

# Reflections on Patient Safety

Could you help prevent harm in this type of event?

## "Do Not Use" List

**Situation:** An infant named IB was admitted following surgical treatment. The standard order was made for post-operative pain management and included ibuprofen and morphine. The morphine was to be given every two hours as necessary for severe pain and was hand-written for 0.2 mg. Transcription of the morphine prescription was written as .2mg on the paper Medication Administration Record (MAR) by the nurse and then placed in the hospital's central clinical computer system by the pharmacist. The morphine was available the unit's automated dispensing cabinet (ADC), and allowed the nurse to give the initial .2 mg morphine dose at noon. Two hours later, the patient was given ibuprofen in response to moderate pain. At 3 p.m. the day-shift nurse went off duty and was replaced by an evening nurse. The report given included a quick review of the MAR and the probable need for morphine to control the pain.

Shortly after the evening-shift nurse arrived, IB exhibited signs of pain. The nurse removed the syringe containing 2mg of morphine from the ADC and documented that the full syringe would be given. The evening nurse believed the syringe volume appeared large, but the patient had received the dose before, so to be safe, administered the dose slowly on an IV pump. As the 2 mg morphine dose finished, her skin color faded to a deep blue as she stopped breathing. The patient's mother pushed the call button. A nurse from the hallway quickly responded and called a Code Blue. Seconds later, IB was bagged as another nurse got a medication to reverse the morphine. As soon as this was given, the patient stabilized and was transferred to the PICU for observation following morphine overdose.

**Background:** Consistent with the Joint Commission National Patient Safety Goal 2B, hospitals create a list of abbreviations, acronyms, symbols and dose designations, such as a leading zero, to be safely used throughout the organization. Handwritten orders that contain doses smaller than one — for example 0.8mL or 0.8mg — require a leading zero to prevent a ten-fold dosing error. Staff who transcribe medication orders by hand may introduce an error that might be missed by the next staff person.

Automated dispensing cabinets (ADCs) allow for the prompt availability of medications that appear in a patient's medical profile while also ensuring secure medication storage. Controlled studies have outlined a number of important characteristics with regard to automated dispensing cabinets (ADCs) which:

- 1) **may reduce dispensing errors** – that is, choosing the correct medication.
- 2) **cannot prevent administration errors** – that is, choosing the correct dosage.

**Assessment:** Initial hand-transcription of the morphine dosage into the Medical Administration Record as .2 mg prompted the evening nurse's misinterpretation of the dosage as 2 mg and resulted in an administration error. Subsequent conversion of hospital medication administration records from written to electronic form has significantly reduced errors produced by misinterpretation of decimal points due to the absence of a leading zero – for example: .2 mg is now consistently entered as 0.2 mg.

Additional safeguards have been implemented to control for dose errors. Most importantly, **the Guardrails system within the Alaris Smart Pump**, introduced in 2004, provides an invaluable double check that is **capable of identifying an overdose before it occurs**. In the case of IB, Guardrails would have alerted the nurse that the 2 mg morphine dose was too large.

### **Recommendation:**

- 1) All clinical staff should be aware of the **"Do Not Use" list** and contact the provider when these terms are found in the progress notes or orders. *Policy #1133.00 Clinical Documentation Abbreviation*
- 2) **Begin CPOE**, or computerized physician order entry, to eliminate the incorrect transcription of medication orders. *Begun on May 9, 2009.*
- 3) **Do not use the ADC to verify dose or allergy**, as the ADC does not have either a dose or allergy checking function. Use Cerner to verify allergy and dose before administration.
- 4) **Always use Alaris Guardrails IV systems** when possible in order **to prevent medication dosage errors**. *Guardrails use began in June 2004.*

Reflections On Patient Safety is produced by the Office of Patient Safety at Children's Hospitals and Clinics of Minnesota. The cases are derived from a variety of sources internal and external to the organization, including Focused Event Reviews and published literature. The cases are intended to promote learning in the belief that if we don't learn from history, we are doomed to repeat it.