AADE Position Statement

Diabetes Educators: Implementing the Chronic Care Model

Diabetes is an increasingly common disease that imposes a burden on individuals with the disease, their families, and society as a whole and is a leading cause of death in the United States.[1-3] The disease has received increasing attention by the media and health care organizations as prevalence rates and costs continue to rise.[1-7] Because diabetes requires active self-care methods to promote and provide diabetes self-management education (DSME), the growing population of those with diabetes needs to be examined, and a more appropriate health care model needs to be engaged. Diabetes educators and all disciplines would be well advised to consider using a proven health care delivery model in an effort to enhance outcomes for people with diabetes by creating opportunities for access and sustainability of DSME. The chronic care model (CCM), as described by Wagner et al,[8] provides a multifaceted framework for redefining the current views on health care delivery and has been shown to improve processes and outcomes.[9-11]

Background

Quality diabetes care is essential for the prevention of the devastating complications of this chronic disease and its effect on quality of life. Yet quality of care is far less than expected regardless of the health care setting or patient population.[12] Because the traditional health care system is designed to provide a symptom-driven response to acute illnesses, it is poorly configured to meet the needs of those with chronic disease.[8] Models that are focused on both outcomes and prevention have been developed and proposed as viable alternatives to the care systems currently in place to address these problems.[13] The CCM (Figure 1) provides a paradigm shift from the current model of health care delivery that is

This is an official position statement of the American Association of Diabetes Educators (AADE). AADE is a multidisciplinary professional membership organization of health care professionals dedicated to integrating successful self-management as a key outcome in care of people with diabetes and related conditions.

Position Statement Coordinator

Linda M. Siminerio, PHD, RN, CDE

Position Statement Writing Team

Linda M. Siminerio, PhD, RN, CDE

Scott R. Drab, PharmD, BC-ADM, CDE

Robert A. Gabbay, MD, PhD

Kathleen Gold, MSN, RN, CDE

Sue McLaughlin, BS, RD, CDE, CPT

Gretchen A. Piatt, PhD, MPH

Joe Solowiejczyk, MSW, RN, CDE

Richard Weil, MEd, CDE

AADE Professional Practice Committee Liaison

Carla J. DeJesus, MS, RD, LDN, CDE

AADE Board approval: November 2007

DOI: 10.1177/0145721708316627

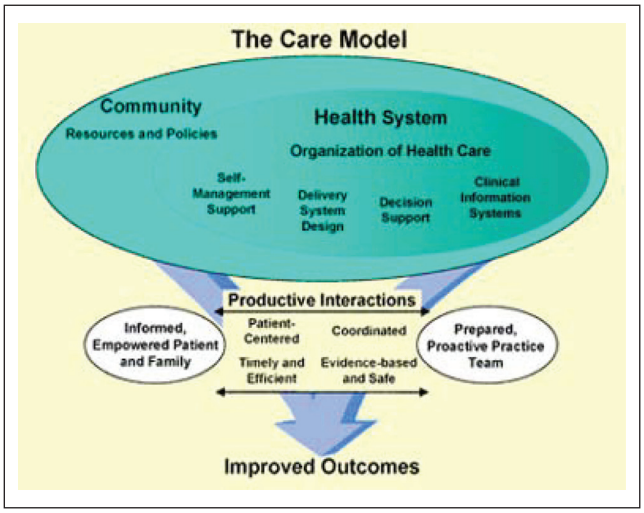

Figure 1. The care model.

designed to handle acute problems to a system that is prevention based and focused on avoiding long-term problems, including diabetes complications.[8] The premise of the model is that quality care is not delivered in isolation but (1) interfaces with the community and its resources, (2) includes self-management support, (3) shifts how care is delivered within the health care system, (4) is based on decision support and evidence, (5) is driven by clinical information systems, and (6) is offered in settings and/or organizations that value chronic care. The result of this shift in the locus of care is a productive interaction between a proactive practice team and prepared activated person with diabetes that drives clinical and functional improvement.[8,13] Other CCMs such as the ecological model incorporate other concepts but may be applicable for only certain situations and populations.[14,15]

The CCM refined by Wagner is a construct that provides a long-term management approach. Wagner's CCM answers the need to have a systematic, comprehensive system of care that serves the needs of both patients and providers.[16,17] This CCM indicates that DSME can occur in relation to different parts of the health care system encompassed by the CCM, including primary care settings. Table 1 provides examples and recommendations for diabetes educators who are using the CCM framework.

Diabetes education, also known as diabetes self-management training (DSMT) or DSME, is a collaborative process through which people with, or at risk for, diabetes gain the knowledge and skills needed to modify behavior and successfully self-manage the disease and its related conditions. DSMT/DSME is an interactive, ongoing process involving the person with diabetes (or the caregiver or family) and a diabetes educator(s). The intervention aims to achieve optimal health status, achieve a better quality of life, and reduce the need for costly health care.

Diabetes education focuses on 7 self-care behaviors that are essential for improved health status and greater quality of life. The AADE7™ Self-Care Behaviors are healthy eating, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risks. The Wagner CCM identifies key elements that are critical to success.

Elements

1. Health care organization/organization of health care. This element provides the structural foundation (philosophically and literally) on which the remaining 4 components of the CCM rely (Figure 1). Understanding the mission, goals, and values of the provider organization and its relationship with purchasers, insurers, and health care providers is the key to successful CCM implementation. It is doubtful that meaningful improvement in chronic disease care can be achieved without committed leadership and resources.[18]

2. Community resources and policies. Communities provide individuals with diabetes, their caregivers, friends, and employers with a variety of ancillary services that provide support for diabetes self-management. Policies define relationships within a community between various agencies (eg, networks, how services are accessed and provided, etc). Policies are also important for reimbursement and sustainability.

3. Decision support. Decision support uses specialist expertise to establish evidence-based clinical practice guidelines, standards, and protocols. Use of these evidence-based tools can be facilitated through provider education and support programs.

4. Self-management support. This element engages the patient in the active self-management of his or her illness. When informed patients take an active role in managing their disease and providers are prepared, proactive, and supported with time and resources, their interaction is likely to be productive.[11] The goal is to customize care

Table 1

Examples/Recommendations for Diabetes Education Applications Using the Chronic Care Model Framework

Health system
Lay out master plan
Engage key stakeholders
Establish objectives and a mission statement
Work with leadership
Present outcomes of diabetes self-management education (DSME) interventions to administration, board of directors, and stakeholders
Community
Assess target populations
Implement surveys, town hall meetings, and focus groups
Identify community sites
Work with community partners in churches, wellness sites, schools
Partner with insurers, government agencies, policy makers
Decision support
Identify and implement guidelines, standards, algorithms, and protocols
Organize training for health care providers
Clinical information systems
Implement a registry that evaluates the delivery of care across patient populations; ensure DSME services and SMS documentation are integrated into the primary care information system
Self-management
Explore every opportunity to engage person with diabetes in the provision of self-care
Implement strategies to support behavior change
System redesign
Explore the provision of DSME in primary care, libraries, pharmacies, and community centers
Engage new partners and approaches for DSME support such as community workers, office staff, and telephonic and computer systems

to engage the patient in setting goals that change their behavior to self-manage their diabetes.[19]

5. Clinical information systems. These systems are necessary for collecting and housing timely, useful data about individual patients and populations of patients, using tools such as patient registries and care reminders. The information system allows quality measures to be assessed and care evaluated, providing ongoing feedback to the provider and patient.

6. Delivery system design. This element defines team roles and delegates tasks. Planned management ensures continuity of care and regular follow-up through redesigning how care is delivered.

CCM Paradigm

Because of its multifaceted nature, quality diabetes care requires an integration of the patient into a health system that promotes long-term management,[14,20] rather than a system in which care is provided episodically. Unlike acute illnesses, diabetes encompasses behavioral, psychosocial, psychological, environmental, and clinical factors, all of which require team-based support from a variety of health care disciplines.[21-24] The implementation of the CCM creates this shift to continuity of care and long-term self-management.

An integral facet of the CCM is the importance of self-management support. A growing body of evidence demonstrates that interventions that foster patient

self-management behaviors improve health status and lower health care costs in chronic disease.[19,20,25] DSME is critical in laying the foundation for promoting the knowledge and skills necessary for patients with diabetes to appropriately perform and manage self-care tasks. DSME is now widely considered to be an important part of diabetes management.[26,27] Healthy People 2010 aimed to increase the number of people who receive diabetes education from 40% (1998) to 60% (2010).[28] However, the number of individuals who receive diabetes education is disappointingly small (unpublished AADE analysis of Centers for Medicare & Medicaid Services 2005 and 2006 data).[29,30] Progress is, however, being made in meeting that goal.[31]

Access to education has been identified as a potential barrier, particularly in communities where the closest DSME program may be miles away.[32] Another potential problem may be the traditional way in which education is prescribed and delivered. In many areas, physicians are encouraged by their affiliated institutions to refer patients with diabetes to a centralized hospital-based DSME program. This process is consistent with the current system of health care delivery as it applies to acute care where services are provided at a hospital. Although more than 90% of patients with diabetes are cared for by primary care physicians),[33] education is rarely available in the primary care office.[34,35] Efforts to deploy quality education in community sites that include primary care practices need to be explored.

Another challenge for the provision of DSME is sustainability of program services. In a survey of educators conducted by the American Association of Diabetes Educators (AADE) and American Diabetes Association (ADA), educators reported program closings and expressed frustration with the implementation of Medicare benefits.[36] Inadequate reimbursement for services provided (by Medicare and others) has led to the closure of DSME programs, as organizations seek to cut expenses when financial stability cannot be demonstrated.[37] Findings from this survey confirmed other study results indicating that diabetes education is an underused service[36] and that reimbursement practices were poor. Both the AADE and ADA have concluded that adoption of a systems approach specific to DSME is critically important and much needed.[36]

The CCM has already been shown to be an effective means of implementing and sustaining DSME programs[10,32,38] because it emphasizes self-management, provides an ideal framework for a systematic approach, and supports the inclusion of all members of the diabetes health care team in contrast to traditional methods. The model can help increase access to DSME for more patients. The CCM is also gaining momentum as a systems-based response to chronic disease care and can be applied in most any setting, ranging from community-based programs to inpatient facilities. Several health care organizations[38] and state governmental organizations and professional associations are currently looking at modeling care around a CCM. As the incidence of diabetes continues to increase at rapid pace, systematic approaches need to be established so that DSME may be accessible to the ever-increasing pool of people with diabetes. Leveraging an increased interest in the CCM (to further foster DSME in the current health care environment) may help to provide new avenues of support for appropriate reimbursement and dissemination of this evidence-based approach.

Recommendations

First and foremost, educators need to expand opportunities for changing practice and be open to change. The CCM provides a template for diabetes educators to explore collaboration with multiple stakeholders in their local health care systems and communities. Potential partners include organization administrators, financial officers, information systems, insurers, employers, and policy makers. This template leads to searches for opportunities outside of traditional educator roles, such as the development of business models for sustainability, strategic planning, and integrating technological approaches and data management. The model also challenges diabetes educators to

- develop partnerships with community facilities such as wellness and senior centers,
- seek opportunities to collect and share outcomes data on diabetes education,
- overlap responsibilities with other team members, and
- form consortia and/or organize systemwide quality initiatives.

Conclusions

Diabetes is a serious disease that requires a person to make daily decisions about his or her self-care. To

promote good health, the person with diabetes needs to be proficient in key self-care behaviors that include themes such as the AADE7™ Self-Care Behaviors: eating healthy, being active, monitoring, taking medication, problem solving, healthy coping, and reducing risk.[39-45] Provision of DSME is critical in laying the foundation that promotes knowledge, skills, and self-care behavior change strategies. To increase the number of people who receive DSME, a comprehensive, systematic approach is necessary. The CCM provides an ideal framework to support DSME because it provides a cogent basis on which to promote self-management based on the AADE7™ framework.

Developing systems that promote accessible, sustainable DSME services that affect health outcomes has large-scale public health implications. Organizing efforts to support the facilitation of DSME is critical if we expect to meet the Healthy People 2010 education objectives.

References

1. Diabetes: Disabling Disease to Double by 2050. At a Glance. Centers for Disease Control and Prevention, Department of Health and Human Services Web site. http://www.cdc.gov/nccdphp/publications/aag/ddt.htm.
2. Centers for Disease Control and Prevention. Prevalence of diabetes. In: National Diabetes Surveillance System. Atlanta, GA: Centers for Disease Control and Prevention; 2005.
3. Cowie CC, Rust KF, Byrd-Holt DD, et al. Prevalence of diabetes and impaired fasting glucose in adults in the U.S. population: National Health and Nutrition Examination Survey 1999-2002. Diabetes Care. 2006;29:1263-1268.
4. Vinicor F, Rufo K, Murphy D. Diabetes and public health in the United States. In: De Fronzo RA, Ferrannini E, Keen H, Zimmet P, eds. International Textbook of Diabetes Mellitus. 3rd ed. Chichester, UK: John Wiley & Sons; 2004:1785-1792.
5. Amos AF, McCarty DJ, Zimmet P, et al. The rising global burden of diabetes and its complications: estimates and projections to the year 2010. Diabet Med. 1997;14:S1-S85.
6. Rubin RR, Altman WM, Mendelson DN. Health care expenditures for people with diabetes mellitus. J Clin Endocrinol Metab. 1994;78(4):809A.
7. American Diabetes Association. Economic costs of diabetes in the U.S. in 2002. Diabetes Care. 2003;26;917-932.
8. Wagner EH, Austin BT, Von Korff M. Organizing care for patients with chronic illness. Milbank Q. 1996;74:511-544.
9. Wagner EH, Glasgow RE, Davis C, et al. Quality improvement in chronic illness care: a collaborative approach. Jt Comm J Qual Improv. 2001;27(2):63-80.
10. Siminerio L, Zgibor J, Solano FX Jr. Implementing the chronic care model for improvements in diabetes practice and outcomes in primary care: the University of Pittsburgh Medical Center experience. Clin Diabet. 2004;22(2):54-58.
11. Bodenheimer T, Wagner EH, Grumbach K. Improving primary care for patients with chronic illness: the chronic care model, part 2. JAMA. 2002;288(15):1909-1914.
12. Saadine JB, Engelgau MM, Beckles GL, Gregg EW, Thompson TJ, Venkat Narayan KM. A diabetes report card for the United States: quality of care in the 1990's. Ann Intern Med. 2002; 136(8):565-574.
13. Wagner EH, Austin BT, Von Korff M. Improving outcomes in chronic illness. Manag Care Q. 1996;4(2):12-25.
14. Funnell MM, Peyrot MF, Rubin RR, Siminerio LM, eds. Steering toward a new DAWN in diabetes management. Diabetes Educ. Supplement for Continuing Education; 2005.
15. Fischer DB, Walker EA, Bostrum A, Fischhoff B, Haire-Joshu E, Bennett Johnson S. Behavioral science research in the prevention of diabetes. Diabetes Care. 2002;25:599-606.
16. Etzwiler DD. Chronic care: a need in search of a system. Diabetes Educ. 1997;23:569-573.
17. Roman SH, Harris MI. Management of diabetes mellitus from a public health perspective. Endocrinol Metab Clin North Am. 1997;26:443-474.
18. O'Connor J, Sperl-Hillen JM, Pronk NP, Murray T. Primary care clinic-based chronic disease care. Dis Manag Health Outcomes. 2001;9:691-698.
19. Committee on Quality of Health Care in America. Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, DC: Institute of Medicine; 2001.
20. Anderson RM, Funnell MM, Butler PM, Arnold MS, Fitzgerald JT, Feste CC. Patient empowerment: results of a randomized control trial. Diabetes Care. 1995;18:943-949.
21. Wagner EH, Austin BT, Von Korff M. Organizing care for patients with chronic illness. Milbank Q. 1996;74:511-544.
22. Wagner E. The role of patient care teams in chronic disease management. Br Med J. 2000;320:569-572.
23. Peyrot M, Rubin RR, Lauritzen T, Snoek F, Matthews D, Skovlund S; on behalf of the International DAWN Advisory Panel. Psychosocial problems and barriers to improved diabetes management: results of the cross-national Diabetes Attitudes, Wishes and Needs (DAWN) study. Diabet Med. 2005;22:1379-1385.
24. Skovlund SE, Peyrot M; DAWN International Advisory Panel. Lifestyle and behavior: the Diabetes Attitudes, Wishes and Needs (DAWN) program: a new approach to improving outcomes of diabetes care. Diabetes Spectrum. 2005;18:136-142.
25. Glasgow RE, La Chance PA, Toobert DJ, Brown J, Hampson SE, Riddle MC. Long-term effects and costs of brief behavioural dietary intervention for patients with diabetes delivered from the medical office. Patient Educ Couns. 1997;32(3):175-184.
26. Norris SL, Engelgau MM, Narayan KMV. Effectiveness of self-management training type 2 diabetes: a systematic review of randomized controlled trials. Diabetes Care. 2001;24: 561-587.
27. Brown SA. Effects of educational interventions and outcomes in diabetic adults: a meta-analysis revisited. Patient Educ Couns. 1990;16:189-215.
28. US Department of Health and Human Services. Healthy People 2010: Understanding and Improving Health. Washington, DC: US Department of Health and Human Services, Government Printing Office; 2000.

29. Coonrod BA, Betschart J, Harris MI. Frequency and determinants of diabetes patient education among adults in the U.S. population. Diabetes Care. 1994;17:852-858.
30. Hiss RG, Anderson RN, Hess GE, Stepien CJ, Davis WK. Community diabetes care: a 10-year perspective. Diabetes Care. 1994;17:1124-1134.
31. Centers for Disease Control and Prevention. Self-monitoring of blood glucose among adults with diabetes—United States, 1997-2006. MMWR Morb Mortal Wkly Rep. 2007;56(43):1133-1137.
32. Siminerio LM, Piatt G, Zgibor JC. Implementing the chronic care model for improvements in diabetes care and education in a rural primary care practice. Diabetes Educ. 2005;31:225-234.
33. Janes GR. Ambulatory medical care for diabetes. In: Group NDD, ed. Diabetes in America. Vol 95-1468. Bethesda, MD: National Institutes of Health; 1995:541-552.
34. Glasgow R, Eakin E. Medical-office based interventions. In: Snoek F, Skinner C, eds. Psychology in Diabetes Care. New York, NY: Wiley and Sons, 2000; 141-168.
35. Piette JD, Glasgow R. Strategies for improving behavioral health outcomes among patients with diabetes: self-management education. In Gerstein HC, Haynes RB, eds. Evidence-Based Diabetes Care. Ontario, Canada: BC Decker; 2001:207-251.
36. Pearson J, Mensing C, Anderson R. Medicare reimbursement and diabetes self-management training: national survey results. Diabetes Educ. 2004;30:914-927.
37. Siminerio LM, Piatt GA, Emerson S, et al. Deploying the chronic care model to implement and sustain diabetes self-management training programs. Diabetes Educ. 2006;32:253-260.
38. Siminerio L, Zgibor J, Solano FX Jr. Implementing the chronic care model for improvements in diabetes practice and outcomes in primary care: the University of Pittsburgh Medical Center experience. Clin Diabetes. 2004;22(2):54-58.
39. Peeples M, Mulcahy K, Tomky D, Weaver T. The conceptual framework of the National Diabetes Education Outcomes System (NDEOS). Diabetes Educ. 2001;27(4):547-562.
40. Mulcahy K, Peeples MM, Tomky DM, Weaver TW. National Diabetes Education Outcomes System (NDEOS): application to practice. Diabetes Educ. 2000;26(6):957-964.
41. Mulcahy K, Maryniuk M, Peeples M, et al. Diabetes self-management education core outcome measures. Diabetes Educ. 2003;29:768-803.
42. Peeples M, Tomky D, Mulcahy K, Peyrot M, Siminerio L. Evolution of the American Association of Diabetes Educators' Diabetes Education Outcomes Project. Diabetes Educ. 2007;33(5):794-817.
43. Charron-Prochownik D, Zgibor J, Peyrot M, et al. The Diabetes Self-Management Assessment Report Tool (D-SMART®); process evaluation and patient satisfaction. Diabetes Educ. 2007; 33(5):833-835.
44. Zgibor J, Peyrot M, Ruppert K, et al. Using the American Association of Diabetes Educator Outcomes System to identify patient behavior change goals and diabetes educator responses. Diabetes Educ. 2007;33(5):839-842.
45. Peyrot M, Peeples M, Tomky D, Charron-Prochownik D, Weaver T. Development of the American Association of Diabetes Educators' diabetes self-management assessment report tool. Diabetes Educ. 2007;33(5):818-826.