

# The surgical care improvement project

Jay A. Gold, MD, JD, MPH

**M**etaStar, along with other Medicare Quality Improvement Organizations nationwide, soon will be working in Wisconsin to implement the Surgical Care Improvement Project (SCIP), a partnership whose goal is to reduce the incidence of surgical complications by 25% by 2010.

A large percentage of operations result in preventable and sometimes fatal complications. The Institute of Medicine, in its groundbreaking report *To Err Is Human*,<sup>1</sup> highlighted a study of more than 44,000 operations at a large medical center from 1977 to 1990, which found that 5.4% of patients suffered complications, nearly half of them attributable to error. A 2003 study<sup>2</sup> found that postoperative complications accounted for up to 22% of preventable deaths among inpatients. Looking at 18 types of medical injuries during hospitalization, the study found that those events accounted for 2.4 million additional hospital days and \$9.3 billion in excess charges per year.

Such studies led the Centers for Medicare and Medicaid Services

(CMS) and the Centers for Disease Control and Prevention (CDC) to initiate the SCIP partnership, which is guided by a steering committee that includes—in addition to CMS and CDC—the American Hospital Association, the American College of Surgeons, the American Society of Anesthesiologists, the Association of periOperative Registered Nurses, the Joint Commission on Accreditation of Healthcare Organizations, the Institute for Healthcare Improvement, the Department of Veterans Affairs, and the Agency for Healthcare Research and Quality. The steering committee is supplemented by a technical expert panel from over 20 additional organizations.

The SCIP partnership is focusing on four broad areas where the incidence and cost of complications are high, and where there is an evidence-based consensus as to how to prevent them:

- Surgical site infections (SSIs) account for 14%-16% of all hospital-acquired infections.<sup>3</sup> They occur in 2%-5% of patients after clean extra-abdominal operations, and in up to 20% of patients undergoing intra-abdominal procedures. Among surgical patients, SSIs account for 40% of all such infections. SSIs can be reduced by starting prophylactic antibiotics within one hour of surgery, by using appropriate antibiotics, and by discontinuing antibiotics within a day of surgery.<sup>4</sup> By implementing projects to reduce SSIs, hospitals could realize a savings of

\$3152 and a seven day reduction in length of stay for each patient who develops an infection.<sup>5</sup>

- Adverse cardiac events occur in 2%-5% of patients undergoing noncardiac surgery,<sup>6</sup> and in as many as 34% of patients undergoing vascular surgery.<sup>7</sup> Certain perioperative cardiac events (e.g., myocardial infarction) are associated with a mortality rate of 40%-70% per event,<sup>8</sup> prolonged hospitalization, and higher costs.<sup>9</sup> Studies indicate that appropriately-administered beta-blockers reduce perioperative ischemia, especially in high-risk patients.<sup>7</sup> Nearly half of fatal postsurgical cardiac events could be prevented with beta-blocker therapy.<sup>8</sup>
- Venous thromboembolism: deep vein thrombosis (DVT) occurs after about 25% of all major surgical procedures performed without prophylaxis, and pulmonary embolism (PE) after about 7% of surgeries conducted without prophylaxis. More than half of major orthopedic procedures are complicated by DVT, and up to 30% by PE, if prophylactic treatment is not instituted.<sup>10</sup> Despite the well-established efficacy and safety of preventive measures, prophylaxis is often underused or is used inappropriately. Both low-dose unfractionated heparin (LDUH) and low-molecular-weight heparin (LMWH) have similar efficacy in DVT and PE prevention, but LDUH is approximately half the cost of LMWH. A 50% reduction of fatal PEs has been

Doctor Gold is Senior Vice President and Principal Clinical Coordinator, MetaStar, Inc. This material was prepared by MetaStar, the Quality Improvement Organization for Wisconsin, under a contract with the Centers for Medicare & Medicaid Services (CMS), an agency of the US Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy. Dr Gold wishes to acknowledge the work of Peter M. Houck, MD, MPH, and Dale W. Bratzler, DO, MPH, on which this article is based.

demonstrated with recommended prophylaxis using LDUH.<sup>9</sup>

- Postoperative pneumonia occurs in 9%-40% of patients and has an associated mortality rate of 30%-46%.<sup>11</sup> Many risk factors respond to intervention (e.g., elevating the head of the bed 30 degrees).<sup>12</sup> A conservative estimate of the potential savings from preventing postoperative pneumonia is \$22,000-\$28,000 per patient.<sup>13</sup>

Although some surgical complications are unavoidable, there is strong evidence that surgical care can be improved through adherence to proven practice recommendations and the use of systems of care with redundant safeguards. A number of recent projects have shown that implementation of evidence-based practices can have a significant impact on surgical complications. Implementation of the National Surgical Quality Improvement Program within the Veterans Health Administration resulted in a 27% reduction in surgery-related mortality.<sup>14</sup> Hospitals participating in the National Nosocomial Infections Surveillance system of the CDC have shown reductions of up to 44% in device-associated and surgical site infection rates.<sup>15</sup> And the national network of Medicare quality improvement organizations like MetaStar, working under contract to CMS, recently conducted a surgical infection prevention collaborative that effectively reduced surgical site infections by 27% at 56 centers across the country; two of these centers are Wisconsin hospitals.

CMS has launched a three-state (Oklahoma, Kentucky, Ohio) demonstration pilot to test the feasibility of collecting, reporting, and analyzing process and outcome measures for each of the four areas. Some of the process measures being collected about practices that could decrease surgical complications are

- Surgical site infections: On-time prophylactic antibiotic administration and discontinuation,

appropriate selection of prophylactic antibiotics, control of perioperative serum glucose.

- Adverse cardiac events: Perioperative administration of beta-blockers.
- Venous thromboembolism: Appropriate perioperative prophylaxis for VTE.
- Postoperative pneumonia: Semi-recumbent position for ventilation.

Outcome measures that the SCIP pilot is collecting include the following rates: 30-day mortality, readmission, postoperative wound infection, intra- or postoperative acute myocardial infarction, intra- or postoperative cardiac arrest, intra- or postoperative pulmonary embolism, intra- or postoperative DVT, and postoperative pneumonia.

The SCIP partnership believes that a meaningful reduction in surgical complications requires surgeons, anesthesiologists, perioperative nurses, pharmacists, infection control professionals and hospital executives to work together to make surgical care improvement a priority. MetaStar will be seeking the support of Wisconsin practitioners and hospitals to make this promise a reality.

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