April 23, 2020 ▪ Volume 25 Issue 8

SPECIAL EDITION COVID-19

ISMP An ECRI Affiliate

Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

Error-prone dose expression on label of unapproved drug, ascorbic acid, from Mylan

PROBLEM: A pharmacist received an order for 500 mg of intravenous (IV) ascorbic acid for a patient with coronavirus (COVID-19). Although this product was on formulary at the hospital, it was rarely used prior to the COVID-19 pandemic, and the pharmacist had never dispensed it. (In COVID-19 investigational trials, IV ascorbic acid is being used in much larger doses [i.e., 10 or 12 g] after being added to an appropriate diluent, with the theory that it will hasten recovery.)

Figure 1. Mylan 50 mL ascorbic acid vial contains 25 g/50 mL; however, the carton and vial labels only list 500 mg/mL, failing to note the 25 g total contents anywhere on the labels.

After selecting the available vial of ascorbic acid injection (Mylan), the pharmacist noticed that the principal display panel on the carton and vial label indicated that it contained 500 mg/mL (**Figure 1**). This is in conflict with USP <7>, which requires most medication labels to list the total amount of drug and volume in the vial (with the per mL amount below it in parentheses) on the principal display panel. She initially thought the entire vial contained 500 mg. However, the 50 mL vial contains 25 g (25,000 mg) of ascorbic acid. The Mylan website refers to this product as containing "25 g/50 mL (500 mg/mL)," but neither the carton nor the vial label indicates that the entire vial contains 25 g. The label does note that the vial contains 50 mL, but even this is in small font in the top right corner of the principal display panel (following the NDC number).

In this case, the pharmacist asked a pharmacy technician to prepare the 500 mg dose, which she mistakenly stated would require all 50 mL of the product in the vial. However, the hospital used an information technology system for compounding that specified to withdraw 1 mL from the vial for the 500 mg dose. Noting the discrepancy between the pharmacist's verbal instructions and the compounding system instructions, the technician brought the vial back to the pharmacist to question how much to withdraw from the vial. The pharmacist then realized her mistake and that administering the entire vial contents (50 mL, 25 g) would have resulted in a 50-fold overdose.

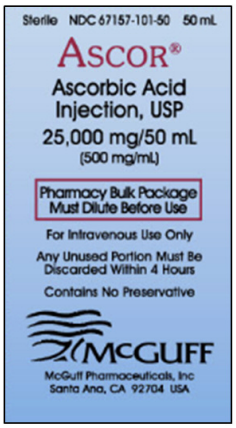

Figure 2. FDA-approved ascorbic acid injection from McGuff Pharmaceuticals properly designates product concentration as 25,000 mg/50 mL (500 mg/mL).

SAFE PRACTICE RECOMMENDATIONS: If you are preparing or administering IV ascorbic acid, please be aware of the error-prone labeling on the Mylan product and on some other manufacturers' ascorbic acid injection vials. The US Food and Drug Administration (FDA) was made aware of the labeling issue; however, the Mylan product is not FDA-approved (www.ismp.org/ext/453). We have learned that Mylan has discontinued

continued on page 2 — Ascorbic acid >

COVID-19 Collaboration

Tripping on extension tubing

A COVID-19 patient was being treated in an intensive care unit (ICU) in a negative pressure room. An ICU nurse had seen a post on social media about another facility placing smart infusion pumps outside of patient rooms to help minimize the use of personal protective equipment (PPE). She decided to implement this workflow. She moved the infusion pump to an anteroom outside the patient's negative pressure room, and used extension sets to run the tubing under the door and to the patient. The patient was receiving intravenous (IV) norepinephrine via the infusion pump to treat hypotension. The extension tubing was on the floor and not secured to prevent a tripping hazard. At some point, staff tripped on the extension tubing, which caused the tubing to become disconnected from the patient for an unknown period. Fortunately, no adverse outcomes were reported in the patient.

Until this event happened, nursing and pharmacy leadership had not planned for this workflow change and did not know that the ICU staff had moved this one infusion pump to the anteroom. However, the event gave the hospital an opportunity to review their processes and the information provided by ISMP in our April 3, 2020 newsletter (*Clinical experiences keeping infusion pumps outside the room for COVID-19 patients*; www.ismp.org/node/15321), as well as explore the experiences of other facilities. Based on that assessment, the hospital determined that, at this time, the risks outweigh the benefits and decided not to position infusion pumps outside of patient rooms.

Identifying QT-prolonging drugs

The nonprofit Arizona Center for Education and Research on Therapeutics (AZCERT) has launched a decision support program to help clinicians manage

continued on page 2 — Collaboration >

> Ascorbic acid — continued from page 1

this unapproved product but some existing product may still be in the marketplace. If you have Mylan ascorbic acid injection, we recommend affixing an auxiliary label to the carton and/or vial indicating the total amount of drug in each vial. Pharmacies can purchase ascorbic acid injection vials from other manufacturers that safely express the total amount of drug in each vial on the label. **ASCOR** (ascorbic acid) from McGuff Pharmaceuticals is an FDA-approved product that lists the total amount (25,000 mg) contained in each 50 mL vial (**Figure 2**, page 1).

Highlights of a COCA webinar on insights from two health systems impacted by COVID-19

On April 17, 2020, the Clinician Outreach and Communication Activity (COCA) presented a webinar, ***COVID-19 in the United States: Insights from Healthcare Systems***. COCA, the Centers for Disease Control and Prevention (CDC) emergency preparedness and response resource, helps prepare clinicians to respond to emerging health threats and public health emergencies by communicating relevant, timely information. This webinar, the latest in a series of a dozen COCA webinars associated with COVID-19, provides an overview of key challenges and successes of the pandemic from the perspective of two profoundly impacted health systems, Mount Sinai Health System in NY and Providence in WA (and other states). If you were unable to attend the webinar last Friday, you can still access a recording of it at: www.ismp.org/ext/452. A summary highlighting some of the interesting points raised during the webinar follows.

CDC

Dr. Aaron Harris from the CDC opened the webinar with the latest statistics about the pandemic in the US, stating that health systems throughout the country are in various phases of the crisis, ranging from pre-crisis to the beginning signs of de-escalation. However, he notes that *all* health systems need to prepare for the pandemic, stressing that those that have excelled at meeting the challenges had emergency plans in place *before* the surge of COVID-19 patients.

AHA

Nancy Foster from the American Hospital Association (AHA) remarked that, while the resources, technology, and infrastructure of US health systems are highly variable, we can all learn from the experiences of others and apply the lessons learned to our own health system. She described the unique challenges experienced by all health systems, including financial and human resource limitations, loss of community trust, and lack of a unified response for health systems that cross state lines.

Mount Sinai

Dr. David Reich from the Mount Sinai Health System, which is beginning to see a downward trend in COVID-19 patient bed occupancy, shared details about how the system was able to conserve personal protective equipment (PPE) by initially reserving N95 respirators primarily for aerosol-generating procedures and limiting extended use of PPE to designated units. In these designated units, red, yellow, and green tape is used to create zone markers to differentiate hot, intermediate, and clean zones.

To support staff, the leaders arranged food donations and created sleeping arrangements, respite stations, and crisis hotlines. To support communication, daily briefings with senior leaders, twice daily huddles with local leadership, twice daily calls with union bargaining units, daily leadership "elbow bump" rounds with frontline staff, and weekly virtual town halls are held. To increase the workforce, clinical staff were redeployed, leaving behind their preexisting titles to become an integral part of a hospitalist team. One lesson learned: when two key leaders in one hospital became

continued on page 3 — COCA webinar >

COVID-19 Collaboration cont'd from pg 1

the risk of QT-prolonging medications when treating patients with COVID-19. **MedSafety Scan** (https://medsafetyscan.org/) is available without charge (registration required) to healthcare professionals treating COVID-19 patients. The program reports if any of the patient's prescribed medications are in the QTdrugs database from the CredibleMeds website (www.crediblemeds.org), calculates the patient's QT-risk score for QT prolongation and torsades de pointes, and screens for major drug-drug interactions and contraindicated drug pairs. Avoiding any non-essential QT-prolonging drugs and implementing electrocardiograph (ECG) monitoring of patients who must take these medications is highly recommended. AZCERT maintains CredibleMeds, an excellent resource for the safe use of medications, with a special focus on drugs that increase the risk of torsades de pointes. CredibleMeds received an ISMP CHEERS AWARD in 2015.

Decontamination of N95 respirators

The preprint (not yet peer reviewed) results of a National Institutes of Health (NIH) study on decontamination of N95 respirators to facilitate reuse during a critical shortage were posted on April 15, 2020 (www.ismp.org/ext/451). The study analyzed four decontamination methods—UV radiation (260 – 285 nm), 70° C dry heat, 70% ethanol, and vaporized hydrogen peroxide (VHP)—for their ability to reduce contamination with the SARS-CoV-2 virus and maintain N95 respirator integrity, particularly filtration performance and fit scores. The data indicate that VHP treatment exhibits the best combination of rapid virus inactivation and preservation of N95 respirator integrity, allowing reuse for up to three times. UV radiation kills the virus more slowly but also preserves N95 respirator function, again allowing reuse for up to three times. Dry heat (70° C) kills the virus with similar speed and is likely to maintain acceptable fit scores for two rounds of decontamination. Ethanol decontamination is not recommended due to loss of N95 respirator integrity.

The authors stress that utmost care should be taken to ensure the proper functioning

continued on page 3 — Collaboration >

> COCA webinar — continued from page 2

ill, the health system found it necessary to redeploy an entire leadership team, and not just replace the two leaders, to help the hospital run smoothly during the pandemic.

The health system expanded critical care capacity by transitioning 10 adult units to 240 adult intensive care unit (ICU) beds, sometimes placing two patients in a single ICU room. The system also converted 260 patient rooms to negative pressure rooms using high-efficiency particulate air (HEPA) exhaust fans. Non-traditional ventilators (e.g., anesthesia machines, transport ventilators, specialty ventilators) were incorporated to maximize capacity. The health system also set up a 68-bed emergency field hospital in tents in Central Park, staffed by Samaritan's Purse physicians and nurses who are caring for dozens of COVID-19 patients.

The health system has recently developed the capacity for in-house testing of workers and patients, allowing for high-volume testing of all staff and patients as of last week, as well as remote patient monitoring and point-of-care testing. They also developed a convalescent plasma program, including protocols for plasma donation, patient selection, consent and enrollment, transfusion, and monitoring. COVID-19 treatment protocols and clinical trials for each level of infection (e.g., moderate, severe, critical, multi-system organ dysfunction) have been implemented, as well as an anticoagulation protocol to address thromboprophylaxis in COVID-19 patients.

Providence

Dr. Amy Compton-Phillips from Providence, which treated the first US hospitalized COVID-19 patient in January, stressed the need for planning to stay ahead of the curve. She described how the health system was able to create a robust epidemic registry and then use the data about patients, staff, locations of care, products, and capacity triggers to support surveillance and planning. She also noted that an emergency command center was provided with nightly reports to guide leadership decisions.

The health system was able to tap into an existing telemedicine platform to ramp up telehealth services, including a chatbot-assessment of symptoms for consumers, acute care and triage telehealth services using experienced telehospitalists, and drive-through testing. The system's telehealth encounters skyrocketed from 70,000 visits per year to 70,000 visits per week. The system has also sent self-monitoring tools (e.g., pulse oximetry unit, thermometer) to patients, primarily to keep at-risk patients at home.

Dr. Compton-Phillips reinforced Dr. Reich's description of the need for leadership communication with the frontline workers. The leaders at Providence maintain a regular cadence of huddles with the emergency operations group each morning, daily regional and system huddles, and daily walk-arounds. Because leaders both talk and listen to frontline workers, the two-way communication has been a flotsam for staff to hold onto in this storm.

Dr. Compton-Phillips also described how the system's emergency departments (EDs) are currently running at about 50% capacity because patients are afraid of contracting COVID-19 and thus deferring treatment for both acute and chronic conditions. She noted that, unfortunately, heart attack and stroke patients are waiting to seek treatment, often arriving in the ED too late to administer thrombolytic therapy. She shared the story of an elderly man who lost vision in one of his eyes and waited 3 days before calling his daughter. By the time he arrived in the ED for assessment and treatment, he had suffered a completed stroke. The health system is now planning for the surge of patients who deferred care during the pandemic, as well as anticipating new patient groups that might need care, including additional waves of COVID-19 outbreaks.

continued on page 4 — COCA webinar >

COVID-19 Collaboration cont'd from pg 2

of the N95 respirator after each decontamination using available fit test tools. They also note that treatments must be carried out for sufficient time (particularly for UV and dry heat) to achieve the desired risk-reduction. The authors suggest that the study's estimated decay rates together with estimates of the degree of real-world contamination can be used to choose appropriate treatment durations. Additional studies about N95 respirator decontamination and reuse can be found at: www.ismp.org/ext/456.

Warn patients not to take ivermectin for animals

On April 10, 2020, the US Food and Drug Administration (FDA) issued a medical product safety alert about a concern that consumers may take ivermectin products intended for animals, thinking they can cure COVID-19 (www.ismp.org/ext/454). After an ePub research article documenting how ivermectin inhibits the replication of the SARS-CoV-2 virus in a petri dish (Caly L, Druce JD, Catton MG, Jans DA, Wagstaff KM. The FDA-approved drug ivermectin inhibits replication of SARS-CoV-2 *in vitro*. *Antiviral Res*. 2020; 178:104787; www.ismp.org/ext/450) was published, the FDA's Center for Veterinary Medicine became aware of increased public visibility of this medication. Ivermectin tablets are approved for human use for the treatment of some parasitic worms, and topical formulations are approved for human use for the treatment of head lice and skin conditions such as rosacea. But in the latest study, no ivermectin was administered to humans. Additional testing is needed to determine whether ivermectin might be appropriate to prevent or treat COVID-19. Please warn patients that they should never take any form of ivermectin, including ivermectin for animals, unless it has been prescribed by a healthcare provider and is obtained through a legitimate source. Medications for animals can cause serious harm in people.

Please help FDA protect public health by alerting the Agency to anyone claiming to have a product to prevent or cure COVID-19. Send an email to FDA-COVID-19-Fraudulent-Products@fda.hhs.gov or call 1-888-InfoFDA (1-888-463-6332).

continued on page 4 — Collaboration >

> COCA webinar — continued from page 3

The health system is using its COVID-19 response as an opportunity to learn from the past and re-imagine their role in the future. The system is considering far-reaching changes ranging from modifications in the reimbursement system to further use of the technology tools, including telemedicine, that helped get them through the crisis.

Mount Sinai and Providence are willing to share their processes and tools associated with COVID-19, so if you have questions or inquiries, please reach out via email to: David.reich@mountsinai.org and/or COVIDresponse@providence.org.

Worth visiting...

American Diabetes Association (ADA)—Town Hall: Inpatient Care for People with Diabetes & COVID-19 (www.ismp.org/ext/434)

The ADA has posted a free webinar on the hospital management of patients with both diabetes and COVID-19. The webinar presents a panel of experts who provide in-depth opinions about the complex management of these patients, from insulin therapy for both type 1 and type 2 diabetes, to the management of hyperglycemia and ketoacidosis. The panel also provides expert advice about treatment in patients with insulin resistance, comorbid conditions (e.g., obesity, renal insufficiency, underlying pulmonary and cardiac disease), as well as those undergoing a cytokine storm brought on by COVID-19.

American Society of Health-System Pharmacists (ASHP)—Field/Surge Hospital and ICU Bed Expansion Responses to COVID-19 (www.ismp.org/ext/435)

Early in April, ASHP published responses to questions related to preparing for field and surge hospitals, including establishing new ICU beds, staffing needs, use of automation and electronic health records (EHRs), as well as other advice and considerations. One of the questions relates to how hospitals are assessing historic drug use for allocation in the new field/surge hospital(s). This information was collected during the last week in March from practice sites across the country, including NY and WA. From new supplier agreements to plans for sterile compounding support, this resource provides important information (now available to non-members) for hospitals considering their options for overflow patients.

Wolters Kluwer—COVID-19 Resources & Tools (www.ismp.org/ext/437)

Wolters Kluwer is making various COVID-19 updates and resources available at no charge. This includes free access to *UpToDate*, podcasts, Emmi videos, both patient and healthcare provider resources from journals published by Wolters Kluwer and Lippincott, as well as curated resources and tools available through Ovid.

Medscape—COVID-19 Clinical Guidelines (www.ismp.org/ext/448)

Medscape has compiled more than a dozen 2020 COVID-19 clinical practice guidelines from various national and international professional organizations. Examples include: preparing the workplace for COVID-19, from the Occupational Safety and Health Administration (OSHA); surgical triage of patients with breast cancer, from the COVID-19 Pandemic Breast Cancer Consortium (CPBCC); performing procedures on patients with known or suspected COVID-19, from the American Society of Anesthesiologists (ASA); COVID-19 ventilation clinical practice guidelines, from the European Society of Intensive Care Medicine (ESICM) and the Society of Critical Care Medicine (SCCM); and the management of COVID-19 infection during pregnancy, childbirth, and the neonatal period, from the International Society of Ultrasound in Obstetrics and Gynecology (ISUOG).

COVID-19 *Collaboration* cont'd from pg 3

FDA management of drug shortages

The US Food and Drug Administration (FDA) has issued a guidance to manufacturers (www.ismp.org/ext/395) to help them provide the agency with timely and informative notifications about changes in the production of certain drugs and biological products. FDA has been closely monitoring the medical product supply chain with the expectation that it may be impacted by the pandemic, potentially leading to drug shortages. In urging the timely submission of notifications, the guidance may assist the FDA in its efforts to prevent or mitigate shortages of such products, including under circumstances outside of the COVID-19 pandemic.

Announcement

Public survey on COVID-19 symptoms

The Regenstrief Institute, a research organization driven by a mission to connect and innovate for better health, is conducting a 3-minute public survey to track the coronavirus and understand who might be experiencing symptoms. Your assistance will help medical communities better monitor trends in symptoms and guide the official response in key regions. The Institute may share the survey findings with the general public through scientific publications, collaborations with other scientists, and postings on various news organization websites. To take the survey, visit: www.ismp.org/ext/436.

To subscribe: www.ismp.org/node/10

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

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

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 January – March 2020 issues of the *ISMP Medication Safety Alert!* 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. (The March 26, 2020, COVID-19 Special Edition newsletter has been excluded from this Action Agenda; all topics presented this quarter are not directly related to COVID-19.) 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 Microsoft Word and Excel formats (www.ismp.org/node/15692) that allow expansion of the columns in the table designated for organizational documentation of an assessment, actions required, and assignments for each agenda item. Continuing education credit is available for nurses at: www.ismp.org/nursing-ce.

Key: ⚠ — ISMP high-alert medication

Issue No.	Problem	Recommendation	Organization Assessment	Action Required/Assignment	Date Completed
Errors associated with oxytocin (PITOCIN) use					
(3) ⚠	Analysis of oxytocin error reports uncovered 5 themes: 1) selection of the wrong drug (e.g., oxy**CODONE**) on screens when searching using only the first 3 letters); 2) look-alike vials (e.g., ondansetron) and names (**PITRESSIN**, a discontinued brand of vasopressin); 3) nurse admixture without complete labeling; 4) infusion bag swaps with magnesium sulfate or Lactated Ringer's, and inconsistent terminology to express the rate of infusion; and 5) lack of clear communication during hand-offs in care.	Require at least 5 letters of a drug name when searching electronic systems. Develop standard order sets and have pharmacy dispense oxytocin in ready-to-administer, labeled bags in standardized concentrations. Use barcode scanning technology. Standardize oxytocin dosing units and infuse through a smart infusion pump with an engaged library. Label and trace lines when starting infusions, and immediately discard discontinued infusion bags. Use communication strategies (e.g., SBAR) during transitions of care.			
Scanning issues associated with barcodes on curved surfaces					
(1) ⚠	Scanning difficulties occur when barcodes are placed horizontally on curved surfaces of containers. Problems with fenta**NYL** ampules (Hospira) have been reported. The company plans to change the barcode to a vertical orientation.	Alert staff to the potential difficulty with scanning barcodes on curved surfaces. If experiencing scanning issues that could impact patient safety, consider procuring the product from a different manufacturer with a vertical barcode orientation.			
Rocuronium peel-off label (Fresenius Kabi) shows amount per mL not per vial					
(3) ⚠	A peel-off overlay on the label of Fresenius Kabi rocuronium 5 mL vials expresses the concentration as 10 mg per mL, not 50 mg per 5 mL, as noted on the label under the overlay. Staff could think the vial contains 10 mg, not 50 mg.	Fresenius Kabi will be removing the peel-off overlay from the vial. Until that happens, pharmacy should remove the overlay before dispensing the vials. Additional peel-off labels are provided in vial cartons for syringe labeling.			

Issue No.	Problem	Recommendation	Organization Assessment	Action Required/Assignment	Date Completed
Two new Best Practices in the *2020-2021 Targeted Medication Safety Best Practices (TMSBPs) for Hospitals*					
(4) ⚠	The TMSBPs (www.ismp.org/node/160) consist of 16 Best Practices, including 2 new practices: #15) Verify and document a patient's opioid status prior to prescribing and dispensing certain opioids; and #16) a. Limit the variety of medications removed via override from an automated dispensing cabinet (ADC); b. Require an order before removing a medication from an ADC; c. Monitor ADC overrides; and d. Periodically review the medications available via override.	ISMP encourages hospitals to implement the two new Best Practices as well as the older ones. Helpful accompanying resources include the TMSBPs Frequently Asked Questions (FAQs) (www.ismp.org/node/14369) and an Implementation Worksheet (www.ismp.org/node/1506). Also, please take our survey (www.ismp.org/ext/350) on baseline implementation of the two new practices so we can measure improvement over time.			
Smart infusion pumps with dose error-reduction systems (DERS) should be used in the operating room (OR)					
(5) ⚠	Use of smart infusion pumps with DERS in the OR by anesthesia providers is limited due to unique challenges. If anesthesia providers use smart pumps with DERS, data can be analyzed to improve safety. A recent analysis from anesthesia providers using smart pumps showed frequent programming of propofol and dexmedetomidine in excess (3- to 4-fold greater) of labeled dosing for an hour or more. These dose excursions were likely caused by not using the pump's bolus dose feature and lack of hard stops when using pumps in anesthesia mode.	Make use of smart pumps with DERS an expectation in the OR. Engage anesthesia providers in the building of the smart pump library, implement upper and lower hard dose limits, and restrict the use of pumps in anesthesia mode. Require use of the bolus feature (with hard limits for catastrophic doses), and do not allow the delivery of bolus doses by increasing the rate of infusion. Train anesthesia providers to use smart pumps with DERS, including the bolus dose feature. Analyze pump data to understand and improve practice. Also see the ISMP guidelines on smart infusion pumps: www.ismp.org/node/972.			
Containers with dual linear barcodes lead to scanning the wrong barcode					
(3)	Some intravenous (IV) products, such as ce**FAZ**olin Duplex containers (B. Braun), have two linear barcodes: one for the lot number/expiration date, and the other for the national drug code (NDC). If a nurse scans (or the scanner "reads") the barcode with the lot number/expiration date, the unsuccessful scan can lead to a delay and calls to the pharmacy.	If pharmacies are not using the lot number and expiration date linear barcode, completely block out that barcode before dispensing to help ensure nurses use the correct barcode to scan for product identification. We have contacted B. Braun to suggest replacing the lot number/expiration date linear barcode with a 2D barcode that also includes the NDC number.			

Issue No.	Problem	Recommendation	Organization Assessment	Action Required/Assignment	Date Completed
Unsafe expression of strength on Teva vials of haloperidol decanoate injection					
(3)	An automated dispensing cabinet (ADC) was almost refilled with 5 mL vials of haloperidol decanoate injection (50 mg/mL) instead of 1 mL vials. Both the 5 mL vial and outer carton labels list the strength per mL (50 mg/mL) rather than prominently noting the total amount per vial (250 mg/5 mL), as required in USP <7>.	If a 250 mg vial is needed, purchase it from a different manufacturer until Teva product labeling is updated using the proper format for listing the concentration. Also ensure that barcode scanning of the product occurs when the ADC is refilled.			
Waste and error risk tied to packaging of STIVARGA (regorafenib), an antineoplastic agent					
(2) ⚠	Stivarga comes in a carton containing three 28-count bottles of 40 mg tablets, which are needed for the recommended dose of 160 mg daily for 21 days of a 28-day cycle. However, reduced dosing (120 mg or 80 mg daily) may be required. Since tablets must be stored in the original bottle, some pharmacies dispense the full carton, which can lead to leftover tablets, waste, taking extra doses, and improper insurance billing.	To prevent patients from taking extra tablets when prescribed lower doses, teach patients that there is more medication than needed and instruct them on what to do with the leftover medication. Provide patients with a dosing calendar for the 4-week cycle that blocks off the final 7 days, when no medicine should be taken. Patient education material is available from Bayer at: www.ismp.org/ext/337.			
Methadone overdose linked to errors in prescribing, dispensing, and administering the drug					
(4) ⚠	When prescribing methadone oral solution 2.5 mg twice daily, a physician selected a concentrated solution (10 mg/mL) rather than a 1 mg/mL solution. Not recognizing that only 0.25 mL would be needed for each dose, a pharmacist dispensed a batched oral syringe (60 mg/6 mL). Instead of scanning the patient-specific barcode on the syringe, the nurse scanned the barcode on the outer bag, which failed to warn her to administer only 0.25 mL. The nurse administered the entire 6 mL (60 mg), as did an evening nurse.	Order entry systems should default to the most appropriate concentration of the product based on the patient's dose. Pharmacy-prepared oral syringes that contain patient-specific doses should be dispensed for high-alert medications; one syringe should equal one dose. If products must be batched, a single, patient-specific barcode should be available for nurses to scan at the bedside. If using batched products, standardize doses to match commonly prescribed doses in your facility.			

Issue No.	Problem	Recommendation	Organization Assessment	Action Required/Assignment	Date Completed
Auxiliary label obscures critical reconstitution information on REVATIO (sildenafil) oral suspension carton label					
(4)	An oral suspension of Revatio requires a total of 90 mL of water for reconstitution; 60 mL followed by an additional 30 mL. A pharmacy technician missed adding the 30 mL aliquot because an auxiliary label placed on the carton obscured part of the instructions. The reconstitution instructions do not appear on the medication's immediate container.	Do not obscure important information with auxiliary labels, price stickers, or other labels that are affixed to medication cartons or containers. Make sure reconstitution instructions are clearly visible.			
Generic insulin pen (70% insulin aspart protamine/30% insulin aspart) needs to be relabeled					
(5) ⚠	A new generic insulin pen for the **NOVOLOG MIX 70/30 FlexPen** does not specify the insulin ratio on the syringe or carton, unlike the brand product. The 70/30 ratio is only in the package insert. A 10 mL vial of the generic insulin also does not list the 70/30 ratio on the label.	Relabel or add an auxiliary label to note the ratio expression and to note that each 100 units contains 70 units of insulin aspart protamine and 30 units of insulin aspart. ISMP has recommended label redesign to both the US Food and Drug Administration (FDA) and the manufacturer.			
Top 10 medication errors and hazards in 2019					
(1) ⚠	ISMP's top 10 medication errors and hazards in 2019 included: 1) selecting the wrong medication from a computer screen; 2) daily instead of weekly oral methotrexate; 3) look-alike product labeling; 4) misheard verbal orders; 5) unsafe automated dispensing cabinet overrides; 6) unsafe IV push practices; 7) intraspinal tranexamic acid; 8) unsafe 503b compounder labeling; 9) use of syringes for vinca alkaloids; and 10) 1,000-fold zinc overdoses.	These issues warrant your attention and priority given the serious consequences of an error. Review the list of errors and hazards in detail and implement the recommended actions to mitigate these risks (www.ismp.org/node/13939). Include strategies to prevent these errors and hazards in your 2020 strategic medication safety improvement plan.			
Nizatidine confused with tiZANidine					
(1)	A recall of ranitidine led a hospital to substitute it with nizatidine. Shortly thereafter, nizatidine was mistakenly prescribed instead of ti**ZAN**idine. Both drugs have similar letters, with the last 5 letters (-idine) overlapping exactly.	Alert practitioners to the risk of confusion between nizatidine and ti**ZAN**idine. Use tall man letters when expressing ti**ZAN**idine. Reduce possible dispensing and administration errors by using bar-code scanning during product selection.			