Chapter X
Regional Patient Safety Initiatives:
The Missing Element of Organizational Change

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ABSTRACT

Data-sharing systems—where healthcare providers jointly implement a common reporting system to promote voluntary reporting, information sharing, and learning—are emerging as an important regional, state-level, and national strategy for improving patient safety. The objective of this chapter is to review the evidence regarding the effectiveness of these data-sharing systems and to report on the results of an analysis of data from the Pittsburgh Regional Healthcare Initiative (PRHI). PRHI consists of 42 hospitals, purchasers, and insurers in southwestern Pennsylvania that implemented Medmarx, an online medication error reporting systems. Analysis of data from the PRHI hospitals indicated that the number of errors and corrective actions reported initially varied widely with organizational characteristics such as hospital size, JCAHO accreditation score and teaching status. But the subsequent trends in reporting errors and reporting actions were different. Whereas the number of reported errors increased significantly, and at similar rates, across the participating hospitals, the number of corrective actions reported per error remained mostly unchanged over the 12-month period. A computer simulation model was developed to explore organizational changes designed to improve patient safety. Four interventions were simulated involving the implementation of computerized physician order entry, decision support systems and a clinical pharmacist on hospital rounds. The results of this study carry implications for the design and assessment of data-sharing systems. Improvements in patient safety require more than voluntary reporting and clinical initiatives. Organizational changes are essential in order to significantly reduce medical errors and adverse events.

PATIENT SAFETY

For more than a decade, studies in the United States (Brennan et al., 1991; Gawande et al., 1999; Leape et al., 1991; Thomas et al., 2000) and other countries (Baker et al., 2004; Davis et al., 2002, 2003; Vincent et al., 2001; WHO, 2004; Wilson et al., 1995) have reported that adverse events in health care are a major problem. These studies estimate that anywhere from 3.2% to 16.6% of hospitalized patients in the United States and Australia respectively experience an adverse event while hospitalized. A recent Canadian study of hospital patients estimated a rate of 7.5 adverse events per 100 hospital admissions (Baker et al., 2004). Over 70% 0f these patients experience disability and 14% die as a result of the adverse event. The Institute of Medicine (IOM) report, *To Err is Human: Building a Safer Health System* (Kohn, Corrigan & Donaldson, 2001), estimated that between 44,000 and 98,000 deaths occur in the United States each year as a result of medical errors. In fact, there is evidence that morbidity and mortality from medical errors increased between 1983 and 1998 by 243% (Phillips & Bredder, 2002).

A significant number of these errors involve medications. A meta-analysis of 39 prospective studies indicated that adverse drug reactions from medication errors account for a significant proportion of these events in the U.S. (Lazarou, Pomeranz & Corey, 1998). One study of medication errors in 36 hospitals and skilled nursing facilities in Georgia and Colorado found that 19% of the doses were in error; seven percent of the errors could have resulted in adverse drug events (ADEs) (Barker et al., 2002). ADEs also occur among outpatients at an estimated rate of 5.5 per 100 patients. A recent analysis of hospital emergency departments in the United States, estimated that ADEs account for 2.4 out of every 1000 visits (Budnitz et al., 2006). Based on these studies the Institute of Medicine recommended that confidential voluntary reporting systems be adopted in all health care organizations (IOM, 2001).

Traditionally efforts to reduce errors have focused on training, rules and sanctions. Also, hospitals have relied on voluntary reporting of errors. Currently only 5-10% of medication errors that result in harm to patients are reported (Cullen et al., 1995). As a result little progress has been made since the IOM report five years ago (Leape & Berwick, 2005).

Data Sharing Systems

Studies have indicated that adverse events in health care settings primarily result from deficiencies in system design (Anderson, 2003). A study of adverse drug events in Utah and Colorado estimated that 75% of ADEs were attributable to system failures (Gawande et al., 1999; Thomas et al., 2000). Consequently, there is growing consensus that improvements in patient safety require prevention efforts, prompt reporting of errors, root-cause-analysis to learn from these errors and system changes to prevent the errors from reoccurring.

Currently only 5-10% of medical errors are reported (Cullen et al., 1995). Incident reporting represents a major strategy to address growing concerns about the prevalence of errors in healthcare delivery (Billings, 1998). The Patient Safety and Quality Improvement Act was signed into law in 2005. This act encourages health care providers to report medical errors to patient safety organizations that are being created. Patient safety organizations are authorized to analyze data on medical errors, determine causes of the errors, and to disseminate evidence-based information to providers to improve patient safety. Currently, over 24 states have mandated some form of incident reporting (Comden & Rosenthal, 2002). Also, there has been a steady increase in the number of regional coalitions of providers, payers, and employers working to improve patient safety (Halamka et al., 2005). These efforts are driven

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