

# 343 Diabetes Mellitus

## Definition/Cut-off Value

Diabetes mellitus consists of a group of metabolic diseases characterized by inappropriate hyperglycemia resulting from defects in insulin secretion, insulin action or both (1).

Presence of diabetes mellitus diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver. See Clarification for more information about self-reporting a diagnosis.

## Participant Category and Priority Level

Category	Priority
Pregnant Women	I
Breastfeeding Women	I
Non-Breastfeeding Women	III, IV, V or VI
Infants	I
Children	III

## Justification

Diabetes mellitus may be broadly described as a chronic, systemic disease characterized by:

- Abnormalities in the metabolism of carbohydrates, proteins, fats, and insulin; and
- Abnormalities in the structure and function of blood vessels and nerves (2).

The chronic hyperglycemia of diabetes is associated with long-term damage, dysfunction, and failure of various organs, especially the eyes, kidneys, nerves, heart, and blood vessels (1, 2) and includes type 1 diabetes mellitus, type 2 diabetes mellitus, and Maturity Onset Diabetes of the Young (MODY). MODY is a series of familial disorders characterized by early onset and mild hyperglycemia. Specific genetic defects have been identified on chromosomes 7, 12, and 20 (2). MODY is often diagnosed before the age of 25 years. It is caused by dominantly inherited defect of insulin secretion. Persons with MODY are often non-obese and without metabolic syndrome (3).

The two major classifications of diabetes are type 1 diabetes (beta-cell destruction, usually leading to absolute insulin deficiency); and type 2 diabetes (ranging from predominantly insulin resistance with relative insulin deficiency to a predominantly insulin secretory defect with insulin resistance) (1). The Expert Committee on Diagnosis and Classification of Diabetes Mellitus, working under the sponsorship of the American Diabetes Association, has identified the criteria for the diagnosis of diabetes mellitus (1, 2) (see clarification).

Long-term complications of diabetes include retinopathy with potential loss of vision, nephropathy leading to renal failure; peripheral neuropathy with risk of foot ulcers, amputations, and Charcot joints; and, autonomic neuropathy causing gastrointestinal, genitourinary, cardiovascular symptoms and sexual

dysfunction. Patients with diabetes have an increased incidence of atherosclerotic cardiovascular, peripheral arterial and cerebrovascular diseases. Hypertension and abnormalities of lipoprotein metabolism are often found in people with diabetes (1).

WIC nutrition services can reinforce and support the medical and dietary therapies (such as Medical Nutrition Therapy) that participants with diabetes receive from their health care providers (4).

## References

1. American Diabetes Association. Diagnosis and classification of diabetes mellitus. *Diabetes Care*. Jan 2008; 31 Suppl 1:S55-60.
2. Franz MT, Ratner RE. Diabetes and Complications. In: *Pathophysiology of the diabetes disease state: a Core Curriculum for Diabetes Educators American Association of Diabetes Educators*. 5<sup>th</sup> Ed. 2003.
3. Dean L, McEntrye J. The genetic landscape of diabetes. 2004; Bethesda: NCBI, 2004. <http://www.ncbi.nlm.nih.gov/books/bv.fcgi?call=bv.veiw..showtoc&rid=diabetes.toc&depth=1>.
4. American Diabetes Association. Nutrition recommendations and interventions for diabetes: a position statement of the American Diabetes Association. *Diabetes Care*. 2006; 29: 2140-2157:S48-S65.

## Clarification

Self-reporting of a diagnosis by a medical professional should not be confused with self-diagnosis, where a person simply claims to have or to have had a medical condition without any reference to professional diagnosis. A self-reported medical diagnosis (“My doctor says that I have/my son or daughter has...”) should prompt the CPA to validate the presence of the condition by asking more pointed questions related to that diagnosis.

Diabetes mellitus is sometimes described by both patients and health professionals as “a little bit of sugar” or “high sugar.” In reality, “sugar” is only one component of the pathology and clinical manifestations of the multifaceted syndrome of diabetes mellitus (2).

Diabetes mellitus is diagnosed by a licensed medical provider using any one of the following three methods:

1. Fasting plasma glucose  $\geq$  126 mg/dL (7.0 mmol/L). Fasting is defined as no caloric intake for at least 8 hours.
2. Symptoms of hyperglycemia plus casual plasma glucose concentration  $\geq$  200 mg/dl (11.1 mmol/L).
  - Casual implies any time of day without regard to time since last meal.
  - The classic symptoms of hyperglycemia include polyuria, polydipsia, and unexplained weight loss.
3. Two-hour plasma glucose  $\geq$  200mg/dL (11.1 mmol/L) during a 75-g oral glucose tolerance test (OGTT) (1).

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