

## South Carolina Adult Guidelines for Diabetes Care – 2022

**Screening for Diagnosis of Diabetes and Prediabetes:**  
**Starting at age 18 for those overweight and obese. At age 35, all adults should be screened regardless of weight and every 3 years unless risk factors arise. To test for diabetes or to assess risk of future diabetes, either A1C, Fasting Plasma Glucose (FPG), or 2-h 75 g Oral Glucose Tolerance Test (OGTT) are appropriate. An A1C level of 5.7% to 6.4% indicates increased risk for diabetes. The presence of diabetes is indicated by: A1C level of 6.5% or higher; FPG level of  $\geq$  126 mg/dL; OGTT level  $\geq$  200 mg/dL.**

**Prevention/delay of type 2 diabetes:** refer to support program targeting weight loss of 7% of body weight and physical activity to at least 150 min/week (i.e. National Diabetes Prevention Program).

**In those identified with prediabetes, identify and if appropriate, treat other CVD risk factors. \***

**Reference:**  
 International Diabetes Federation (IDF)  
 Consensus Worldwide Definition of the Metabolic Syndrome

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<b>Complete exam</b>	To classify the patient, detect complications, develop a management plan, and provide a basis for continuing care.																										
<b>Office visits</b>	<b>Quarterly</b> , but dictated by severity of condition and response to treatment; if uncontrolled, visits may be more often. Inform the relatives of patients with type 1 diabetes of the opportunity to be tested for type 1 diabetes risk, but only in the setting of a clinical research study.																										
<b>Body Mass Index</b> (Weight each visit; Height 1x/year)	<b>Each visit.</b> Diet, physical activity, and behavioral therapy to achieve > 5% weight loss should be prescribed for overweight (BMI > 25-29.9) and obese (BMI > 30) patients with type 2 DM ready to achieve weight loss. FDA approved weight loss medications are available to be used as adjuncts in patients with BMI > 27 kg/m <sup>2</sup> with one or more obesity associated comorbid conditions and in patients with BMI > 30 kg/m <sup>2</sup> without comorbidities who are motivated to lose weight. Metabolic surgery should be recommended to treat type 2 DM in appropriate surgical candidates with BMI > 40 kg/m <sup>2</sup> (BMI > 37.5 kg/m <sup>2</sup> in Asian Americans), regardless of the level of glycemic control or complexity of glucose-lowering regimens, and in adults with BMI 35.0– 39.9 kg/m <sup>2</sup> (32.5–37.4 kg/m <sup>2</sup> in Asian Americans) when hyperglycemia is inadequately controlled despite lifestyle and optimal medical therapy*																										
<b>Glycemic Assessment:</b> A1C CGM	<b>Quarterly</b> , then 2x/year if meeting goal; more stringent goals (< 6.5%) may further reduce complications at the cost of increased risk of hypoglycemia and may be considered in individual patients. In older adult with hypoglycemia, goal may be 7.0-7.5% to avoid hypoglycemia episodes, if history of severe hypoglycemia, advanced complications or limited life expectancy. Utilize a method certified by NGSP and DCCT assay. CGM useful in identifying hypoglycemia. Time in range of CGM data should be an integral part of individualized treatment. Follow manufacturer’s guidelines regarding frequency of changing CGM sensor.																										
<b>Blood pressure</b> Systolic < 140 mmHg; Diastolic < 90 mmHg	<b>Each visit.</b> Prescribe medications for BP > 140/90 mmHg along with lifestyle change. Recommended treatment: ACE-I or ARB, thiazide - like diuretics, or dihydropyridine calcium channel blockers. If using combination therapy to achieve target, then examine risks vs. benefits of goal of < 140/90 and monitor for side effects. With increased cardiovascular risk, the BP target should be < 130/80 mmHg. All hypertensive patients should monitor BP at home. HTN dx can be made on single visit BP $\geq$ 180/110.																										
<b>Lipid profile</b> Screening at diabetes diagnosis, initial medical evaluation, and every 5 years thereafter if under the age of 40 years, or more frequently if indicated  <b>ASCVD = Atherosclerotic Cardiovascular Disease</b>  ** For patients who do not tolerate the intended intensity of the statin, the maximally tolerated Statin dose should be used. *** In addition to lifestyle therapy **** ASCVD risk factors include LDL $\geq$ 100 mg/dL, high blood pressure, smoking, chronic kidney disease, albuminuria, family history of premature ASCVD. ***** Ezetimibe may be preferred due to lower cost.	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Age</th> <th style="text-align: left;">Risk Factors</th> <th style="text-align: left;">Recommended Statin Intensity** and combination therapy***</th> <th style="text-align: left;">Monitoring</th> </tr> </thead> <tbody> <tr> <td rowspan="3" style="text-align: center; vertical-align: top;"><b>&lt; 40 years</b></td> <td><b>No ASCVD or risks</b></td> <td><b>none</b></td> <td rowspan="3" style="vertical-align: top;">                     1. <b>4-12 weeks after:</b>                          a) <b>initiation of statin</b>                          b) <b>any change in dose</b>                      2. <b>On an individual basis (to monitor for medication adherence &amp; efficacy)</b> </td> </tr> <tr> <td><b>One additional ASCVD risk factor****</b></td> <td><b>Moderate</b></td> </tr> <tr> <td><b>Overt ASCVD or 10-year ASCVD risk &gt;20%</b></td> <td><b>High</b></td> </tr> <tr> <td rowspan="3" style="text-align: center; vertical-align: top;"><b><math>\geq</math> 40 years</b></td> <td><b>Overt ASCVD or 10-year ASCVD risk &gt;20% AND LDL-cholesterol <math>\geq</math>70 mg/dL despite maximally tolerated statin dose</b></td> <td><b>Add ezetimibe or PCSK-9 inhibitor*****</b></td> <td rowspan="3" style="vertical-align: top;">                     1. <b>4-12 weeks after:</b>                          a) <b>initiation of statin</b>                          b) <b>any change in dose</b>                      2. <b>On an individual basis (to monitor for medication adherence &amp; efficacy)</b> </td> </tr> <tr> <td><b>No ASCVD or risks for primary prevention</b></td> <td><b>Moderate</b></td> </tr> <tr> <td><b>Additional ASCVD risk factors****</b></td> <td><b>High</b></td> </tr> <tr> <td></td> <td><b>Overt ASCVD or 10-year ASCVD risk &gt;20% AND LDL-cholesterol <math>\geq</math>70 mg/dL despite maximally tolerated statin dose</b></td> <td><b>Add ezetimibe or PCSK-9 inhibitor*****</b></td> <td></td> </tr> </tbody> </table>			Age	Risk Factors	Recommended Statin Intensity** and combination therapy***	Monitoring	<b>&lt; 40 years</b>	<b>No ASCVD or risks</b>	<b>none</b>	1. <b>4-12 weeks after:</b> a) <b>initiation of statin</b> b) <b>any change in dose</b> 2. <b>On an individual basis (to monitor for medication adherence &amp; efficacy)</b>	<b>One additional ASCVD risk factor****</b>	<b>Moderate</b>	<b>Overt ASCVD or 10-year ASCVD risk &gt;20%</b>	<b>High</b>	<b><math>\geq</math> 40 years</b>	<b>Overt ASCVD or 10-year ASCVD risk &gt;20% AND LDL-cholesterol <math>\geq</math>70 mg/dL despite maximally tolerated statin dose</b>	<b>Add ezetimibe or PCSK-9 inhibitor*****</b>	1. <b>4-12 weeks after:</b> a) <b>initiation of statin</b> b) <b>any change in dose</b> 2. <b>On an individual basis (to monitor for medication adherence &amp; efficacy)</b>	<b>No ASCVD or risks for primary prevention</b>	<b>Moderate</b>	<b>Additional ASCVD risk factors****</b>	<b>High</b>		<b>Overt ASCVD or 10-year ASCVD risk &gt;20% AND LDL-cholesterol <math>\geq</math>70 mg/dL despite maximally tolerated statin dose</b>	<b>Add ezetimibe or PCSK-9 inhibitor*****</b>	
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<b>Diabetic Kidney disease</b> Assess spot urine albumin creatinine ratio (UACR) and estimated glomerular filtration rate eGFR to guide therapy	<b>Type 1: Should begin after five years duration then annually.</b> <b>Type 2: At diagnosis, annually for most or twice a year for certain patients.</b> In patients with type 2 diabetes and diabetic kidney disease, consider use of sodium-glucose cotransporter 2 inhibitors additionally for CVD reduction when eGFR $\geq$ 25mL/min/1.73m <sup>2</sup> or UACR > 300mg/g. In patients with CKD and at risk for CVD events use glucagon-like peptide 1 receptor agonist to reduce albuminuria and CVD events. In all patients with comorbid hypertension, if eGFR < 30mL/min/1.73m <sup>2</sup> , REFER to nephrologist promptly for uncertain etiology of kidney disease, difficult management issue and rapidly progressing kidney disease. ACE or ARB is not recommended in primary prevention in patients with normal BP and UACR < 30mg/g Cr.																										
<b>Management of CKD with calculated eGFR</b>	<b>Yearly</b> measurement of UACR, serum Cr, potassium; more frequent monitoring depending on the eGFR at the time.																										
<b>Aspirin therapy</b> 75-162 mg/day	<b>All patients</b> with type 1 or type 2 (unless contraindicated) with increased CV risk for primary prevention, including most men and women $\geq$ age 50 with at least one additional CVD risk factor. As secondary prevention for all with history of CVD. For patients with atherosclerotic cardiovascular disease and documented aspirin allergy, clopidogrel 75mg/d should be used. To lower the risk of preeclampsia with diabetes, low dose aspirin 100-150mg or 162 mg daily started between 12-16 weeks gestation.																										
<b>Dilated eye exam</b> By ophthalmologist or experienced optometrist in DR	Within 5 years after onset of diabetes, then annually; less frequent exams (every 2 years) may be considered when eye exam normal.	At diagnosis of diabetes, then annually; less frequent exams (every 2 years) may be considered when eye exam normal.																									
<b>Foot examination</b>	<b>Visual inspection at each visit. Comprehensive exam annually</b> should include inspection of the skin, neurological assessment (10-g monofilament testing with at least one other assessment: pinprick, temperature, vibration, or ankle reflexes), and vascular assessment including pulses in the legs and feet, assessment of foot deformities (focal lesions, interdigital calluses, maceration, nails) musculoskeletal (ROM, foot type, digits, bony prominences). Specialized therapeutic footwear is recommended for high-risk patients with diabetes including those with severe neuropathy, foot deformities, or history of amputation.																										
<b>Blood Glucose Monitoring (BGM) Goals:</b> Preprandial glucose 80-130 mg/dL Peak post-prandial glucose < 180 mg/dL Prior to driving > 90 mg/dL	5 years after diagnosis and at least annually thereafter.  Three or more times daily for patients using multiple insulin injections or insulin pump therapy, including before meals or snacks, and occasionally postprandial, at bedtime, and prior to exercise, if suspect low BG and critical tasks such as driving. CGM is useful to lower A1C in type 1 DM > 25 years and type 2 diabetes.	At diagnosis and at least annually thereafter.  May be helpful to guide treatment/self-management for patients using less frequent insulin injections or non-insulin therapies.																									

Continued on next page

## Page 2: South Carolina Adult Guidelines for Diabetes Care – 2022

Key concepts: goals should be individualized; certain populations (children, pregnant women, and elderly) require special considerations; less intensive glycemic goals may be indicated in patients with severe or frequent hypoglycemia; more intensive glycemic goals may further reduce microvascular complications at the cost of increasing hypoglycemia; postprandial glucose may be targeted if A1C goals are not met despite reaching preprandial glucose goals.

Exam/Test	Care of the Person with Type 1 Diabetes	Care of the Person with Type 2 Diabetes
<p><b>Reference unless otherwise noted:</b></p> <p><b>American Diabetes Association. Standards of Medical Care in Diabetes-2022. Diabetes Care. Volume 45, Supplement 1. January 2022</b>  <a href="http://care.diabetesjournals.org/content/45/Supplement_1">http://care.diabetesjournals.org/content/45/Supplement_1</a></p> <p>*Physical activity recommendations  <a href="http://journals.lww.com/acsm-msse/Fulltext/2010/12000/Exercise_and_Type_2_Diabetes_American_College_of_18.aspx">http://journals.lww.com/acsm-msse/Fulltext/2010/12000/Exercise_and_Type_2_Diabetes_American_College_of_18.aspx</a>                      **Dietary approaches to Stop Hypertension Eating Plan (DASH)  <a href="http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/introduction.html">http://www.nhlbi.nih.gov/health/public/heart/hbp/dash/introduction.html</a></p> <p><b>Adopted:</b>                      9/2/11  <b>Updated Guidelines adopted:</b>                      3/23/12, 1/11/13, 3/16/15, 3/4/16, 5/24/17, 3/9/18, 4/22/19, 3/1/20, 4/1/21, 3/28/22</p>	<p>The preferred treatment is glucose (15-20 grams) for a conscious individual; any glucose containing carbohydrate is appropriate. Repeat treatment if SMBG in fifteen shows persistent hypoglycemia. When SMBG returns to normal, the person should eat a meal or snack to prevent hypoglycemia recurrence. Prescribe glucagon 1 mg SC/IM for all individuals at significant risk of severe hypoglycemia.                      If patient drives, assess patient's medical history for loss of consciousness and ability to drive. National Guideline: BG &gt; 90mg/dL to drive a car, truck or operate heavy machinery.</p> <p>Each visit emphasizes glycemic and hypertensive control; weight loss recommended for all overweight or obese individuals at risk for or with diabetes using Mediterranean, low fat/calorie restricted or low-carbohydrate diet. At least 150 minutes per week of moderate-intensity aerobic physical activity*; if no contraindications, encourage people with type 2 DM to perform resistance training ≥ 2 times/week; review eating patterns with emphasis on carbohydrate -key strategy in glycemic control, if hypertensive- encourage DASH** style dietary pattern including reducing sodium and increasing potassium intake, and saturated fats; (should be &lt; 7% of total calories); minimize intake of <i>trans</i> fat; substitute monounsaturated for saturated and <i>trans</i> fat (AACE). Encourage dietary fiber of 14 gm of fiber/1,000 kcal and whole grain foods Limit daily alcohol to 1 drink or less for women and 2 drinks or less for men. For lipids, increase omega 3 fats, viscous fiber, and plant stanols/sterols; reduce saturated, <i>trans</i> fat and dietary cholesterol.</p> <p>Education should be individualized, based on the National Standards for DSMES and include the AADE 7™:</p> <ul style="list-style-type: none"> <li>○ Being Active - regular physical and working towards an appropriate BMI.</li> <li>○ Problem Solving - Assessment of patient knowledge, attitudes, self-management skills and health status; strategies for making health behavior changes and addressing psychosocial concerns.</li> <li>○ Taking Medication - safe and effective use of medications; prevention, detection and treatment of acute and chronic complications, including recognition of hypoglycemia.</li> <li>○ Healthy Eating - Importance of nutrition management and healthy diet.</li> <li>○ Monitoring - Role of self-monitoring of blood glucose in glycemic control.</li> <li>○ Reducing Risks - Cardiovascular risk reduction, smoking cessation intervention and secondhand smoke avoidance, sexual dysfunction, self-care of feet, preconception counseling, and dental care.</li> <li>○ Healthy Coping – Set achievable behavioral goals and provide encouragement and coping strategies.</li> </ul> <p>Individuals with pre-diabetes or diabetes should receive individualized Medical Nutrition Therapy (MNT) by registered dietitian (RD).                      Type 1 DM patients should be educated how to match prandial insulin dose to carbohydrate intake, pre-meal blood glucose and anticipated activity.                      Initial and ongoing part of medical management of diabetes.</p> <p>All adult members with a diagnosis of diabetes will be screened for depression using any screening method that the provider prefers *** or asking the following two questions: 1. "Over the past 2 weeks have you felt down, depressed, or hopeless?" 2. "Over the past 2 weeks have you felt little interest or pleasure in doing things?" (If positive for the 2 questions, screen further for depression.) <i>Depression: Referrals for treatment of depression should be made to experienced mental health providers in conjunction with collaborative care with the patient's diabetes treatment team. Anxiety: Consider screening in people exhibiting anxiety regarding diabetes complications, insulin injections or infusion, taking medications, and/or hypoglycemia that interferes with self-management behaviors. Disordered eating behavior: Consider reevaluating the treatment regimen if patient presents with symptoms of disordered eating behavior, an eating disorder, or disrupted patterns of eating.</i> ***Zung, Beck, PHQ-9, CES-D</p> <p><b>Influenza:</b> Annually for all adult patients. <b>Hepatitis B:</b> &lt; 60 years 2 or 3 dose series and ≥ 60 years discuss with doctor. <b>HPV</b> 3 doses over 6 months ≤ 26 years; 27-45 years after discussion with doctor. <b>TDAP</b> all adults every 10 years. <b>Zoster</b> &gt; 50 years 2 dose Shingrix even if previously vaccinated. <b>COVID-19</b> ≥ 6 years.  <b>Pneumonia:</b> All people with diabetes 19 through 64 years: one dose pneumococcal polysaccharide vaccine (PPSV23), no recommendation for PCV-13.                      At age ≥ 65 years: administer second dose of PPSV23 at least 5 years from prior PPSV23. One dose of PPSV23 if PCV13 has been given; then give PPSV23 ≥ 1 year after PCV13 and &gt; 5 years after any PPSV23 at age &lt; 65 years. (PCV13) one dose for patients without immunocompromising condition.</p> <p>Advise smoking/tobacco cessation counseling and other forms of treatment. Advise all patients not to smoke. Refer to SC Quit Line available at 1-800-QuitNow. E-cigarettes <b>SHOULD NOT</b> be used as an alternative to smoking.</p> <p>Consider Oral exam every 6 months, screening for OSA in symptomatic patients.                      LFTs annually</p> <p>Preconception counseling for all women of childbearing age. Screening for those with risk factors before 15 weeks gestation. Consider screening all women for undiagnosed diabetes or prediabetes at first prenatal visit. Insulin is the preferred treatment for type 2 diabetes in pregnancy. All women with diabetes should receive intensive diabetes management postpartum. Women with gestational diabetes (GDM) should be screened for diabetes 6 to 12 weeks postpartum and every 3 years.</p> <p>Screen for thyroid disease (TSH), Celiac disease, Pernicious Anemia in persons with type 1 soon after diagnosis and as appropriate. TSH can be rechecked every 1-2 years or with symptoms of thyroid dysfunction. Free T4 should be measured if TSH abnormal.</p>	

