Policy Forum

Improving the Quality and Safety of Care at Loyola University Health System

The Center for Clinical Effectiveness at Loyola University Health System has taken steps to decrease medical errors and ensure patient safety.

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Besides keeping the public's trust, health care organizations have other reasons to implement programs to assure high-quality and safe medical care. For example, purchasers (eg, insurance companies, the federal government, and employers) recognize the relationship between quality of care and cost and are beginning to encourage providers (eg, physicians, hospitals, home health agencies, and nursing homes) to improve quality [1,2]. Regulatory agencies, such as the Joint Commission on Accreditation of Healthcare Organizations and Center for Medicare and Medicaid Services, and professional organizations, such as the American Hospital Association, Association of American Medical Colleges, and Federation of American Hospitals, are working to make information on quality and safety of hospital care readily available to the public [3].

Despite reports of successful individual improvement projects, most health care organizations struggle with the design and implementation of effective, system-wide quality improvement programs. In 2000, the University HealthSystem Consortium, a professional alliance of academic medical centers and affiliated teaching hospitals, completed a benchmark project designed to increase understanding of the organizational elements that predict a successful quality improvement system. They identified the following 8 factors as critical to success [4]:

1. Strong executive and performance improvement leadership,
2. Active involvement of the Board of Trustees,
3. Effective oversight,
4. Expert performance improvement staff,
5. Physician involvement and accountability,
6. Active staff involvement,
7. Effective use of information resources,
8. Effective communication strategy.

LUHS's Center for Clinical Effectiveness

Loyola University Health System (LUHS) has taken a multidimensional approach and has implemented a cohesive group of programs to further safe practices. The element discussed in this article, the Center for Clinical Effectiveness (CCE), is highlighted because it addresses systemic issues that affect safety. It is an important example of institutional commitment to safety and innovation in reforming potentially flawed systems.

Created in 1994 by LUHS leadership, the CCE (www.luhs.org/cce) directly supports explicit components of the LUHS strategic plan, ie, providing excellence in patient care, achieving predictable quality outcomes, and developing quality reporting for physicians, patients, and payers. The CCE's mission is to catalyze improvements in the quality and value of health care services available at LUHS. The unit's goals are to:

1. Prioritize and coordinate performance improvement,
2. Facilitate the adoption and creation of "best practices,"
3. Implement state-of-the-art quality improvement tools throughout LUHS, and
4. Communicate performance improvement work within LUHS and externally.

Performance improvement work requires a team with an eclectic set of skills and backgrounds. Among the CCE personnel are a full-time physician leader, a nurse coleader and chief administrator, quality improvement specialists with a variety of degrees including RN, Masters Organizational Development, MPH, MSW, MBA, a doctor of pharmacy (PharmD) with advanced training in pharmaco-economics, a data analyst and database administrator, and secretarial support.

Identifying Projects to Improve

System-wide Quality and Patient Safety

Each year, in collaboration with senior administrative and clinical leadership, CCE identifies a number of potential major, system-wide quality improvement projects. CCE then pursues a few projects based on how they (1) align with the institutional mission and strategic plan; (2) improve medical outcomes, health status, and access and patient, family, and caregiver satisfaction; (3) make a positive change to a key process by facilitating system integration and continuity in care; and (4) effect revenue, volumes, cost, and attractiveness to payers. CCE also considers project feasibility based on required resources, length of the project, impact on other programs, and availability of effective leadership.

During each of the past 5 years the Quality and Patient Safety Committee of the LUHS Board of Directors has chartered 2 to 3 major system-wide efforts to improve care. In each case, physician-led multidisciplinary teams executed the project while the Center for Clinical Effectiveness was responsible for logistics and project management. Below I briefly examine 3 major system-wide projects undertaken to improve both the quality and safety of care for selected patient populations.

Improving Primary Care of Patients with Asthma

In 1998 physician leaders became aware that LUHS had a significant opportunity to improve the care of its patients with persistent asthma. Using the National Institutes of Health Asthma Guidelines [5], the team focused its efforts on improving the use and documentation of home care plans, controller medications (inhaled steroids), spacers, and peak flow meters. Prior to this quality improvement focus, these processes were used and documented less than 30 percent of the time (Figure 1). Following improvement efforts, these key care processes occurred 80 to 95 percent of the time. Perhaps more importantly, the percent of patients requiring an emergency department visit or hospitalization decreased from 32 percent in the previous year to 13 percent.

Improving the Administration of Preoperative Antibiotics

The most common complications affecting hospitalized patients are infections acquired during their stay [6,7]. Surgical site infections are particularly common and serious, occurring in 2 to 5 percent of clean extra-abdominal surgeries. Patients who develop surgical site infections are 60 percent more likely to spend time in an ICU, 5 times more likely to be readmitted to the hospital, and have twice the incidence of mortality. Studies indicate that timely preoperative administration of appropriate antibiotics is effective in preventing infection.

In 2001 LUHS embarked on a project to improve the timely administration of antibiotics prior to surgery. Before the project was implemented, timely (within 60 minutes of incision) administration of preoperative prophylactic antibiotics occurred approximately 75 percent of the time. Performance has improved to 90 percent (Figure 2), and the project team continues to make improvements to reach its goal of administering antibiotics within 60 minutes of incision in every case.

Reducing Medication Errors through Computerized Physician Order Entry (CPOE)

Based on the enormous opportunities described by the Institute of Medicine's Committee on Quality of Health Care to improve the safety of medication therapy [8,9], in early 2000 LUHS implemented CPOE for medications for inpatients using an Eclipsys TDS7000, an older clinical information system originally installed in 1986. The primary outcome measure was the number of transcription-related medication errors intercepted by pharmacists and judged to be of moderate or major clinical importance. During the year prior to CPOE, transcription-related errors occurred at a mean rate of 72 per month and decreased to 57 per month during pilot unit implementation. During the 15 months following hospital-wide use of CPOE, the transcription error rate fell to just 4 per month, a 95 percent decrease ([Figure 3](#)). Overall prescription-related errors (that is, not only transcription-related errors) declined 36 percent, from 151 to 96 per month. LUHS is now implementing a state-of-the-art, intelligent clinical information system that should lead to further improvement in the safety of medication therapy.

A performance improvement unit capable of leading efforts to improve core, system-wide processes is but one institutional competency needed to improve the safety of medical care. Other key elements are creating a culture of safety and effective measurement systems [10-13]. Loyola University Health System is methodically pursuing each of these issues in order to provide care that meets each of the key goals for our health system established by the Institute of Medicine: safety, effectiveness, efficiency, timeliness, patient-focus, and equity.

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