

# TECHNOLOGY AND QUALITY



## Using IT to Drive Teamwork and Patient Safety

Barry P. Chaiken, MD, MPH

Almost two years ago, the Leapfrog Group, a consortium of large employers dedicated to fostering the delivery of safe, quality care to their employees, released a report calling for the use of information technology to enhance medication safety. The report, written by the First Consulting Group (FCG) but commissioned by Leapfrog, specifically called for the deployment of computerized physician order entry (CPOE) with clinical decision support (CDS) to reduce the incidence of medication errors ("Factsheet," 2000; Metzger, Stablein, & Turisco, 2002).

Additionally, a recent Institute of Medicine (IOM) report (2002) calls for the start of numerous demonstration projects to research the current problems in healthcare, and makes special mention of using information technology to address patient safety issues. This emphasis on patient safety is very much an extension of the work in the 2001 report titled *Crossing the Quality Chasm*. In that report, the IOM recommended several specific actions to bridge the quality gap in healthcare. The IOM reported that cooperation and communication was sub-optimal among differing professionals, and was one cause of poor quality of care.

Taken together, these reports strongly encourage the use of technology to improve clinical teamwork and workflow, and in turn help improve patient safety.

### Professional Silos

The existence of professional silos in healthcare is well known, something even noticed by the general public. In a recent article (Blendon, DeRoches, Brodie, Denson, Rosen, Schneider, Altman, Zapert, Herrman, & Steffenson, 2002), 67 percent of the public surveyed reported that medical errors were caused by lack of teamwork among clinical team members.

Although clinicians rely upon each other while providing care to patients, the nature of the training of these professionals does not foster the development of smooth lines of communication and cooperation. Each professional trains in a separate environment, with little opportunity to develop a foundation for easily working with other professions. Inadequate communication and poorly developed cooperation patterns often lead to inefficient and sub-optimal care.

Fortunately, the introduction of new clinical information technology tools is breaking down these communication barriers. The changed workflow brought on by these new clinical tools is making it easier for clinical professionals to work together, communicate and share their professional expertise.

For example, clinical team members constantly struggle to utilize the latest patient data when making care decisions. In acute care settings, nurses, who are close

to the patient data by their location in the hospital, may often work from information more current than that of physicians who may have seen the patient hours before. This inefficiency in the workflow inherently presents opportunities for errors and missteps. In addition, much physician and nurse time is devoted to searching for patient data and communicating the findings, a terrible use of professional time. By providing solutions such as physician web portals or personal digital assistants that offer access to current patient data remotely from the hospital, physicians and nurses can work from identical data sets and now spend their time in collaborative patient care.

Another example where clinical information technology can assist is in order entry. Nurses have long worried about their ability to interpret physician orders written hurriedly on an order sheet. The questionably illegible orders represent a process that forces a physician to use handwriting, a widely variable and inconsistent skill, to convey important facts and messages. Nurses, in turn, are required to interpret those variable orders and use their judgment on when to clarify or question them. Pharmacists face the same challenges. Although some institutions believe that training physicians in handwriting skills will solve this problem, others recognize that the process is faulty. They believe handwriting is an unreliable means of communication where exactness is a requirement.

### Clinical IT Tools to Rework Processes

Existing today are clinical information tools that offer a practical means to rework processes to facilitate quality care and enhance the cooperation among healthcare professionals. CPOE allows a physician to convey a treatment plan, represented by a set of orders, in a clear, concise way with distribution of those orders to each professional involved in the care of the patient (Chaiken & Holmquest, 2002). For medication orders, the drug ordered is rarely in doubt when using CPOE ("A primer," 2000; "AHA guide," 2000). The ward clerk or nurse no longer "interprets" the order. The pharmacist, when doing order verification, reviews an accurate electronic representation of the physician's intent, eliminating another area of interpretation. Overall, extra steps are eliminated, thereby reducing the potential for error by making the process both simpler and better.

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Before administration of a medication, a nurse is able to use medication storage cabinets electronically tied to the CPOE and hospital pharmacy system. These cabinets, driven by the original physician electronic order, accurately dispense medications on each ward.

At the time of medication administration, nurses utilize bar-code technology that performs automatic medication error checking to ensure the right patient, right medication, right dose, right route and right time. Each patient, nurse and medication is bar-coded in advance for tracking during the hospital stay. Specific instructions associated with that medication are presented to the nurse at the point of care during the time of medication administration. This process, using clinical information technology, builds a continuous thread of communication and intent from the physician order through the nurse administration of a medication.

### Benefits from Improving Processes

Improving processes and enhancing communication obtain clear benefits. Physicians, nurses, pharmacists and others can now focus on activities that truly impact patient care rather than those that are associated with clinical or administrative rework. Physicians receive fewer calls requesting clarification of orders. Nurses spend less time interpreting, debating and clarifying orders, and more time developing effective care plans and delivering patient care. Pharmacists devote less time interpreting physician intent and more time assisting physicians in the development of effective pharmaceutical treatment. Lastly, more efficient execution of medication orders can provide additional benefits through a quicker return to health by those being treated. Delays in delivery of therapeutics negatively impact recovery time, lengths of stay and overall costs of treatment.

Improvement of the medication management process is just one of many areas that clinical information technology, through its impact on clinician communication and workflow, can enhance quality of care. Better sharing of patient allergies and medications among clinicians allows the construction of a more accurate list that all clinicians could have access to and use. The same applies to current laboratory values and test reports. Ensuring that all clinicians are working from the same basic patient data increases the likelihood that the various decisions made and treatments applied work best, and synergistically, to make the patient well.

As clinical information technology tools are deployed in organizations, careful and well thought out planning is required to best take advantage of the capabilities inherent in the tools. Implementation of those solutions along the lines of current work processes is a plan destined to failure or at best maintenance of the status quo. In addition, to most effectively use these tools requires that the care processes themselves be reviewed and reworked. This approach helps ensure that the most optimum application of the solutions that

can deliver the greatest benefit is implemented. Enhancement of teamwork among clinical professionals, through the betterment of information transfer, workflow and communication, can deliver the desired improvement in patient safety expected from the deployment of clinical information technology solutions.

### BIOGRAPHICAL SKETCH

*Barry P. Chaiken, MD, MPH, Vice President of Medical Affairs, McKesson Information Solutions, has more than 16 years of experience in medical research, epidemiology, continuous quality improvement, utilization management, risk management, healthcare consulting and public health. Dr. Chaiken is currently on the Board of Directors of ABQAURP.*

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