

# Guideline to make up hypertonic saline (3% NaCl)

## Indications for use of 3% NaCl

- **Cerebral oedema** and raised ICP (e.g. head injury, DKA)
- **Hyponatraemic seizures**

## Mechanism of action

- Increases plasma sodium
- Creates an osmotic gradient
- Induces a shift of fluid from the intracellular to the extracellular space
- Reduces brain water
- Increases effective circulating volume

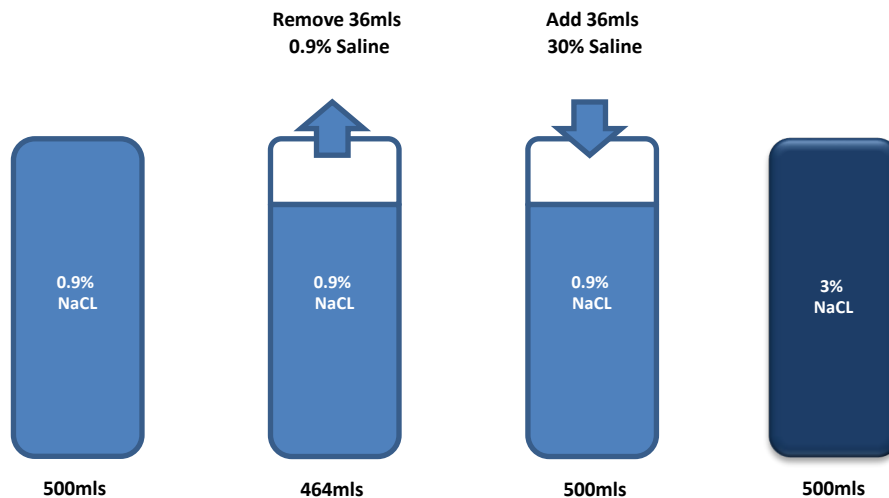
## 3% NaCl versus Mannitol

- As effective for the treatment of raised ICP in traumatic brain injury
- Less "rebound" ICP
- No obligatory osmotic diuresis (plasma volume preserved/expanded)
- Mannitol may be nephrotoxic
- 3% NaCl is reno-protective.
- Monitoring osmolality
  - For 3% NaCl one can use plasma Na
  - For mannitol need to infer osmolar gap

## Dose of 3% NaCl (or pre-made 2.7% NaCl when available)

- Cerebral oedema (TBI or DKA) standard dose is **3-5 mls/kg** (over 10–20 minutes)
- For seizures associated with acute hyponatraemia use aliquots of **1ml/kg** to raise the Na to **≥125 mmol/L**
- Use SAME dose even if the pre-made 2.7% NaCl solutions is used
- Repeat as clinically indicated
- 3mls/kg of 3% saline will **increase plasma Na by approximately 2-3 mmol/L**. The increase may be greater if a large diuresis occurs. Check plasma Na if any doubt

## PREPARATION OF 3% NaCl USING 30% NaCl (to make 500mls) **ONLY USE IF 2.7% POLYFUSOR UNAVAILABLE**



## PREPARATION OF 3% NaCl USING 30% NaCl (to make 50mls)

Take 5 ml NaCl 30%

Dilute with 45ml water for injection to give a final volume of 50ml and mix well

**⚠ DO NOT CONNECT THE 500ML BAG OF 3% SALINE DIRECTLY TO PATIENT IV LINE (RISK OF SERIOUS SODIUM OVERDOSE IF FULL BAG ACCIDENTALLY INFUSED). ALWAYS WITHDRAW THE PRESCRIBED VOLUME OF 3% SALINE (e.g. 3mls/kg) AND ADMINISTER TO PATIENT SEPARATELY**