



Diabetes

Standards of Medical Care in Diabetes—2015: Summary of Revisions

General Changes

Diabetes Care Supplement 1 was previously called *Clinical Practice Recommendations* and included the “Standards of Medical Care in Diabetes” and key American Diabetes Association (ADA) position statements. The supplement has been renamed *Standards of Medical Care in Diabetes* (“Standards”) and contains a single ADA position statement that provides evidence-based clinical practice recommendations for diabetes care.

Whereas the “Standards of Medical Care in Diabetes—2015” should still be viewed as a single document, it has been divided into 14 sections, each individually referenced, to highlight important topic areas and to facilitate navigation.

The supplement now includes an index to help readers find information on particular topics.

Section Changes

Although the levels of evidence for several recommendations have been updated, these changes are not included below as the clinical recommendations have remained the same. Changes in evidence level from, for example, **C** to **E** are not noted below. The “Standards of Medical Care in Diabetes—2015” contains, in addition to many minor changes that clarify recommendations or reflect new evidence, the following more substantive revisions.

Section 2. Classification and Diagnosis of Diabetes

The BMI cut point for screening overweight or obese Asian Americans for prediabetes and type 2 diabetes was changed to 23 kg/m² (vs. 25 kg/m²) to reflect the evidence that this population is at an increased risk for diabetes at lower BMI levels relative to the general population.

Section 4. Foundations of Care: Education, Nutrition, Physical Activity, Smoking Cessation, Psychosocial Care, and Immunization

The physical activity section was revised to reflect evidence that all individuals, including those with diabetes, should be encouraged to limit the amount of time they spend being sedentary by breaking up extended amounts of time (>90 min) spent sitting.

Due to the increasing use of e-cigarettes, the Standards were updated to make clear that e-cigarettes are not supported as an alternative to smoking or to facilitate smoking cessation.

Immunization recommendations were revised to reflect recent Centers for Disease Control and Prevention guidelines regarding PCV13 and PPSV23 vaccinations in older adults.

Section 6. Glycemic Targets

The ADA now recommends a premeal blood glucose target of 80–130 mg/dL, rather than 70–130 mg/dL, to better reflect new data comparing actual average glucose levels with A1C targets.



To provide additional guidance on the successful implementation of continuous glucose monitoring (CGM), the Standards include new recommendations on assessing a patient's readiness for CGM and on providing ongoing CGM support.

Section 7. Approaches to Glycemic Treatment

The type 2 diabetes management algorithm was updated to reflect all of the currently available therapies for diabetes management.

Section 8. Cardiovascular Disease and Risk Management

The recommended goal for diastolic blood pressure was changed from 80 mmHg to 90 mmHg for most people with diabetes and hypertension to better reflect evidence from randomized clinical trials. Lower diastolic targets may still be appropriate for certain individuals.

Recommendations for statin treatment and lipid monitoring were revised after consideration of 2013 American College of Cardiology/American Heart Association guidelines on the treatment of blood cholesterol. Treatment initiation (and initial statin dose) is now driven primarily by risk status rather than LDL cholesterol level.

With consideration for the new statin treatment recommendations, the Standards now provide the following lipid monitoring guidance: a screening lipid profile is reasonable at diabetes diagnosis, at an initial medical evaluation and/or at age 40 years, and periodically thereafter.

Section 9. Microvascular Complications and Foot Care

To better target those at high risk for foot complications, the Standards emphasize that all patients with insensate feet, foot deformities, or a history of foot ulcers have their feet examined at every visit.

Section 11. Children and Adolescents

To reflect new evidence regarding the risks and benefits of tight glycemic control in children and adolescents with diabetes, the Standards now recommend a target A1C of <7.5% for all pediatric age-groups; however, individualization is still encouraged.

Section 12. Management of Diabetes in Pregnancy

This new section was added to the Standards to provide recommendations related to pregnancy and diabetes, including recommendations regarding preconception counseling, medications, blood glucose targets, and monitoring.



1. Strategies for Improving Care American Diabetes Association

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 narrower 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.

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 glycemic, 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) 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.

Footnotes

Suggested citation: American Diabetes Association. Strategies for improving care. Sec. 1. In *Standards of Medical Care in Diabetes—2015*. Diabetes Care 2015;38(Suppl. 1):S5–S7



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