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HEALTH-SYSTEM PHARMACISTS

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Review and Discussion of ISMP 2022-2023 Targeted Medication Safety Best Practices for Hospitals

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Disclosure

- **Relevant Financial Conflicts of Interest**
  - **CE Presenter, Jeanette M Bean:** None
- **Off-Label Uses of Medications**
  - None

Learning Objectives – Pharmacists

1. Discuss best practices for hospitals identified by ISMP 2022-2023
2. Identify characteristics of high alert medications and design methods to minimize inherent risk of high alert medications
3. Evaluate medication safety benefits of barcode use
4. Discuss the advantages of using smart pumps with error reducing software
5. Describe the pharmacist's role in medication safety

Learning Objectives – Technicians

1. Explain the technician's role in improving medication safety
2. Discuss best practices for hospitals identified by ISMP 2022-2023
3. Identify pervasive medication safety challenges or difficulties faced by technicians in the course of daily workflow and propose ways to overcome them.

Best Practices

Best Practice 1: Vinca Alkaloids

- Dispense vincristine and other vinca alkaloids in a minibag of compatible solution and *not in a syringe*

Best Practice 2: Oral Methotrexate

- Program weekly dosage regimen **default** for oral methotrexate
- Require a **hard stop** verification of an appropriate oncologic indication for all daily oral methotrexate orders
- Provide **education** for all oral methotrexate discharge orders

Best Practice 3: Patient weight

- Weigh each patient ASAP on admission and each appropriate outpatient or emergency department encounter
- Avoid the use of stated, estimated, or historical weights
- Measure and document patient weights in **metric units only**

Weight related dosing errors:

- According to FDA.gov website, the FDA receives more than 100,000 reports of suspected medication errors in the US annually
- ECRI reports that up to 18% of all preventable medication errors are the result of incomplete or inaccurate patient information
- Reported cases of harm due to weight errors include high risk drugs such as insulin, chemotherapy, heparin and dobutamine but also included many other medications including aspirin, vancomycin, cefazolin, and acyclovir

Best Practice 4-6, 10:

- Moved to archived status
- Will discuss archived practices later

Best Practice 7: Neuromuscular Blockers

- ***Segregate, sequester, and differentiate*** all neuromuscular blocking agents (NMBs) from other medications, wherever they are stored in the organization

WARNING:
Paralyzing Agent

- NMBs are high alert medications.
- **High-alert medications:** are drugs that bear a heightened risk of causing significant patient harm when they are used in error.

What precautions does your facility take to ensure safe use of NMBs?

Institute for Safe Medication Practices (ISMP). ISMP Targeted Medication Safety Best Practices for Hospitals. ISMP; 2022. https://www.ismp.org/guidelines/best-practices-hospitals

Best Practice 8: Smart infusion pumps

- Administer medication infusions via a programmable infusion pump utilizing dose error-reductions systems (DERS) – “smart infusion pumps”

- Maintain a compliance rate of >95% for use
  - Monitor compliance monthly
- Programmed **with** a drug library
  - Soft and hard stops

Advantages:

- Prevent/intercept wrong dose, wrong rate errors
- Reduce risk of miscalculated doses

Image of infusion pump: https://www.ashp.org/pharmacy-practice/standardize-4-safety-initiative obtained 9/6/2022

Pharmacist Question:

Which of the following characteristics describe high alert medications?

a) Medications that are used to treat attention deficit disorders.

b) Medications that have a broad therapeutic index in all patient populations and require minimal monitoring.

c) Medications that carry a heightened risk of causing significant patient harm when they are used in error.

d) None of the above.

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Pharmacist Question:

Advantages of using smart pumps with DERS include all of the following except:

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A. DERS can prevent decimal place/ unit conversion errors.

B. DERS can prevent administration rate errors.

C. With electronic medical record integration DERS can prevent wrong patient errors.

D. Infusion pumps with DERS can prevent all medication administration errors.

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Best Practice 9: Rescue Meds

- Ensure all appropriate antidotes, reversal agents, and rescue agents are readily available.
- Have standardized protocols and/or order sets in place that permit the emergency administration of these medications.
- Have directions for use/administration readily available in all clinical areas where these agents might be used.

What medications does your facility ensure are on your emergency lists?

Best Practice 11: Sterile Compounding

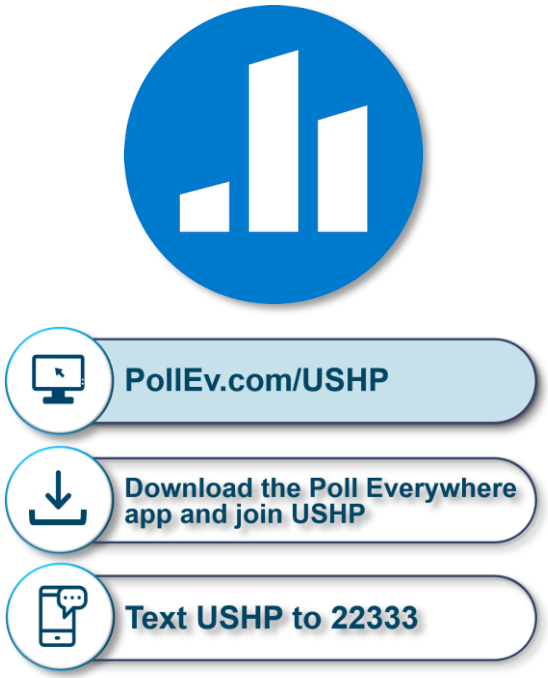
- When compounding sterile preparations, perform an independent verification to ensure that the proper ingredients (medications and diluents) are added, including confirmation of the proper amount (volume) of each ingredient **prior to its addition to the final container**.
- Use technology to assist in the verification process (barcode scanning, radio frequency identification of ingredients, gravimetric verification, robotics, IV workflow software) to augment the manual processes.
- **Eliminate the use of proxy methods** of verification for compounded sterile products

Technician Question:

When compounding a sterile IV product, ISMP recommends using syringe pull back for final verification

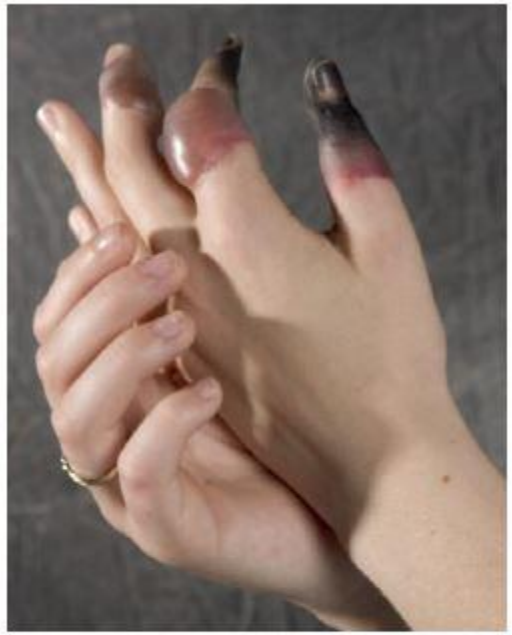
a) True

b) False



Best Practice 13: ≠Injectable promethazine

- **Eliminate** injectable promethazine from formulary



Phenergan extravasation caused gangrene in a young woman's fingers.
(Courtesy of The Daily World, Aberdeen, WA)

Image obtained from: https://www.ismp.org/resources/action-needed-prevent-serious-tissue-injury-iv-promethazine 9/7/2022

Best Practice 14: Med Safety Team

- Appoint a medication safety officer to be responsible for oversight of medication safety risks
- Identify reputable resources (ISMP, The Joint Commission, ECRI, state agencies) to learn about risks and errors that have occurred externally
- Establish a formal process for monthly review of medication risks and errors
- Determine appropriate actions to prevent reoccurrence
- Document decisions, share with all staff, monitor selected actions to ensure implementation and risk reduction

Pharmacist &Technician Question:

Who is responsible for medication safety?

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a) Nobody. We are all human and errors happen.

b) Just the medication safety committee

c) Only nurses because they administer the medications

d) Everyone

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Best Practice 15: Opioids

- Verify and document a patient's opioid status (naïve vs tolerant◆) and type of pain (acute vs chronic) ***before*** prescribing and dispensing extended release and long acting opioids

◆Opioid tolerance:

- patients receiving, for 1 week or longer, at least: 60 mg MME**, (include heroin and or other non prescribed opioids)

*MME: Morphine Milligram Equivalents

Best Practice 16: ADMs

- **ADM: A**utomated **D**ispensing **M**achines
- limit medications that can be removed from ADM using the override function
- require a medication order prior to removing any medication from an ADM
- monitor ADM overrides to verify appropriateness, transcription of orders, and documentation of administration.
- periodically review for appropriateness the list of medications available using override function

Scenario

- You are a technician working in a busy hospital. You normally deliver meds and fill the ADM's on the inpatient units. However, you are short staffed and the manager asks you to refill the ADM's in OR instead. The manager also asks you to let the pharmacy intern shadow you for your shift. You and your shadow head up to OR to start filling the medication dispensing machines. You strike up a conversation about the game on Saturday night. You log into the ADM in room 4 and start the process of refilling the machine. Everything is going smoothly, and the discussion gets more animated. You pick up the next bag of medications to be loaded, noting that there are 3 vials in the bag and 2 of them have a bright yellow sticker on them and one doesn't. You scan the barcode on a vial, scan the open pocket and place all 3 vials in the pocket. You push the drawer close to move on, as the door closes, you think "wait, I better double check that last load". Just then a nurse rushes in and says they need to pull a stat medication. You log off, and the nurse gets the needed med. As the nurse is using the machine you and the intern continue the discussion about the game. After the nurse logs out, you continue filling the remaining medications.

Technician Question:

What are some of the pervasive medication safety challenges in this scenario?

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a) Being short staffed and overworked

b) Being given a task you are unfamiliar with or not been trained

c) Multi-tasking/ losing focus

d) Interruptions to usual workflow

e) All of the above

Best Practice 17: Oxytocin

new

Safeguard against errors with oxytocin use

1. require the use of standard order sets for prescribing oxytocin
2. standardize to a single concentration/bag size for both antepartum and postpartum
3. standardize how oxytocin doses, concentration, and rates are expressed, align with smart infusion pump dose error reduction system
4. provide oxytocin in ready to use form, clearly labeled

Best Practice 18: Barcodes

new

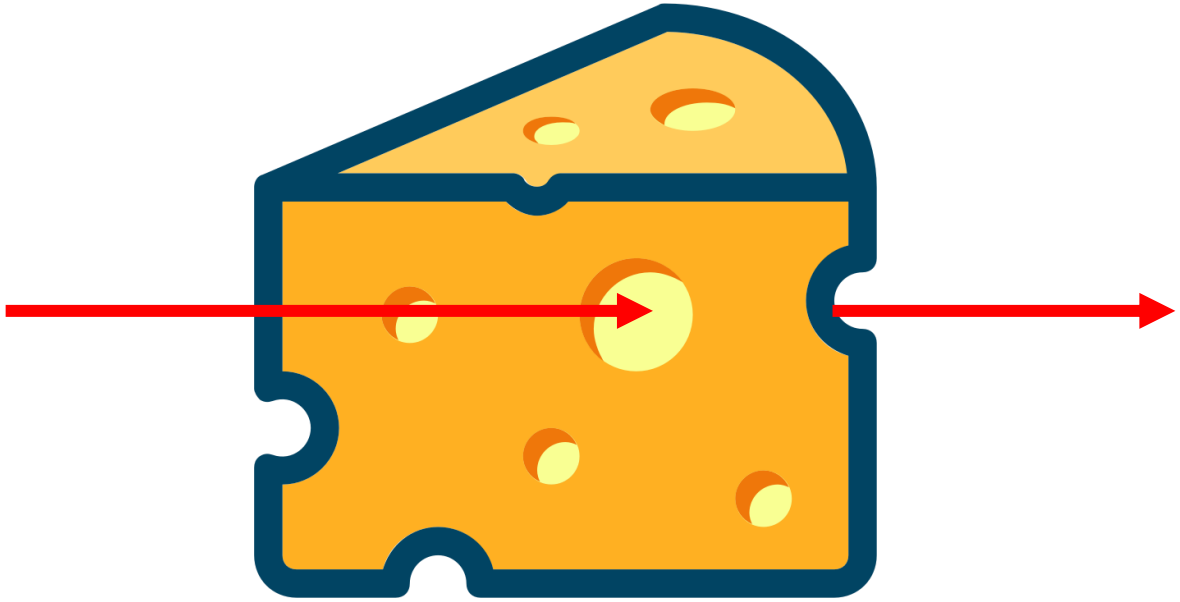
- Barcode medication administration **(BCMA)**
- Prior to medication *and* vaccine administration

- Expand use beyond inpatient:
  - Target clinical areas with a high likelihood of a short or limited stay
  - Regularly review compliance

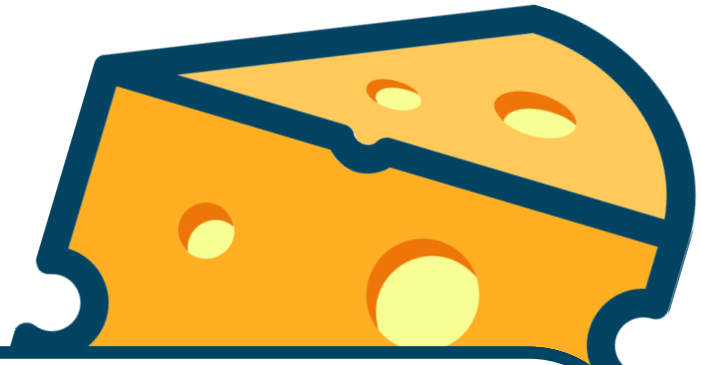
Best Practice 19: High Alert

new

- Layer numerous strategies throughout the medication-use process to improve safety with high-alert medications.



1. For each medication on facilities high alert list: outline a robust set of processes for managing risk, impacting as many steps of the medication-use process as feasible
2. ensure that the strategies address system vulnerabilities in each stage of the process (prescribing, dispensing, administering, and monitoring) and apply **ALL** practitioners involved in the medication use process.
3. Avoid reliance on low-leverage risk-reduction strategies to prevent errors, and instead bundle these with mid- and high-leverage strategies.
4. Limit the use of independent double checks to select high-alert medications with the greatest risk for error within the organization.
5. use both internal and external sources to ***assess for risk*** in the systems and practices used to support the safe use of medications



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Archived Best Practices

Archived Best Practices

- Best Practice 4: Ensure that all oral liquid medications that are not currently commercially available in unit dose packaging are dispensed by pharmacy in an oral or enteral syringe that meets the International Organization for Standardization (ISO) standard, such as ENFit.
- Best Practice 5: Purchase oral liquid dosing devices that only display metric scale.
- Best Practice 6: Eliminate glacial acetic acid from all areas of the hospital. Replace with commercially available, diluted acetic acid 0.25% or 2%.
- Best Practice 10: Eliminate all 1 L bags of sterile water from areas outside of pharmacy.

Application

Case study:

- CM a 75 yo female was admitted to hospital suffering from an intraparenchymal hemorrhage. Symptoms included headache, vision loss, atrial fibrillation, and hypertension. Two days after admission, the patient had stabilized and was subsequently moved to step down unit.
- On day of expected discharge, pt was scheduled for full body PET scan. Due to the patient's claustrophobia, the provider ordered versed (midazolam). The patient's nurse was not available so a floater nurse was assigned to her care. Reportedly, the nurse attempted to remove versed(midazolam) from the automatic dispensing cabinet in ICU but was unable to upon first attempt. The nurse was orienting another nurse at the time and was interrupted with a question on a different patient. The nurse then typed "VE" in the automated dispensing machine (ADM) and selected the first drug that popped up

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Kleber, K. (2022, September 8) S7E66:Deep Dive:RaDonda Vaught Trial, Charges, and Timeline. http://www.freshrn.com/radonda-vaught-trial

Case continued:

- The nurse then looked at the package insert to determine how to reconstitute the powder in the vial. She administered the medication to CM. CM was moved to the radiology waiting room, where she was discovered by transport approximately 30 minutes later pulseless and unresponsive. She passed away 2 days later after being taken off ventilator. Tragically, CM received **VE**curonium (a NMB) instead of **Ve**rsed (midazolam) (a benzodiazepine)
- Hospital policy requires medication orders to be verified by pharmacist prior to removal from ADMs. Patient monitoring is required when administering versed, and many facilities do not allow its use outside of procedural and critical care areas.

Institute for Safe Medication Practices (ISMP). ISMP Targeted Medication Safety Best Practices for Hospitals. ISMP; 2022. https://www.ismp.org/guidelines/best-practices-hospitals
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Technician & Pharmacist Question:

Which of the following choices align with ISMP best practices for safe medication administration? (select all that apply)

A. High alert medications should not be removed from ADMs without a pharmacist verified order
B. ADMs require a nurse witness for all high risk medications
C. Limit or remove distractions when obtaining and administering medications
D. Always follow the practice of checking the 5 rights (patient, drug, dose, route, time)

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References

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