

Electronically-generated prescriptions: An Rx for E-ror?

In our October 2006 issue, we described errors involving electronically-generated prescriptions. We continue to receive reports of medication errors due to electronically-generated prescriptions that are either faxed or printed and brought to the pharmacy. We don't want to return to illegible, hand-written prescriptions nor do we want to encourage verbal prescription orders, but the software design of electronically-generated prescriptions needs to be improved.

“True” electronic prescribing, or “ePrescribing,” exchanges prescriptions directly between a prescriber’s computer system and a pharmacy’s computer system. When fully implemented, ePrescribing can improve medication safety. In fact, the Southeast Michigan ePrescribing Initiative (SEMI), a broad coalition involving General Motors, Ford Motor Company, Chrysler, the United Auto Workers, Blue Cross Blue Shield of Michigan, Health Alliance Plan, Henry Ford Medical Group, Medco Health Solutions, and CVS Caremark Corporation, recently reported promising results from an evaluation of 3.3 million ePrescriptions.¹ The analysis showed that:

- A severe or moderate drug-to-drug alert was sent to physicians for more than 1 million prescriptions (33 %), resulting in nearly 423,000 (41%) of those prescriptions being changed or canceled by the prescribing doctor.
- More than 100,000 medication allergy alerts were presented, of which more than 41,000 (41%) were acted upon.
- When a formulary alert was presented, 39% of the time the physician changed the prescription to comply with formulary requirements.

“True” electronic prescribing remains underutilized. According to SureScripts, operators of the Pharmacy Health Information Exchange which facilitates the electronic transmission of prescription information, only two percent (2%) of the 1.47 billion new prescriptions and renewals eligible for electronic routing were electronically prescribed in 2007.² While over 70% of U.S. pharmacies can receive direct electronic transmission of electronic prescriptions, only 6% of office-based physicians transmit electronic prescriptions. In *cont'd on page 2*

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■ **Expiration date—not!** Don't be confused by the two different dates displayed on some plastic bottles by



Roxane, as on the calcitriol package in the photos at left. Use only the date displayed under “EXP. LOT” on the side of the container. The date on the bottom of the bottle is used for internal tracking purposes and relates to the plastic container, not the product. In a recent error report, “06/08/07” was mistaken as the product’s expiration date, which had already passed when noticed. Roxane is working to eliminate the date on the bottom of the container.

■ **A chain is only as strong as its weakest link.** We recently received a scanned copy of several prescriptions from an office-based physician practice. According to the reporter, he was with a family member when the doctor started writing the prescriptions from a list on the patient’s chart. However, the doctor was called away and asked one of the office nurses to finish writing the prescriptions. For the first prescription, the doctor had written out the term “daily,” listing the directions for use as “one tablet PO daily.” However, the nurse who transcribed the rest of the prescriptions for three additional products used “QD,” an error-prone abbreviation for daily, on two of them. The physician reviewed the prescriptions and signed them without comment about the use of the error-prone abbreviation, “QD.” Physicians and other prescribers must review all new and refill prescriptions carefully before signing them and help to instill medication safety principles in everyone who works in the chain of patient care activity. As safety consultants, ISMP staff often observes situations in which organizations have worked hard to gain physician compliance with avoiding dangerous abbreviations, only to have nurses or pharmacists transcribe prescriptions using *cont'd on page 2*

An Rx for E-error? (cont'd from page 1)

fact, SureScripts estimates that the vast majority of prescribers whose computer systems are capable of transmitting prescriptions and renewals to pharmacies electronically routinely send them by fax, either knowingly or unknowingly.

Electronically-generated prescriptions, either faxed or hand delivered to pharmacies, may solve legibility issues; however, they have introduced a number of other types of errors. We have received reports in which prescribers have included a second set of directions that conflict with the pre-programmed

R_x	HYTRIN
Sig:	5 MG PO HS
Dispense:	180 Tablet(s)
Directions:	2 HS

Figure 1

and the prescriber does not know how to change or delete them. Also, prescribers may not be aware of the increased risk of error that conflicting directions create.

ISMP has also received reports that some electronically-generated prescriptions have misspelled drug names, missing container size information, and pre-programmed 'sigs' that

R_x	Clonazepam
Sig:	1 (1.0MG) PO QHS x 30 days
Special Instructions:	take 0.5mg q am and 1.0mg po qhs
Dispense:	60

Figure 2

although legible, includes trailing zeros, uses error-prone abbreviations, and has conflicting directions.

A number of vendors offer electronic prescribing systems. However, the structure and design of the prescriptions these systems generate are not standardized. Vendors should collaboratively work with practitioners to standardize the structure of electronically-generated prescriptions. Error-prone abbreviations and dose designations should be removed from these systems, and users should avoid using them in free-text fields. Since these prescriptions are electronically generated, the 'sigs' should be printed using complete English words, not Latin abbreviations.

Pharmacists should communicate and share copies of error-prone electronically-generated prescriptions with prescribers to illustrate the issues these prescriptions can create. Also, please let us know when you identify flaws in electronically-generated prescriptions and consider sending de-identified copies of these prescriptions to ISMP. Prescribers and pharmacists should take advantage of "true" electronic prescribing technology and move away from handwritten prescriptions.

References available on-line at www.ismp.org.

Safety Briefs (cont'd from page 1)

these abbreviations on written or electronic materials. Safety principles need to be wide-spread and applicable to all in the healthcare industry.

■ **Sound-alike names.** A community pharmacist misheard a telephone prescription for **PROZAC** (fluoxetine) 10 mg daily as **PROGRAF** (tacrolimus) 10 mg daily. When the patient arrived to pick up the prescription, a pharmacist discussed the use of the medication with her and subsequently recognized that an error had occurred. Although these two medication names may sound alike when spoken, this is the first time we've received a report of an actual mix-up. We thought you'd like to know so you can take appropriate steps to make sure similar mix-ups do not occur at your practice location. In this case, communication between the pharmacist and patient allowed for the correction of the initial mistake before the patient received the drug. Given the potential for increased susceptibility to infection due to the immunosuppressant properties of Prograf, severe harm could have occurred had the error not been recognized prior to the patient leaving the pharmacy.

HealthAlerts ▲▲▲▲


FDA issued an update that highlights important information on appropriate prescribing and the safe use of the fentanyl transdermal system. FDA previously issued a Public Health Advisory in July 2005 regarding the appropriate and safe use of the transdermal system. However, FDA continues to receive reports of death and life-threatening adverse events related to fentanyl overdose that have occurred when the fentanyl patch was used to treat pain in opioid-naïve patients and when opioid-tolerant patients have applied more patches than prescribed, changed the patch too frequently, and exposed the patch to a heat source. The fentanyl patch is only indicated for use in patients with persistent, moderate to severe chronic pain who have been taking a regular, daily, around-the-clock narcotic pain medicine for longer than a week and are considered to be opioid-tolerant. Read the complete 2007 MedWatch Safety Summary at: www.fda.gov/medwatch/safety/2007/safety07.htm#Fentanyl.


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Celebrating 10 years of

ISMP CHEERS Awards 1997-2007


For 10 years, ISMP trustees have honored ISMP **CHEERS** Award winners who have set a standard of excellence for others to follow in the prevention of medication errors and other adverse events. This year's Awardees were recognized earlier this month at an Awards Dinner in Las Vegas, Nevada. Please join us in congratulating a few of these CHEERS Award winners who have impacted medication safety in community and ambulatory settings.


 **Walworth County Patient Safety Council of Aurora Health Care**, in Elm Grove, WI, was honored for its community project that improved medication safety for local seniors. Healthcare professionals and consumers joined together to implement the Partners in Safety campaign, which distributed medication bags and forms to help community members keep track of the medications they are taking. The Council recruited outside groups—Consumers Advancing Patient Safety and Midwest Airlines—to help spread its messages about medication safety. To date, senior medication list accuracy has improved from 69% to 81% for patients who have been treated in the Aurora Health Care system.

 **John F. Mitchell**, PharmD, FASHP, Medication Safety Coordinator at the University of Michigan Health System in Ann Arbor, MI, was honored for his voluntary creation and maintenance of a “Do Not Crush” list of medications. For many years, Dr. Mitchell's list has been published and used to improve medication safety worldwide. His compilation provides a readily available reference that identifies medications whose efficacy can be affected by crushing. Few manufacturers include this information in their package inserts. Dr. Mitchell updates the “Do Not Crush” list regularly, and the list is available free on ISMP's website (www.ismp.org/Tools/DoNotCrush.pdf).

 Special Recognition was presented to **Robert Lam**, RPh, Information Technology Specialist for ISMP Canada, for his tremendous contributions to medication safety. He has worked tirelessly to advance national and international medication safety initiatives, including the development of *Analyze-ERR*, a medication incident reporting program that is used by many hospitals in Canada and around the world. Mr. Lam has assisted various countries, including the U.S., Australia, and Spain, with the development of web-based applications for medication safety programs and surveys. His passion for medication safety and expertise in

technology has been invaluable to the design, support, and maintenance of the core information technology infrastructure for ISMP Canada.

 The 2007 ISMP Lifetime Achievement Award was presented to **Richard J. Croteau**, MD. Dr. Croteau, currently an advisor to Joint Commission International, was honored for his ongoing contributions to medication safety throughout his career. He is a well-known expert in both safety and healthcare process improvement. In more than 17 years with The Joint Commission, he has been one of the key people responsible for the advancement of patient safety standards, creation and maintenance of the sentinel event database, development of the National Patient Safety Goals, and implementation of numerous other patient safety initiatives. His positive impact on medication safety can be seen across the U.S. and abroad. Dr. Croteau has worked directly on international patient safety activities in collaboration with the WHO World Alliance for Patient Safety.

 We extend thanks to our keynote speaker, **Susan Sheridan**, MIM, MBA, cofounder of Consumers Advancing Patient Safety (CAPS), who shared her moving personal journey through the healthcare system after two family members experienced medical system failures: Her husband, Pat, died in 2002 after his diagnosis of spinal cancer failed to be communicated to him after initial test results were available; and her son, Cal, suffered kernicterus-associated brain damage after his birth in 1995 due to untreated, high bilirubin blood levels. Since then, Susan has worked tirelessly with CAPS and the World Health Organization (WHO) to promote patient safety worldwide. We would also like to express our gratitude to the organizations and individuals who attended and/or sponsored our 10th Annual **CHEERS** Awards Dinner. Visit www.ismp.org/Cheers/ for a list of contributors and the other CHEERS Award winners. We look forward to another great year of improving medication safety in 2008.

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Special Recognition...

Our 2007 ISMP Medication Safety Alert!® Clinical Advisory Board

Production of this peer-reviewed newsletter would not be possible without the assistance of a reliable, talented, and well-informed clinical advisory board. As 2007 nears an end, we want to thank each of the following members of the advisory board for their dedication to making this newsletter a valuable medication safety resource.

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