

The Surgical Care Improvement/ Heart Failure Project

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Some years ago, the *MetaStar Matters* columns in the *Wisconsin Medical Journal* concerned MetaStar's work on its Surgical Care Improvement Project (SCIP)¹ and its project on heart failure (HF) care.² Per its contract with the Centers for Medicare & Medicaid Services (CMS), MetaStar has continued to work in these areas, combining the projects into a single SCIP/HF project. MetaStar is working directly with 5 Wisconsin hospitals to improve care in these areas, but the topic will be of interest to the many surgeons and physicians who work in these areas.

This project seeks to improve care as measured by 9 separate indicators. All 9 are based on strong evidence and are embodied in accepted treatment guidelines; the articles cited above reference many of the relevant studies. The first article also cites strong evidence that surgical care can be improved through adherence to proven practice recommendations and the use of systems of care with redundant safeguards.

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The measures and their rationales follow.

- Inf 1: Surgical patients with prophylactic antibiotics initiated on time—within 1 hour prior to surgical incision (2 hours if receiving vancomycin or fluoroquinolone). The lowest incidence of post-operative infection is associated with antibiotic administration within this window.
- Inf 2: Surgical patients who received prophylactic antibiotics consistent with current guidelines (specific to each type of surgical procedure).
- Inf 3: Surgical patients whose prophylactic antibiotics were discontinued within 24 hours after surgery end time (48 hours for coronary artery bypass graft [CABG] or other cardiac surgery). Administration of antibiotics for more than a few hours after the incision is closed offers no additional benefit to the surgical patient but increases the risk of *C. difficile* infection and the development of antimicrobial resistant pathogens.
- Inf 4: Cardiac surgery patients with controlled 6 a.m. post-operative serum glucose (less than or equal to 200 mg/dL) on postoperative days 1 and 2. Hyperglycemia has been associated with increased in-hospital morbidity and mortality.
- Inf 6: Surgical patients with appropriate hair removal. No hair removal, hair removal with clippers or depilatory is considered appropriate. Shaving is considered inappropriate. Shaving causes multiple skin abrasions that later may become infected.
- VTE 1: Surgery patients with recommended venous thromboembolism (VTE) prophylaxis ordered any time from hospital arrival to 24 hours after surgery. Surgery is associated with over a 20-fold increase in the odds of being diagnosed with VTE, and thromboprophylaxis has been found to have a positive risk-benefit ratio. Appropriate thromboprophylaxis varies depending on the procedure.
- VTE 2: Surgery patients who received appropriate VTE prophylaxis within 24 hours prior to surgery to 24 hours after surgery. The measure definition was based on a technical expert panel recommendation in order to establish a time-frame that would encompass most procedures.
- Card 2: Surgery patients on a beta blocker prior to arrival who received a beta blocker during the perioperative period, defined as 24 hours prior to surgical incision through discharge from post-anesthesia care/recovery area. Discontinuation of beta-blocker therapy in the perioperative period is associated with increased one-year mortality.
- HF 3: Heart failure patients with

left ventricular systolic dysfunction (LVSD) without angiotensin-converting enzyme inhibitor (ACEI) and angiotensin receptor blocker (ARB) contraindications who are prescribed ACEI/ARB at discharge. LVSD here is defined as having a left ventricular ejection fraction <40% or a narrative description consistent with moderate or severe LVSD. ACEI and ARB have been shown to reduce morbidity and mortality in patients with heart failure and LVSD.

Data for this project are reported by participating hospitals each quarter to a central data warehouse. Baseline rates for some of the measures were quite high,

but others showed considerable opportunity for improvement. At this point, MetaStar is focusing on the following 5 measures: Inf 1, VTE 1, VTE 2, Card 2, and HF 3.

Unlike many measures that are used in quality improvement projects, these measures depend directly on physician/surgeon decision making. Unfortunately, even where physicians are thoroughly convinced of the rightness of particular medical treatments, patients do not universally receive them. The use of standing orders, protocols, and critical pathways has been found to make it more likely that these best practices will be followed.

The use of checklists also is highly recommended.

Teamwork, too, is essential. As we wrote 5 years ago, “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.”¹

References

1. Gold JA. The Surgical Care Improvement Project. *WMJ*. 2005;104:73-74.
2. Gold JA, Rahko PS. ACE inhibitors vs. angiotensin II receptor blockers in acute myocardial infarction and heart failure. *WMJ*. 2004;103:71-72.



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