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ISMP Medication Error Report Analysis

Pump Resumes PCA Dosing When Turned Off Then On Again

Safe Ways to Restock Automated Dispensing Cabinets

Anything Missing From This Label?

Letairis, not Letaris

Possible Cross-Contamination With Insulin Vials

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These medication errors have occurred in health care facilities at least once. They will happen again—perhaps where you work. Through education and alertness of personnel and procedural safeguards, they can be avoided. You should consider publishing accounts of errors in your newsletters and/or presenting them at your inservice training programs.

Your assistance is required to continue this feature. The reports described here were received through the Institute for Safe Medication Practices (ISMP) Medication Errors Reporting Program. Any reports published by ISMP will be anonymous. Comments are also invited; the writers' names will be published if desired. ISMP may be contacted at the address shown below.

Errors, close calls, or hazardous conditions may be reported directly to ISMP through the ISMP Web site (www.ismp.org), by calling 800-FAIL-SAFE, or via e-mail at ismpinfo@ismp.org. ISMP guarantees the confidentiality and security of the information received and respects reporters' wishes as to the level of detail included in publications.

PUMP RESUMES PCA DOSING WHEN TURNED OFF THEN ON AGAIN

A pediatric patient was started on morphine patient-controlled analgesia (PCA) using a CADD-Solis Ambulatory Infusion Pump. Later, the treating physician ordered the PCA to be stopped and oxycodone started as needed for pain. The patient's nurse stopped the infusion and turned the pump off. However, the patient was not disconnected from the medication cassette and pump in case he did not tolerate weaning from PCA. Approximately 4 hours after the pump was turned off, the patient's mother, who knew that the pump was supposed to be off, approached a nurse and reported the PCA pump was running and the patient was still receiving doses. The nurse checked the PCA and discovered that it had been restarted at the previous settings. The patient admitted to turning the pump back on and administering 2 mg bolus doses every 15 minutes.

The pump event log was reviewed, and the scenario was recreated with a test pump. The CADD-Solis Ambulatory Infusion Pump does not auto-lock after a power down; thus, users can restart the pump without a security code. According to the reporting institution, this is a major concern; it puts the patient at risk for untoward adverse effects from an opioid overdose and

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puts the institution at risk of drug diversion. This event was reported to Smiths Medical, manufacturer of the CADD-Solis Ambulatory Infusion Pump. The company reported that the pump is functioning as designed. Auto-locking after every power down was not built into the original software design, because, during field testing, users felt this led to an undesirable delay in resuming an ambulatory infusion after a battery change.

Several temporary solutions were proposed by members of the hospital's Medication Error Reduction Committee. These included disconnecting the patient from the pump or removing the medication cassette at the time the pump is discontinued and turned off. However, for this hospital, the solutions were not always practical. Occasionally, pediatric patients will resume their PCA if they do not tolerate initial weaning. Disconnecting the patient from the device, only to resume the therapy several hours later, may lead to an increased risk of a line infection. In this situation, another option would be to reset the PCA dose and continuous infusion rate to "zero" prior to shutting off the pump, so that if the pump is turned back on, a security code must be entered to modify the pump settings.

Smiths Medical has suggested a third option: Remove the battery pack from the PCA device when it is not in use, as the pump will not function without the battery. The reporting hospital expressed concern that batteries will be lost or misplaced, leading to delays in starting infusions and an increased costs to the institution for replacement batteries. Another option might be to purchase lock boxes for the pump, so it cannot be manipulated without action by staff.

The hospital has approached Smiths Medical to request a permanent solution, such as redesign of the software to allow inpatient facilities an option to activate an auto-lock mode after power down. A Smiths Medical representative told us that the company is looking into this. We checked with other PCA vendors; those we spoke with require a series of steps and code entry when the pump is restarted after being turned off. However, we were unable to conduct a review of all pumps on the market.

The hospital reported this event to bring awareness of the risk to patients relative to a software design issue with the CADD-Solis Ambulatory Pump. A patient may receive intravenous or oral opioids in addition to an unauthorized opioid from the PCA, because providers are likely to be unaware that the PCA is still being used. This may lead to opioid overdose, excessive sedation, respiratory depression, and death. The hospital wants other institutions that utilize these pumps to be aware of these risks.

SAFE WAYS TO RESTOCK AUTOMATED DISPENSING CABINETS

A nurse who was trying to retrieve enalaprilat injection from an automated dispensing cabinet (ADC) in the intensive care unit (ICU) discovered a vial of vasopressin mixed in the same pocket with the enalaprilat vials. The vasopressin was removed and returned to the pharmacy. Pharmacy staff recognized that when they restock the ADC, they often package and transport multiple vials of a drug at the same time. Barcode scanning during restocking occurs, but only one of the vials is scanned. Other hospitals have reported similar errors when packaging numerous doses or vials in a plastic bag or container but scanning only the label that is affixed to the outer bag or container, either because the software will not allow all individual packages to be scanned or because it is considered impractical when counts are high. Therefore, there is an ever-present danger that the wrong medication may be transported and placed into the ADC, especially if medications have look-alike packaging, as was said to be the case with vasopressin and enalaprilat vials. Sometimes when selecting a product out of a pocket or matrix drawer, the vial's cap color can be misleading, especially when one cap color has been consistently associated with a particular drug and the product is stored with only the caps in view (see **Figure 1**).

Hospitals that use barcode scanning for restocking ADCs (ISMP believes all hospitals should have this technology) should keep in mind that unless all vials

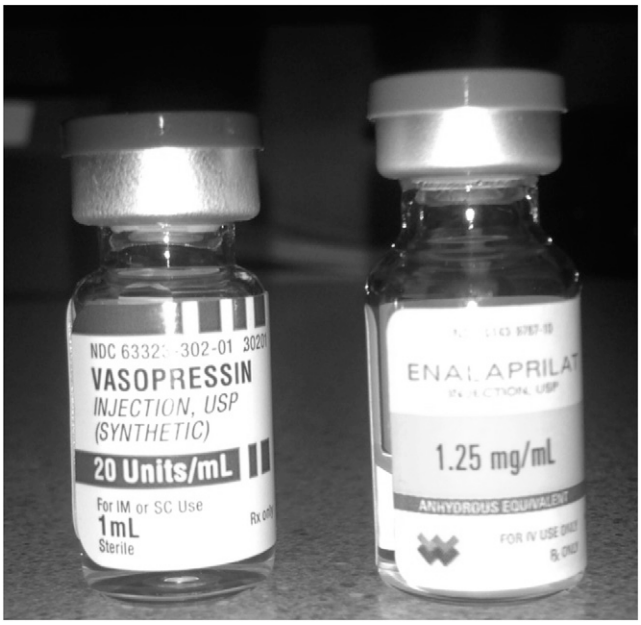

Figure 1.

are scanned, it is just a sampling technique. Organizations need to make sure that other error prevention strategies are also in place. For example, whether or not barcode scanning is used, there is great value in having a pharmacist double-check all the items that are pulled from a carousel or general pharmacy stock prior to leaving the pharmacy. Even though it may seem efficient to transport and refill small vials and tablets in full containers or packs, dispensing or placing large quantities of medication in one pocket should be avoided to reduce the risk of errors. If the ADC has a scanner, the ADC can be set up with a remove function, thus requiring barcode scanning when a nurse retrieves a medication to ensure the medication selected matches the drug on the ADC screen or patient's drug profile.

Since the incident described above, the stock bins in the pharmacy at this facility have been separated and labeled with caution stickers. Incidentally, although the 2 vials involved in this event have the same color caps, the labels are dissimilar and can help to differentiate the products if practitioners read the label and do not rely on cap colors to identify drugs.

ANYTHING MISSING FROM THIS LABEL?

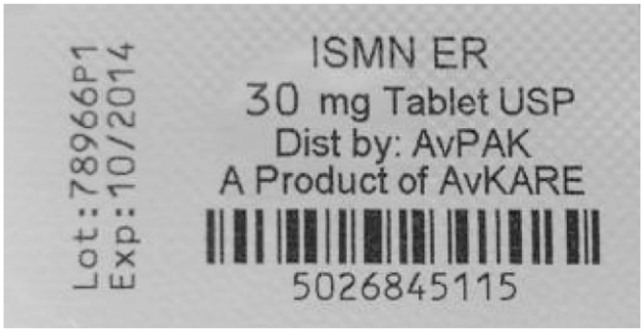

Figure 2.

Yes, the drug name, isosorbide mononitrate extended release (**Figure 2**) is missing on this unit dose package!

Generic manufacturer AvKARE identifies its product by use of a coined abbreviation, ISMN ER. As several pharmacists and technicians informed us, the actual drug name is nowhere to be found on the label. The ISMN abbreviation is pretty close to a registered trademark for West-Ward's isosorbide mononitrate product, ISMO, which does clearly state the generic name on its label. The abbreviation ISMN is unacceptable by itself. The drug name should never be abbreviated, because it is doubtful that nurses or anyone else could locate it in a drug index. We brought the issue to the attention of the US Food and Drug Administration (FDA) and the manufacturer.

LETAIRIS, NOT LETARIS

Letaris is a formerly marketed Dutch brand name for letrozole, which is indicated for the treatment of local or metastatic breast cancer that is hormone receptor positive or has an unknown receptor status in postmenopausal women. Letrozole is known by the brand name *Femara* in the United States. *Letairis* (note the additional letter i after the letter a) is ambrisentan, a drug approved by the FDA for primary pulmonary hypertension. Unfortunately, these names are so close that patients are in danger of getting the wrong drug should a misspelling occur.

Recently, a patient admitted for exacerbation of pulmonary hypertension had a preadmission medication form on which *Letairis* was misspelled as *Letaris*. A search of *Micromedex 2.0* for *Letaris* provided a hit for letrozole, a 2.5 mg tablet. Because *Letairis* is available as a 5 mg tablet, 2 letrozole 2.5 mg tablets might have been used. Fortunately, given the patient's diagnosis, a pharmacist contacted the patient's physician and the error was recognized. The patient's own *Letairis* was used until a supply could be obtained. Spelling it as "Letairis" in *Micromedex* does properly refer one to ambrisentan. However, *Lexicomp*, *Facts & Comparisons*, and *Monthly Prescriber's Reference* (MPR) do not list *Letaris*. We have notified *Micromedex* about this issue. Incidentally, checking with some hospital formularies that can be accessed online, we found that a few misspelled "Letairis" as "Letaris."

POSSIBLE CROSS-CONTAMINATION WITH INSULIN VIALS

A nurse at a prison in Connecticut accidentally injected an inmate with an empty insulin syringe before she realized she had not filled it with insulin. In what was most likely a mental slip, the nurse then used the same syringe and needle to withdraw insulin from a vial, and that vial was later used to prepare doses for other patients (www.ismp.org/sc?id=250). The patient injected with the empty syringe was found to have hepatitis C but tested negative for hepatitis B and HIV. Insulin vials at the prison remained in use until their supply was exhausted or 28 days after opening. More than 70 inmates who may have had insulin from the vial were notified and tested. Previous reports of cross-contamination have mainly involved insulin pens, but it can also happen with vials. The use of 3 mL vials would expose fewer patients if the vial becomes contaminated. Where possible, preparation of patient-specific insulin doses by the pharmacy would greatly reduce the risk of cross-contamination. ■