Medication errors:
Don't let them happen to you

Mistakes can occur in any setting, at any step of the drug administration continuum. Here's how to prevent them.

By Pamela Anderson, MS, RN, APN-BC, CCRN, and Terri Townsend, MA, RN, CCRN, BC, CVN-II

A CRITICAL CARE NURSE *tries to catch up with her morning medications after her patient's condition changes and he requires several procedures. He is intubated, so she decides to crush the pills and instill them into his nasogastric (NG) tube. In her haste to give the already-late medications, she fails to notice the "Do not crush" warning on the electronic medication administration record. She crushes an extended-release calcium channel blocker and administers it through the NG tube. An hour later, the patient's heart rate slows to asystole, and he dies...*

A patient returns from surgery, anxious and in pain, with several I.V. lines and an intracranial pressure (ICP) monitor in place. The I.V. tubing used in the operating room differs from the tubing used in the intensive care unit (ICU). In her haste, the ICU nurse prepares to inject morphine into the patient's ICP drain, which she has mistaken for the central line. She stops just in time when she realizes she's about to make a serious mistake...

A physician writes an order for primidone (Mysoline) for a 12-year old boy with a seizure disorder. Misreading the physician's handwriting, the pharmacist mistakenly fills the order with prednisone. For 4 months, the boy receives prednisone along with his seizure medications, causing steroid-induced diabetes. The diabetes goes unrecognized, and he dies from diabetic ketoacidosis...

Medication errors like these can happen in any healthcare setting. According to the landmark 2006 report "Preventing Medication Errors" from the Institute of Medicine, these errors injure 1.5 million Americans each year and cost $3.5 billion in lost productivity, wages, and additional medical expenses. (See *Sobering statistics*.)

Medication administration is a complex multistep process that encompasses prescribing, transcribing, dispensing, and administering drugs and monitoring patient response. An error can happen at any step. Although many errors arise at the prescribing stage, some are intercepted by pharmacists, nurses, or other staff.

Administration errors account for 26% to 32% of total medication errors—and nurses administer most medications. Unfortunately, most administration errors *aren't* intercepted. Recent technological advances have focused on reducing errors during administration.

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LEARNING OBJECTIVES

1. Identify the 10 key elements of medication use.
2. Describe the role of clinician fatigue in medication errors.
3. Discuss strategies to prevent medication errors.

Ten key elements of medication use

Many factors can lead to medication errors. The Institute for Safe Medication Practices (ISMP) has identified 10 key elements with the greatest influence on medication use, noting that weaknesses in these can lead to medication errors. They are:

- patient information
- drug information
- adequate communication
- drug packaging, labeling, and nomenclature
- medication storage, stock, standardization, and distribution
- drug device acquisition, use, and monitoring
- environmental factors
- staff education and competency
- patient education
- quality processes and risk management.

Patient information

Accurate demographic information (the "right patient") is the first of the "five rights" of medication administration. Required patient information includes name, age, birth date, weight, allergies, diagnosis, current lab results, and vital signs.

Barcode scanning of the patient's armband to confirm identity can reduce medication errors related to patient information. But initially, barcode technology increases medication administration times, which may lead nursing staff to use potentially dangerous "workarounds" that bypass this safety system. Also, the barcode method isn't fail proof; the

Sobering statistics

In 2008, researchers estimated that potentially preventable adverse drug events kill 7,000 Americans annually and that medication errors that result in harm are the number-one cause of inpatient fatalities. While error rates vary widely among facilities, experts believe at least one medication error occurs per hospital patient every day.

Medication errors pose the greatest risks and consequences in critical care settings, where patients are sicker and lack the resilience to respond adequately to an adverse event. What's more, critical care patients typically receive twice as many medications as patients on general floors. Approximately 20% of critical care medication errors are potentially life-threatening, and 42% of these errors necessitate additional life-sustaining treatments.

patient's armband may be missing or may fail to scan, or the scanner's battery may fail.

Drug information

Accurate and current drug information must be readily available to all caregivers. This information can come from protocols, text references, order sets, computerized drug information systems, medication administration records, and patient profiles.

Adequate communication

Many medication errors stem from miscommunication among physicians, pharmacists, and nurses. Communication barriers should be eliminated and drug information should always be verified. One way to promote effective communication among team members is to use the "SBAR" method (situation, background, assessment, and recommendations).

Poor communication accounts for more than 60% of the root causes of sentinel events reported to the Joint Commission (JC). In a 2001 case, a patient died after labetalol, hydralazine, and extended-release nifedipine were crushed and given by NG tube. (Crushing extended-release medications allows immediate absorption of the entire dosage.) As a result, the patient experienced profound bradycardia and hypotension leading to cardiac arrest. Although she was successfully resuscitated, she received the drugs the same way the next day. Clinicians had failed to communicate to other team members that her initial cardiac arrest had occurred shortly after she'd received the medications improperly.

Drug packaging, labeling, and nomenclature

Healthcare organizations should ensure that all medications are provided in clearly labeled unit-dose packages for institutional use. Packaging for many drugs looks similar. A tragic case stemming from such similarity occurred with heparin (one of the drugs on the JC's "high-alert" list, meaning it has a high potential for causing patient harm). A few years ago, several pediatric patients received massive heparin overdoses due to misleading packaging and labeling; three infants died. As a result, the Food and Drug Administration and Baxter Healthcare (the heparin manufacturer) issued a letter via the MedWatch program alerting clinicians to the danger posed by similarly packaged drugs. Baxter has since enhanced the labels on heparin and some other high-alert drugs; it now uses a 20% larger font size, tear-off cautionary labels, and different colors to distinguish differing drug dosages.

Look-alike or sound-alike medications—products that can be confused because their names look alike or sound alike—also are a source of errors. From 2003 to 2006, 25,530 such errors were reported to the Medication Errors Reporting Program (operated jointly by the U.S. Pharmacopeia and ISMP) and MEDMARX (an adverse drug event database). The JC requires healthcare institutions to identify look-alike and sound-alike drugs each year and have a process in place to help ensure related errors don't occur.

Medication storage, stock, standardization, and distribution

Many experienced nurses remember when critical care units kept a medication "stash," which frequently caused duplication errors. Potentially, many errors could be prevented by decreasing availability of floor-stock medications, restricting access to high-alert drugs, and distributing new medications from the pharmacy in a timely manner.

Also, hospitals can use commercially available products to decrease the need for I.V. compounding medications and I.V. admixing. Use of preprinted order sets and standardized formularies can reduce errors, too. The Institute for Healthcare Improvement recommends standardized order sets and preprinted protocols for 75% of the drugs healthcare facilities use. These orders and protocols help clinicians promptly select correct dosing regimens, routes, and parameters while eliminating ambiguous abbreviations and the risk of misreading a prescriber's handwriting.

However, errors can occur even when automated dispensing cabinets are stocked by technicians. In a recent error reported to the ISMP, a technician filled an automated dispensing cabinet with the wrong concentration of a premixed potassium chloride I.V. solution.

Drug device acquisition, use, and monitoring

Improper acquisition, use, and monitoring of drug delivery devices may lead to medication errors. Some delivery systems have inherent flaws that increase the error risk. For example, at one time, I.V. medication tubing continued to flow or infuse when removed from the pump. Thus, patients could re-

The fatigue factor

Recent research highlights the role of caregiver fatigue in medication errors. Nurses who responded to a 2008 medication safety survey reported that fatigue, stress, and understaffing increased the risk of making a medication error.

Over the last few decades, workplace fatigue has been explored from various perspectives. In a study comparing performance during 12-hour shift rotations by different age-groups, researchers found that compared to their 20-something counterparts, older workers experienced more sleep disruptions, were less able to adjust their circadian rhythms, and weren't as adept at maintaining their performance over the shift. (The average age of U.S. registered nurses is 46.8.)

Fatigue and sleep deprivation are linked to decreases in vigilance, memory, information processing, reaction time, and decision making. A person who works a 12-hour shift and has a long commute may need to stay awake for up to 18 consecutive hours. According to U.S. Army studies, staying awake for 17 hours is equivalent to a blood alcohol level of 0.05%; staying awake for 24 hours equates to a blood alcohol level of 0.10%. Nurses who work a 16-hour shift may be awake for up to 19 or 20 hours, especially if they have a long commute. Loss of even one night's sleep can lead to short-term memory deficits—and omission errors and giving the wrong drug are common medication errors.

Fatigue and sleep loss also may diminish a nurse's ability to recognize subtle patient changes. As a result, the nurse may not notice an adverse reaction to a drug quickly enough to avoid a devastating outcome.

Near-misses

Suppose a physician writes an order on the wrong chart, but you catch the error before the patient is harmed. A 2006 study found 350 such near-misses were reported, with drug administration implicated in 28.2%. Due to decreased vigilance and reduced information-processing ability, a severely fatigued nurse may not notice a potential problem that could make the difference between a near-miss and a medication error.

Near-miss medication error reporting can be used to reduce medication errors. Near-miss data are reviewed and analyzed to identify the circumstances that led to the problem, and appropriate error reduction strategies can be implemented. Failure to recognize and report near-misses impedes efforts to improve medication safety.

Tragic Wisconsin case

Fatigue contributed to a serious medication error in Wisconsin. After working a 16-hour shift, a labor/delivery nurse came in the next morning to work another shift. Because she'd had only a few hours off between shifts, she'd arranged to sleep at the hospital. Late in the morning of the second day, she admitted a young patient. The physician had ordered an antibiotic to be given right away. The nurse picked up what she thought was the antibiotic and hung it without scanning the patient or the medication. Tragically, the drug she actually gave wasn't the antibiotic but bupivacaine-fentanyl, an epidural anesthetic. The patient died within an hour. Initially, the nurse was charged with felony neglect of a patient causing great bodily harm, but pled guilty to the misdemeanor of dispensing and illegally obtaining a prescription. Her nursing license was suspended for 9 months and she was barred from working in an obstetric or critical care area or working any shift longer than 12 hours.

Inattentional "blindness"

Another case of a fatigue-related error involved misreading of drug labels. A nurse nearing the end of a 16-hour shift reached into the medication supply cabinet to obtain furosemide I.V. She thought she was grabbing a furosemide vial, but picked up a vial of potassium chloride instead.

The vial was correctly labeled, and the nurse even read the label before administering the drug (which caused a fatal arrhythmia). The furosemide and potassium chloride labels had similar colors and printing. The nurse was expecting to see "furosemide" on the label, so her brain processed what she expected to see. Such inattentional "blindness" occurs when the brain fails to distinguish something that should be easy to discern. To prevent information overload, the brain "searches and sweeps" until something grabs its attention. It's adept at filling in gaps when information is missing, compiling a comprehensive picture based on incomplete information. Thus, the nurse saw what she expected to see.

ceive boluses of medications or I.V. solutions, which sometimes had deleterious outcomes. During the admission process, for instance, a patient receiving nitroprusside could receive a large infusion of this drug when the I.V. tubing was removed from the pump and the patient was transferred from one bed to another. This design flaw has since been resolved. In addition, syringes for administering oral medications should not be compatible with I.V. tubing.

Environmental factors

Environmental factors that can promote medication errors include inadequate lighting, cluttered work environments, increased patient acuity, distractions during drug preparation or administration, and caregiver fatigue. (See *The fatigue factor*.)

Distractions and interruptions can disrupt the clinician's focus, leading to serious mistakes. To reduce interruptions, Sentara Leigh Hospital in Norfolk, Virginia has instituted a "no interruption" zone around the automated medication dispensing machines; coworkers know not to interrupt a nurse who's obtaining medication from the machine.

Heavier workloads also are associated with medication errors. The nursing shortage has increased workloads by increasing the number of patients for which a nurse is responsible. Also, nurses perform many tasks that take them away from the patient's bedside, such as answering the telephone, cleaning patients' rooms, and delivering meal trays. Absence of

nurses from the bedside is directly linked to compromised patient care.

Staff education and competency
Continuing education of the nursing staff can help reduce medication errors. Medications that are new to the facility should receive high teaching priority. Staff should receive updates on both internal and external medication errors, as an error that has occurred at one facility is likely to occur at another. (The heparin overdoses described earlier happened at multiple institutions.)

As medication-related policies, procedures, and protocols are updated, this information should be made readily available to staff members. Also, nurses can attend pharmacy grand rounds. Some facilities now use nursing grand rounds as a way to keep staff members competent.

Patient education
Caregivers should teach patients the name of each medication they're taking, how to take it, the dosage, potential adverse effects and interactions, what it looks like, and what it's being used to treat.

Quality processes and risk management
A final strategy for reducing medication errors is to establish adequate quality processes and risk-management strategies. Every facility should have a culture of safety that encourages discussion of medication errors and near-misses (errors that don't reach a patient) in a nonpunitive fashion. Only then can effective systems-based solutions be identified and used.

Simple redundancies, such as using an independent double-check system when giving high-alert drugs, can catch and correct errors before they reach patients. According to the Institute of Medicine, organizations with a strong culture of safety are those that encourage all employees to stay vigilant for unusual events or processes.

Reading back medication orders

The Joint Commission recommends caregivers read back and verify all medication orders given verbally or over the telephone. Keep these tips in mind:

- Have the patient's chart available when calling the prescriber, and write down the order while you're still on the phone.
- Verify the patient's name.
- Read back and confirm the medication. If you're unfamiliar with the drug, ask the prescriber to spell the drug name.
- Confirm the medication dosage by stating each number individually.
- To help prevent sound-alike errors, verify with the prescriber the condition that the medication is being used to treat. For example, Actos is used for diabetes mellitus, whereas the similar-sounding Actonel is used to treat osteoporosis.

Consequences for the nurse

For a nurse who makes a medication error, consequences may include disciplinary action by the state board of nursing, job dismissal, mental anguish, and possible civil or criminal charges. In one study of fatal medication errors made by healthcare providers, the providers reported they felt immobilized, nervous, fearful, guilty, and anxious. Many experienced insomnia and loss of self-confidence.

Avoiding medication errors

How can you safeguard your practice from medication errors? For starters, be conscientious about performing the "five rights" of medication administration every time—right patient (using two identifiers), right drug, right dosage, right time, and right route. Some experts have expanded this list to include:

- right reason for the drug
- right documentation
- right to refuse medication
- right evaluation and monitoring.

Be sure to use the safety resources available at your facility. Don't use workarounds to bypass safety systems. In a 2008 study, one-third of nurses reported they sometimes bypass safety systems. Nurses working in critical care and pediatrics were more likely to do this; yet medication errors in these settings can be particularly devastating. Where nurses routinely bypass safety systems and create workarounds, the employer must conduct a root-cause analysis to identify the reason for the workaround, and take action to correct the situation and prevent recurrences.

Additional steps you can take to promote safe medication use include:

- reading back and verifying medication orders given verbally or over the phone. (See *Reading back medication orders*.)
- asking a colleague to double-check your medications when giving high-alert drugs
- using an oral syringe to administer oral or NG medications
- assessing patients for drug allergies before giving new medications
- becoming familiar with your facility's "do not use" list of abbreviations. In 2004, the JC published a list of abbreviations that shouldn't be used because they can contribute to medication errors. For instance, in one documented case, a "naked" decimal point (one without a leading zero) led to a fatal tenfold overdose of morphine in a 9-month-old infant. The dosage was written as ".5 mg" and interpreted as "5 mg."

Eliminating medication errors

Avoiding medication errors requires vigilance and the use of appropriate technology to help ensure proper procedures are followed. Computerized physician order entry reduces errors by identifying and alerting physicians to patient allergies or drug interactions, eliminating poorly handwritten prescriptions, and giving decision support regarding standardized dosing regimens.

The Leapfrog Group (whose mission is to trigger giant leaps forward in healthcare safety, quality, and affordability) supports computerized physician order entry as a way to reduce medication errors. Use of computerized physician order entry and barcodes may reduce errors by up to 50%.

Yet computerization can't prevent or catch all errors. In one near-miss incident, an I.V. bag of a standardized diltiazem (Cardizem) solution (125 mg in 125 mL normal saline solution) was inadvertently labeled as an insulin drip, even though it had scanned correctly (the barcode had been applied by the pharmacy). Fortunately, an alert ICU nurse realized the bag she had in her hand was a premixed solution and not a pharmacy admixture. When she turned it over, she could see the manufacturer's label.

Be sure to use the safety practices already in place in your facility. Eliminate distractions while preparing and administering medications. Learn as much as you can about the medications you administer and ways to avoid mistakes. (See *Websites that can help you avoid medication errors*.) Finally, be aware of the role fatigue can play in medication errors. ★

Websites to help you avoid medication errors

The websites below provide accurate information about the consequences of medication errors and ways to avoid such errors.

Drugs and lactation database (National Library of Medicine)
http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?LACT

Epocrates electronic drug resource
www.epocrates.com

FDA MedWatch
www.fda.gov/Safety/MedWatch/default.htm

Institute for Safe Medication Practices
www.ismp.org

MedlinePlus: Drugs, Supplements, and Herbal Information
www.nlm.nih.gov/medlineplus/druginformation.html

National Coordinating Council for Medication Error Reporting and Prevention
www.nccmerp.org

Selected references

Consumers Union. To Err is Human—To Delay is Deadly. May 2009. www.safepatientproject.org/safepatientproject.org/pdf/safepatientproject.org-ToDelayIsDeadly.pdf. Accessed February 1, 2010.

Institute for Safe Medication Practices. *ISMP Medication Safety Alert! Nurse Advise-ERR* [Newsletter]. http://www.ismp.org/Newsletters/nursing/default.asp. Accessed February 1, 2010.

Hicks RW, Becker SC, Cousins DD. MEDMARX data report. A report on the relationship of drug names and medication errors in response to the Institute of Medicine's call for action. Rockville, MD: Center for the Advancement of Patient Safety, U.S. Pharmacopeia; 2008.

Kohn LT, Corrigan JM, Donaldson MS, eds. *To Err is Human: Building a Safer Health System*. Washington, DC: National Academy Press; 2000.

Koppel R, Wetterneck T, Telles J, Karsh B. Workarounds to barcode medication administration systems: their occurrences, causes, and threats to patient safety. *J Am Med Inform Assoc*. 2008;15(4):408-423.

Rogers A, Hwang W, Scott L, Aiken L, Dinges D. The working hours of hospital staff nurses and patient safety. *Health Aff* (Millwood). 2004;23(4):202-212.

Sakowski J, Newman J, Dozier K. Severity of medication administration errors detected by a bar-code medication administration system. *Am J Health Syst Pharm*. 2008;65(17):1661-1666.

Visit www.AmericanNurseToday.com/archives.aspx for a complete list of selected references.

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Please circle the correct answer.

1. According to 2006 statistics from the Institute of Medicine, how many Americans are injured by medication errors each year?
- a. 2 million
- b. 1.5 million
- c. 1.25 million
- d. 1 million

2. Administration errors account for what percentage of medication errors?
- a. 5% to 12%
- b. 15% to 24%
- c. 26% to 32%
- d. 50% to 75%

3. Critical care patients receive how many medications compared to patients on a general unit?
- a. Twice
- b. Half
- c. One-fourth
- d. One-eighth

4. Which statement about barcode scanning is correct?
- a. Barcode scanning initially reduces medication administration time.
- b. Barcode scanning initially increases medication administration time.
- c. Barcode scanning has been found to be fail safe.
- d. Barcode scanning has been found to be too expensive for practical use.

5. A communication method that can help reduce medication errors is:
- a. RABT.
- b. SBAR.
- c. SABT.
- d. ABRS.

6. Poor communication accounts for what percentage of the root causes of sentinel events?
- a. 30%
- b. 40%
- c. 50%
- d. 60%

7. Which statement about standardized order sets and preprinted protocols is accurate?
- a. They should be used for 50% of the drugs healthcare facilities use.
- b. They do not help reduce medication errors in the hospital.
- c. They help reduce errors by prompting clinicians to select correct dosing.
- d. They are appropriate only for use in hospital intensive care units.

8. Which of the following is a strategy for preventing medication errors by limiting drug availability?
- a. Increasing the availability of floor-stock medications
- b. Decreasing the availability of floor-stock medications
- c. Allowing easier access to high-alert drugs
- d. Delaying the distribution of new medications from the pharmacy

9. Which of the following is an environmental strategy to reduce medication errors?
- a. Store multiple resource papers in the medication area.
- b. Have two nurses prepare each medication.
- c. Establish a "no interruption" zone around dispensing machines.
- d. Keep room lights dim to avoid distractions.

10. What is the blood-alcohol equivalent of staying awake for 17 hours?
- a. 0.05%
- b. 0.04%
- c. 0.3%
- d. 0.02%

11. Some experts suggest expanding the "five rights" of drug administration to include which other right?
- a. Right dosage
- b. Right reason
- c. Right time
- d. Right route

12. In a 2008 survey, how many nurses reported that they sometimes bypass safety systems?
- a. One-eighth
- b. One-fourth
- c. One-third
- d. One-half

13. Which of the following does the Joint Commission recommend caregivers do when taking verbal orders from prescribers?
- a. Verify the condition that the medication is being used to treat.
- b. Explain that you're not allowed to take verbal orders.
- c. Have a third person listen in on the conversation.
- d. Call the prescriber from the patient's room.

14. Which of the following strategies does *not* promote safe medication use?
- a. Repeating back a verbal or telephone order from a prescriber
- b. Using an I.V. syringe when giving nasogastric medications
- c. Using a zero before the decimal point in a dosage less than 1
- d. Having a colleague double-check when you administer high-alert drugs

15. Use of computerized physician order entry and barcodes may reduce medication errors by up to:
- a. 15%.
- b. 25%.
- c. 50%.
- d. 75%.

Evaluation form (required)

1. In each blank, rate your achievement of each objective from 1 (low/poor) to 5 (high/excellent).

(1.) Identify the 10 key elements of medication use. ____

(2.) Describe the role of clinician fatigue in medication errors. ____

(3.) Discuss strategies to prevent medication errors. ____

Purpose/goal: To provide nurses with information to help them prevent medication errors

Also rate the following from 1 to 5.

2. The relatedness and effectiveness of the purpose, objectives, content, and teaching strategies. ____

3. The author(s)' competence and effectiveness. ____

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