



Management of Children & Adolescents with Type I Diabetes mellitus

OBJECTIVE

The objective of this Clinical Practice Guideline (CPG) is to provide evidence-based practice recommendations for the management of Diabetes in Children. The CPG discusses the progression of disease including symptomology, modifiable risks, co-morbid conditions (e.g., hypertension, obesity, dyslipidemia), ways to support the child’s family and school, and the role of diet and physical activity. The CPG outlines the organizations that WellCare aligns with regarding diabetes as well as Measureable Health Outcomes. For recommendations related to screening for diabetes, refer to WellCare’s Preventive Health CPGs: *Pediatric (HS-1019)* and *Adolescent (HS-1051)*.

OVERVIEW

Diabetes mellitus (DM) is a group of metabolic diseases in which a person has high blood sugar, producing symptoms such as frequent urination, increased thirst, and increased hunger. Untreated, diabetes can cause complications like:¹

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| • Diabetic ketoacidosis (high blood sugar) | • Retinopathy |
| • Hypoglycemia (low blood sugar) | • Heart disease |
| • Peripheral vascular disease | • Cerebrovascular disease and stroke |
| • Poor wound healing and ulcers | • Neuropathy |
| • Loss of limbs (amputation) | • Kidney failure |

Risk factors that can lead to diabetes include:¹

- Physical inactivity
- Overweight
- First-degree relative with diabetes or maternal history of gestational diabetes mellitus (GDM)
- High-risk ethnic populations (African American, Latino, Native American, Asian American, Pacific Islander)
- HDL cholesterol level <35 mg/dl (0.90 mmol/l) and/or a triglyceride level >250 mg/dl (2.82 mmol/l)
- Female youth with polycystic ovary syndrome
- Other clinical conditions associated with insulin resistance (e.g., small for gestational age birthweight, hypertension, dyslipidemia, acanthosis nigricans)
- History of cardiovascular disease

The number of teens diagnosed with prediabetes and diabetes is growing. For this age group, being overweight is their number one risk factor.²

Hierarchy of Support

GUIDELINE HIERARCHY

CPGs are updated annually or as necessary due to updates made by the American Diabetes Association (ADA) and the American Academy of Pediatrics (AAP). When there are differing opinions noted by national organizations, WellCare will default to the member’s benefit structure as deemed by state contracts and Medicaid / Medicare regulations. If there is

no specific language pertaining to diabetes, WellCare will default (in order) to the following:

- National Committee for Quality Assurance (NCQA);
- United States Preventive Services Task Force (USPSTF), National Quality Strategy (NQS), Agency for Healthcare Research and Quality (AHRQ);
- Specialty associations, colleges, societies, etc. (e.g., American Academy of Family Physicians, American Congress of Obstetricians and Gynecologists, American Cancer Society, etc.).

Links to websites within the CPGs are provided for the convenience of Providers. Listings do not imply endorsement by WellCare of the information contained on these websites. NOTE: All links are current and accessible at the time of MPC approval.

WellCare aligns with the ADA and the AAP on the topic of diabetes. The following are highlights from the organizations.

AMERICAN DIABETES ASSOCIATION (ADA)

The American Diabetes Association (ADA)² recommends that testing for diabetes mellitus (DM) should start at age 10 (or at onset of puberty) and should continue every three years if the following criteria is met:

- Overweight (BMI >85th percentile for age and sex; weight for height >85th percentile; or weight >120% of ideal for height) **AND** two of the following risk factors:
 - Family history of type 2 diabetes in first- or second-degree relative
 - Race/ethnicity (Native American, African American, Latino, Asian American, Pacific Islander)
 - Signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, polycystic ovary syndrome, or small for gestational age birthweight)
 - Maternal history of diabetes or GDM during the child’s gestation

The ADA² also notes the increase of type 2 diabetes is adolescents in the last decade, particularly within minority populations while the disease is rare within the general population.

Criteria for the Diagnosis of Diabetes mellitus (DM)²

1. Symptoms of DM in association with a significantly elevated random plasma glucose ≥ 200 mg/dl (11.1 mmol/L). Random is defined as any time of day; without regard to the time period since the last meal. The classic symptoms of DM include: polyuria, polydipsia, and unexplained weight loss. **OR**;
2. A fasting plasma glucose ≥ 126 mg/dl (7.0 mmol/L) **OR**;
3. A two (2)-hour plasma glucose ≥ 200 mg/dl (11.1 mmol/L) during an oral glucose tolerance test (GTT). The GTT should be performed, as described by the World Health Organization (WHO), using a glucose load of 75 grams of anhydrous glucose dissolved in water or 1.75 gm/kg body weight, if the weight is <40 pounds (18 kg).

In the absence of unequivocal hyperglycemia, these diagnoses should be confirmed by repeat laboratory testing on a different day. The oral GTT is not recommended for routine clinical use, but may be required in the evaluation of patients when DM is still suspected despite a normal fasting plasma glucose level.

	Plasma blood glucose goal range (mg/dl)		A1C	Rationale
	Before Meals	Bedtime		
Values by age				
Toddlers and preschoolers (<6 years)	100–180	110–200	<8.5% (but >7.5%)	• High risk and vulnerability to hypoglycemia
School age (6–12 years)	90–180	100–180	<8%	• Risks of hypoglycemia and relatively low risk of complications prior to puberty
Adolescents and young adults (13–19 years)	90–130	90–150	<7.5%	• Risk of hypoglycemia • Developmental and psychological issues

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 higher than those listed above in children with frequent hypoglycemia or hypoglycemia unawareness.
- Postprandial blood glucose values should be measured when there is a disparity between pre-prandial blood glucose values and Hemoglobin A1c levels.
- A lower goal (<7.0%) is reasonable if it can be achieved without excessive hypoglycemia.

Highlights of the 2018 update to the ADA guidelines are noted below:

- An updated section on *Improving Care and Promoting Health in Populations* that includes a new recommendation regarding the use of reliable data metrics to assess and improve the quality of diabetes care and reduce costs. Information was also included on the social determinants of health and the emerging use of telemedicine in diabetes care.
- Additional recommendations are included regarding the appropriate use of the A1C test generally and for diagnosing diabetes in special cases (e.g., hemoglobin variants, assay interference, conditions associated with red blood cell turnover).
- Recommendations for testing for prediabetes and type 2 diabetes in children and adolescents was changed to include testing for youth who are overweight or obese and have one or more risk factors:

Overweight (BMI >85th percentile for age and sex, weight for height >85th percentile, or weight >120% of ideal for height) plus one or more additional risk factors based on the strength of their association with diabetes as indicated by evidence grades:

- Maternal history of diabetes or GDM during the child's gestation
- Family history of type 2 diabetes in first- or second-degree relative
- Race/ethnicity (Native American, African American, Latino, Asian American, Pacific Islander)
- Signs of insulin resistance or conditions associated with insulin resistance (acanthosis nigricans, hypertension, dyslipidemia, polycystic ovary syndrome, or small-for-gestational-age birth weight)
- Revisions to the table describing the components of a comprehensive medical evaluation (Table 3.1) now include information about the recommended frequency of the components of care at initial and follow-up visits.
- Emphasis was placed on language choice in patient-centered communication.
- Pancreatitis was added to the section on comorbidities and includes a new recommendation about islet autotransplantation to prevent postsurgical diabetes in patients with medically refractory chronic pancreatitis who require total pancreatectomy.
- A recommendation was added on serum testosterone levels in men with diabetes, symptoms of hypogonadism.
- A section on Lifestyle Management was revised to include individual and group settings as well as technology-based platforms for the delivery of effective diabetes self-management education and support.
- The recommendation regarding the use of metformin in the prevention of prediabetes was revised to reflect the data from the Diabetes Prevention Program.

To view the ADA's full guideline, click [here](#). Note: At-risk BMI may be lower in some ethnic groups.

AMERICAN ACADEMY OF PEDIATRICS (AAP)

Due to the obesity epidemic among children and adolescents, the American Academy of Pediatrics (AAP) convened a Subcommittee on Management of Type 2 Diabetes Mellitus (T2DM) in Children and Adolescents with the support of the American Diabetes Association, the Pediatric Endocrine Society, the American Academy of Family Physicians, and the Academy of Nutrition and Dietetics (2013). Key action statements for children and adolescents with T2DM:³

1. Ensure insulin therapy is initiated for those who are ketotic or in diabetic ketoacidosis and in whom the distinction between T1DM and T2DM is unclear; and should initiate insulin therapy for patients:
 - a. who have random venous or plasma BG concentrations ≥ 250 mg/dL; OR,
 - b. whose HbA1c is $>9\%$.
2. In all other instances, initiate a lifestyle modification program, including nutrition and physical activity, and start metformin as first-line therapy for children and adolescents at the time of diagnosis of T2DM.
3. Monitor HbA1c concentrations every 3 months; intensify treatment if BG and HbA1c goals are not being met.

4. Advise patients to monitor finger-stick BG concentrations in those who:
 - a. are taking insulin or other medications with a risk of hypoglycemia; OR,
 - b. are initiating or changing their diabetes treatment regimen; OR,
 - c. have not met treatment goals; OR,
 - d. have intercurrent illnesses.
5. Incorporate the Academy of Nutrition and Dietetics' Pediatric Weight Management Evidence-Based Nutrition Practice Guidelines in nutrition counseling both at the time of diagnosis and as part of ongoing management.
6. Encourage children and adolescents with T2DM to engage in moderate-to-vigorous exercise for at least 60 minutes daily and to limit nonacademic screen time to less than 2 hours per day.

Evidence Based Practice

MEASUREMENT OF COMPLIANCE

WellCare is committed to adhering to the measures and standards published by the Centers for Medicare and Medicaid Services (CMS) and the National Committee for Quality Assurance (NCQA). Please reference WellCare's Clinical Policy Guiding Document titled *Measures of Compliance*.

NOTE: To access Clinical Policy Guiding Documents visit www.wellcare.com – select the Provider tab, then “Tools” and “Clinical Guidelines”.

Care Management

The goals for Care Management is to support the member's ability to self-manage their disease, minimize risks factors, and remove barriers preventing the member from achieving those goals. Educate member on the primary diabetic symptoms to seek emergency medical care for:⁴

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| <ul style="list-style-type: none"> • High blood sugar reading greater than 600 • Shortness of breath • Very dry mouth • Slurred speech • Seizures | <ul style="list-style-type: none"> • Vomiting • Fruity smelling breathe • Heart palpitations • Confusion • Reaction to medication |
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Integrated care management of diabetes involves:⁴

- Coaching for the entire family related to making lifestyle changes
- Facilitating use of glucose meter and member / caregiver self-monitoring of blood glucose
- Monitoring of HgA1c regularly and setting an individual goal (target values vary by age – see Guidelines Hierarchy, ADA)
- Ensuring member's / caregiver's understanding of medication dosing and adherence to medications, refilling timely
- Therapeutic monitoring of diabetes medications
- Supporting the member's weight loss and tobacco cessation efforts as appropriate
- Regular screening for comorbidities and associated autoimmune conditions (e.g., nephropathy, hypertension, obesity, retinopathy, dyslipidemia, thyroid disease, celiac disease))
- Assess for risk of depression and share with appropriate provider(s) if risks identified
- Assess the family's ability to cope with the impact of the child's condition
- Assess for self-management skill level and assist caregiver in supporting self-management based on ability and demonstrated responsibility.

Please reference the addendum for the table *Major Developmental Issues and Their Effect on Diabetes Mellitus in Children and Adolescents*.

MEASURABLE HEALTH OUTCOMES

Targeted Health Outcomes (Extended Program Goals) result from successful member self-management (see Case Management Objectives).⁴

1. HbA1c less than 7%. Compare lab data pre and post engagement at 6-12 months. In absence of lab data, Provider and/or Member narrative and/or HRA data may be used
2. Maintaining a healthy diet. Compare member's knowledge and dietary habits pre and post engagement at 6-12 months. In absence of documentation, Provider and/Member narrative/HRA data may be used.
3. Glucose control with a targeted range of 80-120 before meals Compare lab data pre and post engagement at 12 - 18 months. In absence of lab data, Provider and/or Member narrative and/or HRA data may be used
4. A moderate physical activity regimen to include a minimum of 30 minutes on most days of the week .Compare physical activity level documented in provider records, assessments and care plans, and monitoring data pre and post engagement 6-12 months. In the absence of these data sources, CM may use Provider and/or Member narrative and/or HRA data may be used.

CASE GOALS

Case Goals should target specific care gaps and/or adherence issues, and measure the member's progress towards self-management and adherence which will lead to the targeted health outcomes above. Examples:⁴

1. The member will increase their level of physical activity by 2-5 minutes each week. Member self-reports exercise regime over the last 30 days that demonstrates improved adherence to physical recommendation.
2. The member will be able to identify healthy eating patterns. Member self-reports grocery shopping and diet regime over the last 30 days that demonstrate improved adherence to guideline and or provider recommendation.
3. The member will verbalize understanding of the how to use a glucometer for monitoring of blood glucose levels as prescribed by provider. The member will obtain a record log to document readings.
4. Specific for Members requiring hospitalization: The Member participates in provider follow-up visit within 7 days of hospital discharge.

CASE MANAGEMENT OBJECTIVES

Case Management Objectives should focus on improving the Member's self-management skills up including:

1. Lifestyle change skills
2. Increasing physical activity to at least 60 minutes daily and to limit nonacademic screen time to ≤ 2 hours/ day.
3. Following an ADA diet and reduce frequency of fast food intake to less than twice a week (may require nutritionist and / or CDE support).⁷
4. Taking medications including insulin as prescribed
5. Learning how to care for feet and develop good foot care skills (Annual foot exams should begin at puberty)
6. Adhering to Provider visit(s) as scheduled (extremely important for children with chronic illness as impact can be even more acute in a body not fully developed) (specific reference: <http://care.diabetesjournals.org/content/28/1/186>)
7. Checking blood glucose as directed by Provider
8. Keeping a log of blood glucose readings to share with Provider(s)
9. Avoiding risky behaviors like tobacco, alcohol and drug use, unprotected sex, and mismanagement of diabetes
10. Avoiding second-hand smoke
11. Wearing a medical alert ID (bracelet, necklace, etc.).
12. Knowing the normal age-specific growth and developmental milestones, watching for variances, and reporting them to the Provider
13. Early identification of symptoms to manage, report to physician and / or call for emergency services.

The care team should also conduct screening for and treatment of anxiety and/or depression, as appropriate.

OTHER CONSIDERATIONS

Issues in Transition Between Pediatric and Adult Care⁵

Providers should pay careful attention to issues that can arise during the critical transition period:

- Differences between pediatric and adult care
- Poor control of glycemia and other risk factors
- Loss to follow-up
- Increased risk for acute complications
- Psychosocial issues

- Sexual and reproductive health issues
- Alcohol, smoking and drug abuse
- Emergence of signs of chronic diabetes complications

Youth with diabetes frequently experiment with diabetes mismanagement and engage in risky behaviors (like smoking, alcohol use, drug use and unprotected sexual activity). They also may have a heightened sense of invulnerability.

The following are ADA recommendations that providers should note during the transition period:

1. Prepare the teen patient for upcoming transition at least one year prior.
2. Preparation should include a direct focus on diabetes self-management education including the patient and parent(s); the goal is to gradually transfer diabetes care responsibilities from the parent or guardian to the teen. Areas of focus include glucose self-monitoring and insulin administration and should include scheduling appointments and ensuring a proper supply of medications and supplies.
3. Inform patients of the differences between pediatric and adult providers in their approaches to care, as well as education regarding health insurance options and how to maintain coverage.
4. Provide a written summary to the patient and future adult care provider including an active problem list, compilation of medications, assessment of diabetes self-care skills, summary of past glycemic control and diabetes related comorbidities, as well as a summary of any mental health problems and referrals.

Diabetes is a risk factor for adolescent psychiatric disorders. Adolescents with diabetes have a threefold increased risk of psychiatric disorders, with rates as high as 33% and primarily associated with incidence of major depression. Psychiatric illness is a serious complication of diabetes and is often associated with poor metabolic control and adaptation. Eating disorders are also more common among youth with diabetes which impacts metabolic control and is often a cause of recurrent hospitalization. Recommendations related to these risks include:⁸

1. Screening youth with difficulties achieving treatment goals or with recurrent DKA for psychiatric disorders.
2. Screening routinely for psychosocial functioning, especially depression and family coping.
3. Referring youth with positive screening promptly for treatment.

MEMBER EDUCATIONAL RESOURCES

Care Managers working with Members can access the educational materials from Krames; items are available to review with Members to address knowledge gaps. Materials can also be sent to Members.

NOTE: Links are internal for WellCare Care Management staff.

- [Coping with Your Diagnosis - Diabetes](#)
- [Long Term Complications of Diabetes](#)
- [Identifying Your Heart Risks - Diabetes](#)
- [Diabetes and Peripheral Arterial Disease \(PAD\)](#)
- [What Is Diabetic Retinopathy](#)
- [Hyperglycemia \(High Blood Sugar\)](#)
- [Hypoglycemia \(Low Blood Sugar\)](#)
- [Diabetes Understanding Carbohydrates](#)
- [Healthy Meals for Diabetes](#)
- [Understanding Food and Cholesterol - Diabetes](#)
- [Tips for Using Less Salt - Diabetes](#)
- [Low-Fat Cooking Tips- Diabetes](#)
- [Diabetes Learning About Serving and Portion Sizes](#)
- [Reading Food Labels](#)
- [How to Check Your Blood Sugar](#)
- [Using a Blood Sugar Log](#)
- [Oral Medications for Type 2 Diabetes](#)
- [Using Injected Insulin](#)
- [Diabetes- Exams and Tests](#)
- [Cholesterol Quiz - Diabetes](#)
- [Micro albumin - Urine](#)
- [Managing Diabetes The A1C Test](#)
- [Managing Stress When You Have Diabetes](#)
- [Diabetes The Benefits of Exercise](#)
- [Diabetes Sick Day Plan](#)
- [Diabetes- Inspecting Your Feet](#)
- [Erectile Dysfunction Rebuilding Intimacy](#)

Providers may wish to research the titles above related to diabetes that Case Managers utilize with Members.

Related WellCare Guidelines

In addition to the information contained in this document, please reference the following age-specific preventive health

CPGs (*Pediatric: HS-1019 and Adolescent: HS-1051*) that detail information related to the NCQA measures noted above (see “Measures of Compliance”). The following CPGs are also available: *Cholesterol Management: HS-1005*, *Diabetes in Adults: HS-1009*, and *Hypertension: HS-1010*. For the Georgia market, please reference the CPG *Diabetes: HS-1009GA*. NOTE: Clinical Policies can be accessed by going to www.wellcare.com – select the Provider tab, then “Tools” and “Clinical Guidelines”.

References

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Easy Choice Health Plan ~ Harmony Health Plan of Illinois ~ Missouri Care ~ Ohana Health Plan, a plan offered by WellCare Health Insurance of Arizona
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WellCare (Arizona, Arkansas, Connecticut, Florida, Georgia, Illinois, Kentucky, Louisiana, Mississippi, Nebraska, New Jersey, New York, South Carolina, Tennessee, Texas)

Medical Policy Committee Approval History

Date	Medical Policy Committee History and Revisions
1/11/2018	<ul style="list-style-type: none"> Approved by MPC. Updated ADA guidelines from 2017.
1/27/2017	<ul style="list-style-type: none"> Approved by MPC. Enhanced Care Management and Measures of Compliance sections. Revised with CM, DM, QI, UM, BH and the Chief Medical Directors.
1/7/2016	<ul style="list-style-type: none"> Approved by MPC. Cross referenced Georgia specific CPG on Asthma. Inclusion of CPG Hierarchy.
2/5/2015	<ul style="list-style-type: none"> Approved by MPC. Addition of <i>Care Management</i> items.
5/2/2013	<ul style="list-style-type: none"> Approved by MPC. Include Key Action Statements (Copeland, & et al., 2013).
6/7/2012	<ul style="list-style-type: none"> Approved by MPC. Added criteria from ADA (2010); transition between pediatric and adult care.
12/1/2011	<ul style="list-style-type: none"> New template design approved by MPC.
6/2010	<ul style="list-style-type: none"> Approved by MPC.

Addendum

MAJOR DEVELOPMENTAL ISSUES AND THEIR EFFECT ON DM IN CHILDREN AND ADOLESCENTS^{1,4}

Developmental Stage (approx ages)	Normal developmental tasks	Type 1DM management priorities	Family issues in type 1 DM management
Infancy (0–12 months)	Developing a trusting relationship / “bonding”	<ul style="list-style-type: none"> Preventing and treating hypoglycemia Avoiding extreme fluctuations in blood 	<ul style="list-style-type: none"> Coping with stress Sharing the “burden of care” to avoid

	with primary caregiver(s)	glucose levels	parent burnout
<i>Toddler (13–36 months)</i>	Developing a sense of mastery and autonomy	<ul style="list-style-type: none"> Preventing and treating hypoglycemia Avoiding extreme fluctuations in blood glucose levels due to irregular food intake 	<ul style="list-style-type: none"> Establishing a schedule Managing the “picky eater” Setting limits and coping with toddler’s lack of cooperation with regimen Sharing the burden of care
<i>Preschooler and early elementary school-age (3–7 years)</i>	Developing initiative in activities and confidence in self	<ul style="list-style-type: none"> Preventing and treating hypoglycemia Unpredictable appetite and activity Positive reinforcement for cooperation with regimen Trusting other caregivers with DM management 	<ul style="list-style-type: none"> Reassuring child that DM is no one’s fault Educating other caregivers about DM management
<i>Older elementary school-age (8–11 years)</i>	<ul style="list-style-type: none"> Developing skills in athletic, cognitive, artistic, social areas Consolidating self-esteem with respect to the peer group 	<ul style="list-style-type: none"> Making DM regimen flexible to allow for participation in school/peer activities Child learning short- and long-term benefits of optimal control 	<ul style="list-style-type: none"> Maintaining parental involvement in insulin and blood glucose monitoring tasks while allowing for independent self-care for “special occasions” Continue to educate school and other caregivers
<i>Early adolescence (12–15 years)</i>	<ul style="list-style-type: none"> Managing body changes Developing a strong sense of self-identity 	<ul style="list-style-type: none"> Managing increased insulin requirements during puberty DM Management and blood glucose control become more difficult Weight and body image concerns 	<ul style="list-style-type: none"> Renegotiating parents and teen’s roles in diabetes management to be acceptable to both Learning coping skills to enhance ability to self-manage Preventing and intervening with diabetes-related family conflict Monitoring for signs of depression, learning disorders, risky behaviors
<i>Later adolescence (16–19 years)</i>	Establishing a sense of identity after high school (decision about location, social issues, work, education)	<ul style="list-style-type: none"> Begin discussion of the transition to a new DM team Integrating DM into new lifestyle 	<ul style="list-style-type: none"> Supporting the transition to independence Learning coping skills to enhance ability to self-manage Preventing and intervening with diabetes-related family conflict Monitoring for signs of depression, eating disorders, risky behaviors