

Diabetes

FACT SHEET

Background

What Is Diabetes Mellitus?

Diabetes mellitus is a disorder defined by a lack in production and/or use of insulin, a hormone that allows cells in the body to use the sugar glucose. Accounting for 95% to 99% of all diagnosed cases of diabetes,¹ diabetes mellitus is the most common type of diabetes. Diabetes mellitus may develop as the result of surgery, drug reactions, malnutrition, hereditary conditions, and/or certain illnesses, such as infections. Diabetes mellitus usually results in an individual's blood glucose being above the range found in the general population. See Figure 1 for the blood glucose levels commonly used in the diagnosis of diabetes and pre-diabetes.

Type 1 diabetes accounts for 5% to 10% of all cases of diagnosed diabetes.¹ Type 1 diabetes is also called insulin-dependent diabetes mellitus (IDDM). It develops when the pancreas is unable to produce and secrete insulin. A common cause of type 1 diabetes is damage to insulin-secreting cells in the pancreas caused by a one's own immune system.

Type 2 diabetes is a preventable form of diabetes mellitus that occurs in 90% to 95% of the individuals diagnosed with diabetes.¹ Type 2 diabetes develops as the body begins to resist the action of insulin. Cells lose the ability to use glucose at the body's normal level of insulin, so the body signals the pancreas to make more insulin. The pancreas tries to meet the increased demand, but gradually loses the ability to make enough insulin. Type 2 diabetes is usually associated with older age. However, some studies suggest that while type 2 diabetes is still rare in children and adolescents, it is being diagnosed more frequently, particularly in African Americans, Hispanic/Latino Americans, and American Indians.¹

Gestational diabetes is insulin resistance that develops in an estimated 3% to 8% of pregnant women.² Fortunately, gestational diabetes management can help reduce the likelihood of infant complications. However, since women with gestational diabetes have a high risk of developing type 2 diabetes, regular testing is suggested.

Is There Another Type of Diabetes?

Diabetes insipidus is a chronic metabolic disorder characterized by intense thirst and excessive urination; it is caused by a deficiency of the pituitary hormone vasopressin. This type of diabetes, which can result from a variety of conditions and is not related to glucose production and/or use, accounts for only 1% to 5% of all diagnosed cases of diabetes.¹

How Many People Does Diabetes Affect?

Based on 2005 estimates from the Centers for Disease Control and Prevention (CDC), 7.0% of the United States (US) population – nearly 21 million people – have diabetes. More than 6 million of the 21 million are undiagnosed.¹

What Is Pre-Diabetes?

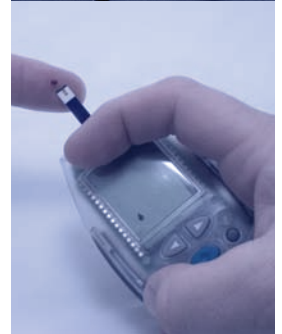
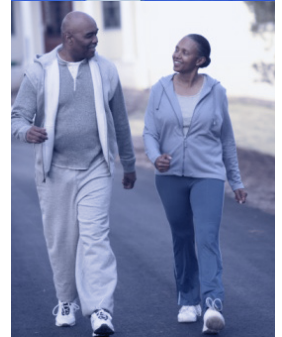
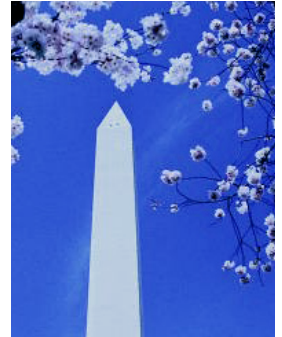
In the time before type 2 diabetes is diagnosed, an individual's blood glucose level is elevated above the range found in the general population, but it is not yet high enough to warrant a diagnosis of diabetes. This state is termed pre-diabetes. As many as 54 million people in the United States have pre-diabetes.³ See Figure 1 for the blood glucose levels commonly used in the diagnosis of pre-diabetes.

What Are the Risk Factors for Diabetes?

Risk factors are conditions that increase the chance of a disease occurring. Risk factors for type 1 diabetes include immune, genetic, and environmental factors. Risk factors for type 2 diabetes include older age, obesity, physical inactivity, family history of diabetes, and personal history of gestational diabetes. One of the most important and common risk factors for diabetes is obesity. Using data from 2003–2004, more than a third of US adults can be classified as overweight,^a while another third can be classified as obese^a (Figure 2).⁴

What Are the Complications of Diabetes?

- Heart disease
- Stroke
- Kidney disease
- Nervous system damage
- Lower extremity amputation
- Eye diseases that can lead to blindness
- Dental disease, including periodontal disease



District of Columbia and National Information

Prevalence of Diabetes

According to Behavioral Risk Factors Surveillance System (BRFSS) data produced by the District of Columbia Department of Health (DC DOH), 7.7% of the District's residents report having been diagnosed with diabetes.⁶ This is comparable to the 7.3% of the total US population who have diabetes; see Figure 3.⁷ Using the 2005 population estimate of 582,000 District residents⁸ as a basis, almost 45,000 District residents have been diagnosed with diabetes. Nationwide, the prevalence of diabetes is higher among older (45 years or older) populations, and it is even higher among older populations in the District (Figure 4).^{6,7} The prevalence of diabetes is highest in District wards 4, 5, 7, and 8 (Figures 5 and 6).⁶

Other than gestational diabetes, the prevalence of diabetes is not associated with gender. The prevalence is relatively comparable for both females and males (from 7.2% to 8.0%) in both the District and nationwide (see Figure 3).^{6,7} The percentage of female District residents diagnosed with gestational diabetes is 1.4%.⁶ This is comparable to the 1.5% of women nationwide who have been diagnosed with gestational diabetes.⁷

Disparities in Health Status

Some of the disparities in health status may be related to race and ethnicity. Individuals have a higher risk of developing type 2 diabetes or gestational diabetes if they are part of the following race and ethnic groups: African Americans, Hispanic/Latino Americans, American Indians, Alaska Natives, and Asian Americans, particularly Native Hawaiians and other Pacific Islanders.^{1,2} Some of this disparity is evident in the data displayed in Figure 7. There is a 10.1% disparity in prevalence among blacks (12.0%) as compared to whites (1.9%) in the District population. The disparity in the District population is more than twice the 4.6% disparity in the national population.^{6,7}

The risk of developing diabetes is higher for individuals in lower income and education level groups.^{6,7} In both the District and nationwide, the prevalence of diabetes among individuals with incomes less than \$15,000 is three times higher than among those with incomes greater than \$50,000.^{6,7} In the District, the prevalence of diabetes among individuals who did not graduate from high school is 17.3%, while the prevalence among individuals who graduated from college is 4.2% resulting in a disparity of 13.1% between the two groups.^{6,7} This is nearly twice the 7.1% disparity between the two groups nationwide.^{6,7}

Diabetes and Other Conditions

Obesity is one of the most important risk factors for diabetes. The prevalence of obesity^a in the District population is 20.3%, and nationwide it is 32.3%. The prevalence of an overweight^a condition is 31.9% in the District and 34.1% nationwide (Figure 2).⁴

Related conditions are diseases or disorders for which individuals with diabetes have an increased risk of developing. The most common related conditions include hypertension (high blood pressure), abnormal blood lipid (cholesterol) levels, heart attacks, and strokes. In the District, individuals with diabetes are three times more likely to have high blood pressure and almost twice as likely to have high cholesterol when compared to individuals who do not have diabetes (Figures 8 and 9).⁶

Diabetes nephropathy, a kidney (renal) disease, often develops as a complication of diabetes. Diabetes nephropathy can progress to End Stage Renal Disease (ESRD), a life-threatening condition. Patients with ESRD must regularly receive kidney dialysis treatments to remove wastes from their blood. In the District, both the incidence of newly diagnosed ESRD patients (180 a year) and the total number of diabetes-related ESRD patients (570) are approximately twice that of nearby states (Maryland, Virginia, and West Virginia) or the US as a whole.^{9,10}

Mortality Associated with Diabetes

In 2003 and 2004, mortality associated with diabetes accounted for an average of 161 deaths per year in the District. This results in a rate of 28.1 deaths per 100,000 residents;¹¹ this is similar to the national rate of 24.9 deaths per 100,000 residents.¹² In the District, females were affected more than males (with respective mortality rates of 30.8 and 25.0 per 100,000). Mortality associated with diabetes is highest in District wards 5, 6, and 7 (Figure 10).¹¹

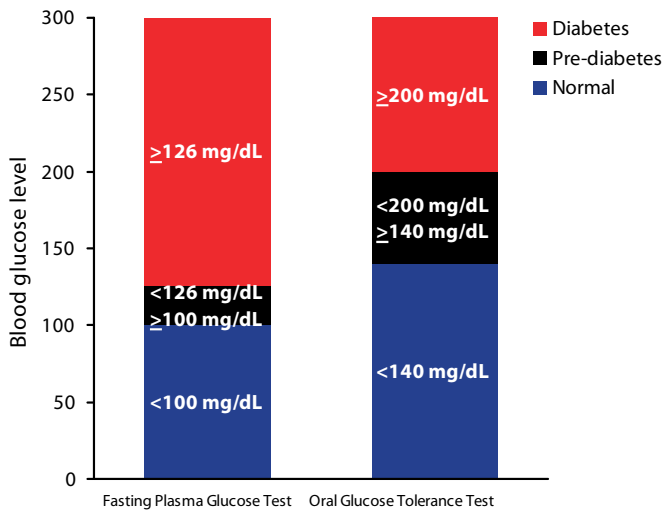
Financial Costs of Diabetes

For 2002, the costs of diabetes in the United States were estimated at \$132 billion, including \$92 billion in direct costs (costs of medical care and services) and \$40 billion in indirect costs (costs of short- and long-term disability and of premature death).⁵ Using the US yearly per capita medical expenses estimates from a study published in 2003⁵ as a basis, the additional cost of caring for the 45,000 District residents with diabetes is almost \$600 million a year.

Improving the District's Health

The DC DOH Diabetes Prevention and Control Program was established to prevent and control mortality, morbidity (incidence), and costs related to diabetes in the District by improving access to diabetes health care and the community's ability to support people with diabetes. The Program offers tools and resources to help community organizations address diabetes. These include the latest diabetes-related surveillance data, decision support tools for health care providers, and community programs that support disease self-management. The DC DOH Diabetes Prevention and Control Program is located at 825 North Capitol Street NE, Washington DC 20002. The telephone number is (202) 671-5000. The Diabetes Prevention and Control Program website is at <http://doh.dc.gov> under Special Programs.

^a For adults (20 years of age and older), CDC defines normal weight, overweight, and obesity using the body mass index (BMI) formula of $BMI = \text{wt}[\text{kg}]/(\text{ht}[\text{m}]^2)$ with body weight [in kilograms] divided by the square of height [in meters]. Normal weight is defined by a BMI of 18.5–24.9; overweight by a BMI of 25.0–29.9; and obesity by a BMI of 30 or greater.¹³ The associations between health and the recommended BMI cut points have not been verified for all populations.

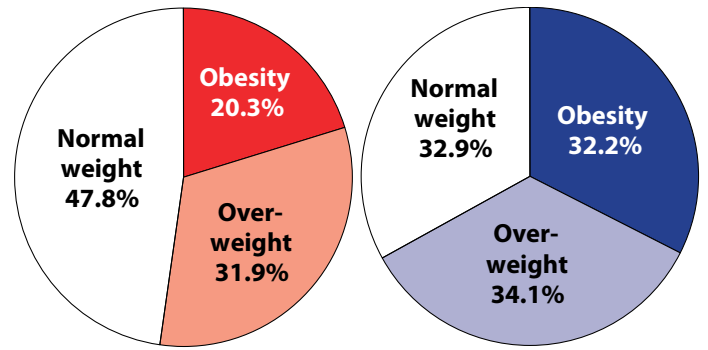


Source: American Diabetes Association

Figure 1.—Blood glucose levels commonly used to diagnose pre-diabetes and diabetes

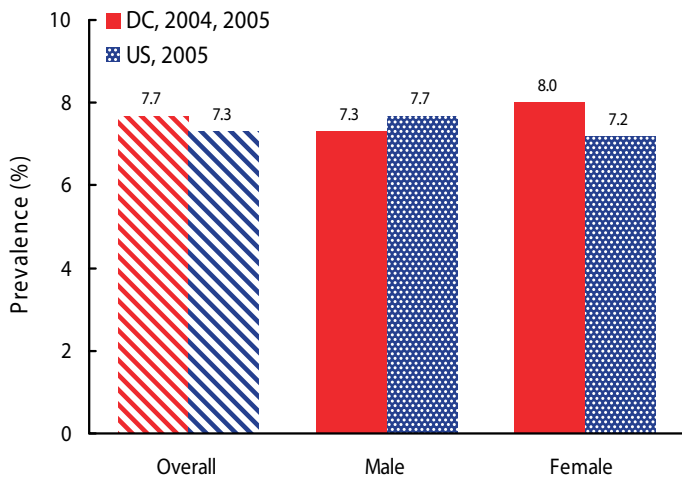
District of Columbia

United States



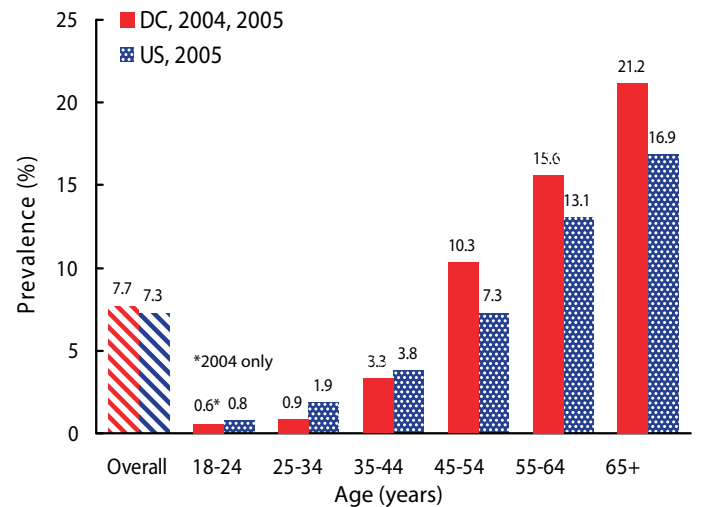
Source: CDC, NHANES

Figure 2.—Prevalence of obesity and overweight in adults in the District of Columbia and United States (2003-2004)



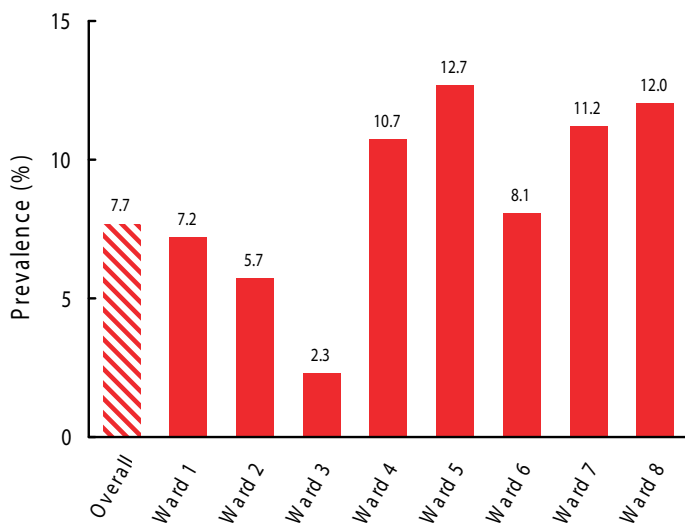
Source: DC DOH, BRFSS; CDC, BRFSS

Figure 3.—Prevalence of diabetes by gender in the District of Columbia (average of 2004, 2005) and United States (2005)



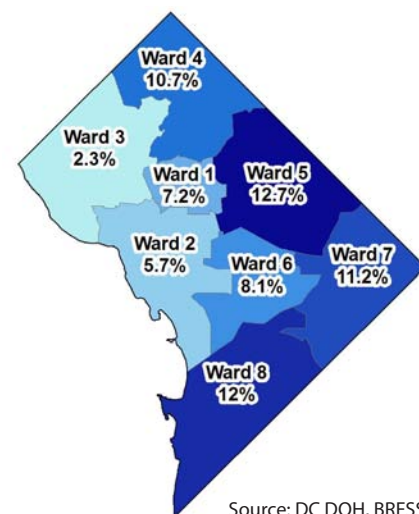
Source: DC DOH, BRFSS; CDC, BRFSS

Figure 4.—Prevalence of diabetes by age in the District of Columbia (average of 2004, 2005) and United States (2005)



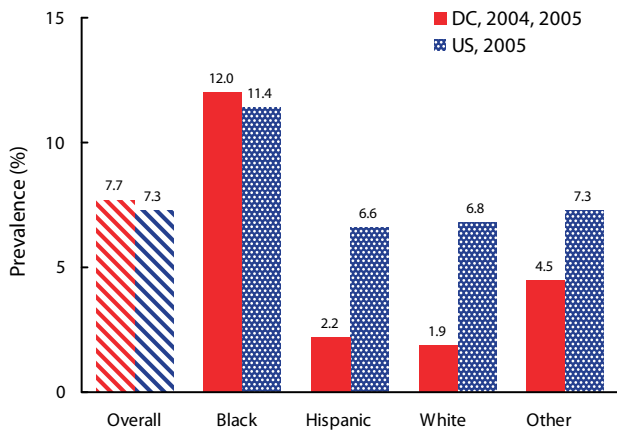
Source: DC DOH, BRFSS

Figure 5.—Prevalence of diabetes by ward of residence in the District of Columbia (average of 2004, 2005)



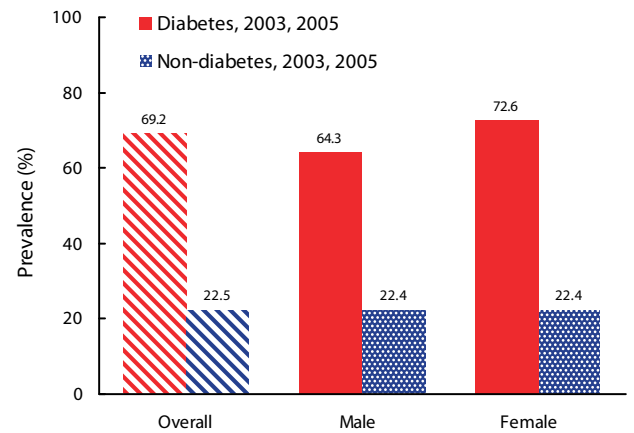
Source: DC DOH, BRFSS

Figure 6.—District of Columbia ward map with prevalence of diabetes by ward of residence



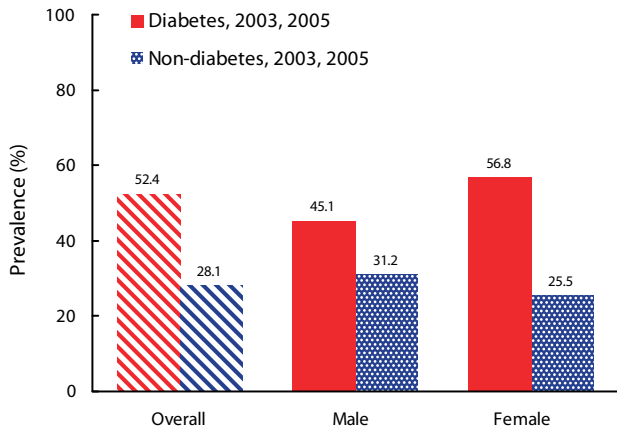
Source: DC DOH, BRFSS; CDC, BRFSS

Figure 7.—Prevalence of diabetes by race in District of Columbia (average of 2004, 2005) and United States (2005)



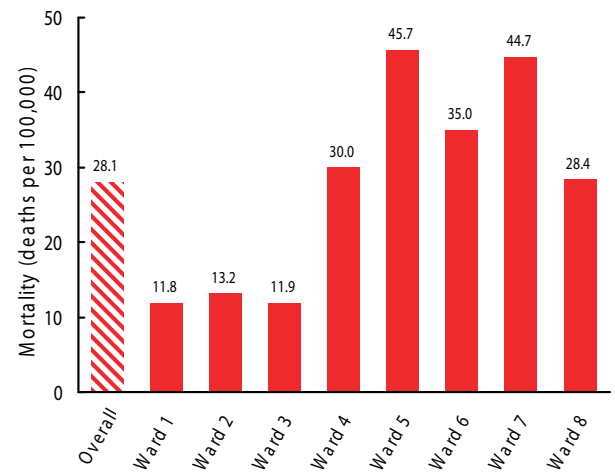
Source: DC DOH, BRFSS

Figure 8.—Prevalence of high blood pressure in residents of the District of Columbia (average of 2003, 2005)



Source: DC DOH, BRFSS

Figure 9.—Prevalence of high cholesterol in residents of the District of Columbia (average of 2003, 2005)



Source: DC DOH, Vital Statistics

Figure 10.—Mortality associated with diabetes by ward of residence in the District of Columbia (average of 2003, 2004)

References

1. US Centers for Disease Control and Prevention (CDC). National diabetes fact sheet: general information and national estimates on diabetes in the United States, 2005 [Internet]. Atlanta (GA): The Centers; 2005 [cited 2007 Apr 19]. Available from: http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2005.pdf
2. Metzger BE, Coustan DR. Summary and recommendations of the Fourth International Workshop—Conference on Gestational Diabetes Mellitus. Diabetes Care [Internet]. 1998 [cited 2007 Apr 19];21 Suppl 2:B161–B167. Available from: <http://journal.diabetes.org/diabetescare/supplement298/B161.htm>
3. American Diabetes Association (ADA). Pre-diabetes [Internet]. Alexandria (VA): The Association [cited 2007 Apr 19]. Available from: <http://www.diabetes.org/pre-diabetes.jsp>
4. National Center for Health Statistics. National Health and Nutrition Examination Survey (NHANES) 2003-2004. Atlanta (GA): US Centers for Disease Control and Prevention [cited 2007 Apr 19]. Selected data available from: <http://win.niddk.nih.gov/statistics/index.htm#preval>
5. ADA. Economic costs of diabetes in the US in 2002. Diabetes Care [Internet]. 2003 [cited 2007 Apr 19];26(3):917–932. Available from: <http://care.diabetesjournals.org/cgi/reprint/26/3/917>
6. District of Columbia Department of Health (DC DOH). Behavioral Risk Factors Surveillance System (BRFSS); 2003, 2004, and 2005 data [Internet]. Washington (DC): The Department, Bureau of Epidemiology and Health Risk Assessment (BEHRA) [cited 2007 Apr 19]. Available from: <http://www.cdc.gov/brfss>
7. CDC. Behavioral Risk Factors Surveillance System (BRFSS), 2005 data for US (states, DC, and territories—Guam, Puerto Rico, and US Virgin Islands) [Internet]. Atlanta (GA): The Centers [cited 2007 Apr 19]. Available from: <http://www.cdc.gov/brfss>
8. US Census Bureau. Annual estimates of the population for the United States, April 1, 2000 to July 1, 2006 (NST-EST2006-01) [Internet]. Washington (DC): US Department of Commerce [cited 2007 Apr 19]. Available from: <http://www.census.gov/popest/states/NST-ann-est.html>
9. Mid-Atlantic Renal Coalition. Mid-Atlantic Renal Coalition—ESRD Network 5: 2005 annual report [Internet]. Midlothian (VA): The Coalition; 2006 [cited 2007 April 19]. Available from: <http://www.esrdnetworks.org/networks/net5/AR2005/2005AR.pdf>
10. United States Renal Data System. 2006 annual data report [Internet]. Minneapolis (MN): The System [cited 2007 April 19]. Available from: <http://www.usrds.org/adr.htm>
11. DC DOH. Center for Planning, Policy, and Epidemiology, Bureau of Vital Statistics, 2003 and 2004 data. Washington (DC): The Department.
12. National Center for Health Statistics. Deaths: final data for 2004 [Internet]. Atlanta (GA): US Centers for Disease Control and Prevention [cited 2007 Apr 19]. Available from: <http://www.cdc.gov/nchs/products/pubs/pubd/hestats/finaldeaths04/finaldeaths04.htm>
13. CDC. Defining overweight and obesity [Internet]. Atlanta (GA): The Centers [cited 2007 Apr 19]. Available from: <http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm>

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