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Summary and Comments Upon
American Diabetes Association
Clinical Practice Recommendations 2006
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Your Life Your Heath
The Examiner
March 23, 2006

The American Diabetes Association has published its *Clinical Practice Recommendations 2006*. SETMA is currently reviewing the 100-pages of recommendations to make certain that all are incorporated into SETMA's Diabetes Treatment and Prevention program. The following are important additions which have been made to the standards this year:

- Medical nutrition therapy (MNT) has been extensively enhanced
- Diabetes self-management education has been added (DSME)
- Physical Activity has been added to the standards
- New information on Neuropathy (nerve damage and/or dysfunction) has been added

Also the following significant revisions have been made to the standards:

- Point-of-care testing for hemoglobin A1C has been recommended as it allows for timely decision in therapy changes when needed.
- The hemoglobin A1C goal for patient in general is less than 7% but for individual patients is less than 6% which is considered normal. Comment: Actually, even a 6% hemoglobin A1C is too high. A normal person would like for their hemoglobin A1C to be as close to 5 as possible.
- To reduce the risk of nephropathy (kidney disease) protein intake should be limited to the Recommended Dietary Allowance (RDA) which is .8 grams/kilogram of weight in those with any degree of chronic kidney disease.
- Serum creatinine should be measured at least annually for the estimation of glomerular filtration rate (GFR) in all adults with diabetes regardless of the degree of urine albumin (protein) excretion. The serum creatinine alone should not be used as a measure of kidney unction but rather used to estimate GFR and state the level of chronic kidney disease.

What Does the Hemoglobin A1C Mean and Why is it Important?

The hemoglobin A1C is a laboratory test which gives a clinician an indication of what the average blood sugar has been over the past three months. Another name for hemoglobin A1C is glycosylated hemoglobin A1C. When glucose (sugar) is high in the blood, it attaches itself to cells. The glucose damages those cells. A somewhat technical but important concept is that this attachment of glucose to cells which is damaging to the cell is done by a non-enzymatic process, which simply means an abnormal process. There is another means by which glucose attaches itself to cells which is a normal process and is

called enzymatic glycosylation. This normal process is necessary for the body's proper function, while the non-enzymatic glycoslylation is abnormal and damages the nerves, eyes, arteries and other body tissues.

Lowering A1C has been associated with a reduction if microvascular and neuropathic complications of diabetes. Every person who has diabetes should know what their hemoglobin A1C is, and, if it is not 6%, or less, they should take steps to improve it. End-organ damage – blindness, kidney failure, heart disease, nerve damage, etc – occurs when the blood sugar is elevated chronically.

The hemoglobin A1C values correlates with the fasting plasma glucose (FBG, or blood sugar). For instance a hemoglobin A1C of 6% correlates with a FPG of 135. A hemoglobin A1C of 7% correlates with a FPG of 172. Hemoglobin A1 C of 10 correlates with an average FPG over the past three months of 277. End-organ damage begins taking place when the FPG is chronically above 130.

Personal Responsibility

For a person with diabetes to live long and to live well, that person must take personal responsibility for knowing and lowering his/her hemoglobin A1C. This test should be performed at least three times a year. Good control of diabetes will result in a hemoglobin A1C below 6%. If a person with diabetes does not have a 6% or less hemoglobin A1C, then he/she needs to make lifestyle changes – increased exercise, decreased food intake – and change the dosage of medications to achieve that goal. It is impossible to avoid the complications of diabetes without controlling the blood glucose. There are other issues important in treating diabetes, such as blood pressure control, but blood glucose control is imperative.

Diabetes is a moving target

One of the most difficult things about the treatment of diabetes is that it is not a stationary target. As a person ages and/or has other problems, it will affect the control of their diabetes. This means that often, for the best controlled patient with diabetes, changes and adjustments in medication will be required. This is why one of the key elements of the ADA's standards is Diabetic Self Management Education (DSME). Over 100 years ago, the founder of the Joslin Diabetes Center at Harvard University said, "He who knows the most about diabetes will live longest." More than any other disease, patients with diabetes **MUST** learn about their disease, medicine and treatment strategies. That is why SETMA developed a Diabetes Education program which is approved by the American Diabetes Association.

Also, the use of insulin is a very good alternative in almost any person with diabetes. Often, healthcare provides and/or patients imagine that the goal of diabetes treatment is to avoid the use of insulin; that is **NOT** the goal. The goal is to avoid the complications of diabetes – kidney failure, heart disease, heart attacks, blindness, etc. The use of insulin may be the most effective means of gaining and maintaining excellent control of diabetes.

Classification of Diabetes

- Type 1 Diabetes (results form Beta-cell destruction, usually leading to absolute insulin deficiency).
- Type II Diabetes (results from a progressive insulin secretory defect on the background of insulin resistance.)
- Other specific types of diabetes due o other causes, such as genetic defects, defects in insulin action, drug or chemical induced diabetes, etc.)
- Gestational diabetes mellitus (diagnosed during pregnancy)

Diagnosing Diabetes

The guidelines for the diagnosis of diabetes have not changed in 2006 but bear repeating. There are three criteria which are independent of one another:

- Symptoms of diabetes and a casual plasma glucose of 200 mg/liter. Casual is defined a any time of day without regard to time since last meal. The classic symptoms of diabetes include increase urination, increase appetite and unexplained weight loss.
- Fasting Blood Glucose (FBG) 126 mg/dl. Fasting is defined as no caloric intake for at least 8 hours.
- Two hour plasma glucose equal to or greater than 200 mg/dl during an Oral Glucose Tolerance Test (OGTT). The test should be performed as described by the World Health Organization using a glucose load containing the equivalent of 75 grams glucose dissolved in water.

Prevention/Delay of Type 2 Diabetes

The ADA guidelines reiterate long-established strategies for preventing and/or delaying Type II Diabetes. These are:

- Individuals at high risk for developing diabetes need to become aware of the benefits of modes weight loss and participating in regular physical activity.
- Patient with Impaired Glucose Tolerance (IGT, which is a two-hour glucose tolerance test with a glucose below 126 mg/dl but above 100 mg/dl) should be given counseling on weight loss as well as instruction for increasing physical activity.
- Patients with Impaired Fasting Glucose (IFG, which is a blood sugar above 100 after an 8-12 hour fast but below 126) should be given counseling on weight loss as well as instruction for increasing physical activity
- Follow-up counseling appears important for success
- Monitoring for the development of diabetes I those with pre-diabetes should be performed every 1-02 years.
- Close attention should be given to and appropriate treatment given for, other CVE risk factors (e.g.., tobacco use, hypertension, dyslipidemia).

- Drug therapy should not be routinely used to prevent diabetes until more information is know an about its cost-effectiveness.

Strategies for Improving Diabetes Care

And finally, the *Clinical Practice Recommendations for 2006* offer the following strategies for improving diabetes care. SETMA's response to these recommendations is noted following each point.

- Improving health care professional education regarding the standards of care through formal and informal education programs. SETMA continues to provide point-of-care education and provider evaluation functions to assure that all SETMA providers are continually upgrading their skills in treating diabetes.
- Delivery of Diabetes Self Management Education (DSME), which has been shown to increase adherence to standard of care. SETMA's ADA Certified Diabetes Education program majors on DSME as a partnership is created between the provider and the patient for the improving of diabetes care.
- Adoption of practice guidelines, with participation of health care professionals in the process. Guidelines should be readily accessible at the point of service on office computer systems. SETMA's Diabetes Treatment and Prevention Suite of templates make it possible for every provider to perform at a standard of excellence every time a patient is seen with diabetes.
- Use of checklist that mirror guidelines have been successful at improving adherence to standards of care. These check lists are already part of SETMA's diabetes treatment program.
- Systems changes, such as provision of automated reminders to health care professionals and patients, reporting of process and outcome date to providers, and especially identification of patients at risk because of failure to achieve target values or a lack of reported values. SETMA audits provider performance and provides the means for providers to evaluate their own performance measuring themselves against national standards of care.
- Quality improvement programs combining continuous quality improvement of other cycles of analysis and intervention with provider performance date. This is a natural consequence of SETMA's functions which are identified above.
- Practice changes, such as clustering of dedicated diabetes visits into specific times within a primary care practice schedule and/or visits with multiple health care professionals on a single day and group visits. SETMA's diabetes clinic led by a board-certified endocrinologist employs this method for improving diabetes care.
- Tracking systems with either an electronic medical record or patient registry have been helpful at increasing adherence to standards of care by prospectively identifying those requiring assessments and/or treatment modifications. They likely could have greater efficacy if they suggested specific therapeutic interventions to be considered for a particular patient at a particular point in time. As already mentioned SETMA's Diabetes Treatment and Prevention program already does this.

- Dietitians and nurse educators using MNT guidelines have been demonstrated to improve glycemic control. SETMA's ADA approved education program works hand-in-hand with clinicians to improve diabetes care.
- Availability and involvement of expert consultants, such as endocrinologists and diabetes educators. SETMA does both. SETMA's Metabolism Task Force includes Ophthalmology, Nephrology, Endocrinology, Podiatry, Diabetes Educators and Nutritionist, Lipid Clinic, Diabetes Clinic, Hypertension Clinic, Metabolic Syndrome Clinic, Weight Management, and Exercise Counseling. All work together to provide the highest standard of care and the highest quality of life possible.

Remember, it is your life and it is your health.