Clinical Practice Guideline: Diabetes Mellitus

### INTRODUCTION

Diabetes is a chronic illness that requires continuing medical care and ongoing patient self-management education and support to prevent acute complications and to reduce the risk of long-term complications. Diabetes care is complex and requires that many issues, beyond glycemic control, be addressed. Our goal at Amerigroup Community Care is to improve and facilitate safe and effective care.

### Classification of diabetes

The classification of diabetes includes four clinical classes:

- **Type 1 diabetes** – results from cell destruction, usually leading to absolute insulin deficiency
- **Type 2 diabetes** – results from a progressive insulin secretory defect on the background of insulin resistance
- **Other specific types of diabetes** due to other causes, e.g., genetic defects in cell function, genetic defects in insulin action, diseases of the exocrine pancreas (such as cystic fibrosis) and drug or chemical-induced (such as in the treatment of HIV/AIDS or after organ transplantation)
- **Gestational diabetes mellitus (GDM)** – diabetes diagnosed during pregnancy that is not clearly overt diabetes

### CRITERIA FOR DIAGNOSIS

The criteria for a diagnosis of diabetes includes:

- Fasting plasma glucose (FPG) test level of ≥126 mg/dL (preferred test to diagnosis diabetes in children and non-pregnant women)
- Casual plasma glucose test of ≥200 mg/dL with symptoms of disease
- Two hours plasma glucose ≥200 mg/dL during an oral glucose tolerance test (OGTT)

Each test must be confirmed on a subsequent day unless unequivocal symptoms of hyperglycemia are present. Testing and results of HgbA1c of 6.5 or greater as a means of diagnosing diabetes when using a method certified by the National Glycohemoglobin Standardization Program (NGSP) and standardized or traceable to the Diabetes Control and Complications Trial (DCCT) reference assay. These are indicators for when patients are at a greater risk to be diabetic. For example if their Impaired glucose tolerance (IGT) results are within the parameters listed, then they are more likely to be diabetic.

### LAB VALUES TO OBTAIN

Obtain the following lab values:

- **HgA1c** – a value of < 7.0 percent is acceptable: Test every 3 to 6 months
- See recommendations in “Flow sheet for diabetes” for toddlers to young adults located in Table 16 at the end of this document.
• HgA1c – a value of < 8.0 percent is acceptable if the patient is frail, life expectancy <5 years or high risk of hypoglycemia, polypharmacy or drug interaction
• Fasting lipid profile: annual
• HDL: >40 mg/dL in males and >50 mg/dL in females
  o LDL: <100 mg/dL
  o Triglycerides: <150 mg/dL
  o Fasting lipid profile for children age 2 and older after glucose control established (use Recommendations for Preventive Pediatric Health Care, Bright Futures/American Academy of Pediatrics)
• Urine microalbumin: annual
• Microalbumin screening for children initiated once the child is 10 years old and has had diabetes for 5 years: annual
• Liver function tests
• Serum creatinine and calculated Glomerular Filtration Rate (GFR)
• Screening for Celiac Disease in type I diabetics and as indicated in type II diabetics
• In type 1 diabetes, screen for thyroid peroxidase and thyroglobulin on initial diagnosis and check Thyroid Stimulating Hormone (TSH) every 1 to 2 years and as clinically indicated

HISTORY AND PHYSICAL EXAMINATION
Obtain the following information during a patient history and physical examination:
• Interval history with depression screening
• Ophthalmologic exam should be obtained once the child is 10 years old and has had diabetes for 3 to 5 years: annual
• Diabetic retinal eye exam: annual; where access to qualified eye specialists is limited, use of digital images of patient’s retina transmitted electronically to a qualified practitioner is acceptable
• Foot exam: annual
• Blood Pressure (BP) <130/80 mmHg: each visit
• Treatment of high to normal BP in children (systolic or diastolic BP consistently above the 90th percentile for age, sex and height)
• Weight/Body Mass Index (BMI)/height: each visit
• Children: BMI by weight, height, age appropriate
• Nephropathy screening for adults: annual
• Children once the child is 10 years old and has had diabetes for 5 years: annual
• Neuropathy screening: annual
• Influenza vaccine: annual

IMMUNIZATIONS
The following immunizations should be given to diabetic patients:
• Influenza vaccine: annual
• Pneumococcal polysaccharide vaccine to all diabetic patients ≥2 years of age; a one-time revaccination is recommended for individuals >64 years of age previously immunized when they were <65 years of age if the vaccine was administered >5 years ago; other indications for repeat vaccination include nephritic syndrome, chronic renal disease and other immunocompromised states, such as after transplantation
**PATIENT EDUCATION AND THERAPY**

The following resources should be recommended for patient education and therapy:

- Smoking cessation
- Moderate intensity physical activity
- Medication adherence
- Self-monitored blood glucose: self-monitored blood glucose not necessary in patient who has mild diabetes in good control on present measures
- Preconception and pregnancy counseling
- ACE inhibitors/Angiotensin Receptor Blocker (ARB)/Statin Therapy
- Metformin therapy for prevention of type 2 diabetes for those with impaired glucose tolerance, impaired fasting glucose or an A1C 5.7-6.4 percent, especially for those with BMI >35 kg/m², aged <60 years and women with prior gestational diabetes mellitus
- Aspirin
- Weight management
- Medical nutrition therapy
- Certified diabetes educator
- Psychosocial counseling
- Sick day protocol

### MEASUREMENT OF COMPLIANCE

Medical record review (MRR) as an annual assessment of practitioner compliance with the guidelines is conducted.

The following MRR measurements will be used to assess compliance with this guideline:

**History/Physical/Assessment**

1. **History/Physical Exam with documented weight/height/BP/BMI**
2. **Annual Neuropathy screening (documentation of assessment for numbness and/or tingling in hands or feet, balance, dizziness, ED in males).**
3. **Annual Nephropathy screening (documentation that creatinine was ordered)**
4. **Annual Retinal eye exam (documentation of referral to ophthalmologist for annual retinal eye exam or documentation that exam was declined by member).**
5. **Annual Foot exam (documentation of assessment of skin and nails, check for foot ulcers and/or recent podiatry visit).**

**Labs/Immunizations**

6. **Documentation that an annual HbA1C was ordered**
7. **Annual Fasting Lipid Profile (HDL) (documentation that HDL was ordered)**
8. **Annual Urine Microalbumin screening (documentation that Urine Microalbumin screening was ordered)**
9. **Annual Influenza vaccine (documentation that Influenza vaccine was offered)**

**Appropriate Medications/Adherence/Education**

10. Educated members on self-monitor glucose levels.
11. Educated members on nutrition/diet/weight management
12. Educated members on the use of Aspirin (anti-platelet therapy)

### REFERENCES

All member care and related decisions are the sole responsibility of the provider. This information does not dictate nor control your clinical decisions regarding the appropriate care of members. Guidelines are subject to state regulations, benefits and formulary.

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American Diabetes Association, Executive Summary: Standards of Medical Care in Diabetes – 2014 / Diabetes Care Volume 37, Supplement 1, January 2014.  
http://care.diabetesjournals.org/content/37/Supplement_1/S5.full.pdf+html

American Diabetes Association, Standards of Medical Care in Diabetes – 2014.  
http://care.diabetesjournals.org/content/37/Supplement_1/S14.full
Flow sheet for diabetes

<table>
<thead>
<tr>
<th>Name:</th>
<th>Birth date:</th>
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<tbody>
<tr>
<td>Allergies:</td>
<td>Phone #:</td>
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</table>

<table>
<thead>
<tr>
<th>Examination/test</th>
<th>Schedule</th>
<th>Date of onset</th>
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<tbody>
<tr>
<td>Laboratory</td>
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</table>

- HgA1c < 7.0 percent acceptable
- HgA1c <8 percent, if frail, life expectancy <5 years, high risk of hypoglycemia, polypharmacy or drug interaction
- Children (birth to age 6) <8.5 percent but >7.5 percent
- Children (age 7 to 12) <8 percent
- Adolescents (age 13 to 19) <7.5 percent

- Every 3 to 6 months: Date
- Every 5 years if within the accepted levels; if abnormal, annually: Result

- Fasting lipid profile: HDL: >40 mg/dL in males and >50 mg/dL in females
- LDL: <100 mg/dL Triglycerides: <150 mg/dL
  - Children LDL: <100 mg/dl
- Liver Function
  - Serum Creatinine
  - Calculated GFR
  - Celiac Disease
  - TSH in Type 1

- Annual
- Every 5 years if abnormal, annually
- Annual
- Annual
- Annual
- If indicated
- Every 1 to 2 years

- Urine microalbumin-random spot urine for microalbumin: 30ug/mg creatinine
- Children

- Annual
- First at age 10 or with diabetes for 5 years: annual

<table>
<thead>
<tr>
<th>History and physical examination</th>
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- Interval history with depression screening: Annual
- Diabetic retinal eye exam: Date
  - Annual – less frequent exam (2 to 3 years) may be considered with the advice of an eye professional for normal eye exam
  - As indicated by a health care professional
- Children age 10 with diabetes 3 to 5 years: Comment
- Foot Exam: Date
  - Each visit visual, annual comprehensive foot exam
- BP <140/90 mmHg: Comment
- Children with BP consistently above the 90th percentile: Each visit

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### Examination/test

<table>
<thead>
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<tbody>
<tr>
<td>age, sex and height</td>
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<tr>
<td>• Weight/BMI/height</td>
<td>Each visit</td>
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<td>Overweight=BMI 25 – 29.9</td>
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<td>Obesity=BMI ≥30</td>
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<tr>
<td>• Children by BMI percentile</td>
<td>Each visit</td>
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<tr>
<td>age, height and weight</td>
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### Patient education and therapy

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<th>Initial and at clinician’s discretion</th>
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<tbody>
<tr>
<td>• Smoking cessation</td>
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<td>• Moderate intensity physical activity</td>
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<td>• Nutrition therapy</td>
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<td>• Self-monitored blood glucose</td>
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<td>• Weight loss</td>
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<td>• Psychosocial counseling</td>
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### Immunizations

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Other:

| Date | Comment |

Table 16 – Plasma blood glucose and A1C goals for type 1 diabetes by age group

<table>
<thead>
<tr>
<th>Values by age (years)</th>
<th>Plasma blood glucose goal range (mg/dl)</th>
<th>A1C (%)</th>
<th>Rationale</th>
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</thead>
<tbody>
<tr>
<td>Toddlers and preschoolers (0-6)</td>
<td>100-180</td>
<td>110-200</td>
<td>&lt;8.5 percent</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>• Vulnerability to hypoglycemia</td>
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<td></td>
<td></td>
<td></td>
<td>• Insulin Insensitivity</td>
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<td>• Unpredictability in dietary intake and physical activity</td>
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<td></td>
<td>• A lower goal (&lt;8.0%) is reasonable if it can be achieved without excessive hypoglycemia</td>
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<tr>
<td>School age (6-12)</td>
<td>90-180</td>
<td>100-180</td>
<td>&lt;8 percent</td>
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<tr>
<td>Adolescents and young adults (13-19)</td>
<td>90-130</td>
<td>90-150</td>
<td>&lt;7.5 percent</td>
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<td></td>
<td></td>
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<td>• A lower goal (&lt;7.0%) is reasonable if it can be achieved without excessive hypoglycemia</td>
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Key concepts in setting glycemic goals:
• Goals should be individualized and lower goals may be reasonable based on benefit risk assessment
• Blood glucose goals should be modified in children with frequent hypoglycemia or hypoglycemia unawareness
• Postprandial blood glucose values should be measured when there is a discrepancy between preprandial blood glucose values and A1C levels and to help assess glycemia in those on basal/bolus regimens.


Recommendations for Preventive Pediatric Health Care, Bright Futures and American Academy of Pediatrics 2008 Periodicity Schedule. practice.aap.org/content.aspx?aid=1599

Modified with permission from the American Diabetes Association.