

# Guidelines and Performance Measures for Diabetes

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**G**uidelines for diabetes provide recommendations for control of glycemia as well as blood pressure (BP) and lipid levels. They are based on evolving evidence and, accordingly, are subject to frequent revision. Guideline goals are to improve quality of care; decrease morbidity, mortality, and costs by reducing complications; improve the quality of life for people with diabetes; and reduce the disease burden on society.

Several disease-specific and specialty-specific professional organizations have developed diabetes practice guidelines, including the American Diabetes Association (ADA), American Association of Clinical Endocrinologists (AACE)/American College of Endocrinologists (ACE), and the American College of Physicians. State health organizations and large provider organizations or insurers may also establish guidelines for treatment. Performance measures based on diabetes guidelines have been developed by national organizations concerned with quality of care, such as the National Committee for Quality Assurance (NCQA) and the Joint Commission on Accreditation of Healthcare Organizations, in an attempt to assess and recognize the quality of diabetes care being delivered.

## Recommendations for Managing Diabetes

A number of recommendations and guidelines for managing patients with diabetes exist. The focus of recommendations varies depending on the group issuing them. For example, the National Cholesterol Education Program provides guidelines for lipid control in patients with diabetes, which it includes under the category of coronary heart disease risk equivalent,<sup>1</sup> but does not address other areas of diabetes management. The most comprehensive guidelines are those published by the ADA<sup>2</sup> and AACE/ACE.

Some of the key recommendations for diabetes management are summarized in **Table 1**.<sup>1-6</sup> Glycemic, BP, and lipid control are the major areas of concern for most organizations because of their impact on chronic complications. In general, treatment goals are similar among all organizations.

## Abstract

Diabetes mellitus has become a major public health problem in the United States and around the world. A result of genetic predisposition combined with detrimental changes in lifestyle, type 2 diabetes is reaching epidemic proportions. The costs are very high, both in terms of financial burden and quality of life.

A wide variety of healthcare organizations have developed diabetes guidelines to improve the quality of care for patients. Increasingly, there is agreement and collaboration on such guidelines, leading to the next step in quality management, performance measures. There is a growing trend to find ways to provide incentives for improved diabetes care. Initiatives such as the National Committee for Quality Assurance's physician recognition program, the Bridges to Excellence Diabetes Care Link program, the National Diabetes Quality Improvement Alliance, and the American Medical Association Physician Consortium for Performance Improvement are all helping to establish an incentive for improved diabetes care.

*(Am J Manag Care. 2007;13:S41-S46)*

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**Table 1.** Recommendations for Management of Diabetes in Nonpregnant Adults

	Frequency of Assessment	Treatment Goal or Recommendation
<b>A1C</b>		
American Diabetes Association (ADA)	Twice yearly if controlled Quarterly if therapy has changed or not controlled	<7% (For patients in general. Goal for the individual patient is as close to normal [ $<6\%$ ] as possible without significant hypoglycemia)
American College of Endocrinologists/ American Association of Clinical Endocrinologists	Twice yearly if controlled Quarterly or more often if therapy has changed or not controlled	$\leq 6.5\%$
California Healthcare Foundation (CHF)/ American Geriatrics Society (AGS)*	Once yearly if controlled Every 6 months or more often if not controlled	$\leq 7\%$ ( $\leq 8\%$ for frail older adults or those with a life expectancy of less than 5 years)
<b>Lipids</b>		
ADA and CHF/AGS*	Annually or more often if needed to achieve goals Every 2 years if low-risk	Low-density lipoprotein (LDL) $<100$ mg/dL High-density lipoprotein $>40$ mg/dL Triglycerides $<150$ mg/dL
National Cholesterol Education Program		LDL $<100$ mg/dL Optional goal $<70$ mg/dL
American College of Physicians		1) Prevention with statins if other cardiovascular risk factors present 2) Prevention with lipid-lowering therapy if known coronary artery disease
<b>Blood pressure</b>		
ADA	Every visit	$<130/80$ mm Hg
Joint National Committee on the Prevention, Detection, Evaluation, and Treatment of High Blood Pressure	Monthly or more often until goal reached; every 3 to 6 months afterwards	$<130/80$ mm Hg
CHF/AGS*		$<140/80$ mm Hg
*Recommendations for individuals 65 years of age and older. A1C indicates glycosylated hemoglobin. Sources: References 1-6.		

Other evaluations recommended for patients with diabetes include an annual foot examination and annual tests for diabetic kidney disease (serum creatinine, blood urea nitrogen, microalbuminuria), retinopathy, and neuropathy. Adult patients should receive at least 1 lifetime pneumococcal vaccine and annual influenza vaccinations. Aspirin therapy should be used for primary prevention in adults at increased risk for cardiovascular disease (CVD) and for secondary prevention in those with a history of CVD. Smoking cessation counseling and preconception care should be provided as needed.<sup>2</sup>

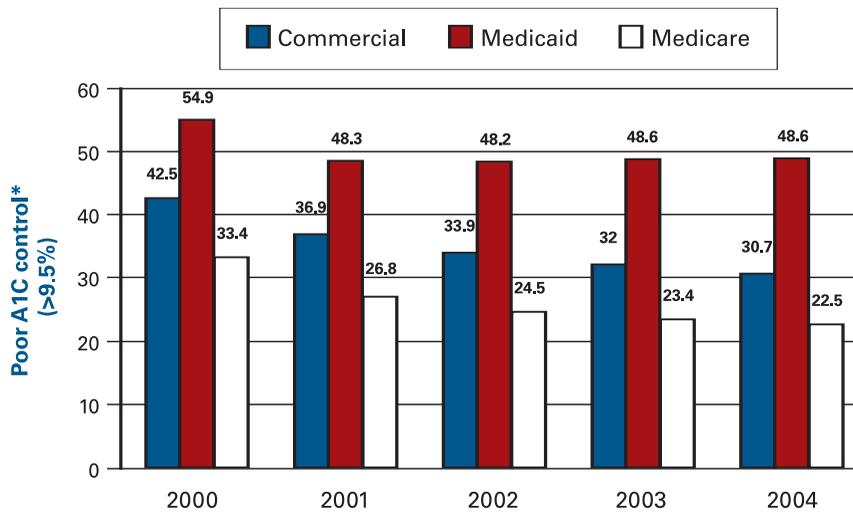
**Diabetes-related Measurements and Performance Improvement Initiatives**

The NCQA provides an overall assessment of

the performance of our healthcare system. Its State of Health Care Quality 2005 results reported that for the sixth straight year, healthcare quality for the 65 million Americans enrolled in accountable health plans improved substantially across almost all clinical indicators, including poor A1C control (Figure 1).<sup>7</sup> On average, healthcare improved among all health plans, regardless of payer (ie, private employer, Medicare, or state Medicaid agency), that actively measure and report quality results.

Performance has improved considerably over the period of time the NCQA has been measuring commonly accepted cardiovascular measures. A new analysis in 2005 showed that those improvements have saved the lives of 40 000 to 67 000 Americans

**Figure 1.** Health Plan Employer Data and Information Set Effectiveness of Care Measure: 2000-2004 Trends



\*Note: Lower scores indicate higher performance. A1C indicates glycosylated hemoglobin. Source: Reference 7.

and prevented many more critical events such as second heart attacks (Table 2).<sup>7</sup>

Historically, only health maintenance organizations and point-of-service plans have participated in accountability activities.<sup>7</sup> In 2005, for the first time, 41 preferred provider organizations (PPOs), covering 27 million Americans, collected some quality data that were reported to the NCQA.<sup>7</sup> Recently, the NCQA has drafted new Health Plan Employer Data Information Set (HEDIS) measures for PPOs in an attempt to expand reporting of healthcare outcomes. The NCQA seeks to provide PPO performance information to public and private purchasers, as well as regulators, who have expressed an interest in reviewing such data. Furthermore, several large purchasers have started to require HEDIS reporting by PPOs. The NCQA plans to begin such reporting in 2007.<sup>7,8</sup>

Performance benchmarks developed by different organizations can provide important insights into the quality of care both within individual healthcare practices and across broader entities, such as insurance plans or states. With the proliferation of health monitoring and accreditation firms, health plans may be held accountable for their performance in managing diabetes, and employers may, in turn, use performance data to make better-informed decisions when purchasing health insurance products.

**Diabetes Physician Recognition Program.** In 1997, the NCQA and the ADA developed and launched the Diabetes Physician Recognition Program (DPRP) to help identify physicians providing quality diabetes care. Recognition is contingent on a physician or medical group demonstrating provision of care consistent with performance measures based on practice guidelines for managing diabetes (Table 3).<sup>9,10</sup>

The DPRP-recognized physicians and groups are publicized through health plan provider directories and on the NCQA's Web site.<sup>10</sup> Recognized physi-

**Table 2.** Lives Saved Due to Improvements Among Publicly Reporting Plans: Commercial and Medicare

Measure	Lives Saved
Beta-blocker treatment after a heart attack	3757-4739
Cholesterol management after a heart attack	3352-5658
Controlling high blood pressure	31 817-55 233
Poor A1C control*	1269-2172
Total	40 195-67 802

\*Lower rates of poor control indicate improvement for this measure. Calculation reflects improvement of plans from a measure's first year of public reporting through 2004. A1C indicates glycosylated hemoglobin. Source: Reference 7.

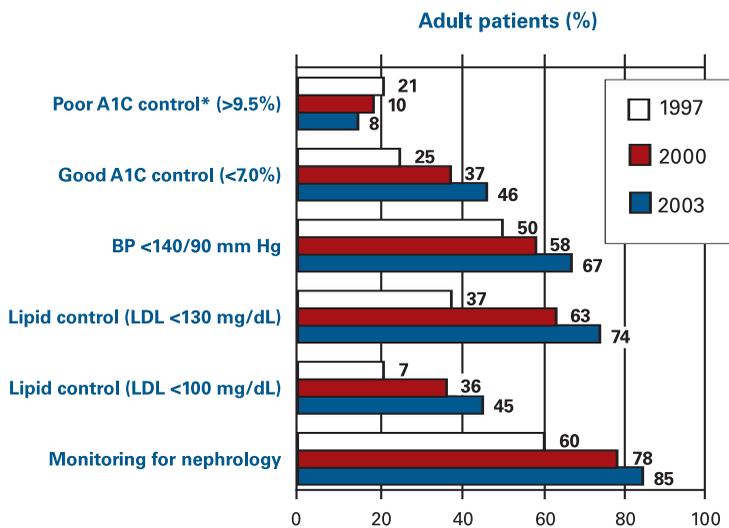
Reports

**Table 3.** Diabetes Physician Recognition Program: Measures for Adult Patients

Clinical Measures (Required)	Minimum Patients Required for Recognition (%)	Points
A1C poor control >9.0%	20 (max)	10.0
A1C control ≤7.0%	40	5.0
BP control <140/90 mm Hg	65	10.0
BP control <130/80 mm Hg	35	5.0
Eye examination	60	10.0
Smoking status and cessation advice or treatment	80	5.0
Complete lipid profile	85	5.0
LDL control <130 mg/dL	63	7.5
LDL control <100 mg/dL	36	2.5
Nephropathy assessment	80	10.0
Foot examination	80	10.0
<b>Total Points</b>		<b>80.0</b>
<b>Points Needed to Achieve Recognition</b>		<b>60.0</b>

A1C indicates glycosylated hemoglobin; BP, blood pressure; LDL, low-density lipoprotein.  
Sources: References 9 and 10.

**Figure 2.** Physicians Achieving Recognition: Diabetes Physician Recognition Program



Diabetes Physician Recognition Program, average performance of applicants, 1997-2003 data.

\*Note: lower is better for this measure.

A1C indicates glycosylated hemoglobin; BP, blood pressure; LDL, low-density lipoprotein.

Source: Reference 11.

cians and groups also receive visibility through ADA's Web site and the 1-800-DIABETES national call center. In 2000, the Web site had more than 1 million visitors per month, and the call center had more than 500 calls per month seeking referral to a physician.<sup>10</sup>

As shown in Figure 2, the DPRP may have already had a positive effect on patient care.<sup>11</sup> Among DPRP applicants, the average percentage of diabetes patients who had glycosylated hemoglobin levels of <7% increased from 25% to 46% from 1997 to 2003. During the same time period, the percentage of patients with diabetes from DPRP applicants whose low-density lipoprotein cholesterol met the performance measure increased from 17% to 45%, and the percentage of patients monitored for kidney disease increased from 60% to 85%.<sup>10</sup>

**The Bridges to Excellence Initiative.** Bridges to Excellence is a multistate, multiemployer coalition developed by employers, physicians, healthcare service researchers, and other industry experts to identify and reward quality across the healthcare system. Diabetes and BP control are a significant part of the pay-for-performance quality measurements, because this effort is built around the NCQA's recognition programs.<sup>12</sup>

The specific initiative that is part of the Bridges to Excellence program is called *Diabetes Care Link*. Physicians who demonstrate they are top performers in diabetes care can earn up to \$80 per year for each person with diabetes covered by a participating employer. To participate, physicians must demonstrate that their performance with diabetes management is consistent with the standards set by the NCQA/ADA's DPRP. The *Diabetes Care Link* program offers employers savings of about \$350 per patient per year. More information can be found at <http://www.bridgestoexcellence.org>.<sup>9,12,13</sup>

In addition to the National Business Coalition on Health,<sup>11</sup> Bridges to Excellence participants include:

- Employers
- Health plans
- NCQA
- Medstat
- WebMD Health

**National Diabetes Quality Improvement Alliance.** The National Diabetes Quality Improvement

**Table 4.** Selected National Diabetes Quality Improvement Alliance Performance Measures for Adult Diabetes

Parameter	Quality Improvement		
	Per Patient	Per Patient Population	Public Reporting
A1C	No. of tests Trend of values	% with ≥1 test Distribution of no. of tests done Distribution of A1C values by range	% with ≥1 test % with most recent A1C >9% (poor control)
Lipids	Trend of values Last LDL <130 mg/dL or on therapy Last LDL <100 mg/dL or on therapy	% receiving ≥1 lipid profile % with last LDL <130 mg/dL or on therapy % with last LDL <100 mg/dL or on therapy	% with ≥1 test % with last LDL <130 mg/dL % with last LDL <100 mg/dL
BP	Most recent BP ≥3 antihypertensive medications	Distribution of BP values % with ≥3 antihypertensive medications	% with last BP <140/80 mm Hg
Urine protein screening	≥1 test for MA No or negative urinalysis and ≥1 MA test Patient not on ACE inhibitor/ARB and screened for MA Patient on ACE inhibitor/ARB and screened for MA	% with ≥1 MA test % with no or negative urinalysis and ≥1 MA test % on ACE inhibitor/ARB and screened for MA % not on ACE inhibitor/ARB and screened for MA	% with ≥1 MA test or medical attention for nephropathy
Eye examination	Dilated examination by expert Stereoscopic photos	% with dilated examination % with stereoscopic photos	% with dilated examination or stereoscopic photos
Foot examination	≥1 complete foot examination	% with ≥1 complete foot examination	% with ≥1 foot examination

A1C indicates glycosylated hemoglobin; LDL, low-density lipoprotein; BP, blood pressure; MA, microalbuminuria; ACE, angiotensin-converting enzyme; ARB, angiotensin receptor blocker.  
Source: Reference 14.

Alliance involves 13 national organizations, including the ADA, the American Medical Association (AMA), the NCQA, and the National Institute of Diabetes and Digestive and Kidney Diseases, which have joined together with the common goal of improving diabetes care. The mission of this alliance is to identify, develop, and promote the use of a national performance measurement set for diabetes.<sup>13</sup>

The benchmarks recommended by the Alliance are shown in Table 4.<sup>14</sup> They include measures for quality improvement, which allow healthcare practitioners and health plans to monitor their own performance, and measures for public reporting to provide information to patients making healthcare decisions.

Other organizations that promote performance improvement in diabetes care include the AMA Physician Consortium for Performance Improvement, which publishes, along with a data collection flow sheet, performance measures that are a subset of those defined by the National Diabetes Quality Improvement Alliance.<sup>15</sup>

Although all of these quality initiatives are helping to establish an incentive for improved diabetes care, the morbidity and mortality from the disease and the cost of care remain challenging. Because diabetes may lead to long-term complications, investment in measures to achieve better glycemic control is necessary. Achieving guideline goals and performance measures requires an organized system of diabetes care ideally delivered by a

multidisciplinary diabetes care team that provides diabetes education, medical nutrition therapy, and appropriately prescribed physical activity and clinician care that will usually involve the use of antihyperglycemic medications. With advances in medical research and a better understanding of the pathophysiology of diabetes, new and novel therapies can contribute to this treat-to-target approach.

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