DIABETES QUALITY CARE MONITORING SYSTEM

QUALITY IMPROVEMENT *REPORT*

Jan-March 2008
Vol. I Issue 1

MT DEPARTMENT OF PUBLIC HEALTH AND HUMAN SERVICES

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Intensified Multifactorial Intervention Reduces Mortality in Type 2 Diabetes

Type 2 diabetes is known to be linked to a high rate of complications related to cardiovascular (CV) events, and a high rate of death, which is about twice as high as that among individuals without the disease. In the earlier Steno-2 study, a prospective, randomized, open-label trial, Gaede and colleagues demonstrated that intensified multifactorial intervention with the use of renin-angiotensin system blockers, aspirin, and lipid-lowering agents significantly reduced the risk of nonfatal cardiovascular disease (CVD) among patients with type 2 diabetes and microalbuminuria during the mean treatment period of 7.8 years. However, the effect of such intensive therapy on mortality in these patients was not clear. To address this question, Gaede and colleagues conducted the present follow-up study to evaluate whether the intensive therapy has any impact on the rate of death, and whether the reduction of CVD risk by the intensive therapy is maintained during the follow-up study.

In the original Steno-2 study, 160 Danish patients with type 2 diabetes and persistent microalbuminuria were randomly selected to receive intensified multifactorial therapy or conventional therapy for an average period of 7.8 years. All patients in the intensive-therapy group received an angiotensin-converting–enzyme (ACE) inhibitor or an angiotensin II–receptor blocker (ARB), regardless of blood pressure, for treatment of microalbuminuria, a low dose of aspirin, and a lipid-lowering medication such as a statin, in addition to dietary modification, increased activity, and antihyperglycemic medications. Defined targets for the intensive therapy group were based on current guidelines from the American Diabetes Association and included an A1C of <6.5%, blood pressure <130 mm Hg systolic and <80 mm Hg diastolic, fasting serum triglyceride level <150 mg/dL, and fasting serum total cholesterol level <175 mg/dL.

Patients were subsequently followed for a mean of 5.5 years until December 31, 2006. There were no protocol-mediated differences during this follow-up. All subjects in the original study had returned to their own doctors, and all were informed of that study's results, so treatments during follow-up were at the discretion of the patients and their physicians. The primary endpoint at 13.3 years of follow-up was the time to death from any cause, and the secondary endpoints were death from CV causes and a composite of CVD events.

During the entire 13.3 years of study, 24 patients (30%) in the intensive-therapy group died, as compared with 40 patients (50%) in the conventional-therapy group (hazard ratio [HR], 0.54; 95% confidence interval [CI], 0.32 to 0.89; P=0.02). The risk of death from CV causes was also lowered by multiple intensive intervention; 9 patients in the intensive-therapy group died from CV causes, as compared with 19 in the conventional-therapy group (HR, 0.43; 95% CI, 0.19 to 0.94; P=0.04). A total of 209 CV events occurred during the 13.3 years of observation; intensive therapy was associated with a lower risk of these events (HR, 0.41; 95% CI, 0.25 to 0.67; P<0.001).

Furthermore, fewer diabetes-related diseases and major side effects were observed in the intensive-therapy group. For instance, only 1 patient in the intensive-therapy group had progression to end-stage renal disease, as compared with 6 patients in the conventional therapy group (P=0.04). In addition, fewer patients in the intensive-therapy group vs the conventional therapy group required retinal photocoagulation (relative risk, 0.45; 95% CI, 0.23 to 0.86; P=0.02).

From the present study, the authors concluded that intensive intervention with multiple drug combinations and behavior modification to manage blood glucose, blood pressure, and cholesterol had sustained the beneficial effects on the reduction of the risk of CV events as well as the risk of mortality from any cause or from CV causes, and thus prolonged the lives of patients with type 2 diabetes.

Gaede P et al. Effect of a multifactorial intervention on mortality in type 2 diabetes. *N Engl J Med*. 2008;358:580-591.

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FIGURE 1: PHYSICIAN OFFICES PARTICIPATING IN THE DIABETES QUALITY CARE MONITORING SYSTEM (DQCMS) PROJECT, October 2007 (N = 39)

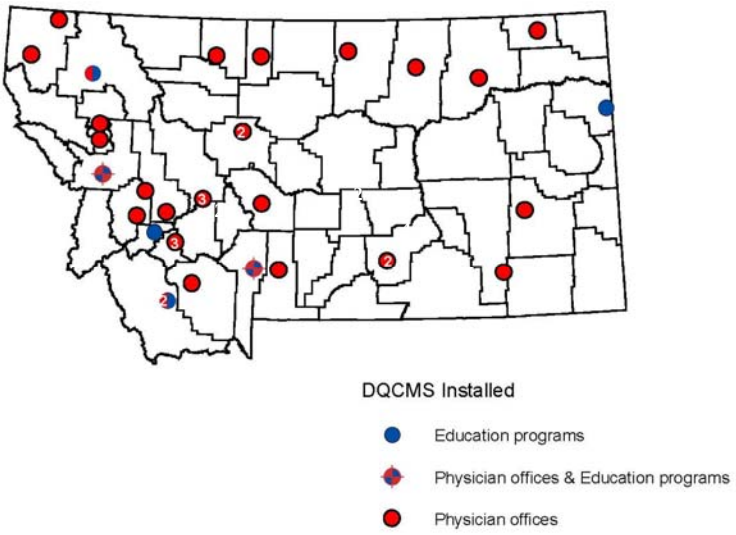


FIGURE 2: DIABETES CARE INDICATORS FROM MONTANA PHYSICIAN OFFICES PARTICIPATING IN THE DCMS/ DQCMS PROJECT, BASELINE (N = 22 CLINICS; 3,629 PATIENTS) AND JANUARY 2008 (N = 39 CLINICS; 7,712 PATIENTS)

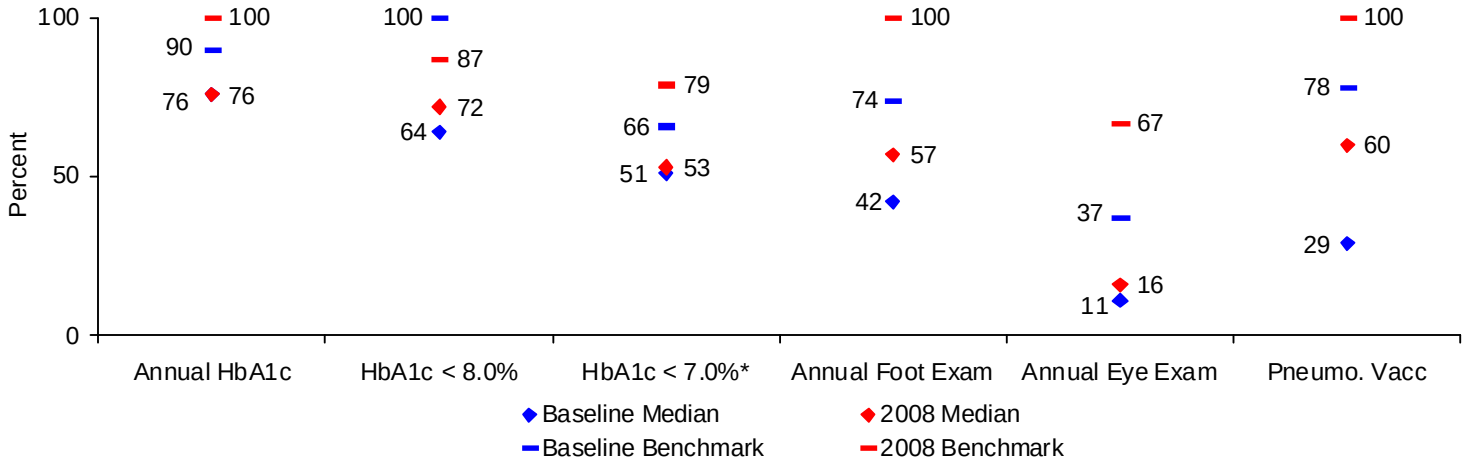
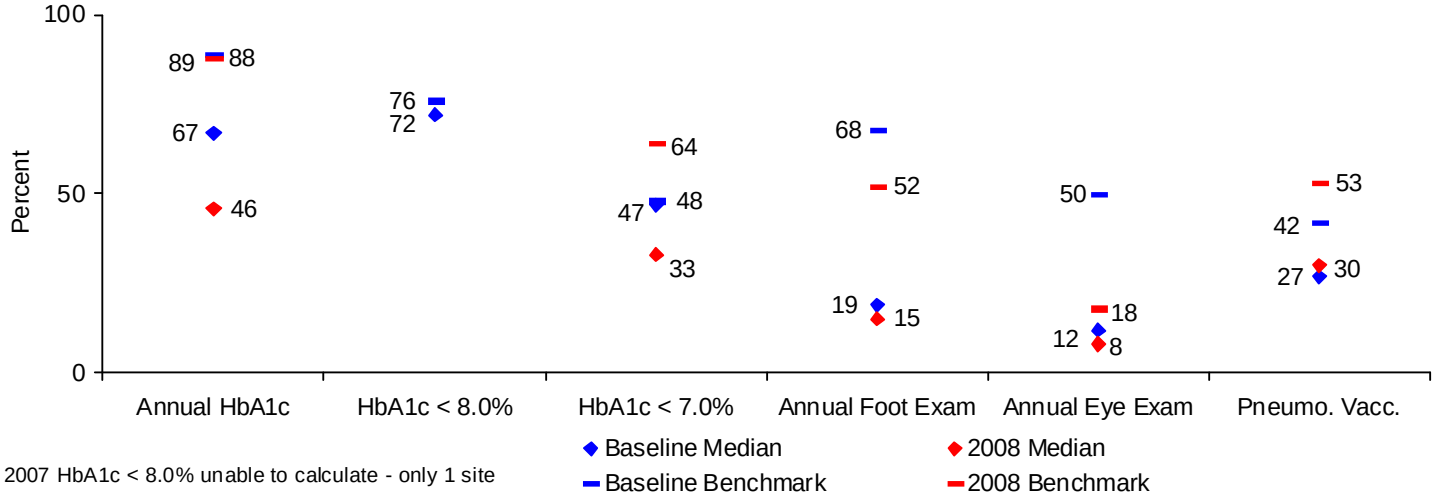


FIGURE 3: DIABETES CARE INDICATORS FROM MONTANA DIABETES EDUCATION PROGRAMS PARTICIPATING IN THE DQCMS PROJECT, BASELINE (N = 4 SITES; 912 PATIENTS) AND JANUARY 2008 (N = 5 SITES; 731 PATIENTS)



* 2007 HbA1c < 8.0% unable to calculate - only 1 site

Focus on Foot Care

Foot exam rates in Montana are in need of improvement! The median percent of patients receiving foot exams in the first quarter of 2008 was 57 percent – well below the Healthy People 2010 goal of 75 percent. Of all diabetes complications, foot problems and their risk factors are the easiest to detect and prevent.

Why focus on foot care?

- In 2006, the rate of lower extremity amputations (LEA) in Montana was 19 per 1,000 persons with diabetes – 16 times greater than the non-diabetic population.
- An estimated 85 percent of LEAs are preceded by a non-healing ulcer. (Reiber et al. 1995)*
- Fifteen percent of patients with diabetes will develop a foot ulcer. (Pecoraro et al. 1990)*
- Approximately 48,000 adults in Montana had diagnosed diabetes in 2006.
- Prevalence of LEA is higher in men and American Indians.

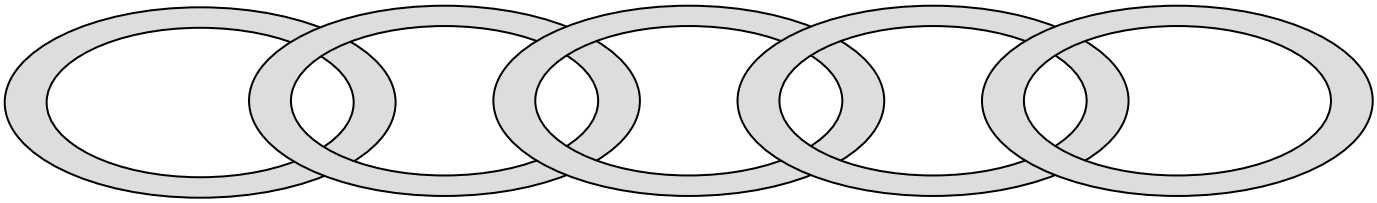
Five key risk factors leading to foot ulcers

- Foot ulcer now or in past
- Diminished sensation
- Structural abnormalities
- Impaired Circulation
- Lack of foot care education

The Montana Diabetes Project (MDP) has developed a Comprehensive Foot Exam training program for staff at participating sites. The course includes a brief overview of the risk factors, how to conduct a visual and monofilament exam, as well as a practical guide to using a monofilament and how to chart the results. For further information contact Chris Jacoby, MDP QI Coordinator at 444-7324.

Interrupting a Chain of Events

Identifying High Risk Feet



Loss of nerve function to feet → **Look for**: Skin color, Swelling, Deformity, Pressure Points, Callus, Toenails, Injury → **Feel for**: Texture, Temperature, Pulses → **Look at**: Shoes, Socks → **Monofilament test** and **Educate**

* GE Reiber, EJ Boyko, DG Smith – Diabetes in America, 1995 Page 408. chapter 18 Lower Extremity Foot Ulcers and Amputations in Diabetes

* Pecoraro RE, Reiber GE, Burgess EM. Pathways to diabetic limb amputation. Basis for prevention. Diabetes Care 1990; 13:513-21

Save the Dates!

WHAT: "Exploring New Frontiers in Diabetes, 2008"
WHEN: October 23-24, 2008
WHERE: Holiday Inn, Bozeman, MT

(For more information contact Susan Day 406-444-6677)

A Red Carpet Welcome To:

- **Glacier Community Health Center - Cut Bank**

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