

Chapter 5.6

Regional Patient Safety Initiatives: The Missing Element of Organizational Change

James G. Anderson
Purdue University, USA

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

DOI: 10.4018/978-1-60960-561-2.ch506

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% of 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.

11 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

www.igi-global.com/chapter/regional-patient-safety-initiatives/53661

Related Content

Evaluation Challenges for Computer-Aided Diagnostic Characterization: Shape Disagreements in the Lung Image Database Consortium Pulmonary Nodule Dataset

William H. Horsthemke, Daniela S. Raicu, Jacob D. Furstand Samuel G. Armato (2011). *New Technologies for Advancing Healthcare and Clinical Practices* (pp. 18-43).

www.irma-international.org/chapter/evaluation-challenges-computer-aided-diagnostic/55135

Accuracy of the First Integrated Cone-Beam System for Computer Aided Implantology

Timo Dreiseidler, Jörg NeugebauerLutz Ritter, Daniel Rothamel, Robert A. Mischkowskiand Jochim E. Zöller (2010). *Informatics in Oral Medicine: Advanced Techniques in Clinical and Diagnostic Technologies* (pp. 184-203).

www.irma-international.org/chapter/accuracy-first-integrated-cone-beam/40446

Social Capital, An Important Ingredient to Effective Knowledge Sharing: Meditute, A Case Study

Jay Whittakerand John Van Beveren (2005). *Clinical Knowledge Management: Opportunities and Challenges* (pp. 297-314).

www.irma-international.org/chapter/social-capital-important-ingredient-effective/6590

Diagnostic Support Systems and Computational Intelligence: Differential Diagnosis of Hepatic Lesions from Computed Tomography Images

Stavroula Mougiakakou, Ioannis Valavanis, Alexandra Nikitaand Konstantina S. Nikita (2009). *Handbook of Research on Advanced Techniques in Diagnostic Imaging and Biomedical Applications* (pp. 60-75).

www.irma-international.org/chapter/diagnostic-support-systems-computational-intelligence/19588

Exploring Type-and-Identity-Based Proxy Re-Encryption Scheme to Securely Manage Personal Health Records

Luan Ibraimi, Qiang Tang, Pieter Harteland Willem Jonker (2011). *Clinical Technologies: Concepts, Methodologies, Tools and Applications* (pp. 391-411).

www.irma-international.org/chapter/exploring-type-identity-based-proxy/53597