



UNDERSTANDING TYPE 1 AND TYPE 2 DIABETES IN PEDIATRICS

HOW TO SCREEN FOR TYPE 1 DIABETES

CHECKING AUTO-ANTIBODIES

Guidelines recommend the following:

- Glutamic acid decarboxylase antibody 65 (GAD-65)
- Zinc transporter 8 antibody
- Islet cell tyrosine phosphatase 2 autoantibody (IA-2, IA-2A)
- In clinical practice many people also check insulin auto-antibodies

Once 2 positive antibodies are identified consider yearly oral glucose tolerance tests to look for dysglycemia.

C-peptide can also be ordered as part of lab work. This determines the amount of insulin still being produced.

Antibodies are present in 80% of children by age 3.

STAGING OF TYPE 1 DIABETES

STAGE 1	• Normal BG • Presymptomatic	• ≥ 2 autoantibodies • T1D risk 44% in 5 years
STAGE 2	• Dysglycemia ¹ • Presymptomatic	• ≥ 2 autoantibodies • T1D risk 75% in 5 years
STAGE 3	• Clinical Diagnosis • Symptomatic	• Hyperglycemia
STAGE 4	• Continued Beta Cell Decrease • Overt T1D	

1. Impaired glucose tolerance, 2. Impaired fasting glucose
Sims et al. *Sci Transl Med.* 2021, El Sayed et al. *Diabetes Care* 2023

WHEN TO SCREEN FOR TYPE 1 DIABETES

- Multiple studies support screening children who have relatives with type 1 diabetes.
- There is also some evidence to support screening individuals with personal or family history of other autoimmune conditions or allergic diseases.
- Universal screening is NOT widely recommended.
- To prevent diagnosis occurring as Diabetic Ketoacidosis.

DIAGNOSTIC CODES

- **E10.1-E10.9** Diagnosis for type 1 diabetes
- **Z13.1** Encounter for screening for diabetes mellitus
- **Z13.9** Encounter for screening unspecified
- **Z83.3** Family history of diabetes mellitus
- **Z83.49** Family history of other endocrine, nutritional, and metabolic disease
- **E34.9** Endocrine disorder unspecified



HOW TO SCREEN FOR TYPE 2 DIABETES

- There are pros and cons to A1c, Fasting Glucose, OGTT, and Random Glucose

STAGING OF TYPE 2 DIABETES

NORMOGLYCEMIA	• Fasting glucose <100 • 2h glucose <140 • HbA1c 5.6 or below
PREDIABETES	• Fasting glucose 100-125 • 2h glucose 140-199 • HbA1c 5.7-6.4%
YOUTH-ONSET T2D	• Fasting glucose ≥ 126 or higher • 2h glucose 200 or higher • HbA1c 6.5 or higher

WHEN TO SCREEN FOR TYPE 2 DIABETES

- American Diabetes Association recommends every three years (more frequently if gaining weight).
- USPSTF neither recommends nor does not recommend screening asymptomatic adolescents.

WHO TO SCREEN

Overweight or obese children (pubertal or at least age 10 years) with one additional risk factor of the following:

- Family history of T2D (first or second degree)
- Minority race or ethnic group
- Signs of insulin resistance
- Small or large for gestational age
- Maternal or gestational diabetes

DIAGNOSTIC CODES

- **E11.9** Type 2 Diabetes without Complication



For more information, please visit:

<https://tinyurl.com/yyu6vmuu>