>Presentation</th>
<th>Ampoule: 500 microgram/mL (Refrigerated)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Classification</td>
<td>Prostaglandin</td>
</tr>
<tr>
<td>Indication</td>
<td>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)</td>
</tr>
</tbody>
</table>
| Dose | **Starting Dose:**  
10 to 50 nanograms/kg/minute  
- If effective within 30 minutes, contact cardiologist for review of dose  
**Maintenance Dose:**  
2.5 to 10 nanograms/kg/minute  
- Aim for the lowest dose that maintains ductal patency |
| Monitoring | 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. |
| Dose Adjustment | Aim for the lowest dose that maintains ductal patency. Apnoea may be less likely to occur at doses < 0.015microg/kg/min. |
| Guidelines & Resources | **Congenital Diaphragmatic Hernia (CDH)**  
**Transposition of the Great Arteries (TGA)**  
**Coarctation of the Aorta (COA) & Interrupted Aortic Arch (IAA)**  
**NETS Persistent Pulmonary Hypertension of the Newborn (PPHM)** |
<table>
<thead>
<tr>
<th>Compatible Fluids</th>
<th>Glucose 5%, Sodium Chloride 0.9%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Alprostadil is not stable with Heparin</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Preparation</strong></td>
<td>Available from CIVAS (KEMH &amp; PCH)</td>
</tr>
<tr>
<td><strong>LOW CONCENTRATION: 10 nanograms/kg/minute</strong></td>
<td></td>
</tr>
<tr>
<td><strong>First Dilution</strong></td>
<td>Draw up 1mL (500 microgram) of alprostadil and make up to 10mL with compatible fluid.</td>
</tr>
<tr>
<td><strong>Second Dilution</strong></td>
<td>From the 1st solution, withdraw 0.6 mL/kg body weight (30 microgram/kg) and dilute to 50mL with compatible fluid. Final volume is 50mL. This will give the following infusion rate: 1 mL/hour = 10 nanograms/kg/minute</td>
</tr>
<tr>
<td><strong>HIGH CONCENTRATION: 50 nanograms/kg/minute</strong></td>
<td></td>
</tr>
<tr>
<td><strong>First Dilution</strong></td>
<td>Draw up 1mL (500 microgram) of alprostadil and make up to 10mL with compatible fluid.</td>
</tr>
<tr>
<td><strong>Second Dilution</strong></td>
<td>From the 1st solution, withdraw 3mL/kg body weight (150 microgram/kg) and dilute to 50mL with compatible fluid. Final volume is 50mL. This will give the following infusion rate: 1mL/hour = 50 nanograms/kg/minute</td>
</tr>
</tbody>
</table>

**Administration**

**IV Infusion**: Continuous Infusion. 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.

**Adverse Reactions**

**Common**: Flushing, bradycardia, hypotension, fever, leucocytosis, hypoglycaemia, apnoea

**Serious**: Haemorrhage, Prolonged use, high doses - gastric outlet obstruction.

**Storage**

**Ampoule**: Store at 2 to 8 °C. Do not freeze.

**Infusion solution**: Stable for 24 hours at 25 °C.

**Interactions**

Alprostadil is not stable with Heparin
### Notes

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.

### References


---

**Document owner:** Head of Department - Neonatology

**Author / Reviewer:** KEMH & PCH Pharmacy / Neonatology Directorate

<table>
<thead>
<tr>
<th>Date first issued:</th>
<th>1989</th>
<th>Version:</th>
<th>3.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last reviewed:</td>
<td>Sep 2019</td>
<td>Next review date:</td>
<td>June 2022</td>
</tr>
<tr>
<td>Endorsed by:</td>
<td>Neonatal Directorate Management Group</td>
<td>Date:</td>
<td>Sep 2019</td>
</tr>
</tbody>
</table>

**Standards Applicable:**

1 Clinical Care is Guided by Current Best Practice, 4 Medication Safety;

**Printed or personally saved electronic copies of this document are considered uncontrolled.**

**Access the current version from the WNHS website.**

© Department of Health Western Australia 2019