

# SODIUM CHLORIDE 23.4%

## NEWBORN USE ONLY

2017

<b>Alert</b>	Osmolarity: Sodium chloride 23.4%: 8010 mOsm/L <sup>1</sup> . High risk of extravasation if administered undiluted. Sodium supplementation is not always appropriate and fluid restriction may be appropriate in the management of hyponatraemia. Treatment should always be tailored to the cause.				
<b>Indication</b>	Treatment of hyponatraemia.				
<b>Action</b>					
<b>Drug Type</b>	Sodium chloride 23.4% contains 234 g/L sodium chloride, equivalent to 4 mmol/mL of sodium.				
<b>Trade Name</b>	Sodium chloride 23.4%.				
<b>Presentation</b>	Sodium chloride 23.4% – 10 mL vial. Can be used for both IV and oral routes. Refer to Administration section.				
<b>Dosage/Interval</b>	<p><b><u>Severe hyponatraemia &lt; 120 mmol/L or symptomatic hyponatraemia</u></b></p> <p><b>IV: CAUTION—CANNOT BE GIVEN UNDILUTED. REFER TO PREPARATION/DILUTION SECTION FOR DETAILS</b></p> <p>Infuse sodium chloride at 0.4 mmol/kg/hour until symptoms abate or sodium <math>\geq</math> 120 mmol/L</p> <p>Then infuse sodium chloride at 0.15 mmol/kg/hour for 48 hours or until desired sodium is achieved</p> <p>Therapeutic goal is to increase sodium by 7 mmol/L/day.</p> <p><b><u>IV supplementation</u></b> Start at 2–4 mmol/kg/day and increase as required</p> <p><b><u>Oral supplementation</u></b> Start at 2–4 mmol/kg/day (0.5–1 mL/kg/day) and increase as required, divided into 3–12 doses.</p>				
<b>Route</b>	IV, PO				
<b>Maximum Dose</b>					
<b>Preparation/Dilution</b>	<p><b>IV infusion:</b> Draw up 5 mL (20 mmol sodium) of 23.4% sodium chloride and add 45 mL of WFI to make a final volume of 50 mL with a concentration of 0.4 mmol/mL. 1 mL/kg/hour = 0.4 mmol/kg/hour (9.6 mmol/kg/day).</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Infusion rate</th> <th style="text-align: center;">Prescribed amount</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">1 mL/kg/hour = 0.4 mmol/kg/hour</td> <td style="text-align: center;">5 mL of sodium chloride 23.4% and make up to 50 mL of water for injection</td> </tr> </tbody> </table> <p style="text-align: center;">*1 mL/kg of 0.4 mmol/mL of sodium chloride will raise serum sodium by 0.8 mmol/L.<sup>2</sup></p> <p><b>Oral: To be given mixed with feeds.</b> Sodium chloride 23.4%: Use vials for oral dosing or oral solution supplied by pharmacy.</p>	Infusion rate	Prescribed amount	1 mL/kg/hour = 0.4 mmol/kg/hour	5 mL of sodium chloride 23.4% and make up to 50 mL of water for injection
Infusion rate	Prescribed amount				
1 mL/kg/hour = 0.4 mmol/kg/hour	5 mL of sodium chloride 23.4% and make up to 50 mL of water for injection				
<b>Administration</b>	<p><b>IV:</b> Infusion only. Must be diluted as above prior to IV infusion.</p> <p><b>Oral:</b> To be given mixed with feeds. <b>Divide the daily oral dose into 3–12 doses, aiming for a small but practical volume.</b></p>				
<b>Monitoring</b>	<p>IV: Watch the local site for signs of extravasation.</p> <p>Oral: Watch for signs of gastric irritation.</p> <p>Monitor serum sodium as per clinical team's recommendation.</p>				
<b>Contraindications</b>	Oral: Infants who are not any enteral nutrition, acute gastrointestinal illness including ileus, necrotising enterocolitis, intestinal obstruction.				

# SODIUM CHLORIDE 23.4%

## NEWBORN USE ONLY

2017

<b>Precautions</b>	Impaired renal function, cardiac insufficiency, pre-existing oedema with sodium retention.
<b>Drug Interactions</b>	No information.
<b>Adverse Reactions</b>	Hypernatraemia, volume overload, congestive heart failure, respiratory distress. Hyperchloraemia, hypercalciuria. Disseminated intravascular coagulation (DIC) is associated with inadvertent injections of sodium chloride into blood vessels of the uterus or placenta due to hypernatraemic shock. Not reported in infants. Osmotic demyelinating syndrome. Fever IV site: Extravasation, phlebitis, venous thrombosis. Oral: Gastric irritation.
<b>Compatibility</b>	<b>IV Fluids:</b> Glucose 5%, glucose 10%, glucose 5% in sodium chloride 0.9%, glucose 5% in sodium chloride 0.45%, sodium chloride 0.9%, sodium chloride 0.45%.  Y site: No information.
<b>Incompatibility</b>	<b>IV Fluids:</b> Fat emulsion.  Y site: No information.  Amino Acid solutions – No information.
<b>Stability</b>	<u>Oral solution:</u> Supplied by pharmacy has 7-day expiry from manufacture and 24 hours after opening. <u>Vials:</u> 24-hour expiry after opening
<b>Storage</b>	<u>IV:</u> Store at room temperature, 20–25°C. <u>Oral solution:</u> Refrigerate (2–8°C) <u>Vials:</u> Store at room temperature, 20–25°C, once opened refrigerate vials ((2–8°C)
<b>Special Comments</b>	Osmolarity of undiluted hypertonic sodium chloride is > 1000 mOsm/L, posing the risk of extravasation for peripheral IV solutions. <sup>3,4</sup> So, local consensus was to bring the osmolarity of IV preparation to 2.4% sodium chloride that has 0.4 mmol/L of sodium and an estimated osmolality of 855 mOsm/L.  Total body water is traditionally calculated as weight x 0.6 in children. Greater total body water content in newborns should be considered and therefore should be calculated as weight x 0.75. <sup>2,5</sup>
<b>Evidence summary</b>	Refer to full version.
<b>References</b>	Refer to full version.

<b>Original version Date: 06/09/2017</b>	<b>Author: NMF Consensus Group</b>
<b>Current Version number: 1.0</b>	<b>Version Date: 06/09/2017</b>
<b>Risk Rating: Medium</b>	<b>Due for Review: 06/09/2020</b>
<b>Approved by: As per Local policy</b>	<b>Approval Date: As per Local policy</b>

### Authors Contribution

Original author/s	Chris Wake, Srinivas Bolisetty
Pharmacy Review	Ushma Trivedi
Expert review	
Evidence Review	Timothy Schindler
Final content and editing review	Ian Whyte
Facilitator/s	Srinivas Bolisetty