

International Diabetes Guidelines Face to Face

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Abstract

Diabetes mellitus is diagnosed by HbA1c $\geq 6.5\%$, fasting plasma glucose ≥ 126 mg/dL, 2-hour oral glucose tolerance test glucose ≥ 200 mg/dL, or random plasma glucose ≥ 200 mg/dL with symptoms. Prediabetes is defined by HbA1c 5.7–6.4%, fasting glucose 100–125 mg/dL, or 2-hour oral glucose tolerance test glucose 140–199 mg/dL. Glycemic targets generally aim for HbA1c $< 7\%$, with individualized goals based on age, comorbidities, and hypoglycemia risk. Recommended glucose targets include fasting levels of 80–130 mg/dL and postprandial levels < 180 mg/dL. Lifestyle management emphasizes at least 150 minutes of weekly physical activity, 5–10% weight loss, healthy dietary patterns, adequate sleep, and stress control. Metformin remains first-line therapy for type 2 diabetes, with Sodium-Glucose Cotransporter 2 inhibitors or glucagon-like peptide-1 receptor agonists preferred in patients with cardiovascular disease, heart failure, chronic kidney disease, or weight-loss goals. Insulin is indicated for severe hyperglycemia or treatment failure. Comprehensive care includes blood pressure control ($< 130/80$ mmHg), statin therapy based on cardiovascular risk, routine screening for kidney disease, retinopathy, neuropathy, and foot complications, and adherence to adult vaccination schedules. Continuous glucose monitoring is increasingly recommended, and special populations such as pregnancy and type 1 diabetes require tailored glycemic targets and insulin-based management.

Keywords: Diabetes, Fasting glycemia, Post prandial glycemia, Glycated hemoglobin, Consensus.

Abbreviations

GLP-1 Ras: Glucagon-Like Peptide-1 receptor agonists

HbA1c: Hemoglobin A1c - Glycated Hemoglobin

SGLT2: Sodium-Glucose Cotransporter 2

Introduction

This review encompasses the key guidelines bringing together the most relevant recommendations into a single, coherent clinical summary. To be precise, in this document, the recommendations are from: American Diabetes Association Standards of Care (2024-2025); American Heart Association/American College of Cardiology Cardiovascular Risk Guidelines; Kidney Disease: Improving Global Outcomes Diabetes – Kidney Disease Guidelines; American Association of Clinical Endocrinologists (AACE) and American College of Endocrinology (ACE) and Obesity Guidelines; American College of Obstetricians and Gynecologists (ACOG) Pregnancy/Gestational Diabetes Guidelines; International Working Group on the Diabetic Foot (IWGDF) Diabetic Foot Guidelines; Centers for Disease Control and Prevention (CDC) Adult Vaccination Recommendations; International Time-in-Range Consensus (CGM) and World Health Organization (WHO) Diabetes Classification (1-25).

Prediabetes is defined by an HbA1c level between 5.7% and 6.4%, a fasting plasma glucose level ranging from 100 to 125 mg/dL, or a plasma glucose level between 140 and 199 mg/dL two hours after a 75 g oral glucose tolerance test, while a random plasma glucose test with symptoms of hyperglycemia is not applicable. In contrast, overt diabetes mellitus is diagnosed when the HbA1c level is 6.5% or higher, fasting plasma glucose is 126 mg/dL or greater, plasma glucose is 200 mg/dL or higher two hours after a 75 g oral glucose tolerance test, or a random plasma glucose level of 200 mg/dL or greater is present in association with symptoms of hyperglycemia.

Diabetes mellitus is diagnosed when any of the fol-

lowing criteria are met, preferably confirmed on two separate days unless classic symptoms of hyperglycemia are present together with a random plasma glucose level ≥ 200 mg/dL: hemoglobin A1c (HbA1c) $\geq 6.5\%$, fasting plasma glucose ≥ 126 mg/dL, a 2-hour plasma glucose level ≥ 200 mg/dL during an oral glucose tolerance test (OGTT), or a random plasma glucose level ≥ 200 mg/dL in the presence of symptoms.

Glycemic targets according to general American Diabetes Association recommendations include an HbA1c level of less than 7% for most adults, a more stringent target of less than 6.5% for young, healthy individuals at low risk of hypoglycemia, and a less stringent target ranging from 7.5% to 8% for frail older adults or for those with multiple comorbidities (1-5).

Glucose goals include a fasting plasma glucose range of 80 to 130 mg/dL and a postprandial glucose level of less than 180 mg/dL measured approximately two hours after a meal.

Lifestyle management includes engaging in at least 150 minutes per week of physical activity, combining aerobic and resistance exercises, aiming for a weight loss target of 5-10%, which has the strongest impact in individuals with type 2 diabetes, and following a healthy dietary pattern such as the Mediterranean or DASH diet or a moderate low-carbohydrate approach, with increased fiber intake and reduced consumption of processed foods, along with ensuring adequate sleep and effective stress management (22-25).

Pharmacologic therapy for type 2 diabetes begins with metformin, which remains the foundational treatment (Table 1) unless contraindicated. Subse-

quent therapy should be individualized according to the patient’s clinical profile. In the presence of established atherosclerotic cardiovascular disease, heart failure, or chronic kidney disease, sodium-glucose cotransporter 2 (SGLT2) inhibitors such as empagliflozin, dapagliflozin, or canagliflozin, or glucagon-like peptide-1 receptor agonists (GLP-1 RAs) such as semaglutide, dulaglutide, or liraglutide are preferred. When weight loss is a priority, GLP-1 RAs, which have the strongest effect, or SGLT2 inhibitors are recommended. If avoidance of hypoglycemia is essential, options include SGLT2 inhibitors, GLP-1 RAs, dipeptidyl peptidase-4 (DPP-4) inhibitors, or thiazolidinediones (TZDs). When cost is a major concern, sulfonylureas or pioglitazone may be considered.

receptor blockers preferred in patients with albuminuria.

Lipid management in diabetes includes the use of statins for all individuals aged 40 years or older, in accordance with American Diabetes Association and American College of Cardiology 2024 recommendations. Moderate-intensity statins are indicated for patients at moderate cardiovascular risk, while high-intensity statins are recommended for those with high cardiovascular risk or established atherosclerotic cardiovascular disease. Corresponding LDL cholesterol targets are less than 100 mg/dL for individuals at moderate risk and less than 55 mg/dL for those with established atherosclerotic cardiovascular disease (1-5,7).

Table 1. Test criteria prediabetes overt diabetes mellitus test.

TEST CRITERIA	PREDI-ABETES	OVERT DIABETES MELLITUS
Hemoglobin A1c	5.7% to 6.4%	≥ 6.5%
Fasting plasma glucose test (mg/dL)	100 to 125	≥ 126
Plasma glucose after 75 g oral glucose tolerance test	140 to 199	2 hours: ≥ 200
Random plasma glucose test with symptoms of hyperglycemia (mg/dL)	Not applicable	≥ 200

In type 2 diabetes mellitus, insulin therapy is indicated in patients with an HbA1c level greater than 10%, the presence of catabolic symptoms, or failure to achieve glycemic control with multiple non-insulin agents. Treatment is typically initiated with basal insulin at a dose of 0.1-0.2 units per kilogram per day, followed by gradual titration to reach glycemic targets (12-13).

Blood pressure targets include a goal of less than 130/80 mmHg for most individuals, with angiotensin-converting enzyme inhibitors or angiotensin

Diabetic kidney disease management includes annual screening of estimated glomerular filtration rate and urine albumin levels, the use of SGLT2 inhibitors in patients with an estimated glomerular filtration of at least 20 mL/min, the addition of finerenone in cases of persistent albuminuria, and maintenance of blood pressure below 130/80 mmHg with angiotensin-converting enzyme inhibitors or angiotensin receptor blockers (8,9).

Diabetic retinopathy management includes an annual dilated eye examination, with longer screening intervals permitted if previous examinations have been normal and the condition remains stable.

Neuropathy and foot care management include an annual assessment of sensory function using tools such as monofilament testing and vibration perception, routine patient education on foot care, and appropriate treatment of neuropathic pain with agents such as duloxetine, pregabalin, or gabapentin.

Vaccination recommendations include annual influenza vaccination, pneumococcal vaccination with either PCV20 or a sequential regimen of PCV13 followed by PPSV23, hepatitis B vaccination for all adults younger than 60 years with consideration for those aged 60 years and older, COVID-19 booster doses according to local schedules, and herpes zoster vaccination for individuals aged 50 years or older (19-21).

In diabetes care for 2024-2025, continuous glucose monitoring is recommended for all individuals with type 1 diabetes and for those with type 2 diabetes who are using basal insulin or multiple daily insulin injections, with treatment success assessed by achieving a time in range greater than 70% within the glucose range of 70-180 mg/dL.

Key guidelines for the management of type 1 diabetes include the use of a basal-bolus insulin regimen at all times, preference for continuous glucose monitoring whenever possible, carbohydrate counting as the standard approach to meal planning, and an HbA1c target of less than 7%, or less than 6.5% in young individuals at low risk of hypoglycemia.

According to the American Diabetes Association 2025 recommendations, prevention of foot complications and amputations includes performing an annual foot examination, increasing the frequency of assessments to every 3-6 months in high-risk patients, providing structured patient education to reduce the risk of foot ulceration, and using antibiotics only when an active infection is present (17-18).

In diabetes and pregnancy, the recommended HbA1c target is less than 6% when it can be

achieved safely. Glycemic targets include a fasting plasma glucose level below 95 mg/dL, a 1-hour postprandial glucose level below 140 mg/dL, and a 2-hour postprandial glucose level below 120 mg/dL. Insulin is the preferred treatment during pregnancy, while oral glucose-lowering agents are generally avoided (15-16).

The annual screening schedule for individuals with diabetes includes measurement of HbA1c two to four times per year, assessment of urine albumin once per year, evaluation of estimated glomerular filtration rate once per year, a lipid panel once per year, an annual foot examination, and a yearly dilated eye examination.

Acknowledgments

None.

Conflict of interest

None.

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