The Patient-Centered Medical Neighborhood and Diabetes Care

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The health care system is changing, and reimbursements are increasingly being linked to quality measures, performance, and, in some cases, cost. The Affordable Care Act provides a financial incentive to find strategies to achieve its triple aim of improving the health of the population, improving quality and access to care, and controlling the costs of care. This era of health care reform presents an unprecedented opportunity for innovative chronic disease management approaches, particularly for diabetes, a highly costly prevalent disease.

Diabetes is increasing in epidemic proportions, affecting 22.3 million Americans. Direct costs of diabetes care are \$306 billion annually, or more than one of every five dollars spent on medical care in the United States.¹ Despite the high cost of care, few patients meet the evidence-based guidelines for diabetes management. Only an estimated 14% of patients are at goal for A1C, blood pressure, LDL cholesterol, and tobacco use.²

The entire health care system is challenged in caring for patients with diabetes, but primary care providers (PCPs) are at the forefront of management, providing > 90% of diabetes management. Increasingly, PCPs have been restructuring their practices into patient-centered medical homes (PCMHs). The PCMH model encourages partnerships between individual patients and their providers through a team-based approach to better coordinate care using population-based registries and combining elements of the Chronic Care Model (CCM).³

The PCMH model has shown promising results as a cost-effective strategy to deliver quality care to

those with chronic diseases, including diabetes.^{4,5} The process of transforming a medical practice into a PCMH is now being supported financially by federal initiatives such as the Medicare Advanced Primary Care Practice and Comprehensive Primary Care demonstrations,⁶ the Bureau of Primary Health Care's call for all federally qualified health centers to become PCMHs, and initiatives of multiple commercial payers nationally.⁷

Diabetes historically has been at the forefront of new models of health care delivery, including the CCM, registry use and population management, team-based care, and self-management education and support. Many PCMH pilot programs have targeted diabetes outcomes as a benchmark of success in lowering costs and improving quality.^{5,8,9}

Despite the success of these PCMHs in managing chronic diseases such as diabetes, it is clear that, to improve quality and lower costs, other health care providers must be involved. Coordinated management among physicians, psychologists/mental health professionals, diabetes educators, pharmacists, and dietitians is needed to effectively prevent and care for complications that may arise in patients with diabetes. The concept of the "medical neighborhood" was devised as a model to link PCMHs with other health care services to manage complex diseases such as diabetes.¹⁰

The medical neighborhood can include not only specialists, but also, in the broadest sense, all members of health care delivery, including hospitals, nursing homes, and other community and social service organi-

zations. The patient-centered medical neighborhood (PCMN) is a coordinated system involving all providers that delivers care efficiently and effectively. The concept of the PCMN is rapidly expanding and has received recognition from the National Committee for Quality Assurance, which already has established a recognition program for PCMHs.¹¹

PCMHs have been explored in both large- and smaller-scale health care settings. An example of an integrated large-scale system would include health networks that share electronic medical records among hospitals, PCMH practices, and PCMN specialists, diabetes educators, and pharmacists. Such a system has the potential to make patients' health information available to all providers of care in both the inpatient and outpatient settings to readily facilitate comprehensive care.

Such a system is not practical in most health care environments. However, PCMHs can still be used on a smaller scale following the same concept. PCMH practices rely heavily on diabetes educators to provide patient education and adjust insulin regimens based on orders; dietitians to counsel patients to reinforce lifestyle and education; psychologists to address any comorbid psychiatric conditions; and specialists when comorbidities arise. Linking these providers together and using registries is important to developing a successful PCMN.

Communication between PCPs and specialists is another essential factor for successful PCMHs. To better optimize these interactions, the American College of Physicians' Council of Subspecialty Societies' Patient-Centered Medical Home Workgroup categorized PCMH and PCMH-N (PCMH-Neighbor) interactions into four types of arrangements between PCPs and specialists: pre-consultation, formal consultation, co-management, and transfer of care to the specialist.¹² The arrangements are intended to be flexible and could change over time and with the disease course. Diabetes is a prime example of a chronic disease that can be managed through these four categories.

1. Pre-consultation Exchanges

The goal is to triage consultations such that certain clinical questions may be answered without an in-person visit. This can potentially limit unnecessary referrals and improve wait times for appointments. Traditionally, there has been no reimbursement for triaging consultations. However, the increasing adoption of reimbursement models based on capitated total costs of care (such as that of accountable care organizations [ACOs]) may provide the economic incentives for greater adoption.¹³ These kinds of consultations could include determining whether patients require insulin and what their goal A1C should be given their comorbidities. Another example might include asking what second oral agent might be appropriate, while leaving management with the PCP.

2. Formal Consultations

These are in-person patient visits with specialists limited to one or a few visits to answer specific clinical questions. After these visits, care is ultimately returned to the PCP with recommendations for ongoing management. An example would include starting a patient on basal insulin, titrating the dose for optimal glucose control, and then returning the patient to the PCP for ongoing care with parameters regarding when another insulin injection might need to be added.

3. Co-management

This can involve either shared management of a disease, principal care of a disease, or principal care of a patient for a consuming illness for a limited period. In shared management, the PCP typically is responsible for the day-to-day management of the disease, whereas the specialist provides initial expertise and ongoing assistance. Principal care involves shared responsibility for treating an illness, but the PCMH-N is limited to a specific set of problems, whereas the PCMH continues to manage overall care. An example would be an endocrinologist initiating and managing insulin pump therapy but sending the patient back to the PCP for management of diabetes comorbidities. Finally, the PCMH-N can

assume complete care of the patient on a time-limited basis and then return patient care to the PCMH afterward. Most diabetes patients probably fall into this category. An example would be a patient who goes to an endocrinologist to be started on basal-bolus insulin therapy and titrated to goal, with further ongoing treatment provided by the PCP.

4. Transfer of Care

Transfers occur with agreement of all involved parties, and the specialty practice should meet the requirements of an approved third-party PCMH recognition process. This type of consultation agreement would be used for chronic diseases requiring multiple visits for a prolonged period of time. An example would be patients with complex diabetes who use insulin pumps being managed entirely by endocrinologists.

In addition to defining consultation arrangements, innovative strategies need to be developed to better use the relatively scarce resources of health care professionals such as diabetes educators and specialist physicians. E-consultation, electronic communications through which PCPs ask specialists a clinical question before referring a patient for an in-person consultation, is one such effort to efficiently use resources. The consultant can review the patient's chart and answer the question, recommend that the patient be seen in person, or ask for additional information and continue to communicate with the referring physician electronically.

This type of triaging system would be expected to be most useful for specialties that rely heavily on laboratory tests and less on patient examination, such as endocrinology and nephrology.¹⁴ A recent study evaluating e-consultation showed that median wait times for routine appointments in specialties with long wait times significantly improved. Most physicians found tracking referrals to be easier, and 72% of PCPs reported improved care through better guidance for pre-visit evaluations.¹⁵

Another example of a project that attempts to leverage specialist resources is Project Extension for

Community Healthcare Outcomes (Project ECHO). Project ECHO was launched in 2004 in 32 rural, underserved New Mexico counties.¹⁶ Its aim is to educate PCPs using specialist-led, case-based learning to increase PCPs' knowledge about cases that were traditionally handled by specialists. Group sessions with providers are held via Internet teleconference twice monthly to discuss patient cases and ultimately guide clinical decision-making.

Project ECHO is now being expanded to address other chronic illnesses, and a pilot Diabetes and Cardiovascular Care ECHO is underway that involves not only physician specialists, but also experts from pharmacy, psychology, optometry, social work, nutrition, and certified diabetes education to provide a comprehensive approach to addressing patients' needs.¹⁷ Project ECHO is currently collecting data on this cardiovascular care pilot.

Conclusion

Recent changes to health care reimbursement represent an exciting new opportunity for the development of innovative approaches to better manage patients with diabetes. The traditional fee-for-service reimbursement model has often made team-based care less economically feasible and left efforts by endocrinologists, diabetes educators, and others within a diabetes center not fully reimbursed. Now, for the first time, better diabetes care can lead to both lower costs and higher reimbursements through the use of ACOs and other risk-based contracting mechanisms. ACOs manage the overall cost of patient care and aim to lower costs and improve quality. This may lead to reimbursements for traditionally noncovered services such as e-consultations, review of glucose meter data, and between-visit titration of insulin, all of which may reduce hospitalizations, long-term complications, and ultimately costs.

These renewed incentives for investments in better team-based diabetes care can make it more feasible to engage a care team of clinicians, nurses, educators, dietitians, psychol-

ogists, pharmacists, and others to collaborate to improve overall patient care. Registries make it possible to systematically identify the highest-risk patients for referral to diabetes educators who can identify barriers to care and serve as care managers.

The field of diabetes care has long blazed the trail in initiating new health care delivery models. Now, once more, there is an enormous opportunity for diabetes to become the prototype condition that helps to define what a truly functional PCMN might look like to provide better care at lower cost. Shifting reimbursement from episodic care to the continuum of care by associated risk-based contracting and ACOs provides the financial imperative to develop models of diabetes care that are well-coordinated, innovative, and integrated. As a community of health care professionals, we should seize this opportunity to find better innovative approaches to improve the care for our patients.

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