

# **James L. Holly, M.D.**

## **Prevention of and the Screening for Diabetes Part 2 Diabetes Prevention Program at SETMA**

**By James L. Holly, MD**

**Your Life Your Health**

**The Examiner**

**January 26, 2012**

SETMA has had a Diabetes Prevention Program for over 14 years, but while excellence in the treatment of diabetes is the mission of SETMA's diabetes treatment program, because we also see thousands of patients who are not diagnosed with diabetes and because there are millions of Americans who have diabetes and don't know it, we must be vigilant to recognize those who do have undiagnosed diabetes. And, we must be attentive to those patients who should be screened for diabetes; to those who are at high risk of developing diabetes, and particularly to those who have pre-diabetes.

It would be tragic, we think, to be giving excellent care to patients diagnosed with diabetes and to be seeing patients who have diabetes and not be giving them excellent care because we did not make the diagnose. As a result, SETMA continually renews our commitment to screen our patients appropriately for diabetes, to identify those who are at risk of diabetes and to make every attempt to help our patients who are at risk avoid progressing to full-blown diabetes.

### **The Steps of SETMA's Diabetes Prevention Program (DPP)**

The first step in the screening for and the preventing of diabetes is to always have it in the forefront of our attention as we see all patients in the clinic, the nursing home, the hospital or other sites. SETMA does this through our electronic health record.

All providers start seeing a patient from what we refer to as the AAA Home template. This template lists all of our electronic patient management tools and alerts healthcare providers and nurses to those tools which need to be reviewed and completed for each patient. .

At the top of AAA Home is the Pre-Visit/Preventive Screening Template. When that template is opened, the following appears.

## Pre-Visit/Preventive Screening

### General Measures (Patients >18)

Has the patient had a tetanus vaccine within the last 10 years?

Date of Last

Has the patient had a flu vaccine within the last year?

Date of Last

Has the patient ever had a pneumonia shot? (Age>50)

Date of Last

Does the patient have an elevated (>100 mg/dL) LDL?

Last

Has the patient been screened at least once for HIV? (Age 13-64)

Date of Last

Testing not required if patient refused or if positive diagnosis previously confirmed.

☒ Click If Patient Refuses Testing

### Elderly Patients (Patients >65)

Has the patient had an occult blood test within the last year? (Patients >50)

Date of Last

Has the patient had a fall risk assessment completed within the last year?

Date of Last

Has the patient had a functional assessment within the last year?

Date of Last

Has the patient had a pain screening within the last year?

Date of Last

Has the patient had a glaucoma screen (dilated exam) within the last year?

Date of Last  *Add Referral At Right*

Does the patient have advanced directives on file or have they been discussed with the patient?

Discussed?  Completed?

Is the patient on one or more medications which are considered high risk in the elderly?

### Diabetes Screening

Is Diabetes screening appropriate for this patient?

Pre-Diabetic Patients

If pre-diabetic, has the patient had a HgbA1c test within the last year?

Date of Last

### Diabetes Patients

Has the patient had a HgbA1c within the last year?

Date of Last

Has the patient had a dilated eye exam within the last year?

Date of Last  *Add Referral Below*

Has the patient had a 10-gram monofilament exam within the last year?

Date of Last

Has the patient had screening for nephropathy within the last year?

Date of Last

Has the patient had a urinalysis within the last year?

Date of Last

Has the patient ever been referred to DSME?  Has the patient been referred to DSME within the last two years?

*Add Referrals Below*

### Female Patients

Has the patient had a pap smear within the last two years? (Ages 21 to 64)

Date of Last  *Add Referral Below*

Has the patient had a mammogram within the last two years? (Ages 40 to 69)

Date of Last  *Add Referral Below*

Has the patient had a bone density within the last two years? (Age >50)

Date of Last  *Add Referral Below*

### Male Patients

Has the patient had a PSA within the last year? (Age >40)

Date of Last

Has the patient had a bone density within the last two years? (Age >65)


Date of Last  *Add Referral Below*

### Referrals (Double-Click To Add/Edit)

Referral	Status	Referring

Outlined in red, you will see the Diabetes Screening, which alerts the provider and nurse to the fact that a patient needs diabetes screening and it has been done, or that the patient needs screening and it has not been done.

As you can see on AAA Home which is displayed below, the second tool listed under "Preventive Care" is entitled "Preventing Diabetes." When the patient being seen meets the criteria for needing screening for diabetes, the title "Preventing Diabetes" will be displayed in red.



Patient  Sex  Age  Patient's Code Status

Home Phone  Date of Birth

Work Phone

**Patient has one or more alerts!**  
[Click Here to View Alerts](#)

[Pre-Vist/Preventive Screening](#) [Bridges to Excellence](#)

**Preventive Care**

[SETMA's LESS Initiative](#)

Last Updated

[Preventing Diabetes](#)

Last Updated

[Preventing Hypertension](#)

[Medical Home Coordination](#)

**Needs Attention!!**

[HEDIS](#) [NQF](#) [PQRI](#)

[Elderly Medication Summary](#)

**Exercise**

[Exercise](#)

[CHF Exercise](#)

[Diabetic Exercise](#)

Patient's Pharmacy

Phone

Fax

**Template Suites**

[Master GP](#)

[Pediatrics](#)

[Nursing Home](#)

[Ophthalmology](#)

[Physical Therapy](#)

[Podiatry](#)

[Rheumatology](#)

**Hospital Care**

[Hospital Care Summary](#)

[Daily Progress Note](#)

[Admission Orders](#)

**Pending Referrals**

Status	Priority	Referral	Referring Provider
Completed	Routine	Echocardiogram	Henderson
Completed	Routine	CT	Henderson
Completed	Routine	Bone Density	Henderson
Completed	Immediate	Nephrology	Ahmed
Completed	Immediate	Sotolongo, Rodolfo	Aziz
Completed	Immediate	Holland Jr, Ivanah	Aziz

**Disease Management**

[Diabetes](#)

[Hypertension](#)

[Lipids](#)

[Acute Coronary Syn](#)

[Angina](#)

[Asthma](#)

[Cardiometabolic Risk Syn](#)

[CHF](#)

[Diabetes Education](#)

[Headaches](#)

[Renal Failure](#)

[Weight Management](#)

**Last Updated**

**Special Functions**

[Lab Future](#)

[Lab Results](#)

[Hydration](#)

[Nutrition](#)

[Guidelines](#)

[Pain Management](#)

**Information**

[Charge Posting Tutorial](#)

[Drug Interactions](#)

[E&M Coding Recommendations](#)

[ICD-9 Code Tutorial](#)

[Insulin Infusion](#)

**Chart Note**

It must be remembered that there are not only two categories of patients in regard to diabetes, i.e., those who have it and those who do not, but there are two other categories. There are patients who are at high risk of diabetes and there are patients who have already been designated as having pre-diabetes. Pre-diabetes is a condition where a patient has progressed to a point where their ability to handle blood sugar is affected negatively and to where they have an increased risk of heart disease and other complications, which, while not as severe as a patient who has diabetes, is more severe than a person who is simply at higher risk for the development of diabetes.

SETMA's DPP mission is to identify these groups:

1. Patients who have diabetes
2. Patients who don't have diabetes
3. Patients who are at high risk for diabetes
4. Patients who have pre-diabetes
5. Patients who, while they are not at high-risk and/or who do not have pre-diabetes, nevertheless are of an age or condition that they should be screened for diabetes.



In this context, when a healthcare provider "clicks on" the "Preventing Diabetes" title, the following template is deployed.

**Preventing Diabetes** Patient: [Redacted]

[Screening Recommendations](#) [Predicting Diabetes](#) [Screening Insulin Resistance](#) [IFG and IGT](#) [Current Strategies](#)  
[Could You Have Diabetes and Not Even Know It?](#) [Reducing Your Risk](#) [LOW Risk of Developing Diabetes](#)

**Return**  
**Document**

Prediabetics have an atherogenic pattern of CV risk factors which are predominantly observed in prediabetics with increased HOMA IR and fasting insulin, i.e., insulin resistance.

Diagnosis	Fasting Test	Casual Test
Diabetes	> 126 mg/dL	> 200 mg/dL
<a href="#">Pre-Diabetes</a>	100 - 125 mg/dL	140 - 199 mg/dL
None	< 100 mg/dL	< 140 mg/dL

**Vital Signs**

Height	64.00	Waist	42.00
Weight	130.00	Hips	35.00
BMI	22.31	Ratio	.00
Body Fat	45	Blood Pressure	/ /
BMR			
Protein Req			

**Fasting Lab Results** [Check for New Labs](#)

FPG	136	Cholesterol	212	12/02/2009
2-Hr OGTT	1115/2009	HDL	36	12/02/2009
		LDL	145	12/02/2009
		Triglycerides	312	12/02/2009
		Magnesium	/ /	

**DM Prediction Rule**  
4 > 4 doubles the risk of DM

**Treatment**

Insulin Resistance	Homocysteine
Impaired Fasting Glucose	hsCRP
Hypertriglyceridemia	Endothelial Dysfunction

**Diabetic Education Referral (Double-Click)**

Priority	Referring First	Referring Last	Referral
Routine	Dia	Abochamah	asdf

**Links**

[Insulin Resistance](#) [Hypertension Mgmt](#) [Weight Mgmt](#) [Exercise](#) [Lipids Mgmt](#) [Metabolic Syndrome](#) [Smoking Cessation](#)

**Patient Information**  
[What is Pre-Diabetes?](#)  
[Carb Confusion](#)  
[What To Do About It](#)  
[Taking Steps To Prevent](#)  
[You Have The Power](#)  
[More Than 50 Ways To Prevent](#)  
[Importance of Glycemic Index](#)  
[Applying the Glycemic Index](#)  
[Glycemic Load](#)  
[Insulin - Friend or Foe](#)  
[Hyperinsulinemia](#)  
[Hunger, Insulin, and Meals](#)  
[Hunger, Fat, and Fav Foods](#)  
[Print All](#)

**Provider Information**  
[Glycemic Index and Prevention](#)  
[Weight Loss](#)  
[Physical Activity](#)  
[Behavior Modifications](#)  
[Summary of Studies](#)  
[Lifestyle and Diabetes](#)  
[Visceral Fat](#)  
[Insulin Resistance Summary](#)  
[Questions and Answers](#)

While this template appears busy, it contains a wealth of information which is valuable to a patient's health. The following is a description of its content:

1. Across the top are eight tools which are described below.
2. Next there are the definitions of diabetes and of pre-diabetes. These are the standards of diagnoses which your provider will use in evaluating your status. One new standard will be added and that is if your hemoglobin A1C is 6.5% or greater on two occasions, you also have diabetes. The following is a brief summary of how diabetes is diagnosed:
  - A patient has fasting blood glucose of 126 mg/dl on two separate occasions.
  - A patient has a random blood glucose of 200 mg/dl or higher
  - A patient has a 2-hour Glucose Tolerance Test with a two-hour blood glucose value of 200 or greater.
  - A patient has a HgbA1C of 6.5% or higher on two different days.
3. A patient's vital signs, fasting lab results and cholesterol results. The reason for this is that blood pressure and cholesterol are critical parts of the treatment of diabetes, pre-diabetes and those who are at high risk of the development of diabetes.
4. Treatment of conditions associated with pre-diabetes, diabetes and those at high risk of the development of diabetes.
5. Links to other patient management tools which will be used in SETMA's DPP.

- Down the right-hand side of the template are a series of education pieces which the provider can give to patients, which will help them manage their health. Patients are encouraged to ask their provider to print these materials.

The first tool listed at the top of this screen is entitled "Screening Recommendations." When the tool is deployed it is entitled "Recommendations to Delay or Prevent Diabetes."

**Diabetes Screen**

### Recommendations to Delay or Prevent Diabetes

Individuals at high risk for developing diabetes need to become aware of the benefits of modest weight loss and participating in regular physical activity.

**Screening Recommendations for Pre-Diabetes (IFG, IGT)**

- ☐ Patients > 45 years of age (recommended)
- ☐ Patients > 45 years of age with a BMI > 25 (required)
- ☐ Patients < 45 years of age, BMI > 25 plus any one of the following risk factors (required)
  - ☐ Yes ☒ No Family history of diabetes?
  - ☒ Yes ☐ No Non-Caucasian ethnicity?
  - ☒ Yes ☐ No Dyslipidemia?
  - ☒ Yes ☒ No Hypertension?
  - ☐ Yes ☒ No Personal history of gestational diabetes or a baby weighing > 9 pounds?
- ☐ In individuals with normoglycemia, rescreening at 3-year intervals is sufficient.

**How To Screen**

- ☒ Fasting Plasma Glucose Test *Sent Successfully*
- ☒ 2-hour OGTT (75 gram glucose load) (if FPG > 110)
- ☐ Positive test results should be confirmed at another office visit on another day.

When deployed this tool automatically assesses whether screening for diabetes is "recommended" or "required." The healthcare provider does not have to "look up" this information. The electronic health record automatically collects the results from structured fields in the record and alerts the provider to check whether or a patient needs screening. This is the same material on the basis of which the "Preventing Diabetes" button on AAA Home is turned red or not.

If a patient requires screening, the provider will click the button entitled "Order These Tests." At that point a message will appear asking if the patient has been fasting for twelve hours. If the patient has, the Fasting Plasma Glucose can be ordered at that time.

If the Fasting plasma glucose is between 100 and 125, the patient will be diagnosed with "Impaired Fasting Glucose". This is a Pre-diabetes condition and it is a more serious condition

If the 2-hour result of the 2-hour Glucose tolerance test is between 140 and 199, the patient will be diagnosed with "Impaired Glucose tolerance". This is also a Pre-diabetes condition and it is even more serious than Impaired Fasting Glucose. It should result in immediate and serious alterations of life style in order to delay or prevent the onset of diabetes. Those steps are weight reduction, dietary counseling and modification and a regular, consistent exercise program. Also, control of cholesterol and blood pressure should be achieved and maintained.

If a patient is over 65 years of age, this tool allows the provider to estimate the risk of the development of diabetes without first doing a 2-hour Glucose Tolerance Test. The details of this tool can be read on the template. Again, the content is automatically displayed. If the score is above 4, the patient is at higher risk of developing diabetes and preventive steps should be taken.

Diabetes Predict

Predicting the Development of Diabetes in Older Adults:  
The derivation and validation of a prediction rule.  
*Diabetes Care, Volume 28, Number 2, February, 2005*

Objective

To create a simple prediction rule that could perform as well as the 2-hour post challenge plasma glucose test to predict those at risk for diabetes.

Conclusion

1. Advanced age,

2. female sex,

3. fasting plasma glucose and

4. triglycerides

were able to predict adults at risk for diabetes equally as well as the 2-hour Post challenge Plasma Glucose (PCPG).

Sex

F

Age

108

yrs

Triglycerides

312

mg/dL

Fasting Glucose

136

mg/dL

Calculate >>

4

points

Last Updated

09/25/2010

Interpretation

A score of 4 or higher doubled the likelihood of an abnormal post challenge glucose test result. This rule could help clinicians to better identify individuals with abnormal glucose tolerance, who should be targeted for interventions to prevent diabetes.

OK

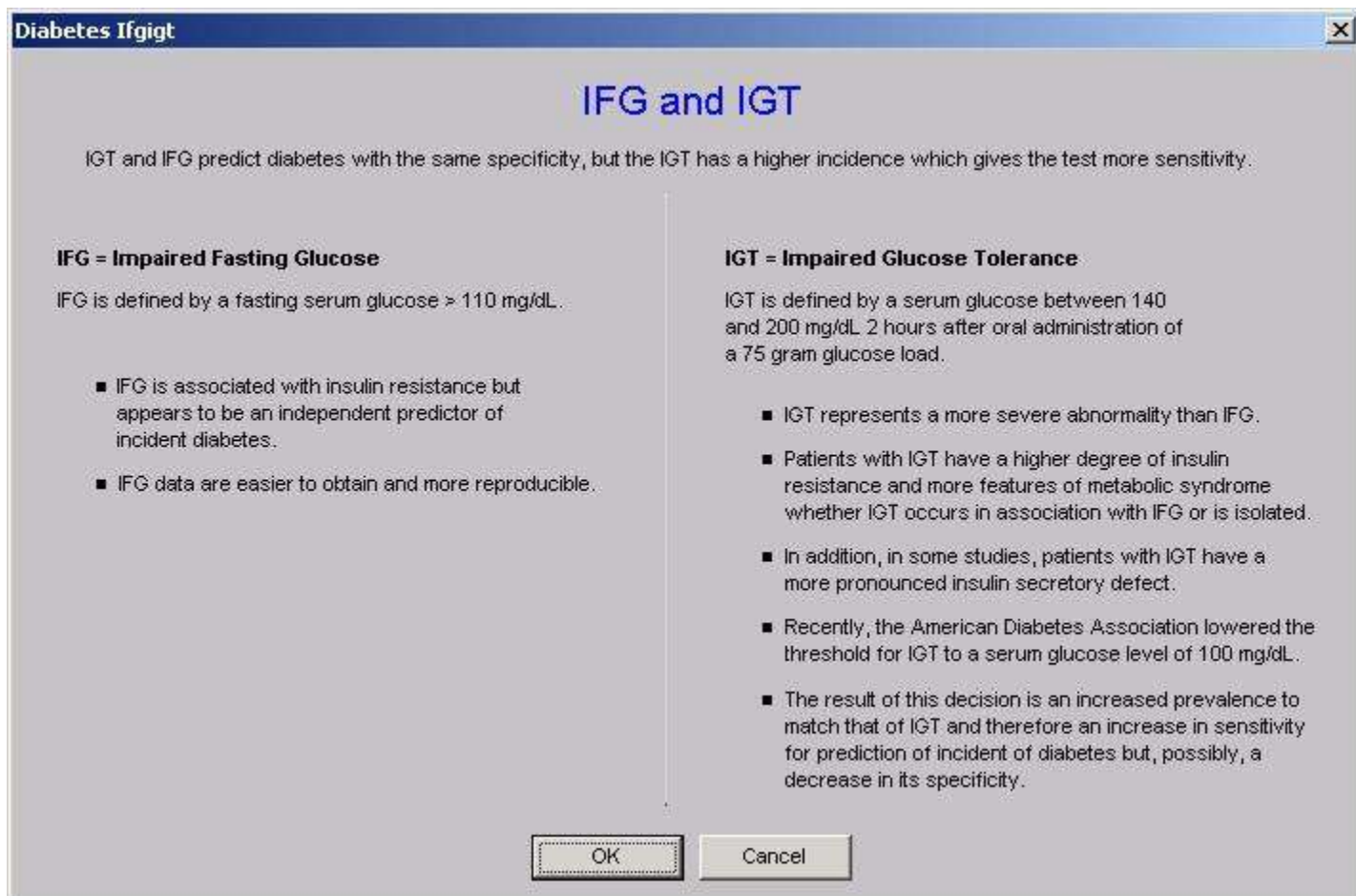
Cancel

And, if the patient's result is 4 or over, the provider may want to order a 2-hour GTT, although new standards allow diabetes to be diagnosed on the basis of non-fasting hemoglobin A1c results.

## IFG and IGT

One of SETMA's guides for developing electronic patient management tools is to display all of the information a provider needs in order to provide excellent care to a patient. This is based on our desire to make sure that a provider has access not just to what he/she knows but to what is known about a condition. And, it is based on the principle that what all a person absolutely must remember, is often forget, but that which a person does not have to remember, is rarely forget. Therefore, we try to make all that a provider needs to know available in the electronic health record, which means that he/she will rarely if ever forget that which is important.

The definitions of Impaired Fasting Glucose (IFG) and of Impaired Glucose Tolerance (IGT) are critical to the diagnosis of Pre-diabetes and to the prevention of diabetes, thus we display them. SETMA providers don't have to remember them, therefore, they always do. The definitions of IFG and IGT and important ideas about both are presented on this template.



Could you have diabetes and not even know it?



With the single click of a button, the SETMA healthcare provider or nurse can give a patient a numerical summary of their risk of developing diabetes. If the patient is at high risk, the patient can take steps to avoid diabetes or at least delay its onset.

The screenshot shows a software window titled "Diabetes Notknow". The main heading inside is "Could You Have Diabetes And Not Even Know It?". Below this, there are seven numbered questions, each with two radio button options: "Yes" and "No".

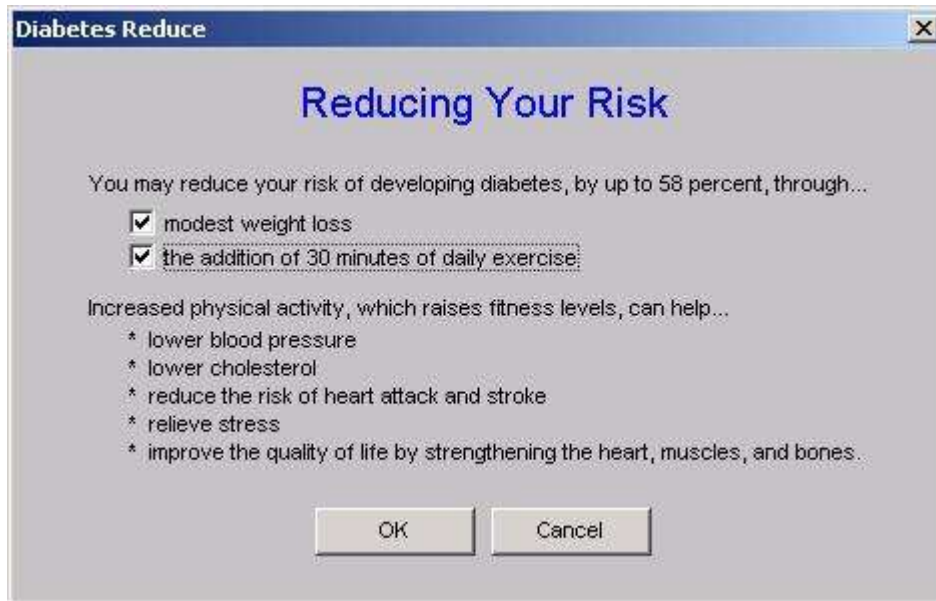
- 1. My weight is abnormal as indicated by my BMI or body fat percentage? (Yes selected)
- 2. I am under 65 years of age AND I get little or no exercise during a usual day? (Yes selected)
- 3. I am between 45 and 65 years of age? (Yes selected)
- 4. I am 65 years old or older? (No selected)
- 5. I am woman who has had a baby weighing more than 9 pounds at birth? (No selected)
- 6. I have a brother or sister with diabetes? (Yes selected)
- 7. I have a parent with diabetes? (Yes selected)

Below the questions is a "Clear All" button. At the bottom left, it says "Point Total" followed by a box containing the number "17". To the right of this is the label "Conclusion" followed by a text box containing the message: "You are at greater risk for having diabetes. Talk with your health care provider to determine if you have diabetes." At the very bottom are two buttons: "OK" and "Cancel".

### Reducing The Patient's Risk

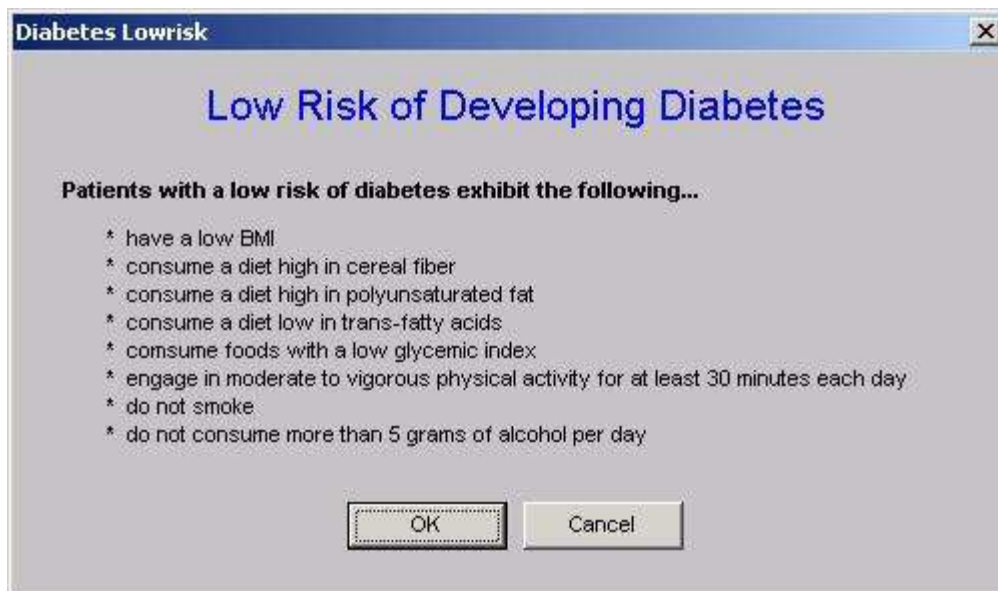
The following steps can help a patient reduce his/her risk of developing diabetes.





### Low Risk of Developing Diabetes

The following characteristics, developed from a major study of nurses, are those of people with a very low risk of developing diabetes.



### Summary

It is possible to live successfully with diabetes should a patient develop it; however, it is better for a patient to know their risk of developing diabetes and to take steps to delay or prevent its onset. SETMA is committed to:

- Excellent care of those with diabetes and

- Identifying those at increased risk of diabetes
- Identifying those who have pre-diabetes.

Our commitment extends to teaching the later two groups how to avoid or delay the onset of diabetes.