American Diabetes Association®

T1D Toolkit

American Diabetes Association®

Professional version

American Diabetes Association®

Guidelines InSIGHT

Your visual guide to the guidelines

Which Type Is It?

What is recommended for diagnosing type 1 diabetes?
Misdiagnosis of type 1 diabetes is common and occurs in all age groups.

The AABBCC approach

- **A** — **Age** (e.g., for individuals <35 years old, consider type 1 diabetes)
- **A** — **Autoimmunity** (e.g., personal or family history of autoimmune disease or polyglandular autoimmune syndromes)
- **B** — **Body habitus** (e.g., BMI <25 kg/m2)
- **B** — **Background** (e.g., family history of type 1 diabetes)
- **C** — **Control** (e.g., glucose management on noninsulin therapies)
- **C** — **Comorbidities** (e.g., treatment with immune checkpoint inhibitors for cancer can cause acute autoimmune type 1 diabetes)

ANTIBODY TESTING

GAD

IA-2

ZnT8

IDENTIFY STAGE

STAGE 1	STAGE 2	STAGE 3
CHARACTERISTICS		
• Autoimmunity • Normoglycemia • Presymptomatic	• Autoimmunity • Dysglycemia • Presymptomatic	• Autoimmunity • Overt hyperglycemia • Symptomatic
DIAGNOSTIC CRITERIA		

• Multiple islet autoantibodies
• No IGT or IFG
	• Islet autoantibodies (usually multiple)
	• Dysglycemia: IFG and/or IGT
	  • FPG 100–125 mg/dL (5.6–6.9 mmol/L)
	  • 2-h PG 140–199 mg/dL (7.8–11.0 mmol/L)
	• A1C 5.7–6.4% (39–47 mmol/mol) or ≥10% increase in A1C
		• Autoantibodies may become absent
		• Diabetes by standard criteria

FPG, fasting plasma glucose; IFG, impaired fasting glucose; IGT, impaired glucose tolerance; 2-h PG, 2-h plasma glucose.

Alternative additional stage 2 diagnostic criteria of 30-, 60-, or 90-min plasma glucose on oral glucose tolerance test ≥200 mg/dL (≥11.1 mmol/L) and confirmatory testing in those aged ≥18 years have been used in clinical trials.

This infographic is based on recommendations from the ADA's *Standards of Care in Diabetes—2024*

Learn more at **diabetes.org** | 1-800-DIABETES (1-800-342-2383)

Supported in part by Type 1 Diabetes Screening and Awareness Initiative. American Diabetes Association® (ADA)

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Learn more about type 1 diabetes

Understanding Type 1 Diabetes

You can develop type 1 diabetes at any age.

SYMPTOMS OF TYPE 1 DIABETES

- Urinating often
- Feeling very thirsty
- Feeling very hungry—even though you are eating
- Extreme fatigue
- Blurry vision
- Cuts/bruises that are slow to heal
- Weight loss—even though you are eating more

Talk with your clinician about your risk for type 1 diabetes and if you should be tested.

Learning you have type 1 diabetes early lets you take steps early to stay healthy.

YOUR TYPE 1 DIABETES RISK

If you have a family history of type 1 diabetes your clinician can screen for type 1 diabetes through:

- Antibody testing
- Blood glucose monitoring

If you test for antibodies

POSITIVE

If you test antibody positive, you should expect to receive education about:

- Your risk of developing diabetes
- Diabetes symptoms
- Preventing diabetic ketoacidosis (DKA), a serious complication of high blood glucose that can be life-threatening.

Additional testing may be done to determine the course of treatment based on the stage of your diabetes.

NEGATIVE

Talk with your clinician about getting tested again in the future.

A positive antibody test does not mean immediate diagnosis. New treatments and clinical trials can possibly delay the onset of type 1 diabetes.

Talk with your clinician to determine if you are high risk for Type 1 diabetes.

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Type 1 Diabetes Glycemic Management

Treatment Goals for Adults

Improving glucose levels is essential to preventing both acute and chronic complications of diabetes.

When setting treatment goals, remember to:

- Identify and work to address social determinants of health that impact diabetes management
- Set and reassess treatment goals regularly

A1C

MEASURE OF LONG-TERM GLYCEMIA

- A1C is an indirect measure of average glycemia over approximately 2–3 months*
- Check A1C at least twice a year. Assess more frequently for individuals not meeting treatment goals
- A1C goal for most non-pregnant adults with diabetes is <7%.
- A1C goals <7% may be acceptable and even beneficial if achieved safely, without significant hypoglycemia, and without significant treatment burden*
- Less stringent A1C goals, such as up to 8%, may be appropriate for individuals with limited life expectancy or where harms of more intensive treatment (hypoglycemia, treatment burden, side effects) outweigh its benefits

GLUCOSE LEVEL

MEASURE OF CURRENT OR SHORT-TERM GLYCEMIA

- Glucose levels can be measured using capillary (finger-stick) devices or continuous glucose monitors (CGMs)
- Goal (preprandial) fasting blood glucose is 80–130 mg/dL
- CGMs should be offered to all people with type 1 diabetes
- For those using a CGM, optimize time in range (TIR), time below range (TBR), and time above range (TAR) goals:

CGM GOALS:	
TAR >250 mg/dL (>13.9 mmol/L)	<5% (most adults) <10% (older adults)
TAR 181–250 mg/dL (10.1–13.9 mmol/L)	<25% (most adults) <50% (older adults)
TIR 70–180 mg/dL (3.9–10.0 mmol/L)	>70% (most adults) >50% (older adults)
TBR 54–69 mg/dL (3.0–3.8 mmol/L)	<4% (most adults) <1% (older adults)
TBR <54 mg/dL (<3.0 mmol/L)	<1%

Adults with type 1 diabetes nearly always require insulin therapy.

Individuals should receive education on insulin administration techniques and technology management.

Prevent Acute Diabetes Complications:
Severe Hypoglycemia and Diabetic Ketoacidosis (DKA)

SEVERE HYPOGLYCEMIA

- Screen all people with type 1 diabetes for risk of hypoglycemia, fear of hypoglycemia, and impaired awareness of hypoglycemia

"Have you ever had a low blood sugar that required you to treat it? That required someone else to help you treat it?"
"Can you always feel when your blood sugar is low?"

- Refer all people at risk for hypoglycemia or impaired awareness of hypoglycemia for diabetes self-management education and support (DSMES) and a behavioral health professional
- Prescribe glucagon to all people taking insulin or at high risk for hypoglycemia and educate caregivers on glucagon use

DKA

- Educate all people with type 1 diabetes on the recognition, prevention, and treatment of DKA.
- Provide guidance on frequent glucose monitoring and appropriate insulin therapy for times of fasting and illness. Basal insulin should not be discontinued during fasting or illness.
- Refer to DSMES to help support education and a behavioral health professional.

*These glycemic goals are appropriate for most non-pregnant adults with type 1 diabetes, but higher or lower goal ranges may be appropriate depending on the individual's risk for hypoglycemia, treatment burden, life expectancy, and specific situation.

Learn more at **professional.diabetes.org** | 1-800-DIABETES (800-342-2383)

Supported in part by Type 1 Diabetes DKA Awareness & Glycemic Management initiative of the American Diabetes Association ® (ADA)

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Understanding Diabetic Ketoacidosis (DKA) in Clinical Practice

Early recognition and treatment are critical.

- DKA is a life-threatening complication of diabetes caused by a lack of insulin, leading to hyperglycemia, ketosis, and metabolic acidosis.
- Occurs primarily in type 1 diabetes but can also occur in type 2 under certain stress conditions (infection, trauma, etc.).

Pathophysiology and Diagnostic Criteria

Insulin insufficiency/deficiency +/- triggers
(new-onset type 1 diabetes, insulin omission, infection, myocardial infarction, surgery, substance use)

- **Diabetes/hyperglycemia:** Glucose ≥200 mg/dL (11.1 mmol/L) OR prior history of diabetes
- **Ketosis:** β-Hydroxybutyrate concentration ≥3.0 mmol/L OR urine ketone strip 2+ or greater
- **Metabolic acidosis:** pH <7.3 and/or bicarbonate concentration <18 mmol/L

Symptoms

Polyuria | Polydipsia | Weight loss | Fatigue | Kussmaul breathing | Vomiting | Abdominal pain | Altered mental status

Management Goals

GOALS

- Restore circulatory volume and tissue/organ perfusion
- Resolve ketoacidosis
- Correct electrolyte imbalances, particularly potassium.

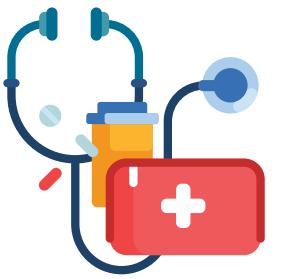
TREATMENT PROTOCOL

Fluid Replacement:
- 0.9% NaCl or other crystalloid for severe hypovolemia at 1L/hour or at a clinically appropriate rate aiming to replace 50% of the estimated fluid deficit in the first 8–12 hours.
- Add dextrose to the fluids once blood glucose is <250 mg/dL.

Electrolyte Management:
- Monitor and replace potassium—patients with DKA have a large total body K+ deficit. Potassium should be given as long as it is less than 5.0 mmol/L.
- Potassium monitoring and replacement critical, as insulin therapy drives potassium into cells.

Insulin Therapy:
- IV regular insulin: 0.1 units/kg IV bolus, then start a continuous IV infusion 0.1 units/kg per hour.
- Continue the drip until plasma ketone <0.6 mmol/L and venous pH ≥7.3 or bicarbonate ≥18 mmol/L and patient is able to tolerate food.
- Transition to subcutaneous insulin 1-2 hours before stopping IV insulin to prevent rebound hyperglycemia.

Bicarbonate Therapy:
- Generally not recommended unless pH <7.0.



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Prevention and Education

When seeing people with diabetes:

- Educate on daily glucose monitoring, ketone monitoring, sick-day management, maintaining hydration, and adjusting insulin doses.
- Emphasize the importance of early medical intervention. If symptoms of DKA appear, recommend immediate follow up with healthcare professional

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