ALPROSTADIL (Prostaglandin E1) Drug must be guardrailed

Trade Name	Prostin VR (Pfizer)
Class	Prostaglandin.
Mechanism of Action	Direct vasodilation effect on all vascular smooth muscle – used for ductal effect
Indications	Temporary management of ductus arteriosus patency in duct-dependent congenital heart disease. (Transposition of the great arteries, all right sided congenital heart defects associated with reduced pulmonary perfusion, left sided defects including hypoplastic left heart, coarctation of aorta and interrupted aortic arch.)
Precautions	Use with caution in: Respiratory distress (can cause apnoeas) Obstructed TAPVD (total anomalous venous drainage) Infants with bleeding tendency (PGE1 inhibits platelets) Seizure disorders
Supplied As	500 microgram/mL 1mL ampoules
Dilution	**See Alprostadil Infusion sheet** Take 60 microgram/kg and make up to 50mL with 0.9% saline / 5% dextrose. **0.5mL/hr = 10 nanogram/kg/min** The final concentration of the infusion will vary depending on the weight of the baby but in most occasions the **concentration will be 3 – 6 microgram/mL** In rare situations, when a large dose is required and the volume infused needs to be restricted, the strength can be made up to a maximum of **20 microgram/mL**. This needs to be discussed with the Pharmacist as the solution is hyperosmolar.
Dosage ***Must chart guardrail and use Alaris pump***	**Maintenance:** 10 – 100 nanogram/kg/min (0.01-0.1 microgram/kg/min) Start at **10 nanogram/kg/min** and increase by 10 nanogram/kg/min increments every 30 minutes. Side effects are dose dependent.
Guardrails **ALARIS PUMP**	Conc: Min – 0.36 microgram/mL Max – 20 microgram/mL Soft Min: 5 nanogram/kg/min Hard Max: 100 nanogram/kg/min Soft Max: 50 nanogram/kg/min Default: 10 nanogram/kg/min
Guardrails **TRANSPORT PUMP**	Conc: Min – 0.36 microgram/mL Max – 20 microgram/mL Soft Min: 0.005 microgram/kg/min Hard Max: 0.1 microgram/kg/min Soft Max: 0.05 microgram/kg/min Default: 0.01 microgram/kg/min
Interval	Continuous infusion

Administration	IV infusion via syringe pump. Need separate IV access from maintenance fluids
Compatible With	**Solution:** 0.9% sodium chloride, 5% dextrose. **Terminal Y-site:** adrenaline, amino acid solutions, atropine, benzylpenicillin, caffeine citrate, calcium gluconate, cefazolin, cefotaxime, chlorothiazide, digoxin, dobutamine, dopamine, fentanyl, flecainide, furosemide, gentamicin, glycopyrrolate, heparin, insulin, ketamine, methylprednisolone, midazolam, milrinone*, morphine, pancuronium, potassium chloride, ranitidine, sildenafil, tobramycin, vancomycin, vecuronium *milrinone only compatible at conc 0.5 mg/mL in 5% glucose
Incompatible With	Inconclusive data available on compatibility with, 10% dextrose, SMOFlipid, noradrenaline, recommend to avoid infusing in same line as alprostadil
Monitoring	Full cardiorespiratory monitoring required: Improved oxygenation and PaO_2 suggests duct has reopened and infusion rate may need to be decreased. BP, Temperature. IV access supervision.
Stability	Discard opened vial immediately after use0 Use a new vial for each dose. Continuous infusions need to be changed after 24 hours
Storage	Below 8°C (but do not freeze). Discard any unused portion of the ampoule immediately after use.
Adverse Reactions	Apnoea, fever, bradycardia, flushing, seizures, hypotension, tachycardia, diarrhoea, bronchospasm, hypocalcemia. Less commonly: hyperkalemia, anemia, hypoglycemia, irritability/jitteriness, oedema, cardiac arrest, DIC, gastric outlet obstruction by stimulation of GIT smooth muscle (especially if PGE1 is infused for >120 hours). Tissue extravasation may cause necrosis- central venous access recommended. Cortical peri-osteal reaction after prolonged (days) treatment (resolves 6-12 months after stopping treatment).
Metabolism	Local: most tissues.
Comments	Max drug effect usually seen in 30mins if cyanotic lesion; duration of effect short, so secure or reserve IV access vital, especially prior to transport. Most effective if given in first 4 days after birth.

References	1. Young T.E. et al. Neofax 2000; 108-9. 2. Neonatal Pharmacopoeia (1st edition 1998), RWH, Melb. 3. Taketomo C. Paediatric Dosage Handbook 6th Edition. 4. www.medsafe.govt.nz 5. www.adhb.govt.nz/newborn/DrugProtocols/ 6. www.micromedexsolutions.com 7. www.anmfonline.org
Updated By	Jan Klimek Nov 2000.P Schmidt, B Robertshawe Aug 2005. A Lynn, B Robertshawe April 2009, July 2009, Sept. 2009 A Lynn, B Robertshawe Nov 2012 (re-order profile, discard vial) Tx guardrail A Lynn, B Robertshawe Jan 2022 (update compatibility section, rename as alprostadil) A Lynn, B Robertshawe Jan 2025 (routine review, update compatibility)