



Standards of Medical Care in Diabetes—2017: Summary of Revisions

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GENERAL CHANGES

In light of the American Diabetes Association's (ADA's) new position statement on psychosocial care in the treatment of diabetes, the "Standards of Medical Care in Diabetes," referred to as the "Standards of Care," has been updated to address psychosocial issues in all aspects of care including self-management, mental health, communication, complications, comorbidities, and life-stage considerations.

Although levels of evidence for several recommendations have been updated, these changes are not addressed below as the clinical recommendations have remained the same. Changes in evidence level from, for example, E to C are not noted below. The 2017 Standards of Care contains, in addition to many minor changes that clarify recommendations or reflect new evidence, the following more substantive revisions.

SECTION CHANGES

Section 1. Promoting Health and Reducing Disparities in Populations

This section was renamed and now focuses on improving outcomes and reducing disparities in populations with diabetes.

Recommendations were added to assess patients' social context as well as refer to local community resources and provide self-management support.

Section 2. Classification and Diagnosis of Diabetes

The section was updated to include a new consensus on the staging of type 1 diabetes (**Table 2.1**) and a discussion of a proposed unifying diabetes classification scheme that focuses on β -cell dysfunction and disease stage as indicated by glucose status.

Language was added to clarify screening and testing for diabetes. Screening

approaches were described, and **Fig. 2.1** was included to provide an example of a validated tool to screen for prediabetes and previously undiagnosed type 2 diabetes.

Due to recent data, delivering a baby weighing 9 lb or more is no longer listed as an independent risk factor for the development of prediabetes and type 2 diabetes.

A section was added that discusses recent evidence on screening for diabetes in dental practices.

The recommendation to test women with gestational diabetes mellitus for persistent diabetes was changed from 6–12 weeks' postpartum to 4–12 weeks' postpartum to allow the test to be scheduled just before the standard 6-week postpartum obstetrical checkup so that the results can be discussed with the patient at that time of the visit or to allow the test to be rescheduled at the visit if the patient did not get the test.

Additional detail was added to the section on monogenic diabetes syndromes, and a new table was added (**Table 2.7**) describing the most common forms of monogenic diabetes.

A new section was added on post-transplantation diabetes mellitus.

Section 3. Comprehensive Medical Evaluation and Assessment of Comorbidities

This new section, including components of the 2016 section "Foundations of Care and Comprehensive Medical Evaluation," highlights the importance of assessing comorbidities in the context of a patient-centered comprehensive medical evaluation.

A new discussion of the goals of provider-patient communication is included.

The Standards of Care now recommends the assessment of sleep pattern and duration as part of the comprehensive

medical evaluation based on emerging evidence suggesting a relationship between sleep quality and glycemic control.

An expanded list of diabetes comorbidities now includes autoimmune diseases, HIV, anxiety disorders, depression, disordered eating behavior, and serious mental illness.

Section 4. Lifestyle Management

This section, previously entitled "Foundations of Care and Comprehensive Medical Evaluation," was refocused on lifestyle management.

The recommendation for nutrition therapy in people prescribed flexible insulin therapy was updated to include fat and protein counting in addition to carbohydrate counting for some patients to reflect evidence that these dietary factors influence insulin dosing and blood glucose levels.

Based on new evidence of glycemic benefits, the Standards of Care now recommends that prolonged sitting be interrupted every 30 min with short bouts of physical activity.

A recommendation was added to highlight the importance of balance and flexibility training in older adults.

A new section and table provide information on situations that might warrant referral to a mental health provider.

Section 5. Prevention or Delay of Type 2 Diabetes

To help providers identify those patients who would benefit from prevention efforts, new text was added emphasizing the importance of screening for prediabetes using an assessment tool or informal assessment of risk factors and performing a diagnostic test when appropriate.

To reflect new evidence showing an association between B12 deficiency and long-term metformin use, a recommendation was added to consider periodic

measurement of B12 levels and supplementation as needed.

Section 6. Glycemic Targets

Based on recommendations from the International Hypoglycaemia Study Group, serious, clinically significant hypoglycemia is now defined as glucose <54 mg/dL (3.0 mmol/L), while the glucose alert value is defined as \leq 70 mg/dL (3.9 mmol/L) (Table 6.3). Clinical implications are discussed.

Section 7. Obesity Management for the Treatment of Type 2 Diabetes

To be consistent with other ADA position statements and to reinforce the role of surgery in the treatment of type 2 diabetes, bariatric surgery is now referred to as metabolic surgery.

To reflect the results of an international workgroup report endorsed by the ADA and many other organizations, recommendations regarding metabolic surgery have been substantially changed, including those related to BMI thresholds for surgical candidacy (Table 7.1), mental health assessment, and appropriate surgical venues.

Section 8. Pharmacologic Approaches to Glycemic Treatment

The title of this section was changed from "Approaches to Glycemic Treatment" to "Pharmacologic Approaches to Glycemic Treatment" to reinforce that the section focuses on pharmacologic therapy alone. Lifestyle management and obesity management are discussed in separate chapters.

To reflect new evidence showing an association between B12 deficiency and long-term metformin use, a recommendation was added to consider periodic measurement of B12 levels and supplementation as needed.

A section was added describing the role of newly available biosimilar insulins in diabetes care.

Based on the results of two large clinical trials, a recommendation was added to consider empagliflozin or liraglutide in patients with established cardiovascular disease to reduce the risk of mortality.

Figure 8.1, antihyperglycemic therapy in type 2 diabetes, was updated to acknowledge the high cost of insulin.

The algorithm for the use of combination injectable therapy in patients with type 2 diabetes (Fig. 8.2) has been changed to reflect studies demonstrating the noninferiority of basal insulin plus glucagon-like peptide 1 receptor agonist versus basal insulin plus rapid-acting insulin versus two daily injections of premixed insulin, as well as studies demonstrating the noninferiority of multiple dose premixed insulin regimens versus basal-bolus therapy.

Due to concerns about the affordability of antihyperglycemic agents, new tables were added showing the median costs of noninsulin agents (Table 8.2) and insulins (Table 8.3).

Section 9. Cardiovascular Disease and Risk Management

To better align with existing data, the hypertension treatment recommendation for diabetes now suggests that, for patients without albuminuria, any of the four classes of blood pressure medications (ACE inhibitors, angiotensin receptor blockers, thiazide-like diuretics, or dihydropyridine calcium channel blockers) that have shown beneficial cardiovascular outcomes may be used.

To optimize maternal health without risking fetal harm, the recommendation for the treatment of pregnant patients with diabetes and chronic hypertension was changed to suggest a blood pressure target of 120–160/80–105 mmHg.

A section was added describing the cardiovascular outcome trials that demonstrated benefits of empagliflozin and liraglutide in certain high-risk patients with diabetes.

Section 10. Microvascular Complications and Foot Care

A recommendation was added to highlight the importance of provider communication regarding the increased risk of retinopathy in women with preexisting type 1 or type 2 diabetes who are planning pregnancy or who are pregnant.

The section now includes specific recommendations for the treatment of neuropathic pain.

A new recommendation highlights the benefits of specialized therapeutic

footwear for patients at high risk for foot problems.

Section 12. Children and Adolescents

Additional recommendations highlight the importance of assessment and referral for psychosocial issues in youth.

Due to the risk of malformations associated with unplanned pregnancies and poor metabolic control, a new recommendation was added encouraging preconception counseling starting at puberty for all girls of childbearing potential.

To address diagnostic challenges associated with the current obesity epidemic, a discussion was added about distinguishing between type 1 and type 2 diabetes in youth.

A section was added describing recent nonrandomized studies of metabolic surgery for the treatment of obese adolescents with type 2 diabetes.

Section 13. Management of Diabetes in Pregnancy

Insulin was emphasized as the treatment of choice in pregnancy based on concerns about the concentration of metformin on the fetal side of the placenta and glyburide levels in cord blood.

Based on available data, preprandial self-monitoring of blood glucose was deemphasized in the management of diabetes in pregnancy.

In the interest of simplicity, fasting and postprandial targets for pregnant women with gestational diabetes mellitus and preexisting diabetes were unified.

Section 14. Diabetes Care in the Hospital

This section was reorganized for clarity.

A treatment recommendation was updated to clarify that either basal insulin or basal plus bolus correctional insulin may be used in the treatment of noncritically ill patients with diabetes in a hospital setting, but not sliding scale alone.

The recommendations for insulin dosing for enteral/parenteral feedings were expanded to provide greater detail on insulin type, timing, dosage, correctional, and nutritional considerations.