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## CASE REPORT

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# METRIC: A Sweet Tool to Improve Adherence to Diabetes Care Guidelines

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### BACKGROUND

Diabetes is a devastating chronic disease that affects over 23 million Americans.<sup>1</sup> Moderate reductions in hyperglycemia, hypertension, and dyslipidemia translate into markedly improved outcomes.<sup>2</sup> The American Diabetes Association (ADA) supports diabetes care guidelines aimed at improving glycemic indices and their incorporation into routine clinical practice in primary care.<sup>2</sup> We initiated a quality improvement project to determine our current adherence and patient-centered interventions to improve further adherence and diabetic care utilizing the METRIC (Measuring, Evaluating, and Translating Research Into Care) Protocol<sup>7</sup>, a validated tool developed by American Academy of Family Physicians (AAFP) to increase provider compliance with the established diabetes care guidelines.

### METHODS

**Setting/Population:** A Family Medicine Residency- Based Ambulatory Clinic in El Paso, Texas serving a predominantly Hispanic Population. Demographic analysis of our clinic patients revealed that approximately 1300 patients have the diagnosis of Type II Diabetes Mellitus—identified using the ICD-9 code of 250.XX  
**Research Design:** After Internal Review Board approval (IRB), a retrospective audit of a random sample of 125 charts (approximately 10% of our patients with diagnosis of DM type 2), was performed. Patients who had not had a follow up visit in our clinic for 12 months during the preceding year were excluded from the study. The audit of the charts took place in a period of a month in August 2008. The METRIC questionnaire summarizes the current guidelines established by the ADA for the recommended routine laboratory testing and preventive diabetic care via a series of 17 questions assessed over a 12-month period. We utilized this tool to determine current adherence. (see appendix 1)

### RESULTS

Hemoglobin A1c was checked in 84% of the patients with a mean of 8.2 (goal <7.0), total cholesterol and low density lipoprotein (LDL) were checked in 80% with a mean of 171.9 and 98.1 respectively (LDL goal <100), HDL cholesterol and triglycerides were both checked in 77% of patients with corresponding means of 40.6 (goal >40 for men, >50 for women) and 163.5 (goal <150). One hundred percent of the patients had at least one blood pressure measurement within the last 12 months with a mean blood pressure of 130/71 mmHg (goal <130/80). Furthermore, 54% of the patients had a urine screen for micro-albumin/creatinine, 49% had a documented retinal exam and 45% had a complete foot exam with microfilament testing. Only 37% had received a flu vaccine and only 30% were on recommended aspirin therapy. 26% of the patients had their A1C value <7%. Regarding the guideline for achieving an LDL chole-

sterol <100, 50% of studied patients met this goal. Thirty-four percent of the patients had an HDL cholesterol >40 and 13% had it >50. Forty-two percent of patients had triglyceride levels <150. Lastly, 54% of the patients had a systolic blood pressure (SBP) <130 mmHg.

### DISCUSSION

Our study demonstrates that only 4.8% of the audited charts had all 17 items addressed. Comparing our study results to the national average of 49.8%,<sup>8</sup> only 26% of our studied patients had reached the established hemoglobin A1C goal <7 mg/dl. In terms of the LDL cholesterol guideline, 50% of patients met a goal criteria of <100 compared to 36% nationally.<sup>8</sup>

Also 54% of patients had their SBP at goal <130/80 compared to the 40% national average.<sup>8</sup> The long-term goal of our study is to implement the METRIC flow sheet into our daily clinical practice facilitated by the Electronic Medical Record (EMR) and using the EMR application known as “clinical reminders” with the end point of improving patients’ outcomes as measured by improved biomarkers and adhering to recommended preventive strategies. Multiple strategies aimed at achieving such practice guidelines have been postulated. However, there are discrepancies on whether the implementation of guidelines alters clinical outcomes as measured by glycemic control, blood pressure and other components of the metabolic profile, but it could improve the provision and documentation of diabetes care.<sup>3,4,5,6</sup>

### REFERENCES

1. *Diabetes statistics.* Bethesda, MD: National Institute of Diabetes and Digestive and Kidney Diseases. National Diabetes Information Clearinghouse, June 2008. NIH Publication No. 08–3892
2. *Executive summary: standards of medical care in diabetes.* *Diabetes Care.* Volume 31, suppl 1, Jan 2008
3. Sutherland JE et al, *Diabetes Management Quality Improvement in a Family Residency Program.* *J. Am Board Fam Pract* 2001; 14:243–51
4. Saadine JB, et al; *A Diabetes report card for the United States: quality of care in the 1990s.* *Ann Intern Med* 136: 565–574, 2002
5. O’connor PJ et al. *Randomized trial of Quality Improvement Intervention to Improve Diabetes Care in Primary Care Setting.* *Diabetes Care* 28:1890-1897, 2005
6. Hahn KA et al. *Diabetes Flow Sheet Use Associated With Guidelines Adherence.* *Ann Fam Med* 2008; 6: 235–238
7. *METRIC (Measuring, Evaluating and Translating Research Into Care).* *Diabetes-Improving patient care.* Available at <http://metric.aafp.org>
8. Resnic HE et al. *Achievement of American Diabetes Association Clinical Practice Recommendations Among U.A. Adults With Diabetes, 1999–2002.* *Diabetes Care: Vol 29, Number 3, 531–537, March 2006*

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Appendix 1. Assessment Tool



**Diabetes: Improving Patient Care  
Chart Review**

**Please note:** "in the past 12 months" means 12 months from the date of the chart review, not the date of the patient's last visit.

**Laboratory**

1. Has the A1C been measured in the past 12 months?  Yes  No
2. Enter the patient's most recent A1C value. \_\_\_\_\_
3. Has the patient received a urine microalbumin protein screen in the past 12 months?  Yes  No  Unknown  Not Applicable (gross proteinuria)
4. Has the a lipid profile been performed in the past 12 months?  Yes  No
5. Enter the patient's most recent total cholesterol value. \_\_\_\_\_
6. Enter the patient's most recent LDL cholesterol value. \_\_\_\_\_
7. Enter the patient's most recent HDL cholesterol value. \_\_\_\_\_
8. Enter the patient's most recent triglyceride value. \_\_\_\_\_
9. Has the patient's blood pressure been measured in the past 12 months?  Yes  No
10. Enter the patient's most recent systolic blood pressure value. \_\_\_\_\_
11. Enter the patient's most recent diastolic blood pressure value. \_\_\_\_\_

**Preventive Care**

12. Has the patient had a dilated retinal exam by an ophthalmologist or optometrist in the past 12 months?  Yes  No  Unknown  Not Applicable (blindness)
13. Has the patient had a complete foot exam (by visual inspection, monofilament and pulse exam) within the past 12 months?  Yes  No  Not Applicable (bilateral amputee)
14. Has the patient received a flu vaccine in the past 12 months?  Yes  No  Not Applicable (egg allergy, Hx of drug interaction, contraindication)
15. Does the chart reflect a recommendation for aspirin therapy (dose  $\geq$  75 mg)?  Yes  No  Not Applicable (patient is < 40 years old, potential interaction, contraindication)
16. Is the patient a smoker?  Yes  No  Not Assessed
17. Does the chart reflect that the patient has been counseled to stop smoking?  Yes  No  Not Applicable (nonsmoker)

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