ISMP
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Acute Care
ISMP Medication *Safety Alert!* ®

Educating the Healthcare Community About Safe Medication Practices

Just Culture, medication error prevention, and second victim support needed in nursing curriculum

Preparing professional nursing students to administer medications to patients successfully after they graduate is a fundamental goal of academic nursing programs. But what happens in the process of learning when a student nurse makes a medication error? Despite a solid curriculum, simulated experiences, and sophisticated faculty guidance around the basic knowledge, skills, and attitudes associated with medication administration, some nursing programs operate within a culture that is disciplinary and punitive, meting out official reprimands, remediation, failing grades, additional work assignments, or even dismissal from the program when a medication error happens. This appears to be the case following an event that was recently reported to ISMP by the concerned colleague of a nursing student.

The Event

A student nurse provided the mother of an 11-year-old postoperative patient with a packet of an amino acid, vitamin, and mineral nutritional supplement that promotes wound healing. He observed the mother adding it to the bottle of sports drink that the child was sipping. Because the nutritional supplement was not technically a "medication" in the student's mind, the student never thought to scan the barcode on the packet prior to giving it to the child's mother. Later, when documenting the nutritional supplement on the child's medication administration record (MAR), the student began to think that perhaps he should have scanned the nutritional supplement packet.

Response to the Event

The student nurse immediately reported the event to his instructor, and together they went back to the child's room and scanned the empty nutritional supplement packet that had been added to the child's sports drink. The instructor discussed with the student the need to scan all products, including nutritional supplements, prior to administration. However, although the correct nutritional supplement had been given to the right patient at the right dose and time, and was being administered (sipped by the child) by the right route, the instructor identified the event as a "medication error" for which the student nurse was "severely" punished (no description of the "severe" punishment was provided). The instructor did not require the student to complete a hospital medication error report.

In response to being "severely" punished for making a "medication error," the student thought that the event might have been a "near miss" and suggested this to

Please take our survey!

ISMP is conducting a short survey to get a sense of the current level of implementation of the **2020-2021 Targeted Medication Safety Best Practices for Hospitals.** We would appreciate your participation in this survey (www.ismp.org/ext/702) by **June 30, 2021,** regardless of whether you have implemented the Best Practices. The survey questions are provided on **pages 5-6** for your review prior to taking the online survey. ISMP plans to present the results of this survey during the American Society of Health-System Pharmacists (ASHP) Midyear Clinical Meeting and Exhibition in December 2021. The findings will also be described when introducing the new **2022-2023 Targeted Medication Safety Best Practices for Hospitals** early in 2022.

SAFETY briefs

Misconnection between cecostomy and gastrostomy. An 8-year-old patient was inadvertently given three liquid medications (acetaminophen, lansoprazole, and sucralfate) through a cecostomy instead of a gastrostomy (G-tube). The "button" cecostomy was in place to manage baseline constipation at home with saline flushes. The cecostomy was attached to an extension set for the flushes. The patient also had a gastrostomy button for her G-tube. Buttons are low profile devices that are anchored with a balloon to the abdominal wall (**Figures 1** and **2**), whereas cecostomy and gastrostomy tubes extend for several inches and need to be taped to the abdomen between use. Also, button devices are not visible under clothing. Common button devices include the Mic-Key button (Avanos; often pronounced "micky," **Figure 1**) and the Applied Medical Technology (AMT) MiniONE.

Figure 1. A Mic-Key device with balloon anchor.

Figure 2. A Mic-Key gastrostomy button for an infant.

In this case, when a nurse went to the patient's bedside to administer medications, an extension set was hooked up to the cecostomy and not the G-tube. It looked the same as the G-tube when set up for medications, including a medication port and a larger port for fluids and feedings. None of the medication ports have Luer lock connectors, so oral syringes and feeding bag tips can only push into the ports. Medications are best absorbed in the small

the instructor. In response, the instructor issued a letter of reprimand to the student. In the letter, the instructor told the student that, by claiming the error was a "near miss," he had failed to demonstrate self-accountability for the medication error. The instructor also suggested that a "near miss in nursing can be fatal."

Concerns with the Response

ISMP has multiple concerns with the scenario described above. Of course, we are troubled that the instructor did not require the student to report the event in the hospital because other nurses, both students and graduates, may have the same question of whether nutritional supplements need to be scanned prior to administration. And we cannot overlook the fact that the student categorized the event as a "near miss." In 2009, more than 3,800 practitioners participated in an ISMP survey regarding the definition of a "near miss."[1] Nearly 90% of the responding practitioners defined a "near miss" as an error that happened but was caught before it reached the patient. ISMP agrees that a "near miss" is an error that never reaches a patient; thus, a "near miss" cannot result in patient harm (but could have if the error reached the patient). Since 2009, ISMP has referred to "near misses" as "close calls" since this terminology is more precise.[1]

Most concerning is that the student nurse was "severely" disciplined for the event, which was classified as a medication error. We do not have details regarding the specific disciplinary action taken and why. We only know that the student received a letter of reprimand which we were told suggested he failed to accept accountability for the error by calling it a "near miss." Nursing program curricula often does not support effective faculty and student acquisition of the knowledge, skills, and attitudes required to understand human fallibility and the risk of medication errors within a Just Culture, and how to respond fairly and compassionately to health professionals who make an error—the second victims of the error. Reasons for these curriculum vulnerabilities are deeply rooted in an overly punitive culture that has dominated healthcare with an unrealistic expectation of "zero errors" and with perfect compliance with policies and procedures despite unexpected challenges. In this case, the instructor failed to acknowledge that the student self-reported the event, and the resulting punitive response to the event was likely viewed by this student and others as a deterrent to reporting, crippling the ability to learn.

ISMP would categorize the event as neither a near miss nor a medication error. Perhaps the student nurse's actions represented an at-risk behavioral choice associated with not scanning a nutritional supplement, which should be addressed by coaching, not by disciplinary sanctions. Or it may simply represent a process error due to a knowledge deficit if the student nurse did not know he was required to scan the nutritional supplement (and thus, did not choose in the moment to bypass the scanning process).

Impact of a Punitive Response

While perfection may be a laudable target, it can never be a realistic expectation given all that is known about human fallibility. Nursing faculty and students need to fully understand the possibility of gaps in knowledge, human fallibility, and the human tendency to lose perception of the risks associated with behavioral choices that may be made when facing unexpected challenges. They need to understand why medication errors happen and how to reduce their occurrence. They need to be comfortable seeking guidance when gaps in knowledge occur and reporting errors without fear of reprisal. Students need to appreciate the tenets of a Just Culture and compassionate second victim support while personally experiencing their immense benefits within the culture of their undergraduate training. Given the formidable link between the causes and prevention of medication errors, Just Culture, and second victim support, it is important to teach students these three nursing competencies in unison and to provide an environment that models and supports these competencies. Only together will they help form a solid foundation for preparing nursing students to successfully administer medications and respond to medication errors.

> **SAFETY** briefs

intestine, not the large intestine that is past the cecum, so medications administered via a cecostomy would not be absorbed very well. The provider was notified that the medications were administered via the cecostomy and not the G-tube. The nurse was instructed to readminister the medications at two-thirds of the normal dose, per pharmacy recommendations.

As a preventive measure, ENFit extension sets are available for use with both the Mic-Key gastrostomy buttons (www.ismp.org/ext/707) and the AMT devices (www.ismp.org/ext/708). To prevent mix-ups like the one above, medications could be provided by the pharmacy in ENFit syringes, which could then be used with ENFit extension sets. The cecostomy button could have legacy extension tubing and would not connect with ENFit syringes, thus preventing misconnections and misadministration of the drug doses via the wrong tube. Button devices are also available for jejunostomies and gastrojejunostomies, as is ENFit extension tubing.

Barcode scan indicates wrong drug. ISMP heard from two different hospitals last week about McKesson's lev**ETIRA**cetam 250 mg unit dose blister packages (NDC 63739-795-10) that have a barcode that scans as naproxen 500 mg. Apparently, the barcodes found on one side (5-blister strip) of the unit dose blister package of 10 lev**ETIRA**cetam tablets scan properly, but the barcodes on the other side indicate that the blister contains naproxen 500 mg. The lot number reported in both cases is 0000124916. One of the hospitals reported that, based on visual inspection of the tablet and imprint code, the tablets contained in the blister pack all appear to be lev**ETIRA**cetam 250 mg.

Scanning the mislabeled package may lead to lev**ETIRA**cetam being placed in a bin assigned to naproxen in automated medication inventory storage devices (e.g., pharmacy carousel) or automated dispensing cabinets and may ultimately contribute to a wrong drug error. For example, a nurse could retrieve the mislabeled product thinking it is

> Nursing curriculum — continued from page 2

Available Resource

ISMP recently posted a white paper, *Just Culture, Medication Error Prevention, and Second Victim Support: A Better Prescription for Preparing Nursing Students for Practice*, on our website (www.ismp.org/node/24660).[2] ISMP participated on a team of experts who developed this white paper, which serves as a call to action to nursing programs to change the way they are preparing nursing students for practice. The white paper includes recommendations for faculty to: 1) Define and create a Just Culture in their own programs; 2) Weave safety- and quality-focused components into the nursing curricula beginning with the first semester; 3) Educate nursing students about human fallibility and how to minimize errors; and 4) Establish a second victim response team within the nursing program. Using the Quality and Safety Education for Nurses (QSEN) format, a set of new critical competencies for Just Culture, second victim support, and medication error prevention is provided, as well as links to resources.

References
1) Institute for Safe Medication Practices (ISMP). ISMP survey helps define near miss and close call. *ISMP Medication Safety Alert! Acute Care.* 2009;14(19):1-2.
2) Jones J, Treiber L, Shabo R, et al. Just Culture, medication error prevention, and second victim support: a better prescription for preparing nursing students for practice [White paper]. Kennesaw, GA: WellStar School of Nursing, WellStar College of Health and Human Services, Kennesaw State University. 2021. www.ismp.org/node/24660

Maximizing ADC medication removal and restocking accuracy

Most automated dispensing cabinets (ADCs) support the use of barcode scanning technology upon stocking and/or removal of medications from the cabinet. Enabling this functionality helps to promote the accurate placement of medications when stocking/restocking the cabinet and/or confirm that the correct medication has been retrieved prior to administering it to a patient.

Scanning Upon ADC Removal

Years ago, one hospital that had not yet employed bedside barcode scanning instead enabled barcode scanning upon removal of medications from an ADC to reduce the frequency of retrieving the wrong drug from the ADC. Using this process, they found that the technology detected about 4 errors per 1,000 medications removed from the ADC. However, the hospital was recently asked to disable this functionality to promote standardization across the entire health system, as the health system had previously adopted other risk-reduction strategies, including bedside barcode scanning technology.

As we noted in a *SAFETY* brief in our August 23, 2018 newsletter, standardization across facilities in a health system should only be implemented if differences in risk profiles are considered and if it will produce lasting improvements and enhance the quality and safety for all facilities. In this case, the pharmacists and nurses in the hospital that had used barcode scanning upon removal of medications from the ADC objected to the change and were worried about losing this safety feature. Even though the hospital had, by then, implemented bedside barcode scanning, they preferred to catch an error upstream, when retrieving the wrong drug from the ADC. This hospital, as well as several other hospitals in the health system, were then able to strategically redeploy the technology for numerous high-risk medications involved in ongoing medication errors. Now, nurses are required to scan the barcode on these high-risk medications when removing them from the ADC.

Scanning During ADC Stocking/Restocking

The pharmacy staff, primarily technicians, in this hospital continue to scan the barcode on products when stocking the ADC to verify accurate placement. However, as with most ADCs, only one item of each product to be stocked in the ADC can be scanned, even when restocking the cabinet with multiple unit doses of the same medication. This hospital

> **SAFETY briefs**   cont'd from page 2

naproxen, scan it and get a match for the prescribed naproxen, and administer it to the patient but ultimately give the wrong drug, levETIRAcetam. Also, if the mislabeled product is stored with levETIRAcetam in an ADC and retrieved for a patient for whom levETIRAcetam has been prescribed, the nurse would receive a wrong drug alert when scanning the product, leading to confusion and a delay in care.

ISMP has been in touch with McKesson Packaging, and the company is investigating. ISMP has also alerted the US Food and Drug Administration (FDA).

⚠ **HIGH-ALERT**   **Proper way to open MicroVault cover.** Prefilled, ready-to-administer opioid syringes from Fresenius Kabi are packaged in a **MICROVAULT** cover with a tamper-evident seal and hard plastic packaging that can help deter diversion (**Figure 1**). These also have a small footprint and allow storage in a small space, such as within locked-lidded pockets in automated dispensing cabinets (ADCs). However, it is important for nurses and other practitioners to properly open this package or they risk damaging the syringes.

Figure 1. A morphine syringe in MicroVault packaging.

Recently, we heard from a hospital where nurses were having trouble with the plungers coming out from morphine syringes when breaking the seal and opening the MicroVault cover. Opening the MicroVault cap by "snapping" it off can cause the plunger to dislodge. It also happened when they tried to twist it off. The printed seal on the MicroVault cover indicates "Twist Cap to Open," and a training video (www.ismp.org/ext/705) on the Fresenius Kabi website mentions that the cap should be twisted off and not snapped off. A poster (www.ismp.org/ext/706) is also available. The video and poster include other useful tips for using the MicroVault and Simplist syringes.

> **ADC removal and restocking** — continued from page 3

found that most of its ADC stocking errors happened when they scanned "drug A," the ADC drawer opened, and they put 10 tablets of "drug A" and 5 tablets of "drug B" in the same drawer. Usually, the packaging, labeling, and/or name of "drug B" looked very similar to "drug A" and both medications had been mixed up during the drug selection process in the pharmacy. Another contributing factor to ADC stocking errors was that nurses were permitted to return medications (non-controlled substances) with intact packaging (e.g., unpunctured vials, unopened tablets in unit dose packaging) to the appropriate ADC drawer/bin. Furthermore, nurses were not required to scan the barcode on the medications they restocked in the ADC.

ADC Stocking/Restocking Process Redesign

The medication safety officer challenged the pharmacy technicians responsible for restocking ADCs to redesign the stocking process to reduce the risk of errors, starting upstream in the pharmacy. Happy with its success, the hospital wanted to share their strategies because the ability to scan only one unit dose of any product being stocked in the ADC is a common challenge, regardless of the ADC vendor.

1) Whenever possible, select strips of tablets or unopened cartons containing multiple prefilled syringes or vials when gathering medications to stock the ADC. Intact strips of tablets and unopened cartons of prefilled syringes or vials should contain the same product, reducing the risk of an error despite the limitation of scanning only one of the products.

2) If more than one strip of tablets or more than one carton of prefilled syringes or vials is needed to stock/restock the ADC, attach them together with a rubber band immediately after removing them from the pharmacy storage bin and before placing them on the counter/cart (to avoid mixing them up with different medications on the counter). If necessary, place loose unit dose packages of tablets, syringes, or vials of the same medication and strength in a ziplock bag prior to final verification.

3) When a pharmacist independently double checks the ADC restock medications prior to distribution, they must visually inspect each strip of tablets or unopened carton attached together during the verification process. ISMP also recommends the use of barcode scanning upon selection of medications in the pharmacy for stocking/restocking ADCs to confirm that the medication chosen for distribution to the ADC matches the medication listed on the ADC fill report.; however, a visual inspection should still occur even if barcode scanning technology is employed.

4) Refer to a restocking list (ADC fill report) when replenishing the ADCs, checking off each medication as it is loaded into the ADC. At the conclusion of the process, if any medications remain unstocked and/or unchecked, consider this a red flag and investigate for an error.

5) Use individual, locked-lidded pockets as the primary configuration for medication storage in ADCs and avoid the use of open matrix drawers and open storage in towers and refrigerated units. If open matrix drawers must be utilized, never store high-alert medications in them, and use them only for storage of non-prescription medications and 0.9% sodium chloride flush syringes.

6) Enable the functionality that requires nurses to scan the barcode on the individual medication prior to restocking it in an ADC. ISMP has previously recommended not allowing nurses to restock any medications in an ADC, but instead to return it to a one-way, secure ADC bin for the pharmacy to restock. However, we do not object to the hospital's plan as long as nurses return a non-controlled medication only to a locked-lidded pocket, not a matrix drawer, and only if barcode scanning is required.

For additional recommendations that will be useful as you work with your interdisciplinary teams to improve ADC safety, please refer to our 2019 **Guidelines for the Safe Use of Automated Dispensing Cabinets** (www.ismp.org/ext/328). Please note: it is important to recognize the value of layering multiple, effective risk-reduction strategies to help prevent ADC removal and restocking errors. The guidelines include many additional recommendations to facilitate the accurate removal and restocking of medications in ADCs.

➡ **Special Announcement**

Perioperative assessment collaboratives
On the last page of the newsletter, we again announce the launch of the **ISMP Medication Safety Self Assessment®** for Perioperative Settings (www.ismp.org/node/18027) and call attention to a **FREE** webinar being held on **May 25, 2021** (www.ismp.org/node/23830).

We also want to highlight a **unique opportunity for collaborative groups**, including health systems, healthcare or hospital associations, ambulatory surgery groups, and group purchasing organizations, to pool the assessment results of their member facilities to develop action plans and group projects together to improve perioperative medication safety. For a small fee, ISMP will work with each collaborative group to develop codes assigned to member facilities. Each participating member facility will need to enter this assigned code when they first create their free account or add their code to their account after they have submitted their assessment findings. Entering this unique code will link the submitted findings together for each collaborative group while keeping each individual facility's data anonymous to ISMP. After the national data collection deadline, currently slated for **August 31, 2021**, ISMP can provide each collaborative group with the aggregate assessment data obtained from its member facilities. If you are interested in learning more, please contact ISMP at: selfassess@ismp.org.

ISMP Survey on the
2020-2021 Targeted Medication Safety Best Practices for Hospitals

ISMP is conducting a short survey to get a sense of the current level of implementation of the **2020-2021 Targeted Medication Safety Best Practices for Hospitals.** We would very much appreciate your participation in this survey. Please complete this survey online by **June 30, 2021**, by visiting: www.ismp.org/ext/702. The survey questions are provided below for your review prior to completing the online survey. For a detailed description and exact wording of the Best Practices, visit: www.ismp.org/ext/703.

Please select the option that best reflects the level of implementation of the 2020-2021 Best Practices in your hospital. In the Comments section, please provide keys to successful implementation or barriers to implementation, if present.

Definitions

None: This Best Practice has not been implemented.
Partial: Not all aspects or components of this Best Practice have been implemented and/or the Best Practice has not been fully implemented in all areas or for all applicable patients and/or orders.
Full: This Best Practice is fully implemented in all areas and for all applicable patients and/or orders.
NA: Not Applicable.

Best Practice	Level of Implementation				Comments — Keys to Success or Barriers to Implementation
	None	**Partial**	**Full**	**NA**	
Dispense vin**CRIS**tine and other vinca alkaloids in a minibag of a compatible solution and *not* in a syringe.					
Use a weekly dosage regimen default for oral methotrexate in electronic order entry systems.					
Require a hard stop verification of an appropriate oncologic indication for all daily oral methotrexate orders.					
Provide patient/family education for all oral methotrexate discharge orders.					
Weigh each patient as soon as possible on admission and during each outpatient/emergency department encounter.					
Measure and document patient weights in metric units only.					
All oral liquid medications that are not commercially available in unit dose packaging are dispensed by the pharmacy in an oral/enteral syringe.					
Do not stock bulk oral solutions of medications on patient care units.					
Purchase oral liquid dosing devices (e.g., oral syringes/cups) that only display the metric scale.					
Segregate, sequester, and differentiate all neuromuscular blocking agents from other medications, wherever they are stored in the organization.					
Administer medication infusions via a programmable infusion pump utilizing dose error-reduction systems (DERS).					
Maintain a 95% or greater compliance rate for the use of smart pump DERS.					
Monitor compliance with the use of smart pump DERS on a monthly basis.					
If your organization allows intravenous (IV) bolus/loading dose administration from a continuous medication infusion, use a smart pump that allows programming of the dose and continuous infusion rate with separate limits for each.					
Ensure all appropriate antidotes, reversal agents, and rescue agents are readily available wherever they are used in the organization.					
Have protocols/coupled order sets that permit their emergency administration.					
Have directions for use/administration readily available where the antidotes, reversal agents, and rescue agents are used.					
Eliminate all 1,000 mL bags of sterile water (labeled for "injection," "irrigation," or "inhalation") from all areas outside of the pharmacy.					*table continued*

Best Practice (continued)	Level of Implementation				Comments
					Keys to Success or Barriers to Implementation
	None	Partial	Full	NA	
When compounding sterile preparations, perform an independent verification to ensure that the proper ingredients (medications, diluents) and amount (volume) are added *prior* to their addition to the final container.					
Eliminate injectable promethazine from the formulary.					
Seek out and use information about medication safety risks and errors that have occurred in other organizations and take action to prevent similar errors.					
Verify and document a patient's opioid status (naïve versus tolerant) and type of pain (acute versus chronic) before prescribing and dispensing extended-release and long-acting opioids.					
Default order entry systems to the lowest initial starting dose and frequency when ordering extended-release and long-acting opioids.					
Eliminate the prescribing of fenta**NYL** patches for opioid-naïve patients and/or patients with acute pain.					
Eliminate the storage of fenta**NYL** patches in automated dispensing cabinets (ADCs)/unit stock in clinical units where acute pain is primarily treated (e.g., emergency department, operating room, post-anesthesia care unit).					
Limit the variety of medications that can be removed from an ADC using the override function.					
Require an electronic, written, telephone, or verbal medication order prior to removing any medication from an ADC, including via override.					
Monitor ADC overrides to verify appropriateness, transcription of orders, and documentation of administration.					
Periodically review for appropriateness the list of medications available using the override function.					

Please select the _one_ category that best describes the number of inpatient beds currently staffed for use in your hospital, based on average daily census.
☐ Up to 25 beds   ☐ 26-99 beds   ☐ 100-299 beds   ☐ 300-499 beds   ☐ 500 beds and over

Please select where your hospital is located.
☐ US/US territory   ☐ US military foreign country/territory   ☐ Other foreign country/territory

Does your hospital employ one or more full-time or part-time Medication Safety Officer(s)?
☐ Yes   ☐ No

ISMP **Resources and Services**

VIRTUAL

Career-Advancing Workshops

ISMP's next virtual **Medication Safety Intensive** (MSI) workshops will be held **June 24-25** and **August 5-6, 2021**. Join other leaders learning to get ahead of challenges and move their safety initiatives to the next level.

➤ **ismp.org/node/127**

FREE

Resource for Nurses

The monthly *ISMP Nurse AdviseERR®* newsletter is available at no charge to nurses, nurse educators, and nursing students. Subscribe to keep current on emerging safety concerns and valuable prevention strategies.

➤ **ismp.org/node/138**

CUSTOM

Tailored Consulting Services

Did you know ISMP offers consulting that can be tailored to your organization's specific needs? From feedback on a single medication safety issue to a full risk assessment, we can provide customized guidance on any scale. To learn more, connect with our experts.

➤ **ismp.org/node/23650**

NEW

National Launch of New Risk Evaluation Tool

Take part in the just released **ISMP Medication Safety Self Assessment® for Perioperative Settings** to evaluate how you are protecting patients and compare your results to demographically similar facilities across the US. The assessment can also help organizations document regulatory compliance.

Submission deadline is August 31, 2021.

Register to attend a free ISMP webinar on May 25, 2021, to help you obtain the most accurate and useful results.

➤ **ismp.org/node/18027**

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