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 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. Each item includes a brief description of the medication safety problem, a few recommendations to reduce the risk of errors, and the issue number (S = supplement) to locate additional information. **Please note: many problems published in the COVID-19 Special Edition newsletters have not been included unless they are still relevant today.** 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/18837) that allows 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
Double concentration (2%) propofol now available					
(9 - S, 12) ⚠	Due to shortages of propofol 1% (**DIPRIVAN** and generics, 10 mg/mL), Fresenius Kabi received an emergency use authorization from the US Food and Drug Administration (FDA) to import **Fresenius PROPOVEN** 2% (propofol 20 mg/mL) emulsion in 100 mL vials. If the double concentration of this imported product is overlooked, overdoses may occur.	Alert practitioners to the double concentration. Post a wall chart (www.ismp.org/ext/479) and distribute Fact Sheets (www.ismp.org/ext/480; www.ismp.org/ext/481) about how the product differs from propofol 1%. Apply warning stickers to each carton and vial. Update drug databases and smart pump libraries to reflect the double concentration. Affix a barcode if the international barcode does not scan.			
Prepare for vials of neuromuscular blocking agents without cap warnings					
(11) ⚠	Due to a drug shortage, Gland Pharma Limited is allowed to manufacture and market vecuronium and rocuronium vials without the usual, required warning on the vial cap, "Warning: Paralyzing Agent." The vial and carton labels will remain unchanged. The absence of the cap warning may lead to potentially fatal drug selection errors with look-alike vials.	Alert staff about the absence of the usual warning statement on the vial caps. Affix auxiliary labels noting, "Warning: Paralyzing Agent," to vial caps, store the vials lying down (not cap up) so labels are visible, and use barcode scanning during preparation and administration. For additional strategies, visit: www.ismp.org/node/247 and www.ismp.org/node/160.			
Ventilator arms may break from the weight of 2 liter bags of sterile water					
(6 - S) ⚠	Hanging a 2 liter bag of sterile water for humidification on the articulated arm of a ventilator may cause the arm to break due to the weight of the bag. Similar concerns have been reported with 1 liter bags of sterile water, which also may be inadvertently infused as intravenous (IV) fluids.	Use hard-sided sterile water containers to differentiate them from IV fluids. Avoid using 1 liter sterile water bags outside of the pharmacy because they look too similar to IV bags (www.ismp.org/node/160). Ventilator arms will not support humidification fluids, so use a pole labeled "For Respiratory Use Only."			

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Education is "predictably disappointing" and should never be relied upon alone to improve safety					
(11)	Education alone is a weak, low-value, improvement strategy, despite being healthcare's go-to response to a problem. Education relies heavily on human memory and vigilance, and ranks among the least effective interventions, far below high-leverage, system-based strategies such as forcing functions, barriers and fail-safes, and automation. Unless a knowledge deficit is uncovered, education does little to address human error or policy/procedure violations, or to change unsafe, complex habits.	A single strategy, particularly one as weak as education, is not enough to change behaviors and prevent errors. Instead, numerous high-leverage risk-reduction strategies that improve system reliability must be layered together, on top of education, to create a more robust safety system. This is important for organizations in their quest to attain highly reliable outcomes. A table of key safety strategies for improvement, including examples with high-alert medications, can be found at: www.ismp.org/node/635.			
Labeling confusion with investigational use intravenous (IV) remdesivir vials					
(9-S)	An adult protocol called for a loading dose of IV remdesivir 200 mg, followed by 100 mg doses. But two 100 mg vials were used to prepare each of the subsequent doses. Like many investigational drugs, the vials were not clearly labeled. Vials of lyophilized powder list the total amount of drug (100 mg) on the label. But one vial presentation of the injectable solution lists only the per mL amount (5 mg/mL) and total volume (21.2 mL).	Add a barcode label to each remdesivir container so that it can be scanned to verify the product prior to preparation. Consider adding an auxiliary label to injectable solution vials to note the total amount of drug (100 mg). Provide prescribers, pharmacy staff, and nurses with a remdesivir Fact Sheet (www.ismp.org/ext/483) or Pharmacy Guide (www.ismp.org/ext/484), which are available from the manufacturer.			
US Food and Drug Administration (FDA) removes syringe administration from vinCRIStine labeling					
(12) ⚠	In 2019, ISMP called on FDA to eliminate vin**CRIS**tine syringe administration in official product labeling. More than 130 deaths have occurred from accidental intrathecal injection of the drug via syringe—no cases have been reported with dilution of the drug in a minibag. In June 2020, FDA asked Pfizer to revise the product labeling. Pfizer complied, removing all references to vin**CRIS**tine administration via syringe from the package insert.	To reduce the potential for fatal medication errors due to incorrect route of administration, vin**CRIS**tine should be diluted in a flexible plastic container and prominently labeled as indicated "FOR INTRAVENOUS USE ONLY—FATAL IF GIVEN BY OTHER ROUTES." The practice of dispensing and administering vin**CRIS**tine via syringe should be eliminated.			

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Leadership support is vital during the coronavirus (COVID-19) pandemic					
(8-S)	As healthcare providers work in under-resourced environments and deal with the risk of infection during the COVID-19 pandemic, they look to leadership to support their well-being, health, and safety. In a survey, only half of the participants strongly agreed that their employers have communicated a clear plan of action for COVID-19; and only 1 in 3 are confident that they will be safe if they follow their organization's policies during this public health crisis.	Leaders can support staff by 1) creating a safe haven for staff to retreat, reflect, and talk to each other away from their work units; 2) creating an environment of trust, fairness, and compassion; 3) balancing critical information with positive updates to help staff maintain a positive mindset; 4) communicating transparently; and 5) being a visible leader in patient care units. ISMP encourages all leaders to review the full article for additional recommendations to support staff during this crisis (www.ismp.org/node/17459).			
Differences between human error, at-risk behavior, and reckless behavior					
(12)	Organizations often struggle with differentiating and responding justly to human error, at-risk behavior, and reckless behavior. Human error is inadvertent. With at-risk behaviors, often staff knowingly violate policies and procedures because they have lost the perception of risk associated with the violation or mistakenly believed it to be insignificant or justified. Reckless behavior is the conscious disregard of what is known to be a substantial and unjustifiable **RISK** (not just the conscious disregard of a policy).	In a Just Culture, human error is managed by consoling the individual and redesigning the system to make it more human-error proof. At-risk behavior is managed by coaching the individual to see the risk, system redesign, and a reward system that encourages safe behavioral choices. Reckless behavior is managed through disciplinary actions. The focus of safety programs should be the just and proactive management of at-risk behaviors, not just the management of inescapable human error and the rare reckless behavior.			
Keeping infusion pumps outside of COVID-19 patients' rooms					
(6-S)	Many hospitals position infusion pumps outside of COVID-19 patients' rooms to conserve personal protective equipment (PPE) and reduce staff exposure. Hallways may become cluttered, tubing may become disconnected, patient verification during drug administration outside of the room is a challenge, medications take longer to reach the patient, and the tubing may pose a tripping hazard.	While recognizing that this is not ideal, hospitals must weigh the risk versus benefit of positioning infusion pumps outside of COVID-19 patients' rooms. A special report from ECRI guides the selection and use of long extension sets for this purpose (www.ismp.org/ext/400) and factors to consider (e.g., fluid viscosity). Never position pumps in the hallway for two patients occupying a single room.			

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Standardizing critical care drug infusions					
(7-S) ⚠	When programming a norepinephrine infusion via a smart pump outside of a patient's room, a nurse selected a weight-based (mcg/kg/minute) dosing option rather than the prescribed mcg/minute infusion rate. She also selected the maximum concentration in the library (32 mg/250 mL) instead of the prepared concentration (4 mg/250 mL). Nurses also suspected that the patient received bolus doses of the drug when flushing the line.	Standardize dosing units to either weight-based (mcg/kg/minute) or non-weight-based (mcg/minute) for norepinephrine. The American Society of Health-System Pharmacists (ASHP) *Standardize 4 Safety* initiative recommends using mcg/kg/minute dosing units for norepinephrine (www.ismp.org/ext/446).			
Incorrect use of a smart infusion pump in the operating room (OR) leads to milrinone overdose					
(9) ⚠	An anesthesia resident started a milrinone infusion in the OR using a smart pump in "anesthesia mode." He entered the concentration as **200 mcg** in 100 mL, when the Hospira premixed infusion he was hanging contained **20 mg** in 100 mL. The bag label emphasized the per mL amount (200 mcg) rather than the total drug in the bag (20 mg). The error resulted in a rapid infusion and overdose, requiring patient monitoring in critical care.	The use of smart infusion pumps with an engaged drug library should be expected in the OR. Hands-on education about how to use smart pumps along with competency assessments should be implemented for all anesthesia providers. When possible, implement upper and lower hard limits for medication doses, concentrations, infusion rates, loading and bolus doses, and limit the use of "anesthesia mode."			
Subtherapeutic heparin infusions: Is your organization at risk of bypassing soft low-dose alerts?					
(10) ⚠	In a large health system, most heparin infusions required weight-based dosing using a standardized, indication-based protocol. After a smart pump programming error resulted in a subtherapeutic heparin dose of 12 units/hour, analysis of aggregate pump data identified 25 similar cases within a 2-month period. When programming the pump, users had selected "non-weight based" heparin in error, often overriding the resulting low-dose alert.	Standardize to weight-based dosing to reduce the risk of administering heparin infusions as *units/hour* instead of *units/kg/hour*. If there are indications for which weight-based heparin dosing is not feasible, limit the non-weight-based programming choice to the care area/profile where it is needed. Establish a hard stop for heparin low-dose alerts. Implement smart pump interoperability or employ an independent double check for user-programmed heparin infusions.			