March 7, 2024 | Volume 29 ■ Issue 5

ISMP
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Acute Care
ISMP Medication Safety Alert!®
Educating the Healthcare Community About Safe Medication Practices

Drug diversion prevention beyond controlled substance medications

Problem: While controlled substance medications are most often thought of as being associated with substance use disorder and are the most common targets for diversion detection programs, medication diversion by practitioners can involve non-controlled substances as well. Medications may be targets of diversion for financial gain due to their high value and/or ease and ability to be sold illegally. Another possibility is that they may be diverted for self-use or for family/friends to self-medicate, or for those who cannot afford the cost of these life-saving medications.

Non-controlled medication targets include high-value medications such as antiretroviral agents and certain cancer medications; performance-enhancing agents like erythropoietin; psychoactive medications (e.g., cyclobenzaprine, **QUE**tiapine, tra**ZOD**one); and medications associated with opioid use disorder such as diphenhydr**AMINE** (to reduce histamine-induced pruritis), ondansetron (to control nausea and vomiting related to opioid withdrawal), and naloxone (in case of an overdose).[1-4]

The drug diversion program manager, Mary Nelson, from HonorHealth in Phoenix/Scottsdale, AZ, presented information on this topic during a November 2023 Medication Safety Officers Society (MSOS) member briefing. She noted that organizations often do not include non-controlled substances as part of their diversion detection programs because they may not understand the rationale as to why practitioners may be diverting non-controlled substances, or they might not know how to monitor them. In turn, practitioners may perceive non-controlled medications as easier to divert because they know that most organizations do not have processes in place to monitor them as closely.

Practitioners who divert non-controlled substances may be self-treating medical conditions (e.g., depression, anxiety) or selecting medications that have a synergistic effect to enhance the effect of other drugs (e.g., sedation, euphoria, dissociation). Practitioners may also dilute or swap patients' controlled drugs for non-controlled drugs (e.g., oxy**CODONE** for acetaminophen) so that the controlled drugs could be kept for self-use or distribution, or use the non-controlled drug as a substitute for controlled waste adjudication. As a result, patients may experience lapses in care (e.g., untreated pain, therapeutic failure), or suffer harm (e.g., side effects, adverse reactions) from unknowingly receiving medication that was not prescribed. There is also the serious risk of patient harm from receiving substandard care from an impaired practitioner and/or the risk of bloodstream infection from compromised vials and syringes.

Potential non-controlled substance diversion scenarios

*When reviewing a report that captured medications removed via override in an automated dispensing cabinet (ADC), a pharmacist noticed a trend with injectable diphenhydr**AMINE**. When a pharmacist investigated further, it was discovered that a specific nurse had several "override canceled" transactions for diphenhydr**AMINE** that occurred before the start of each shift. The pharmacist and nurse manager reviewed the nurse's transactions via surveillance videos, which showed that the nurse removed a vial with each canceled transaction. The diversion response team was consulted, and the investigation confirmed the nurse was diverting diphenhydr**AMINE**.*

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Accidental overdoses and adverse effects from compounded GLP-1 agonists. Glucagon-like peptide-1 (GLP-1) receptor agonists (e.g., **OZEMPIC** [semaglutide], **VICTOZA** [liraglutide]) were originally approved to treat patients with type 2 diabetes by improving glycemic control, along with diet and exercise. They are available primarily in prefilled pen devices. After clinicians and researchers observed that these medications also helped patients lose weight, manufacturers developed specific products (e.g., **WEGOVY** [semaglutide], **SAXENDA** [liraglutide]) indicated for chronic weight management. A dramatic increase in demand for these products, combined with the discontinuation of certain Ozempic presentations, has resulted in long-lasting drug shortages for some of the injectable GLP-1 agonists. Due to these shortages, compounding pharmacies have been preparing versions of the drugs. However, practitioners have reported that medication errors and adverse events have occurred after patients received compounded GLP-1 agonists.

A hospital reported that in less than a week three patients required admission to the intensive care unit due to severe hypoglycemia from compounded semaglutide. In a hotel room gathering, akin to a "Botox party," the patients were given multiple pens, without a prescription, by people they thought were nurses.

In another report, a provider prescribed semaglutide injection for weight loss. However, due to a shortage of prefilled syringes, the patient received compounded medication in a vial with instructions to inject 0.05 mL (5 units) using an insulin syringe. The patient did not understand the instructions and injected 0.5 mL (50 units). They presented to an emergency department (ED) with severe abdominal pain, nausea,

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A pharmacy technician could not locate a bottle of oral ondansetron that had been set aside to be placed in unit dose packages. After searching the pharmacy and inquiring with staff, the technician contacted the pharmacy purchaser to order a replacement bottle. The purchaser recalled that this was not the first time ondansetron had been missing and notified the pharmacy manager. Video surveillance revealed that a pharmacist had been diverting the medication for self-use.

Safe Practice Recommendations: To prevent non-controlled medication diversion, organizations should start by reviewing **Part I** of our previous publication, *Controlled substance drug diversion by healthcare workers as a threat to patient safety* (www.ismp.org/node/64547), which highlights the widespread scope of diversion in healthcare, barriers to recognition, at-risk behaviors, and other signs associated with possible diversion; and **Part II** (www.ismp.org/node/66766), which includes tools for preventing, identifying, reporting, and responding to diversion. Use this information as a starting point for drug diversion response programs and then incorporate medications beyond controlled substances by considering the following recommendations:

List non-controlled drugs at risk for diversion. Based on your organization's formulary, an interdisciplinary diversion response team, ideally led by a dedicated diversion officer, should develop a list of non-controlled substances that organizations should monitor or treat similarly to controlled substances (examples in the second paragraph on page 1). Use this list to address storage configurations of non-controlled substances at risk of diversion. Consider treating these drugs like controlled substances, requiring a blind count (meaning that staff are not aware of the quantity in the inventory system prior to performing counts).

Monitor pharmacy inventory. Use data from pharmacy inventory management systems and monitor the potential for non-controlled substance diversion within the pharmacy. Consider excessive restocking and unexpected stockouts when monitoring procurement, current inventory, and usage.

Consider diversion analytics technology. For rapid identification of suspected diversion, consider machine learning diversion monitoring and advanced analytics software programs. These programs use consolidated data sets from multiple informatics technology systems (e.g., ADCs, electronic health records [EHRs], attendance software, inventory systems, wholesalers) to reconcile stock movement and waste documentation, compare clinical data (e.g., pain scores) with dispensing patterns, detect when staff are accessing ADCs in areas where they do not normally work or are not scheduled to work that day, and trend behavior against other users on the same unit. If using diversion analytics technology, include transactions of both controlled and non-controlled substances.

Evaluate the override list. Through the Pharmacy and Therapeutics (P&T) Committee or equivalent interdisciplinary group, review and approve all medications allowed via ADC override, clinical locations where staff can remove the medications via override, practitioner types who can remove medications via override, and associated policies. During the evaluation process, special attention should be paid to medications that are on the organization's non-controlled substance diversion list. Review the list of medications available by override at least annually and adjust as needed.

Monitor ADC data. Evaluate dedicated targeted reports with a regular cadence (e.g., daily, weekly, monthly) and designate an individual responsible for the review. Based on the organizational non-controlled drug diversion list, analyze ADC data such as canceled transactions, overrides, inventory counts, and discrepancies for unusual or repetitive transactions. If a staff member is identified as an outlier when it comes to high usage of a non-controlled substance on the organizational list (e.g., diphenhydr**AMINE**), this may be the first sign of potential diversion and should be further investigated.

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vomiting, and diarrhea. The hospital noted that there had been an increase in ED visits by patients experiencing accidental overdoses after using insulin syringes to prepare their doses of semaglutide from compounded vials.

The US Food and Drug Administration (FDA) has informed the public that some compounders are not using the same bulk drug substance that Novo Nordisk uses for its commercially available semaglutide products. Both Ozempic and Wegovy are produced using the base form of semaglutide. However, some compounders are using a salt form of semaglutide, including semaglutide sodium and semaglutide acetate.

The FDA is not aware of any basis for compounding using the salt forms that would meet the Federal Food, Drug, and Cosmetic (FD&C) Act requirements for types of active ingredients that can be compounded (www.ismp.org/ext/1324). The use of the salt formulations of semaglutide may have contributed to a different strength or concentration of the compounded products. In addition, compounded preparations using the semaglutide salts have not been proven to be safe and/or effective. There have also been reports of counterfeit semaglutide products that were thought to contain insulin.

Educate staff about these cases and risks involved with compounded semaglutide. Monitor patients for accidental overdose (e.g., hypoglycemia) and adverse effects (e.g., gastrointestinal) from compounded GLP-1 receptor agonists. When obtaining a medication history from patients who take GLP-1 agonists, ask about the medication's name, indication, dose, frequency, formulation (e.g., base, salt), and where they obtained the medication. Encourage patients to obtain prescription drugs only from state-licensed pharmacies that are located in the United States. When problems are found with compounded products, after identifying the compounder, report the problems to the State Board of Pharmacy and the FDA. Share FDA's BeSafeRx campaign (www.ismp.

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Drug diversion reporting program. Establish a reporting platform and maintain confidentiality of staff who report concerns about drug diversion to protect them from retaliation.

Investigate and respond. If diversion is suspected, review the "all transaction" report from the ADC, EHR, surveillance videos, and badging access system. Discuss the findings of the initial investigation with an interdisciplinary diversion response team to determine the next steps. Depending on the team's recommendation, staff may need to be interviewed. Findings should be reported back to the team. While there may be a need to comply with reporting to relevant state and federal agencies, establish a culture of recovery, not solely punishment, for a healthcare worker who is diverting drugs. Include a process to determine the worker's employment disposition, and provide resources, such as access to employee assistance programs, for staff who may have a substance use disorder.

Educate staff. During orientation and at least annually, educate staff about the non-controlled substances that are commonly diverted. Outline the steps implemented to prevent drug diversion, the signs of drug diversion, and how to report and respond to drug diversion. Encourage staff to speak up when it comes to any medication they suspect is being diverted. To alleviate reporting concerns, educate staff on how to report using the reporting platform, and that confidentiality will be maintained to protect them from retaliation.

Evaluate. Organizations should immerse the drug diversion program in continuous process improvement. Gather feedback from staff, review internal and external data, and adjust processes as needed.

We thank Mary Nelson, MSN, RN, CCPS, for sharing a systematic review of HonorHealth's drug diversion program, as well as helping to write this article. Email ISMP (ismpinfo@ismp.org) with questions for HonorHealth.

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Worth repeating...

SUMAtriptan injection wrong route errors continue

ISMP has previously warned about wrong route errors with **SUMA**triptan, most recently in our April 6, 2023 newsletter (www.ismp.org/node/71460). **SUMA**triptan injection for migraine and cluster headaches should be administered as a subcutaneous injection, but we have received reports of it being given intravenously (IV). Most of these errors have occurred while practitioners were simultaneously administering several IV medications to patients and did not notice that **SUMA**triptan should only be administered subcutaneously.

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org/ext/618) with patients. This website provides valuable information about how to safely buy prescription medications online. Report errors to the FDA (www.ismp.org/ext/544) and ISMP (www.ismp.org/report-medication-error).

Safe drug administration during fasting. Fasting is practiced by several religions and cultures around the world. For example, during Lent, many Christians commit to fasting on Ash Wednesday, which was February 14, and Good Friday, which falls on March 29 this year. During Ramadan, which begins on the evening of March 10 and ends on April 9 this year, Muslims who fast refrain from eating and drinking from dawn until sunset. Some practices may allow exemptions from fasting, including if it is detrimental to one's health (e.g., diabetes, immunocompromised condition, pregnancy, the frail and elderly, children). However, many patients with medical conditions choose to fast, which may affect how they take their prescribed medications. Thus, healthcare professionals should be prepared to help these patients manage their medication regimens safely while fasting.

If patients decide to fast, they must be educated regarding the best time to take any oral medications, particularly if drug absorption can be affected by food intake. As a general rule, medications that are dosed once or twice daily can be taken before or with the morning meal and/or with or after the evening meal. A physician will need to assess the risk versus benefit profile of medications that require three or more daily doses and determine the safest administration plan, including the possibility of switching to a slow-release or once daily medication. Patients should be advised to consult a pharmacist if they have questions.

Because teachings may differ regarding which routes of medication administration nullify the fast, specifically ask your patients what routes of administration are acceptable for use without breaking their fast. For example, some teachings may

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The recent errors were attributed to the drug being described as an injection and practitioners assuming that meant it should be given IV. In one report, the subcutaneous route was displayed on the medication administration record (MAR), but the nurse saw "INJ" in the drug description and administered it IV. In a second report, a nurse saw the word "injection" after the medication name in the MAR, and also thought this meant it should be administered IV.

To help prevent these types of errors, we thought it was ***Worth* repeating** some of the strategies presented in our previous articles.

If pharmacy does not prepare and dispense syringes of **SUMA**triptan as needed, create a kit that contains the drug vial with an appropriate size syringe and subcutaneous needle (**Figure 1**). Add an auxiliary label to the kit to specify for "subcutaneous use only."

As an alternative, consider using the nasal formulation of **SUMA**triptan, which has a similar onset of action. While there are also autoinjectors and pens available, these are meant for self-injection by patients. To prevent these types of errors from occurring, manufacturers should provide subcutaneous medications in prefilled syringes with attached subcutaneous needles (and safety guards) to facilitate the correct route of administration.

Figure 1. SUMAtriptan kit contains materials for a subcutaneous injection, including a subcutaneous needle and a warning on the kit label, "Subcutaneous Use Only."

Also, since this error continues to happen, we wonder why some practitioners interpret "injection" or "INJ" with the drug's name and drug description as meaning the medication is for IV administration. Many injectable medications will include the words "injection" or "for injection" with their drug names but are intended for only subcutaneous or intramuscular administration. We have not received repeated reports of wrong-route errors with most of those products. So, why for **SUMA**triptan? We would be interested in learning why this interpretation happens with **SUMA**triptan. Please share your thoughts with us at: ismpinfo@ismp.org. If this is identified as a problem for this drug and others, it may be time to explore whether drug descriptions should contain wording like "INJ" or provide a specific route only.

Special *Announcements*

Become an FDA/ISMP Fellow

ISMP is accepting applications until **March 29, 2024**, for our unique Fellowship program. The ***FDA (US Food and Drug Administration)/ISMP Safe Medication Management Fellowship*** will begin in the summer. For more information, please visit: www.ismp.org/node/871.

Survey on new Best Practices

ISMP is conducting a brief survey to obtain a baseline measurement of the current level of implementation of the new *Best Practices*. We would sincerely appreciate your participation in this survey, regardless of whether you have implemented any of the *Best Practices*. Please complete the online survey by **April 19, 2024**. To access the survey and submit your responses, please visit: www.ismp.org/ext/1323.

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allow administration of eye and ear drops, nasal sprays, asthma inhalers, skin creams, transdermal patches, or subcutaneous injections while fasting, whereas others may not.

For patients with diabetes who choose to fast, dose modifications for insulin or other antidiabetic medications may be necessary. Blood glucose testing should occur throughout the day, and patients should be instructed to break the fast for a blood glucose level less than 70 mg/dL or greater than 300 mg/dL, for symptoms of hypoglycemia or hyperglycemia, or if acute illness occurs. Additional suggestions for managing medications for fasting patients with diabetes, cardiovascular disease, gastrointestinal health issues, or renal disease can be found at: www.ismp.org/ext/252. Also, examples of handouts during Ramadan for patients with diabetes can be found at: www.ismp.org/ext/253 (English) and www.ismp.org/ext/254 (Arabic).

Patient Safety Awareness Week

March 10-16, 2024

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ISMP Medication *Safety Alert!* Acute Care (ISSN 1550-6312)

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