

CONCLUSION

Best Practices in Diabetes Management: Getting More Patients to Goal

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The need for improved diabetes care has never been more evident. The “State of Diabetes in America” study just released by the American Association of Clinical Endocrinologists (AACE) indicates that 2 of every 3 individuals with type 2 diabetes still do not have their glycosylated hemoglobin A_{1C} (A_{1C}) levels under control.¹ The report, which analyzed a laboratory database of more than 157 000 people in 39 states in 2003 and 2004, found that 67% of patients had A_{1C} levels above the American College of Endocrinology goal of ≤6.5% (Table 1). In none of the states were more than half of the patients controlled. In sharp contrast, a related national survey reported by AACE found that 84% of those with type 2 diabetes thought they were doing a good job controlling their blood sugar. These sobering results show that most Americans with diabetes are at risk for serious and costly complications because of inadequately controlled blood glucose values.

Key recommendations for improved diabetes care are well accepted and involve early and aggressive control of glycemia, dyslipidemia, and blood pressure, what the National Diabetes Education Program (http://www.ndep.nih.gov/campaigns/BeSmart/BeSmart_index.htm) and the American Diabetes Association (ADA) call the ABCs (A_{1C}, Blood pressure, and Cholesterol) of diabetes (Table 2).² Most believe that adoption of common elements endorsed by the chronic care model,³ including team care, improved information technology, clinical decision support, self-management education, and delivery system redesign, will provide the best opportunities to achieve these goals.

In this supplement to *The American Journal of Managed Care*, Drs Sperl-Hillen

and O'Connor from the HealthPartners Medical Group (HPMG) in Minneapolis analyze their diabetes care outcomes over the past decade. Compared with diabetes control reported in many settings, the data collected by this multispecialty group demonstrate considerable success in reducing their median A_{1C} levels below 7% and the mean low-density lipoprotein cholesterol levels to <100 mg/dL. To their credit, HPMG is seeking to understand the determinants of these results in hopes of further improving them. They have now examined the fluctuations in their A_{1C} and lipid results from 1994 to 2003 and tried to identify the correlates of those year-to-year movements.

As noted in their discussion, intensification of pharmacotherapy was a primary factor in A_{1C} and lipid improvement over this period. The willingness of clinicians to combine 2 or more agents to achieve A_{1C} treatment goals was apparently essential. Other critical success factors included institutional leadership commitment to diabetes improvement, participation in diabetes care improvement initiatives, and allocation of multidisciplinary resources at the clinic level to improve diabetes care. Resources were devoted to nurse and dietitian educators, active outreach to high-risk patients facilitated by registries, physician opinion leader activities including clinic-based educational programs, and financial incentives to primary care clinics.

HPMG has maintained recognition status with the Diabetes Physician Recognition Program (DPRP) since 1999. This joint program of the ADA and the National Committee for Quality Assurance (NCQA) may be one new factor that allows health systems to reach that next level of quality improve-

ment. Pilot DPRP programs enhancing reimbursement for recognized physicians and similar “pay-for-performance” programs have received increasing attention. Improved outcomes have been demonstrated among DPRP-recognized physicians (eg, a 98% rate of A_{1C} testing vs 82% among Medicare providers and 81% among other commercial providers).⁴ However, as pointed out by Drs Sperl-Hillen and O’Connor, we must find the appropriate mechanisms to fund these programs and also guard against penalizing clinicians with the most ill, complex diabetes patients. The results to date of a pilot program (Bridges to Excellence) indicate that rewarding DPRP recognition with financial incentives does appear to be associated with large increases in the number of physicians who become DPRP-recognized, thus demonstrating they are providing quality diabetes care. One can learn more about these programs at www.ncqa.org/dprp and <http://www.ncqa.org/Programs/bridgestoexcellence/bridgesq-a.htm>.

The paper by Dr Mahoney at Pitney Bowes offers an innovative approach to management of the pharmacy benefit for company employees with diabetes. As emphasized by Dr Mahoney, increased adherence to pharmacologic therapy is a key to improved disease control and reduced longer term costs. Although the connection between adherence and control is well documented,⁵ it was an internal company study revealing a link between poor adherence and high next-year costs that convinced this corporate medical director to take aggressive steps to attempt to enhance medication adherence. By shifting all diabetes medications from tier 2 or 3 formulary status to tier 1, the potential financial disincentives to patient acquisition and use of diabetes medications and supplies were significantly diminished. The result has been increases in medication possession rates and use of fixed-combination drugs, a decrease in total per-patient pharmacy costs, a 26% decrease in emergency department visits, a 6% decrease in costs per employee with diabetes, and a slowing of the increases in overall per-patient health costs.

The company simultaneously instituted other enhancements to its diabetes disease

Table 1. American College of Endocrinology Goals for Glycemia

$A_{1C} \leq 6.5\%$ Fasting/preprandial glucose <110 mg/dL 2-hr Postprandial glucose <140 mg/dL

A_{1C} indicates glycosylated hemoglobin A_{1C} .
 Source: American College of Endocrinology (ACE).
 Implementation Conference for ACE Outpatient Diabetes Mellitus Consensus Conference Recommendations: position statement. February 2, 2005. Available online at: <http://www.aace.com/pub/odimplementation/PositionStatement.pdf>. Accessed June 27, 2005.

management programs that could have contributed to the observed improvement in costs, including distribution of free glucose meters to employees with diabetes. However, the authors contend that the benefit redesign was the truly novel component of their overall disease management efforts. Dr Mahoney’s paper provides healthcare administrators and their pharmacy benefit management partners with one more potential mechanism for improving diabetes care.

Both papers in this supplement to *The American Journal of Managed Care* demonstrate the importance of taking a chronic care model³ approach to improving management for people with diabetes. One or both emphasize the benefits of team care (adding nurse and dietitian educator and physician opinion leader efforts to the activities of primary healthcare professionals), improved information technology (use of registries to identify patients needing interventions), clinical decision support (clinic-based training programs for healthcare professionals), self-management education (diabetes education), and delivery system redesign (medication benefit redesign and financial incentives integrated into other disease management efforts).

Suboptimal healthcare delivery systems are major barriers to achieving the diabetes treatment goals that would reduce the development and progression of diabetic complications as well as their resultant human and economic costs. Systems improvement should be a focus of all diabetes care settings from solo clinical practices to large integrated

Table 2. Summary of ADA Recommendations for Adults With Diabetes

Glycemic control	
A _{1C}	<7.0%*
Preprandial plasma glucose	90-130 mg/dL (5.0-7.2 mmol/L)
Peak postprandial plasma glucose [†]	<180 mg/dL (<10.0 mmol/L)
Blood pressure	<130/80 mm Hg
Lipids[‡]	
LDL	<100 mg/dL (<2.6 mmol/L)
Triglycerides	<150 mg/dL (<1.7 mmol/L)
HDL	>40 mg/dL (>1.1 mmol/L) [§]
Key concepts in setting glycemic goals:	
<ul style="list-style-type: none"> • 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 stringent glycemic goals (ie, a normal A_{1C}, <6%) may further reduce complications at the cost of increased risk of hypoglycemia (particularly in those with type 1 diabetes) • Postprandial glucose may be targeted if A_{1C} goals are not met despite reaching preprandial glucose goals 	

ADA indicates American Diabetes Association; A_{1C}, glycosylated hemoglobin A_{1C}; LDL, low-density lipoprotein cholesterol; HDL, high-density lipoprotein cholesterol; DCCT, Diabetes Control and Complications Trial (questionnaire); NCEP ATP III, National Cholesterol Education Program Adult Treatment Panel III.

*Referenced to a nondiabetic range of 4.0%-6.0% using a DCCT-based assay.

[†]Postprandial glucose measurements should be made 1-2 hours after the beginning of the meal, generally peak levels in patients with diabetes.

[‡]Current NCEP ATP III guidelines suggest that in patients with triglycerides \geq 200 mg/dL, the "non-HDL cholesterol" (total cholesterol minus HDL) be utilized. The goal is \leq 130 mg/dL (*JAMA*. 2001;285:2486-2497).

[§]For women, it has been suggested that the HDL goal be increased by 10 mg/dL.

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healthcare delivery systems. To assist healthcare professionals and administrators seeking to structure better systems and improve the efficiency and effectiveness of their diabetes care delivery, the National Diabetes Education Program has recently developed a Web site (www.betterdiabetescare.nih.gov) with extensive information and resources.

Ideally, like the authors of the papers in this supplement, all who accept the challenge to improve the care of their patients with diabetes will display a willingness to invest in new ideas, to measure the results, to modify programs in response to measured results, and to share their experiences with colleagues. We, and especially our patients, will all benefit from these efforts.

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