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

Medication orders with future start dates: How far away is too far?

Problem: We received a report about an error that occurred when a pharmacist mistakenly scheduled a daily antibiotic to start the following year instead of the next day. The scheduling error led to omitting one of two prescribed antibiotics, which was not identified until the patient was discharged. Medications with a future start date are needed for hospitalized patients in certain circumstances. For example, there may be weekly or monthly infusion orders, preoperative antibiotics to be administered the day of surgery, vaccines for infants with a prolonged neonatal intensive care unit stay, long-acting antipsychotic injections, and contrast media for radiographic examinations scheduled in advance. However, we cannot think of a single situation in which medication orders would require a future start date of a year or more. Unfortunately, in this case, the electronic health record (EHR) failed to alert the pharmacist to the scheduling error.

The Event

While being treated in the emergency department (ED) and waiting for admission to the hospital, an elderly patient with abdominal pain and diverticulitis received a dose of intravenous (IV) cef**TRIAX**one and IV metro**NIDAZOLE**. The admitting physician placed orders to continue the intermittent infusions of IV cef**TRIAX**one every 24 hours and IV metro**NIDAZOLE** every 8 hours. Since the first dose of cef**TRIAX**one had already been administered in the ED, the pharmacist intended to advance the cef**TRIAX**one start date to the following day, which was the first day of a new month. Instead, the pharmacist entered and verified a start date of the first day of the new month in the following year.

While hospitalized, the patient received IV metro**NIDAZOLE** every 8 hours as ordered. However, the prescribed daily dose of IV cef**TRIAX**one was never administered, although the hospitalist managing the patient thought it was being given. Many nurses also thought the antibiotic was being administered during other shifts since only the medications due on their shift were prominently visible on the electronic medication administration record (MAR). While the hospital had implemented pharmacist rounding on certain high-acuity units, during which each patient's medication profile was reviewed, this patient was in a unit without rounding. During the week, the patient's condition deteriorated and the patient underwent exploratory abdominal surgery. Postoperatively, the surgeon discontinued the IV cef**TRIAX**one and IV metro**NIDAZOLE** orders, and the hospitalist then prescribed IV cefepime and IV metro**NIDAZOLE**. The patient's condition improved, and therapy was switched from IV to oral antibiotics, which were continued upon discharge.

A pharmacist reviewing the patient's antibiotic history prior to discharge discovered that the IV cef**TRIAX**one had not been administered. After review of the event, the organization determined that the omission of cef**TRIAX**one did not play a role in the patient's deteriorating condition or the need for surgery. However, a prescribed medication with a future start date that has been omitted due to a scheduling error can potentially harm patients, particularly if the medication is critical to the patient's treatment regimen.

How Scheduling Errors Happen

The primary methods used to schedule medications with a future start date in a hospital's EHR are outlined below. Our goal is to describe how each methodology capitalizes on human factor characteristics that might assist users in scheduling medications, and then describe the error risks associated with using that methodology.

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SAFETY briefs

COVID-19 vaccine package concerns. In our June 30, 2022, newsletter, we warned about the additional risk of age-related mix-ups now that our youngest patients are eligible for coronavirus disease 2019 (COVID-19) vaccines (www.ismp.org/node/32454). While we already shared many potential risks, we want to highlight specific concerns regarding inconsistencies seen with the labels of the COVID-19 vaccines meant for young children. These concerns were also described recently in an article published in *Pharmacy Practice News* (www.ismp.org/ext/948).

According to the Pfizer-BioNTech *Fact Sheet for Healthcare Providers Administering Vaccine* (www.ismp.org/ext/936) for

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Welcome to **Shannon**, our newest ISMP staff member!

We are pleased to announce that **Shannon Bertagnoli**, PharmD, BCPPS, has joined ISMP as a Medication Safety Specialist, Publications, earlier this year. She develops the content for the acute care newsletter and serves as an editor for our other newsletters and publications. Prior to joining ISMP, Shannon worked at the Children's Hospital of Orange County (CHOC Children's) in California as a pediatric clinical pharmacist for 12 years, and more recently as a Medication Safety & Quality Specialist, where she managed the Medication Safety Committee, the Smart Pump Oversight Committee, the Medication Error Reduction Plan, and a CHOC Children's medication safety blog read by consumers. She received her Doctor of Pharmacy degree from the University of Connecticut and completed her residency at CHOC Children's. Shannon is a Board Certified Pediatric Pharmacy Specialist.

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Calendar tool. Many EHR vendors incorporate a calendar to assist users in modifying the start date of an order. The calendar tool uses visual cues in conjunction with a mouse click to select the correct date, rather than relying on the user to manually type the date using a keyboard. However, the calendar tool can contribute to selecting the wrong date, especially if the arrows to advance the month and year are both provided on the same line or directly above and below each other (**Figure 1**). During investigation of the event, the pharmacist recalled using the calendar tool, intending to advance to the first day of the following month but inadvertently advanced the year, as well. Calendar tools used for home computers are often designed to advance 1 month at a time, which reduces the risk of errors associated with inadvertently advancing the year.

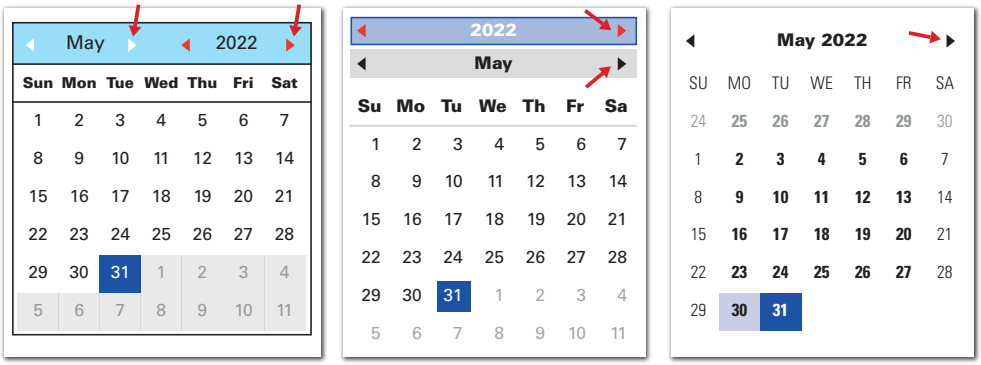

Figure 1. A calendar tool may have arrows side-by-side (left) or on separate lines (middle) to advance (or go back) the month and year. Calendar tools used for home computers are often designed to advance (or go back) 1 month at a time (right), which reduces the risk of errors associated with the year.

T+1 keyboard shortcut. Pharmacists and prescribers may use the shortcut,T+1 (today plus 1 day), if available to advance the start date of a medication to the next day. (Other shortcuts may includeT+2 [2 days from today], M+1 [same day next month], and so on.) Using the shortcutT+1 instructs the computer to advance the start date to the next day, making it easy and efficient for the user. However, if you look at a standard QWERTY computer keyboard, you will notice that the T and Y keys are right next to each other, making it easier to strike the wrong key due to their proximity. If Y+1 is entered instead of T+1, the order date advances by 1 year rather than 1 day.

Manually entering the start date. Another option for advancing the start date is to manually type over the current default date to the desired future date.This may require up to 10 keystrokes in various order formats (e.g., YYYY_MM_DD, MM/DD/YYYY, DD/MM/YY, D/M/YY). Manually entering the date or typing over the default date risks a keystroke error, resulting in the incorrect start date.

Difficulty Detecting the Error

While omission errors are common, future date errors may be underreported because errors with medications that start in the future are not easy to detect. For example, the EHR in the hospital involved in the error above employs a hard stop that will not allow the user to proceed if a medication is ordered or scheduled with a start date *in the past*. However, if a medication order is entered or scheduled with a start date in the future, no warning appears on the screen, and a hard stop does not exist. If the month and day are correct, users may not even notice that an incorrect year has been selected.

Also, in the hospital where the error occurred, prescribers and pharmacists can use certain tabs in the EHR to view a list of all active medication orders, which includes medications with a future start date; however, medications with future start dates do not stand out in any way, and all orders on the active MAR are displayed in a similar color and font. Also, links that automatically pull text into progress notes included a list of all current medication orders, including cef**TRIAX**one with the notation "[START ON XX/XX/2023]." But the incorrect year was not noticed, and the provider's progress

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children ages 6 months through 4 years, the vial labels may state either "Age 2y to < 5y" or "Age 6m to < 5y," and carton labels may state either "For age 2 years to <5 years" or "For age 6 months to <5 years." However, these products can all be used for children 6 months through 4 years. Locations that receive these vials may find it confusing and mistakenly believe the vaccine labeled "2y to < 5y" cannot be used for children younger than 2 years. Also, some labels may say the vaccine should be discarded 6 hours after dilution, while the *Fact Sheet* says it should be discarded 12 hours after dilution. This could lead to unnecessary waste of vaccines.

In addition, on the vial and box of the Moderna vaccine with the purple border, the label specifies, "BOOSTER DOSES ONLY" (**Figure 1**). However, according to Moderna vaccine information (www.ismp.org/ext/935), this product is currently the only primary series vaccine available for use in children 6 through 11 years old.

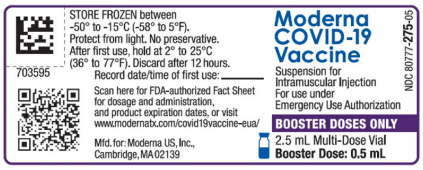

Figure 1. The Moderna COVID-19 vaccine label with a purple border states, "BOOSTER DOSES ONLY," but this product is also authorized to provide primary series doses to individuals 6 through 11 years old.

Practitioners and parents are likely to become confused by these mislabeled products, resulting in missed opportunities to vaccinate more eligible patients. Manufacturers need to modify the labels to reflect the approved age range (Pfizer-BioNTech), the actual time the vial can be used before discarding it (Pfizer-BioNTech), and the primary series indication (Moderna). For now, organizations that use these products should familiarize themselves with these discrepancies and consider posting clarifying information for staff to review (www.ismp.org/ext/937, www.ismp.org/ext/935).

Pharmacists can now prescribe Paxlovid and need to be aware of error risks. Last week, we were happy

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notes stated that the patient was receiving cef**TRIAX**one when he was not. For nurses, medications with a future start date appeared on the MAR in a separate section below the active orders; however, the customizable time frame excluded medications with start dates far in the future, so medications starting a year or more away were not displayed at all.

Safe Practice Recommendations: To reduce the risk of errors when scheduling medications with a future start date, consider the following recommendations.

Assess for Risk

- Run queries in your EHR and conduct a failure mode and effects analysis (FMEA) to assess the risk for this type of error in your organization, closely reviewing the answers to the following questions:
  - ☐ **Capability.** Run a test to determine if the EHR accepts orders for medications with a future start date. How long in the future does your EHR allow start dates for medications? A year or more? Do any alerts or hard stops fire?
  - ☐ **Scope.** How often are medications with a future start date prescribed, which medications are involved, and how far in the future have medications with future start dates been scheduled? Is it a reasonable time frame?
  - ☐ **Appropriateness.** Are the involved medications appropriate for a future start date?
  - ☐ **Process.** What methodologies have been used to schedule medications with a future start date? Are there any error-prone shortcuts that can be used to advance a medication order start date? If your system has a calendar function, what does it look like? Is it intuitive for users to advance the month without changing the year? Is it easy to simply advance by a year instead of a day? Does the workflow allow for pharmacists to verify orders months in advance, or do future orders need to be activated closer to the start date? At what point does the automated dispensing cabinet (ADC) allow a medication with a future start date to be retrieved?
  - ☐ **Appearance.** In the EHR, what does a medication with a future start date look like to prescribers, pharmacists, and nurses? Is it different than current orders? Is the information confusing, or is the information hard to find or missing? How is this information communicated to others on the care team?
  - ☐ **Scheduling.** Have medications with future start dates been correctly scheduled for administration?
  - ☐ **Administration.** Have medications with future start dates (that have already passed) been correctly administered or fulfilled as prescribed?

Restrict the "Year" Shortcut

- Work with your informatics team and EHR vendor to restrict the "Y+1" or "Y+__" shortcut, if available, from being applied to the medication order start date field. Confirm that the shortcut will not work if practitioners accidentally select the "Y" key instead of the "T" key when scheduling medications with a future start date.
- If the shortcut cannot be disabled, use ergonomic keyboards that separate the T and Y.

Create Alerts and a Hard Stop

- Consider building an interactive alert for inpatient medications with an organization-defined future start date (e.g., 1 to 11 months in advance), which requires the prescriber and verifying pharmacist to confirm the accuracy of the future start date.
- Create a hard stop for inpatient medications prescribed or scheduled with a future start date of 1 year or more, which will not allow the prescriber or pharmacist to proceed.

Display Future Medications

- Ensure all prescribed medications, including discontinued/completed medications and medications with a future start date, appear on electronic medication lists, and all active medication orders, including medications with a future start date, appear on MARs. On the MAR, also ensure that future medications display the start date

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to see that the US Food and Drug Administration (FDA) authorized state-licensed pharmacists to prescribe **PAXLOVID** (nirmatrelvir and ritonavir) to eligible patients (www.ismp.org/ext/947). However, certain limitations are outlined in this authorization to ensure the patient is assessed and the medication is appropriately prescribed. Pharmacists should refer patients for a clinical evaluation with a healthcare provider licensed or authorized to prescribe medications, if any of the following conditions apply:

- Sufficient information is not available to assess renal and hepatic function.
- Sufficient information is not available to assess a potential drug-drug interaction.
- Modification of other medications is needed due to a potential drug-drug interaction.
- Paxlovid is not an appropriate therapeutic option based on the current *Fact Sheet for Healthcare Providers* (www.ismp.org/ext/827) or potential drug-drug interactions for which recommended monitoring would not be feasible.

We have previously shared numerous wrong dose errors with Paxlovid (www.ismp.org/node/32452, www.ismp.org/node/29033), and we encourage pharmacists and other practitioners who prescribe Paxlovid to review these error descriptions and associated safe practice recommendations.

HIGH-ALERT

Potassium chloride for injection concentrate 250 mL bags reaching organizations. As the supply of potassium chloride for injection concentrate in 250 mL glass bottles is being depleted, more organizations are now receiving B. Braun's new pharmacy bulk package presentation of potassium chloride for injection concentrate (2 mEq/mL) in a 250 mL EXCEL container plastic bag. Like several B. Braun intravenous infusion bags, this pharmacy bulk package has blue and red labeling, so a mix-up with other look-alike infusion bags could result in the potassium chloride for injection concentrate being accidentally dispensed and administered undiluted. Ensure that

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and time, ideally with a visual cue (e.g., grayed out) that the medication should not be administered prior to the future start date.

Differentiate Future Medications

- On both the MAR and an electronically compiled list of all medication orders, prominently differentiate (e.g., using color, bolding, other type of highlighting) medications with a future start date of more than 24 hours from medications currently being administered and medications that have been discontinued or completed.

Reconcile Medications

- During transitions in care, conduct medication reconciliation to identify any prescribed medications that have not yet been administered because of a future start date. This includes reconciling medications prescribed upon admission with medications the patient took at home as well as medications they received in the ED or another transitory location in the health system.

Review Medications Daily

- Encourage prescribers, pharmacists, and nurses to conduct a daily review of their patients' medication orders, including active medications that are being administered currently, medications with future start dates, and discontinued medications. Using the MAR for this review provides an additional opportunity to identify the frequency of administering PRN medications or the patient's (or family's) refusal of prescribed medications to ensure appropriate follow-up in the plan of care.
- Organizations may use software systems, often integrated with the EHR, to automatically generate daily reports of future orders beyond a certain time frame for practitioners to review to help identify these types of errors.

Conduct Interdisciplinary Rounds

- Conduct interdisciplinary team rounding during which completed, current, and future medications for each patient are discussed. Rounding with an interdisciplinary team to discuss the care of a patient in real time can be a valuable tool that detects errors and improves quality and safety.

Communicate and Educate

- Include the time that medications were last administered during transitions of care handoffs, between shifts and between hospital units, using a standardized method to enhance communication (e.g., SBAR [situation, background, assessment, recommendation]), and document pertinent information discussed in the EHR.
- During nursing orientation, stress the importance of completing the MAR medication order acknowledgment step, which could help identify scheduling errors.
- If the medication with a future start date is an antibiotic, ensure your antimicrobial stewardship surveillance program will detect an error of omission due to an incorrect future start date.
- Communicate the plan of care with the patient and provide them with a copy of their medication list (including discontinued, current, and future medications) to serve as a layer of redundancy and another chance to catch medication errors including omissions.
- Alert staff to this type of medication error and the steps taken by the organization to prevent these errors.

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only the pharmacy can purchase, store, and utilize this product. After purchase and upon receipt of the bags in the pharmacy, open the case and affix large, bold auxiliary warning labels to the overwrap on both sides of all bags. When using this product to prepare compounded sterile preparations, barcode scanning is imperative. Please share this information with your staff and refer to our previously published *National Alert Network* (NAN) publication for additional details on how to prevent potentially fatal medication errors (www.ismp.org/node/31719).

Special Announcements

Apply for a Just Culture scholarship

The Just Culture Company, in cooperation with ISMP, will award three *Judy Smetzer Just Culture Champion Scholarships* annually to honor Judy Smetzer, BSN, RN, FISMP, a retired ISMP vice president. Applications for next year's scholarships are due by **July 31, 2022**. For details and to apply, visit: www.ismp.org/node/30840.

Virtual MSI workshops

Don't miss the opportunity to register for one of our unique 2-day, virtual *ISMP Medication Safety Intensive (MSI)* workshops being offered in 2022. Our next workshop is scheduled for **August 4 & 5, 2022**. For more dates in 2022 and to register, visit: www.ismp.org/node/127.

Nominations for Cheers Awards

Nominations for this year's ISMP Cheers Awards are open and will be accepted through **September 9, 2022**. The Cheers Awards honor individuals, organizations, and groups from various healthcare disciplines that have demonstrated an exemplary commitment to medication safety. To submit a nomination, visit: www.ismp.org/node/123.

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

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ISMP Medication Safety Alert!® ActionAgenda

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, the following selected items from the **April - June 2022** issues of the ***ISMP Medication Safety Alert! Acute Care*** have been prepared for leadership to use with 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. Look for our high-alert medication icon under the issue number if the agenda item involves one or more medications on the ***ISMP List of High-Alert Medications*** (www.ismp.org/node/103). The *Action Agenda* is also available for download in a Microsoft Word and Excel format (www.ismp.org/node/32702). Continuing education credit is available for nurses at: www.ismp.org/nursing-ce.

Key: ⚠ — ISMP high-alert medication

Issue No.	Problem	Recommendations	Organization Assessment	Action Required/Assignment	Date Completed
A trial, a guilty verdict, and sentencing after a neuromuscular blocking agent error					
7, 10 ⚠	In March, former nurse RaDonda Vaught was found guilty of criminally negligent homicide and gross neglect of an impaired adult following the death of Charlene Murphey. RaDonda was transparent about making an error with a neuromuscular blocking agent, and the trial's focus was on her human error instead of the latent organizational system failures that led to the error. ISMP shared our disappointments with the inadequate way the trial was handled, the unfairness of the trial and the guilty verdict, and the verdict's negative impact on the healthcare community. In May, RaDonda was sentenced to 3 years of probation on a diverted sentence.	If you use neuromuscular blocking agents, proactively address the system issues in this case (www.ismp.org/node/1326) so the error is not repeated. Also see our 2016 article about reassessing neuromuscular blocking agent safety (www.ismp.org/node/247) and the ***2022-2023 ISMP Targeted Medication Safety Best Practices for Hospitals*** (*Best Practice* #7, www.ismp.org/node/160). We encourage practitioners to continue to report medication errors, both internally and to ISMP (www.ismp.org/MERP), to facilitate shared learning.			
Added risk of age-related mix-ups now that younger patients can receive coronavirus disease 2019 (COVID-19) vaccines					
13	With the expanded emergency use authorization for patients as young as 6 months old, there are now three age groups, many with different doses and dosing schedules, that are eligible for COVID-19 vaccinations (www.ismp.org/ext/934). As seen previously in other age groups, we anticipate mix-ups will occur with the youngest age group.	Refer to COVID-19 vaccine information from Moderna (www.ismp.org/ext/935) and Pfizer-BioNTech (www.ismp.org/ext/937) for guidance on age-related dosing and vaccination schedules. Segregate storage of the vaccines; verify patient identity, age, and the vaccine(s) requested; verify the vaccine history; label vaccine syringes; employ barcode technology prior to dispensing and administration; and report any vaccine errors.			

Issue No.	Problem	Recommendations	Organization Assessment	Action Required/Assignment	Date Completed
Resolving conflicts about the safety of an order					
10 ⚠	A physician was found "not guilty" of hastening the deaths of terminally ill patients by prescribing large opioid doses, although more than 20 pharmacists and nurses were fired. While it was clear during the trial that some practitioners were uncomfortable with the orders, the prescribing behavior continued for 4 years, perhaps because practitioners were intimidated by the prescriber's exceptional reputation, were easily convinced that the dose was safe, or lacked clear guidance to follow when the prescriber disagreed with the concern.	Develop an effective process for handling medication therapy conflicts, including an escalation process beyond the usual hierarchical structure of referring problems up the chain of command, in case those in authority do not agree with the concern or take it seriously. Create a specialized escalation team that can be called to respond to conflicts about the safety of an order. To promote the need to speak up and to persist with safety concerns, include the conflict resolution process in employee orientation and practice using it in simulations.			
National Alert Network (NAN) Alert: Potassium chloride for injection concentrate in EXCEL plastic bags					
10 ⚠	Due to manufacturing issues, B. Braun began the production and distribution of potassium chloride for injection concentrate (2 mEq/mL) in a 250 mL EXCEL plastic bag instead of a glass container. This revised packaging is remarkably similar to intravenous bags with blue and red labeling/text. A mix-up could prove fatal if this product is accidentally administered undiluted.	Review the NAN Alert (www.ismp.org/node/31719) and take immediate steps to prevent a potentially fatal error. The product should remain in the pharmacy and should not be purchased by, stored in, or dispensed undiluted to patient units. Segregate the product from similar-looking infusion bags. Affix auxiliary labels on the shipping case and both sides of the overwraps and bags. Scan the barcode on the bag before use.			
Numerous wrong dose errors with PAXLOVID (nirmatrelvir and ritonavir)					
13	Paxlovid requires dose modification for patients with moderate renal impairment, which initially required pharmacists to remove nirmatrelvir tablets from blister cards prior to dispensing. In April 2022, a reduced-dose pack became available, but errors continue, including prescribing or dispensing the wrong strength, improper renal dosing, and self-administration errors due to the lack of patient counseling and confusing blister pack instructions.	On drop-down menus, list the strength of Paxlovid as a 300 mg and 100 mg dose pack, or for moderate renal impairment, as a 150 mg and 100 mg dose pack. Confirm the patient's renal function before prescribing or dispensing Paxlovid. Educate practitioners about the reduced-dose blister pack for patients with moderate renal impairment, and teach patients how to take each dose. Avoid prescribing Paxlovid for patients with severe renal impairment.			

Issue No.	Problem	Recommendations	Organization Assessment	Action Required/Assignment	Date Completed
PAXLOVID (nirmatrelvir and ritonavir) drug-drug interaction when taken with ivabradine					
9, 11	A patient took Paxlovid and ivabradine concomitantly and required admission to the emergency department for bradycardia. The concomitant use of Paxlovid and ivabradine is contraindicated given that the ritonavir component of Paxlovid is a strong CYP3A4 inhibitor and ivabradine is a substrate of the CYP3A4 enzyme. This interaction results in the accumulation of ivabradine, which can lead to bradycardia, hypotension, and heart failure.	Educate prescribers and patients about the potential for drug interactions. Ensure that your electronic health records and/or pharmacy computer systems provide alerts for serious interactions. Refer to the US Food and Drug Administration *Paxlovid Patient Eligibility Screening Checklist Tool for Prescribers* (www.ismp.org/ext/921) for information on Paxlovid drug interactions and safe prescribing practices. The checklist also prompts for patient information to gather before prescribing.			
Personal practice changes made after learning firsthand about medication errors at ISMP					
8	A survey of past and current ISMP fellows and staff revealed 10 common topics they have (or would have) addressed or applied in practice after learning about errors from practitioners who have reported them to ISMP. Insights from ISMP past and current fellows and staff can be an inspiration and roadmap for change.	Implement the practice changes ISMP fellows and staff have identified: 1) make error reporting a priority; 2) fully utilize ISMP resources; 3) promote a Just Culture; 4) share risks with colleagues; 5) investigate events completely; 6) develop medication safety teams on clinical units; 7) advocate for a full-time medication safety officer; 8) do not sacrifice safety for timeliness; 9) find an executive medication safety champion; and 10) provide education about key medication safety initiatives.			
Mix-up between mg and mL for pediatric propranolol oral liquid					
8	Propranolol dosing instructions for an infant were communicated to the pharmacy and dispensed with the wrong unit of measure. The prescriber intended for the infant to receive 3.5 mg on day 1, 3.5 mg twice daily for the next 6 days, followed by 7.5 mg twice daily, but these instructions were mistakenly listed in mL (i.e., 3.5 mL vs. 3.5 mg), resulting in a four-fold higher dose than intended based on the concentration dispensed (4 mg/mL).	Doses of oral liquid medication should be prescribed in mcg or mg. Instructions on the patient's label should express the mL amount for each dose. For weight-based doses, the patient's weight is needed to verify the mg/kg dose; prescribers should include the patient's weight on prescriptions. Supply the patient/parent with a measuring device, and teach them how to measure each dose. Also develop a standardized way to round doses of oral liquid medications.			

Issue No.	Problem	Recommendations	Organization Assessment	Action Required/Assignment	Date Completed
Room for improvement with implementing ISMP's three new *Targeted Medication Safety Best Practices for Hospitals*					
9	ISMP conducted a survey of the three new additions to the ***2022-2023 ISMP Targeted Medication Safety Best Practices for Hospitals***: safe oxytocin use, expand barcode technology beyond inpatient areas, and safe use of high-alert medications. The results identified room for improvement, especially in labeling both sides of oxytocin bags; expanding barcode technology in operating rooms; and establishing measures to monitor safety with high-alert medications.	Use the survey results associated with each targeted intervention to prompt interdisciplinary discussions and to identify barriers and enablers to implementation (common barriers and enablers are included in the full article in Table 1, www.ismp.org/node/31512). A worksheet is available (www.ismp.org/node/1506) to help you document your assessment of implementation status, actions required, and assignments.			
Pen injectors need pen needles					
11	Omitted doses and reused needles have been reported when pen needles were not prescribed and/or dispensed along with pen devices (www.ismp.org/node/31803). Some events were attributed to dispensing the wrong pen needles and unfamiliarity with the pen injector.	Check state laws to determine if a prescription is required to dispense pen needles. Create order sets to include pen needles. Remind patients to pick up BOTH the pen injector and needles from the pharmacy, and educate patients regarding how to use the pen device.			
ANDEXXA US nonproprietary name (coagulation factor Xa [recombinant], inactivated-zhzo) differs from the International Nonproprietary Name (INN), andexanet alfa					
12	A pharmacy technician was unable to locate Andexxa after searching by its INN name, andexanet alfa, which is commonly used in professional references but is not on the US labeling. The reversal agent was eventually found after searching by its US nonproprietary name, which is different than the INN. Name confusion could result in a treatment delay for active bleeding.	Alert staff to the INN and US naming convention differences. Confirm consistent naming across all electronic systems, labels, and storage areas, and include the brand name in search fields. If staff are unfamiliar with the US nonproprietary name, consider affixing a temporary auxiliary label noting that the product is also known as andexanet alfa.			
Topical gel (amitriptyline 1%, ketamine 1%) dispensed in an ENFit syringe administered via a gastrostomy tube (G-tube)					
9	A patient accidentally received a topical gel enterally via a G-tube. The compounded topical gel had been packaged in an ENFit syringe, and was scheduled for topical administration at the same time as enteral liquid medications.	Package topical medications in a container that practitioners would expect, such as tubes or jars. If you must use an ENFit or oral syringe, affix a label, "For External Use Only," over the syringe cap and barrel, covering incorrect route-specific instructions.			