



DIABETES CARE PRIMER FOR CASE MANAGERS

A Guide for Managing Patients With Type 2 Diabetes

INTRODUCTION

There are many approaches to helping your patients manage their type 2 diabetes. However, education, diet, and exercise remain the foundation of any type 2 diabetes treatment.¹

As a case manager, you may be in a key position to support and educate your patients to help them achieve or maintain glycemic control and to help reduce the risk of developing type 2 diabetes-related complications.

However, type 2 diabetes care goes beyond glycemic control and requires risk-reduction strategies for multiple factors since diabetes affects multiple parts of the body and since patients with type 2 diabetes are at increased risk of cardiovascular morbidity and mortality.^{1,2} Type 2 diabetes requires a multidisciplinary approach to care. Each strategy should be tailored to the needs, preferences, and tolerances of each patient; individualization of treatment is the cornerstone of success.¹

This Diabetes Care Primer is intended to present some of the multiple factors involved in appropriate type 2 diabetes care. It also offers potential strategies to help you optimize your care for patients with type 2 diabetes.

Diabetes Self-Management Education and Support

According to the American Diabetes Association (ADA), patients with type 2 diabetes should receive diabetes self-management education (DSME) and diabetes self-management support (DSMS) as presented in the National Standards for Diabetes Self-Management Education and Support when their diabetes is diagnosed and as needed.² Effective self-management is a key outcome of DSME and DSMS and should be measured and monitored as part of care.²



HOW YOU CAN HELP INDIVIDUALIZE TREATMENT

- Work with your patients, their doctors, and other healthcare providers to ensure that DSME and DSMS are being provided.²
- Ensure that your patients know their specific management goals and numbers.
- Care of type 2 diabetes has evolved to be more patient centered and places people with diabetes and their family at the center of care, working in collaboration with healthcare professionals. You can help by engaging your patients with type 2 diabetes to empower themselves to take charge of their care.¹

GLYCEMIC ASSESSMENT

There are two ways to assess glycemic control: A1C and patients' self-monitoring of their blood glucose.²

A1C Control

A1C is a blood test that gives patients a picture of average blood glucose control for the past 2 to 3 months.² The results give you a good idea of how well the patients' type 2 diabetes management plan is working. A goal of <7% is recommended for many nonpregnant adults with type 2 diabetes.² However, some patients may have more or less stringent goals based on their individual comorbidities and needs.² Be sure to check with your patients' doctors or healthcare providers for specific individual goals.

Patient Glucose Monitoring

Blood glucose monitoring is an important tool you and your patients can use to monitor their type 2 diabetes control since it indicates what their plasma or blood glucose level is at any given time.² There are two types of self-monitoring of glucose a patient can do²:

- Fasting plasma (blood) glucose (FPG) measures how much glucose is in your patient's blood before eating.
- Postprandial plasma (blood) glucose (PPG) measures the amount of glucose in your patient's blood 1 to 2 hours after eating.

Recommended Glucose Levels²

FPG: 80-130 mg/dL

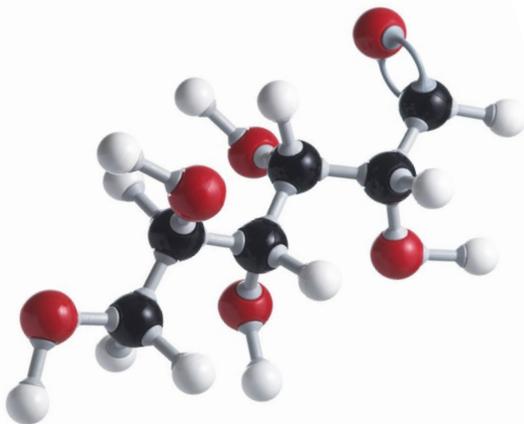
PPG*: <180 mg/dL

Be sure to discuss with your patients' doctors and healthcare providers what number is right for them.

*Postprandial glucose should be measured 1 to 2 hours after the beginning of the meal, which is generally peak levels for patients with diabetes.

HOW YOU CAN HELP

- Evaluate your patient's general literacy, numeracy, and health literacy to appropriately implement education.
- Educate your patients on the importance of A1C assessments and self-monitoring.
- Help ensure that your patients have had an A1C test at least twice annually (or quarterly for those patients not at goal or those whose therapy changed).²
- Eliminate barriers to self-monitoring (eg, make sure your patients have the appropriate equipment, education, and know when to check their glucose levels).
- Encourage your patients to keep a log of their blood glucose checks. It helps give both of you a good picture of their response to the type 2 diabetes care plan. Review the log with them to see how food and their lifestyle affect their blood glucose. This can also help determine if their level is too high or too low over the course of several days during the same time. If the same thing keeps happening, it might be an indication that something is not working the way it should.



PHYSICAL ACTIVITY

Exercise is a core component of the type 2 diabetes management plan and has been associated with improved blood glucose control, reduced cardiovascular risk factors, weight loss, and improved well-being.²

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Make sure patients speak with their doctors before starting any physical activity. Be sure to review a patient's health records to see if certain types of exercise should be avoided due to medical conditions.² These may include uncontrolled hypertension, severe autonomic neuropathy, severe peripheral neuropathy, or a history of foot lesions or advanced retinopathy.

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Most adults with type 2 diabetes should engage in moderate-intensity, physical activity for at least 150 minutes per week.² This should be spread over at least 3 days with no more than 2 consecutive days without exercise per week.² Resistance training at least twice a week is also encouraged, provided there are no contradictions.² It is recommended that physical activity be suited for individual abilities.²

Body mass index (BMI)³

BMI is a standard way to measure the amount of body fat in patients. People with a BMI of 25 or higher are at increased risk of developing type 2 diabetes compared with people with a BMI of less than 25.

What the BMI numbers mean:

Below 18.5: Underweight

18.5-24.9: Normal weight

25.0-29.9: Overweight

30.0 and above: Obese

How to calculate BMI:

BMI = weight (lb)/[height (in)]² x 703

BMI = weight (kg)/[height (m)]²

HOW YOU CAN HELP

- Encourage patients to start and stick to an appropriate exercise program based on their physical capabilities and any relevant comorbidities with their doctor's consent even though it may be difficult, especially in the beginning.
- Educate your patients about the many benefits of being active. For example, exercise may help lower LDL cholesterol, raise HDL cholesterol, lower blood pressure, and lower blood glucose.²
- Understand that patients who eventually lose and keep weight off usually do so after numerous cycles of weight loss and relapse.¹

NUTRITION

The Importance of Healthy Eating

Good nutrition and diet are important factors in managing type 2 diabetes.² Healthy eating can help patients manage blood glucose, A1C, cholesterol, triglycerides, blood pressure, and weight.²

There are a number of approaches to type 2 diabetes meal planning that have shown to be clinically effective. Most of these include a reduced energy intake component.⁴ Examples of these include carbohydrate counting, healthy, simplified meal plans (eg, the Plate Method), individualized meal planning based on percentages of macronutrients, exchange list for meal planning, glycemic index, and eating patterns including Mediterranean style, DASH, vegetarian or vegan, low carbohydrate, and low fat.⁴ As there is not a one-size fits all approach, nutrition therapy goals should be developed with patients and be based on their current eating patterns, preferences, and metabolic goals.⁴

HOW YOU CAN HELP

- Consider referral to a registered dietitian.²
- Engage your patients about their eating habits and preferences.
- Encourage them to eat healthy foods that align with their preferences and culture.²



Select strategies for your patients with diabetes⁴

There is no standard meal plan that works universally for every patient with type 2 diabetes. Therefore, it is important to customize the diet plan based on patient's individual health conditions and goals.

- Recommend portion control for weight loss and maintenance.
- Help patients understand what foods contain carbohydrates, starchy vegetables, whole grains, fruit, milk and milk products, vegetables, and sugar.
- Encourage patients to choose nutrient-dense, high-fiber foods instead of processed foods with added sodium, fat, and sugars.
- Discourage sugar-sweetened beverages.
- Instruct patients to substitute foods high in unsaturated fat (liquid oils) for foods higher in trans or saturated fat.
- Encourage patients to select leaner protein sources and meat alternatives.
- Discuss how vitamin and mineral supplements, herbal products, and/or cinnamon are not recommended to manage type 2 diabetes due to lack of evidence.
- Explain why alcohol should be limited since moderate alcohol consumption (one drink/day or less for adult women and two drinks or less for adult men) has minimal acute or long-term effects on blood glucose in people with type 2 diabetes.

HYPERTENSION & LIPID ABNORMALITIES

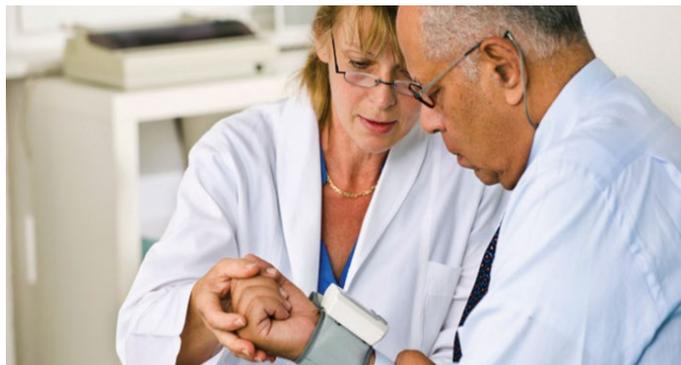
Blood Pressure Control

Hypertension also affects the majority of patients with type 2 diabetes.² Hypertension remains a major risk factor for cardiovascular disease (CVD) and microvascular complications.²

The recommended blood pressure goal for patients with type 2 diabetes and hypertension is <140/90 mm Hg.² Lower goals, such as 130/80 mm Hg, may be appropriate for certain individuals.² Be sure to discuss with your patients' doctors and healthcare providers which goal is right for them.

HOW YOU CAN HELP

- Make sure patients know their specific blood pressure goal.
- Help manage your patients' blood pressure to help lower the chance of heart attack and stroke.²
- Follow up to make sure that your patients' blood pressure is checked at every office visit per ADA recommendations.²
- Encourage lifestyle changes that lower high blood pressure such as²:
 - Reducing sodium intake
 - Losing weight if your patient is overweight
 - Increasing activity levels
 - Quitting smoking
 - Limiting alcohol
 - Taking blood pressure medication, if prescribed



Cholesterol and Triglycerides

Patients with type 2 diabetes have an increased prevalence of lipid abnormalities, contributing to their high risk of CVD.² ADA recommendations to improve the lipid profile in patients with diabetes include²:

- Lifestyle modification focusing on weight loss (if indicated)
- Reduced intake of saturated fat, trans fat, and cholesterol
- Increased intake of dietary omega-3 fatty acids, viscous fiber, and plant stanols/sterols
- Increased physical activity

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), intensify lifestyle therapy and optimize glycemic control.

HOW YOU CAN HELP

- Make sure patients know their specific lipid goals.
- Ensure that a fasting lipid profile is obtained at least once a year. In adults with low-risk lipid values (LDL cholesterol <100 mg/dL; HDL cholesterol >40 mg/dL for men, >50 mg/dL for women; and triglycerides <150 mg/dL), lipid assessments may be repeated every 2 years.²
- Encourage lifestyle changes that may include²:
 - Exercising, per their doctors' guidance
 - Eating healthy foods
 - Quitting smoking
 - Maintaining a healthy weight
 - Taking cholesterol medicine, if prescribed

SCREENINGS & EXAMS



Nephropathy Screening

Evidence suggests that diabetic nephropathy occurs in 20% to 40% of patients with diabetes and is the single leading cause of end-stage renal disease (ESRD).² In order to help reduce the risk or slow the progression of diabetic nephropathy, it is important to help manage both blood glucose and blood pressure.²

Patients with type 2 diabetes should have an annual test to assess urine albumin, as well as an annual test to measure serum creatinine.²

HOW YOU CAN HELP

- Continue working with your patients to help manage their blood glucose and blood pressure.
- Ensure that your patients with type 2 diabetes are receiving annual assessments for urine albumin and serum creatinine.²

Diabetic Retinopathy and Eye Exams

Diabetic retinopathy is the most frequent cause of new cases of blindness among adults 20 to 74 years of age.² Additionally, glaucoma, cataracts, and other disorders of the eye occur earlier and more frequently in people with diabetes.² Uncontrolled blood glucose and blood

pressure may help increase or speed up the risk of retinopathy, which is why it is recommended that patients with type 2 diabetes should have an annual dilated and comprehensive eye examination by an ophthalmologist or optometrist.²

HOW YOU CAN HELP

- Educate your patients on the importance of annual eye exams.
- Ensure that your patients with type 2 diabetes are receiving annual eye exams.²
- Encourage your patients with type 2 diabetes to immediately report any changes in their vision.

Foot Exam

Foot ulceration and amputation are major causes of morbidity and disability in people with type 2 diabetes. However, early recognition and management of the risk factors can help prevent or delay some of these adverse outcomes. Patients should have at least one annual comprehensive foot exam to identify risk factors associated with ulcers and amputations.²

According to recent ADA guidelines, the risk of ulcers or amputations is increased in patients who have the following risk factors²:

- Poor glycemic control
- Peripheral neuropathy
- Cigarette smoking
- Foot deformities
- Pre-ulcerative callus or corn
- Peripheral arterial disease
- History of foot ulcer
- Amputation
- Visual impairment
- Diabetic kidney disease (especially patients on dialysis)

HOW YOU CAN HELP

- Ensure that your patients have received comprehensive foot exams once a year.²
- Provide general foot self-care education.²

VACCINATIONS & SMOKING CESSATION

Influenza, Pneumococcal, and Hepatitis B Vaccinations

Patients with a variety of chronic illnesses, including type 2 diabetes, may be at increased risk for hospitalizations for influenza (flu) and its complications.² Additionally, people with type 2 diabetes may be at increased risk of the bacterial form of pneumonia.² The Centers for Disease Control and Prevention estimates that hepatitis B infection is about twice as high among adults with diabetes 23 years of age and older compared with adults without diabetes.²

HOW YOU CAN HELP

- Ensure that your patients with type 2 diabetes have received the vaccinations recommended by the ADA in the chart to the right.
- Advise your patients to continue to take the general precautions of preventing the flu and other illnesses.

Smoking Cessation

Patients with type 2 diabetes consistently demonstrate that smokers have a heightened risk of CVD and an increased rate of microvascular complications of diabetes such as increased blood pressure and damaged blood vessels.² All your patients should be encouraged to quit smoking.²

HOW YOU CAN HELP

- Give your patients information about smoking-cessation programs or support counseling.²
- Routinely assess tobacco use as a means of preventing smoking or encouraging cessation.²

The ADA Vaccination Recommendations²

Flu	An annual vaccination for patients with type 2 diabetes aged 6 months and older
Pneumococcal	A PPSV23 vaccination for all patients with type 2 diabetes 2 years of age and older. PCV13 and PPSV23 should be administered routinely in series to all adults ≥ 65 years of age ^{*2}
Hepatitis B	A vaccination for previously unvaccinated adults with type 2 diabetes who are 19 to 59 years of age. A vaccination for previously unvaccinated adults with diabetes 60 years of age and older should be considered

PPSV23 = pneumococcal polysaccharide vaccine 23; PCV13 = pneumococcal conjugate vaccine 13.

^{*}If a dose of PCV13 was administered before age 65, no additional doses are needed. A dose of PPSV23 should be administered at age 65 and at least 1 year following the PCV13 dose. It is recommended that adults with certain conditions receive up to 3 doses of PPSV23 in a lifetime—2 doses before age 65, and a third dose at or after 65 years; as long as it has been at least 5 years since the previous dose.⁵

ADHERENCE

If a patient has been unsuccessful in lifestyle changes (exercise and nutrition) for whatever reason, often the only additional treatment is medications.¹ Nonadherence to the care and medication treatment plan may facilitate the progression of type 2 diabetes and its associated complications.² This is why medication adherence is critical for individuals with type 2 diabetes.

HOW YOU CAN HELP

- Continually work with your patients and their healthcare team to help identify any challenges the patients may have to help them be adherent to medication as well as to other type 2 diabetes-management efforts such as the lifestyle changes mentioned in this primer.¹
- Educate your patients on the role of medications in type 2 diabetes care and what may happen if they don't take them as prescribed.



Summary¹

- Glycemic targets and the management plan may work better when individualized.
- Education, exercise, and diet remain the foundation of any type 2 diabetes treatment program.
- Comprehensive cardiovascular risk reduction must be a major focus of type 2 diabetes management.
- Management decisions should be made in conjunction with patients, focusing on their preferences, needs, and values.
- The healthcare team should remain nonjudgmental but continue to revisit and encourage therapeutic lifestyle changes as needed.

References: **1.** Inzucchi SE, Bergenstal RM, Buse JB, et al. Management of hyperglycemia in type 2 diabetes: a patient-centered approach. *Diabetes Care*. 2012;35(6):1364-1379. **2.** American Diabetes Association. Standards of medical care in diabetes—2018. *Diabetes Care*. 2018;41(suppl 1):S1-S135. **3.** Centers for Disease Control and Prevention. About BMI for adults. http://www.cdc.gov/healthyweight/assessing/bmi/adult_bmi/index.html. Updated May 15, 2015. Accessed October 16, 2017. **4.** Evert AB, Boucher JL, Cypress M, et al. Nutrition therapy recommendations for the management of adults with diabetes. *Diabetes Care*. 2014;37(S1):S120-S143. **5.** Centers for Disease Control and Prevention. PCV13 (pneumococcal conjugate) vaccine. <https://www.cdc.gov/pneumococcal/vaccination.html>. Updated September 3, 2015. Accessed October 16, 2017.