

. Strategies for Improving Care

1. American Diabetes Association

Next Section

Recommendations

A patient-centered communication style that incorporates patient preferences, assesses literacy and numeracy, and addresses cultural barriers to care should be used. **B**

Treatment decisions should be timely and founded on evidence-based guidelines that are tailored to individual patient preferences, prognoses, and comorbidities. **B**

Care should be aligned with components of the Chronic Care Model (CCM) to ensure productive interactions between a prepared proactive practice team and an informed activated patient. **A**

When feasible, care systems should support team-based care, community involvement, patient registries, and decision support tools to meet patient needs. **B**

Diabetes Self-management Education and Support

Recommendations

People with diabetes should receive diabetes self-management education (DSME) and diabetes self-management support (DSMS) according to the national standards for DSME and DSMS when their diabetes is diagnosed and as needed thereafter. **B**

Effective self-management and quality of life are the key outcomes of DSME and DSMS and should be measured and monitored as part of care. **C**

DSME and DSMS should address psychosocial issues, as emotional well-being is associated with positive diabetes outcomes. **C**

DSME and DSMS programs are appropriate venues for people with prediabetes to receive education and support to develop and maintain behaviors that can prevent or delay the onset of diabetes. **C**

Because DSME and DSMS can result in cost-savings and improved outcomes **B**, DSME and DSMS should be adequately reimbursed by third-party payers. **E**

Nutrition therapy recommendations

Goals of Nutrition Therapy for Adults with Diabetes

1. To promote and support healthful eating patterns, emphasizing a variety of nutrient-dense foods in appropriate portion sizes, in order to improve overall health and specifically to
 - o Attain individualized glycemic, blood pressure, and lipid goals

- o Achieve and maintain body weight goals
 - o Delay or prevent complications of diabetes
2. To address individual nutrition needs based on personal and cultural preferences, health literacy and numeracy, access to healthful food choices, willingness and ability to make behavioral changes, and barriers to change.
 3. To maintain the pleasure of eating by providing positive messages about food choices while limiting food choices only when indicated by scientific evidence.
 4. To provide the individual with diabetes with practical tools for day-to-day meal planning rather than focusing on individual macronutrients, micronutrients, or single foods.

Physical Activity

Recommendations

Children with diabetes or prediabetes should be encouraged to engage in at least 60 min of physical activity each day. **B**

Adults with diabetes should be advised to perform at least 150 min/week of moderate-intensity aerobic physical activity (50–70% of maximum heart rate), spread over at least 3 days/week with no more than 2 consecutive days without exercise. **A**

Evidence supports that all individuals, including those with diabetes, should be encouraged to reduce sedentary time, particularly by breaking up extended amounts of time (>90 min) spent sitting. **B**

In the absence of contraindications, adults with type 2 diabetes should be encouraged to perform resistance training at least twice per week. **A**

Smoking Cessation

Recommendations

Advise all patients not to smoke or use tobacco products. **A**

Include smoking cessation counseling and other forms of treatment as a routine component of diabetes care. **B**

Immunization Recommendations

Provide routine vaccinations for children and adults with diabetes as for the general population. C
Annually provide an influenza vaccine to all patients with diabetes ≥ 6 months of age. C
Administer pneumococcal polysaccharide vaccine 23 (PPSV23) to all patients with diabetes ≥ 2 years of age. C
Adults ≥ 65 years of age, if not previously vaccinated, should receive pneumococcal conjugate vaccine 13 (PCV13), followed by PPSV23 6–12 months after initial vaccination. C
Adults ≥ 65 years of age, if previously vaccinated with PPSV23, should receive a follow-up ≥ 12 months with PCV13. C
Administer hepatitis B vaccination to unvaccinated adults with diabetes who are aged 19–59 years. C
Consider administering hepatitis B vaccination to unvaccinated adults with diabetes who are aged ≥ 60 years. C

Psychosocial Assessment and Care Recommendations

Include assessment of the patient's psychological and social situation as an ongoing part of the medical management of diabetes. **B**

Psychosocial screening and follow-up may include, but are not limited to, attitudes about the illness, expectations for medical management and outcomes, affect/mood, general and diabetes-related quality of life, resources (financial, social, and emotional), and psychiatric history. **E**

Routinely screen for psychosocial problems such as depression, diabetes-related distress, anxiety, eating disorders, and cognitive impairment. **B**

Older adults (aged ≥ 65 years) with diabetes should be considered a high-priority population for depression screening and treatment. **B**

Patients with comorbid diabetes and depression should receive a stepwise collaborative care approach for the management of depression. **A**

. Foundations of Care: Education, Nutrition, Physical Activity, Smoking Cessation, Psychosocial Care, and Immunization

Table 4.1

Nutrition therapy recommendations

Topic	Recommendations	Evidence rating
Effectiveness of nutrition therapy	<ul style="list-style-type: none"> • Nutrition therapy is recommended for all people with type 1 and type 2 diabetes as an effective component of the overall treatment plan. 	A
	<ul style="list-style-type: none"> • Individuals who have diabetes should receive individualized MNT to achieve treatment goals, preferably provided by a registered dietitian familiar with the components of diabetes MNT. 	A
	<ul style="list-style-type: none"> • For individuals with type 1 diabetes, participation in an intensive, flexible insulin therapy education program using the carbohydrate-counting meal planning approach can result in improved glycemic control. 	A
	<ul style="list-style-type: none"> • For individuals using fixed daily insulin doses, consistent carbohydrate intake with respect to time and amount can result in improved glycemic control and reduce hypoglycemia risk. 	B
	<ul style="list-style-type: none"> • A simple diabetes meal planning approach, such as portion control or healthful food choices, may be better suited to individuals with type 2 diabetes with health and numeracy literacy concerns. This strategy also may be effective for older adults. 	C
	<ul style="list-style-type: none"> • Because diabetes nutrition therapy can result in cost savings B and improved outcomes (e.g., A1C reduction) A, MNT should be adequately reimbursed by insurance and other payers. E 	B, A, E
Energy balance	<ul style="list-style-type: none"> • For overweight or obese adults with type 2 diabetes or at risk for diabetes, reducing energy intake while maintaining a healthful eating pattern is recommended to promote weight loss. 	A
	<ul style="list-style-type: none"> • Modest weight loss may provide clinical benefits in some individuals with diabetes, especially those early in the disease process. To achieve modest weight loss, intensive lifestyle interventions with ongoing support are recommended. 	A

Topic	Recommendations	Evidence rating
Eating patterns and macronutrient distribution	<ul style="list-style-type: none"> Evidence suggests that there is not an ideal percentage of calories from carbohydrate, protein, and fat for all people with diabetes B; therefore, macronutrient distribution should be based on individualized assessment of current eating patterns, preferences, and metabolic goals. E 	B, E
	<ul style="list-style-type: none"> Carbohydrate amount and available insulin may be the most important factors influencing glycemic response after eating and should be considered when developing the eating plan. 	A
	<ul style="list-style-type: none"> Monitoring carbohydrate intake, whether by carbohydrate counting or experience-based estimation, remains critical in achieving glycemic control. 	B
	<ul style="list-style-type: none"> Carbohydrate intake from vegetables, fruits, whole grains, legumes, and dairy products should be advised over intake from other carbohydrate sources, especially those that contain added fats, sugars, or sodium. 	B
	<ul style="list-style-type: none"> Substituting low glycemic-load foods for higher glycemic-load foods may modestly improve glycemic control. 	C
	<ul style="list-style-type: none"> Individuals at high risk for type 2 diabetes should be encouraged to achieve the U.S. Department of Agriculture recommendation for dietary fiber (14 g fiber/1,000 kcal) and to consume foods containing whole grains (one-half of grain intake). 	B
	<ul style="list-style-type: none"> While substituting sucrose-containing foods for isocaloric amounts of other carbohydrates may have similar blood glucose effects, consumption should be minimized to avoid displacing nutrient-dense food choices. 	A
	<ul style="list-style-type: none"> People with diabetes and those at risk should limit or avoid intake of sugar-sweetened beverages to reduce risk for weight gain and worsening of cardiometabolic risk profile. 	B
Protein	<ul style="list-style-type: none"> In individuals with type 2 diabetes, ingested protein appears to increase insulin response without increasing plasma glucose concentrations. Therefore, carbohydrate sources high in protein should not be used to treat or prevent hypoglycemia. 	B
	<ul style="list-style-type: none"> Evidence is inconclusive regarding an ideal amount of total fat for people with diabetes; therefore, goals should 	C, B

Topic	Recommendations	Evidence rating
	be individualized. C Fat quality appears to be far more important than quantity. B	
	<ul style="list-style-type: none"> • A Mediterranean-style eating pattern, rich in monounsaturated fatty acids, may benefit glycemic control and CVD risk factors and can therefore be recommended as an effective alternative to a lower-fat, higher-carbohydrate eating pattern. 	B
Dietary fat	<ul style="list-style-type: none"> • Increased consumption of foods containing long-chain omega-3 fatty acids (EPA and DHA), such as fatty fish, and omega-3 linolenic acid (ALA) is recommended. 	B
	<ul style="list-style-type: none"> • The consumption of fish (particularly fatty fish) at least two times (two servings) per week is recommended. 	B
	<ul style="list-style-type: none"> • The amount of dietary saturated fat, cholesterol, and <i>trans</i> fat recommended for people with diabetes is the same as that recommended for the general population. 	C
	<ul style="list-style-type: none"> • Evidence does not support recommending omega-3 supplements for people with diabetes for the prevention or treatment of cardiovascular events. 	A
Micronutrients and herbal supplements	<ul style="list-style-type: none"> • There is no clear evidence of benefit from vitamin or mineral supplementation in people with diabetes who do not have underlying deficiencies. 	C
	<ul style="list-style-type: none"> • Routine supplementation with antioxidants, such as vitamins E and C and carotene, is not advised due to insufficient evidence of efficacy and concerns related to long-term safety. 	C
	<ul style="list-style-type: none"> • There is insufficient evidence to support the routine use of micronutrients such as chromium, magnesium, and vitamin D to improve glycemic control in people with diabetes. 	C
	<ul style="list-style-type: none"> • There is insufficient evidence to support the use of cinnamon or other herbs/supplements for the treatment of diabetes. 	E
	<ul style="list-style-type: none"> • It is recommended that individualized meal planning include optimization of food choices to meet recommended dietary allowance/dietary reference intake for all micronutrients. 	E
Alcohol	<ul style="list-style-type: none"> • If adults with diabetes choose to drink alcohol, they should be advised to do so in moderation (no more than one drink per day for adult women and no more than two drinks per day for adult men). 	C

Topic	Recommendations	Evidence rating
	<ul style="list-style-type: none"> Alcohol consumption may place people with diabetes at an increased risk for delayed hypoglycemia, especially if taking insulin or insulin secretagogues. Education and awareness regarding the recognition and management of delayed hypoglycemia are warranted. 	B
Sodium	<ul style="list-style-type: none"> The recommendation for the general population to reduce sodium to less than 2,300 mg/day is also appropriate for people with diabetes. 	B
	<ul style="list-style-type: none"> For individuals with both diabetes and hypertension, further reduction in sodium intake should be individualized. 	

Hypertension/Blood Pressure Control

Recommendations

Screening and Diagnosis

Blood pressure should be measured at every routine visit. Patients found to have elevated blood pressure should have blood pressure confirmed on a separate day. **B**

Goals

People with diabetes and hypertension should be treated to a systolic blood pressure (SBP) goal of <140 mmHg. **A**

Lower systolic targets, such as <130 mmHg, may be appropriate for certain individuals, such as younger patients, if they can be achieved without undue treatment burden. **C**

Individuals with diabetes should be treated to a diastolic blood pressure (DBP) <90 mmHg. **A**

Lower diastolic targets, such as <80 mmHg, may be appropriate for certain individuals, such as younger patients, if they can be achieved without undue treatment burden. **B**

Treatment

Patients with blood pressure >120/80 mmHg should be advised on lifestyle changes to reduce blood pressure. **B**

Patients with confirmed office-based blood pressure higher than 140/90 mmHg should, in addition to lifestyle therapy, have prompt initiation and timely subsequent titration of pharmacological therapy to achieve blood pressure goals. **A**

Lifestyle therapy for elevated blood pressure consists of weight loss, if overweight or obese; a Dietary Approaches to Stop Hypertension (DASH)-style dietary pattern including reducing sodium and increasing potassium intake; moderation of alcohol intake; and increased physical activity. **B**

Pharmacological therapy for patients with diabetes and hypertension should comprise a regimen that includes either an ACE inhibitor or an angiotensin receptor blocker (ARB). **B** If one class is not tolerated, the other should be substituted. **C**

Multiple-drug therapy (including a thiazide diuretic and ACE inhibitor/ARB, at maximal doses) is generally required to achieve blood pressure targets. **B**

If ACE inhibitors, ARBs, or diuretics are used, serum creatinine/estimated glomerular filtration rate (eGFR) and serum potassium levels should be monitored. **E**

In pregnant patients with diabetes and chronic hypertension, blood pressure targets of 110–129/65–79 mmHg are suggested in the interest of optimizing long-term maternal health and minimizing impaired fetal growth. ACE inhibitors and ARBs are contraindicated during pregnancy. **E**

Dyslipidemia/Lipid Management

Recommendations

Screening

In adults, a screening lipid profile is reasonable at the time of first diagnosis, at the initial medical evaluation, and/or at age 40 years and periodically (e.g., every 1–2 years) thereafter. **E**

Treatment Recommendations and Goals

Lifestyle modification focusing on the reduction of saturated fat, *trans* fat, and cholesterol intake; increase of omega-3 fatty acids, viscous fiber, and plant stanols/sterols; weight loss (if indicated); and increased physical activity should be recommended to improve the lipid profile in patients with diabetes. **A**

Intensify lifestyle therapy and optimize glycemic control for patients with elevated triglyceride levels (≥ 150 mg/dL [1.7 mmol/L]) and/or low HDL cholesterol (< 40 mg/dL [1.0 mmol/L] for men, < 50 mg/dL [1.3 mmol/L] for women). **C** For patients with fasting triglyceride levels ≥ 500 mg/dL (5.7 mmol/L), evaluate for secondary causes and consider medical therapy to reduce risk of pancreatitis. **C**

For patients of all ages with diabetes and overt CVD, high-intensity statin therapy should be added to lifestyle therapy. **A**

For patients with diabetes aged <40 years with additional CVD risk factors, consider using moderate- or high-intensity statin and lifestyle therapy. C
For patients with diabetes aged 40–75 years without additional CVD risk factors, consider using moderate-intensity statin and lifestyle therapy. A
For patients with diabetes aged 40–75 years with additional CVD risk factors, consider using high-intensity statin and lifestyle therapy. B
For patients with diabetes aged >75 years without additional CVD risk factors, consider using moderate-intensity statin therapy and lifestyle therapy. B
For patients with diabetes aged >75 years with additional CVD risk factors, consider using moderate- or high-intensity statin therapy and lifestyle therapy. B
In clinical practice, providers may need to adjust intensity of statin therapy based on individual patient response to medication (e.g., side effects, tolerability, LDL cholesterol levels). E
Cholesterol laboratory testing may be helpful in monitoring adherence to therapy, but may not be needed once the patient is stable on therapy. E
Combination therapy (statin/fibrate and statin/niacin) has not been shown to provide additional cardiovascular benefit above statin therapy alone and is not generally recommended. A
Statin therapy is contraindicated in pregnancy. B

Antiplatelet Agents Recommendations

Consider aspirin therapy (75–162 mg/day) as a primary prevention strategy in those with type 1 or type 2 diabetes at increased cardiovascular risk (10-year risk >10%). This includes most men aged >50 years or women aged >60 years who have at least one additional major risk factor (family history of CVD, hypertension, smoking, dyslipidemia, or albuminuria). C
Aspirin should not be recommended for CVD prevention for adults with diabetes at low CVD risk (10-year CVD risk <5%, such as in men aged <50 years and women aged <60 years with no major additional CVD risk factors), since the potential adverse effects from bleeding likely offset the potential benefits. C
In patients in these age-groups with multiple other risk factors (e.g., 10-year risk 5–10%), clinical judgment is required. E

Use aspirin therapy (75–162 mg/day) as a secondary prevention strategy in those with diabetes and a history of CVD. **A**

For patients with CVD and documented aspirin allergy, clopidogrel (75 mg/day) should be used. **B**

Dual antiplatelet therapy is reasonable for up to a year after an acute coronary syndrome. **B**

Coronary Heart Disease

Recommendations

Screening

In asymptomatic patients, routine screening for coronary artery disease (CAD) is not recommended because it does not improve outcomes as long as CVD risk factors are treated. **A**

Treatment

In patients with known CVD, use aspirin and statin therapy (if not contraindicated) **A** and consider ACE inhibitor therapy **C** to reduce the risk of cardiovascular events.

In patients with a prior MI, β -blockers should be continued for at least 2 years after the event. **B**

In patients with symptomatic heart failure, thiazolidinedione treatment should not be used. **A**

In patients with stable CHF, metformin may be used if renal function is normal but should be avoided in unstable or hospitalized patients with CHF. **B**

In all patients with diabetes, cardiovascular risk factors should be assessed at least annually. These risk factors include dyslipidemia, hypertension, smoking, a family history of premature coronary disease, and the presence of albuminuria. Abnormal risk factors should be treated as described elsewhere in these guidelines.

Cardiovascular Disease and Risk Management

Table 8.1

Recommendations for statin treatment in people with diabetes

Age	Risk factors	Recommended statin dose*	Monitoring with lipid panel
<40 years	None	None	Annually or as needed to monitor for adherence
	CVD risk factor(s)**	Moderate or high	
	Overt CVD***	High	
40-75 years	None	Moderate	As needed to monitor adherence
	CVD risk factors	High	
	Overt CVD	High	
>75 years	None	Moderate	As needed to monitor adherence
	CVD risk factors	Moderate or high	
	Overt CVD	High	

Microvascular Complications and Foot Care

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Nephropathy

Recommendations

Optimize glucose control to reduce the risk or slow the progression of diabetic kidney disease. **A**

Optimize blood pressure control to reduce the risk or slow the progression of diabetic kidney disease. **A**

Screening

At least once a year, quantitatively assess urinary albumin (e.g., urine albumin-to-creatinine ratio [UACR]) and estimated glomerular filtration rate (eGFR) in patients with type 1 diabetes duration of ≥ 5 years and in all patients with type 2 diabetes. **B**

Treatment

An ACE inhibitor or angiotensin receptor blocker (ARB) is not recommended for the primary prevention of diabetic kidney disease in patients with diabetes who have normal blood pressure and normal UACR (<30 mg/g). **B**

Either an ACE inhibitor or ARB is suggested for the treatment of the nonpregnant patient with modestly elevated urinary albumin excretion (30–299 mg/day) **C** and is recommended for those with urinary albumin excretion >300 mg/day. **A**

When ACE inhibitors, ARBs, or diuretics are used, monitor serum creatinine and potassium levels for the development of increased creatinine or changes in potassium. **E**

Continued monitoring of UACR in patients with albuminuria is reasonable to assess progression of diabetic kidney disease. **E**

When eGFR is <60 mL/min/1.73 m², evaluate and manage potential complications of chronic kidney disease (CKD). **E**

Consider referral to a physician experienced in the care of kidney disease when there is uncertainty about the etiology of kidney disease, difficult management issues, or advanced kidney disease. **B**

Nutrition

For people with diabetic kidney disease, reducing the amount of dietary protein below the recommended daily allowance of 0.8 g/kg/day (based on ideal body weight) is not recommended because it does not alter glycemic measures, cardiovascular risk measures, or the course of GFR decline. **A**

Retinopathy

Recommendations

Optimize glycemic control to reduce the risk or slow the progression of retinopathy. **A**

Optimize blood pressure control to reduce the risk or slow the progression of retinopathy. **A**

Screening

Adults with type 1 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist within 5 years after the onset of diabetes. **B**

Patients with type 2 diabetes should have an initial dilated and comprehensive eye examination by an ophthalmologist or optometrist shortly after the diagnosis of diabetes. **B**

If there is no evidence of retinopathy for one or more eye exams, then exams every 2 years may be considered. If diabetic retinopathy is present, subsequent examinations for patients with type 1 and type 2 diabetes should be repeated annually by an ophthalmologist or optometrist. If retinopathy is progressing or sight-threatening, then examinations will be required more frequently. **B**

High-quality fundus photographs can detect most clinically significant diabetic retinopathy. Interpretation of the images should be performed by a trained eye care provider. While retinal photography may serve as a screening tool for retinopathy, it is not a substitute for a comprehensive eye exam, which should be performed at least initially and at intervals thereafter as recommended by an eye care professional. **E**

Women with preexisting diabetes who are planning pregnancy or who have become pregnant should have a comprehensive eye examination and be counseled on the risk of development and/or progression of diabetic retinopathy. Eye examination should occur in the first trimester with close follow-up throughout pregnancy and for 1 year postpartum. **B**

Treatment

Promptly refer patients with any level of macular edema, severe nonproliferative diabetic retinopathy (NPDR), or any proliferative diabetic retinopathy (PDR) to an ophthalmologist who is knowledgeable and experienced in the management and treatment of diabetic retinopathy. **A**

Laser photocoagulation therapy is indicated to reduce the risk of vision loss in patients with high-risk PDR, clinically significant macular edema, and, in some cases, severe NPDR. **A**

Antivascular endothelial growth factor (VEGF) therapy is indicated for diabetic macular edema. **A**

The presence of retinopathy is not a contraindication to aspirin therapy for cardioprotection, as aspirin does not increase the risk of retinal hemorrhage. **A**

Neuropathy

Recommendations

All patients should be screened for diabetic peripheral neuropathy (DPN) starting at diagnosis of type 2 diabetes and 5 years after the diagnosis of type 1 diabetes and at least annually thereafter, using simple clinical tests, such as a 10-g monofilament. **B**

Screening for signs and symptoms (e.g., orthostasis, resting tachycardia) of cardiovascular autonomic neuropathy (CAN) should be considered with more advanced disease. **E**

Tight glycemic control is the only strategy convincingly shown to prevent or delay the development of DPN and CAN in patients with type 1 diabetes **A** and to slow the progression of neuropathy in some patients with type 2 diabetes. **B**

Assess and treat patients to reduce pain related to DPN **B** and symptoms of autonomic neuropathy and to improve quality of life. **E**

The diabetic neuropathies are heterogeneous with diverse clinical manifestations. They may be focal or diffuse. The most prevalent neuropathies are DPN and autonomic neuropathy. Although DPN is a diagnosis of exclusion, complex investigations or referral for neurology consultation to exclude other conditions is rarely needed.

The early recognition and appropriate management of neuropathy in the patient with diabetes is important for a number of reasons:

1. Nondiabetic neuropathies may be present in patients with diabetes and may be treatable.
2. A number of treatment options exist for symptomatic diabetic neuropathy.

3. Up to 50% of DPN may be asymptomatic, and patients are at risk for insensate injury to their feet.
4. Autonomic neuropathy, particularly CAN, is an independent risk factor for cardiovascular mortality.

Foot Care

Recommendations

For all patients with diabetes, perform an annual comprehensive foot examination to identify risk factors predictive of ulcers and amputations. The foot examination should include inspection and assessment of foot pulses. **B**

Patients with insensate feet, foot deformities, and ulcers should have their feet examined at every visit. **E**

Provide general foot self-care education to all patients with diabetes. **B**

A multidisciplinary approach is recommended for individuals with foot ulcers and high-risk feet (e.g., dialysis patients and those with Charcot foot, prior ulcers, or amputation). **B**

Refer patients who smoke or who have a loss of protective sensation (LOPS), structural abnormalities, or a history of prior lower-extremity complications to foot care specialists for ongoing preventive care and lifelong surveillance. **C**

Initial screening for peripheral arterial disease (PAD) should include a history for claudication and an assessment of the pedal pulses. **C**

Refer patients with significant claudication or a positive ankle-brachial index (ABI) for further vascular assessment and consider exercise, medications, and surgical options. **C**

Microvascular Complications and Foot Care

Table 9.3

Management of CKD in diabetes (7)

GFR (mL/min/1.73 m ²)	Recommended management
All patients	Yearly measurement of creatinine, urinary albumin excretion, potassium
45–60	Referral to a nephrologist if possibility for nondiabetic kidney disease exists (duration of type 1 diabetes <10 years, persistent albuminuria, abnormal findings on renal ultrasound, resistant hypertension, rapid fall in GFR, or active urinary sediment on ultrasound)
	Consider the need for dose adjustment of medications
	Monitor eGFR every 6 months
	Monitor electrolytes, bicarbonate, hemoglobin, calcium, phosphorus, parathyroid hormone at least yearly
	Assure vitamin D sufficiency
	Consider bone density testing
	Referral for dietary counseling
30–44	Monitor eGFR every 3 months
	Monitor electrolytes, bicarbonate, calcium, phosphorus, parathyroid hormone, hemoglobin, albumin, weight every 3–6 months
	Consider the need for dose adjustment of medications
<30	Referral to a nephrologist

Diabetes Care in the Hospital, Nursing Home, and Skilled Nursing Facility

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Recommendations

Diabetes discharge planning should start at hospital admission, and clear diabetes management instructions should be provided at discharge. **E**

The sole use of sliding scale insulin (SSI) in the inpatient hospital setting is strongly discouraged. **A**

All patients with diabetes admitted to the hospital should have their diabetes type clearly identified in the medical record. **E**

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Critically Ill Patients

Insulin therapy should be initiated for treatment of persistent hyperglycemia starting at a threshold of no greater than 180 mg/dL (10 mmol/L). Once insulin therapy is started, a glucose range of 140–180 mg/dL (7.8–10 mmol/L) is recommended for the majority of critically ill patients. **A**

More stringent goals, such as 110–140 mg/dL (6.1–7.8 mmol/L), may be appropriate for selected patients, as long as this can be achieved without significant hypoglycemia. **C**

Critically ill patients require an intravenous insulin protocol that has demonstrated efficacy and safety in achieving the desired glucose range without increasing risk for severe hypoglycemia. **E**

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Noncritically Ill Patients

If treated with insulin, generally premeal blood glucose targets of <140 mg/dL (7.8 mmol/L) with random blood glucose <180 mg/dL (10.0 mmol/L) are reasonable, provided these targets can be safely achieved. More stringent targets may be appropriate in stable patients with previous tight glycemic control. Less stringent targets may be appropriate in those with severe comorbidities. **C**

A basal plus correction insulin regimen is the preferred treatment for patients with poor oral intake or who are taking nothing by mouth (NPO). An insulin regimen with basal, nutritional, and correction components is the preferred treatment for patients with good nutritional intake. **A**

A hypoglycemia management protocol should be adopted and implemented by each hospital or hospital system. A plan for preventing and treating hypoglycemia should be established for each patient. Episodes of hypoglycemia in the hospital should be documented in the medical record and tracked. **E**

Consider obtaining an A1C in patients with diabetes admitted to the hospital if the result of testing in the previous 3 months is not available. **E**

Consider obtaining an A1C in patients with risk factors for undiagnosed diabetes who exhibit hyperglycemia in the hospital. **E**

Patients with hyperglycemia in the hospital who do not have a prior diagnosis of diabetes should have appropriate follow-up testing and care documented at discharge. **E**