AMIODARONE This drug must be guardrailed

Trade Name	**IV:** Amiodarone hydrochloride (Hameln) **Oral**: Amiodarone Liquid (prepared by pharmacy)
Class	Antiarrhythmic Agent Class III
Mechanism of Action	Amiodarone inhibits adrenergic stimulation of the myocardium, prolonging the action potential and refractory period. AV node conduction and sinus node function are also decreased.
Indications	Management of life threatening resistant arrhythmias – ventricular and supraventricular
Contraindications	Sinus node dysfunction/block; 2nd or 3rd degree A/V block; cardiogenic shock; severe hypotension, severe respiratory failure. Clearance of amiodarone is reduced in patients with impaired cardiac or hepatic function. Hypersensitivity to amiodarone. Precautions with hepatic, respiratory, thyroid disorders, electrolyte imbalance, hypotension, LV dysfunction, bradycardia, heart failure.
Supplied As	**IV**: 50 mg/mL (150 mg/3 mL ampoule) **Oral:** 10 mg/mL
Dilution	<table><tr><th>Drug</th><th>5% Dextrose Added</th><th>Final Volume</th><th>Concentration</th></tr><tr><td>1mL (50mg)</td><td>24mL</td><td>25mL</td><td>2 mg/mL</td></tr></table> **Dextrose 5% is the only compatible diluent** See infusion sheet for charting and dosing rates Concentrations >2 mg/mL need central access Concentrations < 0.6 mg/mL are unstable and should not be used.
Dosage ***Must chart guardrail and use Alaris pump***	**IV:** Infuse 25 microgram/kg/min for 4 hours (gives a load of 6mg/kg) then 5-15 microgram/kg/min titrate to response (max 1.2g/24hr) **Oral:** 4mg/kg/dose 8 hourly for 1 week, then 4mg/kg/dose 12 hourly for 1 week, then, 4mg/kg/dose daily Consult cardiology for oral dose frequency when converting from iv to oral dosing
Guardrails	Concentration: 2mg/mL Soft Min: 5 microgram/kg/min Hard Max: 30 microgram/kg/min Soft Max: 25 microgram/kg/min Default: 10 microgram/kg/min
Interval	**IV:** Continuous infusion. **Oral:** Initially 12 hourly and then 24 hourly
Administration	**IV:** Give via a central line to reduce risk of thrombophlebitis **Oral:** Give with food

Compatible With	**Solution:** 5% Dextrose (this is the only compatible fluid) **Y-site :** Adrenaline, alprostadil, amikacin, amphotericin (liposomal), atropine, benzylpenicillin, calcium chloride, calcium gluconate*, ciprofloxacin, cefuroxime*, dexmedetomidine, dopamine, dobutamine*, ephedrine, erythromycin, fluconazole, gentamicin, insulin*, lidocaine, metronidazole, midazolam, milrinone, morphine, naloxone, noradrenaline*, ondansetron, pancuronium, phenylephrine, potassium chloride*,smof lipid, tobramycin, TPN*, vancomycin, vasopressin, zidovudine. * Variable compatibility results with calcium gluconate, cefuroxime, dobutamine, insulin, noradrenaline, potassium chloride and TPN solutions, use a separate line if possible
Incompatible With	Do not mix with sodium chloride 0.9%, acyclovir, aminophylline, amoxicillin+clavulanate, azithromycin, calcium gluconate, cefazolin, cefotaxime, ceftazidime, dexamethasone, digoxin, flucloxacillin, furosemide, ganciclovir, heparin, hydrocortisone sodium succinate, imipenem+cilastin, meropenem, phenobarbital, phenytoin, piperacillin+tazobactam, potassium phosphates, ranitidine, sodium bicarbonate, sodium phosphates, sulfamethoxazole+trimethoprim
Interactions	Take care when administering with other medicines known to prolong QT interval eg: other antiarrhythmics, sotalol, erythromycin, sildenafil, domperidone, fluconazole, ciprofloxacin. Digoxin dose will need to be halved if given concurrently with amiodarone - amiodarone prevents elimination of digoxin. Flecainide will need a dose reduction of up to 50%. Clarithromycin, Erythromycin, Fluconazole and Phenytoin levels may increase and amiodarone levels may decrease when these agents are used concurrently. Amiodarone use may increase or decrease cyclosporin levels, with increased risk of nephrotoxicity. Increased monitoring is required. Diuretics, corticosteroids, amphotericin – risk of hypokalaemia, increasing the risk of torsades de pointes. Beta blockers and Ca channel blockers – increased risk of bradycardia, hypotension, AV block, myocardial depression Midazolam – amiodarone increases exposure.
Monitoring	Continuous ECG and BP, cardiorespiratory monitoring while on IV amiodarone Liver function tests including AST and ALT, thyroid function tests INR and electrolytes specifically Mg and K
Stability	**IV:** Amiodarone solutions are stable in 5% dextrose for up to 24 hours only if stored in glass or rigid PVC and polypropylene containers. We do not have these so IV amiodarone solutions should be discarded immediately after use and **prolonged infusions should be avoided if possible (ie: >4-6 hours)** **Oral:** 7 day expiry, shake well before use.

Storage	**IV:** Below 25ºC ; Do not refrigerate; Protect from light **Oral:** Store in the fridge (2 – 8 ºC)
Adverse Reactions	Bradycardia, hypotension, (possibly associated with rapid infusion rates), polymorphic ventricular tachycardia. Thrombophlebitis with prolonged IV use Skin discolouration (slate blue), photosensitivity, rash, Hypothyroidism, hyperthyroidism, hyperglycaemia, Hepatic toxicity, coagulation abnormalities Nausea, vomiting, constipation Optic neuritis, pulmonary fibrosis Contains benzyl alcohol –potential risk of Neonatal Gasping Syndrome
Metabolism	Bioavailability ~50%, extensively metabolised in the liver by CYP3A4, active metabolite = N-desethylamiodarone, eliminated primarily by biliary excretion.
Comments	Amiodarone contains 37.3% iodine - monitor thyroid function Protect skin from excess sunlight Each 1 ml of amiodarone injection contains 22.2mg of benzyl alcohol
References	1. www.adhb.govt.nz/newborn/services/DrugProtocols 2. NZHPA Notes on Injectable Drugs 5th Edition 2004 & www.noids.nz 3. Lacy et al Drug Information Handbook 10th Edition 2003. 4. Northern Network Formulary 11th Edition 2000 5. Neonatal Formulary 7th Edition Hammersmith Trust 2000 6. Trissell Hanbook of Injectable Drugs 10th Edition 7. www.micromedexsolutions.com Medicines for Children RCPCH 1999.
Updated By	P Schmidt, B Robertshawe September 2006 B Robertshawe, A Lynn July 2010 B Robertshawe, A Lynn June 2012 (re-order profile) B Robertshawe, A Lynn Oct 2018 (dose alignment with Akld) A Lynn, M Wallenstein, B Robertshawe, A Evison May 2020 (review and update) A Lynn, B Robertshawe May 2023 (routine review)