

AORN PROPOSED POSITION STATEMENT ON PEDIATRIC MEDICATION SAFETY

PREAMBLE

Medication errors constitute the single most common type of medical error occurring in facilities. Many pharmaceutical companies manufacture medications with the intention of treating only adults. Pediatric pharmacology research has been limited, drawing attention to the deficiencies in evolving knowledge for the pediatric population. Merely adjusting the recommended adult medication dose can be hazardous to the pediatric patient. Numerous medications lack formal licensing from the US Food and Drug Administration (FDA) for pediatric indications and dosing guidelines. The lack of established guidelines increases the potential for error and is directly related to the significant differences in error frequency rates between the pediatric population (47% of errors) and adult populations (28%).¹

Errors can occur at any stage in the medication use process (ie, prescribing, dispensing, administering, documenting) and while monitoring for desired effects or adverse event. The administration of medications for the pediatric patient during surgical or invasive procedures poses additional challenges. A comprehensive study by United States Pharmacopoeia (USP) identified improper dose (quantity), omission, and wrong time as the top three medication errors affecting pediatric patients. "The 2001 MedMARx data summary report (USP 2002) analyzed 105,603 medication error records submitted by 368 voluntary facilities. The two major contributing factors involving medication errors were noted as distractions (47%) and staffing issues (43%)."²

The perioperative setting is a highly stressful and complex work environment. The hurried pace of the perioperative environment, inherent patient complexity, and human-technology interfaces have been identified as contributing to error potential in operative and procedural settings.³⁻⁵ Additional factors contributing to overall medication errors include health care provider fatigue, patient transition between departments, and inadequate or incomplete communications between health care providers.⁶

POSITION STATEMENT

Regardless of the health care setting, the perioperative registered nurse administering medications to the pediatric patient must have a sound knowledge of

- the medication(s) intended,
- therapeutic effect(s),
- side effects,
- contraindications, and
- pharmacology calculations prior to administration.

Furthermore, it is vital for perioperative registered nurses caring for infants and children to be aware of age dependent factors such as

- weight (in kilograms),
- underlying pathology,
- physiologic differences,
- developmental stage,
- growth and development, and
- psychosocial and cultural dynamics of the patient's family.

Any or all of these factors may influence the efficacy and safety of medications used for pediatric patients.

Perioperative registered nurses have considerable influence in the prevention of medication errors in the perioperative setting. Application of the nursing process and an understanding of the complex nature of the many variables intrinsic to pediatric patients, guides the perioperative registered nurse to implement a plan of care that ensures the safe administration of medications. The "AORN guidance statement: Medication safety across the continuum of care"⁷ and the Safe Medication Administration Safety Tool Kit⁸ provide perioperative registered nurses with guidelines to minimize medication errors in the perioperative environment.

GLOSSARY

Adverse drug event: An adverse drug event (ADE) is an injury resulting from medical intervention related to a medication, which can be attributable to preventable and nonpreventable causes.⁹

MedMARX: An Internet-accessible, anonymous medication error reporting program and quality improvement tool used to track medication errors. MedMARX is operated by US Pharmacopoeia.¹⁰

US Pharmacopoeia (USP): A nongovernment organization that establishes quality standards for medications.¹¹

NOTES

1. E R Stucky et al, "Prevention of medication errors in the pediatric inpatient setting," *Pediatrics* 112 (August 2003) 431-436.
2. K Stratton, M Blegen, G Pepper, T Vaughn, "Reporting of medication errors by pediatric nurses," *Journal of Pediatric Nursing* 19 (December 2004) 385-392.
3. "AORN guidance statement: Safe call practices in perioperative practice settings," in *Standards, Recommended Practices, and Guidelines* (Denver: AORN, Inc, 2005) 193-195.
4. D H Hickam et al, "The effect of health care working conditions on patient safety," *AHRQ Evidence Report/Technology Assessment Summaries* no 74 (May 2003) 1-3. Also available at <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?rid=hstat1.chapter.88485> (accessed 1 Dec 2005).
5. M Rosekind et al, "Managing fatigue in operational settings 1: Physiological considerations and counter-measures," *Hospital Topics* 75 (Summer 1997) 23-30.
6. "Joint Commission 2006 National Patient Safety Goals: Implementation Expectations," Joint Commission on Accreditation of Healthcare Organizations, http://www.jcaho.org/accredited+organizations/patient+safety/06_npsg_ie.pdf (accessed 1 Dec 2005).
7. "AORN guidance statement: Medication safety across the continuum of care," in *Standards, Recommended Practices, and Guidelines* (Denver: AORN, Inc, 2006) in press.
8. "Safe Medication Administration Toolkit," AORN, Inc, <http://www.aorn.org/toolkit/safemed> (accessed 1 Dec 2005).
9. "To err is human: Building a safer health system," Institute of Medicine, <http://www.nap.edu/books/0309068371/html/28.html> (accessed 1 Dec 2005).
10. "MedMARX frequently asked questions," US Pharmacopoeia, <http://www.usp.org/patientSafety/medmarx/faq.html> (accessed 1 Dec 2005).
11. "About USP – An overview," US Pharmacopoeia, <http://www.usp.org/aboutUSP> (accessed 1 Dec 2005).

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