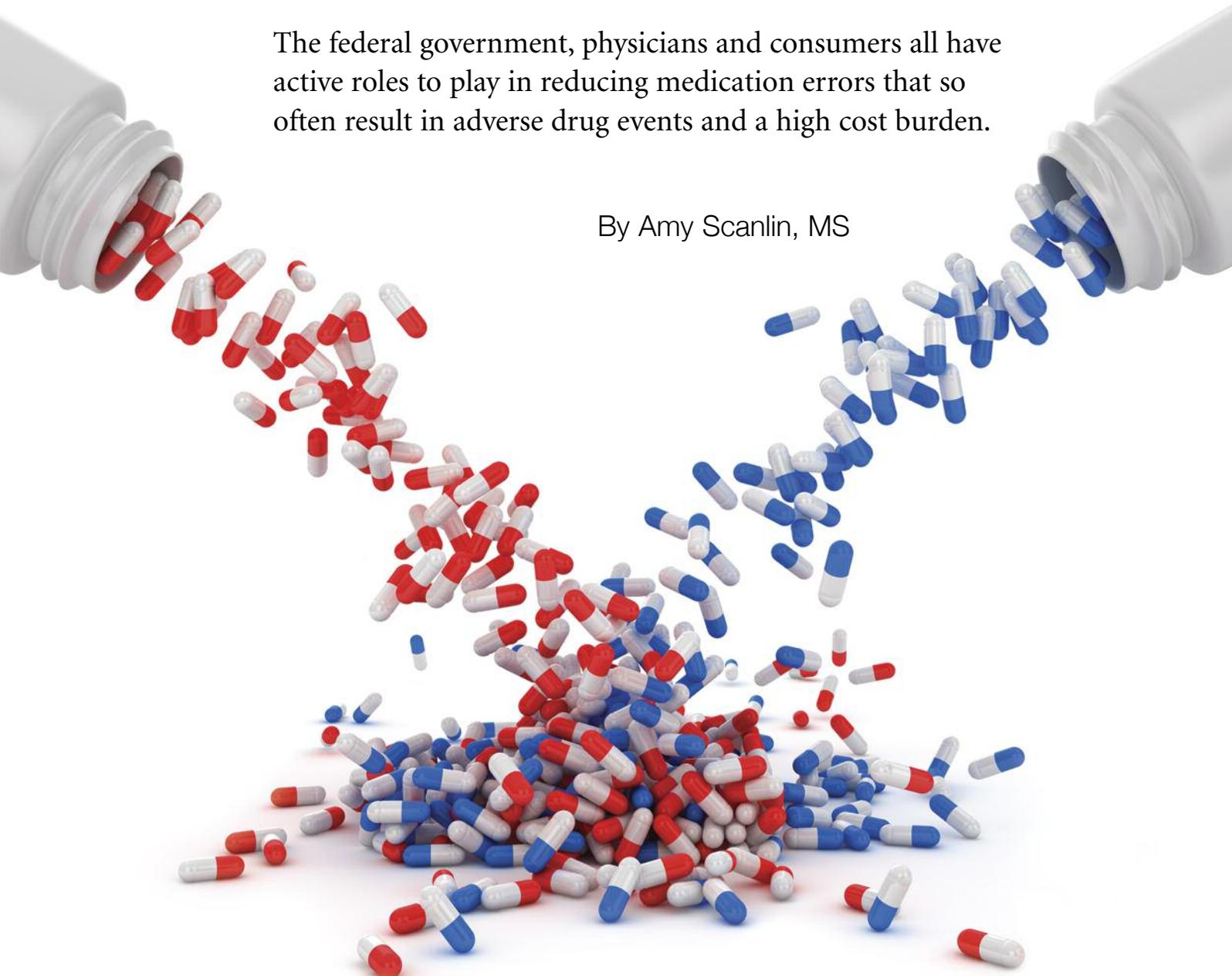


Reducing the Risks of Medication Errors

The federal government, physicians and consumers all have active roles to play in reducing medication errors that so often result in adverse drug events and a high cost burden.

By Amy Scanlin, MS



Medication errors are an enormous problem in the U.S., resulting in adverse drug events (ADEs) and, in many cases, death, as well as a monetary burden on hospitals, physicians, insurance companies and consumers. The more powerful a drug is, the more likely it is to have harmful side effects.¹

The Institute of Medicine (IOM) of the National Academies estimates in its report *To Err Is Human* that there are between 44,000 and 98,000 hospital deaths annually attributed to medical errors,² more than 7,000 of which are due to medication errors.³ And, the IOM's estimates of between 380,000 and 450,000 ADEs annually in hospital settings are believed to be grossly underestimated. Taking into account ADEs in long-term care and outpatient facilities, errors of omission and ADEs that go unreported, experts estimate that there could be as many as 1.5 million ADEs in the U.S. annually.¹

In fact, it is believed that about 5 percent to 10 percent of patients admitted to hospitals are subjected to serious medication errors.²

While studies calculating the cost of these events are not prevalent, it is estimated that each preventable ADE in a hospital setting costs upward of \$8,700, including the cost of the hospital stay. Assuming a conservative estimate of 400,000 ADEs annually, the costs of preventable ADEs in a hospital setting alone are \$3.5 billion!¹

The good news for physicians is that U.S. quality experts agree that the majority of the predicament is due to problems in the medical system itself, not the doctors and pharmacists functioning within it.² Yet while national organizations have expressed urgency in dealing with the issue, that sense of urgency is lacking among physicians and patients who don't view medical errors as the most important problem in healthcare.⁴ Clearly, something must be done to improve the system.

The Role of the FDA

The U.S. Food and Drug Administration (FDA) works in conjunction with federal partners to track medication errors, which are defined as "any preventable event that may cause or lead to inappropriate medication use or harm to a patient." These partners include the U.S. Pharmacopeia and the Institute for Safe Medication Practices, which collect reports via the Voluntary Medication Error Reporting Program and automatically send them to the FDA's MedWatch program. Since 2000, the FDA has received more than 95,000 voluntary reports of medication errors via MedWatch.⁵

The FDA also reviews medication error reports for over-the-counter (OTC), prescription and generic drugs via the Division of Medication Error Prevention and Analysis within

the Center for Drug Evaluation and Research. The National Coordinating Council for Medication Error Reporting and Prevention's definition of a medical error is "any preventable event that may cause or lead to inappropriate medication use or patient harm while the medication is in the control of the health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures and systems, including prescribing; order communication; product labeling, packaging, and nomenclature; compounding; dispensing; distribution; administration; education; monitoring; and use."⁶

Medical professionals review these error reports and evaluate them for causality, after which the FDA provides recommendations to assist in the prevention of future medical errors. Some of these recommendations include:

- Reviewing and approving drug names to prevent similar-sounding drugs from entering the marketplace (the agency reviews about 400 submitted drug names annually from pharmaceutical companies and rejects one-third)
- Requiring OTCs to have a standardized drug facts label
- Requiring bar-code labeling for certain drugs and biologics, facilitating comparison via quick review of computerized patient information systems to ensure the right drug is given to the right patient at the right time
- Eliminating potentially confusing abbreviations such as IU, which can be mistaken for IV and the use of leading zeros before decimals instead of trailing afterward (for example, 0.5 mg, which has little chance of misinterpretation versus 5.0 mg, which can be confused for 50)

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It is estimated that 45 percent of hospital admissions and 19 percent of treat-and-release emergency room visits are due to five drug categories, known as high-risk medications: corticosteroids, anticoagulants, antineoplastics and immunosuppressants, antibiotics and opiates.⁷ Amy Ehlers, BS, PharmD, BCPS, director of pharmacy at NuFACTOR Specialty Pharmacy, says, "These medications have been identified to have a higher-than-expected risk to cause harm when used as intended or have a higher risk of causing significant harm when used in error." In addition, she says, "high-alert medications often require monitoring to ensure optimal therapeutic outcomes. The classification of high-alert medications may be due to the

type of drug itself (antineoplastics) or have a limited therapeutic window (anticoagulants), which makes dose titration more challenging. And, the side effects that they cause may be severe in the event something does go wrong (narcotics, for example, can cause decreased respiration rates in higher doses). Also, the patient population these drugs are prescribed for may cause a predisposition to adverse events. For instance, an older adult who is hospitalized for pneumonia may receive antibiotics, corticosteroids and opiates to treat the pneumonia, but it would not be unheard of for this same patient to be taking other high-risk medication as well.”

The Role of the Physician

Hospital settings are a common place for medication errors to occur. From prescription, administration, monitoring and even procurement of the correct drug, there are many steps in the process during which a mistake can be made. Michael R. Cohen, author of the book *Medication Errors*, says the “five rights” of prescriptions (right patient, right drug, right time, right dose and right route of administration) place too much emphasis on individual performance and overlook the systemic problems that underlie the human errors. He emphasizes that “finding out who was involved is less important than learning what went wrong, how and why.”⁸

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Most commonly, mistakes occur during prescribing and administering a drug. One solution is computerized physician ordering systems such as e-scripts and bar-code verification technology. E-scripts provide an extra layer of protection by automatically comparing a patient’s records against allergies, other medications and any contraindications of any new prescriptions, as well as confirmation of dosage amounts. Studies show that e-scripts can reduce errors by as much as 81 percent,⁹ bar-code verification technology can reduce them by more than 50 percent, and transcription errors can be completely eliminated.¹⁰

However, a real challenge to these systems is proper usage by physicians, as well as notification types and methods of the system themselves. A recent study of nearly 3,000 physicians



and other prescribers showed that 90 percent of the time, warnings by electronic health records (EHRs) were not heeded, and the prescription was written as planned. Apparently, in many cases, physicians feel that the large number of alerts, often irrelevant to a patient’s circumstances, appear to be over-running the system. So, in systems that allow, adjustments are made so that only the highest level of alerts get through; in others, the clinical decision alerts appear to be turned off altogether due to the overwhelming alert numbers.¹¹

In 2011, the American Academy of Family Physicians, the American College of Physicians, the American Medical Association, the Center for Improving Medication Management, the e-Health Initiative and the Medical Group Management Association teamed up to develop the 56-page *2011 Clinician’s Guide to e-Prescribing*. The guide includes information on meeting the federal criteria for meaningful use of EHR systems — a necessary precursor to receiving federal health IT subsidies — as well as details on new Medicare e-prescribing requirements and frequently asked questions about adopting health information technology.¹²

Another common medication error is overprescribing. Some cite a lack of instruction on how to prescribe medications in medical school as partly to blame for the trend of overprescribing. Learning early on to start patients on one drug at a time, as well as continually being educated about possible adverse events and potential drug interactions, can be helpful for physicians.¹³

An additional way physicians can help reduce the risk of medication errors is to help patients fully understand their diagnoses, including the risks and possible side effects of all medications taken, and what to do if they notice anything unusual after taking medications.

The Role of the Consumer

Patients also have a responsibility to prevent unintended side effects of medicines. They should be encouraged to take an active role in their medical care to better understand their diagnoses and treatment options and to monitor their progress of care. "Patients [should] come to appointments prepared with a list of updates in regard to changes in their current health and medications, including prescription, over-the-counter and herbal medications," says Ehlers. In addition, she says, they should make a list of questions and make sure those questions and any other concerns are addressed. However, patients need to be realistic in their expectations. Many medications cause side effects in addition to the benefits they provide, and while some side effects may be manageable, others may not. The risks versus benefits should always be considered.

Monitoring for unusual side effects is especially important in this era of polypharmacy.

"Patients also should try to avoid using multiple pharmacies whenever possible," suggests Ehlers. "In the event that patients do, they need to ensure all pharmacists are kept up-to-date on medication or allergy information. And, when receiving a new medication, they shouldn't walk away or hang up the phone until they have a clear understanding of how to use it. Finally, if something doesn't seem right, they need to ask. Medication errors are an unfortunate part of healthcare, and in so many cases, someone noticed or felt that something wasn't right, but for various reasons did not say anything."

Monitoring for unusual side effects is especially important in this era of polypharmacy (the use of multiple medications by a patient); hospitalizations for medication side effects jumped by more than half between 2004 and 2008. Most major drugs are effective in only 25 percent to 60 percent of patients because of the variability in drug response due to reasons such as the environment, genetics and metabolism, to name a few.¹⁴

According to a report released by the Agency for Healthcare Research and Quality, less than 25 percent of drug-related emergency visits were due to physician or pharmacist error; the rest were due to unintended side effects when patients took prescriptions as they were instructed. With patients often seeing more than one doctor for various health concerns, it is

inevitable that drug overlaps will occur since doctors are not always informed or even misinformed about how those patients are being treated by another doctor.¹⁰

Improved access to standardized patient medical records should help with drug overlaps, as well as an Obama administration proposal to track patients' medications and opioids via a prescription monitoring program.¹⁰

Reducing the Risks

While medication errors will likely never be fully eliminated, much is being done in the healthcare industry to reduce the risks. More sensitive EHRs that help to flag appropriate risks, more comprehensive training to ensure physicians understand the complete picture of the drugs they prescribe, and increased patient education about the importance of the active role they play in their medical care all will help to improve outcomes. ❖

AMY SCANLIN, MS, is a freelance writer and editor specializing in medical and fitness topics.

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