

ICP Consultant Connection

June - July 2010

1815 West County Road 54 Tiffin, Ohio 44883 • 175 Canal Street Sharpsville, Pennsylvania 16150

Shakespeare was on target—don't be a borrower or lender

The phrase, “Neither a borrower nor a lender be,” originated from Shakespeare’s famous play, *Hamlet* (1603), during which Lord Polonius gives this advice to his son who is heading back to school. Because our world is different today, you may believe this advice is outdated and irrelevant.

But when it comes to medication safety, Shakespeare’s advice is timeless; medications should never be borrowed from or lent to others. His advice is simple enough to follow, but practitioners can be tempted to borrow a “missing medication” (a dose that potentially should have been available) or the first dose of a new medication from another patient’s supply, a discharged patient’s unused medications, or another patient care unit. Borrowing medications is a workaround used to speed the process of administering medications; this workaround increases the risk of an error.

Lest you believe that profiled automated dispensing cabinets (ADCs) and unit dose dispensing alone have sufficiently curtailed the practice of borrowing medications, a survey originally conducted in 2002 and repeated in 2008 (see Table 1, below)

Table 1. Percent of nurses who borrow “missing medications”

Extent of Borrowing	2008 Survey	2002 Survey
Always borrow	5%	10%
Sometimes borrow	43%	61%
Never borrow	52%	29%

found that almost half of the 1,296 nurses who participated in the most recent survey still borrowed medications when doses for their patients appeared to be missing on the unit. Table 2, on page 3, describes just a few of the many errors that have been reported to Institute For Safe Medication Practices as a result of borrowing medications (which are similar to errors associated with removing medications from floor stock or ADCs via an

override function before pharmacy review of the orders).

Because there are many opportunities for error, the ideal medication administration system is one in which there is more than one practitioner between the drug and the patient. For example, while screening orders, a pharmacist may detect a prescribing error such as an inappropriate dose, a drug allergy, or a drug-drug interaction. While checking medications before administration, a nurse may detect a pharmacy dispensing error. While reviewing the patient’s medication administration record (MAR), a physician may detect the inadvertent discontinuation of a drug.

Pharmacies have a system of checks before medications are dispensed. Computer software can help screen the order for appropriateness and safety, and other staff typically prepare the medications and check them against the order before they are dispensed. However, this safety system is bypassed when doses are borrowed from other patients or obtained from an ADC before a pharmacist has screened the order.

Thus, with borrowed medications, the system will not provide adequate safety checks to capture errors before they reach the patient. Borrowing medications is not just a nursing problem; it’s a complex, interdisciplinary clinical issue that requires ongoing team-work and excellent communication among nurses, pharmacists, and other healthcare practitioners. Assume that borrowing of medications does occur in your facility and consider the following four-pronged approach to address this issue.

- 1 Remedy the reasons for borrowing Prohibition against borrowing medications via policy is not enough to ensure patient safety, as the reasons for this behavior are often rooted in system deficiencies. Talk with colleagues and learn why nurses and other practitioners may borrow medications from unauthorized sources, and address these issues in a collaborative manner. If turnaround time for dispensing medications (or review of orders to allow access to medications in ADCs) is perceived to be an issue, set up measures to identify the scope of the problem, address vulnerabilities, and gain consensus among nurses, pharmacists, physicians, and facility leadership regarding acceptable timeframes for drug delivery or order review. Uncover and address common misconceptions about the need and clinical significance of starting new drug therapies immediately. If waiting for order clarification (as in some of the examples in Table 2), pharmacists should contact

Contents

Diabetes Review	2
Don't be a Borrower (continued)	3
Red Flag Rules Delayed	4

Diabetes Review

Earlier this year, the American Diabetes Association (ADA) released updated guidelines for the treatment of Diabetes Mellitus. Following a diabetes diagnosis and implementation of lifestyle modifications including diet, exercise, and weight loss, medications are needed to prevent future complications. Type I Diabetes (also known as Insulin Dependent Diabetes Mellitus) is treated using insulins listed below. Type II Diabetes (also referred to as Insulin Independent Diabetes Mellitus) is treated using various oral and/or subcutaneously injected medications, outlined below in Type 2 Diabetes Mellitus Medication list, and may also involve an insulin regimen. Generally metformin remains first-line in treating Type 2 Diabetes, less any contraindications; the remaining available agents are typically adjunct therapy to aid in patients reaching their goal Hb_{A1C} <7%.

Insulins

Class	Insulin	Onset	Peak	Duration	Adverse Effects
Rapid-Acting Insulin	Insulin aspart (Novolog®) Insulin lispro (Humalog®) Insulin glulisine (Apidra®)	10 – 30 min	30 – 60 min	3 – 5 hrs	HYPOGLYCEMIA Weight Gain
Regular Insulin	Humulin® R Novolin® R	30 – 60 min	90 – 120 min	5 – 8 hrs	
Intermediate-Acting Insulin	Humulin® N Novolin® N	60 – 120 min	4 – 8 hrs	10 – 20 hrs	
Long-Acting Insulin	Insulin detemir (Levemir®) Insulin glargine (Lantus®)	60 min 60 – 120 min	N/A N/A	12 – 20 hrs 22 – 24 hrs	

Type 2 Diabetes Mellitus Medications

Class	Medications	Common Dosing	Mechanism of Action (MOA)	Adverse Effects
Biguanides	Metformin (Glucophage®)	Immediate release: 500 – 2550 mg/day in divided doses Extended release: 500 – 2,000 mg/day	Stimulate insulin release, decrease hepatic glucose output, and increase insulin sensitivity in skeletal muscle	GI (nausea, diarrhea, abdominal pain) Weight loss Lactic Acidosis
Sulfonylureas (Second Generation)	Glyburide (DiaBeta®, Micronase®) Glipizide (Glucotrol®) Glimepiride (Amaryl®)	2.5 – 20 mg/day 10 – 20 mg/day 1 -4 mg/day	Increase insulin secretion	HYPOGLYCEMIA Weight gain
Meglitinides	Repaglinide (Prandin®) Nateglinide (Starlix®)	0.5 – 4 mg w/ meals 60 – 120 mg w/ meals	Increase insulin secretion	HYPOGLYCEMIA Weight gain
Thiazolidinediones	Rosiglitazone (Avandia®) Pioglitazone (Actos®)	4 – 8 mg/day 15 – 45 mg/day	Increase insulin sensitivity in adipose, skeletal muscle, and the liver	Peripheral/ macular edema Increased risk of CHF Weight gain Decreased bone mineral density
Alpha-Glucosidase Inhibitors	Acarbose (Precose®) Miglitol (Glyset®)	50 – 100 mg w/ meals 50 – 100 mg w/ meals	Inhibit the breakdown of sucrose and interfere with the absorption of glucose	GI (diarrhea, flatulence, abdominal pain)
Glucagon-Like Peptide-1 (GLP-1) Agonists	Exenatide (Byetta®)	5 – 10 mcg twice a day subcutaneously	Stimulate insulin secretion in the presence of glucose, decrease serum glucagon, slows gastric emptying, and increase satiety	GI (nausea, vomiting, diarrhea) Weight loss
Dipeptidyl-Peptidase-4 (DPP-4) Inhibitors	Sitagliptin (Januvia®) Saxagliptin (Onglyza®)	100 mg/day 2.5 – 5 mg/day	Prevent the inactivation of GLP-1 and glucose-dependent insulinotropic polypeptide (GIP). See GLP-1 agonists MOA above.	Generally well tolerated Possibly weight gain
Synthetic Amylin Analogues	Pramlintide (Symlin®)	60 – 120 mcg before meals subcutaneously	Slow gastric emptying, increase satiety, suppress postprandial plasma glucagon and hepatic glucose production	HYPOGLYCEMIA GI (nausea, vomiting, anorexia) Headache
Bile Acid Sequestrants	Colesevelam (Welchol®)	3.75 g/day with meals	Unknown	GI (constipation, nausea, dyspepsia) Increased triglycerides

References: 1. American Diabetes Association. Clinical Practice Recommendations 2009. Diabetes Care 2009 Jan;1(s1):s1-s98. 2. Cefalu WT. Pharmacotherapy for the treatment of patients with type 2 diabetes mellitus: rationale and specific agents. Clin Pharmacol Therapeut 2007, May;81(5):636-49. 3. Drugs for type 2 diabetes. Treat Guidel Med Lett 2008 Jul;6(71):47-54. 4. Lexi-Comp. Hudson (OH): Lexi-Comp, Inc.;2009. Available from <http://0-online.lexi.com.polar.onu.edu/crlsql/servlet/crlonline>. Johnny Heskett, PharmD Candidate

the nurse to communicate the reason for a delay in dispensing the drug, especially if the prescribed drug or dose might be unsafe for the patient.

- 2 Decrease staff tolerance Ensure nurses and other practitioners understand the risks and consequences of borrowing medications. Promote reporting of conditions that contribute to delayed order review and dispensing, which may encourage and reward the practice of borrowing medications. Use this information to improve the medication-use system.
- 3 Identify reason(s) for missing medications. Missing doses are an inconvenience and could be related to problems with restocking ADCs or delivering medications to patient care units. However, a medication can be missing or not available for other reasons:

- ◆ The medication was already given but not documented on the MAR
- ◆ The dose was given on another unit
- ◆ The medication time or frequency was scheduled incorrectly and is being reviewed
- ◆ The order was incorrectly interpreted or mistranscribed onto the MAR or onto another patient's MAR
- ◆ The medication was not dispensed by pharmacy because of a safety problem
- ◆ The dose was used to replace a previously dropped dose or a dose that had been vomited
- ◆ The drug was misplaced
- ◆ Pharmacy never received the order
- ◆ A discontinued drug is still listed on the MAR
- ◆ The drug was borrowed for another patient

- 4 Eliminate unauthorized access to drugs
 - Discourage the accumulation of discontinued or unused medications in patient care units. Provide a secure container or ADC compartment for staff to place medications from discharged or expired patients as well as other discontinued or unused medications.

Reference

1)Cohen H, Shastay AD. *Nursing2008* survey report: getting to the root of medication errors. *Nursing2008* December 2008;38(12):39-47.
NurseAdvise-ERR - May 2010

Table 2. Examples of errors associated with borrowing medications

A patient received two doses of **SEROQUEL (QUETIAPINE)** 100 mg instead of the prescribed 200mg dose of **SERZONE** (nefazodone). When the nurse could not find the patient's dose of Serzone, she thought pharmacy had forgotten to dispense it. Instead of calling the pharmacy, she asked another nurse to borrow the medication from a unit close-by. This nurse misheard the request for Serzone as **SEROQUEL** and gave the nurse two 100 mg doses of the wrong medication. The patient experienced significant somnolence and sedation after receiving 200 mg of **SEROQUEL**.

A physician prescribed IV **ZOSYN** (piperacillin and tazobactam) for a patient with pneumonia. The nurse wanted to start the antibiotic right away, so instead of waiting for pharmacy to dispense the drug, she borrowed an unused dose from a patient who recently expired. The patient who received Zosyn (a drug in the penicillin drug class with potential for cross-sensitivity allergic reaction) had a known penicillin allergy and developed an anaphylactic reaction to the drug. Fortunately, the patient survived. The pharmacy had not dispensed the medication because staff were waiting for the prescriber to call back to change the order.

When a nurse found that she could not obtain a dose of **TORADOL** (ketorolac) from the unit's ADC via the override feature, she borrowed a dose from another patient and administered it to an aspirin-allergic patient. Fortunately, the patient did not experience a life-threatening reaction. The pharmacy had not released the medication in the profiled ADC because they were awaiting clarification of the order because Toradol is contraindicated in patients with an allergy to aspirin.

In a labor and delivery unit, a healthy young woman became hypotensive after starting epidural anesthesia. A nurse called an obstetrics resident known to be "difficult" at times, who snapped at the nurse and gave an order for **ePHEDRINE** 10 mg slow IV push. The nurse, who was anxious because of the physician's behavior, made a mental slip and thought of "**EPINEPHRINE**." With only a few ampuls of **EPINEPHRINE** 1 mg on the unit, she decided to borrow more from the nursery. She found a 30 mL vial of **EPINEPHRINE** 1:1,000 (1 mg per mL), withdrew 10 mL, and administered that amount to the patient. The patient immediately developed tachycardia, severe hypertension, and pulmonary edema. Fortunately, anesthesia staff responded and recognized the problem immediately. The patient was treated successfully and the baby was delivered safely.

A woman with atrial fibrillation, hypertension, lethargy, and constipation died while receiving enoxaparin and heparin concurrently. A cardiologist initially prescribed enoxaparin and warfarin. When a gastroenterologist recommended a colonoscopy, warfarin was discontinued and a heparin infusion was ordered. Enoxaparin administration continued every 12 hours. The heparin order was never faxed to the pharmacy. In order to administer the heparin bolus and begin the infusion, the nurse borrowed a vial of heparin and a premixed solution that the pharmacy had dispensed for another patient. Several hours later, the patient's aPTT was greater than 90 seconds. The heparin infusion was decreased, but by morning, the patient exhibited signs of internal bleeding and her aPTT was still elevated. Heparin and enoxaparin were discontinued, but the patient died despite aggressive treatment.

Web: www.icppharm.com
email: icp@icppharm.com

Ohio Main Line: 800.228.8278

Ohio Pharmacy: 877.447.5539
Fax: 800.325.9826

Business Office: 800.252.1679
Fax: 800.338.8593

Medical Supplies: 877.228.8278
Fax: 800.208.6809

PA Pharmacy: 888.203.8965
Fax: 888.431.4924

Pharmacy Services:

*Subacute Care
Long Term Care
Assisted Living
Alternative Living
MRDD
Correctional Facilities*

Consulting Services:

*Consultant Pharmacists
Nurse Consultants
Respiratory Therapists
Medical Record Experts
Reimbursement Authorities
MDS Specialists
Wound Care Certified Consultants
Continuing Education Programs
Mock Surveys
Venipuncture Assistance*

Additional Services:

*Respiratory Equipment and Supplies
Medicare Part B Billing
Inventory Bar Coding Program
Enteral / Nutritional Program
Medical Supplies
Incontinence Products
Wound Care Products*

Mission Statement:

ICP is committed to exceeding our customers' and employees' expectations through quality health-care service, continuous education, and effective communication.

Enforcement of Red Flag Rules Delayed

As many Healthcare providers are aware, on May 28 the Federal Trade Commission announced it would delay enforcement of the Red Flags Rule from June 1 to Dec. 31, 2010.

The commission cited congressional consideration of legislation that would affect the scope of entities covered by the rule to require businesses to take specific steps to minimize identity theft.

As an example, S. 3416, introduced on May 25 in the Senate, would exempt "health care practices and professionals" with 20 or fewer employees, as well as accounting and legal practices of similar size. Covered health care professionals under the bill include "physicians, dentists, podiatrists, chiropractors, physical therapists, occupational therapists, marriage or family therapists, optometrists, speech therapists, language therapists, hearing therapists and veterinarians". *Note: DMEPOS (e.g. HME, DME, O&P) facilities and home health agencies do NOT appear to be exempt (!)*

The commission in its announcement urged Congress to quickly act "to pass legislation that will resolve any questions as to which entities are covered by the rule and obviate the need for further enforcement delays. If Congress passes legislation limiting the scope of the Red Flags Rule with an effective date earlier than December 31, 2010, the Commission will begin enforcement as of that effective date."

According to an FTC statement, the end of the year will give time "while Congress considers legislation that would affect the scope of entities covered by the Rule. Today's announcement and the release of an Enforcement Policy Statement do not affect other federal agencies' enforcement of the original Nov. 1, 2008 deadline for institutions subject to their oversight to be in compliance."

In the statement, FTC Chairman Jon Leibowitz said, "Congress needs to fix the unintended consequences of the legislation establishing the Red Flags Rule—and to fix this problem quickly." He added, "As an agency we're charged with enforcing the law, and endless extensions delay enforcement."

The American Medical Association, which on May 21 filed a lawsuit to prevent the FTC from applying the rule to physicians, applauded the delay. "We call on the FTC to exempt physicians from the rule completely."

FTC staff has provide guidance through materials posted on www.ftc.gov/redflagrule