

Beyond the Electronic Health Record

Providence Medical Group's Journey to Cross the Quality Chasm

BY CRAIG WRIGHT, M.D., AND JACQUELYN HUNT, PHARM.D., M.S.

In 2001, the Institute of Medicine (IOM) released its landmark report, *Crossing the Quality Chasm*.¹ The report calls for a transformation in healthcare delivery based on six guiding principles or aims. The aims describe a vision for health care that is effective, efficient, safe, timely, patient-centered, and equitable. Explicit in the IOM report is the prerequisite for advanced information technology to support health-care delivery. Many medical groups nationally are selecting, purchasing, and implementing electronic health record (EHR) systems based on a desire to improve the quality of care delivery in their organization. However, data from early adopters like Providence Medical Group demonstrate that improving clinical effectiveness or outcomes for chronic diseases can remain elusive, despite investment in robust EHR systems.

PROVIDENCE MEDICAL GROUP IS RELYING ON THE SIX IOM AIMS TO CLARIFY THE ORGANIZATION'S VISION FOR EXCELLENCE AND GUIDE ITS INVESTMENT IN INFORMATION TECHNOLOGY.

Organizational Setting

Providence Medical Group is part of Providence Health System—a multi-state, Catholic-sponsored delivery system serving the community for over 150 years. In Oregon, Providence Health System is an inte-

grated delivery system with 7 hospitals, a health plan, a medical group, 13,000 employees, and over \$2.2 billion in annual revenue. Providence Medical Group employs 150 physicians at 24 clinic sites across the Portland metropolitan area. The group cares for approximately 250,000 patients of diverse socio-demographic status. The medical group is largely primary care, but has a growing representation in 10 specialty areas.

Providence Medical Group is relying on the six IOM aims to clarify the organization's vision for excellence and guide its investment in information technology. Transforming office-based care towards the IOM aims is a challenging endeavor. Medical group leaders nationally face similar barriers to transforming health care in their own communities. Information technology embedded within the medical groups is a key step in the pathway to transforming health care consistent with the IOM's vision. Despite each medical group's unique set of challenges, resources, and priorities, it is helpful to learn from early adopters. Members of the American Medical Group Association are respected for the quality of care delivered through the group practice of medicine and should also be known for leading the transformation of health care consistent with the IOM aims.

Electronic Health Record

Providence Medical Group took a major step towards their transformation of health care in 1995 with the purchase of the Logician™ EHR system (GE Medical). Full implementation of the EHR across all clinics was a four-year endeavor that resulted in the medical group becoming “paperless” in 1999. The EHR allows providers and staff to accurately store and retrieve comprehensive demographic and clinical information. All documents from external providers are scanned into the electronic medical record. In addition, the EHR supports robust point-of-care decision support tools.

Implementing the EHR changed workflows and immediately improved the documentation of physician and staff. Safety was improved with the legibility of all notes and prescriptions. Office efficiency improved with timely and accurate routing of phone notes. Multiple users could access charts simultaneously, which is a limitation of paper charts. In addition, the medical group demonstrated approximately \$1 million savings in transcription costs as providers replaced dictation with a combination of typing, voice recognition, and point-of-care templates.

By the time the IOM report was published in 2001, Providence Medical Group was five years into

CareManager Elements

1. Tracking, identification, and alerts of patient care opportunities/deficiencies, to include:
 - Identification of populations of patients with the condition.
 - Identification of overdue care necessary to monitor status of condition (e.g., blood pressure monitoring for hypertension).
 - Identification of overdue laboratories to monitor medication safety (e.g., PT/INR testing on patients receiving warfarin to determine appropriate dose change).
 - Stratification of patients based on risk of a negative healthcare outcome (e.g., ranking patients by highest risk for heart attack).
 - Color-coded, evidence-based alerts of clinical parameters based on goal attainment.
2. Automated audit, feedback, and benchmarking of clinical performance.
3. Timely provision of relevant medical evidence and guidelines.
4. Coordinated, easy-to-navigate, point-of-care EMR decision support forms.

their implementation of an EHR system. Issues of physician adoption were largely overcome. The group assumed that the sophisticated EHR facilitated improvements in the quality of care delivered based on (1) improved organization of clinical information, (2) point-of-care decision support, and (3) the ability to query the EHR database to identify patients for disease management interventions. Having utilized all of these features, the medical group was confident that clinical outcomes would be improved. However, formal evaluation of several chronic conditions demonstrated that this was not the case.

IMPLEMENTATION OF AN EHR SYSTEM IS A PREREQUISITE FOR EFFICIENT POPULATION-BASED DISEASE MANAGEMENT PROGRAMS WITHIN MEDICAL GROUPS.

The Quality & Research Department of Providence Medical Group conducted a study of cholesterol goal attainment in patients with diabetes and documented coronary heart disease (CHD).² The study evaluated the last LDL-cholesterol to determine if it was current within the past 12 months and below a target of 100 mg/dL. LDL tests were available in the past 12 months for less than 50 percent of the more than

10,000 diabetic patients identified. LDL goal target was attained in only 18 percent of patients with diabetes only and 32 percent of patients with diabetes plus documented CHD.

Another large medical group implementing a similarly sophisticated EHR system has reported similar findings in a randomized controlled study. O'Connor, et al., reported that HealthPartners installation of the Epic™ EHR system resulted in no improvement in cholesterol or glycemic control in a diabetic population two and four years post implementation.³ These two studies demonstrate that up to five years following successful implementation of an EHR, clinical quality is no better than when paper charts are used for documentation.

Enabling Disease Management Through EHR Integration

Although implementation of an EHR system does not improve effectiveness of care, in and of itself, it is a prerequisite for efficient population-based disease management programs within medical groups.⁴ Currently, the majority of disease management programs are conducted by insurers or external vendors. Limitations of these programs derive from the separation of care coordination from the physician and the inability to rapidly obtain the necessary clinical data.

Implementing an EHR allows physician organizations to conduct disease management programs that are effective at lower cost.

In 2000, unable to find a disease management software application that integrated with an EHR system, Providence Medical Group developed such a tool. The tool has evolved into an award-winning software application, CareManager™, that seamlessly extracts and displays clinical data from the EHR for rapid review by clinic staff. This application has produced a revolutionary change in the way providers and staff use information to deliver better care in the community.

CareManager is uniquely designed to extract data on patients' diagnoses, medications, vital signs, laboratory and radiology results, and demographics to fulfill *all of the elements* of a disease management program as defined by the Disease Management Association of America⁵:

- Population identification processes
- Evidence-based practice guidelines
- Collaborative practice models to include physician and support-service providers
- Patient self-management education
- Process and outcomes measurement, evaluation, and management
- Routine reporting and feedback loop

Currently, Providence Medical Group has implemented modules for diabetes, coronary heart disease, and stroke prevention. The key elements intrinsic to each module that result in care improvements are listed in the box above. The application incorporates interventions shown individually to have only modest

Providence Medical Group: 2005 Acclaim Award Honoree

On September 14, 2005, the American Medical Group Association presented the annual AMGA Acclaim Award to Luther Midelfort – Mayo Health System at AMGA's Institute for Quality Leadership, held in Chicago, Illinois. In addition, three groups were recognized as honorees for their projects. Providence Medical Group was honored for its initiative, *Combining Quality, Research, and Technology in the Pursuit of the IOM Aims*. Providence Medical Group recognized that the electronic health record (EHR), implemented in 1996, offered an opportunity to deliver care more effectively. However, review of the group's chronic disease outcomes several years later demonstrated that the potential was not fully realized. When senior leaders reviewed the IOM report in 2001, it was apparent that the IOM Aims and Rules provided a framework for re-evaluating the use of the EHR and delivery of care. Making health care safe, effective, patient-centered, timely, and efficient would also help make health care affordable and equitable for all patients the medical group serves in the community. Some of their accomplishments are detailed in the accompanying article.

About the AMGA Acclaim Award

The AMGA Acclaim Award recognizes excellence in quality improvement efforts—led by physician-directed organizations—that measurably improve health outcomes and quality of life for patient populations. Since 2004, the applicant criteria have been structured around the six Institute of Medicine (IOM) Aims for the 21st Century and place a heavy emphasis on leadership involvement. Applicants are asked to measurably demonstrate progress toward achieving the six aims and transforming their organizations to provide health care that is (1) safe, (2) effective, (3) patient-centered, (4) timely, (5) efficient, and (6) equitable. AMGA looks for medical groups that have gone beyond “quality projects” by embracing the six IOM Aims and using them to make system-wide changes to build a better way of providing care. The award is granted through AMGA's philanthropic arm, the American Medical Group Foundation, and applicants are evaluated in a blinded review process conducted by nationally recognized leaders in health care quality. The recipient receives a \$50,000 educational grant and a Steuben Crystal which is produced specifically for the award. Three honorees each receive a \$10,000 educational grant.

To apply for the Acclaim Award, your organization must be a current member of the American Medical Group Association and not the recipient of the 2005 Acclaim Award. We are looking for applications from organizations that are successfully integrating the IOM Aims into their strategy for improving ambulatory care. Groups that have not fully implemented their improvement strategies, but are in the pilot stages, are also encouraged to apply.

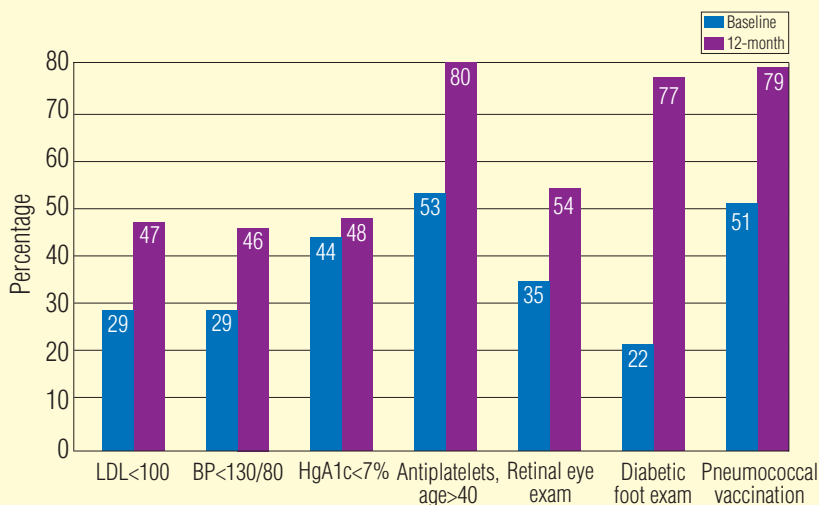
Important Dates

Feb. 1, 2006	Applications available
May 15, 2006	Applications due
July 3, 2006	Applicants notified which group has been selected to receive the Acclaim Award and which have been selected as honorees
Sept. 18, 2006	Acclaim Award recipient and honorees present projects at Institute for Quality Leadership Meeting, in Minneapolis, MN
Sept. 19, 2006	Event honoring Acclaim Award recipient and honorees at AMGA's Institute for Quality Leadership Meeting, in Minneapolis, MN

For more information, visit AMGA's Web site at <www.amga.org> or contact Stephanie Jones, Program Manager, at (703) 838-0033, ext. 322 or <sjones@amga.org>.

FIGURE 1

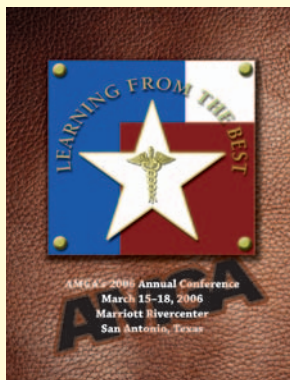
Performance in Key Diabetes Measures: Comparison of Baseline and 12 Months Following CareManger Implementation



effects on patient outcomes (such as recall systems, performance feedback, and education). When combined through the CareManger disease registry, the result is an efficient and physician-driven approach to disease management.

Outcomes of Physician-Directed Disease Management

In 2002, Providence Medical Group implemented the Stroke Prevention module of CareManger to address two patient populations: (1) those with atrial fibrillation who are not receiving anticoagulation, and (2) those prescribed warfarin anticoagulation for any indication. Following implementation, the number of



Information Technology at AMGA Annual Conference

AMGA's 2006 Annual Conference: Learning from the Best, March 15-18 in San Antonio, Texas, will devote several Peer-to-Peer Breakout Sessions to issues related to Information Technology at medical groups. These sessions are designed for IT/MIS, medical informatics, data warehouse research, and clinical research staff to hear from progressive groups on issues related to IT strategies in the healthcare setting.

Implementing an EMR/EHR Creates Data Consistency and Continuity Challenges

Edward J. Todd, B.S., Data Warehouse Manager, and L. Raymond Remmer, MB.A., M.H.A., Assistant Administrator, Patient Operations, Nemours

This presentation addresses the challenges of managing data used for critical reporting and analysis when implementing new or upgraded systems at a practice, including providing cumulative histories, maintaining continuity in year-over-year comparisons, and the impact on interfaces and intermediate steps on the flow,

comparability, and accessibility of data. Effective implementation strategies require planning for the formatting of legacy data in a comparable format and media to facilitate longitudinal analysis.

Readying a Large Multispecialty Group Practice for EMR Implementation: Kaiser Permanente's Approach in Georgia

Bruce Perry, M.D., M.P.H., Medical Director, and Susan Garrison, M.D., Associate Medical Director of Facility Operations and Member Initiated Care
Kaiser Permanente in Georgia designed a readiness assessment process to assure that its practitioners and staff were prepared for an EMR implementation. Each team was assessed on several dimensions and scored on overall readiness. Action plans were developed to address any critical gaps that might hinder a successful launch.

Combining Pen and Computer—Easier EHRs Through Digital Ink Imaging

Robert K. Gribble, M.D., Medical Director—Health Information Management, Marshfield Clinic

Digital ink imaging (digital ink writing saved as an image) provides a low-cost documentation alternative for Electronic Health Records. It is readily learned by physicians and staff who find it effective and efficient. It can be considered either a permanent feature or a "bridge" solution when implementing an EHR.

Using Electronic Information to Manage Populations

Tomas Moran, M.S., Senior Director of Quality and Planning, Palo Alto Medical Foundation

The clinic has built a second "information pipeline" from its tactical warehouse, comprised of a set of services which enable a healthcare worker to manage populations for preventive care, chronic diseases, and follow-up care.

Enhancing Referring Physician Relationships with Electronic Communication

Joseph E. Bisordi, M.D., FACP, Associate Chief Medical Officer, and Joan Topper, Associate Vice President, eHealth & Performance Improvement, Geisinger Health System

Geisinger Health System has successfully designed, built, and implemented the use of an electronic messaging tool as an add-on to its EMR. As a result, they have simultaneously improved relationships with referring physicians while decreasing the per document cost of sending clinical notes.

Best Practices for an Integrated National Clinical Information Technology System

Louise Liang, M.D., Senior Vice President, Quality and Clinical Systems Support, Kaiser Foundation Health Plan

This presentation will address the need for an integrated national clinical IT system in order to align information at the point of care. Dr. Liang will identify best practices for developing and integrating such a system, as a means to deliver the highest quality of care possible for patients.

To learn more about these innovative strategies as well as the success stories of other medical groups, make plans to attend AMGA's 2006 Annual Conference. For more details, see page 43 or visit <www.amga.org>.

patients with atrial fibrillation not prescribed warfarin dropped by 50 percent, and the number of patients overdue for PT/INR laboratory testing decreased by 57 percent. Thus, more patients with atrial fibrillation received appropriate treatment, and the therapy provided was safer.

Based on learning from the initial implementation of the CareManager tool in busy primary care clinics, the

software application was modified to further support a clinic-wide team approach to patient care. Following these modifications, the next disease process addressed using CareManager was diabetes. During 2003 the diabetes program was implemented, enabling efficient care coordination of more than 9,000 diabetic patients.

One year following full implementation, clinically and statistically signifi-

cant improvements were observed in all key diabetes process and outcome measures (see Figure 1). In addition, the primary care group experienced an increase in the number of visits and the complexity of coding among its patient population with diabetes.

Pay for Performance

Using information technology to effectively and efficiently accomplish

population-based disease management has enabled Providence Medical Group to structure an internal pay-for-performance program. The medical group has implemented an internal "Quality Incentive" which is a financial incentive for physicians and staff based on their clinic site's patient satisfaction scores, percent of diabetic patients at goal for blood pressure, and generic prescription rate. The clinic's entire patient population is included in the measure, not just those on a specific insurance plan. The data, extracted from the EHR, are outcome, not process, measures. As such, they reward clinically significant outcomes such as percent of patients at blood pressure, cholesterol, and glycemic goal attainment, not whether tests were completed. Additionally, the incentives are aligned for physicians, managers, and staff based on their clinic's outcomes. Thus, physicians and staff are encouraged to work together to improve their clinic's culture and performance as a team. Aligning the incentives is a powerful motivator to change behavior. Once the staff understood the clinical importance of these outcomes, they were also naturally motivated to improve the outcomes for their patients. The clinic incentives are set annually using the group-wide average and the top 10 percent of providers as the range for payout tiers. This methodology is easy to explain and backed by published evidence.⁶

Providence Medical Group is also well positioned for pay-for-performance discussions with external stakeholders. Currently the group has offset its internal Quality Incentive through external funding from regional insurers. Negotiations for unique pay-for-performance arrangements are facilitated by the group's clinical outcomes that are significantly better than national averages. This external funding drives further development of the

group's information technology capabilities and, ultimately, further enhances patient care.

Summary

Crossing the Quality Chasm is a landmark roadmap to transform healthcare delivery. Providence Medical Group was an early adopter to the EHR, yet is still finding ways to leverage this investment for better financial and clinical outcomes consistent with the IOM Aims. There remains a significant gap between how health care is delivered today and the potential for future transformation. Closing this gap for patients is important work for everyone in the medical group environment.

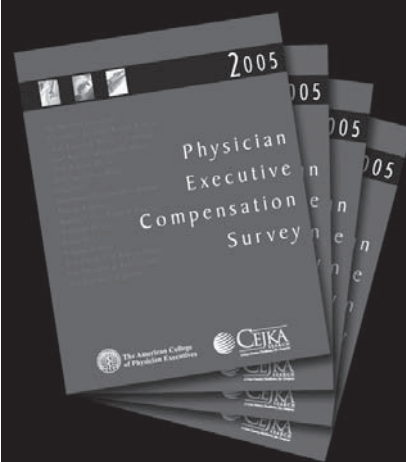
References

1. Institute of Medicine. 2001. *Crossing the Quality Chasm: A New Health System for the 21st Century*. National Academy Press: Washington, D.C.
2. D. Fuke, J. Hunt, J. Siemenczuk, M. Estoup, M. Carroll, N. Payne, and D. Touchette. 2004. Cholesterol Management of Patients with Diabetes in a Primary Care Practice-Based Research Network. *American Journal of Managed Care*, 10 (2): 130-136.
3. P.J. O'Connor, A.L. Crain, W.A. Rush, J.M. Sperl-Hillen, J.J. Gutenkauf, and J.E. Duncan. 2005. Impact of an Electronic Medical Record on Diabetes Quality of Care. *Annals of Family Medicine*, 3: 300-306.
4. J. Hunt, J. Siemenczuk, P. Erstgaard, J. Slater, and B. Middleton. 2001. Use of an Electronic Medical Record in Disease Management Programs: A Case Study in Hyperlipidemia. *Medinfo*, 10(1): 825-829.
5. Disease Management Association of America. 2005. Definition of Disease Management. <www.dmaa.org/definition.html>. Last accessed October 28, 2005.
6. C.I. Kiefe, J.J. Allison, O.D. Williams, S.D. Person, M.T. Weaver, and N.W. Weissman. 2001. Improving Quality Improvement Using Achievable Benchmarks for Physician Feedback: A Randomized Controlled Trial. *JAMA*, 285: 2871-2879.

Craig Wright, M.D., is chief executive, Providence Medical Group, Portland, Oregon. **Jacquelyn Hunt, Pharm.D., M.S.**, is director of quality & research, Providence Medical Group, and assistant professor, College of Pharmacy, Oregon State University.

LEARN

the latest compensation data and trends



View the highlights and purchase your copy on cejkasearch.com



CELEBRATING 25 YEARS
OF SERVICE EXCELLENCE
1981-2006