Implementing the Chronic Care Model: A Statewide Focus on Improving Diabetes Care for Pennsylvania

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Chronic diseases represent a significant public health burden by decreasing quality of life and causing death and disability at great economic cost. In Pennsylvania, chronic diseases are the leading cause of death and disability and account for 80% of all health care costs. About half of all Pennsylvanians have a chronic disease, including diabetes, asthma, heart conditions, and others.[1] These chronic conditions are exacerbated by obesity, an older population, smoking, and other factors that are hardly unique to the state but statistically more prevalent. Unfortunately, reports also show that only 56% of patients in the state receive the kind of care recommended for chronic disease.[2]

The primary care system, through which most of chronic care is provided, is insufficiently oriented toward the management and maintenance of the chronically ill.[3] Overburdened clinicians do not have ready access to information about their patients or time to meet all of their patients' needs. Furthermore, there is a lack of care coordination and follow-up, and patients often are inadequately trained to manage their disease.[3] Primary care practices are also poorly compensated by insurers and government payers under existing reimbursement models. The potential consequences of poor management are grave, and much of the costs would be unnecessary if patients received evidence-based care in a setting in which multiple practitioners can communicate and collaborate.

The number of people with diabetes is expected to increase alarmingly in the coming decades. The International Diabetes Federation estimates that more than 250 million people around the world have diabetes. This total is expected to rise to 380 million within 20 years. Each year, an additional 7 million people develop diabetes.[4] In the United States, the incidence of diabetes is also growing and nearly doubled between 1995 and 2006 to 7.4% of the population.[5] According to a recent report, diabetes cost the nation $174 billion in 2007 in both direct costs and productivity losses.[6] The report also showed that approximately half the people with diabetes are covered by publicly funded health care plans and that routine diabetes care is relatively low cost, with most of the cost resulting from poor chronic management of the disease.[6]

Diabetes is one of the most pressing health care priorities in Pennsylvania, where it affects ~ 8% of the population.[7] Despite diabetes being a major concern, clinicians in the state trail far behind the rest of the United States in the provision of quality care. Pennsylvania ranked 47th out of 50 states in accomplishing adequate glycemic control.[8] Very troubling is the economic impact; the rate of hospital admissions for diabetes is four times greater in Pennsylvania than in the best-performing states.[2] The associated escalating health care costs are stressing state employers and health systems.

These sobering facts have led the state's leadership and stakeholders to embark on an initiative to address chronic disease with an initial focus on improvements in diabetes care. This article focuses on a unique effort to leverage reimbursement with changes to facilitate adoption of an evidence-based, team approach in primary care.

Pennsylvania Chronic Care Commission and the Chronic Care Model

Because evidence is mounting that consistent health care intervention for those with chronic disease is more effective in improving outcomes and subsequent costs, models that are focused on both outcomes and prevention have been posed as viable alternatives to our current systems.[9–11] The Chronic Care Model (CCM) provides a paradigm shift from our current system and a multifaceted framework for redefining our current views on health care delivery.[4,12] Mounting evidence from comparisons of high- and lower-performing practices, evaluations of large-scale quality improvement efforts, and randomized intervention trials have demonstrated that CCM implementation is feasible and results in improvement in patient care and outcomes.[13]

In May 2007, the Pennsylvania Governor's Office on Heath Care

Reform (GOHCR) established the Chronic Care Management, Reimbursement, and Cost Reduction Commission. The Commission's appointed membership represents governmental agencies, health insurers, voluntary health organizations, academic institutions, health systems, professional associations, consumers, employers, and communities. The Commission is charged with transforming the currently reactive care system into a proactive, comprehensive, coordinated system able to keep Pennsylvanians as healthy as possible. Interested stakeholders from across the state had previously convened to attempt to better organize diabetes care and had developed the Pennsylvania Diabetes Action Plan, which was presented to the Commission.[7] The plan provided the impetus and blueprint for combining efforts, resources, and interests to strengthen the collective capacity in Pennsylvania.

The Commission and its four subcommittees—Performance Measures, Incentive Alignment, Consumer Engagement, and System Redesign—are charged with developing strategies for broad-scale implementation of the CCM motivated by use of a new primary care reimbursement model. The specific elements of the CCM are to be implemented in 20–50 practices in four regions over a multi-year period. The effort will involve the establishment of primary care learning collaboratives supported by practice coaches provided through the Robert Wood Johnson–funded program titled Improving Performance in Practice (IPIP). The Incentive Alignment Subcommittee considers financial incentives for providers, and the Consumer Engagement Subcommittee considers consumer incentives.

CCM Implementation

The CCM is organized around elements that have been shown to improve outcomes and provides a framework for a systematic approach to practice transformation.[3] The premise of the model is that quality diabetes care is not delivered by clinicians in isolation and can be enhanced by practice systems that include links to community resources, self-management support, delivery system redesign, decision support, clinical information systems, and organizational support working synergistically to optimize patient-provider interactions. Specific features of the Pennsylvania initiative related to CCM elements are outlined in Table 1.

Health system

The GOHCR enlists the involvement and support of health plans, provider groups, and others in a quality-oriented culture for providers through multi-stakeholder collaboration, strategies to align reimbursement incentives with quality care, and policy changes to ensure long-term sustainability. The GOHCR works with participating insurers at the highest level to design incentives within the Commission's guidelines that require enhanced payments for infrastructure and resources to support use of the CCM and performance bonuses for providers who demonstrate the delivery of superior clinical care. Participating practices need to demonstrate either that they have effected specific practice changes before receiving payment enhancement or that they have effected such practice changes after receipt of payment enhancement. The GOHCR facilitates discussions with insurers in determining the amount of money to make available to providers. Payers participating in the regional rollouts align incentives for the provision of good chronic care by offering:

- Payment enhancements for infrastructure and resources to support the CCM
- Practice-level payments based on performance relative to specified metrics
- Incentives for participating consumers to use evidence-based services provided by their care team or delivered within the community

Decision support

Effective chronic disease programs ensure that providers have access to expertise facilitated through evidence-based guidelines.[3] After a comprehensive review, the Commission's Performance Measurement Subcommittee identified a comprehensive set of measures for evaluating the rollout. The National Committee for Quality Assurance (NCQA) Patient-Centered Medical Home (PCMH) model certification program serves as the basis for qualifying practices for payment enhancement. Insurers agreed to use the NCQA performance data to inform their internal decisions about incentive payment allocation. Measures used in the Pennsylvania initiative are presented in Table 1.

Clinical information systems

A basic feature of the CCM is the ability to assess care, identify gaps, and intensify therapy at the individual and population levels. Databases and registries are essential components of the CCM.[3] To support chronic disease management, the GOHCR ensures that all participating primary care clinicians, if they do not have access to one already, have use of a free, Internet-based data management system with registry functionality and safeguards to ensure protection of privacy. It is planned that a pooled claims database across insurers will be made accessible to primary care providers, insurers, and the public to provide transparency about the state's

Table 1. Elements of the CCM Framework Used in the Pennsylvania Program

Health System
The GOHCR and Incentive Alignment Subcommittee:
- Work with insurers to design and align incentives with quality care
- Provide system support in creating a quality-oriented culture
- Offer support for long-term sustainability and policy change

Decision Support
The Performance Measure Subcommittee requires the following NCQA measures:
- Percentage of patients with A1C > 9%
- Percentage of patients with A1C > 7%
- Percentage of patients with blood pressure < 130/80 mmHg
- Percentage of patients with blood pressure < 140/90 mmHg
- Percentage of patients with LDL cholesterol < 100 mg/dl
- Percentage of patients with LDL cholesterol < 130 mg/dl
- Percentage of patients with annual eye exam
- Percentage of patients with smoking cessation counseling
- Percentage of patients with medical attention for nephropathy
- Percentage of patients with annual foot exam
- Percentage of patients ≥ 40 years of age on statins
- Percentage of patients with one pneumococcal vaccine at any time in the past
- Percentage of patients with current flu vaccination
- Percentage of patients on aspirin therapy
- Percentage of patients ≥ 55 years of age on ACE inhibitors or angiotensin receptor blocker medication
- Percentage of patients with self-management goals documented

Clinical Information Systems
The GOHCR:
- Ensures that practices have access to a free, secure, Internet-based data system
- Works with insurers to develop a pooled claims database accessible to providers and the public
- Is exploring longer-term registry strategies

Self-Management and Community
The Consumer Engagement Subcommittee in partnership with state organizations:
- Establishes partnerships with existing organizations in the development of programs in areas of unmet need
- Created a registry of community-based and insurer programs
- Requests that insurers reimburse for education services provided by qualified, clinically trained educators, such as certified diabetes educators and certified asthma educators in provider practices or community locations
- Ensures that practice coaches be trained to promote self-management and referral to community resources
- Recommends implementation of lay-led self-management support programs
- Organized a social marketing campaign to raise public awareness about the importance of managing chronic conditions and the key role of patients and family/caregivers
- Recommended collaborative goal setting and action planning as pay-for-performance measures

System Redesign
The System Redesign Subcommittee:
- Requires primary care practices to reorganize for a multidisciplinary care teams approach
- Recommends that teams include representation from a number of disciplines
- Mandates that team members practice using evidence-based care guidelines and data to inform care planning and management

performance in efforts to improve chronic care.

Beginning in the first year of each regional collaborative, only aggregate performance data will be made public; individual practice performance data will not be public. Participating practices, however, can share their data with other practices in the collaborative. Insurer claims will also be pooled so that the combined data might be used for developing consolidated profiles of team performance and eventual integration of claims data

with provider registry data and other clinical data (e.g., laboratory results and electronic medical records). The GOHCR is exploring alternative longer-term registry strategies for use in future years potentially similar to efforts in Colorado and Vermont.

Self-management and community resources

Increasing patients' participation in their care is another critical element in chronic disease management. Knowledgeable, involved, and motivated patients are much better able to make informed lifestyle choices, remain healthy, and seek necessary services. To achieve this goal, patients need to be able to access self-management education, community resources, and providers who encourage self-management. As part of the rollout, primary care practices will be encouraged to support self-management and education.

Unfortunately, primary care practices do not always have the resources necessary to provide all necessary self-management services.[14,15] Culturally appropriate education resources, peer support, and community-based public health initiatives to which primary care practices can refer patients and which insurers and public health agencies can publicize have been identified and coordinated by the Commission's Consumer Engagement Subcommittee.

The Consumer Engagement Subcommittee also recognizes that the insurer-provider incentive alignment must be balanced with motivational incentives to help patients effectively manage their conditions and has developed a series of recommendations for consumer incentives. The subcommittee recommends that patient incentives designed to complement and reinforce those developed by the Incentive Alignment Subcommittee for providers be adopted and implemented by insurers. The dollar value of the incentives and the operational processes to implement them will be determined by individual insurers.

Delivery system design

Effective chronic illness management also requires attention to delivery system design.[16,17] Although team-based care has repeatedly been shown to improve outcomes,[18–22] it is often unavailable in primary care practices. Participating practices are expected to reorganize to a model that uses multidisciplinary teams. The teams, including physicians and non-physician members, are taught how to redesign their practice to be more effective in caring for their chronically ill patients. The team is expected to practice as a true team by using evidence-based care guidelines and data to inform care planning and management. Approaches to provide planned team-based care include, but are not limited to:

- Allocation of clinical tasks to non-physician team members trained and licensed to perform them
- Employment of case managers
- Provision of self-management education in the office or through external professional and lay community resources
- Team huddles
- Support for patients to see multiple providers in one visit
- Open-access scheduling so that patients can get same-day appointments
- Use of group appointments

Project Rollout Strategies

Implementation of the CCM is a major undertaking generally requiring help from outside the practice.[13] Two proven quality improvement strategies—learning collaboratives and practice coaching—are being employed in tandem to help Pennsylvania primary care practices implement the CCM. Regional collaboratives supported by practice coaches are planned in all four regions of the state, beginning in the Philadelphia area.

Learning collaboratives

The principal vehicle to spread CCM knowledge to practices is the use of "learning collaboratives." These are intensive programs wherein practice teams receive education and support from faculty and each other to redesign their practices. To be a part of a regional rollout and potentially receive enhanced payment, practices must be active participants in the regional rollout learning collaborative. Approximately 20–30 practice teams consisting of physicians, advanced practice nurses, other clinical staff, and practice administrators participate in each learning collaborative. The collaboratives meet four times per year for a total of 7 days. The first three meetings involve training, sharing of experiences, data review, and problem solving. The final meeting focuses on reviewing data to determine practice achievements.

Practice coaching

Learning collaborative participants also benefit from technical assistance made available by practice coaches. Coaches are available to practices to support implementation of the model. Responsibilities of coaches include assessing practice needs, assisting with establishment of a data management system, training office staff, identifying opportunities for collaboration with community partners, troubleshooting problems, and supporting the practices in the collaboratives. The Commission encourages large primary care practices to have their internal staff become trained as resident coaches to ensure ongoing support of the program.

Regional rollouts

Although there are multiple possible approaches and variations for implementation, the CCM calls for all six elements to be in place simultaneously to achieve improved health outcomes.[14,22,23] It is anticipated, however, that each of the regions will have variations in their implementation that are specific to their community and available partnerships. For example, in the first regional rollout in southeastern Pennsylvania, the practice coaches are trained and supported by the IPIP program as part of a Robert Wood Johnson Foundation grant received by the Pennsylvania American Academy of Family Physicians. This region has also relied on using NCQA PCMH certification to guide financial incentives in implementing their program.

All of the collaborative rollouts are implemented using rapid learning cycles as a model for improvement. Rapid learning cycles include four steps: Plan, Do, Study, and Act. Participants are expected to use these steps as they continue to cycle through implementation of their program. Certain approaches (e.g., provider incentive alignment) are planned, introduced, evaluated, and modified as necessary. Crucial to this effort is a vigorous communication strategy to ensure that lessons are widely shared on a timely basis.

Measurement and Evaluation

Although the CCM has been studied, evaluated, and used in many settings and other states, never before has it been deployed with the intent of reaching the majority of practices in such a large geographical area. Although Commission members are enthusiastic about its anticipated clinical and financial impact, they also feel a strong need to verify that it will actually have its desired effect. As a result, the Commission has authorized a comprehensive set of evaluation activities for each regional rollout individually and for all of the regional rollouts in combination. A minimum set of evaluation tools is listed in Table 2.

Table 2. Proposed Diabetes Performance Measures

Clinical Care Quality • NCQA measures (see table 1) • Attainment of self-management goals
Patient-Centered Outcomes • Patient self-care knowledge and skills • Change in patient functional status and well-being
Practice-Based Outcomes • Practice satisfaction • Practice redesign • Certification level of PCMH
Utilization and Costs of Health Care Services (for all conditions and for diabetes)
• Inpatient
• Outpatient: primary care
• Outpatient: specialty care (other than behavioral health)
• Outpatient: behavioral health care
• Outpatient: all other
• Emergency department
• Pharmacy
Initiative Scope
• Number of patients and practices and primary care clinicians involved in regional rollout
• Number of participating commercial group and Medicaid health insurers

Project Progress

Implementation of the CCM began in early 2008 with a collaborative involving 30 Philadelphia-area practices. The GOHCR is coordinating regional rollouts in the South Central, Southwestern, and Northeastern regions of the state. The planning committee for the regional rollouts recognizes anticipated challenges. For example, in a state in which 37 of 40 counties are defined as rural, special effort will be made to engage rural practices. In engaging practices, particularly those in underserved communities, the Commission will need to assure practice teams and the patient community that plans for sustainability are considered while continuing to assess and align incentives.

Limitations of the initial efforts are recognized. For example, because health plans are playing crucial roles in recruiting and providing incentives to practices, health care organizations serving crucial consumer groups such as the uninsured or patients who do not have an identified primary care practice are not included in the current initiative. Although the focus of the quality improvement activities is on the implementation of the CCM, incentive payments in some regions are linked to NCQA PCMH certification. This has been a challenge for many practices because certification

requires attention to other aspects of a practice, such as access and electronic data availability.[24] In addition, stakeholder partnerships of state government, insurers, other health care purchasers, and providers can be tentative and need to be maintained to facilitate and sustain sweeping changes in health care delivery.

Summary

Pennsylvania residents should not be subjected to less than optimum health, and employers and individuals should not be forced to pay higher premiums because of avoidable costs. Pennsylvanians recognize the necessity of bringing about a transformation of chronic medical care, beginning with a restructuring of primary care delivery and the provision of self-management education and culminating with the alignment of incentives that motivate primary care teams and patients. Implementation of the CCM is predicted to transform care and reduce disease complications, thereby reducing costs. The unique undertaking in Pennsylvania— to merge, for the first time, changes in reimbursement with incentives for CCM implementation—holds significant promise for transforming health care in other regions, as well. Although initial efforts focus on diabetes, practice changes are expected to translate to improved care for other costly chronic diseases, such as asthma and cardiovascular disease.

In a state in which much of the best of American medicine was born and flourished, the implementation of a chronic care program has the potential to reenergize practitioners and patients, who will be given the resources necessary to manage their own well-being. Lessons learned from this initiative ultimately have the potential to serve as a model for other states in ensuring a consistently high quality of care for their citizens.

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