



# Improving health and health care efficiency through risk management

Stacy J. Park, Adam L. Sharp

Department of Research and Evaluation, Kaiser Permanente Southern California, Pasadena, CA, USA

*Correspondence to:* Adam L. Sharp, MD, MS. Emergency Physician and Research Scientist, Department of Research and Evaluation, Kaiser Permanente Southern California, 100 S Los Robles Ave, 2nd Floor, Pasadena, CA 91101, USA. Email: adam.l.sharp@kp.org.

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It has been over a decade since the Institute of Medicine (IOM) reported a high prevalence of preventable adverse events due to medical error and emphasized the need for a national effort to make health care safe (1). Despite intense efforts to increase the safety within healthcare systems, the adverse event rate has not improved significantly (2-6). The question remains, why are we not observing a demonstrable and measurable clinical improvement? Fernández-Castelló and colleagues (7) pose a standardized approach to examine the clinical risks to be managed under the integrated risk management framework and conclude that the risk management framework is essential for the prevention of adverse events by allowing hospitals to continuously identify areas of risk, to manage uncertainties and ultimately optimize organizational readiness to addressing clinical risks.

Risk management within healthcare organizations seeks to establish the necessary framework and tools to proactively and systematically improve patients' quality of care while reducing operational and financial risks. The current focus of healthcare risk management is shifting from a primarily reactive environment to a proactive approach through predictive modeling and risk stratification to address risk beyond patient safety and medical liability. This comprehensive framework for risk assessment encompasses eight risk domains which includes operational, clinical and patient safety, strategic, financial, human capital, legal and regulatory, technological and environmental- and infrastructural- based hazards (8). The integrated risk assessment model utilized by the British United Provident

Association included leadership support, risk assessment scores and systematic processes to address the exposed risk. The potential clinical risks were assembled using the Joint Commission International (JCI) standards as a reference and applied to a hospital to identify the greatest risks based on impact and probability of occurrence in one year. This allowed the interdisciplinary health system leaders to prioritize the top (16%) risks and establish an action plan to monitor improvement.

Humans, and physicians specifically, are unable to appropriately assess risks and benefits of health care tests and treatments (9). A standardized, systems approach can assist frontline physicians and healthcare providers to identify areas of potential risk, improve diagnostic accuracy, and apply evidence-based treatments to improve patient outcomes and care efficiency. We have found the following key components to assist learning health systems to facilitate improvement: education, integrated decision support, measurement and feedback.

To avoid unnecessary radiation exposure to patients and improve care affordability, Kaiser Permanente Southern California targeted the overuse of computed tomography (CT) imaging after head injury. We implemented the Canadian CT Head Rule, an established evidence-based risk stratification tool in 13 Emergency Departments (EDs) (10). A multicomponent intervention included clinical leadership endorsement, physician education, and integrated clinical decision support. We found that incentivized on-line instruction was an effective and efficient way to educate physicians. This simple approach resulted in statistical

improvement in 12 of 13 participating EDs by decreasing CT use and increasing diagnostic yield to identify injuries.

Another key component to reinforce top health system priorities is the integration of decision support in the electronic health record to remind and sustain improvements. We found this to be a vital system intervention to improve antibiotic prescribing and diagnosis, and to align care with clinical recommendations (11). Our experience has been substantiated by others who have also demonstrated that hospital systems committed to improving antibiotic use can optimize the treatment of infections while reducing adverse events through integrated electronic decision support (12).

Finally, our most recent experience suggests that beyond education and integrated decision support, measuring and reporting performance can increase the effect of these interventions. We found that our efforts to improve the efficiency and quality of care for patients with suspected acute coronary syndrome was significantly benefitted by measuring and reporting physician documentation of the intended risk stratification tool (13). This effort led to improvements in hospital admissions, use of non-invasive cardiac stress testing and subsequently avoided the harms associated with invasive cardiac procedures for patients who don't benefit from such interventions (14).

In summary, standardizing the approach of health systems' efforts to improve the safety, quality and efficiency of health care is vital. Strategies to prioritize risk, or taking a systematic approach to education, use of risk-stratification tools and decision support, or performance reporting have all shown to be effective. We expect that the adoption of such systematic improvements will help to coordinate the complex, interdisciplinary delivery of healthcare to apply existing knowledge into routine health care to enhance health.

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