

CIPROFLOXACIN This drug must be guardrailed

Trade Name	Ciproxin® Oral suspension Aspen Ciprofloxacin® infusion
Class	Antibiotic (quinolone)
Mechanism of Action	Inhibits DNA-gyrase and relaxation of supercoiled DNA promoting breakage of double stranded DNA
Indications Individual ID approval required for full treatment course	Indication 1: Cystic Fibrosis for pseudomonas infections Indication 2: Bacterial infection with sensitive organisms E coli, Shigella, Salmonella, Klebsiella, Enterobacter, Serratia, Proteus, Yersinia, Pasturella, Haemophilus, Pseudomonas, Campylobacter, Legionella, Neisseria, Moraxella, Acinetobacter, Brucella, Staphylococcus, Listeria, Corynebacterium, Chlamydia).
Contraindications	Known family history of allergy to ciprofloxacin or other quinolone antibiotics Use with caution: In neonates and children due to results of pre-clinical trials on animals that showed evidence of arthropathy of weight-bearing joints in immature animals. Quinolones may cause CNS stimulation, use with caution in patients with a history of epilepsy or seizures (quinolone antibiotics lower seizure threshold). In babies receiving phototherapy for jaundice as ciprofloxacin increases the light sensitivity of the skin.
Supplied As	Ciproxin Liquid 100mg/mL– strawberry flavoured Ciprofloxacin Infusion 200mg/100mL –colourless solution
Dilution	IV solution is usually infused undiluted
Dosage *Must chart guardrail and use Alaris pump*	Please discuss dosing with ID consultant prior to use Indication 1: IV 20mg/kg/day Oral 40mg/kg/day Indication 2: IV 10mg/kg/dose Oral 15mg/kg/dose
Guardrails	Concentration: 2mg/mL Soft Alert Min: 5mg/kg/hr Hard Alert Max: 15mg/kg/hr Soft Alert Max: 10mg/kg/hr Default Setting: 20mg/kg/hr
Interval	IV: 12 hourly in the first month, then 8 hourly Oral: 12 hourly in the first month, then 8 hourly (giving oral doses with food may help to reduce stomach upset)
Administration	IV: infusion over 60 minutes to avoid venous irritation

Compatible With	<p>0.9% sodium chloride, 5% and 10% dextrose, ringers solution, lactated ringers.</p> <p>Y-site compatability with;</p> <p>Amikacin, amiodarone, anidulafungin, atracurium, aztreonam, calcium gluconate, caspofungin, ceftazidime, cisatracurium, dexmedetomidine, digoxin, diltiazem, diphenhydramine, dobutamine, dopamine, doripenem, doxorubicin, etoposide, fluconazole, gentamicin, granisetron, lidocaine, linezolid, lorazepam, metoclopramide, metronidazole, midazolam, milrinone, norepinephrine, pancuronium, potassium acetate, potassium chloride, promethazine, quinupristin/dalfopristin, ranitidine, remifentanyl, sodium chloride, tacrolimus, tobramycin, vasopressin, and verapamil</p>
Incompatible With	<p>IV: Due to the acidic pH of Ciproxin® solution other infusions should, if possible, be temporarily discontinued whilst ciprofloxacin is being administered.</p> <p>Incompatible with;</p> <p>Aminophylline, amphotericin B, ampicillin/sulbactam, azithromycin, cefepime, cefuroxime, clindamycin, dexamethasone, furosemide, heparin, hydrocortisone, magnesium sulphate, methylprednisolone, pantoprazole, phenytoin, piperacillin, potassium phosphate, propofol, sodium bicarbonate, and sodium phosphate.</p>
Interactions	<p>IV: ciprofloxacin iv may decrease phenytoin concentrations</p> <p>Oral: Iron, zinc, calcium, multivitamins and antacids or other drugs containing magnesium, aluminium or calcium may reduce the absorption of ciprofloxacin, - avoid taking these preparations within 2 hours of ciprofloxacin. NB: this warning dose not apply to ranitidine or omeprazole)</p> <p>Ciprofloxacin is a strong inhibitor of CYP1A2 and may increase levels of caffeine and cyclosporin.</p>
Monitoring	Renal function, hepatic function, full blood count
Stability	<p>IV: Discard premade bag after each dose Use a new bag for each dose as bags are not made for multiple use</p> <p>Oral: liquid stable for 14 days after reconstitution at room temp</p>
Storage	<p>IV: Discard remaining solution immediately after use</p> <p>Oral: Room temperature</p>
Adverse Reactions	Stomach upset, dark urine, rash, hypoglycaemia, arthralgias/tendonitis, photosensitivity reactions, thrombophlebitis, altered kidney function, pancreatitis, cardiac arrhythmias including QT prolongation.

Metabolism	Ciprofloxacin is well absorbed orally and widely distributed throughout the tissues. It is metabolised by the liver to 4 active metabolites. Half life =4-5 hours. 30 - 50% renally excreted as unchanged drug the remainder is excreted in faeces and bile.
Comments	Maintain oral hydration to reduce risk of crystalluria. Sodium content of Ciproxin® Infusion = 15.4mmol/ 100mL pH of Ciproxin Infusion = 3.9 – 4.5 (solubility reduced at pH 5-9)
References	<ol style="list-style-type: none"> 1. Frank Shann: "Drug Doses" booklet; 1998 (10th Ed.):26. 2. Neonatal Formulary The Northern Neonatal Network. BMJ 2000. 3. Hull D et al. Eds. Medicines for Children RCPCH 1999.0 4. www.medsafe.govt.nz 5. Lacy et al. Paediatric Dosage Handbook 6th Edition 1999/2000. 6. NZHPA Notes on Injectable Drugs 5th Edition 7. Trissell Handbook of Injectable Drugs 10th Edition 8. www.nzf.org.nz 9. https://www.micromedexsolutions.com/micromedex2/librarian/PFAction/d/evidencexpert.GetNeofaxDrugMonograph?navitem=neofaxDrugMonographDocRetrieval&drugName=Ciprofloxacin&tabSelected=neonatal#
Updated By	<p>B Robertshawe, P Schmidt November 2005; May 2006 A Lynn, B Robertshawe September 2009, April 2012 A Lynn, B Robertshawe Nov 2012 (re-order profile, discard bag) A Lynn, Tony Walls (Paed ID) July 2013 (PHARMAC update Ab approvals) A Lynn, M Wallenstein, B Robertshawe November 2020.</p>