

# Sodium Chloride

**\*\*SPECIAL CARE with PRESCRIBING\*\*.**

**FORM** 500ml fluid bag of 0.9% Sodium Chloride – LOW CONCENTRATION  
 2.7% Sodium Chloride POLYFUSOR - HIGH CONCENTRATION  
 OR  
 30% Sodium Chloride ampoules for preparation of a 2.7% solution

**INDICATION** Treatment or prevention of hyponatraemia

**DOSE RANGE**

AGE	SUPPLEMENTATION DOSE RANGE	ROUTE
Birth – 6 months	2 – 4 mmol/kg/day may need higher supplementary doses in cases of extreme hyponatraemia*	IV Infusion

If serum sodium is >130mmol supplementation may not be necessary, especially if patient is on PN which can be tailored by pharmacy. Discuss with senior medical staff. Also consider effect of haemolysis on serum sodium results.

**Ensure other sources of sodium are taken into account e.g. from PN / oral supplements**

**Neonatal**

**PRESCRIPTION OF CONTINUOUS INFUSION**

**\*\*SPECIAL CARE with PRESCRIBING\*\*.**

Flow rates are expressed as ml/**kg**/hour NOT ml/hr

**Draw up 50ml of 0.9% Sodium Chloride from a 500ml bag into a syringe (Peripheral) – LOW CONCENTRATION**

This gives approximately:-

- 2mmol/kg/day of sodium at 0.5ml/**kg**/hour
- 4mmol/kg/day of sodium at 1ml/**kg**/hour

**\*THIS PROTOCOL IS RESERVED FOR SEVERE HYPONATRAEMIA / FLUID RESTRICTED PATIENTS AND IS FOR CENTRAL ADMINISTRATION ONLY:**

**Draw up 50ml of a pre-made 2.7% Sodium Chloride POLYFUSOR into a syringe (Central) – HIGH CONCENTRATION**

This gives approximately:-

- 6mmol/kg/day of sodium at 0.5ml/**kg**/hour
- 12mmol/kg/day of sodium at 1ml/**kg**/hour

**RECONSTITUTION** Already in solution.

**DILUTION** No dilution required.

**METHOD OF ADMINISTRATION** For continuous Infusion  
 By continuous intravenous infusion, flow rate adjusted according to the baby's response (see prescription section for details).

**SEE PAGE 2 FOR DETAILS ON PREPARATION OF A 2.7% SOLUTION IF POLYFUSORS ARE NOT AVAILABLE**

# West of Scotland NEONATAL IV Drug Monographs

## PREPARATION OF A 2.7% NaCl SOLUTION (IF POLYFUSORS NOT AVAILABLE)

**RECONSTITUTION** Already in solution

### DILUTION

Sodium Chloride 30%	3ml
<b>Sodium Chloride 0.9%</b>	<b>Up to 50ml total in a syringe</b>

This gives a 2.7% sodium chloride solution which can be used as per the above HIGH CONCENTRATION protocol.

**COMPATIBILITY** See individual drug monographs

### CAUTIONS, CONTRA-INDICATIONS AND SIDE EFFECTS

See Summary of Product Characteristics and most recent edition of BNF for Children (links below)

### FURTHER INFORMATION

- Ensure plasma sodium does not increase by more than 10mmol/l per day.
- Doses > 6mmol/kg/day may be required but should be guided by serum level and senior medical staff
- Sodium content of 0.9% infusion = 150mmol/L
- Sodium content of 2.7% Polyfusor = 450mmol/L
- If plasma sodium levels within range but growth sub-optimal, check urinary sodium (target >40mmol/L)
- Caution with sodium correction in hyperglycaemia, discuss with pharmacy.
- The following calculation can be used as a guide to calculate the dose of sodium chloride required in mmol/kg/day:

Dose of sodium chloride required (mmol/kg/day) = (target level – serum sodium level) x 0.6

(SEE PAGE 3 FOR WORKED EXAMPLE)

**PH** 4.5 – 7

**LICENSED STATUS** Licensed

**LINKS** [BNF for Children](#) / [Electronic Medicines Compendium](#):

**APPLICABLE POLICIES** [West of Scotland Neonatal Guidelines](#):  
Consult local policy if applicable

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Prepared by:	Anisa Patel	Checked by	WoS Neonatal Pharmacists
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**Administer reconstituted solutions immediately.**

**All vials, ampoules and infusion bags are for single use only unless otherwise stated.**

Dose may vary depending on indication, age, renal function, hepatic function, and concomitant medications.  
This monograph should be used in conjunction with the package insert, BNF for Children, and Summary of Product Characteristics. For further advice contact your clinical pharmacist or pharmacy department.

## Sodium Chloride

### Worked Example

Baby M  
Weight 1.5kg  
Plasma Sodium 122mmol/L

#### Calculating the Sodium Deficit in Extreme Hyponatraemia

**Step 1.** Use the equation below to calculate the sodium deficit

*NOTE Plasma sodium should not increase more than 10mmol/L day therefore if serum Na is 122 then target sodium should not be more than 132*

$$\begin{aligned}\text{Total Sodium deficit (mmol/kg)} &= (\text{target level} - \text{serum sodium level}) \times 0.6 \\ &= (132 - 122) \times 0.6 \\ &= 6\text{mmol/kg/day}\end{aligned}$$

**Step 2** Choose most appropriate route of administration for correction (Peripheral or Central)

Consider lines available and fluid status

**Step 3** Prescribe appropriate dose and volume on infusion chart using information below

#### PERIPHERAL ADMINISTRATION (Sodium Chloride 0.9%)

$$6\text{mmol/kg/day} = 1.5\text{ml/kg/hour}$$

$$= 1.5 \times 1.5 \text{ (weight)}$$

$$= \underline{2.25 \text{ (2.3ml/hr)}}$$

#### CENTRAL ADMINISTRATION (Sodium Chloride 2.7% Polyfusor)

$$6\text{mmol/kg/day} = 0.5\text{ml/kg/hour (Central)}$$

$$= 0.5 \times 1.5 \text{ (weight)}$$

$$= \underline{0.75\text{ml/hr}}$$