

Nurse AdviseERR®

Educating the Healthcare Community About Safe Medication Practices

Selected medication safety risks to manage in 2016 that might otherwise fall off the radar screen—Part II

Some medication safety risks are painfully apparent in an organization, while many others lie dormant in the system until an error or adverse event draws attention to them. We thought it would be useful to describe selected medication safety risks for organizations to manage in 2016 that might otherwise fall off the radar screen. In **Part I**, published in our February newsletter, we described one risk for five of ISMP's Key Elements of the Medication Use System.™ These risks were related to:

- 1 **Patient Information:**
Placing orders on the wrong patient's electronic health record
- 2 **Drug Information:**
Nursing references that promote unnecessary dilution of IV push medications
- 3 **Communication about Drug Therapy:**
In electronic records, confusing the available concentration as the patient's dose
- 4a **Manufacturer Drug Labeling, Packaging, Nomenclature:**
Per liter electrolyte content on the labels of various sizes of manufacturers' IV bags
- 4b **Practitioner Drug Labeling, Packaging, Nomenclature:**
Drawing more than one dose into a syringe
- 5 **Patient Education:**
Discharging patients who do not understand their discharge medications

Part II in this newsletter covers one risk in each of the five remaining Key Elements associated with medication storage, the environment, medication devices, staff competency and education, and culture.

6 KEY ELEMENT Drug Storage, Standardization, and Distribution— Improper and unsafe vaccine storage

The proper storage and handling of vaccines is vitally important because their stability and efficacy are dependent on these factors. To maintain stability, most vaccines must be stored in a refrigerator or freezer, and many also require protection from light. Excessive heat or cold—even a single exposure in some instances—can reduce vaccine potency. These temperature deviations are often due to inadequate refrigeration or freezer units, faulty thermostat controls, and refrigeration/freezer units with inadequate space to allow good air circulation and consistent temperatures.

Improper and unsafe storage can also result in serious errors due to selecting the wrong vaccine, diluent, or other medication with a look-alike name and/or labeling and packaging. Unsegregated storage of vaccines has led to dispensing and administering the wrong vaccine or wrong form of vaccine (adult vs. pediatric). Storing vaccines with other medications in a refrigerator or freezer has led to serious adverse outcomes, particularly when the mix-up involved a vaccine and a high-alert medication. For example, vials of insulin have been mistaken as influenza vaccine, and various neuromuscular blocking agents have been used to reconstitute vaccines or were mistaken as hepatitis B or influenza vaccine.

The organization should store vaccines in stand-alone refrigerators or pharmacy grade/purpose-built refrigeration units (and freezers in the pharmacy), not in dormitory

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ISMP Take our survey!

ISMP is updating its list of **Look-Alike Drug Names with Recommended Tall Man Letters** (www.ismp.org/tools/tallmanletters.pdf). We are asking for your input by taking a 15-minute survey, a copy of which appears on **pages 6-7**. Please submit your responses by **April 15** online at: www.ismp.org/sc?id=1670. Our list of drug name pairs with tall man letters was first compiled after a survey in 2008 to help healthcare organizations employ a standard set of tall man letters to differentiate look-alike drug names. Our last update was 5 years ago. We are considering a few name pairs that have been involved in errors to add to this list, and we truly value your opinion!

ISMP Fellowships

ISMP is accepting applications until **March 31** for two yearlong Fellowship positions starting in July 2016. For details and an application, please visit: www.ismp.org/sc?id=55. If you have questions about the Fellowships or the application process, please send an email to ismpinfo@ismp.org.

SAFETY wires

Methylene blue is a MAOI. Due to the unavailability of the marker dye indigo carmine, which has been used mainly in cystoscopy, ureteral operative procedures, and other procedures, some facilities have begun to use methylene blue as a replacement. So this is a good time to remind people that methylene blue has monoamine oxidase inhibitor (MAOI) properties that can result in an interaction with serotonergic drugs.

Our colleagues at ISMP Canada received a report of serotonin syndrome experienced by a patient who was taking **PARoxetine** and then received methylene blue during a pro-

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style or combination units that both refrigerate and freeze. Regular temperature monitoring is necessary. Technology is available to enable continuous temperature monitoring that can alert staff via electronic messages (e.g., email, pager) and audible alarms if a unit is outside of the specified range. Separate vaccines into labeled bins or other containers according to vaccine type and formulation, keeping vaccines with their corresponding diluents. Never store different vaccines in the same bin/container. Do not store vaccines with similar labels, names, or abbreviations, or vaccines with overlapping components, immediately next to each other or on the same shelf. Separate the storage areas of pediatric and adult formulations of vaccines. Label the specific locations where vaccines are stored to facilitate correct, age-specific selection and to remind staff that some vaccines have two components in separate vials that need to be combined before administration. Our June 2015 newsletter¹ contains additional strategies, as does a *Vaccine Storage & Handling Toolkit* available from the Centers for Disease Control and Prevention.²

7

KEY
ELEMENT**Environmental Factors, Workflow, and Staffing Patterns—
Poor quality lighting**

Lighting is a crucial aspect of the physical environment that has been linked to medication safety.³ Poor quality lighting has often impaired the highly visual tasks associated with medication use, thus leading to medication errors. Examples include tubing misconnections due to low lighting in a patient's room, infusion pumps that have been misprogrammed due to dim backlighting on the screens, and product selection errors in the pharmacy and patient care units caused by low lighting under a pharmacy hood or shadows around an automated dispensing cabinet (ADC).

Despite existing guidelines for lighting in healthcare, it's been a challenge to implement optimal lighting conditions for prescribing, dispensing, and administering medications. Recent literature reviews found that little system-wide action has been taken to increase staff awareness of the problem or improve the lighting.^{4,5} This is largely because the tasks associated with medication use are varied, carried out under diverse physical conditions and in differing locations, and because there are differences in an individual's light requirements based on their visual acuity and age. With an ever-increasing population of older healthcare providers, eye fatigue from computer work and task complexity, small font sizes on medication labels, poor background contrast, and glare or shadows have taken their toll on visual accuracy.^{4,5}

Proper illumination improves both the accuracy and efficiency of medication-related tasks. Fluorescent cool-white lamps or compact fluorescent lamps should be used in areas where critical tasks are performed, including on mobile medication carts, near ADCs, and in patients' rooms for nighttime administration of medications.^{6,7} Administration of medications at night under low lighting to avoid disturbing the patient is an unsafe practice and should be avoided. Adjustable 50-watt high-intensity or task lights are recommended when difficult-to-read prescriptions and product labels are encountered.⁷ Illumination levels for computer order entry areas need to be at least 75 foot-candles (fc), while 100-150 fc are needed when interpreting handwritten orders.⁷ Medication preparation areas, medication verification areas, and patient counseling areas need to have illumination levels between 90-150 fc.⁷ Medication rooms should provide illumination at 100 fc.⁷ Lighting levels need to be increased if the workforce has an average age above 45 years. Additionally, the use of a magnifying glass and task light together can also significantly improve accuracy⁶ and should be used on mobile medication carts (including those used with barcode medication verification systems)⁷ and near ADCs.

8

KEY
ELEMENT**Medication Device Acquisition, Use, and Monitoring—
Failure to disinfect ports and use sterile caps**

Two seemingly harmless practice habits that breach aseptic technique might lead to contamination of sterile injection equipment and increase the risk of a healthcare-associated
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cedure. As a result of the interaction between the two products, the patient required intubation and admission to an intensive care unit. ISMP Canada points out that it is not widely known that methylene blue is a MAOI that can react with selective serotonin reuptake inhibitors (e.g., **PAR**oxetine) and serotonin norepinephrine reuptake inhibitors (e.g., venlafaxine). The elevated levels of serotonin can result in serotonin syndrome. ISMP Canada cautioned facilities and practitioners to treat methylene blue as a medication, specifically by writing orders for its use and entering these orders into the pharmacy computer system to allow potential drug interactions to be identified.

In addition, operating room staff and other practitioners without order entry systems or traditional pharmacy support should incorporate drug interaction checks for methylene blue within their existing processes. Ultimately, it is critical that all patients receiving methylene blue have a complete and up-to-date medication history for use in assessing the risk for serotonin syndrome as well as a process for treating patients who might develop the condition. In 2011, the US Food and Drug Administration (FDA) issued a Drug Safety Communication, "Serious CNS reactions possible when methylene blue is given to patients taking certain psychiatric medications," which includes a list of drugs with serotonergic activity (www.ismp.org/sc?id=618). More recently, the Anesthesia Patient Safety Foundation published an analysis of this issue (www.ismp.org/sc?id=619).



Safe administration of Aggrastat loading doses. **AGGRASTAT** (tirofiban) is a platelet aggregation inhibitor indicated for patients with non-ST elevation acute coronary syndrome. The drug has been available for some time in a premixed bag (**Figure 1**, on page 3). Package sizes and dosing of the drug have also changed in recent years. A vial that was formerly available was withdrawn from the market in 2007. The drug requires a loading dose prior to a maintenance infusion.

The Aggrastat premixed bag only has an exit port, probably to avoid the inappropriate addition of additives. However, the loading dose should not be withdrawn from the premixed bag using this exit port. Instead, product la-
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infection (HAI) of the bloodstream or tissues: 1) failing to place a sterile cap on the end of a reusable intravenous (IV) administration set that has been removed from a primary administration set, saline lock, or catheter hub, and left hanging between use; and 2) failing to properly disinfect the port when accessing needleless valves on an IV set. In the first instance, the tip of the IV administration set is exposed to potential contaminants, which could lead to infection if the contaminated IV set is reconnected to the patient's IV access. In the second instance, the port is exposed to potential contaminants that can be pushed into the patient's IV line once the port has been accessed by tubing or a syringe.

These risks may be unintended consequences of needleless IV system implementation. Before needleless systems, practitioners typically replaced the needle used to connect the infusion to the IV tubing with a new sterile, capped needle to prevent contamination when the tubing was hanging between uses. Now it appears that practitioners are not considering the risk of contamination and are not placing a sterile cap on the exposed tubing. Some have speculated that the lack of a needle or cannula on a syringe, or at the end of the tubing, may suggest that protection and disinfection are not required.

It is imperative that facilities develop procedures that incorporate manufacturer recommended disinfection protocols for their needleless connectors, and to place a sterile cap on the end of the IV tubing between intermittent infusions.⁸ This disinfection process should specify the disinfecting agent, the method for disinfection (e.g., scrub the access surface), and the duration. "Looping"—attaching the exposed end of IV tubing to a port on the same tubing—is not recommended. Both processes (disinfection, capping) should be observed during competency assessments related to medication administration for new and existing practitioners. At-risk behaviors that breach aseptic technique require coaching and education, as well as continued monitoring by organizational leadership.

9

KEY
ELEMENT**Staff Competency and Education—IV practices based on inherited knowledge handed down from one practitioner to another**

Parenteral drug administration often poses risks because of its complexity and the multiple steps required to prepare, measure, and administer medications. A systematic review determined an overall probability of 73% for a practitioner to make at least one clinical error during IV preparation and administration.⁹ While the causes of these errors are diverse, one contributing factor is that pharmacists and nurses are ill prepared to take on these tasks upon graduation from schools of pharmacy and nursing.

In recent years, pharmacy practice has moved into a more clinical realm. Partly as a result, core practices such as sterile compounding and IV admixture do not receive as much attention as that given to clinical pharmacy roles during training.^{10,11} Schools of pharmacy often do not adequately teach students sterile compounding nor prepare them to verify compounded sterile preparations and oversee processes they have never carried out themselves. Instead, sterile compounding procedures are typically handed down from one pharmacist to another, who may or may not carry out the procedures safely, depending on how they were taught.

It is much the same for graduate nurses, although for different reasons. Oftentimes, student nurses are not permitted to administer IV infusions or IV push medications during clinical rotations. Even if they are allowed, the experiences are few and far between. New graduate nurses need to quickly get up to speed and learn these skills. But again, the procedures are handed down from one nurse to another.^{12,13} Most training is prefaced with, "Here's how I do it," resulting in wide variability due to individual preferences. Furthermore, nurses receive little feedback on performance in this area due to lack of defined policies and procedures to outline expectations.

Training of all pharmacists and nurses new to the organization should follow a document continued on page 4—**Safety Risks** >

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being recommends administering the loading dose in mL directly from the bag at 999 mL per hour, then switching to the infusion rate for the maintenance infusion. The package insert provides a weight-based dosing table to help determine how much volume must be infused for the loading dose and the rate of the maintenance infusion.

Some hospitals are questioning the safety of administering a loading dose from the bag, given that not every organization has smart infusion devices that can automatically switch from the loading dose rate to the



Figure 1. Aggrastat is only available in a premixed bag with an exit port, making the administration of loading doses from the bag risky without a smart pump.

proper maintenance infusion rate. It is also possible that this feature could be set improperly. If a pump doesn't have a loading dose feature, it could still be set to administer the loading dose via the volume to be infused (VTBI) feature, then shut off. However, the nurse

might become interrupted and forget to immediately change the rate to begin the maintenance infusion. A worst case scenario would be realized if a pump without a VTBI feature was manually set to administer a loading dose, relying on a nurse to reprogram the device once the loading dose has been infused. Obviously, if the reprogramming step is missed, it could lead to the entire volume running at 999 mL per hour until the medication was exhausted.

Instead of risking a serious medication event, for the loading dose, the manufacturer told ISMP that hanging the bag with an infusion set that is primed is recommended. The required bolus dose should then be drawn from a port on the infusion set tubing with a syringe. A syringe large enough to accommodate the volume based on patient weight (e.g., 96 to 104 kg = 50 mL volume) should be used. The bag tubing should then be clamped continued on page 4—**SAFETY wires** >

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mented standard process outlining steps associated with sterile compounding (including IV admixture) and IV drug administration according to well-designed, evidence-based protocols. Variability in practice and individual preferences must be discouraged. Specific training modules need to be developed and standardized with competency evaluation via observation occurring at least annually. All practitioners must carry out all processes the same way with consistency every time to ensure safety and minimize errors.

10 KEY ELEMENT**Quality Processes, Risk Management, and Culture—
Human resource-related policies that conflict with a Just Culture**

As healthcare organizations move towards a Just Culture, one of the areas potentially overlooked is the organization's human resource-related policies and procedures. Because these policies and procedures typically describe staff expectations, individual accountability, and disciplinary processes, they must be reviewed and often revised to ensure alignment with the tenets of a Just Culture. Otherwise, the journey will be long and unsuccessful if the policies are in conflict with a Just Culture.

In a Just Culture, human resource-related policies and procedures regarding safety should hold all individuals equally accountable for the quality of their behavioral choices and should not focus on errors (which are not a behavioral choice) except for the expectation to report them. The policies and procedures should reflect a tone that is proactive toward risk identification rather than reactive to errors and adverse outcomes. They should define human error as inadvertent, with a response of consoling individuals and conducting an investigation to determine how to redesign systems to prevent the errors or detect them before reaching the patient. Policies and procedures need to describe how to investigate a procedural violation to determine its causes and scope, and how to coach staff who have engaged in at-risk behaviors under the mistaken, but good faith, belief that the risks were insignificant or justified. For outcome-based duties related to a business code of conduct, such as arriving to work on time and wearing identification badges, policies should be clear about expectations and the actions that will be taken when they are not met. When describing reckless behavior (actions involving a conscious disregard of what an individual knows is a substantial and unjustifiable risk), remove any reference to "negligent" or "criminal" conduct as the basis for disciplinary action. Regrettably, mere human error can result in legal action (criminal negligence), but human error is never reckless behavior. Also, ensure that event reporting and investigation policies and procedures support the tenets of a Just Culture.

While human resource-related policies and procedures cannot guarantee that the desired actions will be realized in practice, they are a critical step for building an organizational foundation for success. Old punitive policies put the organization at risk of slipping back into an unjust culture. As organizations align actual practice with a Just Culture, they also need to align supporting policies and procedures.

References

- 1) ISMP. Recommendations for practitioners to prevent vaccine errors. Part 2: Analysis of ISMP vaccine errors reporting program (VERP). *Nurse AdviseERR*. 2015;13(6):1-5.
- 2) CDC. Vaccine storage & handling toolkit. May 2014. www.ismp.org/sc?id=1663
- 3) Graves K, Symes L, Cesario SK. Light for nurses' work in the 21st century. A review of lighting, human vision limitations, and medication administration. *J Nurs Care Qual*. 2014;29(3):287-94.
- 4) Chaudhury H, Mahmood A, Valente M. The effect of environmental design on reducing nursing errors and increasing efficiency in acute care settings: a review and analysis of the literature. *Environ Behav*. 2009;41(6):755-86.
- 5) Graves K. Nurses' decision making processes about lighting during medication administration. A dissertation submitted to Texas Woman's University College of Nursing. May 2014.
- 6) Grasha AF. Psychosocial factors, workload, and risk of medication errors. *US Pharm*. 2002;27(4):HS32-52.
- 7) US Pharmacopeial Convention. Chapter <1066> Physical environments that promote safe medication use. *Revision Bulletin*. October 1, 2010;2-6. www.ismp.org/sc?id=1664
- 8) ISMP. ISMP safe practice guidelines for adult IV push medications. A compilation of safe practices from the ISMP Adult IV Push Medication Safety Summit. 2015. www.ismp.org/sc?id=1665

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and the bolus given over 5 minutes via a Y site close to the patient's access site. The maintenance infusion should then follow.



Will patients ever be free from iatrogenic harm? A report from an expert panel convened by the National Patient Safety Foundation (NPSF) looks at patient safety 15 years after the Institute of Medicine published *To Err Is Human*. The report makes it clear that patient safety concerns remain a serious public health issue that must have a more pervasive response. The NPSF panel is calling for action by government, regulators, health professionals, and others to place higher priority on patient safety science and implementation. The content has been endorsed by a number of related organizations, including ISMP, which participated on the panel. Each of the following recommendations is expanded in the full report:

1. Ensure that leaders establish and sustain a safety culture
2. Create centralized and coordinated oversight of patient safety
3. Create a common set of safety metrics that reflect meaningful outcomes
4. Increase funding for research in patient safety and implementation science
5. Address safety across the entire care continuum
6. Support the health care workforce
7. Partner with patients and families for the safest care
8. Ensure that technology is safe and optimized to improve patient safety

The complete report is worthwhile reading and can be accessed at www.npsf.org/free-from-harm.



IV fat emulsion needs a filter. A change in the package insert for intravenous fat emulsions used in nutrition indicates a 1.2 micron filter should be used when administering these products (e.g., **INTRALIPID, NUTRILIPID, LIPOSYN III** [currently out of stock]). This is also a change from some product labeling that stated filters are not recommended, or if filtration is used, then a filter of less than 1.2 micron pore size must not be used. Newer fat emulsion labeling states: "Use a 1.2 micron filter with Intralipid (strength). Filters of less than 1.2 micron pore size must not be used." There may be continued on page 5—**SAFETY wires** >

Methylergonovine errors in obstetrics

A woman underwent a scheduled induction at 41 weeks gestation. Shortly following delivery, her newborn daughter was given methylergonovine maleate (discontinued brand **METHERGINE**) injection by mistake instead of phytonadione (vitamin K₁) injection. The infant developed seizures and altered mental status requiring a neonatal intensive care unit (NICU) admission for several days. Fortunately, the baby recovered and is developing normally. The methylergonovine had been brought into the delivery room in case it was needed, due to the patient's history of post-partum hemorrhage.

In the past, we have published mix-ups involving methylergonovine injection and hepatitis B vaccine, both of which are available in obstetrical areas, and mix-ups between adult and neonatal ampuls of phytonadione. We are also aware of an event in which a nurse administered methylergonovine to a newborn infant instead of the infant's mother due to a series of verbal miscommunications. The error was not caused by a mix-up between methylergonovine and phytonadione, but rather confusion about who was supposed to receive the prescribed methylergonovine. Tragically, the infant died.

Separating newborn medications from those used for mothers in perinatal areas reduces error potential. If an automated dispensing cabinet (ADC) must be shared between units, a locked, lidded storage bin should be used for neonatal products, and the selection screen should highlight which medications are for the mother and which medications are for the infant. If possible, infant medications should be administered in an area that is separate from where medications are administered to the mother. This strategy may not be workable in hospitals where mothers and babies room together. However, many infants are initially evaluated in a newborn nursery setting, so administration of some medications after birth, including phytonadione injection, may be delayed until the baby is in the nursery. Bringing only the medications that are needed to the bedside is a strategy to limit unnecessary access to medications without a current order or identified need. Also, neonatal phytonadione is available in a prefilled syringe, which can help to differentiate it from ampuls of methylergonovine. Finally, hospitals should implement processes in which infants are reliably banded with an identification bracelet immediately after birth. Then barcode scanning of drug containers can eliminate dangerous mix-ups like this one.

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- 9) McDowell SE, Mt-Isa S, Ashby D, Ferner RE. Where errors occur in the preparation and administration of intravenous medicines: A systematic review and Bayesian analysis. *Qual Saf Health Care*. 2010;19(4):341-5.
- 10) Westbrook JI, Rob MI, Woods A, Parry D. Errors in the administration of intravenous medications in hospital and the role of correct procedures and nurse experience. *BMJ Qual Saf*. 2011;20(12):1027-34.
- 11) ISMP. Cheers honoree's acceptance speech creates pause for reflection. *ISMP Medication Safety Alert!* 2012;17(9):1-2.
- 12) Taxis K, Barber N. Ethnographic study of incidence and severity of intravenous drug errors. *BMJ*. 2003;326:684-7.
- 13) Bates DW, Vanderveen T, Seger DL, Yamaga CC, Rothschild J. Variability in intravenous medication practices: Implications for medication safety. *Jt Comm J Qual Saf*; 2005;31(4):203-10.

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fusion about this change. For example, when Fresenius Kabi went from **EXCEL** to **BIOFINE** containers last year, the product label was simultaneously updated (June 2015) to reflect the new filter requirement. However, some package inserts sent along with information about the bag change did not yet have the label change. Nutrilipid has included wording about the need for filtration since 2014. Also, older labeling that says, "Use a 1.2 micron filter with admixtures . . ." might mean only with a 3-in-1 admixture to some people. But the change is applicable to all nutritional fat emulsion infusions, admixture or not. Adding to the confusion is that some products with older labels may still be available, and internet searches and drug information references may still have outdated information.

A filter could stop fat emboli that might occur if the emulsion cracks, and could also prevent particulate matter from reaching the circulation. Filters also reduce the potential for patient harm due to microprecipitates, microorganisms, and air emboli. Published American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) consensus recommendations (Ayers P, Adams S, Boullata J, et al. A.S.P.E.N. parenteral nutrition safety consensus recommendations. *J Parenter Enteral Nutr*. 2014;38(3):296-333.) suggest using a 0.22 micron filter for dextrose/amino acids (2-in-1) admixtures and a 1.2 micron filter for total nutrient admixture (3-in-1) formulations.

Special Announcement

ISMP Webinar

Join us on **April 19**, for our webinar: **Smart Pump Technology: Capturing the Full Safety Potential.**

For details, visit: www.ismp.org/sc?id=349.

If you would like to subscribe to this newsletter, visit: www.ismp.org/sc?id=384



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Editors: Ann Shastay, MSN, RN, AOCN; Judy Smetzer, BSN, RN, FISMP; Michael Cohen, RPh, MS, ScD (hon), DPS (hon); Russell Jenkins, MD; Ronald S. Litman, DO. ISMP, 200 Lakeside Drive, Suite 200, Horsham, PA 19044. Email: ismpinfo@ismp.org; Tel: 215-947-7797; Fax: 215-914-1492.

ISMP survey on tall man lettering to reduce drug name confusion

In 2008, ISMP compiled a list of look-alike drug name pairs with suggested tall man letters to be used in healthcare organizations to differentiate these products on pharmacy-generated labels, documents, and computer screens. It's been 5 years since we last updated the list in 2011, so **today we are seeking your input** regarding a few more drug name pairs we are considering for addition to the list. We are also interested in learning how useful you find tall man letters, and any additional name pairs you believe we should consider for the list. Please submit your survey responses by **April 15** at: www.ismp.org/sc?id=1670.

Key: DK = Don't Know/Uncertain

Question and Drug Name Pairs	Aware of Confusion with Name Pair?		Add to List?			Proposed Tall Man Lettering ¹				
			Yes	No	DK	Strongly Disagree	Disagree	Neutral/Don't Know	Agree	Strongly Agree
	Yes	No								
<p>1 Please tell us whether you are aware of any confusion or mix-ups with the drug name pairs below, whether you believe the name pairs should be added to our list, and whether you agree or disagree with the tall man letters selected to help differentiate the drug names.¹ You can also provide alternative suggestions regarding how to use tall man letters with each name pair.</p>										
meth IMA zole and met OL azone										
meth IMA zole and methazol AMIDE										
eri BUL in and epi RUB icin										
di AZE pam and diltia ZEM										
PONAT inib and PAZO Panib										
rif AMP in and rif AXIM in										
oxy MOR phine (and HYDRO morphine, oxy CODONE , and Oxy CONTIN , already on list)										
dexame THASONE and dexmede TOM idine										
penicill AMINE and penicillin ²										
LEVO leucovorin and leucovorin ²										
oxy BUTY nin (and oxy CODONE , already on list with HYDRO codone and Oxy CONTIN)										
clo BAZ am (and clonaze PAM , already on list with clo NID ine, clo ZAP ine, and LOR azepam)										
levo FLOX acin (and lev ETIRA cetam, already on list with lev OCARN -itine)										
zol PIDEM (and ZOLM itriptan, already on list with SUMA riptan)										
DEPO -Medrol and SOLU -Medrol ³										
idaru CIZU mab and idaru BICIN ⁴										
SAX agliptin and SIT agliptin ⁵										

¹To determine which letters to capitalize, we attempted to apply the CD3 rule. This methodology suggests working from the left of the word first by capitalizing all the characters to the right once two or more dissimilar letters are encountered, and then working from the right of the word back, returning two or more letters common to both words to lowercase letters. When the rule cannot be applied, because there are no common letters on the right side of the word, the methodology suggests capitalizing the central part of the word only.

²No tall man letters recommended for one of the drug names in the pair

³Solu-**MEDROL** is already on the list with Solu-**CORTEF**; suggest changing to **SOLU**-Medrol

⁴**IDA**rubicin is already on the list with **DOXO**rubicin; suggest changing to idaru**BICIN**

⁵sita**GLIP**tin is already on the list with **SUMA**riptan; suggest changing to **SIT**agliptin

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Question and Items	All or Most	Some	None	Not Effective	Partly Effective	Neutral or DK	Effective	Very Effective	Comments
<p>2 In your facility, please tell us if tall man letters are used in conjunction with the stated items, and if you answer All-Most or Some, whether you feel this strategy is effective in reducing the risk of drug selection and drug identification errors.</p>									
Computer drug selection screens (prescriber)									
Computer drug selection screens (pharmacy)									
Standard order sets									
Computer-generated pharmacy labels									
Shelf or bin labels									
Automated dispensing cabinet screens									
Computer-generated or electronic medication administration records (eMARs)									
Smart pump drug libraries									
Policies/protocols									
Other:									

3 Please review the name pairs listed in Question 1 and those found on our current list at: www.ismp.org/tools/tallmanletters.pdf, and then let us know if there are any additional name pairs that you feel should be included (please specify): _____

4 Do you believe the use of tall man letters by the pharmaceutical industry on product labels helps to reduce drug selection errors?

- Yes No Not sure

5 Please select the category that best describes your profession (check one):

- Registered Nurse Licensed Practical Nurse Advanced Practice Nurse Pharmacist
 Physician Other Prescriber Pharmacy Technician Other: _____

Answer questions 6-10 only if you use tall man letters in your facility.

6 What sources are used in your organization to determine which drug name pairs may benefit from tall man letters? (select all that apply)

- FDA-approved list of name pairs with tall man letters Internal facility risk and error data
 ISMP list of name pairs with recommended tall man letters Other: _____ Not sure

7 For how many drug name pairs are you using tall man lettering differentiation? (each look-alike drug name pair counts as one)

- 1-10 11-20 21-30 > 30

8 Do you believe tall man lettering has prevented you from transcribing, dispensing, or administering the wrong medication?

- No Not sure Yes **If Yes**, please describe: _____

9 How are the purpose and intended use of tall man letters for look-alike name pairs communicated to clinical staff? (select all that apply)

- Policy statement issued Poster/memo posted on units Inservice/education/orientation
 Staff meetings Unknown Other: _____

10 Do you use tall man letters for look-alike drug names that do not comply with ISMP or FDA suggested configurations, as listed on our current list at: www.ismp.org/tools/tallmanletters.pdf? No Don't Know Yes **If Yes**, please list:
