Assessing Risk

for Pre-Diabetes and Type 2 Diabetes

SUMMARY:

Diabetes is one of the largest, costliest, and most rapidly growing public health challenges facing California. Direct and indirect expenditures attributable to diabetes nationwide were estimated at $132 billion in 2002.[1] Approximately 1.7 million or roughly 6.5% of adult Californians had diabetes in 2003.[2] For every two persons with diagnosed diabetes, there is another undiagnosed person with this disease.

Although there are two major types of diabetes, type 1 and type 2, risk-testing focuses on type 2 diabetes due to its higher prevalence and longer period of latency. There is epidemiological evidence that retinopathy begins to develop at least 7 years before the clinical diagnosis of type 2 diabetes is made. Hyperglycemia in type 2 diabetes causes microvascular disease and may cause or contribute to macrovascular disease. Undiagnosed type 2 is a serious condition. Patients with type 2 diabetes are at a significantly increased risk for stroke, coronary heart disease, and peripheral vascular disease. In addition, they have a greater likelihood of having dyslipidemia, hypertension, and obesity. Consequently, targeted screening of at risk patients is extremely important.

Criteria for Testing for Diabetes in Asymptomatic Individuals [3]

1. Routine testing for diabetes should be considered in <u>All</u> individuals at age 45 years and above; and if normal, testing should be repeated at 3-year intervals.

--- AND ---

2. Testing should be considered at any age or be carried out more frequently in individuals who are overweight [body mass index (BMI) $\geq$ 25 kg/m^2] and have additional risk factors as follows:

   - habitually physically inactive
   - first-degree relative with diabetes
   - members of a high-risk ethnic population (e.g. African-American, Hispanic/Latino American, Native American, Asian American, Pacific Islander)
   - delivered a baby weighing >9 lb or have been diagnosed with gestational diabetes mellitus (GDM)
   - hypertensive ($\geq$ 140/90 mm Hg)
   - HDL cholesterol level $\leq$ 35 mg/dl and/or a triglyceride level > 250 mg/dl
   - on previous testing had pre-diabetes, fasting blood glucose of 100-125 mg/dl or a 2-h plasma glucose $\geq$ 140 and <200 mg/dl
   - diagnosed with Polycystic Ovarian Syndrome (PCOS)
   - clinical conditions associated with insulin resistance (*e.g.,*acanthosis nigricans)
   - history of vascular disease

This product may be reproduced with the citation:
"Developed by the Diabetes Coalition of California and the California Diabetes Program, 2005-06."
For further information: www.caldiabetes.org or (916) 552-9888.

Criteria for the Diagnosis of Diabetes Mellitus[4]

1. Symptoms of diabetes plus casual plasma glucose concentration $\geq$ 200 mg/dl. Casual is defined as any time of day without regard to time since last meal. The classic symptoms of diabetes include polyuria, polydipsia and unexplained weight loss.

--- OR ---

2. Fasting plasma glucose (FPG) $\geq$ 126 mg/dl on 2 separate occasions. Fasting is defined as no caloric intake for at least 8 hours.

--- OR ---

3. 2-hour plasma glucose (PG) $\geq$ 200 mg/dL during an Oral Glucose Tolerance Test (OGTT). The test should be performed using a glucose load containing the equivalent of 75 grams anhydrous glucose dissolved in water.

Note: *In the absence of unequivocal hyperglycemia with acute metabolic decompensation, the criteria should be confirmed by repeat testing on a different day. The third measure (OGTT) is not recommended for routine clinical use.*

References:
1. American Diabetes Association: Economic costs of diabetes in the U.S. in 2002. *Diabetes Care* 26:917-932, 2003.
2. Lund LE: Prevalence of diabetes in California counties: 2003 update. County Health Facts Update No. 05-A, Department of Health Services, February 2005 (http://www.dhs.ca.gov/hisp/chs/OHIR/reports/countyhealthfacts/diabetes2003.pdf).
3. American Diabetes Association: Standards of medical care in diabetes. *Diabetes Care* 28(Suppl 1):S4-S36, 2005.
4. American Diabetes Association: Diagnosis and classification of diabetes mellitus. *Diabetes Care* 28 (Suppl 1):S37-S42, 2005.

This product may be reproduced with the citation:
"Developed by the Diabetes Coalition of California and the California Diabetes Program, 2005-06."
For further information: www.caldiabetes.org or (916) 552-9888.