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ISMP 25 YEARS ADVANCING MEDICATION SAFETY

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

Independent double checks: Worth the effort if used judiciously and properly

Manual independent double checks of certain high-alert medications have been widely promoted in healthcare to help detect potentially harmful errors before they reach patients.[1,2] Many practitioners, including both new and experienced, have very strong beliefs in the effectiveness and utility of independent double checks, helping to explain their proliferation in practice.[3] These positive attitudes about independent double checks are associated with practitioners' worries about their own human errors. Thus, many perceive the primary purpose of independent double checks as a means of sharing the responsibility for safe medication use.[3]

Despite positive attitudes about their use, manual independent double checks have long been disputed, discounted, and misused in healthcare. While non-compliance with independent double checks does not seem to stem from a negative attitude towards double checking itself,[3] the process is time consuming and often associated with practical problems in carrying them out, such as staffing shortages[4] and disruptions in workflow.[4-6] The inconsistent use and variability in how independent double checks are performed has limited their ability to detect many errors, and their impact on safety has been questioned by those who rarely find mistakes during the checking process. Frequent misuse of an independent double check as a quick fix for an ailing medication use system has often been a perceived solution to many serious errors that have reached the patient. Furthermore, the overuse of manual independent double checks as a risk-reduction strategy for high-alert medications has been called to task given that it is a weaker error-reduction strategy, particularly if this is the only safeguard in place.

Despite these challenges, ISMP believes that the selective and proper use of manual independent double checks can play an important role in medication safety. Numerous studies (**Table 1**, page 2) have demonstrated the ability of independent double checks to detect up to 95% of errors.[7-11] Based on this, an error rate of 10% (1 in 10) can be reduced to 0.5% (1 in 200) by introducing an independent double-check process. Automated double checks such as computerized allergy screening and bar-

continued on page 2—Independent double checks >

Take our survey on Targeted Medication Safety Best Practices!

In December 2017, ISMP launched the **2018-2019 Targeted Medication Safety Best Practices for Hospitals** to identify, inspire, and mobilize widespread adoption of consensus-based best practices on specific error-related issues that continue to harm patients or cause death. Since then, we have encouraged adoption of these best practices and are now conducting a short survey to get a sense of the current level of implementation of the practices since their release. We are also interested in knowing about any barriers to implementation you may have encountered. We would greatly appreciate your participation in this survey regardless of whether you have or have not implemented any or all of the best practices. Please complete the survey online by **July 19, 2019**, by visiting: www.ismp.org/ext/268. The survey questions are provided on **pages 7** and **8** for your review prior to taking the online survey. For a description and exact wording of the best practices, visit: www.ismp.org/node/160. Thank you!

SAFETY briefs

HIGH-ALERT

Look-alike Toujeo cartons and pens.

Sanofi makes two pen configurations for **TOUJEO** (insulin glargine 300 units/mL). The original pen, Toujeo SoloStar, contains 450 units (1.5 mL) and measures doses in 1 unit increments up to 80 units per injection. Toujeo Max SoloStar, approved last year, contains 900 units (3 mL) and measures doses in 2 unit increments up to 160 units per injection. According to a March

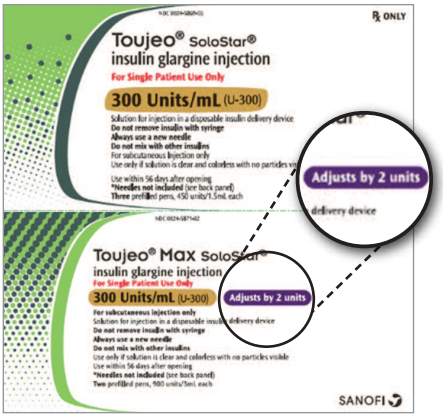

Figure 1. Look-alike cartons of Toujeo (top) and Toujeo Max (bottom). Pens also look similar.

2018 Sanofi press release, Toujeo Max SoloStar was created to reduce the number of pens patients need to use. The maximum dose of up to 160 units per injection also may help some adults reduce the number of injections needed to deliver the required dose. However, a pharmacist recently alerted us to the look-alike nature of the cartons (**Figure 1**) and the pens. If a pharmacist dispenses the wrong pen, dosing errors could happen if the patient typically relies on the number of audible "clicks" to dial the correct dose. With Toujeo SoloStar pen, each click represents 1 unit; with the Toujeo Max SoloStar pen, each click represents 2 units.

Discharge education is essential for patients, especially for new patients using pens and when switching from one configuration to the other. Patients should be

continued on page 2—SAFETY briefs >

> Independent double checks—continued from page 1

code scanning may yield better results, and practitioners who have experience using these automated technologies may place lower value on the effectiveness of manual independent double checks.[3] However, there is enough evidence today to suggest that conducting a manual independent double check is worth the time and effort if this strategy is used judiciously and carried out as follows.

Conduct Double Checks Independently

To be most effective, the double check must be conducted **independently** by a second qualified person.[1-11] If the double check is conducted independently, it reduces the risk of confirmation bias that may occur if the same person prepares and checks a medication, as they likely will see only what they expect to see, even if an error has occurred. An independent double check requires two people to *separately* check the targeted components of the work process, without knowing the results of their colleague. For example, a pharmacist recalculates the prescribed dose of chemotherapy, prepares a syringe of the medication, and compares the product to the order; then, a nurse *independently* checks the order, recalculates the dose, and compares the results with the dispensed product for verification. Two people working independently are unlikely to make the same mistake. If they work together or influence the checking process by suggesting what the checker should find, both could follow the same path to an error. So, holding up a syringe and a vial and saying, "This is 5 units of insulin, can you check it?" is not effective because the person asking for the

Table 1. Examples of Studies on the Impact of Double-Check Systems

Study	Description	Error Rate (ER) or Error Detection Rate (EDR)	Comments
Campbell GM, et al.[7] 1998	Use of process control charts to monitor dispensing errors and errors detected with an independent double check	EDR: 95%	An independent double check detected 95% of errors, leading to a reduction in the error rate from 5% to 0.25%
Grasha AF, et al.[8] 2001	Studied errors pharmacists found when they randomly checked completed prescriptions awaiting pick-up	ER per 5,700 prescriptions: 4.2%	Double checks identified 4.2% of errors not detected prior to dispensing; of these, 2.1% were potentially clinically significant
Grasha AF, et al.[8] 2001	Introduced artificial errors into medication carts and sample pharmacy orders and measured detection rate with an independent double check	EDR: 95%	The ability to detect and correct 95% of errors with an independent double check was not affected by workload or time on shift
Jensen LS, et al.[9] 2004	Reviewed drug errors detected during anesthesia with second person double check and prevention strategies	EDR: 58%	Second person double check was the single most effective measure in the study
White RE, et al.[10] 2010	Simulation to test ability of second nurse to detect wrong patient errors using checklists with and without prompt to verify patient identifiers	EDR with checklist: No prompt: 15% With prompt: 80%	Use of checklist with prompts when conducting a second nurse double check led to higher (433% increase) detection of wrong patient errors
Douglass AM, et al.[11] 2018	Compared single check to double check by emergency department and critical care nurses during an adult sepsis simulation	EDR: Dosing: Single check: 9% Double check: 33% Wrong vial: Single check: 54% Double check: 100%	Use of a double check was significantly more effective than a single check at detecting wrong-vial errors; also more effective but less pronounced for detecting weight-based dosing errors

continued on page 3—Independent double checks >

> SAFETY briefs

cont'd from page 1

reminded to avoid reliance on "clicks" to dial doses and to confirm the numerical dose displayed in the dosing window prior to administration. Using the teach-back method is highly recommended to verify that the patient knows how to measure his or her dose.

Zemuron—relegate this brand name to the past. A critical care nurse, temporarily working in a dialysis unit, took a telephone order from a physician for "Zemplar 10 mcg IV (intravenous) once." **ZEMPLAR** is paricalcitol, a vitamin D analog used for the prevention and treatment of secondary hyperparathyroidism associated with chronic kidney disease. The drug is also used for certain patients receiving hemodialysis or peritoneal dialysis. When the nurse entered "Zemplar" into the order entry system, a warning appeared in red, "THIS DRUG IS NON-FORMULARY," which, according to the reporter, may have been misinterpreted as a red flag—do not pick this drug! **ZEMURON** (a former brand name of the neuromuscular blocker, rocuronium) appeared right below Zemplar, and the nurse selected this instead. The brand name was the primary name displayed on the order entry screen, with rocuronium listed in parentheses next to it. Fortunately, a pharmacist verifying the order questioned why the drug was being dispensed to a patient in the dialysis unit. The potentially fatal error was detected prior to reaching the patient (good catch!).

Merck has ceased manufacturing Zemuron. However, drug information providers may not remove discontinued products from their systems right away, and/or an organization may feel the need to list a brand product that is no longer manufactured to help practitioners who still recognize a medication by its former brand name. Please think twice about this practice! With electronic prescribing essentially ubiquitous, a large percentage of drug name mix-ups that are reported to us occur when practitioners type just the first few letters of a drug name into a search field, which often leads to more than one drug appearing on the screen. Then, for a variety of human factors-related reasons, the wrong drug has been selected. This is more likely to happen with products that have similar names and/or share prod-

continued on page 3—SAFETY briefs >

> Independent double checks—continued from page 2

double check is influencing the person checking the product. While delayed self-verification of work conducted hours or days after initial completion has proven valuable when an independent double check cannot be accomplished, practitioners are clearly better at detecting the errors of others than their own errors.[8]

Unfortunately, observational studies and surveys have shown that practitioners are discordant on what constitutes a good double check.[3,4] For example, in a 2016 study, only a quarter of practitioners regarded the independence of a double check as an essential feature, whereas three-quarters thought that doing the check together was preferred.[4] So, it is crucial to clearly explain the concept of independent double checks and the process to be followed.

Use Independent Double Checks Judiciously

With workload issues ever present, independent double checks should only be used for very select high-risk tasks, vulnerable patients, or high-alert medications that most warrant their use. **ISMP does NOT recommend the use of an independent double check for all high-alert medications**, all vulnerable patients (e.g., pediatrics), or all high-risk tasks. Lack of time to carry out the checking process properly is a strong, recurring theme in studies of failed independent double checks and staff resistance to this strategy.[10,12] Fewer independent double checks strategically placed at the most vulnerable points of the medication use process will be much more effective than an overabundance of independent double checks.

The targeted tasks and medications that require an independent double check should not be based simply on those that have historically been double checked, but rather on a careful assessment of:

- Processes and medications (e.g., intravenous [IV]/epidural opioids, IV insulin, IV heparin, IV chemotherapy) that pose the greatest risk of harm if an error occurs
- The primary reason for the independent double check (what you are trying to catch) and what specifically needs to be verified to achieve that goal
- Whether an independent double check is the best strategy to detect a specific risk or prevent a specific error
- How the independent double check fits in with other risk-reduction strategies that might address the same or a similar safety concern

Failure mode and effects analysis (FMEA), hazard and event analysis, and review of the literature and external reports of risk and errors can help inform practitioners about the processes and medications that pose the greatest risk of harm to patients that might be targeted for an independent double check. Also, careful consideration should be given to what you are trying to verify or catch with the independent double check to evaluate whether this would be the best risk-reduction strategy. For example, if the purpose of an independent double check is to verify that the correct drug, dose, and patient have been selected prior to administration, bedside barcode scanning will offer a more reliable verification strategy than a manual independent double check. On the other hand, if the concern is infusion pump programming errors and possible line mix-ups, then an independent double check at the bedside may be the best risk-reduction strategy.

Also be sure to evaluate all the other ways you are currently mitigating the risk apart from the independent double check. For example, when determining whether you will continue to require a nurse to independently recalculate an oncology patient's body surface area (BSA), you may find that this specific redundancy is already calculated by the prescriber, recalculated in the electronic health record, confirmed by a nurse practitioner, and independently double checked by several pharmacists. However, during this evaluation, you may notice that no one is verifying that the chemotherapy has

continued on page 4—Independent double checks >

> SAFETY briefs cont'd from page 2

uct characteristics such as the same strength or similar doses/dose ranges. Given that rocuronium is a widely used, well known neuromuscular blocker, and Zemplar and Zemuron share the same first three letter characters, it would be safest to avoid displaying the "Zemuron" brand name in drug picklists, and just display the generic name, rocuronium. We will check with drug information providers (e.g., First Databank, Elsevier, Medi-Span) to learn how soon after notification of product discontinuation they remove drug names from their systems.

Incidentally, when the physician called in the above order for Zemplar, he was in the hospital. Verbal/telephone orders should only be used in an emergency or when the provider is working in a sterile environment. Given that Zemplar was intended, had the prescriber entered his own order, he would likely have selected and processed the drug through the non-formulary system. This would have provided yet another layer of safety, assuring another check before it

continued on page 4—SAFETY briefs >

Take our 4-question IV flush syringe survey!

Many practitioners are surprised to learn that prefilled IV flush syringes (i.e., sodium chloride, heparin) are regulated by the US Food and Drug Administration (FDA) as devices, not drugs. FDA has recently established a unique device identification system for medical devices sold in the US. As a result, the label of devices, including IV flush syringes, will include a unique device identifier (UDI) so the items can be recognized from the point of manufacture, to the distributor, and on to users and patients. For prefilled flush syringes, a 2D data matrix barcode captures this UDI. Earlier this year, companies that make prefilled IV flush syringes started adding the 2D barcode to their products. We have received some early feedback from users but would like to know more about your experiences with flush syringes that have the new UDI-containing 2D barcodes. A very brief 4-question survey can be found at: www.ismp.org/ext/267. ISMP would be very grateful if you would take a moment to complete this survey by **July 19, 2019**. Thank you!

> Independent double checks—continued from page 3

been prescribed for the correct cycle and day (per protocol), and this would be a more effective place to implement an independent double check, particularly upstream in the pharmacy, than requiring another level of redundancy with calculating the BSA.

When such re-evaluation results in elimination of an independent double check or changes in the frequency or focus of a check already in place in a unit/department, do not be surprised if practitioners are reluctant to give them up. Due to a status quo bias, practitioners often regard the extent of independent double checks on their unit as 'exactly right' and may resist giving up an independent double check they have come to rely on, or may have reservations about introducing a new independent double check.[4] A detailed discussion about other safety nets in place before removal of an independent double check, or a story about the short pathway to a harmful error without the addition of a manual independent double check, could help improve staff acceptance and compliance.

Also, do NOT use independent double checks as a means of fixing problems when more fundamental system redesign is needed. Independent double checks are a poor substitute for system improvements that help prevent errors. Strategies with higher leverage (e.g., use of barriers, computer alerts with hard stops, standardization, barcode scanning) should be considered. Any errors uncovered during the double-check process should also be used for learning and system improvement.

Avoid Sole Reliance on Independent Double Checks

Independent double checks can sometimes fail, especially since the process essentially depends on one fallible person assessing another fallible person's work. The origin of the error can also predict a certain amount of failure with even the most robust independent double-checking process. An exogenous error arises from conditions in the external environment, such as poor design of drug packages and labels, complex task characteristics, or unclear presentation of information.[13] Double checks are often less successful in detecting exogenous errors, even when the check is performed independently. Some of the same external factors that initially led to the error are often still present, and people in the same environment could easily make the same mistake during the double check.

On the other hand, an endogenous error arises solely within an individual from a random and unpredictable cognitive event like miscalculating a dose.[13] Another person performing the same function will rarely make the same exact mistake. Therefore, endogenous errors are likely to be detected if a double check is performed independently.

Conduct a Cognitive Review of the Medication

Analysis of failed independent double-check processes and interviews with staff suggest that double checking often becomes a superficial, routine task, and people may lose sight of its importance.[3-6] These failed checking processes can often be traced to common themes:[4,11,12,14]

- Auto-processing in which the person checking the work of another does so in a habitual manner with little real appraisal
- A failure to look for and process additional information once initial information looks correct (satisficing)
- A deference to authority in which one person feels constrained to ask questions, or one person easily dissuades the other who sensed a possible error
- Excessive trust in the person whose work is being checked
- A diffusion of responsibility and overreliance on double checking in which staff believe someone else will catch any mistakes, leading to a false sense of safety
- Distractions and interruptions

continued on page 5—Independent double checks >

> SAFETY briefs cont'd from page 3

got to the pharmacist for verification and possibly to the patient.

A premixed IV bag in search of a barcode. In 2004, the US Food and Drug Administration (FDA) published a final rule (69 FR 9120) calling for a linear barcode on drug containers that incorporates the National Drug Code (NDC) on the medication's immediate container label as well as the outside container or wrapper (www.ismp.org/ext/266). **ZYVOX** (linezolid) 200 mg/100 mL and 600 mg/300 mL intravenous (IV) bags manufactured by Pfizer, do not comply with this rule, as they do not have a barcode directly on the IV bag. Instead, a peel-off barcode with a 14-digit Global Trade Item Number (GTIN) containing the NDC is located on the foil overwrap. This peel-off barcode is intended to be transferred from the overwrap to the primary IV bag prior to administration. However, this is not in compliance with the FDA final rule and adds an extra step in the process, creating an opportunity for error if the step is overlooked. The peel-off barcode could be missed and thrown away when the overwrap is removed, ultimately leading to bypassing the barcode medication administration (BCMA) system. The peel-off barcode could also be affixed to the incorrect product, leading to the administration of an incorrect medication despite verification via scanning.

FDA and Pfizer are aware of the safety issues with the peel-off barcode, which was implemented in July 2018. Prior to 2018, the only permanent barcode was located on the outside overwrap, and this peel-off label was designed to facilitate BCMA. Pfizer is currently working to add a machine-readable barcode directly to the immediate container. In the meantime, if this medication is stocked in your facility, alert pharmacy staff to the peel-off barcode located on the overwrap. Create a standardized process for applying the peel-off barcode and check that it is applied to the correct drug if pharmacy dispenses the medication.

HIGH-ALERT

Don't prescribe refills for starter packs. An **ELIQUIS** (apixaban) starter pack was prescribed for a patient who was starting treatment with this drug. The starter pack indicates that two 5 mg tablets (10 mg)

continued on page 5—SAFETY briefs >

> Independent double checks—continued from page 4

What is often missing in the independent double-check process is a "sterile cockpit" environment without extraneous conversation, a firm belief that everyone—even the most trusted and reliable staff member—is fallible, and a more cognitive review of all components of the medication, which requires critical thinking beyond verification of the "5 rights." Is the drug appropriate for the patient? Does the drug's indication match the patient's diagnoses or conditions? Is the dose appropriate for *this* patient? Is the route of administration proper? These questions and more need to be answered independently by both the initial practitioner preparing, dispensing, or administering the selected medication, and by the second practitioner (independently double checking the work of the first practitioner). See **Table 2** for other items to consider when conducting an independent double check.

Table 2. Independent Double Check (to be used selectively)

A procedure in which two practitioners independently check each targeted component that requires verification when prescribing, dispensing, or administering a medication, which often includes the following:

Comparison to prescriber's order:

- Is this the right patient?
- Is this the prescribed drug?
- Is this the prescribed dose/strength/rate of infusion?
- Is this the prescribed route of administration?
- Is this the prescribed frequency/time for drug administration?

Additional cognitive checks:

- Does the drug's indication match the patient's diagnoses or conditions?
- Is this the right formulation of the drug?
- Is the dose appropriate for this patient? Based on the patient's weight/age/laboratory values? (if appropriate)
- Is the dosing formula used to derive the dose correct (e.g., mg/kg, mcg/kg/min, mg/kg/hour)?
- Are dose calculations correct?
- Has the dose of a liquid medication been measured correctly?
- Has the right type of syringe/cup been used?
- Is the dosing frequency/timing appropriate for this patient?
- Is the route of administration safe and proper for this patient?
- Is the medication within its expiration date?
- Does the patient have any allergies or cross allergies to this medication?
- Have appropriate monitoring tests been ordered?
- Are the test results upon which a dose has been prescribed, verified as belonging to this patient?

For IV push or parenteral infusions (if applicable)

- Are flush syringes available and labeled?*
- Is this the correct diluent and volume of diluent?
- Is the total volume correct?
- Are pump settings correct?
- Is the infusion line attached to the correct port and pump/channel?
- Is the rate of a bolus dose correct?

**Flush syringes are intended for flushing lines before/after drug administration, not for reconstitution or dilution of medications.*

Standardize the Process and Provide Tools

Ask a roomful of practitioners from a single unit/department to describe the independent double-check process and you are likely to get a variety of answers. Variations in how independent double checks are carried out abound, and compliance with all the steps in the process is often inconsistent.[12] Some may even view an independent double check as a process that simply requires a second signature or biometric scan before the work can be completed, without really understanding the goal of the check or the steps that should be followed prior to "signing" off on the work. To reduce inconsistencies, establish a standard process for carrying out an independent double check, and educate staff about its importance and how to carry it out properly—as an independent cognitive task and not a superficial routine task or just a "cosigning" requirement.

continued on page 6—Independent double checks >

> SAFETY briefs

cont'd from page 4

should be taken twice daily for 7 days, followed by one 5 mg tablet twice daily, for treatment of deep vein thrombosis (DVT) and pulmonary embolism (PE). While the default setting in the electronic prescribing system for the starter pack was zero refills, this field was modified by a provider, and the prescription was sent to a pharmacy with refills. The outpatient pharmacy did not catch the error, and several months of refills were dispensed to the patient. Thankfully, the patient did not follow the directions on the starter pack each time it was refilled and was taking just one 5 mg tablet twice daily, as intended. Upon further investigation, the reporting institution found additional errors in which the starter pack had been prescribed with refills. In each of these prior instances, the dispensing pharmacy caught the error and corrected the prescription.

Check the default settings for refills in your electronic health record (EHR) for all drug starter packs, not just apixaban, and, if possible, set the default to zero without the ability for the prescriber to modify this field. Examples of other medications with starter packs include **XARELTO** (rivaroxaban), **CHANTIX** (varenicline), **LAMICTAL** (lamo**TRI**gine), and **OTEZLA** (apremilast).

Also, provide patient education upon prescribing and dispensing a starter pack to explain why it is being prescribed, that the pack is only to be used for the beginning of therapy and should not be refilled after the initial use, as well as the appropriate maintenance dosing following the starter pack. If both prescriptions, one for the starter pack and one for the maintenance dose following initial therapy, are sent together to the dispensing pharmacy, the prescriber should instruct the pharmacist to put the maintenance dose prescription on hold until the starter pack has been completed. The patient should be instructed to complete the starter pack first, and the statement, "Begin taking only after the starter pack has been completed" should be included in the maintenance dose directions. We have received other reports of errors where patients mistakenly took both the starter dose and maintenance dose of rivaroxaban concurrently when both prescriptions were sent to a pharmacy without clear instructions.

> Independent double checks—continued from page 5

Make it easy for practitioners to follow and document the independent double-check process without relying on vigilance and memory.[15] One way to do this is to create a checklist (electronic or paper) as a reminder of the components of certain critical processes and/or medications that should be checked (e.g., chemotherapy preparation prior to dispensing). The questions in **Table 2** (page 5) can be used as a broad template to start an intuitive checklist. However, checklists that include very specific items associated with critical information, rather than more general topics, significantly improves their effectiveness.[10] For example, a checklist that instructs users to check the medication label against the original order is not as effective as a checklist that specifies the exact elements to check on the label and the drug order.[10] Nevertheless, design the checklist with care so that the detail does not replace the need for the practitioner to think critically about each aspect of the independent double-check process. Make sure the sequence of information on checklists follows the logical progression of typical workflow and uses the same terminology. The checklist can also serve as a means of documenting the independent double check.

Conclusion

Conduct a thorough evaluation of whether independent double checks are being used judiciously and properly in your facility. After carefully considering what you are trying to verify or catch, the necessary steps to achieve this goal, and if an independent double check is the best strategy, you might determine that it is advantageous to change the focus or the process of the check, or to eliminate it in favor of other more effective risk-reduction strategies. It is also important to determine if certain high-alert medications or vulnerable steps in critical processes currently do not require an independent double check but need one. If so, implement an independent double check as outlined above, then monitor compliance, assess how often the checks are conducted as designed, and make the necessary revisions to promote effectiveness. Staff surveys may also be useful in gathering information about perceptions associated with independent double checks. When employed judiciously, conducted properly, and bundled with other strategies, manual independent double checks can be part of a valuable defense to prevent potentially harmful errors from reaching patients.

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Special Announcements

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On **June 20, 2019**, ISMP will present a **FREE** webinar on ***Back to the Basics: Preventing Administration of Neuromuscular Blocking Agents to Unventilated Patients***. Join ISMP speakers as they describe key vulnerabilities with neuromuscular blockers that have led to patient harm, and the best practices for safeguarding these high-alert medications. For details, visit: www.ismp.org/node/1523.

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If you are attending the Florida Society of Health-System Pharmacists (FSHP) Annual Meeting in **Orlando**, register for a **FREE** ISMP breakfast seminar, supported by Fresenius Kabi, on ***Improving Intravenous Drug Delivery Safety***, which will be held on **August 3**. Speakers will discuss the primary safety issues, at-risk behaviors, and ISMP guidelines and best practices associated with intravenous drug therapy. To register, visit: www.ismp.org/node/1472.

FREE FDA webinar series

The US Food and Drug Administration's (FDA) Division of Drug Information is presenting a **FREE** webinar, ***FDA Drug Topics: Introduction to the Office of Orphan Products Development (OOPD)***, on **June 18**. Continuing education credit is available. For details, visit: www.ismp.org/ext/30, and to register, visit: www.ismp.org/ext/31.

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ISMP Survey on the 2018-2019 Targeted Medication Safety Best Practices for Hospitals

ISMP is conducting a brief survey to get a general sense of the current level of implementation of the **2018-2019 Targeted Medication Safety Best Practices for Hospitals** since their release. We are also interested in knowing about any barriers to implementation. We would appreciate your participation in this survey regardless of whether you have or have not implemented any or all of the best practices. Please complete this survey online by **July 19, 2019**, by visiting: www.ismp.org/ext/268. The survey questions are provided below for your review prior to taking the online survey. For a detailed description and exact wording of the best practices, visit: www.ismp.org/node/160.

General Demographics

1 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

2 Please select where your facility is located.

☐ US/US territory ☐ US military hospitals located in a foreign country ☐ Foreign country/territory

3 Does your organization employ one or more full-time or part-time Medication Safety Officer(s)?

☐ Yes ☐ No

Survey

4 Please select the best option that reflects the status of the 2018-2019 best practices in your hospital using the KEY that follows. Please also provide comments about any barriers to implementation that you have encountered.

Key

None: This best practice has not yet been implemented.
Partial: This best practice has been partially implemented (i.e., not all aspects or components of the best practice have been implemented and/or the best practice has not been implemented in all areas, or for all applicable patients or orders).
Full: This best practice is fully implemented in all areas and for all applicable patients or orders.
N/A: Not Applicable

Current Best Practice		None	Partial	Full	Comments or Barriers to Implementation
Dispense vin**CRIS**tine in a minibag of a compatible solution and not in a syringe for **adult patients.**	☐ N/A				
Dispense vin**CRIS**tine in a minibag of a compatible solution and not in a syringe for **pediatric patients.**	☐ N/A				
Dispense other **vinca alkaloids** in a minibag of compatible solution and not in a syringe.	☐ N/A				
Use a weekly dosage regimen default for oral methotrexate in electronic systems when medication orders are entered.					
Require a hard stop verification of an appropriate oncologic indication for all daily oral methotrexate orders. *For manual systems and electronic order entry systems that cannot provide a hard stop, clarify all daily orders for methotrexate if the patient does not have a documented oncologic diagnosis.*					
Provide specific patient and/or family education for all oral methotrexate discharge orders.					
Weigh each patient as soon as possible on admission and during each appropriate* outpatient or emergency department encounter. Avoid the use of a stated, estimated, or historical weight. **Appropriate encounters include all encounters where the patient is being seen by a licensed independent practitioner, excluding life-threatening situations where the delay involved in weighing the patient could lead to serious harm (e.g., major trauma).*					
Measure and document patient weights in metric units only.					

continued on page 8—Survey >

> Survey—continued from page 7

Current Best Practice	None	Partial	Full	Comments or Barriers to Implementation
Ensure that all oral liquid medications that are not commercially available in unit dose packaging are dispensed by the pharmacy in an oral or ENFit syringe.				
Purchase oral liquid dosing devices (oral syringes/cups/droppers) that only display the metric scale.				
Eliminate glacial acetic acid from all areas of the hospital.				
Segregate, sequester, and differentiate all neuromuscular blocking agents (NMBs) from other medications, wherever they are stored in the organization.				
Eliminate the storage of NMBs in areas of the hospital where they are not routinely needed.				
In patient care areas where they are needed (e.g., intensive care unit), place NMBs in a sealed box or, preferably, in a rapid sequence intubation (RSI) kit.				
Place auxiliary labels on all storage bins and/or automated dispensing cabinet (ADC) pockets and drawers that contain NMBs as well as all final medication containers of NMBs (e.g., syringes, IV bags) that state: "WARNING: PARALYZING AGENT — CAUSES RESPIRATORY ARREST — PATIENT MUST BE VENTILATED" to clearly communicate that respiratory paralysis will occur and ventilation is required.				
Administer high-alert intravenous (IV) medication infusions via a programmable infusion pump utilizing dose error-reduction software.				
Ensure all appropriate antidotes, reversal agents, and rescue agents are readily available. Have standardized protocols and/or coupled order sets in place that permit the emergency administration of all appropriate antidotes, reversal agents, and rescue agents used in the facility. Have directions for use/administration readily available in all clinical areas 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.				
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.				
Eliminate the prescribing of fenta**NYL** patches for opioid-naïve patients and/or patients with acute pain.				
Eliminate injectable promethazine from the hospital.				
Seek out and use information about medication safety risks and errors that have occurred in other organizations outside of your facility and take action to prevent similar errors. *Note: Full implementation includes the following: Establish a formal process for review of medication risks and errors reported by external organizations (e.g., ISMP's Action Agenda), with a new or existing interdisciplinary team or committee responsible for medication safety.*				