

Case Study: Improving Quality and Efficiency in Response to Pay-for-Performance Incentives Under the Medicare Physician Group Practice Demonstration

By Douglas McCarthy

***Summary:** Ten large physician groups are participating in a three-year demonstration to assess whether the opportunity to share in financial savings generated by quality improvements will improve care and outcomes for Medicare beneficiaries (as described in the Issue of the Month). The early experience of one participant, the Marshfield Clinic of Wisconsin, suggests that information systems, care management, process redesign, and physician involvement are important to improving the quality and efficiency of care in response to pay-for-performance incentives.*

Issue: Improving the quality and efficiency of health care for patients with chronic illnesses requires continued investment in infrastructure such as information systems and care management processes. However, physicians are not financially rewarded for such initiatives under Medicare's current fee-for-service payment schedule, and they may even suffer reduced revenues after making these investments—both of which act as disincentives to improvement. [1]

In response to this concern, Congress in 2000 directed the federal government to conduct a three-year Physician Group Practice (PGP) Demonstration to test how physician payment incentives might promote greater coordination of care, more efficient service delivery, and improved health outcomes for Medicare beneficiaries.

The Centers for Medicare and Medicaid Services (CMS) selected 10 large physician groups in 2005 to participate in Medicare's first pay-for-performance initiative for physicians. This case study examines the early experience of one participating site, the Marshfield Clinic.

Objective: The Marshfield Clinic's mission is "to serve patients through accessible, high-quality health care, research, and education."

Strategically, the clinic seeks to achieve the Institute of Medicine's six aims for a high-performance health system: safe, timely, effective, patient-centered, efficient, and equitable health care. The clinic joined the PGP Demonstration to learn how performance incentives could advance these goals, in particular by leveraging information systems to support a population health approach to patient care.

Organization and Project Leadership: The Marshfield Clinic, founded in 1916, is a multi-specialty group practice. Its 730 physicians and 6,000 staff serve more than 360,000 patients at 41 ambulatory care sites located in 35 Wisconsin communities. The physician-governed, nonprofit organization serves all who seek care, regardless of their ability to pay.

Theodore Praxel, M.D., M.M.M., Marshfield Clinic's medical director for quality improvement and care management, and Marilyn Follen, R.N., M.S.N., administrator of quality improvement and care management, oversee the clinic's participation in the PGP Demonstration.

Implementation Timeline: The Medicare PGP Demonstration began on April 1, 2005, and will run through March 31, 2008.

The Marshfield Clinic has electronically coded clinical information on all patients dating back to 1960 and has operated an electronic medical record (EMR) of growing sophistication since 1985. The EMR captures patients' diagnoses, procedures, medications, test results, radiology images, and physicians' notes. Clinic physicians began using wireless, tablet-style personal computers for electronic prescribing and dictation in 2003. The clinic plans to completely eliminate the use of paper charts (a process already underway) by the end of 2007, when every physician is scheduled to have a tablet PC.

Target Population: Elderly and disabled fee-for-service Medicare beneficiaries are assigned to the demonstration if they receive the plurality of their outpatient care from a participating physician group.

Key Measures: The PGP demonstration uses 32 performance measures, a

subset of those developed by the American Medical Association's Physician Consortium for Performance Improvement for the Medicare Doctors' Office Quality project being conducted by Medicare's Quality Improvement Organizations. Measures are added incrementally over the three-year demonstration, as shown in the Table below.

Year 1 Measures	Year 2 Measures <i>(additional to Year 1)</i>		Year 3 Measures <i>(additional to Year 2)</i>
Diabetes	Congestive Heart Failure	Coronary Artery Disease	Hypertension and Preventive Care

A participating physician group may earn a bonus of up to 80 percent of any Medicare cost-savings that it achieves that exceed 2 percent of its expenditure target (the group is not penalized if it does not meet its target). The expenditure target is based on the practice's own base-year costs inflated by the risk-adjusted annual expenditure growth rate for a comparison group of Medicare beneficiaries. If the PGP qualifies for a bonus, a portion (30 percent the first year and rising to 50 percent by the third year) is tied to the physician group's performance on quality targets. Medicare retains the remaining 20 percent of savings achieved by the PGP plus any bonus set aside for quality performance that is not earned by the PGP. [2]

Process of Change: Marshfield Clinic is using electronic tools to improve workflow and promote quality improvement in several ways. Ongoing information technology investments, including the cost of its electronic medical record (EMR), comprise about 3.5 percent of its annual revenue.[3]

- The EMR generates an Intervention List (i-List) for each physician that identifies high-risk patients with multiple chronic conditions. This integrated approach is superior to separate disease-specific registries as it helps physicians proactively plan visits and follow-up for patients needing a host of evaluation and monitoring services. (In the future, the system also will enable physicians to send patient reminders.)
- At patient visits, medical assistants use tablet PCs to enter symptoms and vital statistics directly into the electronic record, which physicians then review. Laboratory test results, X-rays, and other imaging studies are available electronically for physician or consulting specialist review, thus eliminating delays for document or film transfers and the duplicate testing that often results from missing information.
- An electronic "dashboard" organizes critical information including diagnoses, vital statistics, current medications, drug allergies and reactions, appointments, and reminders for preventive and chronic care services (an application known as PreServ). Physicians can

accelerate the monitoring schedule as appropriate, including cases where the patient needs closer follow-up after abnormal test results.

- Electronic prescribing by physicians with tablet PCs (which includes handwriting recognition software) and computer-printed prescriptions reduce problems related to illegible handwriting, thus reducing the potential for medication errors, pharmacy callbacks, and patient time waiting for prescriptions to be filled.
- When a patient calls the 24-hour nurse line, nurses refer to their electronic record and tailor advice to their care plan. Nurses perform triage using physician-approved online guidelines and, when appropriate, make appointments for the patient to see their physician the next day (at selected clinics). The call is documented in the electronic record and the patient's physician receives e-mail notification for reference.

Building on prior experience, Marshfield Clinic is expanding telephonic care management programs for high-risk patients who take anticoagulant medication or who have severe heart failure. Registered nurses provide education and coaching to help patients follow their care plan, encourage patients to watch for and call early based on danger signs, make appropriate anticoagulation dose adjustments according to written physician protocols, and schedule patients to get recommended follow-up care, such as monthly blood work to monitor anticoagulation treatment for effectiveness and safety.

The Marshfield Clinic is redesigning its appointment scheduling process to increase the accessibility and continuity of primary care. [4] By reserving some appointments for daily needs, patients are more likely to see their usual physician in a timely manner when they need care. This approach may help prevent complications and more costly care for those with chronic conditions such as heart failure. It also eliminates duplicate visits for those who would otherwise see another physician or visit the emergency room and then require follow-up with their regular doctor.

The clinic seeks to involve physicians in quality improvement through several mechanisms, including online guidelines and storyboards, continuing medical education, and coaching by four regional quality-improvement medical directors. The medical directors attend departmental meetings to share performance results and improvement

strategies and solicit feedback. Local sites are becoming engaged in redesign efforts that aim to optimize workflows. For example, medical assistants have been trained to conduct diabetic foot exams, with physicians becoming involved only when there is an abnormal result requiring intervention.

Early Results:

- Several clinical performance measures have improved since the clinic implemented EMR reminders and related process improvements. For example, electronically retrievable documentation of diabetic foot exams increased from virtually zero to more than 50 percent of diabetic patients.
- Hospitalizations decreased by 28.7 per 100 person-years among patients enrolled in a pilot of the anticoagulation program, saving \$271,014 per 100 patient-years. [5]
- Timeliness of appointment scheduling has improved, as measured by decreased time to the third-next available appointment, an accessibility metric used by many physician groups. [6]
- Satisfaction among patients enrolled in care management programs exceeds 85 percent. Overall patient satisfaction has increased with the implementation of tablet PCs, and anecdotal feedback suggests that patients are generally responding positively to the use of this technology during office visits.
- Through instant access to electronic information and electronic functions such as automated prescription renewals, physicians save an estimated three to seven minutes per patient visit, or 200 to 466 hours in productive time per year. Elimination of paper charts is expected to save an estimated \$9 million per year in clerical costs.[7]

Lessons Learned: Successful quality improvement requires a commitment from top leadership to make the six attributes of a high-performance health system part of their organizational strategy, says Praxel. He believes that their strategic vision to apply the six aims is accepted by physicians and staff because it is perceived to be an integral part of the organization's mission.

A well-developed electronic medical record system can support performance goals by improving physician productivity and patient care, thereby creating clinician demand for EMRs. (Marshfield Clinic

clinicians are currently on a waiting list to receive their tablet PCs.) When asked if there is physician resistance to the EMR, Praxel responded, "that is like asking me who [doesn't want to] use electricity or water. It's become an integral part of the practice."

On the other hand, Praxel cautions that EMR adoption should not be viewed as a solution in and of itself. "It's a good tool; but one has to take the data and turn it into actionable information." In particular, the clinic is seeking to leverage IT to promote population health through the feedback of performance data to physicians that enables them "to examine [their] practice and take action to improve," says Follen.

"Physicians in general are used to thinking about patients one at a time," Praxel explains. "While we don't ever want to lose the individual aspect of patient care, we're trying to close the loop from the individual back to the population to raise awareness of how the physician is doing with a given disease or constellation of diseases for their entire panel of patients." Physicians can then apply that broader perspective to improve the care of individual patients.

Despite the emphasis on information technology, Praxel sees the clinic's quality improvement process as primarily non-technical in nature. "We're using IT to help create transformational change in how we deal with patients," he says. "That's why we have regional quality improvement directors meeting with departments, explaining why it's necessary to alter the way care is currently delivered to patients, and getting physicians involved in change as it's occurring," he says.

Follen believes that an internally developed care management program fosters physician acceptance of change. "Involve your providers so it is truly an extension of their practice and so patients don't feel that they are being dismissed by the physician and managed by a nurse," she says. By integrating care management into clinic operations, "everyone feels it is a team effort to improve care for the patient and the population."

Moreover, process improvements must be tailored to the local environment rather than forcing a "one-size-fits-all" approach. For example, what is optimal in a large clinical center may be very different

from what is optimal in a small one, Praxel points out.

Implications: Although an internal systems development process was well suited to Marshfield Clinic's circumstances, it may not be the appropriate path for the smaller physician groups in which most physicians practice and most patients receive their care. Praxel, who spent 10 years working in a group of 10 to 12 providers before joining the Marshfield Clinic, isn't confident that many small groups have the time and resources necessary to duplicate the clinic's homegrown infrastructure. Other strategies to adapt and embed off-the-shelf systems might be an option for smaller practices.

The capitation-like incentive structure created by the PGP Demonstration may not be broadly applicable to physician practice outside large groups. For example, the Marshfield Clinic does not own or control hospital facilities and faces barriers in proactively coordinating inpatient care because of legal concerns about sharing patient information between separate entities. This may put the clinic at a disadvantage in controlling global costs in comparison to fully integrated PGPs (that include both physician groups and hospitals) participating in the demonstration. It also highlights the potential limits of pay-for-performance in achieving transformational system change.

Establishing common definitions will be critical to furthering the adoption of information technology and performance measurement. The clinic, says Praxel, found "different definitions for monitoring quality from different payers to be taxing and costly." The Institute of Medicine recently recommended that the federal government establish a standards body to address this concern. But, until electronic systems are interoperable, there will continue to be wasteful duplication and gaps in information as people move from one system to another.

For Further Information: Contact Theodore Praxel at praxel.theodore@marshfieldclinic.org or Marilyn Follen at follen.marilyn@marshfieldclinic.org.

References

[1] L. Casalino et al. (2003) External Incentives, Information Technology,

and Organized Processes to Improve Health Care Quality for Patients with Chronic Diseases. *Journal of the American Medical Association* 289, 434–441; A. J. Audet et al. (2005) Physicians' Views on Quality of Care: Findings from the Commonwealth Fund National Survey of Physicians and Quality of Care. New York: The Commonwealth Fund.

[2] RTI International (2005) Physician Group Practice Demonstration Quality Measurement and Reporting Specifications, Version 2. Baltimore: Centers for Medicare & Medicaid Services.

[3] Marshfield Clinic (2003) Integrated Computer Technologies at Heart of Ability to Care for Patients Effectively. *Cattails* (Nov/Dec).

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[5] M. Hillman (2002) Testimony Before the Subcommittee on Health of the House Committee on Ways and Means, Hearing on Promoting Disease Management in Medicare (April 16). Washington, D.C.: U.S. House of Representatives.

[6] Marshfield Clinic—Indianhead Center (2006) Improving Access in Primary Care—Virtually. *Improvement Report*. Boston, Mass.: Institute for Healthcare Improvement.

[7] Microsoft Global Evidence Management System (2004) Healthcare Clinic Saves Money and Improves Quality of Care with Tablet PC Solution. *Customer Solution Case Study*. Redmond, Wash.: Microsoft Corporation.

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Recent Publications of Note

Selected articles on quality improvement from a number of journals, including the *American Journal of Medicine*, *Annals of Internal Medicine*, *Archives of Pediatric and Adolescent Medicine*, *BMJ*, *Health Affairs*, *Health Services Research*, *International Journal for Quality in Health Care*, *Joint Commission Journal on Quality and Safety*, *Journal of the American Medical Association*, *Journal of General Internal Medicine*, *Journal of Patient Safety*, *Journal of Safety and Quality in Health Care*, *Medical Care*, *The Milbank Quarterly*, *The New England Journal of*

Medicine, and Pediatrics. The articles are nominated by Editorial Advisory Board members from a preselected list.

Health Care System Performance

Health Plans: Organizational Form and Performance

A multivariate regression cross-sectional analysis of 272 health plans was used to evaluate the relationship of health plan characteristics—including the percentage of care provided based on a group or staff model delivery system, for-profit (tax) status, and affiliation with a national managed care firm—to measures of clinical performance and patient perceptions of care. The results suggest that the type of delivery system used by health plans is related to many clinical performance measures but is not related to patient perceptions of care. According to the authors, these findings underscore the importance of delivery system design and the need for further research on the relationship between organizational form and performance. R. R. Gillies et al. (2006) [The Impact of Health Plan Delivery System Organization on Clinical Quality and Patient Satisfaction](#) *Health Services Research* 41, 1181–1199.

Do AMI Measures Correlate With Performance?

This study assessed hospital performance in the Centers for Medicare & Medicaid Services (CMS) and the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) quality process measures for acute myocardial infarction (AMI) and correlated these measures with each other and with hospital-level, risk-standardized, 30-day mortality rates derived from Medicare claims data. The authors found that publicly reported AMI process measures capture a small proportion of the variation in hospitals' risk-standardized short-term mortality rates. They concluded that multiple measures reflecting a variety of processes as well as outcomes, such as risk-standardized mortality rates, are needed to more fully characterize hospital performance. E. H. Bradley et al. (2006) [Hospital Quality for Acute Myocardial Infarction: Correlation Among Process Measures and Relationship with Short-term Mortality](#) *Journal of the American Medical Association* 296, 72–78.

Quality Reporting

Quality Measurement in Obstetrics

Three new obstetrical quality improvement outcome tools were developed to benchmark ongoing care within and among organizations. The Adverse Outcome Index is the percent of deliveries with one or more adverse events; the Weighted Adverse Outcome Score describes the adverse event score per delivery; and the Severity Index describes the severity of the outcomes. The authors conclude that these tools may be useful nationally for determining quality obstetric care, which lacks a nationally accepted set of quality indicators. S. Mann et al. (2006) Assessing Quality in Obstetrical Care: Development of Standardized Measures *Joint Commission Journal on Quality and Patient Safety* 32, 497–505.

Quality Tools in Practice

QIOs Appear to Improve Care

This observational study evaluated the effect of the Medicare Quality Improvement Organization (QIO) program in four clinical settings—nursing homes, home health agencies, hospitals, and physician offices. Performance data for 41 quality measures were compared between baseline and remeasurement periods for providers that received different levels of QIO interventions. The authors, while noting the study's limitations, found improvement in 34 of 41 measures among the clinical settings receiving focused QIO assistance. A related editorial reviewing the analysis concludes that "although several performance indicators improved in desired directions, we do not know why and we cannot be sure that such improvement stemmed from the QIO interventions." W. Rollow et al. (2006) Assessment of the Medicare Quality Improvement Organization Program *Annals of Internal Medicine* 145, 342–353; S. M. Shortell and W. A. Peck (2006) Enhancing the Potential of Quality Improvement Organizations to Improve Quality of Care *Annals of Internal Medicine* 145, 388–389.

Disease Management: Effective for Diabetics?

This cross-sectional study evaluated whether disease management by physician groups is associated with diabetes care processes, control of intermediate outcomes, or the amount of medication used when intermediate outcomes are above target levels. It found that disease

management strategies were associated with better processes of diabetes care but not with improved intermediate outcomes or level of medication management. The authors concluded that a greater focus on direct measurement, feedback, and reporting of intermediate outcome levels or of level of medication management may enhance the effectiveness of these programs. C. M. Mangione et al. (2006) The Association Between Quality of Care and the Intensity of Diabetes Disease Management Programs *Annals of Internal Medicine* 145, 107–116.

Improving Treatment for COPD Patients

A retrospective cohort study was used to evaluate the quality of care provided to patients hospitalized for acute exacerbations of chronic obstructive pulmonary disease (COPD) and determine whether hospital or patient characteristics influence treatment. It found 66 percent of the 69,820 patients studied received the entire set of recommended care processes contained in guidelines produced by the American College of Physicians and the American College of Chest Physicians. However, numerous participants received tests or treatments that were not beneficial, and individual hospital performance varied widely. The authors concluded that quality of care for these patients may be improved by increasing the use of systemic corticosteroid and antibiotic therapy, decreasing the use of unnecessary and potentially harmful treatments, and reducing variation in practice across hospitals. P. K. Lindenauer et al. (2006) Quality of Care for Patients Hospitalized for Acute Exacerbations of Chronic Obstructive Pulmonary Disease *Annals of Internal Medicine* 144, 894–903.

QI Strategies' Effect on Glycemic Control

This study assessed the impact of 11 distinct strategies for quality improvement (QI) on glycemic control in adults with type 2 diabetes. It found most QI strategies produced small to modest improvements in glycemic control, with team changes and case management showing more robust improvements—especially for interventions in which case managers could adjust medications without awaiting physician approval. Estimates of the effectiveness of other specific QI strategies may have been limited by difficulty in classifying complex interventions, insufficient numbers of studies, and publication bias. K. G. Shojania et al. (2006) Effects of Quality Improvement Strategies for Type 2 Diabetes on

Glycemic Control: A Meta-Regression Analysis *Journal of the American Medical Association* 296, 427–440.

Error Identification and Prevention

Patient Response to Error Disclosure

This study sought to determine whether full disclosure, an existing positive physician–patient relationship, an offer to waive associated costs, and the severity of the clinical outcome influence patients' responses to medical errors. It found that full disclosure is likely to have a positive effect or no effect on how patients respond to medical errors. However, the impact of an existing positive physician–patient relationship or waiving costs associated with the error, remains uncertain. K. M. Mazor et al. (2006) Disclosure of Medical Errors: What Factors Influence How Patients Respond? *Journal of General Internal Medicine* 21, 704–710.

Pay-for-Performance

Linking Payment to Performance

A systematic literature review found few empirical studies assessing the effect of explicit financial incentives for improved performance on measures of health care quality were available. Among those identified, 13 of 17 studies examined process-of-care quality measures. Five of the six studies of physician-level financial incentives and seven of the nine studies of provider group-level financial incentives found partial or positive effects on measures of quality. One of the two studies of incentives at the payment-system level found a positive effect on access to care, and one showed evidence of a negative effect on access to care for the sickest patients. The authors conclude that ongoing monitoring is critical to evaluate the effectiveness of financial incentives. L. A. Petersen et al. (2006) Does Pay-for-Performance Improve the Quality of Health Care? *Annals of Internal Medicine* 145, 265–272.

UK's Experience: The First Year of the P4P Contract

This article and related editorial evaluate the experience of family practitioners in the first year of the United Kingdom's National Health Service pay-for-performance contract. Introduced in 2004, this contract

increases existing income according to performance with respect to 146 quality indicators covering clinical care for 10 chronic diseases, organization of care, and patient experience. The authors found English family practices attained high levels of achievement, but a small number of practices appear to have achieved high scores by excluding large numbers of patients through exception reporting. They conclude that more research is needed to determine whether these practices are excluding patients for sound clinical reasons or in order to increase income. T. Doran et al. (2006) Pay-for-Performance Programs in Family Practices in the United Kingdom *New England Journal of Medicine* 355, 375–384; A. M. Epstein (2006) Paying for Performance in the United States and Abroad *New England Journal of Medicine* 355, 406–408.

Older Adults

Colonoscopy: Does Medicare Coverage Decrease Disparities?

This article examined the effect of Medicare reimbursement of colonoscopy for average-risk beneficiaries on the rates of colorectal cancer screening among the elderly in the United States. The authors found this policy, effective July 2001, alleviated the screening disparity between non-Hispanic whites and blacks, but the gap between Hispanics and non-Hispanic whites has widened. Overall, fewer than half of the elderly are screened, even though Medicare now covers colonoscopy. Y. T. Shih et al. (2006) Does Medicare Coverage of Colonoscopy Reduce Racial/Ethnic Disparities in Cancer Screening Among the Elderly? *Health Affairs* 25, 1153–1162.