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APPROACHES TO
DIABETES AND
RELATED DISEASES

A SUPPLEMENT TO DIABETES SELF-MANAGEMENT

November/December 2010

MANAGING DIABETES IN THE LONG-TERM CARE SETTING

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Keys to a Certified Patient-Centered Medical Home for Diabetes

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According to the National Committee for Quality Assurance (NCQA), a Patient-Centered Medical Home is a primary health-care setting in which prevention and treatment are provided through the collaboration of physicians, patients, and family members. The purpose is to improve the quality of health care, in part through involvement of patients, while eliminating unnecessary health-care expenditures. Provision of evidence-based, coordinated, patient-centered care is documented by registries and other information technologies. This article describes some of the criteria for recognition as a medical home, barriers and solutions to implementing a medical home, and the role of teamwork in the process.

Defining the Patient-Centered Medical Home

In 2008, the NCQA published a set of standards and guidelines for the Patient-Centered Medical Home (1). The standards were created in collaboration with the American Academy of Family Physicians, the American College of Physicians, the American Academy of Pediatrics, and the American Osteopathic Association. The NCQA stated in the publication that the Patient-Centered Medical Home was created as a response to a decreased interest in primary care as a career choice.

For a medical practice to be considered a Patient-Centered Medical Home according to NCQA's Physician Practice Connections Recognition Program, it must document compliance with several practice standards, and, in particular, with 10 required or "must-pass" elements, as follows (1):

- Develop and evaluate written practice policies for patient access and communication
- Use data to document meeting these standards
- Organize clinical data with paper or electronic tools
- Identify three important medical conditions
- Use evidence-based guidelines for the three conditions

- Create and evaluate patient self-management tools
- Follow up and track the results of ordered tests
- Track referrals with paper or electronic system
- Measure clinician and practice performance
- Report aggregate and individual performance for the three medical conditions to physicians and other agencies

Barriers to Implementing the Medical Home

Lack of policies and strategies. Many primary-care physicians believe that they incorporate these principles in their practice, but in fact find that they lack written policies, team-based strategies, and the means to document achievement. Many practices have strengths that will aid in meeting the elements of the medical home, but may lack the resources to achieve many of the elements (2). Barriers include a lack of registries, minimal use of evidence-based measuring tools, few processes to document achievement of evidence-based standards, and ineffective use of practice teams. Unfortunately, electronic medical records do not provide disease registries or the reports that help overcome these barriers.

Resistance to measurement. Another barrier to implementing the Patient-Centered Medical Home is a physician culture that does not value or welcome measurement of its performance. Physicians and their staff may reject efforts to be measured, or, once measurements are available, they may seek to discredit the process or shift blame (to patients or the administration). This behavior probably results from insurance-company measurements that label physicians as "outliers" and a medical education system (medical school, residency, and continuing education) that seldom incorporates measurement as a critical part of outpatient care. This barrier has led physicians to believe that measurement is a grade or an evaluation of worth.

Berwick has suggested that the only way to change this attitude is to view measurement as the beginning of an improvement process that facilitates change (3). To transform this culture of blame into one that values measurement, clinicians within an individual practice must help all staff members understand that the measurements reflect their "system of care," not the care each one of them delivers. Once staff members recognize "systems as the cause," the next step is to "create new systems" to change the measurements. This paradigm shift is the backbone of the medical home.

Lack of teamwork. An additional barrier is the inability to work as a team. Physician training occurs mostly in the hospital, and outpatient training does not usually stress effective team care. Delegation of tasks to assistants in the outpatient setting is not modeled or encouraged. Team meetings may be held, but they do not model shared problem solving. Inadequate reimbursement has forced primary-care practices to hire medical assistants rather than nurses to help in the office. Additional clinician effort is required to help medical assistants accept delegation and incorporate many of these tasks into their daily routine. The ability to effectively train medical assistants (or nurses) is not a skill that is taught to physicians, and it is seldom modeled. In fact, formal and informal education of office staff is usually conducted by individuals who do not understand the new paradigm required for the medical home. Changes in nursing and medical-assistant training will assist this process, but the physician will need to complement the training to accommodate to the rapidly changing health-care environment.

With proper training, office staff can perform multiple functions and thereby increase the capacity of the physician. There is so much work that only the physician can perform and never enough time to do it. Therefore, if a function can be done effectively by a member of the staff, it should be delegated. Office policies can be created that guide staff to order evidence-based yearly laboratory tests or immunizations for a chronic disease such as diabetes. It takes a medical degree and residency training to stay up to date on the latest standards, interpret test results, and deal with a patient who refuses testing, but not to perform routine ordering. Physicians do not

have a good track record of performing routine activities unless they have an effective office system for delegation.

In short, team care improves health outcomes and reduces health-care costs by increasing the number and quality of services that are provided. Physicians are then free to perform the tasks they are best suited to perform. The key is that the physician is the head of the team and is involved in the creation and management of the team.

The Diabetes Master Clinician Program Can Help Practices Overcome Barriers and Develop a Medical Home

Structure of the program. In 2003, in response to a need to improve chronic-disease care, the Florida Academy of Family Physicians Foundation created the Diabetes Master Clinician Program (4, 5). Diabetes was chosen because it is a common and costly condition, and excellent evidence indicates that improvement in quality parameters decreases morbidity and mortality.

The backbone of the program is the diabetes registry, which serves as a means of documenting improvements in diabetes care. The registry currently contains more than 17,000 patients and 65,000 visits. The program and registry are currently used by 95 practices, 200 clinicians, and 450 staff members. A research assistant enters all of the practice's diabetes patients in an Internet-based diabetes registry. Grant funds support data entry by a person independent from the practice. After data entry is complete, each practice participates in a training program. The training includes a discussion of the evidence-based standards of care for diabetes, dyslipidemia, and hypertension (6–8), followed by a review of data from the practice.

Practice reports. Practices have immediate access to reports that aid the medical-home certification process. For example, the reports indicate whether standards of care are being achieved, identify patients who are not at goal for any of the quality indicators, and also include patient report cards that serve to educate patients. These reports would be discussed at a team meeting, and strategies would be developed for addressing gaps in goal achievement. The NCQA requires practices to document the solutions that are developed to address gaps. Notes from follow-up

TABLE 1.**PRACTICE REPORT: NUMBER OF PATIENTS MEETING GOALS FOR STANDARDS OF CARE**

CLINIC ID		HbA _{1c}	LDL	BP	HbA _{1c} , LDL, BP
99	% that met goals	52%	49%	48%	19%
All clinics	% that met goals	56%	57%	56%	24%
Goals		<7.0	<100	<130/80	

PARAMETER	GOAL	ALL CLINICS	CLINIC 99
Number of patients	—	16,051	280
Number of visits	—	50,457	759
Clinical values			
Weight (lb)	—	211	200
BMI (kg/m ²)	—	34	32
BP (mm Hg)	<130/80	132/77	128/74
HbA _{1c} (%)	<7.0	7.3	7.1
Total cholesterol (mg/dl)	<200	180	172
LDL (mg/dl)	<100	100	92
HDL (mg/dl)	Male: >40 Female: >50	46	46
Non-HDL (mg/dl)	<130	134	126
Triglycerides (mg/dl)	<150	174	163
% of patients meeting goal			
Dilated eye exam	Once a year	17%	8%
Foot exam	Once a year	28%	10%
Urine microalbumin	Once a year	26%	7%
Pneumovax	Once	28%	20%
Flu shot	Once a year	19%	31%
Daily aspirin	100%	47%	40%

BMI indicates body mass index; BP indicates blood pressure; HbA_{1c} indicates glycosylated hemoglobin; LDL indicates low-density lipoprotein cholesterol; HDL indicates high-density lipoprotein cholesterol.

meetings would document the level of success in diminishing these gaps. These reports aid the NCQA certification process through achieving the basic elements of organizing clinical data, identifying three important medical conditions, using evidence-based guidelines for the three conditions, creating and evaluating patient self-management tools, empowering and effectively using office staff, and following up and tracking ordered tests and referrals. With the use of these reports, the

practice can complete many of the online tools required by NCQA for certification.

Tables 1, 2, and 3 are examples of population reports from a practice. Table 1 indicates whether the standard of care is being achieved for diabetes, dyslipidemia, and hypertension. The data are used to compare goal achievement of the practice ("Clinic 99") with that of all other practices in the Diabetes Master Clinician Program project. Table 1 reveals several gaps in care that this practice

TABLE 2.**PRACTICE REPORT: MOST RECENT HBA1C AT DIFFERENT RISK LEVELS***

RESULTS FOR CLINIC 99			
HbA _{1c} level	Very high (average >9.0%)	High (average 7.0–9.0%)	Target (average ≤7.0%)
Number of patients	50	102	111

RECORD NUMBER	AVERAGE HbA _{1c}	NUMBER OF TESTS	NUMBER OF VISITS
240	13.4	1	2
243	13.2	1	1
07	13.0	2	2
211	11.8	1	2
227	11.6	2	3
115	11.6	1	1
15	11.5	2	3
05	10.6	1	1
42	10.4	3	3
10	10.3	3	3

HbA_{1c} indicates glycosylated hemoglobin.

*Similar reports are available for low-density lipoprotein cholesterol, non-high-density lipoprotein cholesterol, triglycerides, and blood pressure.

TABLE 3.**PRACTICE REPORT: PATIENTS WHO HAVE NOT HAD AN EYE EXAM IN THE LAST YEAR***

NAME	DATE OF LAST EXAM
Jane Doe	01/15/2009
Mickey Mouse	10/11/2009
Sam Spade	09/15/2009
Santa Claus	07/07/2008
Lotta Dough	05/14/2008
Prince Charming	01/24/2009
James Dean	01/22/2008

*The patients listed in this report are fictitious.

might consider addressing as a team, including the target level for glycosylated hemoglobin (HbA_{1c}) and the performance of dilated eye exams, sensory foot exams, and urine microalbumin. Table 2 is a list of patients who are not at goal for HbA_{1c} and can be used to address the problem of elevated HbA_{1c}. Table 3

TABLE 4.**CHANGE IN ONE PRACTICE OVER 8 MONTHS***

PROCEDURE	START	8 MONTHS LATER
Dilated eye exam	2%	59%
Foot check	10%	82%
Urine microalbumin	6%	63%
Pneumovax	32%	76%
Flu shot	1%	66%
Daily aspirin	45%	65%

*Percentage of patients meeting the goal.

is an example of a report that clinicians and staff can use to increase the number of patients who obtain annual or periodic check-ups. In this case, the table is a list of all the patients who are overdue for an annual eye exam. Similar reports are available for other periodic tests. The physician, staff champions,

TABLE 5.**PATIENT REPORT CARD**

Age 63		Sex: Male	MR# 7554	
CATEGORY	GOAL		AUG 2010	MAY 2010
Weight			235	240
BP	Less than 130/80; best if 120/80		125/80	148/88
Tests				
HbA _{1c} (sugar for 3 months)	Less than 7%; best if 6%		6.5	8.5
LDL ("lousy" cholesterol)	Less than 100; best if 70		170	165
HDL ("happy" cholesterol)	Greater than 40		37	35
Triglycerides (a bad fatty substance)	Less than 150		150	250
Medications				
Aspirin (prevents heart attacks)	Take daily		Yes	Yes
IMPORTANT YEARLY ACTIVITY	GOAL	STATUS	NEXT TEST DUE	MOST RECENT TEST
Eye check (to prevent blindness)	1 time a year	Overdue		
Foot check (to prevent sores and numbness)	1 time a year	Completed	5/22/2011	5/22/2010
Urine microalbumin (to check for kidney failure)	1 time a year	Completed	5/22/2011	5/22/2010
Flu shot (to prevent flu)	1 time a year	Overdue		
Pneumovax (to prevent special pneumonia)	Once in lifetime; 2 times if first given before age 65	Completed		
Smoking is dangerous to your health and increases the complications of diabetes.	Please stop smoking.	Current smoker		

BP indicates blood pressure; HbA_{1c} indicates glycosylated hemoglobin; LDL indicates low-density lipoprotein cholesterol; HDL indicates high-density lipoprotein cholesterol.

and team leaders are responsible for downloading these reports from the registry and presenting them to the practice team.

Table 4 is an example of what happens when a practice delegates and empowers its staff to perform routine tasks. The practice reviewed its data as a team and developed strategies for addressing multiple gaps in care. Their strategies included policies that empowered staff to perform monofilament foot exams, obtain urine microalbumin tests, and give immunizations for influenza and Pneumovax if they were indicated. This report satis-

fies the requirement for reporting changes in achieving standards as well as for tracking referrals. In this case, eye exams were chosen as the item to monitor for referrals. Changes in staff procedures included sending a note to the ophthalmologist and optometrist and asking both to send a note back about the referral, asking patients if they followed up on the referral, and arranging for an optometrist to visit the office periodically to perform exams. **Patient reports.** Finally, a report card (Table 5) is also generated for patients. This report is one of the most effective in the Diabetes Mas-

ter Clinician Program. It involves patients in their own care by informing them of their goals and the reasons for the goals. Patients are thereby empowered to become effective members of the team and take responsibility for achieving health-care goals through self-management. The NCQA requires involvement of patients in their care and the provision of patient-education materials that consider literacy; this report aids with achieving that requirement. Patients are given this report by the nurse or medical assistant who places them in the exam room. A note can be placed in the chart indicating that the report was given to the patient, and a copy of the report can also be placed in the chart. Periodic audits of adherence to this NCQA requirement would be discussed at team meetings.

The Team Meeting

Purpose of the meeting. The team meeting is the place to present data and discuss the reaction to being measured, and for physicians and staff to suggest strategies for making system changes. Staff members are encouraged to look for barriers that create gaps and solutions for addressing the gaps. The meeting moderator encourages both physicians and non-physicians to participate. For a team to be effective, it must overcome several potential issues, including lack of trust, fear of conflict, lack of commitment, avoidance of accountability, and inattention to the results presented. As mentioned earlier, the practice reports can be used to document multiple items in the NCQA standards list. Specifically, they help to demonstrate empowering and effective use of office staff, follow-up and tracking of ordered tests and referrals, measurement of clinician performance, and reporting for the three medical conditions.

Other members of the team. Once the internal office team is developed, certified diabetes educators (CDEs) and registered dietitians (RDs) offer aid directly to patients and as consultants to the office team. Many patients receive initial education from CDEs and RDs, but this teaching may not be reinforced in the primary-care office setting. Programs that enhance the relationship of CDEs and RDs with office nurses and medical assistants will empower the office team and help patients improve their self-management. This collaboration is also a significant aid to developing a

medical home. The Diabetes Master Clinician Program has developed a pilot program for this type of collaboration, but more programs are needed to enhance collaboration among CDEs, RDs, and the primary-care office team.

Summary

A medical practice can become an NCQA-certified Patient-Centered Medical Home if physicians and staff members understand the necessary practice standards, the natural barriers to measuring health-care provision, and the use of collaborative practice teams. The Diabetes Master Clinician Program aids in the establishment of a medical home specific to diabetes care through its Internet-based diabetes registry and various practice reports documenting the achievement of standards of care. The ultimate goals are to enhance compliance with diabetes practice guidelines through evidence-based medicine and to improve diabetes self-management by patients.

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