POTASSIUM CHLORIDE This drug must be guardrailed

<table>
<tr><td>Trade Name</td><td>Oral: Potassium Chloride (Biomed)
IV: Potassium Chloride (Astra-Zeneca)
Potassium Chloride Juno (Juno Pharmaceuticals)</td></tr>
<tr><td>Class</td><td>Electrolyte supplement</td></tr>
<tr><td>Mechanism of Action</td><td>Maintenance of serum potassium, the major intracellular cation.</td></tr>
<tr><td>Indications</td><td>Indication 1: Asymptomatic Hypokalemia
May be due to insufficient replacement, diuretics, alkalosis, insulin, congenital adrenal hypoplasia, renal disorders
Indication 2: Symptomatic Hypokalemia or K^+ ≤ 2.0 mmol/L
Symptoms include neuromuscular weakness, ileus, urinary retention, ECG changes (ST segment depression, low-voltage T waves, U wave</td></tr>
<tr><td>Contraindications</td><td>Severe renal impairment, untreated Addison’s disease
Use cautiously in presence of cardiac disease</td></tr>
<tr><td>Supplied As</td><td>Oral: 2 mmol/mL (25mL)
IV: 0.75g/10mL (1mmol/mL)</td></tr>
<tr><td>Dilution</td><td>Oral: No dilution needed
IV: Dilute to a 40mmol/L solution – preferred concentration
<table>
<tr><th>Drug</th><th>5% or 10% Dextrose or Normal Saline</th><th>Final Volume</th><th>Concentration</th></tr>
<tr><td>2mmol (2mL)</td><td>48mL</td><td>50mL</td><td>40mmol/L</td></tr>
</table>
IV: Dilute to a 60mmol/L solution – use to fluid restrict and by a central line only
<table>
<tr><th>Drug</th><th>5% or 10% Dextrose or Normal Saline</th><th>Final Volume</th><th>Concentration</th></tr>
<tr><td>3mmol (3mL)</td><td>47mL</td><td>50mL</td><td>60mmol/L</td></tr>
</table></td></tr>
<tr><td>Dosage</td><td>Indication 1: Asymptomatic Hypokalaemia
Oral: 1-2 mmol/kg per day
IV: 2-3 mmol/kg/day in the daily fluids if on Premix fluids/TPN
Increase the daily fluid volume to increase the amount, or
If unable to give orally + TPN rate is maximised consider
Individual TPN bag or Individualised 10% dextrose + additives</td></tr>
</table>

Must chart guardrail and use Alaris pump for correction	**Indication 2: Symptomatic Hypokalaemia or $K^+ \leq 2.0$ mmol/L** **IV:** Acute treatment of symptomatic hypokalemia: **See potassium chloride infusion sheet – 0.6 mmol/kg IV over 4 hours** To ensure the infusion rate of **<0.2mmol/kg/hr** is not exceeded this dose cannot be infused faster than over 3 hrs with 4 hrs being the recommendation
Guardrails **ALARIS PUMP**	Min Concentration: 40mmol/L Max Concentration: 60mmol/L Soft Alert Min: 0.1 mmol/kg/hr Hard Alert Max: 0.2 mmol/kg/hr Soft Alert Max: 0.15 mmol/kg/hr Default Setting: 0.15 mmol/kg/hr
Guardrails **TRANSPORT PUMP**	Concentration: 40mmol/L Soft Alert Min: 0.04 mmol/hr Hard Alert Max: 0.7 mmol/hr Soft Alert Max: 0.3 mmol/hr Default Setting: 0.1 mmol/hr
Interval	**Oral:** 6 hourly **IV:** Infusion either daily or over 4 hours if symptomatic
Administration	**Oral:** Given with feeds and are well absorbed. Consider this route if the baby is on half feeds **IV:** Continuous infusion is the only recommended route of IV administration of potassium chloride. **Must not** be given by IM or direct undiluted IV
Compatible With	**Solution:** Sodium chloride 0.9%, Dextrose 5, 10 & 20%, Ringers solution and Lactated ringers **Terminal Y-site:** Aciclovir, adrenaline, alprostadil, amikacin, aminophylline, amiodarone, atropine, benzylpenicillin, calcium chloride, calcium gluconate, cefazolin, cefotaxime, ceftazidime, cefuroxime, ciprofloxacin, clarithromycin, clindamycin, dexamethasone, dexmedetomidine, digoxin, dobutamine, dopamine, ephedrine, epoetin, erythromycin, fentanyl, fluconazole, furosemide, ganciclovir, gentamicin, glycopyrrolate, heparin, hydrocortisone, ibuprofen, indomethacin, insulin, lidocaine, lorazepam, meropenem, methylprednisolone, metoclopramide, metronidazole, midazolam, milrinone, morphine, noradrenaline, octreotide, pancuronium, phenobarbital, phenylephrine, piperacillin/tazobactam, promethazine, propofol, propranolol, pyridoxine, ranitidine, sodium bicarbonate, tobramycin, vancomycin, vasopressin, voriconazole, zidovudine.
Incompatible With	Amphotericin B, diazepam, diazoxide, phenytoin, sulfamethoxazole/trimethoprim
Monitoring	Continuous ECG monitoring is mandatory if administering by the IV route, especially for central infusions. Serum potassium, glucose, chloride, pH and urine output should always be monitored in patients receiving potassium chloride

Stability	**Oral:** Manufacturers Expiry, no preservative, discard 7 days after opening **IV:** Discard opened vial immediately after use Use a new vial for each dose Discard unused reconstituted 40mmoL/L or 60mmol/L solution Continuous 24hr infusions need to be changed after 24 hours Do not use cloudy solutions
Storage	**Oral solution**: stored at room temperature until opened, then store in fridge for 7 days **IV:** stored in Controlled Drug cupboard. Usage recorded as per DHB policy.
Adverse Reactions	Rapid IV infusions may cause arrhythmias including heart block and cardiac arrest. Peripheral IV administration of concentrated potassium solutions is associated with thrombophlebitis and pain at the injection site. Extravasation can cause tissue necrosis. GI irritation is common (diarrhoea, vomiting, bleeding). This irritation can be helped by dividing oral doses and give with feeds.
Metabolism	Excreted mainly by the kidneys. Capacity of the kidneys to conserve potassium is poor and renal losses continue to occur even in severe depletion. Some potassium is excreted in faeces, saliva, sweat, bile and pancreatic juice.
Comments	Increased risk of hyperkalemia with ACE-inhibitors, NSAID's, cyclosporin, digoxin, heparin and potassium-sparing diuretics. Hypokalemia increases digitalis toxicity. **Oral potassium chloride solution:** • Now individually dispensed for inpatients. • Supply available in emergency drug cupboard if prescribed out of hours. Application to Pharmac for NPPA funding if prescribed on discharge
References	1. Neofax 2. Medicines for children. RCPCH. 1999. 3. NZHPA Notes on Injectable Drugs 5th edition 4. Trissell Handbook on Injectable Drugs 10th edition 5. Schaber DE. Uden DL. Stone FM. Singh A. Katkov H. Bessinger FB. Intravenous KCl supplementation in pediatric cardiac surgical patients. Pediatric Cardiology. 1985;6:25-8 6. Singhi S. Gautham KS. Lal A. Safety and efficacy of a concentrated potassium chloride solution infusion for rapid correction of hypokalemia. *Indian Pediatrics.* 1994;31:565-9
Updated By	A Lynn, B Robertshawe, N Austin April, July 2008 A Lynn, B Robertshawe July 2009, September 2009, Dec 2009 A Lynn, B Robertshawe Nov 2011 mmol/kg/hr guardrail units A Lynn, B Robertshawe Nov 2012 (re-order profile, discard vial) A Lynn, N Austin May 2013 (reinstate 60mmol/L concentration, change to 0.6mmol/kg to simplify guardrail) A Lynn, B Robertshawe Feb 2022