Medication Safety Alerts

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

NEWS

Researchers at the University of Toronto have teamed up with ISMP Canada on a project to examine the safety of infusion pumps. The initial goal is to collect survey data to identify issues and concerns related to the use of these devices. Other partners in this important project are Health Canada, the Institute for Safe Medication Practices (US), the Canadian Healthcare Association, Healthcare Insurance Reciprocal of Canada, and the Emergency Care Research Institute, a world-renowned institute for research on health devices. The project description is posted at the www.infusionpumpsafety.org Web site, as well as at the ISMP Canada Web site.

The Analyze-ERR software program is ready to be launched. This product has been jointly developed by ISMP and ISMP Canada. It will assist hospitals in tracking medication incidents and near misses, as well as in performing root cause analyses of those incidents. A demonstration of Analyze-ERR is posted at ISMP Canada's Web site: www.ismp-canada.org.

TECHNOLOGY AND MEDICATION USE SYSTEMS

It is interesting that "forcing functions" and automation head the list of strategies to reduce medication errors. Many forcing functions and automation processes are inherent to health care technology that has been implemented in the United States and Canada. Technology designs that have been in use for quite some time include computerization of patient records, pharmacy processing, and medication administration records, and automation of prepackaging and dispensing equipment.

Newer technologies have been implemented in some Canadian hospitals, although they are more common in the United States. Computerized physician order entry systems have been designed to reduce medication errors in the prescribing phase. Clinicians can use personal digital assistant devices to retrieve valuable clinical information. Robotic dispensers and point-of-care dispensing cabinets have eliminated much manual dispensing by pharmacy staff. Bar coding facilitates identification of the right drug, the right patient, and the right dose.

It is well recognized that technology is expensive. However, Bates and others[1] have shown that the cost of adverse drug events in a 700-bed teaching hospital can be as high as $2.7 million per year. The study supports increasing resources and spending to enhance our systems to prevent adverse events. The use of technology will play an increasingly important role.

Conversely, there have been reports of errors resulting from 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 (for example, when the incorrect medication has been loaded into the dispenser) and 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, more importantly, will need to ensure integration with clinical decision support systems. Hospitals must guard against the possibility of "work-arounds" when implementing a new system such as computerized physician order entry. For example, it may be tempting to allow nurses and department clerks to enter medication orders electronically. However, 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 should be integrated with the pharmacy's medication profile for each patient. Doing so will add inherent checks in the system through screening of orders by the pharmacy. Indiscriminate use of "overrides" in automated systems will diminish the value of this important technology.

Health care technology is not a panacea. However, with appropriate planning for potential problems and inclusion of system safeguards, technology will undoubtedly lead us to safer medication use in health care.

MEDICATION SAFETY UPDATE

The following item appeared in our first *Safety Bulletin*.[2] Because of its relevance to hospital pharmacy practice, the information is reproduced here.

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 others,[3] suggests a strategy for minimizing the risk for recurrence of such an error. The article confirms the stability of vincristine when diluted to 25 mL 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,[4] in the same issue of *Hospital Pharmacy*, mentions that the MD Anderson Cancer Center in the U.S. has been preparing vincristine doses with 25 mL 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 are available, and published, this dispensing practice can be adopted by other facilities.

Berwick,[5] 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.

SPECIAL FEATURE

ISMP Canada has received 2 reports of medication errors as a result of confusion between OxyContin and Oxy-IR products (formulations of oxycodone). The information published in *ISMP Medication Safety Alert!*, reproduced below, is shared to heighten awareness of potential confusion related to oxycodone products and to suggest some ideas for preventing problems in hospitals that choose to carry both products.

The information presented below is taken from *ISMP Medication Safety Alert!* volume 6, issue 17, August 22, 2001.

In our August 26, 1998 issue, we mentioned mix-ups between 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.

References

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