

## Preventing Medical Errors

### The Dilemma

The eighth leading cause of death in the United States is due to medical errors! For healthcare professionals, this is an alarming issue. The November 1999 report of the Institute of Medicine (IOM) indicated that as many as 44,000 to 98,000 people die in hospitals each year as the result of medical errors. Surprisingly, medical errors kill more people in the United States than motor vehicle accidents, breast cancer and AIDS.

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"To err is human" and very costly. According to the IOM report, medical errors cost U.S. an estimated \$37.6 billion each year. It is ironic that \$17 billion of this monumental cost is associated with preventable errors. As Michael Cohen, President of the Institute for Safe Medication Practices, explained in a USA Today live chat session in October, 2000, "There is a major crisis brewing with nursing and pharmacists shortages in this country... Problem is that not enough emphasis is placed on adopting standards and expert recommendations."

### Why Adverse Events?

The issue of patient safety is not a new issue. It has plagued the healthcare industry for a long time, but lately, the patient safety issue has received prime-time attention. What are adverse events? Why should healthcare management be concerned about preventing adverse events? Why is top healthcare management up at night contemplating patient safety directives? These are just some of the pressing issues driving today's healthcare environment.

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An adverse event is defined as a treatment-caused injury that is serious enough to result in a measurable disability or prolonged hospital stay. Adverse drug events (ADEs) are the most common type of treatment-caused injuries in hospitalized patients. Ironically, approximately 1/3 of ADEs in hospitals are preventable. The high incidence of adverse events in a healthcare setting, the high cost associated with these events, increased federal/state government pressures to prevent adverse



events and JCAHO accreditation requirements make preventing medical errors a hot issue for healthcare executives.

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### Causes of Adverse Events

There are multiple reasons and factors for medical errors. Experts note that communication breakdown between the various clinicians involved in providing care results in most errors. Further, handwritten prescriptions and medical charts that are often illegible, also lead to medical errors. Finally, experts believe that poorly designed systems and processes also play a key role in causing medical errors. According to Arthur Caplan, director of the Center for Bioethics at the University of Pennsylvania Health System, "Anybody who thinks that a system that keeps

paper records in script is ready to deal with error is dreaming. You've got a 19th century Charles Dickens system in an era of high technology."

It can be safely stated that the majority of medical errors are not due to individual recklessness, but due to basic flaws in the way the healthcare system is organized. Hence, it is not surprising that there is a renewed focus by healthcare management to identify systems and processes that are flawed and can cause medical errors. Michael Cohen, President of the Institute for Safe Medication Practices, made the same point in a USA Today online chat session in October, 2000, "The bottom line is that the focus is more and more becoming recognition of system failures and less and less blaming the practitioner when something goes wrong."

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### The Use of Information Technology

How can information technology eliminate medical and process errors? The potential is infinite. Computerized prescribing systems can reduce the reliance on memory, and eliminate the need for hand-written prescriptions that lead to many errors. This means no more illegible prescriptions to decipher for nurses and pharmacists, and consequently, fewer errors. This also means system alerts upon order entry when the wrong drug or the wrong amount is prescribed, alerting physicians before mistakes can result in adverse events.

Note	Confidential	Limit to Group	Created By	Created
The patient has an allergic reaction to latex gloves!	<input type="checkbox"/>		TSG	2/5/
*	<input type="checkbox"/>			

**who thinks that a system that keeps paper records in script is ready to deal with error is dreaming. You've got a 19th century Charles Dickens system in an era of high technology."**

A true workflow automation information technology tool that comes equipped with pop-up alerts, reminders and prompts to warn caregivers when the wrong drug is prescribed or when a patient has an allergy is invaluable for healthcare facilities. A progressive healthcare facility using MEDITECH as the HIS application and working with a knowledge management company since 1998, has incorporated an IT tool based on workflow automation and software robotics in an effort to prevent procedural and medical errors that can

lead to adverse events. When an existing patient returns to the medical facility for additional care, the workflow automation system notifies the clinicians immediately if the patient has any known allergies. For instance, a pop-up screen as seen above can be accessed in any module of the MEDITECH HIS application, informing the clinicians or other users about vital patient-related information, for instance, the patient has an allergy to latex gloves or the patient is a "DNR".

**A**s an integral component of this IT tool, the medical facility is centralizing all clinical documentation online to be accessed across all the different departments at the facility. The universal goal here is to eliminate medical errors due to the lack of timely communication. Additionally, the medical facility is successfully using this technology to define online documentation for any customer-defined screen or field used in Nursing interventions. The users at the facility value the ability to enter notes for any patients, which carry over from visit to visit and across the various modules of their legacy HIS system.

**F**urthermore, using built-in prompts, the system makes it hard for the user to forget procedural requirements as related to JCAHO accreditation standards, and federal/state standards for patient care. The vision for the medical facility is to prevent medical/procedural errors and save the time spent in correcting mistakes by users. The accuracy of the IT workflow automation tool implemented at this facility makes this vision a reality. The system can display multiple notes for a patient, and can also tag notes confidential so that only users with the appropriate security clearance can access this information. This allows caregivers to provide patient-specific quality care, and reduce the likelihood of medical errors.

**I**magine the possibilities when instant messaging can be used as part of the



IT workflow automation tool to aid caregivers in providing quality patient care. In today's technologically advanced IT world, it is possible to display automatic or manual messages to a user's screen in MEDITECH or other legacy HIS systems, guiding them through the care-giving process with built-in reminders. Once the workflow has been analyzed to identify steps and areas that generate medical errors etc., the built-in reminders and instant messaging can be used to warn caregivers about protocols to follow, and procedures to watch out for in an effort to prevent medical errors. IT workflow automation is a powerful tool to ensure that events leading to medical errors are avoided. Imagine the aftermath if valuable patient information is not made accessible in a timely manner to the caregiver, due to human error or procedural flaw, causing harm to the patient that can be avoided. It is, therefore, imperative that medical facilities take advantage of information technology centered on workflow automation.

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**The universal goal is to eliminate procedural errors due to lack of timely communication.**

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**I**t is easy to say that lack of information technology increases the chance for medical errors, but it is a difficult task to select and implement information technology that is robust and that delivers results. For this purpose, healthcare management must be wary and thorough in their selection of IT tools. They must select an information technology tool that is designed to prevent, detect, and minimize hazards and the likelihood of errors. It is crucial that the IT solution has the functionality to track preventable errors and assist with

corrective actions, as well as require mandatory reporting of preventable medical errors that cause serious injury or death. Besides the use of information technology to prevent medical errors, it is important to eliminate the "culture of blame" and ensure

that healthcare professionals are educated about adverse events, and how to report and prevent these events.

## Reporting Adverse Events

The "Harvard Medical Practice Study" published in 1991 in the New England Journal of Medicine, one of the most comprehensive and rigorous examinations of hospital errors, found that on average there was a 3.7% medical error rate at the hospitals in the sample. The numbers from this study and the IOM's 1999 report, along with other studies, are primarily centered on medical errors occurring in hospitals. This does not mean that other healthcare facilities are immune to the incidence of adverse events. Further, these numbers are reliant on errors that were reported; there are many errors that go unreported. Some studies have found that only 5 percent to 10 percent of all medical errors are reported to hospital administrators; the remaining 90 to 95 percent are unreported. Therefore, it is crucial that healthcare management uses information technology for effective medical error reporting processes. An enterprise-wide electronic medical error reporting system can bring speed and efficiency to the process of error reporting, and can be ultimately used to help decrease medical errors.

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## Conclusion

About 7,000 people per year are estimated to die from medication errors alone. This represents about 16 percent more deaths than the number attributable to work-related injuries. Any effort undertaken by healthcare facilities is a step forward. Based on the complex nature of the healthcare profession, errors inadvertently will occur. The challenge is to

ensure that preventable errors are eliminated at any cost. The role of information technology is key in the efforts to reduce medical errors and eliminate adverse events. As Lucian Leape, a pediatric surgeon and adjunct professor of health policy at the Harvard School of Public Health, states, "Health care is a huge industry, and injury is its number one problem... There's an incredibly long way to go."

Healthcare management needs to look at process defects similar to how other industries look at product defects to improve the quality of patient care services. The healthcare industry must adopt voluntary and mandatory reporting standards to track medical errors and the resulting adverse events, and use this data to generate targeted solutions. For this purpose, management needs to ensure that a culture of safety exists that rewards rather than punishes caregivers for reporting medical errors. Healthcare management should also use information technology to its maximum potential in designing systems that identify, prevent and eliminate medical errors. There is a long way to go, but if each step that is taken produces



measured results, then the goal to prevent and eliminate adverse events in healthcare facilities will become a reality.

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