Surgical Care Improvement Project in the Value-Based Purchasing Era: More Harm Than Good?

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(See the Editorial Commentary by Bratzler on pages 428–9.)

The Surgical Care Improvement Project (SCIP) started in 2006 as a core measure to reduce perioperative morbidity and mortality, with many measures addressing perioperative antibiotic usage and timing. However, measures are often rolled out without consideration of their full impact, causing confusion, frustration, and possibly patient harm. We have provided examples of each. The institution of SCIP has markedly increased the compliance to its measures but little evidence shows that it provides any substantial benefit to patients, whereas this improved compliance comes at the cost of significant time, money, and staff resources. Despite this, several SCIP measures, which are currently incorporated into quality contracts, will be tied to Medicare reimbursement in 2013 under value-based purchasing, with third-party payers likely following suit. This may lead to inappropriate lower compensation of hospitals providing good care with questionable effects on patient outcomes.

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The Surgical Care Improvement Project (SCIP), one of the Joint Commission Core Measures of hospital quality, was started as part of an ongoing Quality Initiative project run by a national partnership between the Centers for Medicare and Medicaid Services (CMS) and the Centers for Disease Control and Prevention (CDC). The Core Measures were launched in an effort to ensure “quality healthcare for all Americans through accountability and public disclosure” [1]. The information was intended to provide consumers with enough information to make informed decisions about where they wanted to receive their healthcare and at the same time challenge providers and clinicians to improve the quality of healthcare. Surgical Infection Prevention was initiated as a Core Measure in 2003 and was expanded and renamed SCIP in July 2006. The SCIP partnership is coordinated by a steering committee of 10 national organizations, including CMS, the CDC, the Joint Commission, and the Agency for Healthcare Research and Quality. It receives advice from a technical expertise panel of >20 national organizations. The goal of SCIP was to make national recommendations to reduce surgical mortality and morbidity, ostensibly by 25% within 5 years. The first of these recommendations included policies on perioperative antibiotic use and many of the subsequent policy recommendations are regarding methods to reduce infections in the postoperative period. These include the timing of prophylactic antibiotics (within 60 minutes prior to incision), the selection of antibiotics, and the prompt discontinuation of antibiotics postoperatively. Originally SCIP focused on a limited number of criteria (SCIP 1 and SCIP 2) for a select group of inpatient surgical procedures, but as time has progressed, more criteria have been added as well as outpatient procedures. Although the goals of SCIP seem reasonable, the execution has the potential to...
produce frustration and inhibit the feeling of a collegial partnership on the part of the clinicians and administrators working to comply with these measures. Now, as CMS is planning to tie compliance with SCIP measures to reimbursement in fiscal year 2013 and with other insurance companies likely to follow suit, the difficulties in SCIP compliance are more important than ever. Addressing these issues is important because SCIP is a forerunner of many more quality initiatives being developed for the future. Failing to articulate the problems may create a cascading effect that can cause significant financial hardship for hospitals in the years to come.

There have been several examples of poor planning in regard to adding procedures covered under the SCIP umbrella that contribute to a sense of being thrust into a poorly developed program. The first of these occurred in April 2008 when many outpatient procedures were added, including “insertion of gastrostomy tube, percutaneous, under fluoroscopic guidance including contrast injection(s), image documentation and report” [2]. At first glance, the procedure appears to be a reasonable one to include, but confusion arises when one considers the replacement of a previously placed percutaneous endoscopic gastrostomy tube under fluoroscopic guidance. There is no incision for such a case and thus antibiotics cannot be given within 60 minutes of incision, automatically failing the SCIP measure. The codes were not updated to exclude percutaneous endoscopic gastrostomy tube revisions until January 2009; meanwhile, all hospitals failed the measure repeatedly for 8 months [3]. At the same time, providers were also struggling with the addition of what appeared to be a random sample of podiatric procedures added to the list of covered outpatient procedures [2]. These were procedures for which many podiatrists and orthopedic surgeons were not routinely administering preoperative antibiotic prophylaxis, and evidence for doing so was lacking. Because of the lack of evidence and indeed of logic to explain why some types of foot procedures might require antibiotics while others did not, it was quite difficult to keep track of which procedures should receive antibiotic prophylaxis. Further inquiry revealed that the list originated as a request from the American Podiatric Medical Association [4]. Subsequently, the podiatric procedures were removed from later revisions due to, according to SCIP officials, the fact that “antibiotic prophylaxis may be controversial” [5] but again not until 8 months after the rule had been introduced, with many failures resulting from it [3].

The choice of antibiotic used for prophylaxis has generated both concern and confusion. In April 2008, the acceptable prophylactic antibiotics for transrectal prostate biopsies were listed as a quinolone, OR aminoglycoside + metronidazole, OR aminoglycoside + clindamycin, with the latter 2 combinations reserved primarily for patients with quinolone allergies [2]. However, these choices do not take into account the increasing rate of quinolone resistance in many urologic pathogens, especially *Escherichia coli*. In our institution in the year prior to this publishing, we had 3 cases of *E. coli* bacteremia related to transrectal prostate biopsies, 2 of which were resistant to ciprofloxacin. Our institutional microbiologic data revealed a high rate of resistance to quinolones among *E. coli* (the most common urinary pathogen) in outpatient urine specimens. These initial choices were made based on unpublished (at the time) American Urologic Association (AUA) guidelines. None of the authors of these guidelines was an infectious disease expert, adding to the sense of being ill-prepared. Further, the SCIP guidelines failed to take into account one of the most important lines in the AUA guidelines, that “in all cases, the absence of an agent in the Table does not preclude its appropriate use, depending on specific situations—including medication intolerance, agent compatibility, prior infection history of the patient, and community resistance patterns” [6]. The SCIP measure forced some hospitals to make the choice between a possibly inferior agent or a potentially nephrotoxic agent (ie, the aminoglycoside), both increasing the risk to the patient. The SCIP measure was updated to appropriately include second- and third-generation cephalosporins in July 2009 to reflect changes in the AUA guidelines, more than a year later.

As a final example, in March 2011 it was noticed that there was an issue related to abstraction validation and the diagnosis of avascular necrosis, a not uncommon cause of hip replacement. Given that “necrosis” was in the diagnosis, the abstraction guidelines required a “yes” answer to question of prior infection before surgery. Thus, all of these cases were inappropriately excluded from SCIP measures. Although no direct harm was done to patients, the issue was not able to be resolved until January 2012. All of the above show the lack of forethought before the implementation of additions to SCIP measures. Measures are rolled out before their full impact is assessed, using live hospitals as the testing ground and relying on the individuals trying to comply with these measures to troubleshoot. When issues do arise that require the measures to be changed, response times are invariably at least 6 months; meanwhile patients may be at risk, and measures are consistently failed. While each of the above issues has eventually been resolved, and occurred during an era prior to value-based purchasing, hospitals remain fearful that with the continued evolution of SCIP, further unforeseen issues are sure to arise, and those would be tied to reimbursement. At our institution, even a small number of misses can result in major losses in compensation. For example, missing antibiotics within 60 minutes of incision in 10 out of about 700 patients would result in missing our compensation threshold with a private insurer. Last month alone, 2 were missed as they were emergent cases in which the patient went directly into surgery.
This also highlights that when CMS makes changes, private insurers are likely to follow.

Dr Dale Bratzler, the medical director for the quality improvement organization that had a contract to support SCIP, has stated repeatedly that he does not expect compliance with these measures to be 100% as he reasonably understands that, despite extensive exclusion criteria, there are always exceptions (D. Bratzler, personal communication. 4 March 2011). However, in 2013 these measures will be tied to Medicare reimbursement under the value-based purchasing plan, a program mandated by the Affordable Care Act of 2010. The current thresholds to avoid penalty on the SCIP measures included in this plan are all >95% with the mean of the top decile (the benchmark) being 100%. Hospitals will receive “achievement points” based on where they fall in this range in relation to all other hospitals. A total score is eventually calculated and CMS then redistributes a previously withheld 1% of diagnosis-related group income based on this score. This is essentially a competition between hospitals, punishing the lower scoring institutions while rewarding those that scored higher. Is withholding money from lower-scoring institutions the best way for them to improve?

All this does not even take into account third-party payers, who will likely follow Medicare’s lead and tie some or all of these measures to reimbursement, possibly requiring 100% compliance for full reimbursement as there are plenty of hospitals with 100% compliance. A hospital with 97.5% compliance may be penalized, and it may take a significant financial expenditure and use of staff resources to increase that compliance from 97.5% to 98.5% with minimal or unclear gains to patients. While the original expectation by Dr Bratzler was not 100% compliance, the new expectation may be very different. While the effect of any single issue mentioned above is likely to be small, in aggregate the effect is significant, especially when small differences can make a large impact on reimbursement. These dilemmas reflect the larger problem of applying large-scale bureaucratic measures to something so complex as a patient.

There is ample evidence to show that there has indeed been a substantial increase in compliance with these measures (up from as low as 40%), and improved standardization of care is rarely a bad thing [7]. However, there is opposing evidence suggesting that patient outcomes have not improved, especially in the area of surgical site infections, with most studies showing no benefit [7–12]. Some, but not all, of these studies have been criticized for not using individual patient data, [8, 9] and, although results presented by the SCIP program members at the Infectious Diseases Society of America national conference in October 2011 did show a reduction in surgical site infections with the introduction of the SCIP program, the true effect remains unclear [13]. A myriad of reasons for a possible lack of association between the SCIP measures and reduction in surgical site infection have been suggested, including that baseline infection rates may have increased as a result of improved reporting, masking any decrease from process improvement. The bundle of measures may be imperfect, lacking some key elements for infection control [14]. Some have suggested a “SCIP-plus” approach, incorporating measures that take into account individual patient populations at greater risk, active staphylococcal surveillance, and preadmission antiseptic showering [15]. Perhaps the incremental benefit is so subtle that the studies conducted thus far did not have the power to observe it. In any case, it is somewhat unclear whether the current SCIP measures have an effect on patient outcomes, despite a significant expenditure of time and money. For example, to comply with SCIP-Inf-4 (Cardiac Surgery Patients With Controlled 6 AM Postoperative Blood Glucose), diabetic patients at our institution are often kept in the intensive care unit on an insulin drip (a nationally recognized practice at many institutions), as we found it was very difficult to achieve this goal otherwise. This clearly increases costs significantly, but is it possible that the intent of this goal (glucose control) could be achieved without such a strict rule? To continue to enforce these measures given the lack of clear benefit will likely only result in further frustration at the individual hospital level without any advantage to patients.

Although a pay-for-performance model has its merits, how it is implemented using SCIP in the value-based purchasing era has significant issues as noted above. Because the most effective and sustaining drive for change comes from within, would it not be more reasonable to consider allowing transparency and public reporting to provide the external leverage for change, rather than the threat of financial loss? The loss of funds may limit a faltering program’s ability to improve at all. Even if these programs that affect a hospital’s national and local reputation were not considered adequate, The Joint Commission is now using scores from the Core Measures as part of the accreditation process and therefore a means for pushing the envelope for change. Finally, these programs are not static, but are continually evolving and adding to the outcome measures (mortality), the process measures (SCIP), the patient experience measures (patient surveys), and patient safety measures. Tying reimbursement to all of this takes on the appearance of withholding compensation for care delivered and not an incentive for improving the quality of care. While those hospitals that provide excellent care should be rewarded, the current system may unnecessarily punish even high-performing hospitals, resulting in a “ceiling effect” when everyone is in good compliance. Measures that incorporate outcomes may ameliorate this effect as there is likely to be a larger disparity. Incentivizing good outcomes rather than punishing slightly less than perfect compliance with process measures may make a larger impact on the improvement of patient care.
We heartily support the concept of improving the quality of care, standardizing that care when possible, and recognizing those institutions that succeed in this effort. However, we believe that to do this well, the issues brought forth must be recognized and addressed to help transform these programs into successful endeavors for the future.

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