

## IREDELL MEMORIAL HOSPITAL

Treatment of Significant Hyponatremia with Hypertonic Saline	
Approved by: Becky Quate, VPN Laura Rollings, PharmD, BCPS, BCGP	Last Revised/Reviewed Date: 10/2021
P&T Committee	Date: 02/2022

### Background:

*Significant Hyponatremia* – (for the purpose of this policy), any patient with a serum sodium level < 120 mmol/L is considered to be significantly hyponatremic.

*Symptomatic Hyponatremia* - Any patient with a serum sodium level < 120 mmol/L, who exhibits agitation, confusion, seizures, or coma secondary to the hyponatremia.

Psychogenic polydipsia, cerebral salt wasting syndrome, SIADH (syndrome of inappropriate ADH release), thiazide diuretics, bladder irrigations using sterile water, and the use of hypotonic IV fluids for lengthy periods can cause Hyponatremia (Serum Sodium < 120 mmol/L). Patients with hyponatremia may be asymptomatic or symptomatic (evidenced by agitation, confusion, seizures, or coma secondary to the hyponatremia). In an effort to correct the hyponatremic state, the provider may treat the patient by discontinuing hypotonic IV fluids, restricting water intake, ordering IV isotonic normal saline (0.9% saline solution), ordering hypertonic saline (3% saline solutions), or correcting hypokalemia (which often accompanies hyponatremia). The administration of normal saline is not necessarily safer than judicious use of 3% saline.

There are two major risks to the administration of hypertonic saline:

- Hypertonic saline is a vesicant and can cause tissue damage at the IV site, if infiltration occurs. The IV site should be assessed for patency every hour. Hypertonic saline should be administered through a central vein, if possible.
- If administered too rapidly (particularly in patients with chronic hyponatremia), hypertonic saline can result in the serum sodium correcting too rapidly. Raising the serum sodium > 10 mmol/L per 24 hours can possibly cause cerebral edema or central pontine myelinolysis, a form of brain damage. The infusion rate is recommended to be 0.5 – 1 mmol/L/hr.

### Policy:

Hypertonic Saline will be administered safely when prescribed for treatment of significant hyponatremia (Serum Sodium < 120 mM/L).

Hypertonic saline will be administered to patients with **symptomatic** hyponatremia only in the ICU/CCU, ED, PACU or the OR. **Symptomatic** patients on general medical surgical units, who have orders for hypertonic saline, will be transferred to Critical Care.

Hypertonic saline may be administered to patients with **non-symptomatic** hyponatremia in the ICU/CCU,ED, PACU, OR, and the general medical-surgical units.

**Procedure:**

1. The nursing supervisor must be notified prior to administration.
2. The pharmacist should be actively involved and should be consulted prior to administration.
3. Two Registered Nurses (RN) must review the provider order, verify the medication, and check the IV pump rate upon initiating the infusion. Each RN must document their initials in the electronic medical record.
4. Two RNs must verify the pump rate settings with any rate changes. Each RN must document their initials in the electronic medical record.
5. Assess the patient's vital signs, breath sounds, and mental status immediately before initiating infusion and every 2 hours during the infusion. If symptoms of hyponatremia are observed by the RN< the provider should be notified immediately.
6. The IV site should be assessed every hour during the infusion. Notify provider promptly for orders to treat of infiltration.
7. If the provider has not ordered electrolyte levels, the pharmacist will order serum sodium and potassium levels according to the following schedule: every two hours X 4, then every six hours during hypertonic saline administration, and two hours after the infusion has been discontinued.
8. If no duration is included in the prescriber's order for hypertonic saline, the pharmacist will:
  - a. enter/verify the order for one bag only (500 mL);
  - b. clarify with the prescriber the intended length of therapy;
  - c. modify the order if the intended duration is for more than one bag.
9. Notify provider if:
  - a. Serum sodium level > 120 mmol/L
  - b. Serum sodium level exceeds 1.5 mmol/L for any 4 hour period
  - c. Serum sodium level exceeds 10 – 12 mmol/L/day

INITIAL EFFECTIVE DATE: 01/2015

DATES REVISIONS EFFECTIVE: 12/2015, 12/2018, 02/2022

DATES REVIEWED (no changes):