



American Diabetes Association

# 1. Strategies for Improving Care

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## Recommendations

- A patient-centered communication style that incorporates patient preferences, assesses literacy and numeracy, and addresses cultural barriers to care should be used. **B**
- Treatment decisions should be timely and founded on evidence-based guidelines that are tailored to individual patient preferences, prognoses, and comorbidities. **B**
- Care should be aligned with components of the Chronic Care Model (CCM) to ensure productive interactions between a prepared proactive practice team and an informed activated patient. **A**
- When feasible, care systems should support team-based care, community involvement, patient registries, and decision support tools to meet patient needs. **B**

## DIABETES CARE CONCEPTS

In the following sections, different components of the clinical management of patients with (or at risk for) diabetes are reviewed. We highlight the following three themes that are woven throughout these sections that clinicians, policymakers, and advocates should keep in mind:

1. **Patient-Centeredness:** Practice recommendations, whether based on evidence or expert opinion, are intended to guide an overall approach to care. The science and art of medicine come together when the clinician is faced with making treatment recommendations for a patient who would not have met eligibility criteria for the studies on which guidelines were based. Recognizing that one size does not fit all, these Standards provide guidance for when and how to adapt recommendations (e.g., see Section 10. Older Adults and Fig. 6.1. Approach to the Management of Hyperglycemia). Because patients with diabetes are also at greatly increased risk of cardiovascular disease, a patient-centered approach should include a comprehensive plan to reduce cardiovascular risk by addressing blood pressure and lipid control, smoking cessation, weight management, and healthy lifestyle changes that include adequate physical activity.
2. **Diabetes Across the Life Span:** An increasing proportion of patients with type 1 diabetes are adults. Conversely, and for less salutary reasons, the incidence of type 2 diabetes is increasing in children and young adults. Finally, patients both with type 1 diabetes and with type 2 diabetes are living well into older age, a stage of life for which there is little evidence from clinical trials to guide therapy. All these demographic changes highlight another challenge to high-quality diabetes care, which is the need to improve coordination between clinical teams as patients pass through different stages of the life span or the stages of pregnancy (preconception, pregnancy, and postpartum).
3. **Advocacy for Patients With Diabetes:** Advocacy can be defined as active support and engagement to advance a cause or policy. Advocacy in the cause of improving the lives of patients with (or at risk for) diabetes is an ongoing need. Given the tremendous toll that lifestyle factors such as obesity, physical inactivity, and smoking have on the health of patients with diabetes, ongoing and energetic efforts are needed to address and change the societal determinants at the root of these problems. Within the more narrow domain of clinical practice guidelines, the application of evidence level grading to practice recommendations can help identify areas that require more research investment (1). This topic is explored in more depth in Section 14. Diabetes Advocacy.

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## CARE DELIVERY SYSTEMS

There has been steady improvement in the proportion of diabetic patients achieving recommended levels of A1C, blood pressure, and LDL cholesterol in the last 10 years (2). The mean A1C nationally has declined from 7.6% in 1999–2002 to 7.2% in 2007–2010 based on the National Health and Nutrition Examination Survey (NHANES) data (E.W. Gregg, Centers for Disease Control and Prevention, personal communication). This has been accompanied by improvements in lipids and blood pressure control and has led to substantial reductions in end-stage microvascular complications in patients with diabetes. Nevertheless, between 33 and 49% of patients still do not meet targets for glyce-mic, blood pressure, or cholesterol control, and only 14% meet targets for all three measures and nonsmoking status (2). Evidence also suggests that progress in cardiovascular risk factor control (particularly tobacco use) may be slowing (2,3). Certain patient groups, such as young adults and patients with complex comorbidities, financial or other social hardships, and/or limited English proficiency, may present particular challenges to goal-based care (4–6). Persistent variation in quality of diabetes care across providers and across practice settings even after adjusting for patient factors indicates that there remains potential for substantial system-level improvements in diabetes care.

### Chronic Care Model

Although numerous interventions to improve adherence to the recommended standards have been implemented, a major barrier to optimal care is a delivery system that too often is fragmented, lacks clinical information capabilities, duplicates services, and is poorly designed for the coordinated delivery of chronic care. The CCM has been shown to be an effective framework for improving the quality of diabetes care (7). The CCM includes six core elements for the provision of optimal care of patients with chronic disease: 1) delivery system design (moving from a *reactive* to a *proactive* care delivery system where planned visits are coordinated through a team-based approach, 2) self-management support, 3) decision support (basing care on evidence-based, effective care guidelines), 4) clinical information systems (using registries that can provide patient-specific and population-based support

to the care team), 5) community resources and policies (identifying or developing resources to support healthy lifestyles), and 6) health systems (to create a quality-oriented culture). Redefining the roles of the clinic staff and promoting self-management on the part of the patient are fundamental to the successful implementation of the CCM (8). Collaborative, multidisciplinary teams are best suited to provide care for people with chronic conditions such as diabetes and to facilitate patients' self-management (9–12).

### Key Objectives

The National Diabetes Education Program (NDEP) maintains an online resource ([www.betterdiabetescare.nih.gov](http://www.betterdiabetescare.nih.gov)) to help health care professionals design and implement more effective health care delivery systems for those with diabetes. Three specific objectives, with references to literature that outlines practical strategies to achieve each, are delineated below.

#### Objective 1: Optimize Provider and Team Behavior

The care team should prioritize timely and appropriate intensification of lifestyle and/or pharmaceutical therapy for patients who have not achieved beneficial levels of blood pressure, lipid, or glucose control (13). Strategies such as explicit goal setting with patients (14); identifying and addressing language, numeracy, or cultural barriers to care (15–18); integrating evidence-based guidelines and clinical information tools into the process of care (19–21); and incorporating care management teams including nurses, pharmacists, and other providers (22–24) have each been shown to optimize provider and team behavior and thereby catalyze reductions in A1C, blood pressure, and LDL cholesterol.

#### Objective 2: Support Patient Behavior Change

Successful diabetes care requires a systematic approach to supporting patients' behavior change efforts, including 1) healthy lifestyle changes (physical activity, healthy eating, tobacco cessation, weight management, and effective coping), 2) disease self-management (taking and managing medication and, when clinically appropriate, self-monitoring of glucose and blood pressure), and 3) prevention of diabetes complications (self-monitoring of foot health; active participation in screening for eye, foot, and renal complications; and immunizations). High-quality

diabetes self-management education (DSME) has been shown to improve patient self-management, satisfaction, and glucose control (25,26), as has delivery of ongoing diabetes self-management support (DSMS), so that gains achieved during DSME are sustained (27–29). National DSME standards call for an integrated approach that includes clinical content and skills, behavioral strategies (goal setting, problem solving), and engagement with emotional concerns in each needed curriculum content area.

#### Objective 3: Change the Care System

An institutional priority in most successful care systems is providing a high quality of care (30). Changes that have been shown to increase quality of diabetes care include basing care on evidence-based guidelines (19); expanding the role of teams and staff and implementing more intensive disease management strategies (6,22,31); redesigning the care process (32); implementing electronic health record tools (33,34); activating and educating patients (35,36); removing financial barriers and reducing patient out-of-pocket costs for diabetes education, eye exams, self-monitoring of blood glucose, and necessary medications (6); and identifying/developing/engaging community resources and public policy that support healthy lifestyles (37). Recent initiatives such as the Patient-Centered Medical Home show promise for improving outcomes through coordinated primary care and offer new opportunities for team-based chronic disease care (38). Additional strategies to improve diabetes care include reimbursement structures that, in contrast to visit-based billing, reward the provision of appropriate and high-quality care (39), and incentives that accommodate personalized care goals (6,40).

It is clear that optimal diabetes management requires an organized, systematic approach and the involvement of a coordinated team of dedicated health care professionals working in an environment where patient-centered high-quality care is a priority (6).

## WHEN TREATMENT GOALS ARE NOT MET

Some patients and their health care providers may not achieve the desired treatment goals. Reassessing the treatment regimen may require evaluation of

barriers such as income, health literacy, diabetes-related distress, depression, poverty, and competing demands, including those related to family responsibilities and dynamics. Other strategies may include culturally appropriate and enhanced DSME and DSMS, comanagement with a diabetes team, referral to a medical social worker for assistance with insurance coverage, medication-taking behavior assessment, or change in pharmacological therapy. Initiation of or increase in self-monitoring of blood glucose, continuous glucose monitoring, frequent patient contact, or referral to a mental health professional or physician with special expertise in diabetes may be useful.

## References

- Grant RW, Kirkman MS. Trends in the evidence level for the American Diabetes Association's "Standards of Medical Care in Diabetes" from 2005 to 2014. *Diabetes Care* 2015;38:6–8
- Ali MK, Bullard KM, Saaddine JB, Cowie CC, Imperatore G, Gregg EW. Achievement of goals in U.S. diabetes care, 1999–2010. *N Engl J Med* 2013;368:1613–1624
- Wang J, Geiss LS, Cheng YJ, et al. Long-term and recent progress in blood pressure levels among U.S. adults with diagnosed diabetes, 1988–2008. *Diabetes Care* 2011;34:1579–1581
- Kerr EA, Heisler M, Krein SL, et al. Beyond comorbidity counts: how do comorbidity type and severity influence diabetes patients' treatment priorities and self-management? *J Gen Intern Med* 2007;22:1635–1640
- Fernandez A, Schillinger D, Warton EM, et al. Language barriers, physician-patient language concordance, and glycemic control among insured Latinos with diabetes: the Diabetes Study of Northern California (DISTANCE). *J Gen Intern Med* 2011;26:170–176
- TRIAD Study Group. Health systems, patients factors, and quality of care for diabetes: a synthesis of findings from the TRIAD study. *Diabetes Care* 2010;33:940–947
- Stellefson M, Dipnarine K, Stopka C. The chronic care model and diabetes management in US primary care settings: a systematic review. *Prev Chronic Dis* 2013;10:E26
- Coleman K, Austin BT, Brach C, Wagner EH. Evidence on the Chronic Care Model in the new millennium. *Health Aff (Millwood)* 2009;28:75–85
- Piatt GA, Anderson RM, Brooks MM, et al. 3-year follow-up of clinical and behavioral improvements following a multifaceted diabetes care intervention: results of a randomized controlled trial. *Diabetes Educ* 2010;36:301–309
- Renders CM, Valk GD, Griffin SJ, Wagner EH, Eijk Van JT, Assendelft WJ. Interventions to improve the management of diabetes in primary care, outpatient, and community settings: a systematic review. *Diabetes Care* 2001;24:1821–1833
- Katon WJ, Lin EHB, Von Korff M, et al. Collaborative care for patients with depression and chronic illnesses. *N Engl J Med* 2010;363:2611–2620
- Parchman ML, Zeber JE, Romero RR, Pugh JA. Risk of coronary artery disease in type 2 diabetes and the delivery of care consistent with the chronic care model in primary care settings: a STARNet study. *Med Care* 2007;45:1129–1134
- Davidson MB. How our current medical care system fails people with diabetes: lack of timely, appropriate clinical decisions. *Diabetes Care* 2009;32:370–372
- Grant RW, Pabon-Nau L, Ross KM, Youatt EJ, Pandiscio JC, Park ER. Diabetes oral medication initiation and intensification: patient views compared with current treatment guidelines. *Diabetes Educ* 2011;37:78–84
- Schillinger D, Piette J, Grumbach K, et al. Closing the loop: physician communication with diabetic patients who have low health literacy. *Arch Intern Med* 2003;163:83–90
- Rosal MC, Ockene IS, Restrepo A, et al. Randomized trial of a literacy-sensitive, culturally tailored diabetes self-management intervention for low-income Latinos: Latinos en Control. *Diabetes Care* 2011;34:838–844
- Osborn CY, Cavanaugh K, Wallston KA, et al. Health literacy explains racial disparities in diabetes medication adherence. *J Health Commun* 2011;16(Suppl. 3):268–278
- Rothman R, Malone R, Bryant B, Horlen C, DeWalt D, Pignone M. The relationship between literacy and glycemic control in a diabetes disease-management program. *Diabetes Educ* 2004;30:263–273
- O'Connor PJ, Bodkin NL, Fradkin J, et al. Diabetes performance measures: current status and future directions. *Diabetes Care* 2011;34:1651–1659
- Garg AX, Adhikari NK, McDonald H, et al. Effects of computerized clinical decision support systems on practitioner performance and patient outcomes: a systematic review. *JAMA* 2005;293:1223–1238
- Smith SA, Shah ND, Bryant SC, et al.; Evdencs Research Group. Chronic care model and shared care in diabetes: randomized trial of an electronic decision support system. *Mayo Clin Proc* 2008;83:747–757
- Jaffe MG, Lee GA, Young JD, Sidney S, Go AS. Improved blood pressure control associated with a large-scale hypertension program. *JAMA* 2013;310:699–705
- Davidson MB, Ansari A, Karlan VJ. Effect of a nurse-directed diabetes disease management program on urgent care/emergency room visits and hospitalizations in a minority population. *Diabetes Care* 2007;30:224–227
- Stone RA, Rao RH, Sevick MA, et al. Active care management supported by home telemonitoring in veterans with type 2 diabetes: the DiaTel randomized controlled trial. *Diabetes Care* 2010;33:478–484
- Duncan I, Birkmeyer C, Coughlin S, Li QE, Sherr D, Boren S. Assessing the value of diabetes education. *Diabetes Educ* 2009;35:752–760
- Berikali P, Meyer PM, Kazlauskaitė R, Savoy B, Kozik K, Fogelfeld L. Gain in patients' knowledge of diabetes management targets is associated with better glycemic control. *Diabetes Care* 2007;30:1587–1589
- Funnell MM, Brown TL, Childs BP, et al. National standards for diabetes self-management education. *Diabetes Care* 2007;30:1630–1637
- Klein S, Sheard NF, Pi-Sunyer X, et al. Weight management through lifestyle modification for the prevention and management of type 2 diabetes: rationale and strategies: a statement of the American Diabetes Association, the North American Association for the Study of Obesity, and the American Society for Clinical Nutrition. *Diabetes Care* 2004;27:2067–2073
- Norris SL, Zhang X, Avenell A, et al. Efficacy of pharmacotherapy for weight loss in adults with type 2 diabetes mellitus: a meta-analysis. *Arch Intern Med* 2004;164:1395–1404
- Tricco AC, Ivers NM, Grimshaw JM, et al. Effectiveness of quality improvement strategies on the management of diabetes: a systematic review and meta-analysis. *Lancet* 2012;379:2252–2261
- Peikes D, Chen A, Schore J, Brown R. Effects of care coordination on hospitalization, quality of care, and health care expenditures among Medicare beneficiaries: 15 randomized trials. *JAMA* 2009;301:603–618
- Feifer C, Nemeth L, Nietert PJ, et al. Different paths to high-quality care: three archetypes of top-performing practice sites. *Ann Fam Med* 2007;5:233–241
- Reed M, Huang J, Graetz I, et al. Outpatient electronic health records and the clinical care and outcomes of patients with diabetes mellitus. *Ann Intern Med* 2012;157:482–489
- Cebul RD, Love TE, Jain AK, Hebert CJ. Electronic health records and quality of diabetes care. *N Engl J Med* 2011;365:825–833
- Battersby M, Von Korff M, Schaefer J, et al. Twelve evidence-based principles for implementing self-management support in primary care. *Jt Comm J Qual Patient Saf* 2010;36:561–570
- Grant RW, Wald JS, Schnipper JL, et al. Practice-linked online personal health records for type 2 diabetes mellitus: a randomized controlled trial. *Arch Intern Med* 2008;168:1776–1782
- Pullen-Smith B, Carter-Edwards L, Leathers KH. Community health ambassadors: a model for engaging community leaders to promote better health in North Carolina. *J Public Health Manag Pract* 2008;14(Suppl.):S73–S81
- Bojadzievski T, Gabbay RA. Patient-centered medical home and diabetes. *Diabetes Care* 2011;34:1047–1053
- Rosenthal MB, Cutler DM, Feder J. The ACO rules—striking the balance between participation and transformative potential. *N Engl J Med* 2011;365:e6
- Washington AE, Lipstein SH. The Patient-Centered Outcomes Research Institute—promoting better information, decisions, and health. *N Engl J Med* 2011;365:e31