May 2026 | Volume 24 ■ Issue 5

ISMP Institute for Safe Medication Practices
An ECRI Company

Nurse AdviseERR®
Educating the Healthcare Community About Safe Medication Practices

Safeguard patients' medications brought from home

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.

Recommendations

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

continued on page 2 — Patients' medications >

SAFETY wires

Wasted medication in unlabeled cup mistaken as water. A prescriber told a nurse to discontinue a patient's fenta**NYL** infusion (2,500 mcg/250 mL). After disconnecting the infusion, the nurse poured the remaining 100 mL volume into a graduated cup to measure and document the waste of the controlled substance. The nurse set down the unlabeled cup in the patient's room and left to initiate the waste documentation. A nurse orientee entered the room to administer other scheduled medications via the patient's percutaneous endoscopic gastrostomy (PEG) tube. Thinking the graduated cup left at the bedside contained water, the nurse in training withdrew 40 mL from the unlabeled cup and used it to flush the patient's PEG tube after administering the enteral medications. When the patient's nurse returned and saw that approximately 60 mL of the fenta**NYL** remained in the cup, they realized what probably happened and confirmed with the orientee that about 40 mL of the fenta**NYL** waste was used to flush the PEG tube. The patient's blood pressure decreased, and the nurse notified the prescriber that the patient had received 400 mcg of fenta**NYL** via their PEG tube. As ordered by the prescriber, the nurse attached the patient's PEG tube to suction, and administered naloxone, after which the patient's blood pressure improved.

Waste measurement, documentation, and disposal of controlled substances should occur right away at the site of disposal, with a witness present to ensure chain of custody verification. While recording controlled substance waste is a crucial step in avoiding diversion and complying with local, state, and federal regulations, organizations must determine the safest mechanism for doing so, then ensure that this process is hardwired across the board. Additionally, healthcare-related errors involving unlabeled containers rank high as a cause of patient harm. Always label

continued on page 2 — SAFETY wires >

> Patients' medications — continued from page 1

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 unused medications home.** A family member or caregiver of the patient should take all other medications, including controlled substances, 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. If the patient's own medication must be stored in the hospital (see Store Safely below), they must be documented and counted.

- **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,

continued on page 3 — Patients' medications >

> SAFETY wires continued from page 1

everything, everywhere, whenever it may leave your hand, even if the medication is to be given immediately. It only takes a second for the wrong medication or chemical to be given to a patient. Never leave a medication, including wasted medications, unattended, where patients or visitors could inadvertently consume them, or other practitioners could use them.

ICU Medical extension set can foster filtration bypass with ILE. A pharmacist reported concerns about the ability to bypass filtration when administering intravenous lipid emulsions (ILEs) using an ICU Medical extension set with a 1.2-micron filter. This product (item number B9516) was purchased by materials management for parenteral nutrition (PN) infusions, without consulting pharmacy. During rounds, the pharmacist identified that the injection port on this extension set is located below the filter (**Figure 1**). The concern with using this extension set for PN is that ILEs infused via

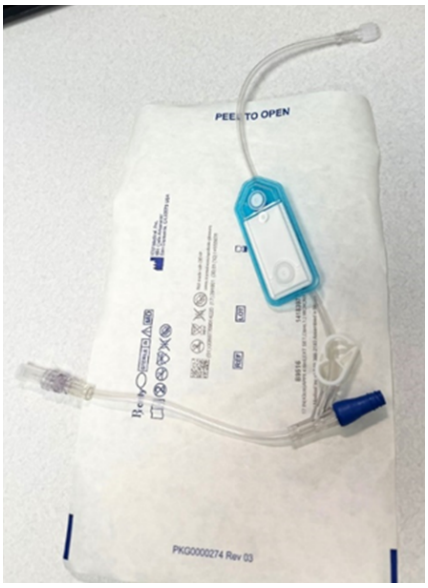

Figure 1. An extension set with a 1.2-micron filter located above the injection port should not be used to administer ILE with PN. Using the injection port via the Y-site will bypass filtration.

this injection port will not be filtered. After investigation, the pharmacy identified that this product had previously been used at the hospital for infusion of both ILE and other intravenous (IV) medications by connecting the infusion through this port (i.e., below the filter). Fortunately, they are not aware of any impact on clinical outcomes with the cases they have identified.

continued on page 3 — SAFETY wires >

> Patients' medications — continued from page 2

storage 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/caregivers 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.

> SAFETY wires

continued from page 2

We have reached out to ICU Medical about this concern and recommend a warning on the product label (and in the description in the product catalog) that this extension set is not appropriate for PN use if ILEs are infused via the injection port, as this will bypass filtration. The American Society for Parenteral and Enteral Nutrition (ASPEN) recommends using a 1.2-micron in-line filter for the administration of total nutrient admixtures (TNAs), dextrose-amino acid admixtures, and ILEs. For TNAs, place the filter as close to the catheter hub as possible. For dextrose-amino acid admixtures, place the filter below the Y-site where the dextrose-amino acid admixture and ILE co-infuse (Worthington P, Gura KM, Kraft MD, et al. Update on the use of filters for parenteral nutrition: an ASPEN position paper. *Nutr Clin Pract.* 2021;36[1]:29-39). Organizations must have a policy and procedure to ensure a pharmacist approves medication-related products/devices. No new drug-related item (e.g., filter, tubing) should be purchased without pharmacy involvement/approval. When receiving a new medication-related device, the organization should have a process to conduct a review, which should include practitioner feedback and education to identify potential risks with the product's design prior to distribution to patient care areas.

what's in a Name?

The "-mycin" drug stem name

Medications that end with the suffix "-mycin" belong to several antibiotic classes; however, a subclass, known as macrolides, will be the focus of this article. Macrolides are antibiotics commonly used to treat a variety of bacterial infections, including respiratory tract infections, skin and soft tissue infections, and certain sexually transmitted infections. They are considered broad-spectrum antibiotics and work by inhibiting protein synthesis, thus, preventing bacterial growth. Azithromycin is one of the most frequently prescribed macrolides in the United States due to its broad spectrum of activity and convenient dosing.

Currently, there are four macrolide antibiotics approved for use in the United States (**Table 1**). One, fidaxomicin, is primarily used to treat *Clostridioides difficile* (*C. diff*) infections. There are also combination products, **VOQUEZNA TRIPLE PAK** (vonoprazan, amoxicillin, clarithromycin) and a generic product (lansoprazole, amoxicillin, clarithromycin), that are oral products used to treat *Helicobacter pylori*.

Table 1. List of macrolide antibiotics available in the United States.

Generic Name	Brand Name(s)	Formulation(s)
azithromycin	**ZITHROMAX**, **ZITHROMAX TRI-PAK**, **ZITHROMAX Z-PAK**	oral, parenteral
	AZASITE	ophthalmic
clarithromycin	generic only	oral
erythromycin	**E.E.S. 400**, **E.E.S. GRANULES**, **ERY**, **ERYPED 400**, **ERYTHROCIN LACTOBIONATE**	ophthalmic, oral, topical
fidaxomicin	**DIFICID**	oral

Macrolides are available in various forms, such as oral tablets, capsules, and suspensions; an intravenous formulation for hospitalized patients; a topical solution/pad; and ophthalmic ointment or drops.

Unlike many other antibiotics, macrolides have a long half-life, allowing for short treatment courses. They are often administered once daily for 3 to 5 days. Oral formulations may be taken with or without food, although taking the medication with food may reduce gastrointestinal discomfort. Extended-release oral formulations should not be crushed or chewed.

Common side effects include nausea, vomiting, diarrhea, and abdominal pain, which typically resolve after completion or discontinuation of therapy. Macrolides have been associated with QT interval prolongation, increasing the risk of serious cardiac arrhythmias, particularly in patients with existing heart disease, electrolyte abnormalities, genetic predisposition (congenital long QT syndrome), or those receiving other QT-prolonging medications. Careful medication review and patient assessment are recommended prior to initiation.

Although macrolides are generally safe and effective, they do cross the placenta and are found in breast milk. It is best for the patient to discuss with their prescriber, the risks and benefits of using these antibiotics during pregnancy and while breastfeeding.

Finally, inappropriate, or unnecessary use of macrolides, and other antibiotics, contributes to antimicrobial resistance. Prescribers should adhere to evidence-based guidelines and ensure these medications are used only for confirmed or strongly suspected bacterial infections, and that the full course of therapy is completed.

Special Announcements

MSB Clinician Database

Med Safety Board (MSB), an ISMP company powered by ECRI, is recruiting clinicians to join its growing MSB Clinician Database, a network of healthcare professionals who contribute to medication and medical device safety initiatives. Clinicians in the database may be invited to participate in paid surveys, trademark name evaluations for look-alike or sound-alike issues, one time consultations, or advisory boards focused on real world safety challenges. Participation is optional, project specific, and designed to respect clinicians' time and professional expertise. We are actively enrolling US-based clinicians at this time, including pharmacists, nurses, physicians, medication safety practitioners, and other healthcare professionals across practice settings. International clinician recruitment will begin soon. Joining the database does not guarantee selection for a project but ensures consideration for future MSB engagements aligned with your background and interests.

Just Culture Scholarship Winners

ISMP has awarded the 2026 **Judy Smetzer Just Culture Champion Scholarships** to three healthcare leaders from St. Joseph Hospital (Nashua, NH), CHI St. Alexius Health (Dickinson, ND), and Allegheny Health Network (Pittsburgh, PA). Six partial winners also were chosen. Click here for the full list. For more about the scholarship and the application process, click here.

To subscribe: www.ismp.org/ext/1368

ISMP Nurse *AdviseERR* (ISSN 1550-6304)

Report medication and vaccine errors to ISMP: Please visit: www.ismp.org/report-medication-error or call 1-800-FAIL-SAF(E). ISMP guarantees the confidentiality of information received and respects the reporters' wishes regarding the level of detail included in publications.

Editors: Ann Shastay, MSN, RN, AOCN; Shannon Bertagnoli, PharmD; Jana O'Hara, MSN, RN, CPHQ, CPPS. ISMP, 3959 Welsh Road, #364, Willow Grove, PA 19090. Email: ismpinfo@ismp.org; Tel: 215-947-7797.