

# Performance Strategies



Automate Medication Safety from the Dockside to the Bedside

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## ISMP: It's Easier than You Think – Prevent Medication Errors by Automating



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Reducing medication errors is obviously a vital part of improving patient care, and that should always be the primary concern of every healthcare organization. Yet, causing harm to patients has substantial financial costs as well. Errors raise per-patient costs by an estimated \$5,857. Even this figure – which is considered very conservative – costs the healthcare system \$3.5 billion annually.

In addition, the government and insurance companies are using their clout to push hospitals toward reducing errors. Earlier this year, WellPoint joined a growing list of payors that no longer reimburse for costs stemming from preventable medical errors. Aetna now includes stipulations in some provider contracts that prohibit payment (or billing patients) for care arising from the National Quality Forum's list of 27 "never events," which include medication errors.

### Analyzing Reported Medication Errors

Each day the causes of medication errors are collected and analyzed by the [Medication Errors Reporting Program \(MERP\)](#). Operated by the [U.S. Pharmacopeia \(USP\)](#) in cooperation with the [Institute for Safe Medication Practices \(ISMP\)](#), the MERP program finds that the number of errors – which range from giving the wrong drug to the wrong dosage of the right drug – is staggering. One study estimated the number of hospital medication errors at more than 450,000. In almost all cases, one fact is clear: most easily could be prevented if hospitals employed technologies such as electronic order entry, bar-code scanning of medications and smart pumps.

Just consider how these events happen.

**Look Alike, Sound Alike Drugs:** Many drugs have similar names, but different uses. Recently a hospital pharmacist mistakenly placed sumatriptan, a prescription medication for migraine headaches, into a dispensing bin reserved for the diabetes drug sitiglipitan. The two drugs sound alike and look alike, and in the rush of a busy hospital it was an honest mistake.

Yet, if bar-codes had been in use, it's unlikely this drug would have ended up in the wrong bin or delivered to patients who didn't need it. The migraine medication would have been scanned when it arrived at the hospital pharmacy, and scanned again when it was placed in the dispensing machine. The software would have alerted the pharmacy that something was wrong.

**Cryptic Writing of Drug Orders:** Use of a computerized provider order entry (CPOE) system eliminates the danger of handwritten orders being misinterpreted. When the order becomes part of an electronic medical record, it will be acted upon much faster than a note in a paper chart. And when coupled with the power of clinical decision support, electronic order entry guides physicians and other clinicians to best practices and evidence-based care.

These systems drive greater efficiency at all levels. How many hours are lost when nurses or pharmacists have to double-check medication orders or call back physicians to verify unclear or inappropriate medication orders?

**Administration Errors at Bedside:** The final chance to eliminate a medication error is at the bedside. Bar-code scanning of the drug, the patient and the caregiver's ID badge not only electronically documents the administration, but helps ensure that the right drug goes to the right patient at the right time in the right dose and via the right method. Smart infusion pumps can detect IV drug overdoses by recognizing pump programming errors.

CONTINUED ON PAGE 2

## ISMP: It's Easier than You Think – Prevent Medication Errors by Automating (Cont.)

### Changing the Culture

Automation is a powerful tool for making care safer, but it is not a cure-all. Hardwiring safety into your culture requires commitment from every member of the hospital staff — from administrators and IT professionals to physicians, nurses and other caregivers.

The hospital must invest both the time and resources to create buy-in for the new systems. Doctors and nurses must endorse the switch from the familiar way of practice to new and sometimes challenging technology deployment.

The entire organization must also take a larger view of medication safety by looking beyond its own experiences. Some errors with severe side effects may occur so infrequently that a particular institution may see them only every few years. Yet they must also be part of the monitoring process.

Instituting an automated safety program is not easy, and the resources required – both upfront and ongoing – are considerable. Yet, the rewards for the patient and the organization are more than worth the time, effort and cost.

*Michael Cohen is president of The Institute for Safe Medication Practices, a non-profit healthcare organization that specializes in understanding the causes of medication errors and providing error-reduction strategies to the healthcare community, policy makers, and the public. He is editor of the textbook, [Medication Errors](#) (2007 American Pharmaceutical Association) and serves as co-editor of the ISMP Medication Safety Alert! publications, which reach over 2 million health professionals and consumers. Dr. Cohen is a member of the Sentinel Event Advisory Group for the Joint Commission and served recently as a member of the Committee on Identifying and Preventing Medication Errors, Institute of Medicine. Over the past five years, Cohen has consistently been recognized by Modern Healthcare magazine as one of the top "100 Most Powerful People in Healthcare."*

### Supporting Safe Prescribing for Patients with Special Dosing Requirements

Recent news stories have elevated medication dosing errors to the national spotlight. In May, well-known actor Dennis Quaid testified before Congress about the hardship he and his family endured when an incorrect dosage of Heparin was given to his newborn twins — 1,000 times the recommended strength. High-risk, complex patients require special care when it comes to medication dosing.

For the very young, the very old and the very sick in particular, physicians must consider a myriad of complex factors when calculating dosing requirements for their patients. Studies have shown that in pediatrics, the most common type of medication error is a dosing error at the ordering stage. A study published in April 2008 in the journal *Pediatrics* found that there are about 11 adverse drug events for every 100 hospitalized children.

"We are constantly evaluating strategies that will help to eliminate medication errors, particularly in patients with complex dosing requirements," said Jeff Ferranti, M.D., M.S., director of Pediatric Informatics and Computerized Patient Safety Initiatives at Duke University Hospital. Use of information technology, says Dr. Ferranti, "has the potential to be of particular relevance in pediatric and neonatal units where specialized approaches to weight and age-based dosing are required and small miscalculations can cause significant problems."

[Information technology can support the dosing process](#) by providing patient-specific recommendations coupled with sophisticated dose calculators and rounding algorithms tightly tailored to the indication for the medication, including criteria such as the patient's age, dosing weight, body surface area, renal function and diagnosis. Including these capabilities in the electronic order entry process can help increase the accuracy and safety of medication prescribing.

## Events

**Nurse Advise-ERR  
Newsletter Offers Tactics  
to Prevent Errors  
*Free to Nurses in 2008***

During 2008, McKesson is helping underwrite free subscriptions to nurses for ISMP's medication safety newsletter. The newsletter provides accounts of reported errors, checklists of error reduction strategies, and quick tips for safe practices.

[Subscribe to the newsletter.](#)

### Recorded Webinars:

Series on  
[Automating Your  
Pharmacy](#)

Series for Nurse Leaders  
[Designing Frameworks  
for Patient Safety](#)