Computerized Physician Order Entry (CPOE)

I wanted to thank you for publishing the editorial written by Karl Matuszewski (“The Emperor’s New Clothes?,” September 2003). I strongly agree with his comments.

The January 2003 First Consulting Group report estimates an average cost of $12 million for the implementation of CPOE per hospital, with an annual maintenance cost of 12% of the initial investment. According to this report, an estimated 5% of American hospitals currently use CPOE. One of the claimed benefits of CPOE is a reduction of prescribing and medication errors, although there are currently few scientific data available to substantiate this. As Dr. Matuszewski notes, not using CPOE is considered almost criminal by some self-appointed quality experts. This belief in CPOE is pervasive among health care workers.

I recently coordinated a visit by a director of pharmacy from a large hospital in South Korea, which utilizes a vast array of technology, including CPOE. As the director toured our area hospitals, the response was universal among our American pharmacists and hospital administrators. This use of CPOE alone universally led the Americans to instantly judge the Korean hospital as being very technically advanced.

When it comes to utilizing resources wisely to best ensure patient safety, we should remember the well-publicized events that occurred at a hospital using CPOE—Deaconess Medical Center in Boston—on November 13, 2002. This hospital experienced a four-day crash. This may be the first time in our literature that physicians have described such an event. Prior to CPOE, physicians may have been unaware of the magnitude of the impact of computer crashes on the functioning of hospitals. One of the contributing factors was the use of an extended network designed to meet the requirements of a much simpler environment. The program was overwhelmed by a combination of data volume and network complexity that exceeded the software’s specifications. The cause was not attributed to a worm or a virus.

As pharmacists, we are acutely aware of the potential impact of computer crashes on patient care. Although we might see delays from the time a drug is ordered until it is administered, we can also end up bypassing computerized checks for drug interactions, allergies, therapeutic duplications, dose-range checking, renal-dose checking, and diagnosis–contraindication checking. In some institutions where printed medication records are not available, drugs could be dispensed without a mechanism for the pharmacist to verify the original order. Medication errors might be more difficult to detect during “down-time.” Although it might not be possible to prove scientifically in a controlled down-time, many pharmacists may sense that computer down time can increase the risk of medication errors. We need to remember that the quality of health care delivered can only be as strong as our weakest link.

In the interest of patient safety, before spending millions of dollars on CPOE, we should first ensure the integrity and security of our information systems and drug-distribution methods. A hospital could rush to implement CPOE and still have major failures in the safety of the drug-distribution system. Implementing CPOE in a hospital fraught with drug-distribution errors would be like looking across the Grand Canyon without noticing what is down below. How often has our health care system accepted an expense of this magnitude based on so little science?

Other Safety Measures

Before we can implement any medication safety recommendations, we must carefully evaluate the impact within our environment. Although most of the recommendations issued by the ISMP are obviously the prudent action to take, some recommendations may have the potential to cause a greater risk of errors in certain environments. Many hospitals have implemented a multitude of software products, platforms, and interfaces that are commonly used via a growing network infrastructure. Hospitals utilize various methods of drug distribution. With this legacy, each hospital has the potential to have a unique environment.

The ISMP recommends the use of Tallman letters within drug names to emphasize the specific letters that differentiate it from other similarly spelled drugs. Although it sounds like a good idea, where are the data to support its effectiveness?

The most widely used drug database, First Data Bank, and many pharmacy software programs are case-sensitive. While First Data Bank and other vendors are scrambling to modify the architecture of their software to accommodate the use of Tallman letters, the customers ultimately pay the development costs. Implementing Tallman letters actually ended up increasing medication order-entry error rates in our system, which is case-sensitive. With the resources we have on our current software and architecture, we have developed other ways to prevent medication errors that work well within our environment.

Although recommendations from groups like ISMP are very valuable, each health care system should still be allowed the latitude to analyze its specific environment and to implement medication error-prevention measures that work with its system.

It is disconcerting to think that recommendations that are not proven scientifically by these groups might be claimed to be standards of practice in litigation.

References


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