Medication Safety Alerts

This column draws on US and Canadian experience and includes, with permission, material from the ISMP Medication Safety Alert! biweekly bulletin, published by the Institute for Safe Medication Practices (ISMP), Huntingdon Valley, Pennsylvania, USA.

News

Researchers of the University of Toronto have teamed up with ISMP Canada to embark on an infusion pump safety project. The initial goal of the project is to collect survey data for the purpose of identifying infusion pump use issues and concerns. This important project is also partnered by Health Canada, Institute for Safe Medication Practices (US), Canadian Healthcare Association, Healthcare Insurance Reciprocal of Canada, and Emergency Care Research Institute (ECRI), a world renowned institute for research on health devices. The project description is posted in the infusionpumpsafety.org web site, as well as, in the ISMP Canada web site.

The Analyze-ERR software program is ready to be launched. It is a product that is jointly developed by ISMP and ISMP Canada. The program assists hospitals to track medication incidents and near-misses, as well as, to perform root cause analyses on those incidents. A demonstration of Analyze-ERR is posted in the ISMP Canada's web site: www.ismp-canada.org.

Technology and Medication Use Systems

It is interesting to learn that "forcing functions" and automation are at the top of the list of strategies designed to reduce medication errors. Many forcing functions and automation processes are inherently contained in healthcare technology that has been implemented in the U.S. and Canada. Technology designs that have been used in practice for quite some time include: computerization of patient records; pharmacy processing; medication administration records; and automated prepackaging and dispensing equipment.

Newer technologies are have been implemented in some Canadian hospitals, although they are more prevalent in the US. Computerized physician order entry systems (CPOE) have been designed to reduce medication errors in the prescribing phase. Personal Digital Assistant (PDA) devices can be used for retrieving valuable clinical information by clinicians. Robotic dispenser and point of care dispensing cabinets have eliminated much manual dispensing by pharmacy staff. Bar coding is known to facilitate identification of the right drug, the right patient, and the right dose.

It is well recognized that technology is expensive. However, the study by David Bates has shown that the cost of adverse drug events in a 700 bed teaching hospital can be as high as $2.7 million per year. This study supports increasing our resources and spending to

enhance our systems to prevent adverse events. The use of technology will play an ever-increasing important role.

On the other hand, there have been reports of errors as a result of the implementation of technology, and we are reminded that every new innovation can lead to new opportunities for error. Without built-in safeguards at the point of implementation and ongoing checks and evaluation, errors in an automated system can multiply many times over. Examples include errors related to robotic dispensers, when an incorrect medication has been loaded into the dispenser, or errors made when incorporating dosage calculations in a medication order entry system.

Hospitals planning to implement computerized physician order entry systems will need to consider the possible risks for new types of error and, importantly, need to ensure integration with clinical decision support systems. Hospitals need to guard against the possibility of "work arounds" when implementing a new system such as a CPOE system. For example, there can be a temptation to allow nurses and department clerks to enter medication orders electronically. Such practices will reduce the number of "checks" in the system and will minimize the value added when decision support systems are combined with physician order entry systems.

Point of care dispensing cabinets continue to be implemented in Canadian hospitals. Ideally, such systems need to be integrated with the pharmacy medication patient profile records. This will add inherent checks in the system through screening of orders by Pharmacy. Indiscriminate use of "overrides" will diminish the value of this important technology.

Healthcare technology is not a panacea. However, with appropriate planning for potential problems, and inclusion of system safeguards, technology will no doubt lead us to providing safer medication use processes in healthcare.

Medication Safety Update: The following was shared in our first Safety Bulletin and because of its relevance to hospital pharmacy practice, the information is included in this column.

Published Data Supports Dispensing Vincristine in Minibags as a System Safeguard

Many of us are familiar with the accidental deaths that have been reported when vincristine, intended for **I.V.** use, was inadvertently administered intrathecally. A recently published article in Hospital Pharmacy, by Trissel and Cohen[1], suggests a strategy for minimizing the risk for recurrence of such an error. The article confirms the stability of vincristine when diluted to 25mL with normal saline, and suggests that the larger volume of diluted vincristine is less likely to result in a 'mix-up' in route of administration. The

use of additional auxiliary warning labels when dispensing vincristine continues to be recommended.

An editorial by Neil Davis[2], in the same issue of Hospital Pharmacy, mentions that the MD Anderson Cancer Center in the U.S. has been preparing vincristine doses with 25mL normal saline in minibags for more than 20 years. The decision to dispense vincristine in minibags was made to prevent inadvertent intrathecal administration. Now that stability data is available, and published, this dispensing practice can be adopted by other facilities.

Berwick[3], and many others, have suggested that the ideal system safeguard against accidental intrathecal administration of I.V. drugs, is to have unique and non-interchangeable connections. This is described as a “forced function design” safety improvement. Until such time as there are separate drug administration systems for I.V. versus intrathecal administration, the preparation of vincristine in minibags, instead of syringes, is a medication safety practice recommendation to be considered by all facilities preparing chemotherapy.
References are included at the end.

ISMP Canada has received two reports of medication errors as a result of confusion between OXYCONTIN and OXY-IR products. The information published in the US Medication Safety Alert below, is shared to heighten the awareness that confusion can occur and it provides some ideas for preventing problems, in hospitals that choose to carry both products.

(The information described below is taken directly from ISMP Medication Safety Alert! Volume 6, Issue 17, August 22, 2001.)

In our August 26, 1998 issue, we mentioned mix-ups between Purdue Pharma's **OXYCONTIN** (oxycodone HCl controlled-release tablets) and oxycodone HCl immediate-release tablets. Additional cases of confusion have since been reported. As before, confusing the brand name, OxyContin, with "oxycodone" has occurred when "controlled-release" was not specified in an order for OxyContin. In other cases, the generic name, oxycodone, was used when ordering the controlled-release product, without specifying "controlled-release." Thus, patients have accidentally received the immediate-release product with subsequent difficulty tolerating the substantial increase in peak oxycodone blood levels. To prevent errors when prescribing by generic name, the dosage form (controlled or immediate-release) MUST be specified. Immediate-release and controlled-release products should not be stored near one another or appear as choices on the same computer and automated dispensing module screens. Educate staff about the potential for confusion between these two forms of oral oxycodone. One hospital designed screen prompts for automated dispensing modules, asking nurses to indicate whether they want immediate or controlled-release product. They also developed a poster with pain management guidelines and differentiation of formulary narcotic analgesics. Another hospital prepared laminated sheets using a color printer to help

differentiate the products. Compare prescribed therapy with narcotic analgesic sign-out sheets and automated dispensing module records to assure that errors are not being made. Some hospitals have also reported confusion between OxyContin and **MS CONTIN** (morphine controlled release) because practitioners believed these were different brand names for the same drug.

[1] Trissel LA, Zhang Y, Cohen MR. The stability of diluted vincristine sulfate used as a deterrent to inadvertent intrathecal injection. ***Hosp Pharm. 2001;36:740-5***
[2] Davis, NM. The preparation of vincristine in minibags will prevent deadly Medication Errors. ***Hosp Pharm. 2001;36:707***
[3] Berwick, DM. Not Again! Preventing Errors Lies in Redesign – not exhortation. ***BMJ 2001;322:247-248***