From Page to Practice: Improving Care of Type 2 Diabetes
From Page to Practice:
Improving Care of Type 2 Diabetes

AN AMERICAN FAMILY PHYSICIAN MONOGRAPH

C. Carolyn Thiedke, M.D.
Associate Professor of Family Medicine
Medical University of South Carolina
Charleston, South Carolina

C. Carolyn Thiedke, M.D., is an associate professor in the department of family medicine at the Medical University of South Carolina in Charleston, S.C. She earned a medical degree and completed a residency in family practice at the Medical University of South Carolina.

Marc L. Rivo, M.D., M.P.H., is regional medical director and medical advisor for disease management at AvMed Health Plans in Miami, Fla. Dr. Rivo earned a medical degree from the University of California-San Francisco School of Medicine and completed a residency in family practice at Duke University, Durham, N.C.

Author disclosure policy: We believe the readers need to be aware of any affiliation or financial relationship (employment, consultancies, stock ownership, honoraria, etc.) between an author or medical editor and any organization or entity that has a direct financial interest in the subject matter or materials the author is writing about. We therefore make every reasonable effort to obtain a completed disclosure form from every author and from the medical editor, and we inform the reader of any pertinent relationships disclosed. Drs. Thiedke and Rivo indicated that they have no relationships to disclose relating to the subject matter of the monograph.
Table of Contents

Learning Objectives ................................................................. 3
Introduction .................................................................................. 3
Clinical Care Guidelines: The Foundation of Better Care ............... 5
Quality Improvement Basics .......................................................... 12
Essentials: Measure, Remind, Do .................................................. 14
Patient-centered Care: What It Is and How to Do It ...................... 19
References .................................................................................... 21
Quiz ............................................................................................... 22

Tables

Table 1. Summary of ADA Clinical Practice Recommendations for Diabetes Treatment  p. 6
Table 2. ADA Goals for Adults who have Type 2 Diabetes  p. 7
Table 3. Order of Priorities for Treatment of Diabetic Dyslipidemia in Adults  p. 9
Table 4. Indications for Initial Treatment and Goals for Adult Hypertensive Patients who have Diabetes  p. 10
Table 5. Glucose-lowering Medications  p. 11
Learning Objectives

This American Family Physician monograph is designed to provide family physicians with high-quality continuing medical education that reflects the spectrum of family medicine. After reading this monograph, physicians should be able to do the following:

1. Summarize the major clinical recommendations for the care of patients who have diabetes.
2. Understand the basic concepts of quality improvement as they apply to improving office systems that support good diabetes care.
3. Identify potential ways to support good diabetes care in the physician's practice.
4. Understand patient-centered care and collaborative self-management as strategies to empower patients to take responsibility for their chronic disease.
5. Access additional resources for quality improvement and chronic disease management.

Introduction

If you’re like most family physicians, you probably pulled this monograph from a stack of materials vying for your attention. You may be thinking, “I know enough about how to treat my patients who have type 2 diabetes.” But before you toss it aside, take a short test. First, ask yourself the following “big picture” questions:

• Do I know how many patients who have type 2 diabetes are in my practice?
• Can I document that my patients who have diabetes are receiving the recommended tests and treatments?

Then, for the next five patients you see who have diabetes, ask yourself the following questions:

• Is this patient’s diabetes adequately controlled?
• Does this patient’s chart show a current A1C*?
• Has this patient had eye exams and foot exams as appropriate?

Can you answer “yes” every time? If not, there are ways—relatively easy ways—you can improve. Taking advantage of those opportunities can better the quality of your patients’ lives—and your life as well.

This monograph is intended to help you identify and make use of opportunities to improve the level of care you provide to patients who have type 2 diabetes. It summarizes clinical care recommendations and covers the basic concepts of quality improvement as they apply to the systems that support good diabetes care.

---

*In 2001, the National Diabetes Education Program and its 26 partner organizations, of which the American Academy of Family Physicians (AAFP) is one, recommended that “A1C” be adopted as the official term for glycosylated hemoglobin testing in all clinical care and patient education programs."
Why Diabetes?

Approximately 18.2 million people in the United States (6.3 percent of the population) have diabetes, and about 29 percent of those have not yet been diagnosed. The number of Americans who have diabetes is expected to continue to grow, not only because the population is aging, but also because of the increasing incidence of obesity among young people.

According to data released in 2002 by the Centers for Disease Control and Prevention (CDC), diabetes is the sixth leading cause of death in the United States. People who have diabetes are at greater risk of heart attack, stroke, amputations, kidney failure, and blindness.

These statistics are daunting, but the good news is that we know what the risk factors for diabetes are and what data points are necessary to confirm a diagnosis, and we have a good sense of the disease’s progression. Additionally, the benefits of diabetes treatment and tertiary prevention (i.e., care designed to avoid or delay the consequences and complications of diabetes in patients who have the disease) are evident.

What Can I Really Do?

Patients depend on their family physicians to help them manage their diabetes and avoid complications. However, it can be particularly difficult to facilitate the effective management of this disease. Millions of patients “get by” for years before being diagnosed with type 2 diabetes, and when they finally are diagnosed, they don’t always find it easy to make the lifestyle changes necessary to take better care of themselves. Additionally, most health care delivery systems are not effectively organized to help even highly motivated patients take better care of themselves.

The aim of this monograph is to help you make changes—some of which will be small—in your practice that will make life better for your patients, your office staff and you. We provide a sampling of ideas that can work whether you’re in solo practice or part of a large group. You don’t have to be steeped in the principles of quality improvement to make positive changes, and you don’t have to have a clean-slate, brand-new practice from which to start.

Making changes in your practice can be easier than you might imagine. Even by starting small, you can affect changes that result in positive outcomes for your patients who have diabetes, such as: 1) better glycemic control; 2) patients who are more capable of self-managing their disease; 3) reduced risk of cardiac disease; and 4) better management of end-organ complications. As a by-product, your documentation and reimbursement may also improve. We’d like to say that these changes won’t cost you anything, but that just isn’t true. However, it’s also true that when type 2 diabetes is out of control, it’s costly for everyone.
Clinical Care Guidelines: The Foundation of Better Care

In order to establish a coordinated system of care for patients who have diabetes, your practice will need to establish clinical care guidelines so that everyone is following the same road map. Many practices elect to adopt established guidelines. It is beyond the scope of this monograph to list all of the available diabetes guidelines exhaustively; however, a brief overview of the American Diabetes Association’s (ADAs) comprehensive clinical practice recommendations5 for the treatment of diabetes (available online at http://care.diabetesjournals.org/content/vol26/suppl_1/) is provided below. Key practice recommendations are summarized in Table 1. The ADA’s goals for glycemic, blood pressure and lipid control in patients who have type 2 diabetes are listed in Table 2.

Glycemic Control

Determining an appropriate goal for glycemic control is fundamental when you’re developing a management plan for a patient who has diabetes. The American Academy of Family Physicians’ clinical recommendations, issued in 1999, state that the potential benefits of tight control must be viewed in the context of a patient’s overall health and should be balanced against the potential health risks of intermittent hypoglycemia.6 Although guidelines (see Table 2) can serve as a starting point, members of the health care team must work with each patient to tailor an individual goal that is right for him or her. Factors to consider when setting individual goals for glycemic control include a patient’s preferences, age, lifestyle, level of understanding about the disease and the treatment plan, and risk for hypoglycemia, as well as the presence of diabetic complications or comorbid conditions. For example, fairly intensive control might be appropriate for a recently diagnosed younger individual who has no comorbidities, while a more modest goal is indicated for an elderly patient who has a limited life expectancy and significant coexisting medical conditions.

Glycosylated Hemoglobin (A1C)

Currently, the ADA recommends that A1C testing be performed in every patient who has diabetes, initially to establish a baseline measurement and thereafter to indicate how well the treatment plan is working. Patients whose A1C is not at their goal or whose therapy has changed should have their A1C checked every three to four months. Patients whose A1C is at goal should be tested every six months.

Self-monitoring of Blood Glucose (SMBG)

SMBG gives a patient regular feedback on his or her glycemic control and can be useful for adjusting diet, exercise and drug therapy. The ADA notes that the frequency and timing of SMBG should be determined by the individual needs of each patient and should be sufficient to help them meet their glycemic goals. For example, daily SMBG may be appropriate to monitor for asymptomatic
hypoglycemia in a patient who is taking insulin. ADA guidelines also underscore the importance of proper monitoring technique and following up periodically to be sure patients continue to monitor correctly and use the data appropriately in their treatment plan. An *American Family Physician* monograph on SMBG is available online (http://www.aafp.org/smbgmonograph.xml).

**Medical Nutrition Therapy (MNT)**

MNT represents one of the most important—and one of the most challenging—aspects of diabetes management. A fundamental goal is for patients to be healthier because they make healthy food choices. For a patient who has type 2 diabetes, a primary aim of MNT is to modify the patient’s diet as necessary to achieve and maintain an appropriate body weight and acceptable blood glucose, lipid and blood pressure levels. Additionally, dietary management should prevent and/or treat chronic complications of diabetes, such as obesity, dyslipidemia, cardiovascular disease (CVD), hypertension and nephropathy. The

---

**TABLE 1**

**Summary of ADA Clinical Practice Recommendations for Diabetes Treatment**

<table>
<thead>
<tr>
<th>Glycemic Control</th>
<th>Glycosylated Hemoglobin (A1C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• All patients who have diabetes: Test to establish a baseline measurement.</td>
<td></td>
</tr>
<tr>
<td>• Patients who are not at goal or whose therapy has changed: Test every three to four months.</td>
<td></td>
</tr>
<tr>
<td>• Patients who have reached their goal: Test every six months.</td>
<td></td>
</tr>
</tbody>
</table>

| SMBG | Frequency and timing are determined by the individual needs of each patient and should be sufficient to help them meet their glycemic goals. |
| MNT | Modify patient’s diet as necessary to achieve and maintain an appropriate body weight and acceptable blood glucose, lipid and blood pressure levels. |
| Exercise | Encourage patients to engage in regular physical activity at an intensity level appropriate to their functionality and the presence of any complications. |

<table>
<thead>
<tr>
<th>Screening for Diabetic Complications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetic Retinopathy</td>
<td>Refer for dilated comprehensive eye examination performed by an ophthalmologist or optometrist soon after diagnosis, and annually thereafter.</td>
</tr>
<tr>
<td>Diabetic Nephropathy</td>
<td>Test annually for microalbuminuria.</td>
</tr>
<tr>
<td>Foot Care</td>
<td>• At every office visit: Visual inspection of patient’s feet.</td>
</tr>
<tr>
<td></td>
<td>• Annually: Perform comprehensive foot examination.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Macrovascular Complications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Lipid Management</td>
<td>Perform a lipid assessment at least once per year. (NOTE: Patients whose lipid values fall in lower risk levels may be tested every two years.)</td>
</tr>
<tr>
<td>Hypertension</td>
<td>Measure blood pressure at every routine diabetes visit. Confirm elevated levels on a separate day.</td>
</tr>
<tr>
<td>Aspirin Therapy</td>
<td>• All adult patients who have diabetes and known macrovascular disease: Take a single enteric-coated aspirin every day.</td>
</tr>
<tr>
<td></td>
<td>• Consider the use of aspirin therapy for primary prevention of CVD in patients ≥40 years old who have type 2 diabetes and one or more risk factors.</td>
</tr>
</tbody>
</table>

ADA = American Diabetes Association; SMBG = self-monitoring of blood glucose; MNT = medical nutrition therapy; CVD = cardiovascular disease

Information from reference 5.
ADA stresses the importance of MNT that is based on a patient’s individual nutritional needs and takes his or her personal and cultural preferences and lifestyle into consideration.

It’s beyond the scope of this monograph to offer a detailed discussion of specific nutrition recommendations for patients who have type 2 diabetes. The full text of the ADA’s position statement “Evidence-based Nutrition Principles and Recommendations for the Treatment and Prevention of Diabetes and Related Complications” can be accessed online (http://care.diabetesjournals.org/cgi/content/full/26/suppl_1/s51).

Exercise
A long-term exercise program can improve glycemic control, reduce the risk of CVD, lower blood pressure, promote weight loss and maintenance and increase feelings of well-being. Encourage all patients who have type 2 diabetes to engage in regular physical activity at an intensity level that takes into account the patient’s functionality and the presence of any complications. Ideally, the patient will be physically active for at least 30 minutes, three times per week. However, any amount of physical activity is better than none at all. For some patients, it may be appropriate to start with modest changes, such as adding 10 minutes of walking to their day. Even a modest and graded program can have a positive impact on one’s health.

Screening for Diabetes Complications

Diabetic Retinopathy
During the first 20 years of disease, more than 60 percent of patients who have type 2 diabetes will develop some degree of retinopathy. The ADA recommends that all patients who have type 2 diabetes have a dilated comprehensive eye exam performed by an ophthalmologist or optometrist soon after diagnosis, and annually thereafter. More frequent examination is required if retinopathy is progressing.

### Table 2

<table>
<thead>
<tr>
<th>Biochemical index</th>
<th>Goal</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Glycemic Control</strong></td>
<td></td>
</tr>
<tr>
<td>A1C</td>
<td>&lt;7.0 percent*</td>
</tr>
<tr>
<td>Preprandial plasma glucose</td>
<td>90-130 mg per dL (5.0 to 7.2 mmol per L)</td>
</tr>
<tr>
<td>Peak postprandial plasma glucose</td>
<td>&lt;180 mg per dL (&lt;10.0 mmol per L)</td>
</tr>
<tr>
<td><strong>Blood pressure</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;130/80 mm Hg</td>
</tr>
<tr>
<td><strong>Lipids</strong></td>
<td></td>
</tr>
<tr>
<td>LDL cholesterol</td>
<td>&lt;100 mg per dL (&lt;2.6 mmol per L)</td>
</tr>
<tr>
<td>Triglycerides†</td>
<td>&lt;150 mg per dL (&lt;1.7 mmol per L)</td>
</tr>
<tr>
<td>HDL cholesterol</td>
<td>&gt;40 mg per dL (&gt;1.1 mmol per L)‡</td>
</tr>
</tbody>
</table>

Key concepts in setting glycemic goals:
- 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.

ADA = American Diabetes Association; LDL = low-density lipoprotein; HDL = high-density lipoprotein; NCEP/ATP III = Third Report of the National Cholesterol Education Program Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III)

* Referenced to a nondiabetic range of 4.0 percent to 6.0 percent using a Diabetes Control and Complications Trial-based assay.
† Current NCEP/ATP III guidelines suggest that in patients with triglycerides ≥200 mg per dL, the “non-HDL cholesterol” (total cholesterol minus HDL) be utilized. The goal is ≤130 mg per dL.
‡ For women, it has been suggested that the HDL goal be increased by 10 mg per dL.

**Diabetic Nephropathy**

Nephropathy is evident in about 20 percent to 30 percent of patients who have type 1 or type 2 diabetes. There are three ways to screen for microalbuminuria, the earliest manifestation of this condition: (1) a random spot collection of the albumin-to-creatinine ratio, which is typically easiest in the office setting; (2) 24-hour collection with simultaneous creatinine clearance; and (3) a timed (e.g., four hour or overnight) collection. Urinary albumin excretion ≥30 mg per day (20 mg per min on timed collection) indicates the presence of microalbuminuria. According to the ADA, 20 percent to 40 percent of patients who have type 2 diabetes and microalbuminuria will progress to overt nephropathy in the absence of specific interventions.

To reduce a patient’s risk of nephropathy, optimal glucose and blood pressure control is recommended. On the basis of expert consensus, the ADA also recommends that all patients who have type 2 diabetes be tested annually for microalbuminuria. Experts disagree on the utility of an annual evaluation once a patient has been diagnosed with microalbuminuria and appropriate therapy begins. Some recommend ongoing surveillance to monitor disease progression and the patient’s response to treatment. Angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs) are both options for treating a patient who has albuminuria or overt nephropathy. If the patient cannot tolerate one drug class, the other should be substituted.

**Foot Care**

All patients who have type 2 diabetes should have an annual comprehensive foot exam that includes a visual examination, palpation and the use of a Semmes-Weinstein 5.07 (10-g) monofilament and a tuning fork. The ADA also advises that the patients’ feet should be inspected visually during each office visit. You should also educate patients who have type 2 diabetes about the risk of foot problems and how to prevent problems by taking care of their feet and choosing appropriate footwear.

**Macrovascular Complications**

**Lipid Management**

The most common lipid abnormalities seen in patients who have type 2 diabetes are elevated triglycerides and low high-density lipoprotein (HDL) cholesterol, a pattern that has been called “diabetic dyslipidemia.” Additionally, patients who have type 2 diabetes appear to have a greater percentage of their low-density lipoprotein (LDL) cholesterol in smaller, denser particles that may be more atherogenic. According to ADA recommendations, adult patients who have diabetes should have a lipid assessment at least once per year. Those whose lipid values fall in lower risk levels may be tested for lipid disorders every two years.

The primary goal of lipid management in adult patients who have type 2 diabetes should be to achieve an LDL cholesterol <100 mg per dL (2.6 mmol per L). Lowering triglycerides to <150 mg per dL (1.7 mmol per L) and raising HDL cholesterol to >40 mg per dL (1.15 mmol per L) are important secondary goals. Because women tend to have higher HDL cholesterol levels than men, it may be appropriate to set a higher goal for their HDL levels (>50 mg per dL [1.28 mmol per L]). Some patients may be able to achieve these target levels.
through MNT (focused on reducing intake of saturated fat and cholesterol), physical activity, weight reduction and improved glucose control. However, if lifestyle modifications prove inadequate, pharmacologic therapy is indicated. For patients who have clinical CVD or a very high LDL cholesterol level ($\geq$200 mg per dL [5.15 mmol per L]), the ADA recommends beginning pharmacologic therapy and lifestyle modifications simultaneously. Table 3 shows the ADA’s order of priorities for the treatment of diabetic dyslipidemia in adult patients.

**Hypertension**

Expert consensus suggests that every routine diabetes visit should include blood pressure measurement; elevated levels should be confirmed on a separate day.

Because patients who have diabetes and hypertension are at high risk for complications, blood pressure goals are lower for them than for the general population. Indications for initial treatment and goals for adult hypertensive patients who have diabetes are shown in Table 4. The ADA recommends a blood pressure goal of $<130/80$ mm Hg for patients who have diabetes, if this level can be achieved safely. The National Kidney Foundation also recommends $<130/80$ mm Hg as the target level for this patient population.

Strategies to achieve blood pressure goals include lifestyle changes and pharmacologic therapy. Nonpharmacologic therapy for hypertension includes weight control, sodium reduction, moderately intense physical activity, smoking cessation and moderation of alcohol intake. However, few patients are able to achieve adequate blood pressure control with lifestyle modifications alone. Any drug class currently indicated for treating hypertension may be used by patients who have type 2 diabetes. However, certain drug classes (i.e., ACE inhibitors, beta-blockers and diuretics) are preferred agents for initial therapy because they have been shown to be particularly beneficial in reducing CVD events during the treatment of uncomplicated hypertension. If a patient cannot tolerate an ACE inhibitor, an ARB may be used.

The *American Family Physician* article “Controlling Hypertension in Patients with Diabetes” (available online at http://www.aafp.org/afp/20021001/1209.html) offers a detailed consideration of each of the available antihypertensive agents. Such individual factors as the patient’s comorbid conditions, personal preferences, ability to tolerate the side effects of treatment and financial situation should be brought to bear on treatment decisions.

### TABLE 3

**Order of Priorities for Treatment of Diabetic Dyslipidemia in Adults**

<table>
<thead>
<tr>
<th>Category</th>
<th>First Choice</th>
<th>Second Choice</th>
<th>Third Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. LDL cholesterol lowering*</td>
<td>HMG-CoA reductase inhibitor (statin)</td>
<td>Bile acid binding resin (resin) or fenofibrate (Tricor)</td>
<td>Improved glycemic control plus statin† plus nicotinic acid† (glycemic control must be monitored carefully)</td>
</tr>
<tr>
<td>II. HDL cholesterol raising</td>
<td>Behavioral interventions such as weight loss, increased physical activity and smoking cessation may be useful</td>
<td>Difficult except with nicotinic acid, which should be used with caution, or fibrates</td>
<td></td>
</tr>
<tr>
<td>III. Triglyceride lowering</td>
<td>Glycemic control first priority</td>
<td>Fibratic acid derivative (gemfibrozil [Lopid], fenofibrate)</td>
<td></td>
</tr>
<tr>
<td>IV. Combined hyperlipidemia</td>
<td>First choice</td>
<td>Improved glycemic control plus high dosage of a statin</td>
<td>Improved glycemic control plus statin† plus fibric acid derivative† (gemfibrozil, fenofibrate)</td>
</tr>
<tr>
<td></td>
<td>Second choice</td>
<td>Improved glycemic control plus statin† plus fibric acid derivative† (gemfibrozil, fenofibrate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Third choice</td>
<td>Improved glycemic control plus resin plus fibric acid derivative (gemfibrozil, fenofibrate)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Improved glycemic control plus statin† plus nicotinic acid† (glycemic control must be monitored carefully)</td>
<td></td>
</tr>
</tbody>
</table>

* LDL = low-density lipoprotein; HDL = high-density lipoprotein

* Decision for treatment of high LDL before elevated triglyceride is based on clinical trial data indicating safety as well as efficacy of the available agents.
† The combination of statins with nicotinic acid and especially with gemfibrozil or fenofibrate may carry an increased risk of myositis.
Aspirin Therapy

The ADA recommends that all adult patients who have type 2 diabetes and known macrovascular disease, including a history of myocardial infarction (MI), stroke or transient ischemic attack (TIA), claudication, angina or peripheral vascular disease, should take a single enteric-coated aspirin every day. Dosage recommendations range from 75 mg to 325 mg per day. Physicians are advised to consider the use of aspirin therapy for primary prevention of CVD in patients ≥40 years old who have type 2 diabetes and one or more of the following risk factors14:

- Family history of CVD
- Cigarette smoking
- Hypertension
- Obesity
- Albuminuria (micro or macro)
- Lipids:
  - Cholesterol >200 mg per dL
  - LDL cholesterol ≥100 mg per dL
  - HDL cholesterol <45 mg per dL in men and <55 mg per dL in women
  - Triglycerides >200 mg per dL

Aspirin is contraindicated in patients who have an aspirin allergy, a tendency to bleed, recent gastrointestinal (GI) bleeding or active liver disease, or are on anticoagulation therapy. Because of the risk of Reye’s syndrome, aspirin therapy is not recommended for patients younger than 21 years of age.

Pharmacotherapy for Type 2 Diabetes

The drug classes that can be used to treat type 2 diabetes are listed in Table 5. Understanding of the patient’s underlying metabolic disorders and the functional status of his or her insulin secretory system must guide the physician’s choice of a therapeutic regimen. It’s beyond the scope of this monograph to describe each pharmacologic agent and all of the options for monotherapy and combination therapy in detail. (NOTE: The American Academy of Family Physicians has published two monographs on the subject of glycemic control: Diagnosis and Management of Type 2 Diabetes and Treatment Options for Type 2 Diabetes. Both are available online at http://www.aafp.org/diabetesguide.xml.)

Regular reassessment and adjustment of a patient’s therapeutic regimen is necessary to maintain the desired level of glycemic control.15 For example, treatment with a single oral agent may initially provide excellent glycemic control. However, when the patient’s insulin secretory capacity decreases as part of the natural progression of the disease, such treatment may become inadequate. In such cases, stopping therapy with one agent and initiating monotherapy with a different oral agent is not likely to be effective. Rather, patients who experience secondary failure often require combination therapy with either a second oral agent or insulin to maintain acceptable A1C levels.
Next Steps

As necessary as it is for you and your staff to agree on a set of clinical guidelines, you can't call it a day once you take this step. Nearly 50 systematic reviews have shown that the mere existence of guidelines does little to influence or improve clinical outcomes. Obviously, knowing what to do is less than half the battle. Organizing your practice, your staff and your time to ensure that the right thing to do is also the easiest thing to do, and finding the energy and motivation to do it, are the hard parts. Even the best clinical guidelines will have no effect on patient care unless you and your staff can find ways to put them into practice consistently by using the strategies and techniques described in this monograph, as well as other good ideas that you come up with on your own.

**TABLE 5**

<table>
<thead>
<tr>
<th>Glucose-lowering Medications</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Drug Class</strong></td>
</tr>
<tr>
<td>Sulfonylureas</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Meglitinides</td>
</tr>
<tr>
<td>D-phenylalanine derivatives</td>
</tr>
<tr>
<td>Biguanides</td>
</tr>
<tr>
<td>Thiazolidinediones</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Alpha-glucosidase inhibitors</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Combination Drugs*</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

* Listed are the off-the-shelf combination agents currently approved by the Food and Drug Administration (FDA) for treatment of type 2 diabetes. Other common combination therapies are discussed in the American Family Physician monograph Treatment Options for Type 2 Diabetes, available online (http://www.aafp.org/diabetesguide.xml).

Adapted with permission from the May 1, 2001 issue of American Family Physician. Copyright © AAFP. All rights reserved.
Quality Improvement Basics

Quality improvement (QI) in health care often gets a bad name. In many cases, the imposition of a factory-like model onto something as personal and subtle as medicine—often by an external agent, such as a health plan—feels less like a friendly suggestion and more like a crackdown. When QI feels like that, it’s destined to fail. However, quality improvement that comes from within a practice—from you and your staff—can be very rewarding. (For one practice’s success story, see “13 Months of Quality Improvement: Did It Work?” in the January 2001 issue of *Family Practice Management*. Available online at http://www.aafp.org/fpm/20010100/5513mo.html.) The following discussion provides a brief overview of some of the key principles of QI.

What is “quality diabetes care”?

Defining the outcomes of quality diabetes care is a fairly simple matter. When a patient receives quality diabetes care and actively participates in the management of his or her disease, glycemic control is improved and the risk of macrovascular complications is reduced. Describing the components of a system that supports quality care of diabetes, or any chronic disease, is a bit more complicated. For a high-level and far-reaching discussion of such a system, refer to the Chronic Care Model—a framework for thinking about health care system design used by the Institute for Healthcare Improvement (IHI), the National Initiative for Children’s Healthcare Quality (NICHQ) and other similar organizations. (Additional information on the Chronic Care Model is available on the Web site of Improving Chronic Illness Care, a national program of The Robert Wood Johnson Foundation [http://www.improvingchroniccare.org].) In terms of what the average family physician can accomplish within the walls of his or her own practice, it might be useful to think of quality care as the system and processes you and your staff use to manage the occurrence of two kinds of clinical events:

1) those that don’t occur but should (for example, patients who don’t come in for an A1C test or don’t see their ophthalmologist for an annual eye exam), and

2) those that do occur but shouldn’t (for example, patients who come in only when they’re experiencing symptoms of poor glycemic control).

Evaluate

Evaluation of your current system of care—what works well and what could be better—is a fundamental aspect of quality improvement. Even if you think your practice already does a good job of diabetes management, a self-assessment can highlight particular areas for improvement, allowing you to focus your time and efforts where they are needed most. Asking yourself the questions listed in this monograph’s introduction (see page 3) can serve as a simple starting point for an evaluation of your practice’s diabetes care. If you want to undertake a more comprehensive self-assessment, the Improving Chronic Illness Care Web site offers a survey, structured according to the Chronic Care Model, that you can use to assess...
your practice’s current system of chronic illness care (http://www.improvingchroniccare.org/tools/acic.html).

**Choose Measurable Goals**

QI isn’t unlike making healthier lifestyle choices. Incremental progress is a more reasonable goal than total overhaul, even if the ultimate goal of any QI project is 100 percent improvement. Setting measurable, specific goals is critical, as is recording those goals and checking your progress often. For example, one practice that embarked on a diabetes care QI project established an initial goal to have a patient-specific self-management plan documented in 60 percent of diabetic patients’ charts. Note that this practice did not state an intangible goal such as “Have more patients comply with treatment.” Rather, they identified one specific action step to improve patients’ self-management.

Be mindful of what resources (e.g., finances, time, technology) you can realistically devote to quality improvement, and set your goals accordingly. Keep in mind the axiom that a process is likely to fail unless it increases profits or decreases frustration and work. Also, be sure that your goals are compatible with the overall aims of your practice.

**Commit to Action**

When you undertake quality improvement, getting buy-in from every person who will be involved in caring for patients who have diabetes is essential to your practice’s success. Remember that your staff is more likely to make behavior changes when they fully understand the need for change and they have a vision of the benefits associated with it.

**Follow Up**

Just as your patients require follow-up, the projects you undertake to improve your diabetes management system need a regular checkup. As in patient care, the interval between checkups depends on the goals of treatment. Such intervals, also known as trial periods in QI-speak, can be very short—sometimes just a day’s worth of patient visits will tell you what you need to know to refine an element of your process. If something isn’t working, don’t feel compelled to “ride it out.” At the end of the trial, note what worked and what didn’t and implement changes in a subsequent trial.

After you’ve been through a few trial periods, it’s worth the time for you and your staff to have a debriefing to measure how far each short trial has brought you from where you started. If, for example, one of your practice’s goals is for at least 80 percent of patient charts to include a current diabetes flow sheet that functions as a reminder for care, you might conduct a chart audit after three months to determine how close you are to meeting your goal. If you find that only 35 percent of charts include a current flow sheet, take the opportunity to ask why. Are patients not coming in for regular checkups? Are there members of your staff who could use a little more training in filling out the flow sheet? Or is the goal itself in need of some adjustment? Taking time to evaluate and adapt will ensure that you don’t waste time on a dysfunctional system that really isn’t helping you or your patients.
Three actions are key to getting from where you are to where you want to be: Measure, Remind and Do. Go back to that test you took at the beginning of the monograph: How many patients who have type 2 diabetes are in your practice? For each of them, how well-controlled is their disease? Do their charts show a current A1C? Are patients who have diabetes receiving recommended care, such as eye and foot exams, as appropriate? Unless you know all the answers and you’re happy with them, one project you might want to undertake is the construction of a patient database. If you already have a database but aren’t using it to remind yourself, your office staff and your patients about important care milestones, you may wish to skip to the section on creating a reminder infrastructure (see Remind: Systematic Prompts Are the Infrastructure of Better Care, page 15).

Measure: Build a Patient Database

By identifying your patients who have diabetes, you and your office staff can be more active in shaping and providing the care patients need. Although you may begin by developing a database of your patients who have diabetes, it’s important to design one that can accommodate other conditions as well, especially in light of the fact that many patients who have diabetes have other health problems. Creating a comprehensive database is a process that will take some time and will continue to be a work in progress. However, should you decide to take on other projects, the database can evolve while those are in the works. (See What’s In a Database?, page 15)

There are three primary sources your practice can use to collect information on patients who belong in your database:

1. Use what you already know

If your practice uses a computer system that records the ICD-9 codes for each patient visit, you may be able to query the system and create a list of patients who have an ICD-9 code for diabetes or a related condition. If you can’t search by ICD-9 code, you may be able to search your practice’s billing system for patients who have been billed for any service related to diabetes. Another option is to search patients’ medication lists to identify those who are receiving insulin or an oral agent to treat diabetes (see Table 5).

    If you don’t have a searchable electronic database, chart review—which is admittedly time-intensive—can help you identify patients who have diabetes. The work involved in doing chart review may seem out of the question, but consider that once you have established the database, you’ll never have to do it from scratch again.

2. Mine your health plan data

The health plans with which your practice contracts may be able to generate a list of patients according to diagnosis or pharmacy use. Call your health plan’s medical director and ask for this data, explaining that providing you with the data will enable you to deliver more effective—and less costly—care. Generally, plans

The ICD-9 250 code series classifies diabetes and its associated conditions. The additional digits refer to its presentation, such as ketoacidosis, or its manifestations, such as ophthalmic disorders. "ICD-9 Codes for Family Practice 2003-2004: The FPM Long List" (available online at http://www.aafp.org/x20644.xml) includes the following codes for type 2 diabetes:

- 250.00 Diabetes, II (non-insulin dependent), uncomplicated
- 250.02 Diabetes, II, uncontrolled
- 250.90 Diabetes, II, with unspecified complications
- 250.13 Diabetic ketoacidosis, uncontrolled
- 250.51 Diabetic retinopathy, background
will provide this information. In fact, many accredited plans will already have some sort of program that focuses on members who are at the highest risk.

3. Make every office visit count
Even after you’ve gathered as much data as possible from in-house records and health plans, your database may not be complete. For example, patients who don’t have health insurance, who aren’t coming in for office visits, or who are managing their diabetes with lifestyle changes rather than medications probably aren’t generating the data you’ve been looking for. Try this: Right now, start adding to your database with the patients whose names you can recall easily. Then, assign front-office staff or nurses the job of looking over each day’s schedule to make a simple daily list of patients who should be added to the database. It may be useful to ask yourself, “Should this patient be added to the diabetes database?” each time you see a patient.

Keeping the Database Alive
A database will not have a positive impact on patient care unless it’s used and useful. Keeping the patient database accurate and up-to-date is key to its usefulness in your practice. Once you’ve gathered the initial information for your database, clearly establish who is responsible for maintaining it and adding information about new patients. If it takes up too much time for one person to maintain the database, you may decide to split the responsibility among several staff members.

Remind: Systematic Prompts Are the Infrastructure of Better Care
Everyone forgets, and the key to improving care of patients who have chronic disease isn’t the achievement of a perfect memory. Give your brain a break by establishing a system so that you’ll know before the visit whether the patient you’re seeing has diabetes and, if so, what services and counseling have already been done or should be done before the next time you see him or her. The following are just a few of the possible strategies for raising awareness of a patient’s diagnosis and relevant essential services.

Chart Stickers: Who’s Who?
After you’ve built a database, you need a systematic reminder that says, “This patient has diabetes. Look in the chart (or electronic record) for data that have accumulated since the last visit (e.g., A1C value) or for things that should happen before the next visit.” One easy way to do this is to put a sticker on the front of the patient’s paper chart. The sticker can be as simple and discreet as a colored dot.

What’s In a Database?
At a minimum, your patient database should include each patient’s name, contact information and date of last visit. The most basic database could be a paper listing of patients who have diabetes. If possible, your database should somehow link to patients’ clinical data and provide feedback to the physician.

Using a paper-based system, you can do a periodic audit of randomly selected charts from the database to see if guidelines are being met. However, if your practice has computer capabilities, you will probably find it more useful to develop a database system that organizes the patient data in an application such as Microsoft Access or Microsoft Excel. These searchable databases simplify many of the administrative tasks that support good diabetes care, such as reminding patients to make appointments or getting information to a certain population (e.g., sending a flier about a foot-screening fair to patients who have diabetes).

The California Primary Care Association (CPCA), in conjunction with the federal Bureau of Primary Health Care (BPHC), makes the Diabetes Electronic Management System (DEMS) available for download in Microsoft Access from its Web site (http://www.cpca.org/health/dems.htm). You can also download the CVDEMS from this site. CVDEMS extends the functionality of the DEMS database to include data fields important for tracking CVD. These databases are available free of charge.
Flow Sheets Drive the Visit

In a paper-based environment, the flow sheet is the tool used most often to facilitate the delivery of essential services and document the occurrence of unexpected events. A flow sheet is a one- or two-page form that not only records all of the important data regarding a patient’s condition, but also represents how your practice puts clinical guidelines into practice. (To view and/or download an example of a flow sheet, go to http://www.aafp.org/fpm/20000600/60usin_form.pdf.) For this reason, you may prefer to customize your own flow sheet based on the guidelines you use.

A diabetes flow sheet that’s kept up-to-date enables the physician to determine at a glance what testing has been done and what’s lacking. Flow sheets are especially useful in the management of chronic disease because they prompt care team members to address issues during every office visit, even if the patient is in the office for an unrelated sore throat or Pap smear. Additionally, the standardized nature of a flow sheet ensures uniform data entry for each patient.

You’ll need to develop a system for reviewing patient flow sheets periodically and following up with patients who have missed needed services. If you have a patient database, this review process can be fairly simple because you’ll know exactly which charts to pull. And since the information you need to review is organized on a single page, the task is manageable. You may even be able to get help from your health plans. For example, an insurer might be willing to provide quarterly reports listing patients who have had eye exams or other needed services. You can use that information to update your patients’ flow sheets and contact them (e.g., using reminder postcards, phone calls, e-mail) as necessary.

Getting Data from Other Providers

To effectively coordinate the care of your patients who have diabetes, you’ll need a way to get data about these patients from other physicians and members of the health care team. One way is to use a consultation form to facilitate the transfer of critical information. (To view and/or download an example of a consultation form, go to http://www.aafp.org/fpm/toolbox/old/referral_form.pdf.) Another option is to consult with a limited number (i.e., one to three) of endocrinologists, ophthalmologists and podiatrists, send each of them a copy of the flow sheet your practice uses, and ask them to fill in key data and return it to you after the patient’s visit. Whatever you do, make your expectations clear from the outset and provide your colleagues with more than one way to get the information back to you (e.g., fax, e-mail, phone, mail). That said, don’t leave it up to the patient or the referral physician to contact you with test results or other information. Start by developing some sort of trigger—anything from red flags on a calendar to a “tickler file” to a computerized reminder system—that will remind a nurse or staff member to call for information if you haven’t received it. (Essentially, a tickler file is an expandable file sorter with 31 pockets for the days of the month, as well as a pocket for each month of the year.) This will help you stay in the loop and maintain continuity of care, as well as show the patient that you are interested in his or her situation. Of course, it’s important to be sure that the other parties understand that keeping in touch is a two-way street and that you’re expecting them to do their share.
The Patient-held Record: A Tool that Facilitates

A patient-held care record can facilitate regular office visits, ensure that necessary services are obtained and record and convey associated data. Some practices have developed a pocket-sized record of diabetes care that patients bring with them to visits. Negotiated treatment goals can be a part of this record, as can laboratory results and screening records. For patients, carrying a document for which they have responsibility and to which they can refer frequently is a strong reinforcement of the self-management skills that are necessary for effective diabetes care (see Patient-centered Care: What It Is and How to Do It, page 19).

You may find it useful to get patients engaged in their own data collection in ways that help them internalize the connection between their behaviors and how they feel. For example, you might encourage patients to plot their daily blood glucose measurements on a graph so that they can see any patterns that develop. Another way to get patients interested in their clinical data is to graph laboratory results on the flow sheet and show patients the progress, or decline, at each visit.

Do: Making the Most of Every Visit

In many practices, patients who have diabetes arrive for routine visits without having necessary laboratory work and other services (e.g., eye exams) performed in advance. This means the physician and the patient don't have complete information when they meet. Consequently, the visit can’t fulfill its potential for effective disease management. Although routine visits are technically “planned for,” they don’t represent planned care as it’s defined in the QI sense. Truly planned visits assume that you and your patients have a base of knowledge from which to work during the visit and that you won’t have to spend valuable time gathering data to inform your clinical decisions.

Planned Visits: The Right Information at the Right Time

You may want to experiment with planned visits one patient at a time until you have an idea of what system works best in your practice. To get started, identify one patient who is due for an office visit. Contact him or her with a reminder to schedule an appointment and have specific laboratory work done in advance. It may help to develop a standardized letter that gives patients clear advance instructions. Remember to keep your scheduling staff and laboratory personnel in the loop when you send out these letters so patients don’t encounter obstacles to following your instructions.

After this first planned visit, evaluate what worked and what didn’t, and then make improvements accordingly. It may be helpful to ask the patient for feedback on the process. For example, if you find that patients have a hard time getting laboratory work done in the amount of time between the day they receive the reminder and their appointment, you can build in more time between the two events. You may also discover that you need to set aside a bit more time than usual to review the patient’s chart prior to the office visit.

If you have a computer-based patient database, you can easily generate a list of patients due for a visit each week or month. Practices that use a paper-based database may find it helpful to keep a tickler file to remind staff when it’s time for a patient to schedule an appointment.
Group Visits: An Alternative to 1:1 Care

It’s easy to feel overwhelmed at the thought of squeezing the multiple demands of managing a patient who has diabetes into the time allotted for an office visit. Group visits are one option for maximizing your efforts without running yourself ragged. Instead of giving the same explanation or counseling 20 times in separate office visits, why not give it once in front of 20 patients? By incorporating group visits into your practice, you can free up valuable appointment slots and reduce repetition. By contrast to a typical 15-minute office visit, a two-hour group visit with 10 to 20 patients allows more time for education. Group visits also provide a forum for patients to share their experiences. Another advantage is the outcome: Research indicates that patients like group visits, and that participation in group visits seems to improve adherence to dietary and medication regimens, as well as improving some of the markers of disease.

Group visits do require an investment of preparation time; however, research has shown that such visits are ultimately a cost-effective use of a physician’s time. A rule of thumb is that a two-hour group visit will require two hours of work in advance. You'll need to decide on appropriate educational content, keeping in mind that this is a chance to move beyond the areas you cover in a typical office visit. If you’re not sure where to start, “Planning Group Visits for High-risk Patients” (Family Practice Management, June 2000. Available online at http://www.aafp.org/fpm/20000600/33plan.html) and “Group Visits 101” (Family Practice Management, May 2003. Available online at http://www.aafp.org/fpm/20030500/66grou.html) provide useful information. The AAFP also offers “Shared Medical Appointments,” another source of basic information on group visits (available online at http://www.aafp.org/x14713.xml).

Using a Diabetes Educator

The use of a trained diabetes educator (most often a nurse) has been a cornerstone of many successful diabetes management programs. In some practices, this individual functions primarily as a case coordinator, notifying the physician when patients miss appointments or develop complications. A1C levels improved significantly in these practices, as did patients’ perception of their health. One randomized trial found that access to a nurse case manager bolstered patients’ self-management skills. In other settings, a diabetes educator’s primary duty may be meeting with patients one-on-one at diagnosis and periodically thereafter to educate them and support their progress. In practices that use group visits, the diabetes educator may lead these sessions, relying on physicians to be occasional guest speakers.
Besides being effective and efficient, patient-centered care can lift an enormous burden from your shoulders. That said, it’s important to understand what patient-centered care is, and what it isn’t. When patients are at the center of their own care, they are motivated to do things not just because you said so, but because they understand that their actions have a direct impact on how they feel. Delivering patient-centered care doesn’t mean that you decide what the patient’s issues are and single-handedly build a plan to address them. Rather, ask your patients what their issues are, explore their motivations and help them come to a solution on their own. This process paves the way for patients to make significant, lasting changes.

Collaborative Self-management
Having a thorough understanding of the most effective treatment options for diabetes is not the same as knowing what’s best for an individual patient. Ninety-nine percent of your patients’ time is spent away from your office, so there are many things about them that just won’t be captured in their medical records. Each patient is the expert on his or her feelings, priorities, values, what motivates him or her and so on. It’s important for you to tap into that expertise to develop a treatment plan that empowers the patient to take responsibility for managing his or her diabetes.

Essentially, in collaborative self-management, your role is to say to your patient, “Here’s the information I have about diabetes. How can I help you apply this information to your life so that you can manage your disease effectively?” Instead of feeling responsible for patients who have diabetes, think of your role as being responsible to your patients—to inform, advise and support them. After all, it’s not realistic to think that you can make decisions for your patients or force them to change their behavior. Only they can do these things.

Set the stage for your patients to manage their diabetes effectively by helping them understand the following facts:

- **Their diabetes is a serious illness.** Patients who don’t believe that their diabetes is a problem will never be motivated to make changes to improve their health.
- **Their actions have consequences.** Every decision your patients make—from what they eat to whether they take the elevator or the stairs—has an impact on their health.
- **There isn’t one perfect way to treat diabetes.** The treatment plan that’s right for one patient who has diabetes may not be right for another. Explain all of the available treatment options to your patients so they can weigh the personal costs and benefits of each before committing to a treatment plan.
- **They can change their behavior.** Some patients may think of change as an all-or-nothing proposition, or as an event, rather than a process. These mind-sets prime them for failure. Your patients will have a greater chance to succeed if you work together to make their treatment plan manageable by breaking it into incremental goals.
Helping Your Patients Set Self-management Goals

While physicians often define diabetes in terms of diagnosis, noncompliance or unhealthy behaviors, patients define diabetes in terms of symptoms, decreased functioning, emotional distress or difficulty carrying out treatment plans. It’s important to be aware of this difference and take the time to understand your patients’ point of view. To begin the collaborative goal-setting process, invite patients to tell you what aspect of their disease is most distressing to them, or what they’d most like to change. The patient may initially select a problem that is different from the one you would choose for him or her, but he or she will be more motivated to strive for a goal that is personally meaningful.

One way to help patients prepare for this discussion before they enter the exam room is to have them fill out a questionnaire while they wait to be seen. (To view and/or download an example of a questionnaire, go to: http://www.aafp.org/fpm/20000900/51_question.pdf.) The questionnaire should assess patients’ feelings about their self-management skills and areas in which they feel they need assistance. Thinking about these issues in advance can make the physician-patient interaction more productive.

Once you’ve worked with your patient to identify what he or she perceives to be the most pressing problem, validate the patient’s feelings and continue asking questions that will help him or her form an action plan for addressing that problem. Developing an action plan involves the following steps:

1. Create a menu of options for addressing the problem identified by the patient;
2. Choose one option from the menu;
3. Decide on a specific, realistic step to implement this option;
4. Predict obstacles to success; and
5. Plan ways to overcome these obstacles.27

An article titled “Patient-centered Care for Better Patient Adherence” (Family Practice Management, March 1998. Available online at http://www.aafp.org/fpm/980300fm/patient.html) walks you through each of these steps in more detail.

The patient’s action plan should be very specific. For example, if he or she says, “I’m going to exercise more,” press for details. Ask your patient to decide what kind of exercise he or she will do, what days of the week he or she will exercise and at what times on those days. Your patient’s revised plan might be, “During my lunch hour on Mondays, Wednesdays and Fridays, I’m going to walk one mile in the park. If the weather is bad, I’ll walk inside a nearby shopping mall instead.”

Patient Education Materials

It should come as no surprise that patient education is essential to patient-centered care. Rather than teaching everything you know about diabetes, think of patient education in terms of focusing on what the patient needs to know to be an effective partner in his or her health care. For example, patients who have diabetes can benefit from education about lifestyle changes, medications, potential complications with uncontrolled or poorly controlled blood glucose levels and ways to control comorbid conditions such as hypertension or dyslipidemia.

Patient education can be accomplished in a number of ways, depending on your budget and practice style. Printed materials, such as handouts and brochures that are given to patients at the time of the visit or mailed in
advance of the visit, can be useful timesaving tools. Some practices periodically send out an informational newsletter for their patients who have diabetes. Posters regarding diabetes care can be put in prominent locations throughout your practice, such as exam rooms or waiting areas. It’s beyond the scope of this monograph to cover all of the issues involved in choosing and/or creating a library of patient education materials. The AAFP’s Practice Management, Patient Education in Your Practice handbook (order online at http://www.aafp.org/catalog/) offers effective strategies, approaches and tools to integrate patient education in your practice. “Demand Management: The Patient Education Connection” (Family Practice Management, September 1998. Available online at http://www.aafp.org/fpm/980900fm/pated.html) is an article that provides tips on selecting good patient education materials and using them effectively in your practice. The resource box to the right lists a few of the organizations that offer high-quality educational materials for patients who have diabetes.

References

This Monograph Quiz may be used by physicians seeking AAFP and/or AMA credit hours. Answers to the Monograph Quiz appear on the inside back cover.

This program has been reviewed and is acceptable for up to 2 Prescribed credit hours by the American Academy of Family Physicians. Term of approval is one year from the distribution date of March 15, 2004, with option for yearly renewal.

The American Academy of Family Physicians is accredited by the Accreditation Council for Continuing Medical Education (ACCME) to sponsor continuing medical education for physicians. This CME activity was planned and produced in accordance with the ACCME Essentials Areas and policies.

The American Academy of Family Physicians designates this educational activity for a maximum of 2 hours in Category 1 credit toward the American Medical Association's Physician's Recognition Award. Each physician should claim only those hours of credit that he or she has actually spent in the educational activity.

Instructions
1. Read the monograph, answer all the questions on the Monograph Quiz pages and mark your answers on the Monograph Quiz card.
2. Print all required information, including your member number and the name of your state chapter, on the Monograph Quiz card. (Nonmember physicians must provide name and medical education number. Nonmember health care professionals must provide name and Social Security number.)
3. Mail the Monograph Quiz card (within one year) on or before March 15, 2005. Please make sure to affix a 23-cent stamp. Cards without sufficient postage will not be delivered.

Before beginning the test, please note that the Monograph Quiz includes two types of questions: Type A and Type X.

Type A Questions
Type A questions have only one correct answer. Here is a typical Type A question:

Q1. The leading cause of cancer deaths in men is:
   • A. Prostate cancer.
   • B. Colon cancer.
   ✴ C. Lung cancer.
   • D. Bone cancer.
   • E. Bladder cancer.

Answer: C

Type X Questions
Type X questions have one or more correct answers. They are multiple choice questions, with four options. Here is a typical Type X question:

Q2. A functioning thyroid nodule:
   ✴ A. Accumulates iodine.
   ✴ B. Synthesizes thyroid hormone.
   ✴ C. Is probably benign.
   ✴ D. Is under thyroid-stimulating hormone control.

Answer: A,B,C,D
Unless otherwise specified, all of the questions below refer to information presented in this monograph.

Type A Questions

Each question has only one correct answer.

1. Which one of the following statements regarding lipid management for patients who have diabetes is true?
   - A. Patients whose lipid values fall in lower risk values should have a lipid assessment at least once per year.
   - B. The American Diabetes Association (ADA) recommends that all patients who have diabetes and dyslipidemia should begin lifestyle modifications and pharmacologic therapy simultaneously.
   - C. Achieving a low-density lipoprotein (LDL) cholesterol <125 mg per dl (3.2 mmol per L) is the primary goal of lipid management.
   - D. The term “diabetic dyslipidemia” refers to a pattern of elevated triglycerides and low high-density lipoprotein (HDL) cholesterol common among patients who have diabetes.
   - E. Women tend to have lower HDL cholesterol levels than men.

2. Which one of the following statements about the treatment of hypertension in patients who have diabetes is true?
   - A. Blood pressure goals for patients who have diabetes are the same as those for the general population.
   - B. Most patients can achieve adequate blood pressure control through lifestyle modifications alone.
   - C. Expert consensus suggests that a patient's blood pressure should be measured at every routine diabetes visit.
   - D. Diuretics, angiotensin-converting enzyme (ACE) inhibitors and beta-blockers are contraindicated for use in patients who have type 2 diabetes.
   - E. The ADA recommends a blood pressure goal of <130/90 mm Hg for patients who have diabetes.

3. Which one of the following is not among the risk factors that might prompt the use of aspirin therapy for primary prevention of cardiovascular disease (CVD) in patients who have diabetes?
   - A. Cigarette smoking.
   - B. Obesity.
   - C. Micro- or macroalbuminuria.
   - D. Family history of CVD.
   - E. Age ≥30 years old.

4. Which one of the following statements regarding the use of trial periods for quality improvements is true?
   - A. At the end of a trial period, you and your staff should evaluate what worked and what didn't and implement changes as appropriate.
   - B. The minimum length of a trial period for any quality improvement is six months.
   - C. If a quality improvement tactic doesn't work during the trial period, you should give it more time to work by extending the trial period.
   - D. If a quality improvement tactic doesn't work during the trial period, you should abandon that tactic and move on to something else.
   - E. Trial periods can be useful, but they are not an integral part of quality improvement efforts.

5. Which one of the following statements regarding a patient database is true?
   - A. In order to build and maintain a patient database, a practice must have a sophisticated computer system.
   - B. Ideally, a patient database should only include information about patients who have one specific chronic condition.
   - C. Keeping the patient database accurate and up-to-date is key to its usefulness in a practice.
   - D. A practice must have a complete patient database in place before it can begin any other projects to improve its system of diabetes care.
   - E. Chart review and data from your health plans are likely to provide all of the necessary information to complete your patient database.

6. Which one of the following is not listed in the monograph as a means by which a practice can identify patients who should be included in a patient database?
   - A. Gather data through chart review.
   - B. Request data generated by the health plans with which the practice contracts.
   - C. Record data during the office visit.
   - D. Gather data by means of a detailed questionnaire mailed to all patients.
   - E. Gather data by searching the practice's computer system for patients who have an ICD-9 code for diabetes or a related condition.

7. Which one of the following steps is not part of a useful system of planned office visits?
   - A. Each week or month, identify and contact patients who are due for an office visit.
   - B. Make arrangements for patients to have laboratory work done immediately following their office visit with you.
   - C. Keep scheduling staff and laboratory personnel informed so patients don't encounter obstacles to following your instructions.
   - D. Give patients clear instructions about what tests and services should be completed prior to the office visit.
   - E. Ask the patient for feedback on the planned visit and make improvements accordingly.

8. How much preparation time will a two-hour group visit typically require?
   - A. Thirty minutes.
   - B. One hour.
   - C. Two hours.
   - D. Four hours.
   - E. One day.

9. Which one of the following statements does not describe the role of the physician in patient-centered care?
   - A. The physician provides clinical expertise and information to help the patient make informed choices and decisions.
   - B. The physician decides what the patient's issues are and builds a plan to address them.
   - C. The physician collaborates with the patient to deal with the patient's problems.
   - D. The physician asks questions about the patient's feelings, priorities, values and motivations.
   - E. The physician works with the patient to develop a treatment plan that empowers the patient to take responsibility for managing his or her diabetes.
24  Quiz

10. Which one of the following statements regarding collaborative goal setting is true?
   A. The first step of the collaborative goal-setting process is developing an action plan to address the patient’s problem.
   B. Both physicians and patients are likely to define diabetes in terms of diagnosis, noncompliance and unhealthy behaviors.
   C. Developing an action plan involves creating a menu of options for addressing the patient’s problem and then implementing several of these options simultaneously.
   D. Filling out a questionnaire prior to the office visit can help patients evaluate their self-management skills and identify areas in which they need help.
   E. It’s important for patients to keep a positive attitude, so the physician shouldn’t discuss possible obstacles to success during the goal-setting process.

11. Which of the following factors make it particularly difficult to manage diabetes effectively?
   A. Most health care delivery systems are not organized to help patients manage chronic diseases effectively.
   B. Patients can “get by” for years before they are finally diagnosed with diabetes.
   C. Physicians do not have a clear sense of the progression of diabetes.
   D. Many patients find it difficult to make the lifestyle changes necessary for effective diabetes management.

12. Which of the following can result when a practice makes improvements to its system of care for patients who have diabetes?
   A. Better glycemic control among patients who have diabetes.
   B. Patients who can self-manage their diabetes more effectively.
   C. Reduced risk of cardiac disease among patients who have diabetes.
   D. Better management of end-organ complications from diabetes.

13. Factors to consider when setting individual goals for glycemic control include which of the following?
   A. The patient’s level of understanding about diabetes and his or her treatment plan.
   B. The patient’s preferences.
   C. The presence of comorbid conditions or diabetic complications.
   D. The patient’s age and lifestyle.

14. Which of the following statements regarding medical nutrition therapy (MNT) for patients who have diabetes is/are true?
   A. One primary aim of MNT is to achieve and maintain acceptable blood glucose, lipid and blood pressure levels.
   B. Unlike goals for glycemic control, MNT does not need to be tailored to the preferences and lifestyle of the individual patient.
   C. An MNT plan should address chronic complications of diabetes.
   D. Achieving and maintaining an appropriate weight is a key aim of MNT for patients who have diabetes.

15. Which of the following statements regarding the ADA’s recommendations on screening for diabetic complications is/are true?
   A. A dilated comprehensive eye exam should be performed on an annual basis, regardless of whether retinopathy is progressing.
   B. Having an annual comprehensive foot exam makes it unnecessary for a patient to have his or her feet visually inspected at every office visit.
   C. All patients who have type 2 diabetes should be tested annually for microalbuminuria.
   D. Experts disagree whether an annual evaluation is necessary following a diagnosis of microalbuminuria and the start of appropriate treatment.

16. Which of the following statements regarding the goals a practice sets for quality improvement is/are true?
   A. Set your goals first and then determine what resources your practice is willing to devote to quality improvement.
   B. Goals should be recorded so that your practice can be held accountable.
   C. It is best to set general goals for your practice so each physician and staff person can interpret them in his or her own way.
   D. Each goal should have a corresponding measure so that you can track your progress.

17. Which of the following is/are effective strategies for raising awareness of a patient’s diagnosis and relevant essential services?
   A. Affixing a color-coded sticker to the front of the chart of each patient who has diabetes.
   B. Building a database of patients who have diabetes.
   C. Using a flow sheet during office visits with patients who have diabetes.
   D. Relying on the physician’s memory.

18. Which of the following is/are suggested ways to get data about your patients from other physicians consistently and efficiently?
   A. Use a limited number of endocrinologists, ophthalmologists and podiatrists for consult.
   B. Assign a staff person to call all consulting physicians on a weekly basis and request any pertinent data for that week’s visits.
   C. Provide consulting physicians with a copy of your practice’s flow sheet to fill in data and return.
   D. Offer consulting physicians more than one way to get the information back to you.

19. Which of the following statements regarding the patient-held record is/are true?
   A. Laboratory results and screening records do not belong in a patient-held record.
   B. For patients, carrying a patient-held record reinforces the self-management skills that are necessary for effective diabetes care.
   C. A patient-held record can facilitate regular visits for diabetes care and make sure necessary services are performed.
   D. Negotiated treatment goals can be included as part of the patient-held record.

20. The advantages of using group visits for patients who have diabetes include which of the following?
   A. Group visits can reduce some of the repetition in the physician’s work.
   B. Group visits allow more time for patient education than a typical office visit.
   C. Group visits have a universally recognized billing code that simplifies reimbursement.
   D. Group visits seem to improve patients’ compliance with diet and medication.

21. Which of the following facts do patients with diabetes need to understand?
   A. Their diabetes is a serious illness.
   B. Patients should rely on their physician to set goals for them.
   C. Patients can change their behavior.
   D. The physician is responsible for determining whether the benefits of a particular treatment outweigh the costs.
### Answers to the Quiz

<p>| | | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Q5.</td>
<td>C</td>
<td>Q11.</td>
<td>A, B, D</td>
<td>Q17.</td>
<td>A, B, C</td>
</tr>
<tr>
<td>Q20.</td>
<td>A, B, D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q21.</td>
<td>A, C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>