

ISMP Canada Safety Bulletin

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SENTINEL EVENT WITH STERILE WATER – LESSONS SHARED

Hospitals are urged to review their storage conditions and supply processes for selected sterile water preparations.

ISMP Canada has recently received an error report describing accidental intravenous infusion of sterile water, instead of the intended normal saline solution. Unfortunately, close to 600 mL sterile water was infused prior to discovering the error. The error was discovered when blood was noted in the patient's urine output. The patient experienced renal complications as a result of the damaging effects of hypotonic sterile water on red blood cells. The patient's creatinine level rose from 90 $\mu\text{mol/L}$ to over 400 $\mu\text{mol/L}$ and admission to the Intensive Care Unit was required. The length of hospital stay was significantly increased as a result of this adverse drug event.

The hospital undertook an in-depth analysis of the error and when reporting to ISMP Canada, asked that their findings be shared with other Canadian hospitals in order to heighten awareness of the potential danger of sterile water and hopefully, to prevent a similar error in another hospital.

In this instance the product involved a one-litre bag of Sterile Water for Injection*. This product is intended for Pharmacy use only, and the manufacturer includes the following comment on the label: 'Pharmacy Bulk Package. Not for Direct Infusion'. The product does, however, have notable similarities in appearance to 0.9% Sodium Chloride Injection produced by the same manufacturer, and intended for intravenous use.

Of relevance in this situation is that the manufacturer also markets additional sterile water products such as Sterile Water for Irrigation and Sterile Water for Inhalation. During backorder situations with one of the sterile water products, hospitals will sometimes use the alternate sterile water products interchangeably until the backorder is resolved.

Contributing Factors:

1. The one-litre Sterile Water for Injection product has similar packaging and labeling to the one-litre 0.9% sodium chloride IV solution made by the same manufacturer.
2. The one-litre Sterile Water for Injection product was stored in several hospital areas where the one-litre normal saline IV solution was also stored.

3. The one-litre Sterile Water for Injection product had been used as an alternate to other sterile water products (inhalation and irrigation solutions) as a result of previous back-orders with the sterile water products. This resulted in increased availability of the product in the hospital.
4. The one-litre Sterile Water for Injection product was available in the General Stores Department without an alert advising that the item is intended for Pharmacy Use Only.

Suggestions for Prevention:

1. Consider having Pharmacy control and purchase the one-litre Sterile Water for Injection product, directly.
2. Consider affixing a visible cautionary auxiliary label upon receipt of the one-litre Sterile Water for Injection product into Pharmacy:
e.g. ****CAUTION****

STERILE WATER

For Reconstitution Use ONLY

3. Consider eliminating the one-litre Sterile Water for Injection product from inventory, and replacing it with the two-litre size. The difference in size will reduce the likelihood of confusion with commonly used one-litre intravenous solutions.
4. Review contingency procedures for back order situations and ensure a review of 'error potential' is included as part of the process.
5. Promote a culture that encourages all staff to be alert to the 'error potential' inherent in the storage conditions of products.
6. Review the potential risk of other sterile water products stocked in the hospital, e.g. inhalation solutions and irrigation solutions. Since these solutions are also available in varied sizes, there may be merit to standardizing the irrigation solutions to a three-litre size and the inhalation solutions to a two-litre size. The differences in sizes will differentiate them from IV solutions.

7. Ensure the descriptions in electronic inventory systems are clear. If decisions are made to purchase selected sizes only, build alerts in the inventory system to help maintain consistency in the system.

Suggestions for enhanced product labeling and packaging have been forwarded to the product manufacturer. A report is also being forwarded to Health Canada.

*Manufactured by Baxter Inc.

Safety Brief – Product Look-Alike WARNING

ISMP Canada has received two simultaneous reports of ‘near misses’ due to the similarities in packaging between (a) the AstraZeneca Xylocaine 4% sterile solution 5mL vial used for retrobulbar injection in ophthalmic surgery, and (b) the AstraZeneca Betaloc 5mg/5mL vial. Both product vials have white labels with orange colour coding, and both can be stock items in a Surgery Department. Because the generic names of these two products are close in the alphabet (lidocaine; metoprolol), they can end up being stored near to each other.

Each of the reporting hospitals indicated that they had changed their Betaloc product to the Novartis ‘Lopresor’ brand of metoprolol, in order to differentiate the products.