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Diabetes Mellitus: Screening, Prevention, Care

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Your Life Your Health

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Recently I read and distributed to all of SETMA's healthcare providers, nurses and management the twenty-six page "Guidelines for the Nutritional Management of Diabetes Mellitus in the New Millennium, A Position Statement by the Canadian Diabetes Association," which was reprinted from the *Canadian Journal of Diabetes Care*.

This material, along with other recent publications, has given me a new appreciation of the complexity of excellent care of the patient with diabetes and has caused me to rethink how we approach diabetes care at SETMA. The **good news** is that diabetes can be more effectively treated today than ever before with a greater potential for avoiding the complications of diabetes. The **reality**, however is that patients have a greater responsibility for their own care with diabetes than with virtually any other disease process. The **bad news** is that many people have diabetes and do not know it and many people are actively developing diabetes and do not know it.

In 2002, the American Diabetes Association issued the follow statement: *It is time for all health professionals to treat diabetes aggressively. It is also time for patients to take their diabetes with utmost seriousness. And it is incumbent upon the healthcare system to provide the necessary resources for both to be successful. Compromise or acceptance of a disadvantageous and dangerous status quo in people with diabetes should not be tolerated any longer.*

Experts on diabetic care have estimated that 95% to 99% of diabetes care is related to self-care. Furthermore, clients who actively manage their own diabetes care have better outcomes than those who do not. For these reasons, an educational approach that facilitates informed decision making on the part of the patient is widely advocated. This is sometimes referred to as the "empowerment approach" to patient education.

The founder of the Joslin Diabetes Center in Boston, Massachusetts, Dr. Elliott P. Joslin, enunciated this approach to the care of diabetes almost 100 years ago when he said, "The person with diabetes Mellitus who knows the most lives longest."

Diabetes Type 2 Can be Prevented

Recent evidence in the medical literature has added another dimension to the care of diabetes and that is that 58% of new cases of type II diabetes can be avoided by early detection of pre-diabetes and aggressive management of patients with weight loss and exercise. It is this knowledge which motivated SETMA to expand its **LESS**

Initiative (see *The Examiner* for December 9, 2004 or see Your Life Your Health at www.jameslhollymd.com) to include the major risk factors for the development of diabetes. As a

result, in January, 2005 alone, over 6,000 patients were challenged by SETMA with their risk of developing diabetes and with their need to:

- **L**ose weight
- **E**xercise
- **S**top **S**moking and/or being exposed to second-hand smoke

In keeping with this philosophy of diabetic care, SETMA has initiated the following:

1. A screening program for pre-diabetes
2. A screening program for diabetes
3. A screening program for insulin resistance
4. A diabetes exercise program which analyzes each patient with diabetes for the complications of diabetes which would impact the safety of the types of exercise which they can and should undertake.
5. An education program for patients with pre-diabetes, diabetes and insulin resistance.
6. A diabetic clinic designed specifically for the excellent treatment of diabetes mellitus.

In his book, *The Fifth Discipline*, Dr. Peter Senge of the Massachusetts Institute of Technology, stated, "The more complex a problem is, the more systemic the solution must be." To ask a single person if they smoke, or to evaluate a single person for the presence of a disease which has few symptoms, i.e., pre-diabetes, is relatively easy. The complexity evolves from the desire to do that with every patient who is seen, every time they are seen, at any of SETMA's clinics.

In keeping with Dr. Senge's model of a systemic solution, SETMA has created tools which facilitate the evaluation of patients in each of the above areas and which allow SETMA's management to audit whether or not each an every patient has been evaluated for each of the conditions mention.

Screening Program for pre-diabetes

The realization of the task which a diabetic has in order to maintain their health motivates us to become more aggress in treating diabetics, but it also lets us know that the best way to treat diabetes is not to develop it. While that is not possible with some patients, particularly those with type I diabetes, it is possible with patients who are pre-diabetic.

The diagnosis of pre-diabetes is relatively easy to make. First, patients at risk of developing diabetes can be identified (for more details on these see *The Examiner* 16, 2004 or see *Your Life Your Health* at www.jameslhollymd.com) They are patients with:

1. A family history of diabetes type 2, hypertension or cholesterol problems.

2. A Body Mass Index (BMI) over 25%, this problem includes 90% of Americans over the age of 40 and/or a waist in males of 38 inches and in females of 35 inches.
3. A birth weight under 2,500 grams (about 5 pounds 7 ounces)
4. A blood pressure over 130/80
5. An abnormal total cholesterol, HDL and/or triglycerides
6. Non-Caucasian ethnicity
7. And, females who had diabetes when they were pregnant.

Unfortunately, it only takes one of these to place you at higher risk of developing diabetes than the average, which means that more people are at risk than think they are.

Second, each person who is at risk of developing diabetes needs to have a blood glucose (sugar) determined after a twelve-hour fast. If your blood sugar, after a twelve hour fast is over 100 and less than 126, you are pre-diabetic and you need aggressive treatment to prevent the development of diabetes. You also need blood glucose to be determined after a 75-gram-glucose challenge. This is called a glucose tolerance test. If your blood sugar is between 140 and 200, two hours after this challenge, you are pre-diabetic.

Pre-diabetes and its risk of diabetes

A person with a fasting blood glucose between 100-126 is said to have *impaired fasting glucose*, and each such person needs to have a glucose tolerance test. Those who have a blood glucose between 140-200 after a 75-gram glucose load, are said to have *impaired glucose tolerance*. Patients with both conditions are pre-diabetic, but those with impaired glucose tolerance are at much higher risk of developing diabetes, although those with impaired fasting glucose are also at risk.

Patients identified with pre-diabetes can reduce their risk of developing diabetes in the following ways:

1. **L**oss weight
2. **E**xercise
3. **S**top **S**moking

Recognize this trilogy? Therefore, in future visits to SETMA, you can be expected to have your risk of developing diabetes assessed by your healthcare provider and the healthcare team at SETMA.

Finally, in a very large study of nurses, the Nurses Health Study, the subgroup found to have a low risk of diabetes:

1. had a low BMI;
2. consumed a diet high in cereal fiber (see *The Examiner* July 31, 2003 or Your Life Your Health at www.jameslhollymd.com)

3. had a diet high in polyunsaturated fat (see *The Examiner* September 4, 2003 or Your Life Your Health at www.jameslhollymd.com)
4. had a diet low in trans-fatty acids (see *The Examiner* for March 6 and June 12, 2003 or Your Life Your Health at www.jameslhollymd.com)
5. used food with low glycemic index (see *The Examiner* August 8 and 15, 2002 and June 12, 2003 or see Your Life Your Health at www.jameslhollymd.com)
6. engaged in moderate to vigorous physical activity for at least half an hour a day;
7. did not currently smoke
8. did consume 5g of alcohol or more

The study concluded, “The epidemiologic data from the Nurses Health Study suggest that physicians should counsel their patients of lifestyle interventions that may help reduce the risk of...diabetes, with the exception of recommending daily alcohol intake to nondrinkers.”

Screening for Diabetes

In the same process of screening for pre-diabetes, patients unknown to have diabetes can be discovered. By the following definitions, you have diabetes if:

1. You have two twelve-hour fasting glucoses above 126.
2. You have a non-fasting glucose over 200.
3. You have a glucose over 200, two hours following a 75 gram glucose load, i.e., in a glucose tolerance test.

The imperative for discovering diabetes is that most patients have had it for several years before knowing it and many already have eye damage or kidney damage from diabetes before they ever become aware that they have it. If you have any of the risk factors listed above, ask your healthcare provider for a diabetes screen immediately. If you are negative and have several risk factors, make sure you lose weight, exercise, stop smoking and get checked again every three years.

Insulin Resistance

Before a person develops diabetes type 2, they will be resistant to the effect of insulin on their body. (For more on insulin resistance see *The Examiner* May 29 and June 5, 2003 or Your Life Your Health at www.jameslhollymd.com.) Because patients with insulin resistance do not respond properly to insulin, their body makes more and more insulin. While insulin is needed for normal processing of glucose and fat, excessive insulin will cause premature aging of the body. And, when the pancreas has to produce more and more insulin, eventually the cells in the pancreas which produce insulin wear out. That is when diabetes develops.

The solution is to deal with insulin resistance before diabetes develops. But, how do you lower your insulin levels and increase your body's response to insulin? Will you be surprised if I tell you it is by:

Losing Weight

Exercising

Stopping **S**moking

In addition, the following foods will contribute to elevated insulin levels and insulin resistance:

1. Fruit Juices
2. Coffee
3. Junk Food
4. Artificial Sweeteners
5. Sugar
6. Breads
7. Vegetarian diets
8. Cakes and cookies
9. Dried Fruit
10. Sweets
11. Soft Drinks
12. Pasta
13. High complex carbohydrate/ low protein diets.

SETMA is committed to improving the care of diabetes by both helping those who have diabetes learn to take care of themselves and by helping those at risk of diabetes avoid its development. Next week, the diabetic exercise prescription, how is it different?

Remember, it is your life and it is your health. You are responsible for your own life and your own health.