

## What are the Priorities for Diabetes Care Quality Improvement?

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Providing optimal care to our patients with diabetes can be a challenge. In addition to the ongoing task of preventive care directed at microvascular and macrovascular risk factors, our patients have many acute and chronic symptomatic issues that must be addressed. The average veteran with diabetes has just 4-5 brief office visits a year with their primary care physician to manage this complex, multi-system disease. As we strive to achieve the goals set forth in the VA practice guidelines<sup>1</sup>, it is good to keep in mind the highest priorities for diabetes care. Listed below are some interventions which, if achieved, can dramatically improve patients' quality and length of life.

- **Achieve Tight Blood Pressure Control**

Most veterans with diabetes have hypertension and controlling their blood pressure meticulously is probably the single most important medical intervention in improving their health and prolonging their life. Blood pressure control has at least twice the benefit in diabetics compared with non-diabetics<sup>2</sup>, and dramatically improves cardiovascular and microvascular (eye and kidney) outcomes<sup>3,4</sup>. How tightly must blood pressure be controlled? No one knows for sure, but for diabetics 140/90 is not a sufficient goal. The ADA recommends 130/85, but one could argue for a goal of 135/80. In practice, it is important to be willing to use at least 2-4 blood pressure medications to attain these goals (realizing that the systolic blood pressure goal will be particularly difficult to achieve)<sup>2-4</sup>. Also, it appears that the level of blood pressure achieved is much more important than which anti-hypertensive agent is used to

achieve it (although some evidence suggests that perhaps calcium channel blockers should not be used as a first or second choice agent)<sup>5,6</sup>.

- **Eliminate poor glycemic control**

No glycemic level short of normoglycemia is risk free, but the majority of preventable blindness in type 2 diabetics probably arises from those with HbA1c's >9%<sup>7</sup>. NCCC data<sup>8,9</sup> has demonstrated that the VA has made great strides in decreasing the proportion of patients under poor control, but further reductions of this high-risk group must remain one of our highest priorities.

*"Controlling blood pressure meticulously is probably the single most important medical intervention in improving health and prolonging life (for patients with diabetes)."*

- **Eliminate poor lipid control**

It is unknown what the optimal LDL-cholesterol level is for type 2 diabetics. There may be benefit in pushing levels below 100mg/dl (as recommended by the ADA). However, it is likely that the vast majority of the excess mortality risk occurs at LDL levels > 135-145mg/dl. Even for those with known coronary artery disease extreme lowering of LDLs has mainly been associated with fewer non-fatal events, not with improved survival. Although LDL levels found in the NCCC's FY98 VA diabetes costing and outcomes study suggests that the VA is far ahead of many, or most, health care systems, there are still too many veterans with levels exceeding 140mg/dl and the rates vary substantially between VHA facilities.

- **Give an aspirin a day**

An aspirin a day lowers cardiovascular risk twice as much in diabetics than in non-diabetics<sup>10</sup>. Unless it is contraindicated, this simple, inexpensive intervention is a must.

- **Aggressive smoking cessation counseling**

Smoking cessation is a priority for all patients who smoke. Given the high risk of cardiovascular death in type 2 diabetics, this goes double for diabetes care.

There are many other aspects of diabetes care that have proven or probable benefit. But in your busy practice, realize that the above achievable goals may garner as much benefit as everything else combined.

1. The Diabetes Mellitus Working Group. *Veterans Health Administration Clinical Guideline for Management of Diabetes Mellitus*. Version 1.0 ed. Washington, DC: 1997.

2. Curb JD, Pressel SL, Cutler JA, et al. Effect of diuretic-based anti-hypertensive treatment on cardiovascular disease risk in older diabetic patients with isolated systolic hypertension. *JAMA*. 1996;276:1886-92.

3. Hansson, L, Zanchetti A, Carruthers SG, et al. Effects of intensive blood-pressure lowering and low-dose aspirin in patients with hypertension: principal results of the Hypertension Optimal Treatment (HOT) randomised trial. *Lancet*. 1998; 351:1755-62.

4. United Kingdom Prospective Diabetes Study Group. Tight blood pressure control and risk of macrovascular and microvascular complications in type 2 diabetes: UKPDS38. *BMJ*. 1998;317:703-13.

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<http://www.hsrd.ann-arbor.med.va.gov/queri-dm/queri-dm.htm>

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## National Center for Cost Containment

The National Center for Cost Containment (NCCC) has been tracking diabetes in the VHA since 1994. For more information about the NCCC visit their website at <http://vaww.va.gov/health/Nccc/default.htm>.

### Highlights from the FY 1998 National Center for Cost Containment Diabetes Costs and Outcomes Report ***“Hyperlipidemia Treatment Targets”***

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Cardiovascular disease is the major cause of morbidity and mortality in persons with diabetes, accounting for over 70% of deaths and hospitalizations. The level of LDL cholesterol (LDL-C) at which cardiovascular disease (CVD) risk is optimally minimized in persons with diabetes is unknown; for this reason, recommendations for any target level of LDL-C cannot be entirely evidence-based. There are no prospective randomized intervention trials comparing CVD endpoints associated with different treatment-induced target and attained levels of LDL-C in exclusively diabetes study populations. Several primary and secondary prevention studies (AFCAPS<sup>1</sup>, WOSCOPS<sup>2</sup>, 4S<sup>3</sup>, CARE<sup>4</sup>, LIPID<sup>5</sup>) have included diabetic patients, but diabetic subgroup analyses have been hampered by the relatively small samples and the post hoc nature of the analyses.

Epidemiological evidence suggests that the risk of a first myocardial infarction (MI) in individuals with diabetes is similar to the risk of a second MI in nondiabetics with known prior infarction<sup>6</sup>. This evidence, coupled with the National Cholesterol Education Program II recommendation for a target LDL-C <100mg/dL in the setting of secondary prevention<sup>7</sup>, has led some authors and organizations (notably, the ADA)<sup>8</sup> to recommend a target LDL-C < 100 mg/dl in all diabetics, irrespective of known coronary disease status. However, given the lack of convincing prospective intervention trial data, such a recommendation should be considered inferential rather than evidence-based. To date, no trial has been specifically designed to answer the question of whether patients with

diabetes or non-diabetes patients in the primary or secondary prevention settings, who attain a treatment-mediated LDL-C <100 mg/dl, have fewer coronary/atherosclerotic (CVD) events than similar patients with an LDL-C <130 mg/dl<sup>9</sup>. Some investigators have concluded that no further treatment benefit is derived from preventative reduction of LDL-C below 125 mg/dl in non-diabetic patients<sup>10</sup>, while, others have found no evidence of a threshold effect<sup>1,11</sup>. In the absence of consistent clinical trial-related evidence to the contrary, the Department of Defense/VA guideline development group established a target LDL-C < 130 mg/dl as a prudent goal for CVD prevention in patients with diabetes and support individualized clinical judgment in setting lower LDL-C treatment targets.

***“Cardiovascular disease is the major cause of morbidity and mortality in persons with diabetes, accounting for over 70% of deaths and hospitalizations.”***

The current report from the VA National Center for Cost Containment provides a snapshot of the ranges of LDL-C values achieved by those patients tested in FY98. Approximately 68% of patients had a LDL-C value <130 mg, and an overall mean value of 115 mg/dl, indicating substantial compliance with the guidelines. However, the data also indicate there are opportunities for improvement. For example, patients with values of LDL-C >145 mg/dl not receiving lipid-lowering therapy would likely benefit from the institution of pharmacologic therapy. Based upon the recent landmark VA Coopera-

tive HIT Study<sup>12</sup>, if providers believe that the evidence warrants a more vigorous approach to lipid-lowering, then consideration should be given to using gemfibrozil in patients with LDL-C <130 mg/dl, especially if HDL levels are low or triglycerides increased.

<sup>1</sup> Downs JR, et al, for the AFCAPS/TexCAPS Research Group. Primary prevention of acute coronary events with lovastatin in men and women with average cholesterol levels. Results of AFCAPS/TexCAPS. JAMA 1998;279:1615-1622.

<sup>2</sup> Shepherd J, et al, for the West of Scotland Coronary Prevention Study Group. Prevention of coronary heart disease with pravastatin in men with hypercholesterolemia. NEJM 1995;333:1301-1307.

<sup>3</sup> Scandinavian Simvastatin Survival Study Group. Randomized trial of cholesterol lowering in 4444 patients with coronary heart disease: the Scandinavian Simvastatin Survival Study (4S). Lancet 1994;344:1383-1389.

<sup>4</sup> Sacks FM, et al, for the Cholesterol and Recurrent Events Trial Investigators. The effect of pravastatin on coronary events after myocardial infarction in patients with average cholesterol levels. NEJM 1996;335:1001-1009.

<sup>5</sup> The Long-Term Intervention with Pravastatin in Ischaemic Disease (LIPID) Study Group. Prevention of cardiovascular events and death with pravastatin in patients with coronary heart disease and a broad range of initial cholesterol levels. NEJM 1998;339:1349-1357.

<sup>6</sup> Haffner, SM, et al, Mortality from coronary heart disease in subjects with type 2 diabetes and in nondiabetic subjects with and without prior myocardial infarction. NEJM 1998;339:229-234.

<sup>7</sup> National Cholesterol Education Program. Second Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel II). Bethesda, Md: National Heart, Lung, and Blood Institute, National Institutes of Health; 1993. NIH publication 93-3095.

<sup>8</sup> American Diabetes Association: Clinical Practice Recommendations 1999. Management of dyslipidemia in adults with diabetes. Diabetes Care 1999;22:Supplement 1, S56.

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## **Reno, Nevada's Approach To Implementation of Diabetes Clinical Guidelines**

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&

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Since the introduction of VHA Diabetes Clinical Guidelines in 1997, the VA Sierra Nevada Health Care System, Reno, set out to enhance and improve care of the diabetic patient by developing systems to assist Primary Care Practitioners. Our goal was to provide timely, accurate information about each patient to promote early interventions for prevention of long term complications of diabetes.

This article will focus on the Diabetes Indicators Clinical Evaluation (DICE) system. The DICE is an innovative diabetes computerized reporting system developed in Reno and in use throughout VISN 21. This software, runs as part of VISTA, and uses access to multiple data files including laboratory, prescription, demographic, diagnosis (ICD-9 codes), and vitals. Unlike NCCC, which identifies diabetic patients through the prescription file, our patient population database is identified by diagnosis. All VISN 21 facilities are utilizing this program and compiling benchmark data for comparison and performance improvement. Currently, this data is also compared to EPRP results even though the DICE report contains 100% of diabetic patients compared to a snapshot of patients from EPRP reviews. The DICE report is organized by National Performance Measures with additional information such as active ACE Inhibitor Rx, body mass index, nutrition consult, and tobacco diagnosis. It is available in 4 formats including patient, primary care provider, facility, or HbA<sub>1c</sub>.

### **Patient Format**

The DICE report by patient is readily available to every practitioner via VISTA. Practitioners may view this report while seeing patients for reference to up-to-date patient information and for use in setting treatment goals. In Reno, the Diabetes Certified Educator (CDE) prints a copy of

the report for each new patient during weekly diabetes education classes.

### **Primary Care Provider Format**

The DICE report by primary care provider includes results and individual patient listings. The results section includes the total number of diabetes patients for a specific practitioner followed by categories for glycemic control, eye care, foot care, lipid control, hypertension, renal, nutrition, HbA<sub>1c</sub>, and others encompassing the National Performance Measures. For example, glycemic control is broken down into two categories "HbA<sub>1c</sub> performed" or "HbA<sub>1c</sub> not performed". Results are shown as the provider total, provider percent, facility total, and facility percent. These numbers indicate the total number/percent of patients with HbA<sub>1c</sub> performed or not performed within the last 12 months for that individual practitioner. The facility results allow the provider to compare his/her patient information with the overall numbers for all patients with diabetes within the facility. The second part of the provider report lists each diabetic patient for that particular practitioner by name, SSN and whether or not each performance measure was fulfilled and the specific result. This allows the practitioners to see what each of their patients needs such as an eye exam, lipid panel, ACE inhibitor etc. The individual practitioner report is distributed confidentially to each practitioner on a quarterly basis. Although initially this report was met with some concern, practitioners have learned to use this information as a tool to improve overall care of their diabetic patients for which it was intended.

### **Facility and HbA<sub>1c</sub> Formats**

The DICE report by facility lists the total number of diabetes patients in the facility. Following this are the National Performance Measures. For each performance measure, the number and percent of total

diabetes patients for the facility are reported. For example, the DICE report by HbA<sub>1c</sub> is a summary report enabling providers to view patient reports by age, complications, and average HbA<sub>1c</sub>.

In addition to the development of this and other unique, computerized data systems for implementing guidelines, the Reno VA also provides continuous educational programs, clinical reminders, Text Integration Utility (TIU) template progress notes, pocket cards, and foot exam packets to each practitioner. Using these systems, Reno practitioners are able to look critically at their individual practice, compare their practice with others at their facility and other facilities in the VISN, and strive to improve care.

Please see our website <http://www.hsrp.ann-arbor.med.va.gov/queri-dm/queri-dm.htm> for examples of each of these report formats or contact Bonnie BootsMiller at [bjbootsm@umich.edu](mailto:bjbootsm@umich.edu) or (734) 930-5144 for a copy.

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<sup>9</sup> Grundy, SM, Statin trials and goals of cholesterol-lowering therapy. *Circulation* 1998;97:1436-1439.

<sup>10</sup> Sacks, FM, et al, Relationship between plasma LDL concentrations during treatment with pravastatin and recurrent coronary events in the cholesterol and recurrent events trial. *Circulation* 1998;97:1446-1452.

<sup>11</sup> Pedersen, TR, et al, for The Scandinavian Simvastatin Survival Study Group. Lipoprotein changes and reduction in the incidence of major coronary heart disease events in the scandinavian simvastatin survival study (4S). *Circulation* 1998;97:1453-1460.

<sup>12</sup> Rubins HB, Robins SJ, Collins D et al. Gemfibrozil for the secondary prevention of coronary heart disease in men with low levels of high density lipoprotein cholesterol. *NEJM* 341: 410-418, 1999.



## ADA Approved Diabetes Programs

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The following is a list of diabetes education programs (as of September 1999) that are recognized by the American Diabetes Association (ADA). These programs meet the National Standards for excellence in diabetes education. If your program is approved and is not listed here, please call Bonnie BootsMiller (734) 930-5144. We would like to have a complete VHA list!

State	Facility	Program
AR	Little Rock VAMC	Diabetes Education & Management Outpatient Program
CT	Newington VAMC	VA CT Diabetes Education and Self Management Program
CT	VA Connecticut HCS (West Haven)	VA CT Diabetes Education and Self Management Program
CT	Veterans Memorial Medical Center (Meridan)	The Diabetes Center Outpatient Self-Management Program
DE	Wilmington VAMC	Diabetes Health Education Program
MA	Brockton/West Roxbury VAMC	Diabetes Self-Management Outpatient Education Program
MI	John D. Dingell VAMC (Detriot)	The Outpatient Diabetes Education Group Program
NY	Northport VAMC	Diabetes Self-Management and Education Outpt. Program
NM	Albuquerque VAMC	Diabetes Patient Education Group Program
NH	Manchester VAMC	Outpatient Diabetes Education Program
NJ	VA New Jersey HCS (East Orange)	Diabetes Self-Management Education and Training Program
NJ	VA New Jersey HCS (Lyons)	Diabetes Self-Management Education and Training Program
PA	Wilkes-Barre VAMC	Outpatient Diabetes Education Program
PA	James E. Van Zandt VAMC (Altoona)	Diabetes Self Management Education Program
RI	Providence VAMC	The Diabetes Outpatient Self-Management Program
TN	Memphis VAMC	Memphis VA Outpatient Diabetes Education Program
TX	South Texas VA HCS (San Antonio)	Winning with Diabetes Self-Management Ed. Program
VA	Hampton VAMC	Diabetes Education Program
VA	Salem VAMC	Diabetes Education Program
VA	Hunter Holmes McGuire VAMC	McGuire Research Institute Diabetes Patient Ed. Program
VT	VAMROC (White River Junction)	The Outpatient Diabetes Education Program
WV	Louis A. Johnson VAMC (Clarksburg)	Outpatient Diabetes Self-Management Education Program
WV	Huntington VAMC	Diabetes Self-Management Education Program

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5. Extacio RO, Jeffers BW, Hiatt WR, Biggerstaff SL, Gifford N, Schrier RW. The effect of nisoldipine as compared with enalapril on cardiovascular outcomes in patients with non-insulin-dependent diabetes and hypertension. *NEJM*. 1998;338:645-52.

6. Tatti P, Pahor M, Byington RP, DiMauro P, Guarisco R, Strollo G, Strollo F. Outcome results of the fosinopril versus amlodipine cardiovascular events random-

ized trial (FACET) in patients with hypertension and NIDDM. *Diabetes Care*. 1998; 21:597-609.

7. Vijan S, Hofer TP, and Hayward RA. Estimated Benefits of Glycemic Control in Microvascular Complications in Type 2 Diabetes. *Ann Intern Med*. 1997; 127:788-95.

8. National Center for Cost Containment, Department of Veterans Affairs; *Diabetes*

*in the VHA: FY94 Costs and Outcomes*. Milwaukee, WI: 1996.

9. National Center for Cost Containment, Department of Veterans Affairs; *Diabetes in the VHA: FY96 Costs and Outcomes*. Milwaukee, WI; 1998.

10. Physicians Health Study Research Group. Final report on the aspirin component of the ongoing Physicians' Health Study. *N Engl J Med*. 1989;321:129-65.

See our website for a list of VHA Diabetes Clinics and Programs.  
<http://www.hsrd.ann-arbor.med.va.gov/queri-dm/queri-dm.htm>

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