Institute for Safe Medication Practices

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Pediatric Pharmacy Medication Safety Guidelines Seen as Important Step in Reducing Medication Errors

Pediatric Nurses Group Endorses Guidelines

Huntingdon Valley, PA, June 6, 2002 Two national not-for-profit organizations concerned with medication safety, released groundbreaking pediatric pharmacy guidelines designed to reduce the incidence of medication errors among children.

The Institute for Safe Medication Practices (ISMP) and the Pediatric Pharmacy Advocacy Group (PPAG) collaborated to produce the nation's first set of guidelines to reduce pediatric medication errors. These guidelines are designed to improve medication safety practices in children's hospitals, general acute care hospitals that admit pediatric patients, as well as ambulatory pediatric clinics. The guidelines were recently published in *The Journal of Pediatric Pharmacology and Therapeutics* and will be available on the ISMP website (**www.ismp.org**).

According to David W. Bates, MD, Chief of the Division of General Medicine at Brigham and Women's Hospital, Boston, “Pediatric medication errors are an enormous problem nationally, especially because children vary so much in weight. Our studies have found that while medication errors and adverse drug events occur with about the same frequency in adults and children—*near misses are seven times as common in children*—and they are particularly important in the smallest children. Ten-fold overdoses—in which a decimal point gets misplaced—are an especially serious problem, and result in unnecessary deaths in children every year. Most of these deaths could be prevented if providers wrote orders using computers that included dose checking."

Joining ISMP and PPAG in supporting the implementation of the pharmacy guidelines is the Society of Pediatric Nurses (SPN) headquartered in Pensacola, FL. SPN president, Dr. Linda A. Lewandowski notes, “The prevention of medication errors in children is a high priority for all clinicians and requires close collaboration among physicians and nurse practitioners who prescribe the medications and the nurses, pharmacists, and parents who are involved in their safe administration. These guidelines are the first of their kind focusing on specific practice recommendations designed to ensure that children receive the right medication in the right dose at the right time and by the right mode of administration”. The guidelines will also be posted on the SPN website (**www.pedsnurses.org**).

Specifically, these guidelines address medication error prevention strategies in three critical areas: *organizational systems* (e.g., computerized prescriber order entry systems; automated dispensing); *healthcare professionals* (e.g., building communication skills; performing mathematical calculations; awareness of patients with special needs; and, patient monitoring); and, *manufacturing and regulatory systems* (e.g., establish safe pediatric dosages; information on pediatric specific adverse drug reactions; uniform bar coding; and, research to determine the safety and efficacy of medications in children).

Children are at greater risk of experiencing medication errors or adverse drug reactions because of unique characteristics associated with their drug therapy, such as:

- Children cannot evaluate and express their own response to medications;
- Drugs may be approved for marketing without any clinical trials in children, even though the drug may be used in children;
- Drugs may be marketed for approved use in children, but relatively few children have received the drug in clinical trials;
- Pediatric dosage forms may not be available, and pharmacies must prepare dosage forms with no standard

compounding approach. Little data may be available on the bioavailability and stability of such preparations;

- The medication use process is more labor intensive and detailed for children than for adults. The process requires increased medication handling, preparation, double-checking, and dosage calculations. This increases the chance for drug-related errors;
- Children may have unique disease states, immature organ function for elimination of a drug, or unique needs for drug administration;
- Little to no data are published detailing the nature, cause and effect of drug reactions in children;
- Dosage instructions given to parents and other caregivers are often ambiguous and not easily understood.

ISMP, PPAG and SPN encourage hospital administrators, medical directors, and nurse managers to join pharmacy managers in implementing these guidelines in a timely fashion.

David W. Bates, MD, MSc is Chief of the Division of General Medicine at Brigham and Women's Hospital, Medical Director of Clinical and Quality Analysis for Partner's Healthcare Systems and an Associate Professor of Medicine at Harvard Medical School. He is a practicing general internist, and is the former

medical director of the Brigham and Women's Hospital PHO. Trained as a clinical epidemiologist, his main interest has been the use of computer systems to improve patient care. He has done extensive work on evaluating the incidence and preventability of adverse drug events

Linda Lewandowski, PhD, RN, is the President of the Society of Pediatric Nurses (2002-2004), a major nursing specialty professional organization. She is also an Associate Professor at the Johns Hopkins University School of Nursing in Baltimore, Maryland with 28 years of experience as a pediatric nurse clinician, educator, and researcher.

The **Institute for Safe Medication Practices (ISMP)** is a 501 (c)(3) not-for-profit organization that works closely with healthcare practitioners and institutions, regulatory agencies, professional organizations and the pharmaceutical industry to provide education about adverse drug events and their prevention. The Institute provides an independent review of medication errors that have been voluntarily submitted by practitioners to a national Medication Errors Reporting Program (MERP) operated by the United States Pharmacopeia (USP) in the USA. Information from the reports may be used by USP to impact on drug standards. All information derived from the MERP is shared with the U.S. Food and Drug Administration (FDA) and pharmaceutical companies whose products are mentioned in reports.

The **Pediatric Pharmacy Advocacy Group (PPAG)** is a (501)(c)(3) not-for-profit, volunteer organization of pharmacists and other health care providers who specialize in pediatric pharmacy practice**.** The sole purpose of the

organization is to promote safe and effective medication use in children. PPAG is a primary resource for information related to safe and effective drug therapy in children, and therefore, works to improve the quality of life of children. The organization accomplishes its mission by establishing a clear set of values, as well as through education, communication, research, and patient care initiatives.

The **Society of Pediatric Nurses (SPN)** is a professional nursing specialty organization established in 1990 to promote excellence in nursing care of children and their families through support of its members' clinical practice, education, research, and advocacy.