Reducing Surgical Errors: Implementing a Three-Hinge Approach to Success

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ABSTRACT

Surgical errors can have serious consequences including patient deaths, and recent reports suggest that surgical errors continue to occur at unacceptable rates. Studies indicate that causative factors for surgical error include human factors, OR interruptions, staffing issues, and error-reporting trends. A "three-hinge" approach can be used to implement a safety program that emphasizes use of a safe surgery checklist and the Centers for Medicare & Medicaid Services reporting requirements for ambulatory surgery centers. The three hinges are the assignment of a change agent, ideally an RN with a doctorate in nursing practice; team cohesiveness; and continuous quality monitoring. *AORN J* 101 *(June 2015) 657-665. © AORN, Inc, 2015. http://dx.doi.org/10.1016/j.aorn.2015.04.013*

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No one person can ensure a patient's safety during a surgical event. Rather, patient safety is the responsibility of a cohesive team of skillful and conscientious individuals. Safety considerations are integral to perioperative processes, yet the rate of surgical errors remains high. Factors that affect safety include team cohesiveness, the team's ability to adapt to change, and sustained adherence to quality improvement measures. This article highlights the problem of surgical errors, presents a brief overview of causative factors, identifies evidence-based best practice interventions, and introduces a "three-hinge" surgical safety program implementation and evaluation model that may help guide surgical teams in making successful changes. Key facets of the safety program are an emphasis on use of a safe surgery checklist and the Centers for Medicare & Medicaid Services (CMS) reporting requirements for ambulatory surgery centers (ASCs).

PROBLEM AND SIGNIFICANCE

Two landmark reports published by the Institute of Medicine in 1999 and 2001 provided health care professionals with a wake-up call to increase care quality and safety and reduce costs.[1,2] The reports, *To Err Is Human: Building a Safer Health System*[1] and *Crossing the Quality Chasm: A New Health Care System for the 21st Century*,[2] detail health care-related errors and estimate that between 44,000 and 98,000 patients die each year as a result of these errors, many of which are surgery related.[1] Although these reports created an increased awareness that has led health care providers to implement various improvements, more than a decade later, concerns remain regarding the number of surgical errors.

In 2012, Mehtsun et al[3] undertook a rigorous analysis of national malpractice claims and estimated that 80,000 "never events" occurred in US hospitals during the 20-year period between 1990 and 2010. Never events, or sentinel events, are medical errors that result in severe adverse consequences (ie, death or significant disability).[4] Mehtsun et al[3] retrieved data from the National Practitioner Data Bank, a federal repository of medical malpractice claims. They identified malpractice judgments and out-of-court settlements totaling $1.3 billion related to retained foreign bodies and wrong-site, wrong-procedure, and wrong-patient surgeries. As a result of these errors, 6.6% of patients died, 32.9% experienced permanent injury, and 59.2% experienced temporary injury.[3]

In 2013, The Joint Commission reviewed 102 incidents of unintended retention of foreign objects; 109 wrong-patient, wrong-site, wrong-procedure events; and 77 operative/postoperative complications.[5] These statistics are alarming considering health care providers' increased focus on patient safety and quality care during the past decade.

LITERATURE REVIEW

Numerous research studies and health care literature reviews identify, establish, and verify factors that heighten the risk for surgical errors. Studies indicate that causative elements include human factors, OR interruptions, staffing issues, and error-reporting trends.

Human Factors

"Human performance can be affected by many factors such as circadian rhythms, state of mind, physical health, attitude, emotions, propensity for certain common mistakes, errors and cognitive biases."[6(p21)] Human factors in the OR can influence the occurrence of errors that include medication errors; procedural errors; errors involving the wrong site, procedure, or patient; foreign body retention (eg, gauze, sharps, instruments); and errors in execution (eg, inaccuracies in cutting, such as lack of precise direction, length, and depth control).

Findings of a research study conducted by Fabri and Zayas-Castro[7] suggest that human error is the leading cause of surgical error. Their study assessed underlying medical errors that contributed to surgical complications. Medical error data were collected during a 12-month period from 9,830 surgical procedures. Findings showed an overall complication rate of 3.4% (n = 332 patients), of which 78.3% were related to medical errors. Medical errors included

- errors in surgical technique (63.5%),
- judgment errors (29.6%),
- inattention to detail (29.3%), and
- incomplete understanding of the problem or surgical situation (22.7%).

In 20% of procedures during which an error occurred, the error was considered to be a mistake (ie, the wrong thing was done), with a high correlation of the error having occurred during evaluation (ie, before the procedure). In 58% of the procedures, the researchers considered the error to be the result of the right thing being done incorrectly, with a high correlation of the error having occurred during execution. System and communication errors each accounted for 2% of errors.[7] Fabri and Zayas-Castro found that the most frequent type of error was related to an "error in technique" and "was consistently reported as a slip occurring during execution."[7(p559)]