Texas Children's Hospital®

Diabetes Screening Algorithm

Child < 18 years with BMI ≥ 85th percentile for age; age ≥ 10 years; 2 additional risk factors [1]

1. Diabetes Risk Factors
- Family history of Type 2 Diabetes mellitus
- Minority race / ethnicity (Native American, Black, Hispanic, Asian American, Pacific Islander)
- Insulin resistance (acanthosis nigricans)
- Other metabolic conditions (PCOS, hypertension, dyslipidemia, SGA)
- Maternal diabetes mellitus during pregnancy

Annual Screening testing:
- Hgb A1c and fasting glucose [2]
- Fasting lipids
- Hepatic function screen

A1c <5.7% AND FPG <100 mg/dL → Screening Test Normal. Continue annual screening with implementation of recommended lifestyle modifications. Continue follow up with primary care provider.

A1c 5.7-6.0% AND FPG < 126 mg/dL → Development of Pre-Diabetes
1. Recommend lifestyle modifications
2. Dietician referral
3. Educate patient on symptoms that require to contact provider in between visits (polyuria, polydipsia, nocturia, signs of dehydration)

→ Follow-up every 6 months Repeat Hgb A1c → Return to A1c considerations above

A1c 6.0-6.4% AND FPG <126 mg/dL → Development of High-Risk Pre-Diabetes
1. Assess for symptoms of diabetes*
2. Recommend lifestyle modifications
3. Dietician referral
4. Educate patient on symptoms that require to contact provider in between visits

→ Hyperglycemia Symptoms? [3]
- Yes → Perform a 2 Hour Oral Glucose Tolerance Test
- No → Follow-up every 3 months Repeat Hgb A1c → Return to A1c considerations above

A1c ≥7% OR Random BG ≥ 200 mg/dL → Perform a 2 Hour Oral Glucose Tolerance Test

A1c ≥6.5-6.9% OR FPG ≥ 126 mg/dL → Both abnormal?
- Yes → Development of Type 2 Diabetes Mellitus
- No → Repeat testing in 4-6 weeks:
  - Hgb A1c
  - Fasting or Random plasma glucose

→ FBG > 126 OR non-fasting BG >200 OR Repeat A1c ≥6.5%
- Yes → Development of Type 2 Diabetes Mellitus
- No → Perform a 2 Hour Oral Glucose Tolerance Test

Perform a 2 Hour Oral Glucose Tolerance Test
- FPG <100 mg/dl AND 2-hr BG < 140 mg/dl → Follow-up every 3 months Repeat Hgb A1c
- FPG ≤125 mg/dl OR 2hr BG 140-199 mg/dl → Follow-up every 3 months Repeat Hgb A1c
- FPG ≥126 mg/dL OR 2hr BG ≥ 200 mg/dL → Development of Type 2 Diabetes Mellitus

Development of Type 2 Diabetes Mellitus → Refer to Pediatric Endocrinology

2. Hgb A1c Measurement
HgbA1c should be measured by a National Glycohemoglobin Standardization Program-certified device, standardized to the Diabetes Control and Complications Trial assay.

3. Hyperglycemia Symptoms
- Polyuria
- Polydipsia
- Nocturia
- Dehydration
- Unexplained weight loss

***NOTE:** In the presence of overt symptoms of hyperglycemia, we recommend obtaining a rapid serum glucose, and either a urinalysis or serum ketones (if available) to evaluate for hyperosmolality and/or diabetic ketoacidosis.

Adapted from: Magge SN, Silverstein J, Elder D, Nadeau K, Hannon TS. Evaluation and Treatment of Prediabetes in Youth. *J Pediatr*. 2020 Apr;219:11-22.