SODIUM CHLORIDE 23.4%

Indication	• Treatment of hyponatraemia[1]

ORAL

Presentation	• Compounded oral solution: 4 mmol in 1 mL o Available: Mater Pharmacy Production Services • Vial: 23.4% (40 mmol in 10 mL) o Use IV solution from rubber-stopped vial only. Do not use IV solution from glass *ampoule* due to risk of glass shard contamination on opening
Dosage	• Daily requirement[2] 2–6 mmol/kg/day o Divide into 4 or more doses to reduce gastric upset
Preparation	• Nil required
Administration	• Draw up prescribed dose into oral/enteral syringe • Oral/OGT/NGT with feed

INTRAVENOUS

Presentation	• Vial: 23.4% (equivalent to 40 mmol in 10 mL)
Dosage	• Daily requirement[2] 2–6 mmol/kg/day
Preparation	• Must be diluted before administration • *Example preparation (for CVL administration)* o Draw up 10 mmol/kg (2.5 mL/kg) and make up to 30 mL total volume with compatible fluid o *Infused at 0.5 mL/hour for 24 hours gives 4 mmol/kg/day*
Administration	• Draw up prescribed dose • Dilute with compatible fluid or add to parenteral fluids for infusion at prescribed hourly rate

Special considerations	• Dosage varies according to degree of hyponatraemia • Manage doses above 6–8 mmol/kg/day cautiously (refer to side effects) in consultation with SMO or NNP • CVL recommended for administration of any hypertonic saline solutions (greater than 0.9%)[3] • Maximum concentration for CVL is 0.85 mmol/mL
Monitoring	• Electrolytes 6–24 hourly to evaluate rate of sodium level rise (or as requested by SMO) • Extravasation risk if administered via peripheral IV
Compatibility	• 5% glucose[4], 10% glucose[5], 0.9% sodium chloride[5]
Incompatibility	• No information: check individual drug or solution[6]
Interactions	• Nil known
Stability	• Vial o Store at room temperature below 30 °C[6] • Oral solution o Store in refrigerator 2–8 °C o Discard 4 weeks after opening or as per local infection control policy (limited evidence)

Side effects	• Appropriate parenteral use for electrolyte replacement is unlikely to result in adverse effects[6] • Mild hypernatraemia symptoms include[6]: o Reduced salivation and lacrimation, fever, tachycardia, hypertension, restlessness, irritability and weakness • Excessive administration may lead to hypernatraemia, causing[6]: o Organ dehydration and dysfunction, hypokalaemia and acidosis o Congestive heart failure and pulmonary oedema particularly if cardiovascular disease or receiving corticosteroids or drugs that give rise to sodium retention o Loss of bicarbonate with an acidifying effect due to excessive chloride ions • Inadvertent administration of concentrated sodium chloride solutions[6]: o May result in sudden hypernatraemia and potential complications (e.g. somnolence, confusion progressing to convulsions, cardiovascular shock, CNS disorders, extensive haemolysis, respiratory failure and cortical necrosis of the kidney) • Rapid administration (faster than 12 mmol over 24 hours) may cause osmotic stress and subsequent demyelination injury to the brain[7]
Actions	• Sodium is the principle cation of extracellular fluid and chloride is the principle anion of extracellular fluid • Sodium content normally determines the volume of extracellular fluid, and is important in the regulation of osmolarity, acid-base balance, and the membrane potential of cells
Abbreviations	CNS: central nervous system, CVL: central venous line, IV: intravenous, OGT: orogastric tube, NGT: nasogastric tube, NNP: neonatal nurse practitioner, PN: parenteral nutrition, SMO: most senior medical officer
Keywords	Hyponatraemia, hypernatraemia, sodium chloride, strong salt, 23.4% sodium chloride, electrolyte

The Queensland Clinical Guideline *Neonatal Medicines* is integral to and should be read in conjunction with this monograph. Refer to the disclaimer. Destroy all printed copies of this monograph after use.

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7. Karakaş HM, Erdem G, Yakinci C. Osmotic demyelination syndrome in a 40-day-old infant. Diagnostic and Interventional Radiology 2007;13(3):121-4.

Document history

ID number	Effective	Review	Summary of updates
NMedQ21.070-V1-R26	20/07/2021	20/07/2026	Endorsed by Queensland Neonatal Services Advisory Group (QNSAG)
NMedQ21.07-V2-R26	13/08/2021	20/07/2026	• Amended to clarify use of glass ampoule for oral route

QR code