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ISMP An ECRI Affiliate

Acute Care ISMP Medication Safety Alert!®

Educating the Healthcare Community About Safe Medication Practices

Challenges with requiring five characters during ADC drug searches via override

PROBLEM: Since 2019, ISMP has recommended the entry of a minimum of the first five characters of a drug name (unless the name has fewer than five letters) during searches in automated dispensing cabinets (ADCs) (Statement 4.4 in the ISMP ***Guidelines for the Safe Use of Automated Dispensing Cabinets***, www.ismp.org/node/1372) and other electronic forms of communication (Statement 19 in the ***ISMP Guidelines for Safe Electronic Communication of Medication Information***, www.ismp.org/node/1322). The use of only the first two to four characters of the drug name, mnemonics or short names (e.g., "met"), skipped character abbreviations (e.g., "mtx"), or a combination of the first few characters and dose (e.g., "meth10") has led to the presentation of similar looking drug names on the screen, which has resulted in drug search selection errors. For example, entering "met" has led to mix-ups between methylphenidate, methadone, met**OL**azone, methotrexate, met**FORMIN**, and metro**NIDAZOLE**; and entering "ve" has led to mix-ups between vecuronium and **VERSED** (midazolam).

Recently, we received two error reports involving confusion between rocuronium and **ROMAZICON** (discontinued brand of flumazenil). One event occurred during cardiopulmonary resuscitation in a critical care unit. When a physician gave a verbal order for rocuronium for intubation, a nurse logged into an ADC, selected the override function, entered "ro," and accidentally selected and administered "Romazicon" to the arresting patient. Fortunately, the intubation and resuscitation were successful. As it turns out, rocuronium, the neuromuscular blocking agent, was not available via override as an individual drug; it was only available via override in a rapid sequence intubation (RSI) kit. In the other event, a head trauma patient in the emergency department, who needed urgent intubation, required an additional vial of rocuronium that the nurse did not know was available in the RSI kit the team was currently using. Again, only "ro" was entered into the ADC to access the medication via override, and "Romazicon" was selected in error and administered to the patient. The patient was still intubated successfully and experienced no permanent harm despite receiving the wrong drug.

Some ADC vendors have modified the functionality to allow organizations to require five characters when searching for drug names via the override feature. Based on practitioner comments on listservs and error reports, some organizations have implemented this functionality when using the override feature. However, we are also aware of several challenges, some of which have been present when entering two to four characters during drug name searches, but have been intensified with the five-character requirement:

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Customized ISMP consulting services

ISMP's nationally recognized experts are here to support you, even during the pandemic! Our multidisciplinary consulting team can offer medication safety solutions for healthcare facilities of all sizes, virtually or in person. Whether you need assistance getting your medication safety program started, identifying potential issues, or solving ongoing problems, we can help. Our consulting team can provide you with an unbiased analysis of the medication-use process and a customized roadmap for improvement to help you reduce the risk of medication errors. For information on services tailored to your specific needs, visit: www.ismp.org/node/23650.

SAFETY briefs

Potential for inaccurate medication history data. Surescripts operates an electronic network that, in part, supports the transmission of electronic prescriptions from prescribers to community pharmacies and provides electronic medication histories to prescribers. We recently learned that prescription information sent to Surescripts from three pharmacy data sources may have contained inaccurate medication history instructions, such as a missing forward slash mark (' / ') or dash (' – '). For example, instead of "Take 1-2 tablets by mouth at bedtime," the listing read "Take 1 2 tablets by mouth at bedtime." Or, instead of "Take 1 & 1/2 tablets by mouth once a day," the listing read "Take 1 & 1 2 tablets by mouth once a day." And "Take 112 tablets by mouth once a day" was displayed instead of "Take 1 1/2 tablets by mouth once a day." The duration of therapy has also been impacted. For example, "Take for 2-3 weeks" has appeared as "Take for 2 3 weeks."

Health systems and electronic health record vendors should be aware of this situation as it could potentially lead to misinformation when performing medication reconciliation during an emergency department visit or hospital admission. Incorrect prescription information can also appear as part of the patient's medication list in the after-visit summary following a clinic visit. Please note: no characters have been missing during the dispensing process while filling prescriptions, only on medication histories.

Immediately upon learning of this issue, Surescripts worked with the three pharmacy data sources to fix the issue. For now, the sig field is being removed in all medication history response messages from the affected pharmacy data sources until they implement permanent fixes in their systems. Once the three pharmacy data sources have permanent fixes in place, Surescripts will communicate the resolution of this issue.

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- Misspelling the first five letters of a drug name
- Entering spaces or symbols (e.g., "/" or "-" or ":") to meet the five-character requirement (e.g., entering "kit <space> <space>" to allow a list of virtual or actual kits in the ADC to display; entering "fat <space> 1" to get Fat 10% to display)
- Difficulties in locating combination drugs or parenteral fluids
- Difficulties in locating drugs known by several different names (e.g., searching under "lipids" but the drug name is set up as "fat 10% emulsion")
- Failing to locate an emergency drug because the user forgets to enter the full five characters; for example, we received one report in which several practitioners were unable to access emergency doses of **EPINEPH**rine because they forgot about the five-character functionality and only entered "epi"

Also, scrolling through an entire list of drugs using the inventory function rather than searching for a specific drug is one of the unsafe, time-consuming workarounds practitioners may take when searching for drugs via override if they are unable to find the intended product.

Safe Practice Recommendations: Despite these limitations and challenges, ISMP still recommends using at least five characters when conducting drug name searches. For drug names with the same beginning characters beyond five letters, you might want to consider adding the therapeutic class to the drug name listing to help avoid drug selection errors (e.g., methyl**PREDNIS**olone [corticosteroid], methylphenidate [stimulant], methylnaltrexone [GI agent], methylergonovine [ergot derivative]). Some have suggested that vendor functionality should be more tailored and specific to individual, problematic drugs that require the five-character search via override, rather than requiring an all-inclusive change for all drug name searches via override. Alternatively, functionality could exist to allow users to "opt out" certain drugs from the five-character search rule. However, it may be confusing to require two different levels of drug name searches, especially when staff are unable to remember whether they must search for a particular product using two or three characters or the full five characters. ISMP has previously talked to ADC vendors about developing more sophisticated functionality, such as an algorithm that allows users to enter the exact number of characters to get only one unique drug name to appear on the screen. Also, it might be safest to allow simultaneous drug name searches by either the brand or generic name.

It is also reasonable to consider creating an alias/synonym for certain drugs on the override list that are commonly known by an alias/synonym. For example, NSS <space> <space> may be created as an alias for 0.9% sodium chloride solution. But each synonym created should be reviewed against other aliases/synonyms to ensure they are not too similar. If there was enough room on the screen, it might also be helpful to allow users to "pin" emergency kits and emergency drugs (e.g., **EPINEPH**rine) to the top of the screen, similar to how certain posts can be pinned to the top of someone's Facebook page. This would make emergency kits and key emergency drugs always accessible, although a separate code cart should always be maintained for emergency equipment and drugs to use during a cardiac and/or respiratory arrest.

As we recommended previously, before implementing the five-character search requirement for medications obtained from an ADC via override, hospitals should analyze the workflow, especially the searchability of emergency medications, and conduct a failure mode and effects analysis (FMEA) to identify and manage potential challenges. See **Table 1** (page 3) for examples of risk points to consider during the FMEA. Prior to implementation, organizations must develop a robust and effective communication plan, and obtain feedback from frontline staff. After any changes, collect data to assess whether unintended consequences are occurring and make appropriate adjustments if needed. Of course, to limit override challenges, whenever possible, orders should be entered and verified by a pharmacist to allow medication or product removal within the patient's profile, bypassing the requirement to enter five characters.

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Meanwhile, Surescripts recommends taking these actions and contacting your Surescripts Account Manager with questions:

- Impacted health systems and technology vendors that use Surescripts Medication History can request a detailed report of impacted patients through the company's support process. Request a Severity 2 Support case with the subject "Inaccurate Medication History data – missing characters in patient directions."
- End users should review their records and, if needed, may request a current medication history file for impacted patients through their health technology vendor.
- Prescribers, pharmacists, pharmacy technicians, and nurses should always verify medication quantities and all other prescription information with patients during the medication reconciliation process, using professional judgment in all clinical decision making. While directions that state to take 12 or 112 tablets should be quite noticeable, we know, in the past, massive amounts of tablets have been given to patients (www.ismp.org/ext/795).
- Pharmacies should review their software system to ensure fill data sent to Surescripts contains all the necessary special characters.

FDA communication on the accuracy of ENFit low dose tip syringes. A recent US Food and Drug Administration (FDA) communication to patients and healthcare providers (www.ismp.org/ext/798) mentioned the potential for overdoses, under certain conditions, when using ENFit low dose tip (LDT) syringes (between 0.5 mL and 6 mL). This can happen if the user does not clear the moat area around the syringe tip (**Figure 1**, page 3) before administering a medication. Liquid medications can enter the moat area when the syringe is dipped into a liquid medication without using a

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Join ISMP as we celebrate **National Pharmacy Week**—October 17-23, 2021! www.ismp.org/ext/794

> Five characters — continued from page 2

Table 1. Examples of potential risk points that may intensify when requiring a five-character drug name search in ADCs

Potential Risk Point	Possible Consequence									
	Unable to find the desired drug	Select the wrong look-alike drug	Delay in care	Look up the drug in a reference	Try another ADC	Call the pharmacy	Ask for help finding the drug	Not secure/ unsafe drug storage	Erroneous/ absent drug charges	Drug unavailable for another purpose
Enter the wrong five characters due to a spelling error or wrong key stroke	X	X	X	X	X	X	X		X	X
Search by a drug's brand name when only generic names are in the library or when searching in "generic name" mode only	X		X	X	X	X	X			
Don't know the generic name of a brand product, and system is set up to search only by the generic name	X		X	X		X	X			
Don't realize you need to enter a space or two for drugs with less than five letters	X		X		X	X	X			
Don't realize you need to enter a special character (e.g., %, /) to reach the five-character limit	X		X		X	X	X			
Can't find the drug so you scroll down an alphabetical list of available products to find it	X	X	X						X	X
Can't find the drug so you look for it in another location (e.g., code cart, treatment cart)	X	X	X						X	X
Stash common and emergency medications outside the ADC for easy access		X						X	X	X
Borrow the medication from another patient's storage location/profile		X			X				X	X

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syringe filling adapter such as an ENFit cap or medication straw. If fluid or air bubbles enter the moat area, the tip of the syringe should be tapped or flicked to eliminate the fluid or air bubbles before administering the medication. ISMP has recommended this practice when a straw or ENFit-compatible bottle cap is not used, which could happen if doses are prepared extemporaneously from a unit dose cup or bottle. ISMP believes that the overdose risk is mainly with oral liquid medications that enter the moat area, especially with tiny doses used for pediatric patients.

While the FDA's analysis has identified a potential for overdose using ENFit LDT syringes, no patient injuries have been reported. In contrast, serious patient injuries and deaths have been reported due to misconnections (www.ismp.org/ext/799). Therefore, FDA continues to recommend the use of enteral devices and syringes that reduce the risk of misconnections, including ENFit LDT syringes.

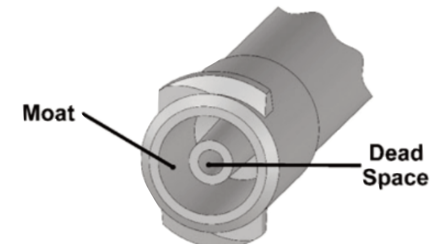

Figure 1. Liquid medications that enter the moat area of an ENFit low dose tip (LDT) syringe under certain conditions may lead to an overdose if not cleared.

Special Announcement

FREE webinar for community pharmacies

Join us on **October 26, 2021**, for a FREE webinar, ***Important Actions Community Pharmacies Need to Take Now to Reduce Potentially Harmful Dispensing Errors.*** Community and chain pharmacy staff and corporate leaders, and staff from the State Board of Pharmacy, are invited to attend. Learn about preventable mistakes and hazardous conditions that may be present in the pharmacy and proactive steps that can be taken to prevent medication and vaccine errors. For details, visit: www.ismp.org/node/27619.

PATH to NEW BEGINNINGS

ISMP 24TH ANNUAL CHEERS AWARDS

Keynote Speaker and LIFETIME ACHIEVEMENT AWARD Winner:

Patricia Kienle, RPh, MPA, BCSCP, FASHP

Patricia Kienle is one of the nation's foremost experts on medication management and safety, as well as on accreditation and regulatory issues. She has more than 45 years of experience helping healthcare administrators develop and execute comprehensive medication management programs in acute and non-acute care environments, and currently is Director of Accreditation and Medication Safety for Cardinal Health. Ms. Kienle has completed an executive fellowship in patient safety at Virginia Commonwealth University and frequently offers her expertise on areas that impact error prevention, including serving as an educational resource for USP's <797> sterile compounding standards. She is a former board member of ISMP and the American Society of Health-System Pharmacists (ASHP), and has served as the president of the Pennsylvania Society of Hospital Pharmacists. She has earned numerous state and national awards, including the 2014 ASHP Award for Distinguished Pharmacy Leadership.

Register for the Virtual CHEERS AWARDS Celebration!

Please join ISMP on Tuesday evening, **December 7, 2021**, at 6:00 p.m. ET, for our **virtual** 24th Annual CHEERS AWARDS. We will be honoring a group of healthcare leaders who have left their footprint on medication safety by developing best practices and programs that prevent medication errors and protect patients. To register for the free event, please visit: www.ismp.org/node/25790.

Help Support ISMP During Our Only Fundraising Event!

You can honor this year's CHEERS AWARDS winners by attending the virtual awards celebration, purchasing raffle tickets for a variety of high-end prizes, and/or making a donation. With your support, ISMP can continue on our path to promote safe medication use in all healthcare settings. To purchase raffle tickets, please visit: www.ismp.org/ext/790. To make a donation, please visit: www.ismp.org/node/25784.

ISMP Virtual Activities During the 2021 ASHP Midyear Clinical Meeting

Workshop (preregistration required)

☐ Thursday, December 2 and Friday, December 3

ISMP Medication Safety Intensive (MSI) Workshop
To register, visit: www.ismp.org/node/25541

Symposia (preregistration required)

☐ Tuesday, December 7

A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting
1:00 p.m. – 2:30 p.m. ET
To register, visit: www.ismp.org/node/26682

☐ Wednesday, December 8

Raising the Bar on Sterile Compounding Safety
1:00 p.m. – 2:30 p.m. ET
To register, visit: www.ismp.org/node/26726

ASHP Educational Sessions with ISMP Speakers

☐ Wednesday, December 8

ISMP Medication Safety Update 2021
3:00 p.m. – 4:30 p.m. ET

☐ On-Demand

Don't Overlook the Essentials of Ambulatory Pump Safety