Perioperative Quality and Improvement

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KEYWORDS

• Plan, Do, Study, Act • Perioperative quality • Surgical Care Improvement Project • Lean Six Sigma

KEY POINTS

- Measurement is important in increasing quality improvement.
- Teams in perioperative services will do well in their improvement efforts by learning and using Lean and Six Sigma PDSA (Plan, Do, Study, Act) methodologies.
- Perioperative quality starts with having clearly defined roles, responsibilities, and tasks in safety practices.
- Standard work is essentially composed of 3 elements: (1) the right work: the right way to do a task; (2) the right sequence; (3) the right time.

A CASE FOR QUALITY IMPROVEMENT

Health care quality and safety are becoming more transparent, and consumers will increasingly value a health care organization's (HCO) safety and quality rating in choosing where they go for surgery. The HCOs whose perioperative teams learn and apply quality improvement skills and help their organization improve such ratings faster than their competitors will also be more financially secure. Perioperative services are major drivers to a hospital's safety rating because of the dominance of surgical safety measures in the Centers for Medicare and Medicaid Services (CMS) Accountable Care Value-Based Purchasing Score[1] and a recent Consumer Reports hospital safety report.[2] Surgical services are often the most, or one of the most, profitable services, and loss of referrals and poor media reports will directly reduce margins.

In its August 2012 inaugural hospital safety report announcement, Consumer Reports shares with readers, "Infections, surgical mistakes, and other medical harm contribute to the deaths of 180,000 hospital patients a year, according to projections based on a 2010 report from the Department of Health and Human Services. Another 1.4 million are seriously hurt by their hospital care." This Consumer Reports publication states these mistakes are only from Medicare patients' experiences. The report

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shares that it is only reporting on fewer than 20% of the hospitals, because hospitals either choose that it is not important enough to report or are not required to report. Patients may have negative reactions to hospitals and health systems who avoid reporting.

The airline and automotive industries have publicly reported quality and safety for years. There is little doubt that consumers use these measures in their purchase decisions. Health care and surgical services will be no exception to this trend. This article's purpose is to guide leaders and perioperative staff in how to start improving perioperative quality and safety.

LEAD WITH MEASURE

Measurement is important in increasing quality improvement. More than 10% of patients undergoing colorectal surgeries experience an infection.[3] Three percent or more of patients who receive a coronary artery bypass graft (CABG) acquire an infection within the area of the chest or organ space.[4] Some major academic medical centers report CABG surgical-site infections (SSIs) 2 to 3 times higher than this rate. There are practices known to reduce the risk of infection, and organizations embracing quality assurance have improved virtually every Surgical Care Improvement Project (SCIP) measure,[5] including the choice and timing of a prophylactic antibiotic. This goal was accomplished using quality improvement methods discussed in this article. Yet many perioperative teams fail to train themselves in scientific improvement methodologies and in achieving compliance to these guidelines.

PENN MEDICINE IMPROVES COMPLIANCE

One example of an organization embracing improvement is the University of Pennsylvania Health System. These teams found the contributing factors in explaining failures in administering the antibiotic at the right time. The teams used Penn Medicine's Performance Improvement In Action (PIIA) problem-solving methodology, based on Lean, Six Sigma, and Change Leadership, to achieve a higher compliance. The teams learned this scientific methodology and applied measurement to understand the issue, analyze contributing factors, and judge the effectiveness of countermeasures. After achieving a level of compliance, they maintained measurement to control and sustain the gains in complying in the timing of antibiotics before surgery. Compliance of 100% is possible, as these teams discovered and proved.

IMPROVEMENT METHODOLOGIES

The steps gone through by the aforementioned team are often described as Six Sigma's Define, Measure, Analyze, Improve, and Control, with the acronym DMAIC. Six Sigma was developed by Motorola[6] to solve its quality issues back in the 1980s when it was losing market share and profitability because of poor quality. Motorola turned its quality around, crediting its Six Sigma, and became one of the first winners of the Malcolm Baldrige Award for quality. Six Sigma's roots go back to the 1920s when Shewhart and Deming pioneered scientific methodologies for team problem solving, and named their steps "Plan, Do. Study (Check), and Act" with the acronyms PDSA and PDCA. Only PDSA is used here for simplicity.

Lean is another common term in health care improvement, and is based on PDSA with an emphasis on reducing waste. Toyota is credited with developing a quality improvement methodology it calls the Toyota Production System, a foundation of Lean. Six Sigma, Lean, and PDSA are consistent with each other and are the most