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The IOM's Holistic Approach to Medication Errors

Several years ago while attending an executive retreat for senior hospital leadership from around the United States, my conversation with a CEO from a large southeast academic institution turned to medical errors. With the seriousness and confidence expected from persons placed in such high levels of responsibility, this CEO told me that in the previous year only 12 medical errors occurred in his institution. As politely as I could, I took him aside and whispered in his ear, "Sir, during our brief conversation, your hospital has already experienced 12 medical errors."

Again medical errors are in the spotlight due to a report released in July by the Institute of Medicine (IOM). *Preventing Medication Errors*, another in a series of IOM reports on patient safety, describes in detail the ongoing problem of medication errors while suggesting potential steps to reduce the risk.

Trumpeting themes similar to those reviewed in the IOM's first report, *To Err Is Human*, adverse drug events (ADE), and in particular preventable ADEs, continue to plague our healthcare system. In any given week, four out of every five U.S. adults will use prescription drugs, over-the-counter, or other supplements of some sort, and nearly one-third will take five or more different medications each day.

In the hospital setting alone, the IOM estimates that each hospital patient is subject to at least one medication error per day, while rates vary greatly across institutions. The number of medication errors in ambulatory care and long-term care settings are only grossly estimated but assumed to be multiples larger.

Millions of Preventable ADEs

Although not all medication errors lead to ADEs, the rates are still staggering. It is estimated that at least 1.5 million *preventable* ADEs occur each year in U.S. hospitals and ambulatory and long-term care settings. These errors do not include errors of omission – failure to prescribe medications for which there is evidence that they could be beneficial. Nor do these rates take into account the failure to choose the most appropriate medications rather than less appropriate choices.

Estimated costs associated with ADEs vary greatly; few sources would argue that the cost is less than 10 billion dollars. If lost wages, compensation for pain and suffering, and costs associated with decreased activities of daily living (e.g., cost of hiring a housekeeper) are included, the cost of ADEs to the U.S. economy probably approaches 100 billion dollars.

The IOM reported several key recommendations to reduce ADEs. Some are based on information technology solutions, some of which have been espoused before, and others focused on the role of the consumer in managing care. These recommendations include:

- Strengthening patients' capacities for sound medication self-management.
- Enhancement of consumer-oriented drug information and medication self-management support by government agencies.
- Deployment by health care organizations of patient-information and decision-support tools for use by clinicians and patients with the capture of medication safety and use information.
- Improvement in drug labeling and in the communication to providers and consumers of medication information.
- Establishment of standards that affect drug-related health information technologies.

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- Allocation of the necessary federal funds, managed by AHRQ, to establish a broad, coordinated research agenda to examine the appropriate use of medications across all care settings.
- Use of legislation, regulation, accreditation, payment mechanisms, and the media to motivate the adoption of practices and technologies that can reduce medication errors.

This recent IOM report reflects a change in approach to addressing medication errors, something that one may describe as a more holistic view of the problem. In previous reports on medication errors, much emphasis was on technology solutions and process redesign that improved various processes to reliably deliver proper medications to patients.

Shifting from Paternalistic Care

This report better recognizes the linkage between those processes while also considering the human aspects of medication administration. Probably influenced by the recent consumer-directed healthcare movement, patients are now identified in the report as key participants in securing safe medication practices. This patient–centered model, according to the IOM report, will require a "paradigm shift away from a paternalistic, provider–centered model of care" to one that empowers patients

as partners in their care with appropriate "communication, information, and resources in place to support them."

The emphasis on patient empowerment coupled with the restatement of the importance of information technology in preventing medication errors, presents a new challenge for healthcare IT firms and the organizations that purchase their products. Clearly, preventing ADEs can no longer be accomplished by simply improving the pharmacy system or using barcodes at the bedside to enhance medication administration. It requires an information system that recognizes the needs of the patient, the physician, the nurse, and other care givers.

Patient-Specific Decision Support

Physicians require superior, engaging computerized order entry systems designed to prevent errors rather than record or even facilitate them. This includes clinical decision support that utilizes up-to-date medication databanks that do all the necessary medication monitoring real-time. These systems must also provide alerts that are meaningful to each individual patient, rather than those that lead to "alert fatigue" due to their irrelevancy.

These order entry systems must adequately feed pharmacy and dispensing systems to automate the checking and dispensing of medications as much as possible, freeing both the pharmacist and nurse to work on more cognitive tasks.

The administration of the medication to patients must include more than the use of barcoding, RFID or some other technology to ensure the five-rights of medication administration. It additionally must include the needs of the patient, which might be in the form of drug information sheets, medication administration records, and forms for the reporting of side-effects.

Once home, patients will be in constant need of information about their current medications, as well as any new ones that are prescribed. If problems arise, they will need a way to quickly evaluate those problems and report them to their caregiver when necessary. Without these new information tools, consumers cannot be effective partners with clinicians in managing their own care.

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Since the release of the first IOM report 7 years ago, we have struggled as a nation to address our deep concerns about patient safety. In spite of more than $2 trillion spent on healthcare—a rate almost twice as high as any other nation when calculated on a per capita basis—we often receive unsafe and ineffective care. The emphasis by the IOM on a broader approach to healthcare quality—involving the patient—is a welcome call to action that helps not only patients, but the dedicated clinicians who work to help make them well.

Perhaps with this holistic strategy, and by embracing clinical transformation and the new ways of doing things embedded within it, healthcare information technology can achieve the high level of impact on quality and safety so many of us believe is the natural outcome delivered through its effective deployment and use. PSQH

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