ISMP Canada is an independent Canadian nonprofit agency established for the collection and analysis of medication error reports and the development of recommendations for the enhancement of patient safety.

The Healthcare Insurance Reciprocal of Canada (HIROC) is a member-owned expert provider of professional and general liability coverage and risk management support.

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Reported Error With Sodium Chloride 3% Reminds Us Of The Need For Added System Safeguards With This Product.

Recently a Canadian hospital advised us of an error with 250 mL 3% sodium chloride IV solution. The order was written at night and required a return to the hospital by the on-call pharmacist. The pharmacist delivered the product to the nursing unit with verbal instructions as to the patient name. The sodium chloride 3% solution was then mistaken for a pre-mixed heparin solution and was administered to the wrong patient. Potentially, hypernatremia as a result of administration of hypertonic sodium chloride can result in serious CNS adverse effects. In this case, because of a slow infusion rate, there were no adverse effects due to the sodium chloride infusion. The incident, however, was clinically significant because of the delay (9 hours) in administration of heparin to the affected patient.

Two important factors contributing to errors with hypertonic sodium chloride are the lack of familiarity with this product, and the similarity in packaging with other commercially available solutions. The lack of familiarity with the product occurs because the indication for its use (e.g. severe symptomatic hyponatremia) occurs relatively infrequently.

Prior to this incident, the hospital had adopted several **important safeguards** for the use of 3% sodium chloride. (i) **the product is not available as ward stock; (ii) the product is controlled by Pharmacy rather than supplied by 'Stores' or 'Central Supply' and (iii) orders for hypertonic sodium chloride need a review of the clinical situation by the pharmacist, including a review of the pertinent lab values**. Even with these safeguards in place, an error with the product occurred.

Recommendations:

- Adoption of the above three safeguards continues to be very important and is encouraged for all hospitals.
- In addition, the use of high alert medications such as hypertonic saline, warrant the **addition of an auxiliary caution label** to the product, preferably as soon as it is received into the Pharmacy, and before it is distributed to the nursing unit. An example of an auxiliary label would be:

  3 % <u>Sodium</u> Chloride
  **** CAUTION ****

  The hospital has decided to implement this additional safeguard and expressed an interest in sharing the information with other hospitals.
- Also recommended is that hypertonic saline should be dispensed only after the order has been entered into a **computerized order entry system**. The order entry system should include decision support features to ensure that the hypertonic saline is being used appropriately. **A label should be generated (patient name, drug name, dose and directions) and affixed to the bag before distribution** to the patient care area.

ISMP Canada is also aware that some hospitals continue to stock the <u>5%</u> sodium chloride IV infusion product.

There are reports in the literature[1] that the 5% sodium chloride product has been confused with 5% dextrose or sodium chloride IV solutions. When given in error, 5% sodium chloride IV solution has resulted in patient deaths. A mix-up with this product is so potentially dangerous that ISMP in the US has recommended that this product be removed from the market. **Sodium chloride 5% IV solution <u>should not</u> be stocked in hospitals.**

1 Cohen, M., Proulx, S. Avoiding Accidents with Hypertonic Sodium Chloride. *in* ISMP Medication Safety Alert. volume 1, Issue 23, November 20, 1996.