

September 2011

### **Expanded ABC's of Diabetes**

The A,B,C's of Diabetes are for people who have diabetes. This expanded A,B,C's of diabetes is a summary of clinical practice recommendations for diabetes educators. This is a review of an article in Clinical Diabetes Volume 21, Number 3, 2003. The goals in this article were compared with the Clinical Practice Recommendations published in January 2011 as a supplement to Diabetes Care. When there were differences, information from the Clinical Practice Recommendations was used.

#### **A: A1C**

Blood glucose control is judged by a combination of the patient's self-monitoring and the current A1C result. Patients who are meeting treatment goals should have an A1C performed twice a year. A1C should be performed quarterly on those patients who treatment is being changed or are not meeting treatment goals. The A1C goal is less than 7%. The goal for fasting glucose or before meals is 90-130 mg/dl. The peak blood glucose level after a meal should be below 180 mg/dl.

#### **B: Blood Pressure/Microalbumin**

Blood pressure should be measured at each patient visit. A patient with a systolic blood pressure (top number) of 130 mmHg or above or a diastolic blood pressure (bottom number) of 140 or above should have blood pressure taken on a separate day to establish the diagnosis of high blood pressure. The blood pressure goal is below 130/80. The 2011 Clinical Practice Recommendations states: multiple drug therapy (two or more agents at maximum doses) is generally required to achieve blood pressure targets.

Patients with type 1 diabetes for 5 years or more and all patients with type 2 diabetes should be screened for microalbumin in the urine yearly. The goal is to manage diabetes to prevent microalbuminuria or to minimize it once it is found. In patients with type 1 diabetes with or without high blood pressure, ACE inhibitors have been found to delay progression to macroalbuminuria. In patients with type 2 diabetes, high blood pressure and microalbuminuria, ACE inhibitors and ARB's have been shown to delay the progression to macroalbuminuria.

#### **C: Cholesterol/Aspirin**

Patients with diabetes are more likely to have high cholesterol levels and that contributes to higher rates of heart disease. For adults with diabetes, lipids should be tested once a year and

more often while achieving goals. Adults with lipid levels that meet the goals listed below can be tested every two years.

The main lipid goal is LDL cholesterol below 100 mg/dl. Other goals are to lower triglyceride levels below 150 mg/dl and to raise HDL cholesterol above 40 mg/dl. In women a goal of HDL above 50 mg/dl may be appropriate.

The Clinical Practice Guidelines state that aspirin therapy should be considered for those with type 1 or type 2 diabetes, at increased cardiovascular risk. This includes most men above 50 years or women above 60 years of age who have at least one major risk factor. Risk factors include a family history of heart disease, high blood pressure, smoking, elevated lipid levels or albuminuria.

#### **D. Diabetes Education**

Medical nutrition therapy (MNT) and diabetes self-management helps patients reach blood glucose management goals and helps prevent diabetes related complications. Diabetes self-management education is the process of providing people with diabetes the knowledge and skills to perform self-care on a day to day basis. People with diabetes should receive individualized medical MNT as needed to achieve treatment goals, preferably provided by a RD familiar with diabetes MNT. Medical treatment of diabetes without systematic self-management is not acceptable care. Studies have shown that self-management education leads to reductions in the costs associated with all types of diabetes. Many experts recommend that patients visit with a nurse diabetes educator and a dietitian diabetes educator at least once a year.

The goal of diabetes education is to equip patients to understand their diabetes and to actively participate in the care process in order to prevent diabetes related complications. Diabetes education also helps patients adopt healthier lifestyles, including physical activity. Patients may be referred to smoking cessation programs.

#### **E. Eye Examinations**

Regular eye exams can prevent blindness from diabetes. Diabetic retinopathy is the most frequent cause of new cases of blindness among adults.

The Clinical Practice Guidelines state that adults and children over 10 years of age with type 1 diabetes should have an initial dilated and comprehensive eye examination by an optometrist or ophthalmologist within 5 years of diagnosis. Patients with type 2 diabetes should have an initial dilated and comprehensive eye exam by an optometrist or ophthalmologist shortly after

the diagnosis of diabetes. After the initial examination, patients should have an examination once a year. More frequent will be needed if retinopathy is progressing.

The goal eye of examination is the early detection of retinopathy. This allows for intervention with effective treatment to preserve vision.

#### **F. Foot Examinations**

Regular foot examinations and proper foot care can prevent disability, including amputations. Diabetic neuropathy (nerve damage) is the most common cause of foot ulcers and amputation. A comprehensive foot exam should be performed once a year to identify risk factors for ulcers and amputations. At least in patients with a history of abnormal foot exams, a visual examination of the feet should be performed at each visit.

The goal of foot examinations is to identify people at increased risk for amputation and to educate all patients about the risk and prevention of foot problems. Comprehensive foot care programs can reduce amputation by 45-85%.

#### **G. Glucose monitoring**

Monitoring blood glucose is a cornerstone of diabetes care. For most patients with type 1 diabetes and for pregnant women taking insulin, self-monitoring of blood glucose (SMBG) is recommended 3 or more times daily. For patients with type 2 diabetes the frequency of SMBG should be sufficient to reaching glucose goals.

The goal is for patients to use SMBG data to adjust food intake, physical activity or medications to achieve blood glucose goals and to prevent hypoglycemia.

#### **H. Health Maintenance**

The health maintenance practice of immunization to prevent infections from influenza and pneumococcal pneumonia is very important for people with diabetes.

The goal as stated by the Clinical Practice Recommendations is to provide an influenza vaccine each year to all persons with diabetes 6 months of age and above. Pneumococcal vaccine should be given to all persons with diabetes 2 years of age and older once in a lifetime. A one-time revaccination is recommend for persons over 64 years if the vaccine was given more than 5 years ago.

## **I. Indications for Specialty Care**

There are circumstances when additional health care professionals may need to be involved with the diabetes team.

### Referral for diabetes management

- A patient may need to see a diabetes educator, RD or need a referral to an endocrinologist for improved blood glucose control.
- Hospitalized patients should be treated by a physician with expertise in the management of diabetes.

### Referral for diabetic eye disease

- Any patient with any level of macular edema, severe non-proliferative diabetic retinopathy or any proliferative diabetic retinopathy should be referred to an ophthalmologist who is experienced in the management and treatment of diabetic retinopathy.

### Referral for management of hypertension and renal disease

- Patients not achieving blood pressure on three drugs and /or patients with significant renal disease should be referred to a specialist experienced in the care of patients with hypertension.

### Referral for foot care

- Refer high-risk patients to foot care specialists for preventive care and surveillance.
- Refer patients with significant claudication for vascular assessment and consider exercise and surgical options.

### Refer for cardiac evaluation

- Refer patients with signs and symptoms of cardiovascular disease or with a positive non-invasive test for coronary disease to a cardiologist for further evaluation.

## **The Link between a High Fat Diet and Type 2 Diabetes**

A diet high in saturated fat contributes to Type 2 diabetes. People with Type 2 diabetes have over active immune responses. People who have Type 2 diabetes are usually obese and resistant to insulin. It wasn't known how these characteristics were related.

New research from the University of North Carolina at Chapel Hill School of Medicine helps explain the connections. The study found that saturated fat, but not unsaturated fat, can activate immune cells to produce an inflammatory protein, called interleukin-1beta.

The cellular path that mediates fatty acid metabolism is also the one that causes interleukin-1beta production. Interleukin-1beta then acts on tissues and organs such as the liver, muscle and fat to turn off their response to insulin. This makes them insulin resistant. Activation of this pathway by saturated fat can lead to insulin resistance and Type 2 Diabetes symptoms.

*Nature Immunology April 10, 2011*

### **Rinsing Canned Beans**

A study conducted at the University of Knoxville showed that draining canned beans removes, on average, 36% of the sodium. Draining and rinsing canned beans removes, on average, 41% of the sodium.

*Jone JB and Mount JR. Sodium Reduction in Canned Bean Varieties by Draining and Rinsing. Poster presentation at the 2009 International Food Technologists meeting. July 2009*

### **American Diabetes Association eBooks**

The American Diabetes Association offer eBook versions of almost every book that they publish. eBooks can be delivered digitally straight to an eReader, smart phone or computer. You can buy eBooks directly from [www.Shopdiabetes.org](http://www.Shopdiabetes.org) Type in the name of the book you want and click on ePub.

### **Web Sites**

Diabetes Living Magazine

[www.diabeticlivingonline.com](http://www.diabeticlivingonline.com)

Diabetic Living Magazine is from Better Homes and Garden. You can sign up for the Diabetic Living Weekly Update Newsletter. The webpage has recipes and information on Type 1 and Type 2 Diabetes. Click on Diabetes Educators. You can get materials to share with patients. There are Healthy Eating Tips Sheets and Diabetic Recipes Tip Sheets.

Cooking Light Magazine

<http://www.cookinglight.com/food/recipe-finder/>

Ethnomed

<http://ethnomed.org/patient-education/diabetes>

This page has diabetes education materials in several languages including Spanish, Vietnamese and English.

Diabetes in Michigan Resources

[www.diabetesinmichigan.org/gpeducationhandoutlisting.htm](http://www.diabetesinmichigan.org/gpeducationhandoutlisting.htm)

This is a 4 page listing of diabetes education materials on complications, management/general, nutrition, physical activity, prevention and for professionals.

Diabetes Health Sense

<http://ndep.nih.gov/resources/diabetes-healthsense/index.aspx>

Diabetes Health Sense is an on-line library with key details about more than 140 resources, focused on behavior changes to help people live well with or without diabetes. Each of the cataloged resources was reviewed by a team of leading independent experts in psychosocial issues with expertise in the science of behavior change.

Kitchen Creations schedule

[http://www.diabetesnm.org/programs/kitchen\\_creations\\_schedule.htm](http://www.diabetesnm.org/programs/kitchen_creations_schedule.htm)

This is the link to the schedule of Kitchen Creations cooking schools in the counties around the state.

Diabetes Education Society

[www.diabetesedu.org](http://www.diabetesedu.org)

This website has information for health care professionals and for people with diabetes, their families and friends. Materials can be purchased and downloaded.

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