

ACTION	FREQUENCY
SCREENING FOR DIAGNOSIS OF DM	ANNUALLY FOR HIGH-RISK, EVERY THREE YEARS IF NORMAL
MONITORING GLUCOSE CONTROL	EVERY THREE MONTHS UNTIL GOAL IS REACHED, EVERY SIX MONTHS IF GOAL IS MET
NEUROPATHY	SENSORY EXAMINATION ANNUALLY, FOOT INSPECTION EACH VISIT
RETINOPATHY	AT LEAST ANNUALLY UNLESS OTHERWISE ADVISED BY EYE CARE PROFESSIONAL
NEPHROPATHY	AT LEAST ANNUALLY
BLOOD PRESSURE	EACH VISIT
LIPID EVALUATION	AT LEAST ANNUALLY
FLU AND PNEUMONIA VACCINE	ANNUALLY/INITIALLY
SMOKING CESSATION COUNSELING	EACH VISIT
DEPRESSION SCREENING	AT LEAST ANNUALLY



Reference List

- American Diabetes Association: Screening for Diabetes. *Diabetes Care* 29 (Suppl.1), 2006: S5.
- American Diabetes Association: Standards of Medical Care for Patients with Diabetes, *Diabetes Care* 29 (Suppl.1), 2006: S8.
- American Diabetes Association: Standards of Medical Care for Patients with Diabetes - Foot Care. *Diabetes Care* 29 (Suppl.1), 2006: S25.
- American Diabetes Association: Standards of Medical Care for Patients with Diabetes – Nephropathy Screening. *Diabetes Care* 29 (Suppl.1), 2006: S21.
- American Diabetes Association: Standards of Medical Care for Patients with Diabetes – Dyslipidemia/Lipid Management. *Diabetes Care* 29 (Suppl.1), 2006: S18.
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- American Diabetes Association: Standards of Medical Care for Patients with Diabetes - Smoking Cessation. *Diabetes Care* 29 (Suppl.1), 2006: S20.
- American Diabetes Association: Standards of Medical Care for Patients with Diabetes - Immunization and the Prevention of Influenza and Pneumococcal Disease. *Diabetes Care* 29 (Suppl.1), 2006: S20.
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- Levinsky NG: Specialist evaluation in chronic kidney disease: too little, too late. *Ann Intern Med* 137:542-543, 2002.
- American Diabetes Association: Nephropathy in diabetes (Position Statement). *Diabetes Care* 27 (Suppl. 1): S79-S83,2004.



Care Guide for Diabetes

These guidelines are intended as an educational reference and do not supercede the clinical judgment of the treating physician with respect to appropriate and necessary care for a particular patient. The clinical references from which these guidelines are taken are listed at the end of this document.

Care Guide for DIABETES

SUGGESTED GUIDELINES	PROCESS	IMPORTANT FINDINGS, MEASUREMENTS AND VALUES	INTERVENTIONS	FOLLOW-UP												
Screening for and Diagnosis of Prediabetes and Diabetes Mellitus (DM) ^{1,2}	<ul style="list-style-type: none"> All adults 45 years or older. Screening should be considered at a younger age or more frequently in individuals with BMI ≥ 25 kg/m². Additional risk factors: <ul style="list-style-type: none"> History of gestational diabetes, family history of diabetes, or high triglycerides +/- low HDL-C. Screen overweight children and adolescents with risk factors. 	<ul style="list-style-type: none"> Symptoms of DM and a casual glucose ≥ 200 mg/dL. FPG ≥ 126 mg/dL on two separate occasions. 2-h PG ≥ 200 mg/dL during a 75 gm OGTT. In the absence of unequivocal hyperglycemia with acute metabolic decompensation, these criteria should be confirmed by retesting on a different day. Prediabetes <ul style="list-style-type: none"> FPG 100 mg/dL - 125 mg/dL = Impaired Fasting Glucose (IFG). 2-h PG 140 mg/dL - 199 mg/dL = Impaired Glucose Tolerance (IGT). Repeat testing on 2 separate occasions to confirm diagnosis. 	<ul style="list-style-type: none"> If abnormal, follow guideline. 	<ul style="list-style-type: none"> If normal, repeat at least every three years. For high-risk patients, repeat annually. 												
Monitoring for Glucose Control ^{2,12,13}	<p>A1C:</p> <ul style="list-style-type: none"> If at goal: every six months. If not at goal, or change in therapy: every three months. 	<p>Goal:</p> <ul style="list-style-type: none"> A1C < 7.0%. A1C < 6% can be considered in individual patients. Less stringent treatment goals may be appropriate for patients with a history of severe hypoglycemia, patients with limited life expectancies, very young children or older adults, and individuals with co-morbid conditions. 	<ul style="list-style-type: none"> If above goal of < 7.0%, follow guidelines for pharmacologic and non-pharmacologic treatment - Medical Nutrition Therapy (MNT) and exercise. Education as indicated. 	<ul style="list-style-type: none"> Repeat every three months until goal is reached. Repeat every six months if meeting treatment goal. 												
Self-Monitoring of Blood Glucose for Glucose Control (SMBG) ²	<ul style="list-style-type: none"> SMBG three or more times a day if using multiple insulin injections or insulin pump. SMBG as needed to reach glucose goals and for sick day management of patients with less frequent use of insulin or non insulin treated patients. 	<p>Goal:</p> <table border="1"> <tr> <td>Value</td> <td>Plasma Glucose</td> </tr> <tr> <td>Preprandial</td> <td>90-130 mg/dL</td> </tr> <tr> <td>Postprandial</td> <td>< 180 mg/dL</td> </tr> </table> <p>Additional Action Parameters:</p> <table border="1"> <tr> <td>Value</td> <td>Plasma Glucose</td> </tr> <tr> <td>Preprandial</td> <td>< 90 or > 150 mg/dL</td> </tr> <tr> <td>Postprandial</td> <td>< 110 or > 180 mg/dL</td> </tr> </table>	Value	Plasma Glucose	Preprandial	90-130 mg/dL	Postprandial	< 180 mg/dL	Value	Plasma Glucose	Preprandial	< 90 or > 150 mg/dL	Postprandial	< 110 or > 180 mg/dL	<ul style="list-style-type: none"> Adjust therapies based on results of SMBG. <p>Note: Most SMBG monitors reflect plasma values. Check monitor to see whether it measures whole blood or plasma values.</p>	<ul style="list-style-type: none"> Self-management at home, based on results.
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Foot and Neuropathy Evaluation ^{2,3}	<ul style="list-style-type: none"> Inspection of feet at each office visit. Initial screening should include a claudication history and assessment of pedal pulses. Evaluation of neurological status should include the use of a 5.07 (10-g) nylon monofilament, a 128-Hz tuning fork, and deep tendon reflex check. 	<ul style="list-style-type: none"> Document foot inspection at each visit. Document full foot exam each year – foot structure, vascular status and skin integrity. Consider obtaining an Ankle Brachial Index (ABI) and toe pressure. Examination for protective sensation. 	<ul style="list-style-type: none"> Refer to foot care specialist if high-risk (peripheral neuropathy with loss of sensation, altered biomechanics, peripheral vascular disease and/or bone deformities). Evaluate for appropriate footwear prescription or referral if abnormal. Repeat basic foot-care education. 	<ul style="list-style-type: none"> Inspection at each visit. Repeat neurological exam at least yearly. 												
Retinopathy Evaluation ^{2,11}	<ul style="list-style-type: none"> Yearly dilated retinal examination. <p>Initial Exam:</p> <ul style="list-style-type: none"> Under age 10: Based on clinical judgment. Type 1: Within three to five years after diagnosis of diabetes. Type 2: At time of diagnosis of diabetes. 	<ul style="list-style-type: none"> Normal eye or presence of retinopathy. 	<ul style="list-style-type: none"> If abnormal exam, refer to ophthalmology. 	<ul style="list-style-type: none"> Yearly routine examination and more frequently if retinopathy is progressing. Less frequent exams (every two to three years) may be considered in the setting of a normal eye with the advice of an eye care professional. 												
Nephropathy Evaluation ^{2,4, 18, 19, 20, 21 22, 23}	<ul style="list-style-type: none"> In the absence of previously documented proteinuria, screen annually for microalbuminuria.** 	<p>Test annually for one of the following:</p> <ul style="list-style-type: none"> Serum creatinine should be measured at least annually for the estimation of glomerular filtration rate (GFR). Serum creatinine used to estimate GFR and stage the level of chronic kidney disease (CKD). 	<ul style="list-style-type: none"> Confirm with repeat test and rule out other causes (infection). Therapy with ACE inhibitors and/or ARBs to treat proteinuria, including microalbuminuria if not contraindicated.***/+ Non-dihydropyridine CCB (verapamil, diltiazem) may be beneficial if ACE I and ARB are contraindicated. Consider statin therapy. In those with any degree of CKD, protein intake should be limited to 0.8 g/kg. 	<ul style="list-style-type: none"> Repeat at least annually. Two of three tests measured within a 6-month period should show elevated levels before a patient is designated as having microalbuminuria. Monitor K⁺ and Cr if on ACE inhibitor or ARB. Refer to endocrinologist when estimated GFR has fallen to <60 ml/min per 1.73 m². Consultation with a nephrologist when the GFR is <30 ml/min per 1.73 m². Continued surveillance to monitor response to therapy and progression of disease after diagnosis of microalbuminuria. 												
Blood Pressure Monitoring ^{2,6,14}	<ul style="list-style-type: none"> Measurement at each visit. 	<p>Goal:</p> <ul style="list-style-type: none"> Adults: < 130/80 mmHg. Children: < 90th percentile of age-adjusted values. 	<ul style="list-style-type: none"> SBP 130-139 Therapeutic Lifestyle Changes (TLC) including DASH diet. If goal not reached in 3 months begin pharmacotherapy. BP > 140/90 initiate TLC and pharmacotherapy. <ul style="list-style-type: none"> ACE I, ARB, BB, CCB or diuretics are suggested as first line therapies. ***/+ With microalbuminuria consider ACE I or ARB as first line therapy. With history of MI or LV dysfunction, also initiate BB. 	<ul style="list-style-type: none"> Measure and evaluate at each visit. Review home blood pressure record. Monitor K⁺ and Cr in patients on ACE inhibitor or ARB. Assess for medication side effects. <p>Note: ARB may be drug of choice in patients with type 2 DM, hypertension and microalbuminuria.</p>												
Lipid Evaluation ^{2,5,7}	<p>Preventive/Surveillance:</p> <ul style="list-style-type: none"> Adults: Annually for adults 20 years of age and over; re-evaluate following macrovascular event. Children: Lipid profile performed on children over two years old after diagnosis of diabetes and when glucose control has been established. If values are considered low-risk, repeat every two to five years, based on CVD risk. <p>Treatment:</p> <ul style="list-style-type: none"> Adults: At clinical discretion while titrating to desired or achievable end point. At steady state at least annually. Children: Follow the National Cholesterol Education Program recommendations for children and adolescents. 	<p>Goal:</p> <ul style="list-style-type: none"> Adults: <ul style="list-style-type: none"> LDL Cholesterol: < 100 mg/dL. HDL Cholesterol: <ul style="list-style-type: none"> Male: > 40 mg/dL Female: > 50 mg/dL Triglycerides: < 150 mg/dL. If TGs > 200, non-HDL cholesterol should be < 130 mg/dL. Children: <ul style="list-style-type: none"> LDL Cholesterol: < 110 mg/dL. 	<ul style="list-style-type: none"> Therapeutic Lifestyle Changes (TLC). Blood glucose control. Weight loss if overweight. Increased physical activity. Medical Nutrition Therapy – focusing on the reduction of saturated fat and cholesterol intake and fiber supplementation. Pharmaceutical agents – statins should be used as first-line therapy for lowering LDL. People with DM and age greater than 40 with TC ≥ 135 mg/dL consider statin to achieve LDL reduction of 30% - 40% regardless of baseline. People < 40 years old without overt CVD but with increased risk treat with statin if TLC unable to achieve LDL < 100 mg/dL. People with DM and overt CVD are at very high risk for further events and should be treated with a statin and a goal for LDL < 70 mg/dL. 	<ul style="list-style-type: none"> Repeat every 6-12 months until goal is reached, then yearly. Monitor liver function per safety guidelines. Monitor CPK in patients with muscle discomfort. 												
Women's Health ²	<ul style="list-style-type: none"> Pre-pregnancy counseling. 	<ul style="list-style-type: none"> Documentation of counseling in all potentially fertile women to include a recommendation for dilated retinal eye examination. 	<ul style="list-style-type: none"> Discuss and prescribe appropriate birth control. If pregnancy desired, achieve A1C < 1% above upper limits of normal. Counsel fertile women on medications contraindicated during pregnancy. Oral antidiabetic agents, ACE inhibitors, statins and ARBs should be discontinued before pregnancy. Note: ACE inhibitors and ARBs are contraindicated in pregnancy. 	<ul style="list-style-type: none"> If woman is fertile, review each visit. 												
Tobacco Cessation ^{18,19}	<ul style="list-style-type: none"> Tobacco use. 	<ul style="list-style-type: none"> Document patient's tobacco use patterns. 	<ul style="list-style-type: none"> Counsel on smoking prevention and cessation: <ul style="list-style-type: none"> Smoking cessation program. Pharmacologic interventions (Coverage may vary by benefit option). 	<ul style="list-style-type: none"> Re-evaluation each visit. 												
Selected Preventive Health Measures ^{2,8,9,10}	<ul style="list-style-type: none"> Substance Abuse. Pneumococcal vaccination. Influenza vaccination. Aspirin therapy. Coronary Heart Disease (CHD). Weight management. 	<ul style="list-style-type: none"> Document patient's use patterns. Document each patient has had a vaccination. Document patient has a vaccination each year and document if adverse event occurs. May be omitted if previous significant adverse effect is documented. Document appropriate patients on aspirin. Abnormal ECG. Document high-risk indicators, such as microalbuminuria, hypertension or dyslipidemia, in patients with no prior history of a CHD event or symptoms suggesting strong family history of CHD. Calculate BMI and measure waist: <ul style="list-style-type: none"> BMI Target: 18.5-24.9 kg/m². Waist Target: ≤ 35 inches for females. ≤ 40 inches for males. 	<ul style="list-style-type: none"> Recommend appropriate lifestyle changes (e.g., and/or referral to appropriate substance abuse program). Administer pneumococcal vaccination at time of diagnosis and again at age 65; or to all patients with diabetes age ≥ 5 years. A one-time revaccination is recommended for individuals > 64 who were previously immunized when they were < 65 and more than five years have elapsed. Administer vaccination to all patients with diabetes age ≥ 6 months beginning each September. Administer aspirin in doses of 75-162 mg a day. People < 30 years of age have generally not been studied. Aspirin therapy not recommended for patients under 21. Administer appropriate cardiac testing and/or referral to cardiologist based on: <ul style="list-style-type: none"> Severity of underlying or suspected CHD. Sedentary lifestyle age > 35 starting exercise program. If over 55 with cardiovascular disease, consider ACE inhibitor. Prescribe weight management and physical activity programs. Weight loss is recommended for overweight or obese adults who have diabetes. Recommend a regular physical activity program adapted to the presence of complications. 	<ul style="list-style-type: none"> Re-evaluation each visit. Document for each patient. Yearly. Yearly. Re-evaluation yearly. Monitor progress at each visit. 												
Education and Counseling ²	<ul style="list-style-type: none"> All patients receive education at diagnosis of prediabetes or DM until educational goals are achieved. If control deteriorates, education is restarted. Ongoing education, as indicated. 	<ul style="list-style-type: none"> Patients receiving education by provider or referred to an education program and seen by a nurse and/or dietitian. 	<ul style="list-style-type: none"> TLC, exercise techniques, medical nutrition therapy, risk factor modification, alcohol moderation, smoking cessation, self-management training, sick-day education, avoidance of hyperosmolar states and ketoacidosis, psychosocial evaluation. 	<ul style="list-style-type: none"> If control deteriorates or a sentinel event such as hospitalization occurs, repeat education as needed. Repeat FPG annually for people with prediabetes. 												
Consider Specialty Referral ^{2,3,4}	<ul style="list-style-type: none"> Cardiology. Endocrinology. Nephrology. Podiatry. Optometry/Ophthalmology. OB/GYN. 	<ul style="list-style-type: none"> Suspected CAD or HF. Patient with advanced needs, complications, or persistent, suboptimal control. GFR < 60 mL mn 1.73 m² or Scr > 1.5 mg/dL. Abnormal foot exam or peripheral neuropathy. Dilated retinal exam and ophthalmologic treatment. Pregnancy in the diabetic. 	<ul style="list-style-type: none"> Testing and/or therapy as needed. Type 1 diabetes: treatment of complications, advanced technologies. Evaluation of renal function. Evaluation, treatment for prevention of foot lesions. Dilated retinal eye exam and treatment for macular edema and retinopathy. 	<ul style="list-style-type: none"> As needed by patient. As needed to achieve or maintain control, or to manage complications. As needed by patient. As needed by patient. As needed by patient. As needed by patient. 												
Depression Screening ¹⁷	<ul style="list-style-type: none"> Screen for symptoms of depression. 	<ul style="list-style-type: none"> Document that each patient has been screened for symptoms of major depression over two weeks preceding the visit. Coordinate care with psychiatrist or psychotherapist if involved in your patient's treatment. Consider using a patient self-rating depression scale such as the PHQ 8 or 9. 	<ul style="list-style-type: none"> Administer treatment and/or refer patients who meet criteria for depression to a behavioral specialist. Administer pharmacologic interventions as indicated. <ul style="list-style-type: none"> SSRI's do not have the adverse cardiovascular effects commonly seen with tricyclic antidepressants. 	<ul style="list-style-type: none"> Screening is suggested at subsequent visits. Evaluate response to depression treatment with three follow-up contacts in 12 weeks and adjust meds as indicated and/or confer with appropriate treating mental health specialists. 												

Diabetes mellitus is a chronic disorder with potential significant complications, most of which are preventable. Treatment of diabetes requires a team approach, including the patient and the physician. The goals of treatment are: near-normalization of average blood glucose as measured by the A1C, prevention of blindness by a yearly dilated retinal exam, detection and treatment of nephropathy using a yearly urinary microalbumin. Co-morbidities, including hypertension and lipid disorders, will be evaluated and treated to goal levels, and preventive measures taken.**At least two out of three tests within a six-month period should show elevated levels before a patient is designated as having microalbuminuria.*** ACE inhibitors and ARBs are contraindicated in pregnancy. + There are some reports of angioedema with ACE-I and ARBs.