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ISMP
An ECRI Affiliate

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

Adopt strategies to manage look-alike and/or sound-alike medication name mix-ups

ISMP has long advocated for increased awareness of look-alike and/or sound-alike medication name mix-ups and the implementation of safeguards to prevent them. To support this advocacy, ISMP maintains and periodically updates a comprehensive ***List of Confused Drug Names*** (www.ismp.org/node/102) that have been reported to us and published in our newsletters, many of which are look-alike and/or sound-alike medication names. Referencing this list, along with your internal medication error data, you can identify and update a much more manageable list of error-prone medications with look-alike and/or sound-alike names that require safeguards in your organization. To assist with the prioritization and optimization of safeguards in your organization, we have compiled certain risk-reduction strategies previously published in this newsletter during the past 10 years. The risk-reduction strategies span all phases of the medication-use process as well as general categories such as medication storage and patient education.

Phases of the Medication-Use Process

Procurement

- When possible, avoid purchasing medications in which the manufacturer's trademark symbol or corporate logo is larger than the name of the product because more attention will be drawn to the logo than the name of the product.
- *Before* new products are added to the formulary and/or inventory, use failure mode and effects analysis (FMEA) to ensure that all new medication product names are evaluated by practitioners who may use them. This process will help determine if the new products may be confused with another medication name.
- When new products (including products procured to manage drug shortages) are first received in the pharmacy, conduct an additional review to identify any unanticipated look-alike and/or sound-alike drug name concerns that may have been missed.
- Determine if the risk of a mix-up will be reduced if medications with look-alike names are purchased from different manufacturers. If so, purchase them from different manufacturers.
- When possible, purchase and stock different strengths/concentrations of drugs with potentially confusing, problematic drug names (e.g., morphine 2 mg/mL and **HYDRO**morphone 1 mg/mL).

Prescribing

- When prescribing (or communicating) medication orders, avoid drug name abbreviations (e.g., tPA, TXA), stemmed names (e.g., "statin"), or other shortened names (e.g., "nitro," "pit"). Communicate the full generic name and/or the current brand name.
- Prescribe all medications electronically (rather than handwritten), or use preprinted order sets as much as possible if electronic prescribing is not available.

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SAFETY briefs

Paxlovid drug interaction. A physician prescribed **PAXLOVID** (nirmatrelvir and ritonavir) for a 34-year-old patient with flu-like symptoms who tested positive for coronavirus disease 2019 (COVID-19). On day 3 of treatment, the patient presented with signs and symptoms of fatigue and bradycardia, with a heart rate below 40 beats per minute. The physician referred the patient to the emergency department (ED) for further evaluation, where it was discovered that the patient had been taking ivabradine for premature ventricular contractions. Ivabradine is metabolized by the cytochrome P450 3A4 (CYP3A4) enzyme, and the ritonavir component of Paxlovid is a strong CYP3A4 inhibitor. Thus, concomitant use of Paxlovid and ivabradine is contraindicated due to the risk of

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Just Culture scholarships

In December 2021, The Just Culture Company announced that three scholarships will be awarded each year to honor Judy Smetzer, BSN, RN, FISMP, former vice president at the Institute for Safe Medication Practices (ISMP). For years, Judy has been an unfaltering advocate of a more fair and just response to medication errors. The three recipients of the ***Judy Smetzer Just Culture Champion Scholarship***, selected by ISMP each year, will be able to enroll in a live-hosted or online Just Culture Certification Course, after which they will be eligible to sit for the Just Culture Certification Exam. Award recipients will also receive membership in the Just Culture Community of Learners (with live-hosted webinars) and a 2-year software license for the Just Culture Algorithm and supplemental learning materials. Applications must be submitted by **July 31, 2022**. Details can be found on **page 6**, and are also available on the ISMP (www.ismp.org/node/30840) and The Just Culture Company (www.justculture.com) websites.

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- If possible, display both the brand and generic name for medications with problematic look-alike names in the medication description field, on product selection menus, and for search choices to aid in recognition of the medication (e.g., lamo**TRI**gine [**LAMICTAL**] and lev**ETIRA**cetam [**KEPPRA**], see #21 in the ***ISMP Guidelines for Safe Electronic Communication of Medication Information*** at: www.ismp.org/ext/329).

- Prebuild order sets with the drug's indication to guide the prescriber's selection among problematic look-alike and/or sound-alike medication names (e.g., hydr**OXY**zine for pruritus, hydr**ALAZINE** for hypertension). Displaying the medication's indication on order screens helps practitioners avoid confusion between problematic medications with look-alike and/or sound-alike names, as most are used to treat different conditions.

- To reduce errors with sound-alike medication names, limit verbal or telephone orders to emergencies, or when the prescriber is physically unable to electronically enter or write orders.
  - ☐ Never allow verbal or telephone orders for chemotherapy (except to hold or discontinue therapy).
  - ☐ When verbal or telephone orders must be provided, require the receiving practitioner to directly enter the complete medication order into the patient's electronic health record and to read back the order to the prescriber, spelling the medication name. Use a phonetic alphabet (e.g., "T" as in "Tango," "C" as in "Charlie") when reading back the spelled drug name.
  - ☐ Ask the prescriber for the medication's indication if it has not been provided. Transcribe the indication directly in the medication order.

Dispensing

- When verifying a medication order, ensure that the prescribed medication, dose, dosage form, route of administration, and indication for use make sense in the context of the patient's condition. If the drug's indication is not clearly stated within the order, and the patient's condition or diagnosis does not support the drug's intended use, clarify the medication with the prescriber. For example, if an order for clonaze**PAM** 0.5 mg twice daily is misheard as clo**BAZ**am, and the indication is communicated for the treatment of anxiety, not to control seizures, both the dose and the indication would offer clues that perhaps the prescribed medication is actually clonaze**PAM**, not clo**BAZ**am. Do not make assumptions or guess when verifying an order; instead, seek clarification.

- When preparing to dispense and deliver a medication, one or more pharmacy staff should read the container label when selecting it, confirm the product before providing it to someone else to check, and again when delivering it to a patient care unit. Never rely solely on a partially turned label or color of the label, cap, auxiliary warning, or company graphics to properly identify a product.

- Employ barcode scanning technology when stocking medications in the pharmacy inventory, dispensing medications, refilling automated dispensing cabinets (ADCs) or robotic dispensing machines, and prior to compounding sterile products, including medications or solutions used in automated compounding devices and intravenous (IV) workflow management systems.

Administration

- For problematic look-alike and/or sound-alike drug names, include the generic name, current brand name, and indication on medication administration records (MARs).

- *Before* administration, verify that the medication's indication, dose, dosage form, and route of administration align with the patient's condition or diagnosis.

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ivabradine accumulation and toxicity, which could lead to bradycardia, hypotension, and heart failure. Increased plasma concentrations of ivabradine may also exacerbate bradycardia and conduction disturbances. Fortunately, the patient was monitored in the ED for 24 hours, recovered, and was discharged home.

Educate prescribers, as well as patients, about the potential for Paxlovid drug interactions. Also, organizations should test their electronic health records and/or pharmacy computer systems to ensure they provide alerts for this and other drug-drug interactions. Incidentally, the practitioner who reported this event to ISMP mentioned that the prescriber was not familiar with the patient's medical history. Paxlovid is not a drug that should be casually prescribed, without reviewing the patient's current medication list for potential drug-drug interactions. The US Food and Drug Administration's (FDA) ***Paxlovid Patient Eligibility Screening Checklist Tool for Prescribers*** (www.ismp.org/ext/921) can be used for screening but does not currently list ivabradine as a drug with potentially significant interactions. We have asked FDA to update the screening tool.

In addition to the FDA's ***Paxlovid Patient Eligibility Screening Checklist Tool for Prescribers***, other resources that practitioners can use to learn about Paxlovid drug-drug interactions include:

- *Management of Drug Interactions with Nirmatrelvir/Ritonavir (Paxlovid): Resource for Clinicians* (www.ismp.org/ext/915), from the Infectious Diseases Society of America (IDSA)
- *COVID-19 Drug Interactions* (www.ismp.org/ext/916), from the University of Liverpool
- *Drug-Drug Interactions Between Ritonavir-Boosted Nirmatrelvir (Paxlovid) and Concomitant Medications* (www.ismp.org/ext/917), from the National Institutes of Health (NIH)

Eprontia oral solution concentration conversion. A new oral solution, **EPRONTIA** (topiramate), was recently approved for the treatment of certain seizure disorders in patients 2 years and

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- Review the medication's purpose with the patient or caregiver *before* administration. For example, if you are a nurse administering medications, ask, "Do you have any questions before I give your child's antiseizure medication, tia**GAB**ine?" This could help a parent identify an error if their child takes ti**ZAN**idine to manage spasticity (from a neurological disorder) at home.

- Similar to dispensing, *before* administering a medication, read the container and/or pharmacy label when obtaining it from unit stock, a patient-specific bin or drawer, or an ADC; before scanning and providing it to the patient; and when discarding the container. Never rely solely on a partially turned label or color of the label, cap, auxiliary warning, or company graphics to properly identify a product.

- Employ bedside barcode scanning technology consistently *prior* to medication administration. If a medication barcode does not scan, a clear process to quickly report and resolve the issue is necessary instead of bypassing the scanning process. In a rare occurrence in which a barcode does not scan, bypassing the scanning process is only appropriate after confirming the correct medication, often by requiring an independent double check with a second practitioner.

General Categories

Storage

- Store medications with problematic, error-prone, look-alike and/or sound-alike names in separate physical locations away from each other.
  - ☐ In the pharmacy, if automated storage technologies (e.g., carousels) are not used, inform staff about changes in the location of a problematic product through signage or shelf talkers.
  - ☐ In patient care units, avoid open matrix ADC drawer configurations for stocking medications with look-alike names (or packaging), and instead use locked-lidded pockets or separate bins, cubies, drawers, or ADC cabinets to segregate storage.
  - ☐ In anesthesia carts and trays, strive to organize all vials in a label-up instead of cap-up position, and avoid close proximity of medications with look-alike and/or sound-alike medication names (or look-alike packaging and labeling, particularly cap colors). (Vendors need to design drawers to accommodate this type of storage.)

- Change the appearance of look-alike medication names displayed on shelves and bins by presenting the names using tall man letters (see the section on nomenclature), bold font, different colored font, and/or highlighting or circling critical differentiating information. Reserve auxiliary warning labels on medication containers and storage bins for the most problematic look-alike products.

Nomenclature

- For problematic look-alike medication names, use tall man lettering (www.ismp.org/node/136) on electronic prescribing drug selection screens, order sets, ADC screens, smart infusion pump screens, MARs, and any other drug communication tool, to draw attention to the key differences in similar drug names.
  - ☐ To standardize the letters presented in uppercase and bold font, follow the recommendations on the ***US Food and Drug Administration (FDA) and ISMP Lists of Look-Alike Drug Names with Recommended Tall Man Letters*** (www.ismp.org/ext/78).

- If mnemonics or short names are permitted to search for products or populate fields without entering the full drug name, require practitioners to enter at least 5 letters during a drug name search to reduce the number of medications, including those with look-alike and/or sound-alike names, that appear together on a screen (see #19 in the ***ISMP Guidelines for Safe Electronic Communication of Medication Information*** at: www.ismp.org/ext/329).

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older, and for the prevention of migraines in patients 12 years and older. The concentration of this new product is 25 mg/mL, which differs from commonly compounded concentrations prepared by pharmacy.

The American Society of Health-System Pharmacists (ASHP) Standardize 4 Safety (S4S) initiative (www.ismp.org/ext/922) recommends 20 mg/mL as the standard concentration. However, some organizations also compound 6 mg/mL for smaller children to make doses easier to measure, and the Michigan Pediatric Safety Collaboration (www.mipedscompounds.org) recommends a compounded concentration of 6 mg/mL. We are concerned about the risk of errors as pharmacies transition patients to the new commercially available topiramate concentration, 25 mg/mL. This is especially concerning for patients prescribed the 6 mg/mL concentration, as an error could lead to a significant overdose.

Organizations should establish a proactive plan to convert to the commercially available product, which should include identifying in the computer system all patients who currently receive an extemporaneous formulation of topiramate to ensure all active patients are converted to the new concentration within a defined period of time. Conversion charts (electronic or manual) should be prepared and validated, and the new strength and volume of each dose should be communicated to providers and patients/families before any prescription conversion. Eprontia doses should be prescribed in mg, not mL doses, and practitioners should clarify and discuss Eprontia doses based on the mg dose. Alert pharmacy staff to this new concentration and the potential for confusion and mix-ups. Pharmacies should consider tagging prescriptions for Eprontia for mandatory patient education, especially if the patient previously was using a different concentration. Using the teach-back method, pharmacists and nurses should also educate patients and/or caregivers about the new concentration, the corresponding volumetric dose, and how to measure each dose with an oral syringe.

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Staff Education

- During orientation and annually, educate practitioners about the risks of confusing problematic, error-prone, look-alike and/or sound-alike medication names and abbreviations; where in the medication-use process these risks might be encountered; how to access the organizational list of problematic look-alike and/or sound-alike medication names; and the required risk-reduction strategies to implement.
  - ☐ Draw special attention to specific medications with look-alike or sound-alike names that can cause harm if confused, and promote knowledge of and compliance with medication-specific risk-reduction strategies.
  - ☐ Stress the importance of barcode scanning as a tool that is more effective in consistently identifying correct medications than other manual processes.
  - ☐ Provide education about the purpose of tall man lettering, as this safeguard is more successful for those who are aware of its purpose (www.ismp.org/node/250).
  - ☐ Provide education about the differences between lipid-based and conventional products with look-alike generic names (e.g., **DOXIL** [**DOXO**rubicin liposomal] and **ADRIAMYCIN** [**DOXO**rubicin conventional], www.ismp.org/node/31815) and the steps that should be taken to reduce confusion between these products.
  - ☐ Encourage reporting of errors and hazards with look-alike and/or sound-alike medication names, and use the information to enhance error-reduction strategies.
  - ☐ Share external literature, ISMP ***Action Agendas***, and internal error reports involving similar medication names and the actions the organization is taking to avoid mix-ups. Share good catches of errors prevented due to barcode scanning.

Patient Education

- Educate patients taking a medication with a problematic look-alike and/or sound-alike name about the risk of mix-ups and how to avoid them. If the patient is educated about common errors, they might detect a dispensing error by reading the label when picking up their medication.

- Encourage patients to question medications that look different than expected, and to persist until satisfactory resolution of their concern. This line of questioning might detect an error with a look-alike and/or sound-alike medication.

- Require mandatory patient education in outpatient settings before dispensing a medication with a known, problematic look-alike and/or sound-alike name. When possible, open the prescription bottle with the patient to visually confirm the expected medication.

Metrics

- Establish process and outcome measures and collect data periodically to assess the effectiveness of safeguards intended to reduce errors and patient harm associated with medication names that look and/or sound alike. For example:
  - ☐ Track and investigate errors in dispensing and evaluate if look-alike and/or sound-alike drug names played a role
  - ☐ Monitor and observe barcode scanning compliance in the pharmacy, during ADC transactions, and prior to medication administration

- Identify and act on issues uncovered during the analysis of process and outcome measures associated with medications that have look-alike and/or sound-alike names. Rather than assuming that more education is needed, take steps to understand the system causes of low compliance or mix-ups. For example, if data shows low compliance with barcode scanning of saline lock flushes prior to administration, ask: Is this a new manufacturer and the barcode has not yet been added to the system? Is there an issue with how the label or barcode is placed on the syringe? Is there a problem with the barcode scanner's ability to scan the barcode?

- Provide feedback to staff about data being monitored, analysis of that data, performance improvement initiatives in response to the data, and planned actions.

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Different concentrations of oral liquid baclofen. **FLEQSUVY** (baclofen) oral suspension (25 mg/5 mL [5 mg/mL]) is a new formulation of the skeletal muscle relaxant used to treat spasticity from multiple sclerosis and may also be used for patients with spinal cord injuries and other diseases. **OZOBAX** is another brand of baclofen oral solution that was available before Fleqsuvy. But Ozobax comes in a different strength, 5 mg/5 mL (1 mg/mL), than Fleqsuvy, 25 mg/ 5 mL (5 mg/mL). The Ozobax label lists the concentration as "5 mg/5 mL," which could be confused with the 5 mg/mL strength of Fleqsuvy, although Fleqsuvy is primarily labeled 25 mg/5 mL. Prior to the availability of both commercial products, ISMP had received several reports related to confusion between various compounded baclofen concentrations. If a patient receives an under- or overdose due to a concentration error, either inadequate treatment and withdrawal syndrome, or baclofen toxicity could result. Both the American Society of Health-System Pharmacists (www.ismp.org/ext/922) and the Michigan Pediatric Safety Collaboration (www.mipedscompounds.org) recommend a concentration of 5 mg/mL for compounded baclofen oral liquid prescriptions.

When possible, organizations should standardize to a single concentration of baclofen based on the patient population served—avoid adding both Fleqsuvy and Ozobax to the organization's formulary. Electronic health records should be configured to list the concentration of the available product (i.e., 25 mg/5 mL [5 mg/mL] or 5 mg/5 mL [1 mg/mL]). Practitioners should be made aware of the potential for error due to the different concentrations on the market, with special attention given during the medication reconciliation process to ensure accurate doses are documented and prescribed. Doses should be prescribed in mg, and practitioners should clarify and discuss doses based on the mg dose. Also, ensure that automatic substitutions account for the different strengths of the drug, or do not allow automatic substitutions or interchanges. Using the teach-back method, pharmacists and nurses should also educate patients and/or caregivers about the concentration, the corresponding volumetric dose, and how to measure each dose with an oral syringe.

FDA Advise-ERR

Pen injectors need pen needles!

Autoinjectors and pen injectors are commonly used for patient self-administration of medications. Autoinjectors, which already have an attached needle, provide a single medication dose for onetime use prior to disposal. Autoinjectors help some patients overcome the hesitation with injecting themselves. **EPIPEN** and **AUVI-Q** (both **EPINEPH**rine), and **BYDUREON BCISE** (exenatide) are examples of medications available in autoinjectors. Unlike autoinjectors that already have a needle attached, pen injectors require patients to manually attach a pen needle. Some pen injectors, including **OZEMPIC** (semaglutide), come with a supply of disposable needles. **HUMALOG KWIKPEN** (insulin lispro) and **FORTEO** (teriparatide) are examples of pen injectors that require the purchase of pen needles separately. Some states require a prescription to obtain pen needles, which are available in multiple lengths and gauges. When pen needles need to be purchased separately, the US Food and Drug Administration (FDA) encourages manufacturers to include a statement, "Needles not included," on the carton (**Figure 1**).

Figure 1. FDA recommends that manufacturers of pen injectors include the statement, "Needles not included," on the outside carton as a reminder to provide pen needles.

FDA and ISMP have received reports of missed doses and reuse of needles when the correct pen needles were not prescribed and/or dispensed to patients (www.ismp.org/node/31803). Most of these errors were attributed to not prescribing the required pen needles, not offering patients pen needles (if allowed in some states), dispensing the incorrect type of pen needles, unfamiliarity with the pen injector, and patients with an inadequate supply of pen needles.

To help prevent errors associated with pen injectors, FDA recommends the following:

- Check your state laws to determine if a prescription is required to dispense pen needles.
- Work with your information technology and electronic medical record vendors to create order sets that include a prescription for pen needles when ordering pen injectors.
- Prescribers who provide samples of pen injectors should consider maintaining a supply of the correct pen needles to dispense with the samples.
- Educate patients to pick up BOTH the pen injector and pen needles from the pharmacy.
- If there is no prescription for pen needles or it is unclear in the patient's profile if they have received pen needles, enter a counseling note in the pharmacy computer system (or on the prescription receipt) to trigger patient education when the patient picks up the prescription. Ask the patient if they have an adequate supply of pen needles without reusing them.
- Use the teach-back method to educate patients regarding how to correctly use the pen injector, including setting up the device, using the pen needle (standard pen needle or safety pen needle [www.ismp.org/node/44]), changing the needle with each injection, administering the medication, and disposing of the pen needle safety.
- Educate patients not to share their pens, even when the needle has been changed.
- Educate patients to never use the pen injector cartridge as a vial.

This FDA Advise-ERR was provided by the FDA Division of Mitigation and Medication Error Surveillance (DMAMES), Postmarket Medication Error Team (PMET): BarbraKaryne N. Nchinda Fobi, PharmD, MPH, CPPS, FISMP; Niloofar Rezvani, PharmD; and LCDR Zachary Oleszczuk, PharmD, MSPharm, BCGP.

Editor's note: *A hospital pharmacist reported that a patient was discharged from another hospital with a U-500 insulin pen, but no pen needles. She used a U-100 insulin syringe to withdraw "70 units" of insulin from the U-500 pen, not realizing she had actually withdrawn 350 units. The patient's children found her unresponsive and called for emergency care. Fortunately, the patient recovered.*

Special Announcements

FREE webinar for pharmacy technicians

Join us on **June 7, 2022**, as we present the second in a **FREE** webinar series on the important role that pharmacy technicians play in sterile compounding. To register for ***Sterile Compounding Technology: Pharmacy Technicians Lead the Adoption of Best Practices***, which is supported by Baxter, visit: www.ismp.org/node/31395.

ISMP presenting at ASHP meeting

Join us at the American Society of Health-System Pharmacists (ASHP) Summer Meetings and Exhibition in Phoenix, AZ, on **June 12, 2022**, for an educational session, ***Come on In, the Water's Fine: Diving into the ISMP Targeted Medication Safety Best Practices***. For details, visit: www.ismp.org/ext/920.

Submit survey data to AHRQ

Hospitals that have administered the Agency for Healthcare Research and Quality (AHRQ) Survey on Patient Safety Culture (SOPS), Version 2.0 (www.ismp.org/ext/918), have until **July 22, 2022**, to submit their data. Participants will receive their results and be able to access comparative aggregate data. For details, visit: www.ismp.org/ext/919.

FREE webinar from ASPEN

On **June 22, 2022**, the American Society for Parenteral and Enteral Nutrition (ASPEN) will be hosting a **FREE** webinar, ***Incorporating Multi-Chamber Bag (MCB) Parenteral Nutrition Formulations into Practice***, in light of the automated compounding device valve shortage. For details and to register, visit: www.ismp.org/ext/925.

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

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

Judy Smetzer Just Culture Champion Scholarships

Become a Just Culture Certified Champion

In cooperation with The Just Culture Company, the Institute for Safe Medication Practices (ISMP) will award three scholarships for the next calendar year to individuals or teams from an organization to participate in a 15-hour Just Culture certification course. For more details about course options and additional benefits, visit: **ismp.org/node/30857**.

Candidate Qualifications

For an individual or team to be considered for a scholarship, they must:

- Be currently working in the healthcare field in any setting
- Have at least 3 years of fulltime experience working in healthcare
- Possess knowledge of the basic tenets of a Just Culture
- Exhibit a strong commitment to design/redesign systems to prevent patient harm
- Obtain a commitment to a Just Culture from at least one executive leader within their primary organization

For more information and to apply, visit:
ismp.org/node/30840

Application Deadline: July 31, 2022

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These scholarships will be awarded in honor of **Judy Smetzer, BSN, RN, FISMP**, former vice president at ISMP who retired in 2022.