

# Partnering with payers to improve surgical quality: The Michigan plan

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WITH GROWING RECOGNITION that surgical outcomes vary widely across providers,<sup>1-4</sup> employers and payers are becoming more actively involved in strategies for improving the quality of surgical care.<sup>5</sup> Employers have obvious interests in minimizing productivity losses from employees undergoing surgical procedures. With ever-rising health care costs, purchasers and payers are also increasingly aware of the financial implications of surgical complications. According to one recent analysis, major complications add over \$11,000 to the baseline cost of a surgical procedure.<sup>6</sup>

Payers are using a variety of tactics to improve surgical outcomes. Some are focusing on selective referral strategies. For example, the Leapfrog Group<sup>5,7,8</sup> is using public reporting, selective contracting, and a variety of financial incentives to steer patients to hospitals or surgeons likely to have the best results. However, many payers are shifting their focus to “pay-for-performance” (P4P) strategies, using direct financial incentives to motivate quality improvement. With P4P, hospitals are rewarded for meeting specific performance benchmarks, as determined by process of care or direct outcome measures. For example, in a new P4P initiative launched by the Center for Medicare and Medicaid Services, hospitals scoring in the top decile of performance (based on a composite of 8 quality indicators) for coronary artery bypass will receive a 2% bonus on their Medicare payments for this procedure.<sup>9,10</sup> Similarly, both Centers for Medicare & Medicaid Services (CMS) and many private payers are implementing P4P plans focused on the appropriate use of perioperative antibiotics.

Although interest in P4P continues to gain momentum, there are several reasons for pessimism about the ultimate effectiveness of these strategies. First, as currently formulated, bonuses in P4P plans are too small to motivate major infrastructure upgrades (eg, computerized physician order entry systems, intensive care unit physician staffing). Second, current P4P programs in surgery are unlikely to change behavior because they go to hospitals, not surgeon decision makers. Third, P4P plans are limited by inherent problems in measuring surgical performance. Direct outcomes measures are flawed by sample size problems,<sup>11</sup> as well as the lack of a clinical data infrastructure on which to track provider outcomes with appropriate risk adjustment.<sup>5</sup> Although easier to measure, process measures (eg, prophylactic antibiotic use) often relate to secondary outcomes and account for little of observed variation in provider outcomes. Finally, in rewarding some providers while (at least indirectly) punishing others, some worry that P4P creates a competitive environment among hospitals that ultimately hinders meaningful quality improvement.

In this report, we describe a more collaborative and potentially more effective “pay-for-participation” model for improving surgical quality. Funded by a single large private payer, this initiative aims to improve the safety and effectiveness of cardiac surgery, bariatric surgery, and other major general and vascular procedures in Michigan.

## OVERVIEW

Blue Cross Blue Shield of Michigan and Blue Care Network (BCBSM) have decided recently to fund statewide surgical outcomes registries and quality improvement programs in cardiac, bariatric, and other areas of general and vascular surgery. The 3 projects are “pay-for-participation” rather than “pay-for-performance” incentive programs. Thus, hospitals (and their physician groups) are compensated for their data collection efforts and participation in quality improvement activities—regardless

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of their individual performance and how they rank relative to other hospitals. Success of the programs will be judged primarily according to improvement in statewide performance measures.

The 3 programs are patterned after the Blue Cross and Blue Shield of Michigan Cardiovascular Consortium (BMC<sup>2</sup>).<sup>12</sup> Launched in 1997, BMC<sup>2</sup> maintains a statewide clinical outcomes registry of patients undergoing percutaneous coronary intervention (PCI). The registry now includes data from more than 65,000 consecutive patients from 18 participating hospitals in Michigan. Quarterly meetings of the BMC<sup>2</sup> participants coincide with the generation of reports providing information on risk-adjusted outcomes to each hospital and individual operator. Links between process of care and outcomes are examined systematically to identify best practices, which are then implemented region-wide. For example, such analyses have prompted greater use of preprocedure aspirin and glycoprotein IIb/IIIa blockers and lower use of postprocedure heparin and contrast media. These changes in practice have resulted in significant reductions in rates of nephropathy requiring dialysis, stroke or transient ischemic attack, and in-hospital death after PCI.<sup>13</sup>

Based on its experiences with PCI, BCBSM decided to extend this model to other common, relatively high-risk surgical procedures. In developing and funding new improvement-oriented clinical registries, it established several key elements and guiding principles.

**Rigorous and efficient systems for data collection.** Data should be collected according to clear and unambiguous coding rules and definitions to ensure standardized measurement. These definitions should conform to established norms and conventions whenever possible to enhance comparability with existing literature. For cost efficiency data collection should be limited to the minimum set of data elements required to assess and improve the quality of care. These elements should include data on the processes and outcomes of care as well as patient characteristics necessary for risk adjustment. Data collection instruments should have the flexibility to accommodate new evidence, changes in health care delivery, and technologic innovations. Finally, data completeness and accuracy should be ensured with multitiered data auditing.

**Explicit platform for quality improvement.** Projects should go beyond data collection and performance feedback—they should have an explicit mechanism for guiding quality improvement activities. Toward this end, each site is required to designate one or more clinical champions and a

coordinator for the project for whom participation in collaborative meetings (held 2 to 4 times per year depending on the project) is mandatory. At these meetings, outcomes that vary across hospitals are flagged as potential opportunities for improvement. Relationships between outcomes and measured processes of care are examined empirically to identify potential interventions for quality improvement. Participants agree on a limited number of such interventions to implement within their institutions and commit at subsequent meetings to assess their effects and how they might be subsequently refined or modified.

**Data confidentiality and trust.** Data collected in these projects should not be used to reward or punish the performance of the participants but to guide collaborative quality improvement efforts. Whereas the reports allow the providers to compare their own performance to others individually and in aggregate, the identity of individual physicians and hospitals is strictly protected. BCBSM requires annual reporting of data sufficient to show that each provider is contributing data in an accurate and timely fashion and participating in the group's quality improvement efforts. Otherwise, BCBSM representatives only have access to aggregated data sufficient to judge the effectiveness of the effort region-wide.

## **SPECIFIC PROJECTS**

The 3 new surgical quality improvement initiatives target procedures for which performance is believed to vary widely (cardiac surgery, bariatric surgery, and other major general and vascular procedures). The 3 projects share common purposes: to foster regional collaboration between hospitals and surgeons, to identify variations in both practice and outcomes and thus opportunities for improvement, and to implement improvement activities and evaluate their effectiveness. With each of the 3 projects, BCBSM is funding a substantive share of the cost of data collection at the participating sites (via supplements to established DRG payments). It also funds centralized functions related to data audit, analysis, and reporting as well as regular meetings of the participants. The participating hospitals are required to designate one or more surgeons as their "clinical champion(s)," as well as a nurse or administrator coordinator. These individuals are responsible for timely and accurate data collection at their sites, for attending (in person) quarterly quality improvement meetings, and for ensuring implementation of improvement efforts at the local level. Although the projects share many common features, they differ in many

**Table.** Detailed comparison of the 3 new Blue Cross Blue Shield of Michigan and Blue Care Network data registry/quality improvement projects

Category	Cardiac	General/vascular	Bariatric
Procedures	Coronary artery bypass and cardiac valve procedures (~30,000 patients per year)	Systematic sample of major general and vascular procedures (~30,000 patients per year), plus oversampling of patients undergoing certain procedures of interest	Bariatric surgery (~6,000 patients per year)
Hospitals	30 hospitals participating in the Michigan STS	15 relatively large hospitals	20 to 30 hospitals performing bariatric surgery
Measurement platform	National STS Registry	American College of Surgeons NSQIP Registry	Registry developed for this purpose
Data analysis/reporting center	Duke Clinical Research Institute	University of Colorado Health Outcomes Program	University of Michigan Surgical Center for Outcomes Research and Evaluation
Process of care variables	Standard STS measures (IMA use, minimally invasive/off-pump approaches, valve prosthesis type, bypass and ischemic times), plus additional process of care variables	Common perioperative processes (eg, antibiotic use), procedure-specific processes to be determined	Antecedent evaluation and treatment, type/details of bariatric procedure, follow-up treatment
Main performance measures	Standard STS (operative mortality, reoperation, stroke, deep sternal wound infection, renal failure, and prolonged ventilatory support, LOS)	Standard NSQIP (specialty-specific operative mortality and morbidity, 21 surgical complications); procedure-specific performance for selected operations	<ul style="list-style-type: none"> <li>• Short term: operative mortality and complications</li> <li>• Long term: weight loss, comorbidity resolution, need for further interventions, mortality</li> </ul>
Data verification and audit system QI platform	Training program for data collectors and software checks for completeness, consistency, and out of range values, and site visits for data audit Local analysis and feedback of regional process/outcome linked data, collaborative meetings and academic support for the design, implementation, and evaluation of the consortium's quality improvement efforts		
Annual costs	\$1.2 million	\$2.9 million	\$800,000

STS, Society of Thoracic Surgeons; NSQIP, National Surgical Quality Improvement Program; QI, quality improvement; IMA, internal mammary artery; LOS, length of stay.

important respects, including the extent to which they build on existing regional or national efforts (Table).

**Cardiac surgery.** Administered by the Michigan Society of Thoracic and Cardiovascular Surgeons, the cardiac surgery improvement project involves cardiac and thoracic surgeons from 31 hospitals involved in open heart surgery. All centers and surgeons submit data to the national cardiac surgery registry of the Society of Thoracic Surgery,<sup>14,15</sup> which includes data on patient characteristics (for risk adjustment purposes), selected processes

of care (eg, preoperative medications, operative details), and outcomes, including mortality, reoperation for bleeding, sternal wound infection, stroke, and others. As with any hospital participating in the STS program, hospitals and surgeons receive quarterly reports summarizing their practices and performance relative to both national and regional benchmarks.

Funding from BCBSM will add value to the Michigan STS effort in several important ways. First, it will allow for systematic data auditing to assure data accuracy and completeness (currently,

the STS National Cardiac Database relies on voluntary data submission and is not audited). Second, payer funding will allow for local analysis of the data and explorations between process of care and outcomes, thus establishing local control and direction of quality improvement efforts. Finally, funds from BCBSM will provide the resources necessary for coordinated quality improvement activities and the expertise to guide them.

**Major general and vascular surgery.** With involvement by the 15 largest hospitals in Michigan, this project will make use of data collection and analysis instruments developed by the National Surgical Quality Improvement Program (NSQIP). Originally developed for use in Department of Veterans Affairs' hospitals, NSQIP is being promoted widely by the American College of Surgeons for broader adoption in the private sector. Trained nurse reviewers collect information about patient characteristics and outcomes (including 21 different complications) on a sample of patients undergoing major general or vascular surgical procedures. Data are transmitted electronically to a national NSQIP data coordinating center, which generates regular reports on hospital performance (in the form of observed to expected ratios for operative morbidity and mortality, overall and by specialty).

As with the cardiac surgery project, BCBSM funding adds value to a preexisting quality measurement program. It will allow Michigan surgeons and investigators to collect 100% samples of patients undergoing procedures of specific interest, eg, surgery for colon cancer and carotid artery disease. Funding will make it possible to collect data on process of care variables, currently lacking in NSQIP. And finally, it will provide data for local data analysis linking process to outcomes, a key requirement for meaningful quality improvement.

**Bariatric surgery.** Of the 3 projects, the bariatric surgery project is the only one that does not build upon a preexisting quality measurement platform. All of the hospitals performing bariatric surgery in the state (currently 60) have been invited to participate. The clinical registry will include data pertaining to patient characteristics and processes of care, such as those used in selecting patients for surgery and technical details related to the procedure itself. As with the other 2 projects, perioperative morbidity and mortality will be important measures of performance. However, the bariatric surgery project will also focus on longer-term measures of surgical effectiveness, including patient

weight loss, comorbidity resolution, and need for further interventions.

### **CHALLENGES FOR THE FUTURE**

In many ways, Michigan is particularly fertile ground for payer-sponsored quality improvement initiatives. First, Michigan is home to several very large employers (including those in the auto industry) with a long history of seeking value (quality as well as low price) for the health care that they purchase. Second, Michigan is dominated by a single private payer (BCBSM), which controls approximately two thirds of the state's private health care market and about 50% of the market overall. Although BCBSM does not compel hospitals to participate in its quality improvement initiatives, its market position gives it significant leverage in this regard. It also ensures that BCBSM's investments in surgical quality will substantially benefit patients in its own health plans. And finally, a statewide quality improvement project has been successful in Michigan before. The angioplasty improvement project (BMC<sup>2</sup>), also funded by BCBSM, has provided both the template and evidence of effectiveness to justify similar ventures in other clinical areas.

Even in Michigan, however, implementing and sustaining these initiatives will be a challenge. Surgeon buy-in and collaboration is an obvious prerequisite. To date, surgeon participation in the 3 programs has been enhanced by several factors. Most Michigan cardiac surgeons were already submitting their outcomes data to the national STS registry and meeting regularly (through their state society) to discuss their results. Transferring data collection costs to Michigan BCBS did not require much persuasion. Although there has been no similar network in bariatric surgery, many surgeons in this field have been anxious about payers' efforts to limit coverage or restrict surgery to a small number of selected providers. BCBSM, which funds two thirds of all bariatric surgery in the state, has not made voiced intentions in this direction. However, some bariatric surgeons were no doubt concerned about being on the "outside" in the event that BCBSM changed its coverage policies. No such leverage underlies surgeon participation in the NSQIP-based program in other areas of major and general surgery. Thus, surgeon participation may be attributable to genuine interests in "doing the right thing," particularly if data collection costs are externally subsidized.

Maintaining surgeon participation long term will require trust among providers and between providers and payers. Because surgeons themselves have ownership of the performance measurement

process, trust is probably less of a problem in pay for participation than pay for performance. However, hospitals and surgeons with relatively poor performance may still worry that their better-performing counterparts will advertise these data to their competitive advantage. They may also be suspicious that payers will change the rules and begin recognizing and rewarding performance. In addition to contractual safeguards in this regard, maintaining trust will require both diplomacy and relationship building as the projects mature.

Another challenge will be ongoing funding. BCBSM investment in the 3 surgical programs alone will be nearly \$5 million annually. This level of funding will only continue if BCBSM—and their purchaser clients—see a tangible return on investment. At a minimum, programs will need to show substantial improvements in patient outcomes and thus greater value for purchasers. Evidence of lower costs as a result of lower surgical complication rates would further strengthen the business case for quality.

And finally, these programs will no doubt face pressures from purchasers and patients who want to see provider-specific performance data. There remains considerable debate about whether public reporting of performance data accelerates or hinders quality improvement activities.<sup>16-19</sup> Proponents argue that patients have a basic right to this information and that public accountability adds motivation for change and ultimately greater improvements.<sup>20,21</sup> Opponents counter that public reporting has little demonstrable effect on patient decision making and that it may actually induce counterproductive behaviors by hospitals and providers (eg, surgeons avoiding high-risk patients).<sup>22,23</sup> Although both the benefits and harms are likely overstated, the strong feelings surrounding the issue of public reporting are not. Many purchasers and patients—who ultimately pay the bill for these activities—will likely want to see the data. However, they may be satisfied by evidence that quality improvement has successfully reduced variation in performance among hospitals and surgeons.

## CONCLUSIONS

Pay for performance programs hope to redress past failures of the US health care financing system to provide adequate incentives for the provision of high-quality care. Although few would disagree with the underlying goals, the competitive structure of many pay for performance initiatives may ultimately impede meaningful quality improvement. Although the comparative effectiveness of pay for participation models has yet to be established, one

large payer in Michigan is betting that collaboration will be more effective than competition in improving surgical quality.

## REFERENCES

1. Birkmeyer J, Stukel T, Siewers A, Goodney P, Wennberg D, Lucas F. Surgeon volume and operative mortality in the United States. *N Engl J Med* 2004;349:2117-27.
2. Birkmeyer J, Siewers A, Finlayson E, et al. Hospital volume and surgical mortality in the United States. *N Engl J Med* 2002;346:1128-37.
3. Hannan E, Kilburn HJ, O'Donnell J, Lukacik G, Shields E. Adult open heart surgery in New York State. An analysis of risk factors and hospital mortality rates. *JAMA* 1991;264:2768-74.
4. O'Connor G, Plume S, Olmstead E, et al. A regional prospective study of in-hospital mortality associated with coronary artery bypass grafting. The Northern New England Cardiovascular Disease Study Group. *JAMA* 1991;266:803-9.
5. Galvin R. Large employers' new strategies in health care. *N Engl J Med* 2002;347:939-43.
6. Dimick J, Chen S, Taheri P, Henderson W, Khuri S, Campbell D. Hospital costs associated with surgical complications: a report from the Private-sector National Surgical Quality Improvement Program. *J Am Coll Surg* 2004;199:531-7.
7. The Leapfrog Group. Rewarding higher standards for patient safety. Leapfrog Fact Sheet. 2005. Available from: <http://www.leapfroggroup.org>.
8. Milstein A, Galvin R, Delbanco S, Salber P, Buck CJ. Improving the safety of health care: The Leapfrog Initiative. *Effect Clin Pract* 2000;4:94.
9. Rewarding superior quality care: The Premier Hospital Quality Incentive Demonstration. Centers for Medicare & Medicaid Services Fact Sheet. United States Department of Health & Human Services, 2004. Available from: <http://www.hhs.gov/news>.
10. Darr K. The Centers for Medicare and Medicaid Services proposal to pay for performance. *Hospital Topics* 2003;81:30-2.
11. Dimick J, Welch H, Birkmeyer J. Surgical mortality as an indicator of hospital quality: the problems with small sample size. *JAMA* 2004;292:847-51.
12. Moscucci M, Share D, Kline-Rogers E, et al. The Blue Cross Blue Shield of Michigan Cardiovascular Consortium (BMC2) collaborative quality improvement initiative in percutaneous coronary interventions. *J Int Cardiol* 2002;15:381-6.
13. Moscucci M, Rogers E, Montoye C, et al. The effect of a continuous quality improvement initiative on practice variations and outcomes of contemporary percutaneous coronary interventions. *Circulation* 2005; in press.
14. Ferguson TJ, Dziuban SJ, Edwards F, et al. The STS National Database: current changes and challenges for the new millennium. Committee to establish a national database in cardiothoracic surgery. The Society of Thoracic Surgeons. *Ann Thorac Surg* 2000;69:680-91.
15. Grover F. The Society of Thoracic Surgeons National Database: current status and future directions. *Ann Thorac Surg* 1999;68:367-73.
16. Marshall M, Shekelle P, Leatherman S, Brook R. The public release of performance data: what do we expect to gain? A review of the evidence. *JAMA* 2000;283:1866-74.

17. Lee T, Meyer G, Brennan T. A middle ground on public accountability. *N Engl J Med* 2004;350:2409-12.
18. Epstein A. Public release of performance data: a progress report from the front. *JAMA* 2000;283:1884-6.
19. Epstein A. Performance reports on quality: prototypes, problems, and prospects. *N Engl J Med* 1995;333:57-61.
20. Dziuban SJ, McIllduff J, Miller S, Dal Col R. How a New York cardiac surgery program uses outcomes data. *Ann Thorac Surg* 1994;58:1871-6.
21. Chassin M, Hannan E, DeBuono B. Benefits and hazards of reporting medical outcomes publicly. *N Engl J Med* 1996; 334:394-8.
22. Omoigui N, Miller D, Brown K, et al. Outmigration for coronary bypass surgery in an era of public dissemination of clinical outcomes. *Circulation* 1996;93:27-33.
23. Narins C, Dozier A, Ling F, Zareba W. The influence of public reporting of outcome data on medical decision making by physicians. *Arch Intern Med* 2005;165:83-7.

## *Invited commentary: The Michigan Plan—Is this a true partnership?*

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THERE is no reasonable challenge to the fact that the rising cost of health care is, quite frankly, unsustainable. The recent Institute of Medicine report highlighting the staggering number of medical errors contributing to deaths (up to 98,000 deaths per year) and the associated high morbidity or complication rate resulting from medical mistakes provide the driving incentive for all stakeholders to rigorously revamp the current health care model. With each major complication adding thousands of dollars to the baseline cost of a medical intervention, focusing on optimal performance strategies (including pay-for-performance initiatives) is a logical approach. The authors propose a plan (the Michigan Plan) which is, ostensibly, a more collaborative and effective partnership between the provider and a single large payer with an emphasis on improving the quality of care. They highlight “new surgical quality improvement initiatives” targeted for procedures for which performance is believed to vary widely (eg, cardiac surgery, bariatric surgery, and other major general and vascular procedures). Although this is a laudable effort by the authors, they provide no more than a vague description or narrative.

Unfortunately, the following key questions have not been addressed:

- Are the criteria proposed by the authors based on clinical outcomes and evidence-based medicine?
- Who actually decides on the criteria to be used?
- Considering that, on average, it takes physicians approximately a decade to actually implement new clinical methodologies, is the effectiveness (resulting in change of behavior) owing to new clinical techniques and treatment modalities or financial incentives?
- Are the incentives at odds, given the difference in payment methodologies (DRG vs discount—fee for service)?
- Are the initiatives proposed by the authors establishing cost-effective care via clinical protocol or are they selecting physicians who already had cost-effective outcomes?

Before the Michigan Plan (or any similar proposal) is embraced as a useful template to address how best to collaborate or to establish effective partnership between the payers and provider, the above-mentioned questions must be answered. Also, the sobering fact that cannot be ignored is the realization that none of the existing plans adequately address the exponential growth of the uninsured. With approximately a third of this nation’s population having either no health care insurance or being, essentially “underinsured,” this will inevitably be the proverbial straw that will break the camel’s back.