



Inquisitive patients: The last line of defense

As many as one in five medications reaches patients in error.¹ More than one-third of these errors originate during medication administration.² Although more errors occur when prescribing drugs than when administering them, about half of prescribing errors are caught by nurses and pharmacists *before* they reach the patient. But just 2% of errors that originate during drug administration are intercepted.² Thus, errors made in the process of administering medications are much more likely to reach the patient. This, coupled with data that show that more than half of the *harmful* errors originate during drug administration,² make a powerful case for encouraging patients to ask questions and seek satisfactory answers about their medications *before* taking them.

Treating patients and families as *equal* partners in their healthcare is key to using patient inquisitiveness as a powerful error-prevention strategy. Consider this example: When a patient with diabetes insisted that a dose of 85 units of NPH insulin was too much, the nurse checked the order and the medication administration record. Both indicated that 85 units was correct. Nevertheless, the nurse took the patient's concern seriously and called the attending physician. The patient was correct; another physician had relied upon the patient's prior medical records when prescribing the patient's medications upon admission.

A tragic example in which patient concerns were not investigated fully involved an informed patient who told her healthcare providers that she felt something was very wrong after 2 days of treatment with cyclophosphamide. Numerous times, the patient and her husband asked the nurses and physicians to check her chemotherapy orders for a mistake. This was not the first time the patient had undergone chemotherapy treatment; it seemed very different this time. But the dose administered was the dose prescribed, as listed in a new chemotherapy protocol. Thus, nurses and physicians reassured her that the orders were correct.

Unfortunately, the patient received an unrecognized four-fold overdose of cyclophosphamide because, each day for 4 days, she received an entire course dose. The staff had misinterpreted the protocol which stated the dose as "4 g per m² days 1-4," with an intended meaning to give a total of 4 g over 4 days in divided doses. But the pharmacists, physicians, and nurses thought 4 g was to be given *each* day for 4 days. It is impossible to say whether the patient would have survived if the error had been caught after 2 days, but there is no doubt that 4 days of course dose therapy contributed to her death.

References: 1) Barker KN, Flynn EA, Pepper GA, et al. Medication errors observed in 36 health care facilities. *Arch Intern Med.* 2002;162(16):1897-1903. 2) Leape LL, Bates DW, Cullen DJ et al. Systems analysis of adverse drug events. *JAMA* 1995; 274:35-43.

Double Trouble

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Look-alike unit-dose Tylenol packets.

Concerned practitioners have recently alerted us to a packaging change for unit-dose **TYLENOL** (acetaminophen) 500 mg caplets for hospital use. The caplets previously came in a bright yellow packet. A bar code was recently added to the label, requiring a change to a white packet to allow scanning devices to accurately read the bar code. Unfortunately, the new 500 mg packet is virtually indistinguishable from Tylenol 325 mg packets (see photos). While the



New 500 mg unit-dose packet (L) looks like the 325 mg packet (R).

bar code is an important safety improvement, the striking similarities of the packaging will likely lead to mix-ups and possibly excessive dosing in hospitals that don't utilize point-of-care bar coding, especially since the manufacturer, McNeil, did not notify customers about the packaging change. McNeil is aware of the problem and exploring ways to better differentiate the two strengths. For now, some health providers are purchasing one of the strengths of acetaminophen from a generic manufacturer so the packaging looks different.

safetywires



What is an NDC number? Printed on many medication packages is a series of numbers. These are National Drug Codes (NDC), which help identify over-the-counter and prescription drug products in the US. Each 10 or 11 digit, 3-segment, NDC identifies the manufacturer/distributor, product (including strength, dosage form, and formulation), and package size, respectively. Misinterpretation of NDC numbers on drug labels has led to errors. In one case, **BENICAR** (olmesartan) 20 mg, an angiotensin II receptor antagonist, was ordered. A unit-dose 20 mg tablet was dispensed. continued on page 2

Newsletter Funding 2006

We are pleased to announce that **McKesson** will continue to provide ISMP with an educational grant to sponsor **free** distribution of **Nurse Advise-ERR™** for the first 6 months of 2006, with a potential commitment for the full year. Please join us in thanking McKesson by sending an email to: for.customers@mckesson.com.

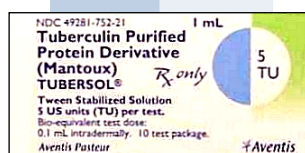
Vexing vaccines Prevent mix-ups with flu vaccine

With the flu season upon us, act now to prevent mix-ups between flu vaccines and other drugs or vaccines packaged in look-alike cartons and vials. Last flu season, numerous patients received **TUBERSOL** (tuberculin purified protein derivative [PPD]) instead of **FLUZONE** (influenza virus vaccine). These products, both now manufactured by Sanofi Pasteur, come in colorful cartons with similar design patterns, almost to the point of distraction (see photos of this year's packaging). The errors were later discovered when documenting the expiration dates and lot numbers, which didn't match previously documented lot numbers of Fluzone injections.

Other mix-ups have been reported between flu vaccine and neuromuscular blocking agents. A nurse gave seven patients pancuronium injection instead of flu vaccine during a community vaccination program. The look-alike vials were near each other in the refrigerator. Luckily, all patients survived because injected amounts were small and they were immunized in the ED, where trained staff and rescue equipment were readily available.

Consider the following strategies to reduce the risk of flu vaccine mix-ups:

✓ Require documentation of lot numbers and expiration dates before vaccine administration. (Actual administration should be recorded afterwards.) This facilitates full reading of the label before injection, and recognition of errors if the numbers don't match documentation of prior injections.



✓ Request prefilled vaccine syringes from pharmacy for use whenever possible.

✓ Ask pharmacy to apply auxiliary labels (e.g., **FLU VACCINE**), or to highlight the drug name by circling it with a pen, to help distinguish products from one another.

✓ Store different vaccines separately.

✓ Limit storage of neuromuscular blocking agents to units where its immediate use may be needed (e.g., OR, ED, critical care). Store these drugs in a separate container and affix "Warning—Respiratory Paralyzing Agent" labels to the vials and outer storage container.

► Special Announcements

Free webinar for nurse leaders. On November 30, 2005, ISMP, along with the American Organization of Nurse Executives, Joint Commission Resources, and the National Patient Safety Foundation will be presenting a **free webinar**, sponsored by McKesson and Intel, on **Nurses as Leaders in Patient Safety**. Linda Knodel, Senior Vice President and Chief Nursing Officer at St. Alexius Medical Center, Bismarck, ND, will present this first in a four-part series, which will focus on key areas where nurses need to serve as leaders, suggest ways to increase nursing leadership, and demonstrate how nurses are powerful leaders in building a just culture. Continuing education credit will be offered. For more information, visit our website at: www.ismp.org.

Free medication safety video. A new patient safety video produced by FDA in cooperation with ISMP, **Avoiding Fatal Overdoses with Fentanyl Patches**, is now available at: www.ismp.org/Pages/FDA/videos.htm. The video, which can be downloaded for **free** viewing, covers various ways in which fentanyl patches have been involved in serious errors, and how to avoid them.

safetywires continued

The NDC number, 65597-103-10, was the first thing that appeared on the label. The nurse misinterpreted the "10" at the end of the NDC number to mean "10 mg" and called the pharmacy for a second tablet. The pharmacist explained that the "10" referred to a larger bulk package that contained 10 tablets. The patient received the correct dose. For more about NDCs, go to: www.fda.gov/cder/ndc/database/Default.htm.

⚡ **Grapefruit interactions.** Drug interactions with grapefruit juice can be serious. Yet, grapefruit juice is frequently offered on patient menus. One physician reported that he observed two patients who were given medications with known grapefruit juice interactions (amlodipine and lovastatin) while drinking the juice at breakfast. Grapefruit juice alters the metabolism of many drugs by inhibiting CYP enzymes in the gut wall. CYP enzymes deactivate part of each dose of certain drugs as they are absorbed. Thus, when a person drinks grapefruit juice, they will absorb more drug, which could lead to toxicity. The effects from one glass of juice can last for up to 3 days! Thus, changing the time of drug administration or allowing grapefruit juice several hours after drug administration won't prevent the interaction. Alert patients and check their menus and meal trays when possible. (Perhaps grapefruit juice shouldn't be offered on hospital menus.) For more information on food-drug interactions, visit: www.druginteractioncenter.org.

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Report medication errors: 1-800-FAIL-SAF(E).



8th Annual ISMP Cheers Awards

The Institute for Safe Medication Practices (ISMP) is pleased to announce its **8th Annual Cheers Awards** winners and **Lifetime Achievement Award** recipient. The **Cheers Awards** honor individuals, organizations, and companies that have set a superlative standard of excellence for others to follow in the prevention of adverse drug events. This year's award winners are:

- Association of periOperative Registered Nurses (AORN), Denver, CO
- CLARION: Students Building a Better Healthcare System Together, Minneapolis, MN
- Patient Safety Rounds Program at Dana-Farber Cancer Institute, Boston, MA
- Fostoria Community Hospital, Fostoria, OH
- John Gosbee, MD, MS, National Center for Patient Safety, VHA, Ann Arbor, MI
- Johns Hopkins Community Physicians, Baltimore, MD
- Joanne Kowiatek, RPh, MPM, University of Pittsburgh Medical Center, Pittsburgh, PA
- David Marx, JD, Outcome Engineering LLC, Plano, TX
- St. John's Mercy Medical Center, St. Louis, MO
- Target Corporation, Minneapolis, MN
- Lorri Zipperer, Cybrarian, Zipperer Project Management, Evanston, IL

Subscriber Award

The ISMP Medication Safety Alert![®] **Subscriber Award** is being presented to **The Cleveland Clinic Foundation**, in Cleveland, OH, in recognition of its successful large-scale implementation of selected recommendations from the ISMP Medication Safety Alert![®] and the other ISMP newsletters, to prevent patient harm.

Lifetime Achievement Award

The ISMP **Lifetime Achievement Award** is being presented to **Herbert S. Carlin, DSc**, Vice President, Pharmaceutical Management Insight, Inc. The award honors individuals who, throughout their careers, have made ongoing contributions to patient safety. Dr. Carlin has a long history of influencing the safe naming and labeling of drug products through service on the United States Pharmacopeia's (USP) Nomenclature Committee and the FDA-USP Product Labeling Committee.

Awards Celebration

On Tuesday evening, December 6, 2005, ISMP will be holding its **8th Annual Cheers Awards Dinner** to honor this year's recipients. The dinner will be held at Cili Restaurant & Bar at the Bali Hai Gold Club, Las Vegas, NV, near the site of the 2005 American Society of Health-System Pharmacists (ASHP) Midyear Clinical Meeting. Please consider joining us!

To attend the event, or to make a tax-deductible donation to support the Cheers Awards, please visit ISMP online at www.ismp.org or call ISMP at 215-947-7797.