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ISMP Institute for Safe Medication Practices
An ECRI Company

Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

Safeguard patients' medications brought from home

Problem: A patient's home medication may not be on the hospital's formulary or may not be readily available (e.g., specialty medication, limited distribution drugs, only available via Risk Evaluation and Mitigation Strategy [REMS] program, administered via a home infusion device). In such cases, organizational policy may permit the use of home medications during the entire hospital stay or only temporarily until the nonformulary medication becomes available. The use of a patient's home medication within hospital settings may circumvent established safeguards (e.g., order sentences in the electronic health record [EHR] with clinical decision support, smart pump drug libraries with dose error-reduction systems [DERS], barcode medication administration [BCMA]) that are typically available for formulary drugs, thereby increasing the risk of a medication error reaching the patient. In addition, practitioners might be unfamiliar with these medications, doses, monitoring parameters, and/or how to administer these products.

Errors Reported to ISMP

A patient was admitted to the hospital prior to a scheduled surgical procedure. At home, the patient was on cromolyn oral solution 100 mg/5 mL liquid per jejunostomy tube (J-tube) nightly for mastocytosis, a condition that causes the body to produce too many mast cells. This drug was not on the hospital's formulary, so the prescriber entered an order in the EHR to continue the home medication. Unlike most oral solutions, this product comes in plastic ampules that must be opened by twisting off the top and squeezing the contents into a glass of water. A pharmacist physically reviewed the product and verified the order. A nurse who was unfamiliar with the medication twisted open the plastic ampule, prepared the dose in a parenteral syringe, and administered the cromolyn oral solution as an intravenous (IV) push through a peripherally inserted central catheter (PICC) line. The patient became agitated as soon as the medication was administered. The nurse reviewed the medication administration record (MAR) and identified that the medication should have been given via the J-tube. The nurse immediately aspirated 20 mL of fluid from the PICC line, and fortunately, the patient's symptoms resolved.

An order was placed for a newly admitted patient to continue their home respiratory medication, treprostinil, used for the treatment of pulmonary arterial hypertension, during their hospital stay. The patient's wife handed the ampules of oral inhalation solution to the nurse and told the respiratory therapist (RT) that her husband receives the medication via nebulizer four times a day. Neither the nurse nor the RT were familiar with this medication. That afternoon, the RT mentioned that they needed to obtain another ampule of treprostinil. The patient's wife stated that each ampule should contain enough medication for all four daily doses. The RT stated that he had administered a full ampule with each prior dose (three so far). When placing the order, the provider had prescribed the medication with a note to "continue home medication," but had entered the incorrect dose in the EHR. The reporter did not disclose whether the hospital had a process for the pharmacy to physically review the home medication package and labeling prior to verifying the order.

Safe Practice Recommendations: Please consider the following recommendations in the event your organization allows the use of medications brought from home.

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SAFETY brief

Mannitol administered to a child instead of Lactated Ringer's. An anesthesiology resident observed that during fluid infusion, a five-year-old child had a significant area of infiltration in their arm post-op. After escalating this concern, the attending anesthesiologist identified that the infusion bag hanging on the intravenous (IV) pole and infusing into the child contained 20% **OSMITROL** (mannitol) injection rather than the prescribed Lactated Ringer's solution. The 500 mL bags (both manufactured by Baxter) look nearly identical (**Figure 1**, page 2). The child received 200 mL of mannitol, equating to an approximate dose of 2 g/kg. The child was admitted to the pediatric intensive care unit (PICU) for monitoring of osmolality-related issues and the potential for compartment syndrome resulting from the extravasation.

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IMPORTANT! Read and utilize the Acute Care Action Agenda

One of the most important ways to prevent medication errors is to learn about problems that have occurred in other organizations and to use that information to prevent similar problems at your practice site. To promote such a process, selected items from the **July – September 2025** issues of the ***ISMP Medication Safety Alert! Acute Care*** newsletters have been prepared for use by an interdisciplinary committee or with frontline staff to stimulate discussion and action to reduce the risk of medication errors. Each item includes a brief description of the medication safety problem, a few recommendations to reduce the risk of errors, and the issue number to locate additional information. The **Action Agenda** is available for download as an Excel file.

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Reconcile medications. During the medication reconciliation process, a dedicated practitioner should obtain the most accurate medication list possible, promptly upon admission to the organization, and before administering the first dose. As part of this process, a designated prescriber must review the patient's home medication list and determine an appropriate care plan (e.g., substitute with an alternative formulary drug, collaborate with pharmacy to continue use of the patient's supply of home medication, or order the nonformulary medication for hospital use).

Develop a home medication use policy. Unless unusual circumstances exist, medications should be provided and dispensed by the hospital pharmacy. Avoid using a patient's home supply of medication unless it is not readily available in the pharmacy and it needs to be administered immediately, for example, if the prescribed medication is being administered via an existing device attached to the patient. The policy should include the following:

- **Define restrictions and exceptions.** Consider if there should be restrictions for when home medications may not be used during a hospital admission (e.g., drug compounded by an outside pharmacy since the pharmacist cannot verify the integrity of the compounded product, patient unable to manage pump device, medication on formulary at the hospital). There must be an approval process for any exceptions, such as temporarily continuing home parenteral nutrition, and this should be documented in the medical record. The policy must also address the use of investigational medications.

- **Send non-used medications home.** A family member of the patient should take the medication home at the time of admission or as soon as possible. If not, then consider having an alternative plan for securely storing home medications that are not to be used in the hospital and ensure they are not stored in the patient's room.

- **Order home medications in the EHR.** If a medication from home is approved for use, the prescriber must enter a complete order (e.g., drug name, strength/concentration, dose, route, frequency) in the EHR, specifying any pertinent information. In some EHR systems, even if the drug is nonformulary, prescribers may be able to select the drug in the system to allow for clinical decision support screening. Otherwise, build order templates for home medication orders in the EHR to prompt required fields. Do not accept vague orders or comments in clinical notes to "continue home med." Evaluate required monitoring parameters and how to communicate this to other practitioners. Consider circumstances (e.g., high usage, high-alert drug, medications with multiple drug-drug interactions) where nonformulary medications should be built into the EHR, and/or added to the formulary to maximize clinical decision support (e.g., drug interactions, incompatibilities, allergies, dose range checking). Depending on what is built (or not built) in the EHR system, practitioners may need to complete a manual review to check for drug interactions, identify any duplicate therapy, perform allergy screening, and ensure the dose, route, and frequency are appropriate for the patient.

- **Require pharmacist verification.** Ensure there is a process for pharmacy to conduct a thorough review of all home medications before administration. The medication must be in the original container and/or the container must be clearly and properly labeled and must be examined for product integrity and positively identified by a pharmacist. If the medication is unidentifiable or is damaged in any way that may alter its integrity, the medication should not be used. The pharmacist should count and document the quantity of home medication provided and ensure there is a plan with the patient/caregiver/family to bring additional drug as needed, to avoid a lapse in therapy.

- **Build a home medication checklist.** Consider building a home medication checklist for pharmacists, including a check to make sure the medication has not expired, storage

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The organization's current workflow involves an anesthesia technician obtaining plain infusion bags (e.g., 0.9% sodium chloride, Lactated Ringer's solution) from bins in the medication room (they are not stored in an automated dispensing cabinet [ADC]), removing the overwrap, and spiking the bags to prepare them for use during upcoming procedures. The anesthesia technician also cleans up the room after the procedure, returning any unopened fluids to the medication room.

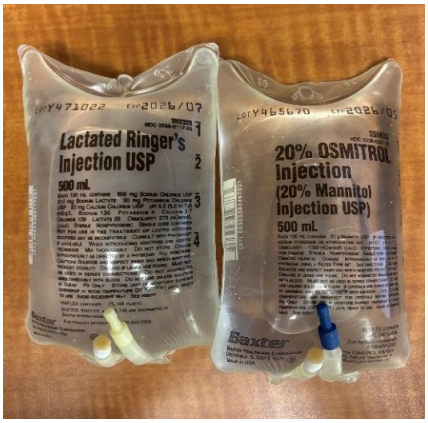

Figure 1. Similar-looking 500 mL bags of Lactated Ringer's solution (left) and 20% mannitol (right) by Baxter.

In this case, a technician did not recognize that the bag they were returning to storage was mannitol and placed it in the Lactated Ringer's bin. Subsequently, another anesthesia technician obtained the mannitol bag from the Lactated Ringer's bin, assumed it was Lactated Ringer's, spiked it, and it was administered to the child. This organization had not yet implemented barcode scanning in the operating room (OR), and the practitioners did not read the label on the bag before initiating the infusion.

We reached out to Baxter to recommend differentiating these infusion bags by making the labels less similar. In addition, this event speaks to the importance of reading the product label and maximizing the use of barcode scanning prior to administration.

When pharmacy receives a new product, conduct a review to identify potential risks

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requirements, and comparison of the medication packaging/labeling with the prescriber's order. Clarify with the prescriber if there are questions, concerns, or discrepancies before final verification.

- **Label medications with barcodes.** After pharmacist verification, pharmacy should add a patient-specific label with a barcode to the home medication product. If the prescriber changes the medication order (e.g., modifies the dose or frequency), the pharmacy should relabel the product so that the label will reflect the correct directions. Ensure the barcode on the home medication is scanned prior to administration for safety and to ensure the administration is documented on the MAR.

- **Store safely.** All medications, including those brought from home, should be stored securely, and not in patients' rooms, to prevent patients or family members from accessing and administering a duplicate dose. Consider additional safeguards (e.g., double count, storage in the controlled substance safe) for high-cost or limited distribution drugs to minimize misplaced or lost drugs, especially if the patient is transferred. Establish a process to ensure any home medications that are stored during inpatient stay are safely returned to the patient prior to discharge. If a patient is discharged home without their medications, attempt to contact the patient so they or a family member can return to pick up the medication.

- **Monitor patients.** Since home medication orders may not be built into order sets with prepopulated monitoring parameters, and practitioners may be unfamiliar with these drugs, ensure there is a clear monitoring plan that is communicated to practitioners. Ensure the MAR includes any special instructions or warnings on how to prepare and/or administer the medication.

- **Involve interdisciplinary teams.** Management of patient home medications requires collaboration among practitioners (e.g., prescribers, nurses, pharmacists, RTs, risk management). Prescribers should communicate with a clear intent to either hold, modify to an alternative drug, or continue a patient's home medication. Nursing should have a standard and effective way to inform pharmacy about the patient's status, such as notifying when there is a home medication requiring pharmacist verification and when the patient is expected to be discharged. RTs should also be consulted regarding respiratory home medications and devices.

Educate practitioners. During orientation and annual competency assessments, educate staff that any medication brought from home should be treated according to hospital policy, following all associated safety and documentation requirements. If a practitioner has a concern with the use of a medication from home, encourage them to speak up.

Educate patients and caregivers. Provide patient/caregiver education upon admission about the organization's policy regarding the use of the patient's own medications. Collaborate with patients and families and encourage them to speak up if there are concerns about the home medication so that practitioners can ensure the safety of the order. Ensure they know not to take/administer home medications on their own without the practitioner's knowledge. Home medications still require an order and need to be documented on the MAR.

Evaluate home medication use. Regularly review home medication orders for completeness and provide feedback to end users when needed (e.g., incomplete order entered). For home medications that are frequently used, consider whether the drug should be added to the formulary with appropriate safeguards built into applicable electronic systems.

Report errors. Gather feedback from staff about errors and close calls with home medications. Report incidents internally and to ISMP.

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with the product's design, including look-alike labeling and packaging. If risks are identified, consider purchasing the product (or one product of a problematic pair) from a different manufacturer. Store look-alike products separately, and consider signage in storage locations or other warnings on the infusion bags.

Review the ISMP Guidelines for the Safe Use of Automated Dispensing Cabinets and maximize the use of secure storage configurations in the ADC. Store infusion bags with look-alike packaging in different matrix drawers or different compartments of towers. Require staff to return all unused non-refrigerated medications with intact packaging to either a common secure one-way return bin in the ADC (maintained by pharmacy), or to the original secure locked-lidded pocket using barcode scanning verification.

ISMP Targeted Medication Safety Best Practices for Hospitals, Best Practice 18, calls for maximizing the use of barcode verification prior to medication and vaccine administration by expanding use beyond inpatient care areas. Specifically target clinical areas with an increased likelihood of a short or limited patient stay, including perioperative areas. Educate practitioners to carefully review product labels after removing the medication from storage areas, when spiking an IV bag, before barcode scanning/prior to administration, and when discarding or returning it in storage.

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