



## IN THIS ISSUE

November, 2002

USP Patient Safety CAPSLink™

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This message has been sent to you as a service of the U.S. Pharmacopeia, Center for the Advancement of Patient Safety (CAPS). USP is a not-for-profit, non-governmental organization that promotes the public health by establishing state-of-the-art standards to ensure the quality of medicines and other health care technologies. CAPS is a component of USP's Patient Safety public health program. USP's new Center for the Advancement of Patient Safety was created to encourage medication error reporting, conduct data analysis and research, develop educational programs, and propose standards, recommendations, and guidelines that ultimately improve the safety and quality of patient care.

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## 1. Calculation Errors Involving Children Can be Serious

Medications for children are usually dosed by weight (i.e., milligrams of drug per kilogram of body weight) and determining the proper dose often requires multiple calculations. During 2001, Medmarx data revealed calculation errors as the 7<sup>th</sup> overall leading cause of medication errors involving pediatric patients. Miscalculations most often lead to **Improper dose/quantity** (n=219 or 81.5%) with several of these being harmful (n=30 or 14%) as outlined in table below.

Type of Error	N	Non-harmful errors intercepted	Non-harmful errors that reached the patient			Harmful errors
		[1.1%]	[85.9%]			[13%]
Error Category *						
	N	B	C	D	E	F
Extra dose	8		3	5		
Improper dose/quantity	219	3	139	47	27	3
Omission error	3		3			
Prescribing error	32		24	7	1	
Unauthorized drug	3		2	1		
Wrong administration technique	2		1	1		
Wrong dosage form	6		2	3	1	
Wrong drug preparation	35		20	8	6	1
Wrong route	2			2		
Wrong time	8		5	2		1

\* NCC MERP Error Category Index ([www.nccmerp.org](http://www.nccmerp.org))

Case example based on a Medmarx report:

An order was written for an 11-month old infant (weighing 7.4 kg) to receive calcium chloride, 20 mg/kg as a supplement infusion over 30 minutes. Based on the infant's body weight, the nurse correctly calculated that the baby was to receive 148 mg. A vial of calcium chloride (10%) was dispensed by the pharmacy. The nurse incorrectly interpreted the concentration of the vial to be 10 mg/mL rather than 100 mg/mL, resulting in a 10-fold overdose. The infant sustained temporary bradycardia and elevated calcium levels.

This case illustrates the complexity of pediatric dosing: (1) The child's accurate weight must be expressed in kilograms since the dose was written in milligrams per kilogram of body weight, (2) The product was expressed as a percent in solution, (3) The concentration in grams of product per 100 milliliters of solution must be determined, (4) The concentration must be converted from

grams to milligrams per 100 milliliters, (5) A concentration must be obtained that reflects milligrams per 1 mL and the final number of mL's must be determined based on this calculation.

JCAHO advocates that access to concentrated electrolyte products should be limited and ideally these products should be stored only within the pharmacy department. A pharmacist's review of the order as well as having pharmacy prepare the exact dose is also ideal. In cases where pharmacy preparation is not possible, accurately labeling the dispensed package with instructions on the proper number of milliliters to withdraw to equal the prescribed dose is essential. Also, while medications expressed in percentages rather than metric doses are less common, all individuals involved in prescribing, dispensing, and administering should be competent in determining doses based on a percent concentration. Standardized infusion charts or pre-calculated dosage sheets should be used.

## 2. Brochure Gives Patients Information on Preventing Infections

The National Patient Safety Foundation (NPSF) in collaboration with the American Hospital Association (AHA) and the American Medical Association have developed a brochure for patients entitled "Preventing Infections in the Hospital — What You as a Patient Can Do." The brochure, produced by NPSF as part of its "Stand Up for Patient Safety" project, is designed to provide patients with helpful principles for managing their healthcare and becoming an active partner with their healthcare team through infection prevention. A downloadable version of the brochure is available at the NPSF Web site.

<http://www.npsf.org/download/PreventingInfections.pdf>.

## 3. Video Provides Instructions on Disclosing Adverse Medical Events

The National Patient Safety Foundation (NPSF) has released a 30-minute video titled, "Let's Talk," providing guidance on how to talk with patients and families when an adverse medical event has occurred. Step-by-step instructions on how to disclose medical errors, why disclosure is important, and how open communication can strengthen the patient-provider relationship are some of the subjects on the video. To obtain a copy, contact NPSF at 312.464.5672 or visit the Web site at: [http://www.npsf.org/htm/prevent\\_infections.html](http://www.npsf.org/htm/prevent_infections.html).

## 4. JCAHO Identifies Top Compliance Issues for First Half of 2002

The November issue of Joint Commission *Perspectives* provides a list of the top 10 most problematic acute care accreditation standards. This list represents those acute care standards where health care organizations are most often deficient and struggle to meet the standard's intent. First time visitors to the web site are provided one complimentary copy of *Perspectives*, but subsequent issues require a subscription.

<http://www.jcrinc.com/subscribers/perspectives.asp?durki=187>

## 5. Talking with a Patient About an Error

Discussing a treatment or medical error with a patient can be difficult and create angst for a physician or other health care provider. Questions related to how or when a doctor should inform patients of an error are explored in the Ethics Forum of the November 4, 2002 *American Medical News*. The column describes how honesty about an error becomes all the more important when a patient considers discontinuing treatment because of an adverse effect from a physician-prescribed drug overdose. [http://www.amednews.com/content/pick\\_02/prca1104.htm](http://www.amednews.com/content/pick_02/prca1104.htm)

## 6. USP's Safe Medication Use Expert Committee Approves New Error Terms

At its October meeting, USP's Safe Medication Use Expert Committee approved two new terms that can be used to describe a *Type of Error*:

- "Expired product"- a product with an expiration date beyond the date by which policies /procedures direct the removal of the product from stock; and
- Deteriorated product- a product in which the physical or chemical integrity may have been compromised by improper storage, light exposure, temperature, improper container type, etc.

These new terms will be added to USP's Medmarx program along with many other exciting upgrades that are scheduled to be released in December, 2002.

## 7. Foundation Report Rates Electronic Prescribing Products

The California HealthCare Foundation recently released a report titled, "Improving Drug Prescribing Practices in the Outpatient Setting: A Market Analysis". The report examined electronic prescribing products and categorized their findings into four categories based on function: electronic drug references, electronic prescribing solutions, integrated drug references, and integrated electronic medical records. The report can be used by potential buyers to explore the range of available product options as well as issues related to implementation of such products. <http://www.chcf.org/topics/view.cfm?itemid=20184>

## 8. Heart Association Advocates for Enhanced Error Reporting/Use of IT Solutions

A statement issued November 12, 2002 and published in the journal *Circulation* by the American Heart Association, said the medical community "can reduce the frequency and clinical impact of medication errors by enhancing error detection rates, using appropriate methods for reporting errors, and implementing safer methods of drug ordering, dispensing, and tracking." Use of IT applications (e.g., computer physician order entry) and mandatory reporting systems could improve patient care and reduce the number of adverse events, the panel reported. <http://circ.ahajournals.org/cgi/content/full/106/20/2623> (subscription required)

Along a similar vein, medical error expert Lucian L. Leape, M.D., published an article this month in the *New England Journal of Medicine* stating that reporting systems that capture adverse events can reduce the occurrence of medical errors.

<http://content.nejm.org/cgi/content/full/347/20/1633> (subscription required)

#### 9. Web-based Patient Safety Journal Launched by AHRQ

A Web-based medical journal showcasing lessons drawn from actual medical error cases will be officially launched in February 2003. The journal titled, *AHRQ WebM&M* (Morbidity and Mortality Rounds on the Web) represents a joint effort between AHRQ and an editorial team at the University of California, San Francisco. Each month, the journal plans to highlight five cases of medical errors and patient safety problems. <http://www.WebMM.ahrq.gov>

#### 10. Concern for Safety Should Override Intimidation/ Fear

In this month's *ISMP Medication Safety Alert*, the story of a pharmacist who questioned an oncologist's order and subsequently prevented an overdose is illustrated. The story will demonstrate the importance of standing firm against intimidation for the sake of patient safety.

<http://www.ismp.org/MSAarticles/faceit.htm>

#### 11. FDA Sends Warning Re: Painkiller

The FDA recently issued a warning that the painkiller Bextra (valdecoxib), produced by Peapack, N.J.'s Pharmacia, can cause rare, sometimes life-threatening skin diseases. Bextra is a Cox-2 inhibitor used to treat arthritis and menstrual pain. Patients who use this product and then develop a skin rash should be instructed to immediately stop taking the medication. Pharmacia has alerted thousands of physicians to the FDA warning. FDA also said that patients allergic to drugs containing sulfur should also avoid taking Bextra.

<http://www.fda.gov/bbs/topics/ANSWERS/2002/ANS01170.html>

#### 12. Poster Presentation Added to Practitioner's Reporting News Web Site

The U.S. Pharmacopoeia (USP) recently added a poster presentation to the list of articles the organization features on its Practitioners' Reporting News (PRNews) web site. The poster, *A National Database Tool Supporting Application of Performance Improvement Concepts to Medication Safety*, was recently presented by the Center for the Advancement of Patient Safety (CAPS) at the National Association for Healthcare Quality's (NAHQ) 27<sup>th</sup> Annual Educational Conference in Nashville, TN. The poster illustrates the relationship between key performance improvement concepts, USP's Medication Safety Model, and Medmarx, the national medication errors database. To view the abstract and poster, go to USP's web page at <http://www.usp.org> and select "Practitioner Reporting" located on the web page side bar. Then, click on "Practitioners' Reporting News".

### 13. USP to Present Public Testimony at Upcoming Institute of Medicine Meeting

On November 25, the United States Pharmacopeia's (USP) Center for the Advancement of Patient Safety (CAPS) provided public testimony to the Institute of Medicine Committee (IOM) on Guidance for Patient Safety Data Standards (PSDS). The testimony focused on:

- 1- Areas where data standards are critically needed to improve patient safety;
- 2- Barriers to the development and use of such standards; and
- 3- Incentives (economic or otherwise) that can be instituted to stimulate or accelerate the use of clinical data standards in support of patient safety and quality of care.

Diane D. Cousins, Vice President for CAPS at USP provided the testimony at the National Academy of Sciences in Washington, D.C. For further information about USP's testimony, please contact Sherrie Borden, USP's director of public relations, at [slb@usp.org](mailto:slb@usp.org).

### 14. Upcoming Educational Events/Calls for Abstracts

- NPSF Invites Poster Presentations for March 2003 Meeting - Nov. 30, 2002 is the deadline for submitting entries for the "success story" poster session at the annual patient-safety conference sponsored by the National Patient Safety Foundation, March 12-15 in Washington, D.C. <http://www.mederrors.org/posters.html>
- Call for Abstracts for Building Bridges Conference (April 30-May 2, 2003 in Atlanta) – December 4, 2002 is the deadline for abstract submissions. <http://www.aahp.org/abstracts/bridgesandtobacco/bridges/default.cfm>
- Dec 8-Dec 11, 2002: IHI National Forum on Quality Improvement (Orlando, Fla.)  
Sponsor: Institute for Healthcare Improvement  
Info: (888) 320-6937 <http://www.ihl.org>
- Jan 10-Jan 11, 2003: Implementing Physician Computerized Order Entry (Miami, FL)  
Sponsor: Medical Records Institute  
Info: (617) 964-3923 ex. 233 <http://www.medrecinst.com/PCOE>

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USP operates two complementary error reporting programs; the **Medication Errors Reporting Program** which operates in cooperation with the Institute for Safe Medication Practices and **MedMARx<sup>SM</sup>**. MedMARx is an Internet-accessible, anonymous medication error reporting program and quality improvement tool used to track and trend medication errors. For more information, visit [www.usp.org](http://www.usp.org)

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