

FUROSEMIDE (previously known as **FRUSEMIDE**)

Trade Name	Frusemide- Claris Injection (AFT) Lasix Oral Solution (Sanofi-Aventis)
Class	Loop diuretic
Mechanism of Action	Inhibits sodium and chloride reabsorption in the ascending Loop of Henle.
Indications	Diuresis in CHF, fluid overload, pulmonary oedema. To avoid fluid overload during transfusion. Oliguria not secondary to hypovolaemia. CLD to improve pulmonary function.
Contraindications	Anuria. History of hypersensitivity to frusemide or sulphonamides Use with caution in infants with jaundice or Rh incompatibility
Supplied As	IV: 20mg/2mL ampoules Oral: 10mg/mL Lasix suspension – NOT FOR USE IN NICU In 2016 Lasix suspension was reformulated to contain 12.7% v/v ethanol (alcohol) ie up to 0.5 g/5mL alcohol. The safety of 12.7% ethanol preparations in infants and children has not been established ¹ . For this reason we recommend oral administration of the furosemide injection solution if oral dosing is required for treatment of patients in the neonatal unit. Pharmacy repacks the injection into a brown plastic bottle supplied to the NICU on a weekly basis – see stability and storage conditions below.
Dilution	Nil required
Dosage	1mg/kg/dose Increasing up to 3-4 mg/kg orally if required
Interval	12-24 hourly Consider alternate day therapy for long term use.
Administration	Oral: Use IV solution as described above IV: slow push (maximum rate 4mg/minute) Administer a 0.9% saline flush on either side of frusemide given during a blood transfusion. (This will provide a separation of several centimetres of blood and frusemide in the administration tubing. Record flush in the usual way.

Compatible With	Sodium chloride 0.9%, sterile water, Ringers. Lactated Ringers. Y site: amikacin, aztreonam, dexmedetomidine, foscarnet, granisetron, heparin, hydrocortisone, linezolid, lorazepam, metoprolol, piperacillin tazobactam, potassium chloride, tobramycin.
Incompatible With	TPN, dextrose solutions, dopamine, gentamicin, morphine azithromycin, benztropine, caffeine citrate, caspofungin, chlorpromazine, ciprofloxacin, droperidol, erythromycin, esmolol, figrastim, fluconazole, gentamicin, glycopyrrolate, haloperidol, hydralazine, ketamine, labetalol, metaraminol, metoclopramide, midazolam, milrinone, moxifloxacin, mycophenolate, ondansetron, pancuronium, pentamidine, pethidine, phentolamine, phenylephrine, promethazine, protamine, quinine, rocuronium, vancomycin, vasopressin, vecuronium, verapamil.
Monitoring	Serum electrolytes, renal function, blood pressure (plus hearing if high doses used).
Adverse Reactions	Ototoxic if high levels, renal failure, or if used with aminoglycosides. Hyponatraemia, hypokalaemia, hypochloreaemic alkalosis, hypovolaemia, hypercalciuria. GI effects.
Stability	IV: Discard any unused content of ampoule immediately after use, do not use if solution yellow. Oral: Furosemide IV solution repacked by pharmacy into brown plastic bottles for oral use has an expiry of 7 days after repacking
Storage	IV: Store ampoules below 30°C ⁷ Protect from light. Oral: Store furosemide, repacked by pharmacy into brown plastic bottles for oral use, in the fridge, at 2 – 8 °C. Protect from light.
Metabolism	Rapid onset of effect 5-30 minutes. Peak 1-3 hours IV. Half life > 24 hours in preterms. Mainly renally excreted unchanged.
Comments	Extensive protein binding but bilirubin displacement is negligible when using normal doses. Increased rate of PDA observed. Thiazide addition has not been shown to prevent hypercalciuria / nephrocalcinosis.
References	<ol style="list-style-type: none"> 1. Cochrane library: Brion LP; IV or enteral loop diuretics for preterm infants with CLD : 2000, issue 2. 2. www.medsafe.govt.nz/profs/datasheet/lasixsolnHDinf.pdf 3. Neofax 1999 (12th ed) pg 148. 4. Pediatric dosage handbook 1999-2000 (6th ed) pg 416 5. NZHPA Notes on Injectable Drugs 5th Edition. 6. www.ems1.com/ems-products/consulting-management-and-legal-services/articles/390568-Furosemide-Lasix-Drug-Whys/ 7. www.medsafe.govt.nz/profs/datasheet/frusemideclarisinj.pdf

Updated By	Dr R Martin	June 2000
	K Simonsen	June 2003
	P Schmidt, B Robertshawe	December 2004
	A Lynn, B Robertshawe, F Robertson	May 2009
	A Lynn, B Robertshawe	June 2012 (re-order profile)
	A Lynn B Robertshawe	Aug 2016 (use of injection orally)
	A Lynn, B Robertshawe	March 2021 (review/update compatibilities)