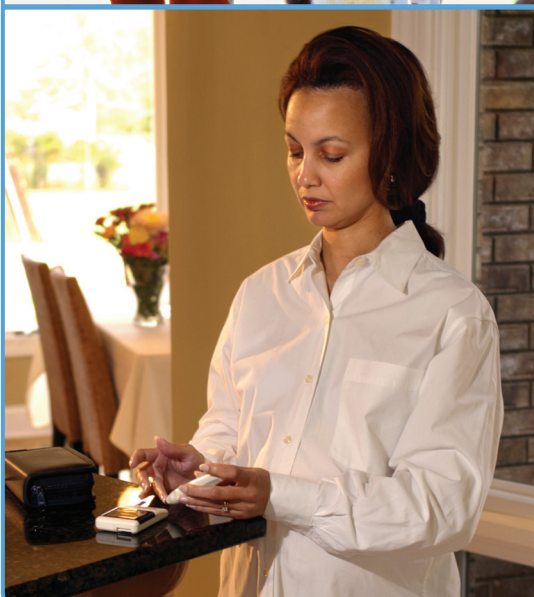


# National Diabetes Statistics Report, 2014



## Estimates of Diabetes and Its Burden in the United States

*\*\*This document is intended to provide up-to-date scientific data and statistics on diabetes and its burden in the United States. Formerly referred to as the National Diabetes Fact Sheet, this consensus document is written for a scientific audience.\*\**

### FAST FACTS ON DIABETES

**29.1 million people or 9.3% of the U.S. population have diabetes.**

**DIAGNOSED**  
21.0 million people

**UNDIAGNOSED**  
8.1 million people  
(27.8% of people with diabetes are undiagnosed).

All ages, 2012

## Diagnosed and undiagnosed diabetes among people aged 20 years or older, United States, 2012

	Number with diabetes (millions)	Percentage with diabetes (unadjusted)
<b>Total</b>		
20 years or older	28.9	12.3
<b>By age</b>		
20–44	4.3	4.1
45–64	13.4	16.2
65 years or older	11.2	25.9
<b>By sex</b>		
Men	15.5	13.6
Women	13.4	11.2

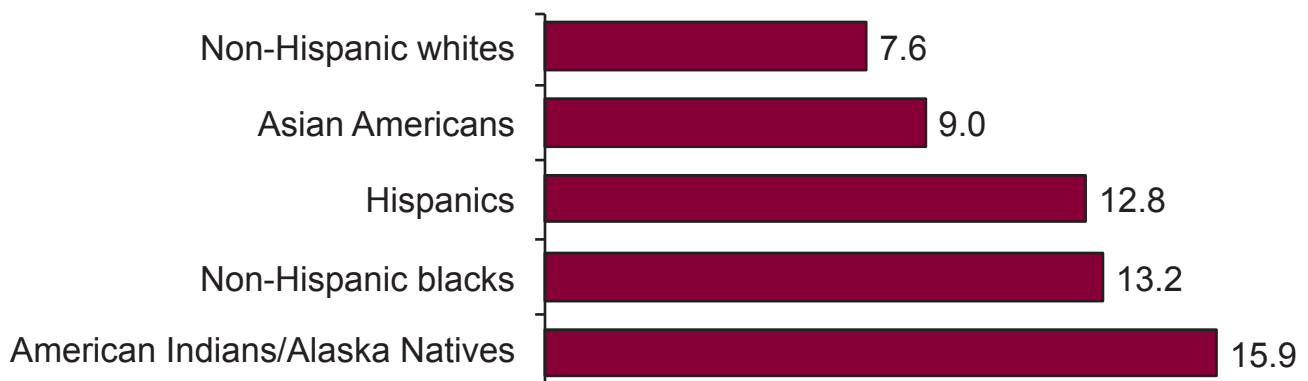
Source: 2009–2012 National Health and Nutrition Examination Survey estimates applied to 2012 U.S. Census data.

# Epidemiologic estimation methods

The estimates in this document, unless otherwise indicated, were derived from various data systems of the Centers for Disease Control and Prevention (CDC), the Indian Health Service's (IHS) National Patient Information Reporting System (NPIRS), the U.S. Renal Data System of the National Institutes of Health (NIH), the U.S. Census Bureau, and published studies. The estimated percentages and the total number of people with diabetes and prediabetes were derived from 2009–2012 National Health and Nutrition Examination Survey (NHANES), 2010–2012 National Health Interview Survey (NHIS), 2012 IHS data, and 2012 U.S. resident population estimates. Diagnosed diabetes was determined by self-report among survey respondents and by diagnostic codes for American Indians and Alaska Natives. Both fasting glucose and [hemoglobin A1C \(A1C\)](#) levels were used to derive estimates for undiagnosed diabetes and prediabetes. The tests used to diagnose diabetes vary in who they identify as having diabetes or prediabetes. Detailed information is available about the data sources, methods, and references (<http://www.cdc.gov/diabetes/pubs/references14.htm>). More information is available about the tests that are used to diagnose diabetes and the test limitations (<http://diabetes.niddk.nih.gov/dm/pubs/comparingtests/index.aspx>).

## Racial and ethnic differences in diagnosed diabetes among people aged 20 years or older, United States, 2010–2012

### Age-adjusted\* percentage of people aged 20 years or older with diagnosed diabetes, by race/ethnicity, United States, 2010–2012



\*Based on the 2000 U.S. standard population.

Source: 2010–2012 National Health Interview Survey and 2012 Indian Health Service's National Patient Information Reporting System.

- Among Hispanic adults, the age-adjusted rate of diagnosed diabetes was 8.5% for Central and South Americans, 9.3% for Cubans, 13.9% for Mexican Americans, and 14.8% for Puerto Ricans.
- Among Asian American adults, the age-adjusted rate of diagnosed diabetes was 4.4% for Chinese, 11.3% for Filipinos, 13.0% for Asian Indians, and 8.8% for other Asians.
- Among American Indian and Alaska Native adults, the age-adjusted rate of diagnosed diabetes varied by region from 6.0% among Alaska Natives to 24.1% among American Indians in southern Arizona.

# New Cases of Diagnosed Diabetes

## New cases of diagnosed diabetes among people aged 20 years or older, United States, 2012

	Number of new diabetes cases	Rate of new diabetes cases per 1,000 (unadjusted)
<b>Total</b>		
20 years or older	1.7 million	7.8
<b>By age</b>		
20–44	371,000	3.6
45–64	892,000	12.0
65 years or older	400,000	11.5

Source: 2010–2012 National Health Interview Survey, 2009–2012 National Health and Nutrition Examination Survey, and 2012 U.S. Census data.

## Prediabetes among people aged 20 years or older, United States, 2012

- In 2009–2012, based on fasting glucose or A1C levels, 37% of U.S. adults aged 20 years or older had prediabetes (51% of those aged 65 years or older). Applying this percentage to the entire U.S. population in 2012 yields an estimated 86 million Americans aged 20 years or older with prediabetes.
- On the basis of fasting glucose or A1C levels, and after adjusting for population age differences, the percentage of U.S. adults aged 20 years or older with prediabetes in 2009–2012 was similar for non-Hispanic whites (35%), non-Hispanic blacks (39%), and Hispanics (38%).

## Diagnosed diabetes among people younger than 20 years, United States, 2012

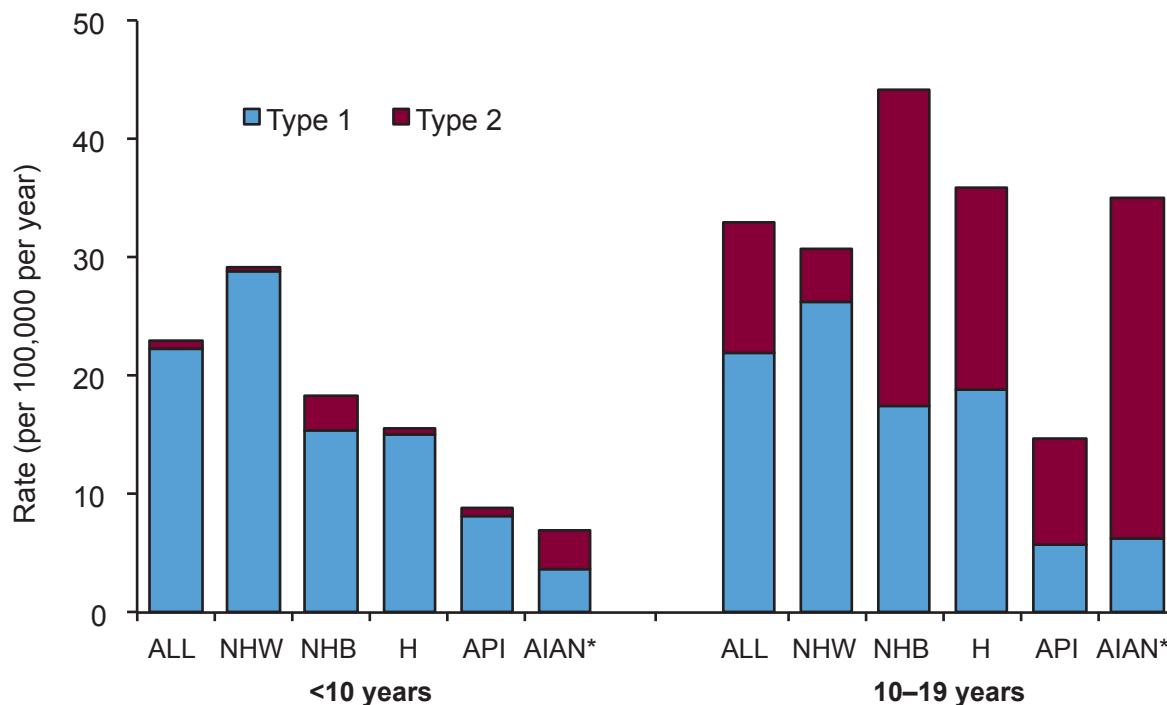
- About 208,000 people younger than 20 years have diagnosed diabetes (type 1 or type 2). This represents 0.25% of all people in this age group. Estimates of undiagnosed diabetes are not available for this age group.

## New cases of diagnosed diabetes among people younger than 20 years, United States, 2008–2009

[SEARCH for Diabetes in Youth](#) is a multicenter study funded by CDC and NIH to examine diabetes (type 1 and type 2) among children and adolescents in the United States. SEARCH findings for the communities studied include the following:

- During 2008–2009, an estimated 18,436 people younger than 20 years in the United States were newly diagnosed with type 1 diabetes annually, and 5,089 people younger than 20 years were newly diagnosed with type 2 diabetes annually.
- Compared with other groups, non-Hispanic white children and adolescents had the highest rate of new cases of type 1 diabetes.
- While still uncommon, the rates of new cases of type 2 diabetes were greater among people aged 10–19 years than in younger children, with higher rates among U.S. minority populations than in non-Hispanic whites.

## Rate of new cases of type 1 and type 2 diabetes among people younger than 20 years, by age and race/ethnicity, 2008–2009



\* The American Indian/Alaska Native (AI/AN) youth who participated in the SEARCH study are not representative of all AI/AN youth in the United States. Thus, these rates cannot be generalized to all AI/AN youth nationwide.

Source: SEARCH for Diabetes in Youth Study

NHW=non-Hispanic whites; NHB=non-Hispanic blacks; H=Hispanics; API=Asians/Pacific Islanders;

AIAN=American Indians/Alaska Natives.

## Managing diabetes

Diabetes can be treated and managed by healthful eating, regular physical activity, and medications to lower blood glucose levels. Another critical part of diabetes management is reducing cardiovascular disease risk factors, such as high blood pressure, high lipid levels, and tobacco use. Patient education and self-care practices also are important aspects of disease management that help people with diabetes stay healthy.

- People with type 1 diabetes must have insulin delivered by injection or a pump to survive.
- Many people with type 2 diabetes can control their blood glucose by following a healthy meal plan and a program of regular physical activity, losing excess weight, and taking medications. Medications for each individual with diabetes will often change during the course of the disease. Insulin also is commonly used to control blood glucose in people with type 2 diabetes.
- Blood glucose control reduces the risk of developing the eye, nerve, and kidney complications of diabetes.
- Hypoglycemia or low blood glucose is a complication of diabetes treatment with insulin or certain oral medications that can have serious consequences such as seizures, unconsciousness, or death. Older patients with type 2 diabetes and children with type 1 diabetes are at particularly high risk for adverse outcomes associated with hypoglycemia.

- Individual blood glucose targets, with the selection of targets based on the potential risks and benefits to the patient, are encouraged for people with diabetes.
- Self-management education or training focuses on self-care behaviors, such as healthy eating, being active, adhering to medications, learning coping skills, and monitoring blood glucose.
- Many people with diabetes also need to take medications to control their blood pressure and to control their cholesterol.

## Treatment of diabetes among people aged 18 years or older with diagnosed diabetes, United States, 2010–2012

	Number of adults using diabetes medication* (millions)	Percentage using diabetes medication (unadjusted)
<b>Insulin only</b>	2.9	14.0
<b>Both insulin and oral medication</b>	3.1	14.7
<b>Oral medication only</b>	11.9	56.9
<b>Neither insulin nor oral medication</b>	3.0	14.4

\*Does not add to the total number of adults with diagnosed diabetes because of the different data sources and methods used to obtain the estimates.

Source: 2010–2012 National Health Interview Survey.

## Co-existing conditions and complications among people with diagnosed diabetes

Diabetes can affect many parts of the body and is associated with serious complications, such as heart disease and stroke, blindness, kidney failure, and lower-limb amputation. Some complications, especially microvascular (e.g., eye, kidney, and nerve) disease, can be reduced with good glucose control. Also, early detection and treatment of complications can prevent progression, so monitoring with dilated eye exams, urine tests, and foot exams is essential. Because the risk of cardiovascular disease is increased in diabetes and prediabetes, blood pressure and lipid management, along with smoking cessation, are especially important. By working together, people with diagnosed diabetes, their support network, and their health care providers can reduce the occurrence of these and other complications.

### Hypoglycemia and hyperglycemic crisis

#### Hypoglycemia

- In 2011, about 282,000 emergency room visits for adults aged 18 years or older had hypoglycemia as the first-listed diagnosis and diabetes as another diagnosis.

#### Hyperglycemic crisis

- In 2011, about 175,000 emergency room visits for people of all ages had hyperglycemic crisis, e.g., diabetic ketoacidosis and hyperglycemic hyperosmolar state, as the first-listed diagnosis.
- In 2010, among adults aged 20 years or older, hyperglycemic crisis caused 2,361 deaths.

### High blood pressure

- In 2009–2012, of adults aged 18 years or older with diagnosed diabetes, 71% had blood pressure greater than or equal to 140/90 millimeters of mercury or used prescription medications to lower high blood pressure.

## High blood [LDL](#) cholesterol

- In 2009–2012, of adults aged 18 years or older with diagnosed diabetes, 65% had blood [LDL](#) cholesterol greater than or equal to 100 mg/dl or used cholesterol-lowering medications.

## Heart disease and stroke

- In 2003–2006, after adjusting for population age differences, cardiovascular disease death rates were about 1.7 times higher among adults aged 18 years or older with diagnosed diabetes than among adults without diagnosed diabetes.
- In 2010, after adjusting for population age differences, hospitalization rates for heart attack were 1.8 times higher among adults aged 20 years or older with diagnosed diabetes than among adults without diagnosed diabetes.
- In 2010, after adjusting for population age differences, hospitalization rates for stroke were 1.5 times higher among adults with diagnosed diabetes aged 20 years or older compared to those without diagnosed diabetes.



## Blindness and eye problems

- In 2005–2008, of adults with diabetes aged 40 years or older, 4.2 million (28.5%) people had diabetic retinopathy, damage to the small blood vessels in the retina that may result in loss of vision.
- In 2005–2008, of adults with diabetes aged 40 years or older, 655,000 (4.4%) had advanced diabetic retinopathy—with conditions such as clinically significant macular edema and proliferative diabetic retinopathy—that could lead to severe vision loss.



## Kidney disease

- Diabetes was listed as the primary cause of kidney failure in 44% of all new cases in 2011.
- In 2011, 49,677 people of all ages began treatment for kidney failure due to diabetes.
- In 2011, a total of 228,924 people of all ages with kidney failure due to diabetes were living on chronic dialysis or with a kidney transplant.

## Amputations

- In 2010, about 73,000 non-traumatic lower-limb amputations were performed in adults aged 20 years or older with diagnosed diabetes.
- About 60% of non-traumatic lower-limb amputations among people aged 20 years or older occur in people with diagnosed diabetes.



## Other conditions and complications

- People with diabetes may have or develop other complications or conditions, such as nerve disease, non-alcoholic fatty liver disease, periodontal (gum) disease, hearing loss, erectile dysfunction, depression, and complications of pregnancy, among others.



## Deaths among people with diabetes, United States, 2010

- Diabetes was the seventh leading cause of death in the United States in 2010 based on the 69,071 death certificates in which diabetes was listed as the underlying cause of death. In 2010, diabetes was mentioned as a cause of death in a total of 234,051 certificates.
- Diabetes may be underreported as a cause of death. Studies have found that only about 35% to 40% of people with diabetes who died had diabetes listed anywhere on the death certificate and about 10% to 15% had it listed as the underlying cause of death.
- In 2003–2006, after adjusting for population age differences, rates of death from all causes were about 1.5 times higher among adults aged 18 years or older with diagnosed diabetes than among adults without diagnosed diabetes.

## ESTIMATED DIABETES COSTS IN THE UNITED STATES, 2012

### TOTAL (DIRECT AND INDIRECT)

*\$ 245 billion*

### DIRECT MEDICAL COSTS

*\$ 176 billion*

After adjusting for population age and sex differences, average medical expenditures among people with diagnosed diabetes were 2.3 times higher than people without diabetes.

### INDIRECT COSTS

*\$ 69 billion*

(disability, work loss, premature death).





## General Information

### What is diabetes?

Diabetes is a group of diseases marked by high levels of blood glucose resulting from problems in how insulin is produced, how insulin works, or both. People with diabetes may develop serious complications such as heart disease, stroke, kidney failure, blindness, and premature death.

### Types of diabetes

**Type 1 diabetes** was previously called insulin-dependent diabetes mellitus or juvenile-onset diabetes. Although disease onset can occur at any age, the peak age for diagnosis is in the mid-teens. Type 1 diabetes develops when the cells that produce the hormone insulin, known as the beta cells, in the pancreas are destroyed. This destruction is initiated or mediated by the body's immune system and limits or completely eliminates the production and secretion of insulin, the hormone that is required to lower blood glucose levels. To survive, people with type 1 diabetes must have insulin delivered by injection or a pump. In adults, type 1 diabetes accounts for approximately 5% of all diagnosed cases of diabetes. There is no known way to prevent type 1 diabetes. Several clinical trials for preventing type 1 diabetes are currently in progress with additional studies being planned.

**Type 2 diabetes** was previously called non-insulin-dependent diabetes mellitus or adult-onset diabetes because the peak age of onset is usually later than type 1 diabetes. In adults, type 2 diabetes accounts for about 90% to 95% of all diagnosed cases of diabetes. Type 2 diabetes usually begins with insulin resistance, a disorder in which the cells primarily within the muscles, liver, and fat tissue do not use insulin properly. As the need for insulin rises, the beta cells in the pancreas gradually lose the ability to produce sufficient quantities of the hormone. The role of insulin resistance as opposed to beta cell dysfunction differs among individuals, with some having primarily insulin resistance and only a minor defect in insulin secretion, and others with slight insulin resistance and primarily a lack of insulin secretion.

The risk for developing type 2 diabetes is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. African Americans, Hispanics/Latinos, American Indians, some Asians, and Native Hawaiians or other Pacific Islanders are at particularly high risk for type 2 diabetes and its complications. Type 2 diabetes in children and adolescents, although uncommon, is being diagnosed more frequently among American Indians, African Americans, Hispanics/Latinos, Asians, and Pacific Islanders.



**Gestational diabetes** is a form of glucose intolerance diagnosed during the second or third trimester of pregnancy. During pregnancy, increasing blood glucose levels increase the risk for both mother and fetus and require treatment to reduce problems for the mother and infant. Treatment may include diet, regular physical activity, or insulin. Shortly after pregnancy, 5% to 10% of women with gestational diabetes continue to have high blood glucose levels and are diagnosed as having diabetes, usually type 2. The risk factors for gestational diabetes are similar to those for type 2 diabetes. The occurrence of gestational diabetes itself is a risk factor for developing recurrent gestational diabetes with future pregnancies and subsequent development of type 2 diabetes. Also, the children of women who had gestational diabetes during pregnancies may be at risk of developing obesity and diabetes.

**Other types** of diabetes such as [maturity-onset diabetes of youth](#) or [latent autoimmune diabetes in adults](#), among others, are caused by specific genetic conditions or from surgery, medications, infections, pancreatic disease, or other illnesses. Such types of diabetes account for 1% to 5% of all diagnosed cases.



## What is prediabetes?

**Prediabetes** is a condition in which individuals have high blood glucose or hemoglobin A1C levels but not high enough to be classified as diabetes. People with prediabetes have an increased risk of developing type 2 diabetes, heart disease, and stroke, but not everyone with prediabetes will progress to diabetes. The Diabetes Prevention Program, a large prevention study of people at high risk for diabetes, showed that lifestyle intervention that resulted in weight loss and increased physical activity in this population can prevent or delay type 2 diabetes and in some cases return blood glucose levels to within the normal range. Other international studies have shown similar results.



# Acknowledgments

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- [Agency for Healthcare Research and Quality](#)
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- [American Diabetes Association](#)
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- [Centers for Medicare & Medicaid Services](#)
- [U.S. Department of Veterans Affairs](#)
- [U.S. Food and Drug Administration](#)
- [Health Resources and Services Administration](#)
- [JDRF](#)
- [Indian Health Service, Division of Diabetes Treatment and Prevention](#)
- [National Diabetes Education Program](#), a joint program of NIH and CDC
- [National Diabetes Information Clearinghouse](#)
- [National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health](#)
- [U.S. Department of Health and Human Services, Office of Minority Health](#)

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Division of Diabetes Translation

National Center for Chronic Disease Prevention and Health Promotion

Centers for Disease Control and Prevention

4770 Buford Highway NE, Mailstop F-73, Atlanta, GA 30341-3717

**Telephone:** 770-488-5000; **Web site:** <http://www.cdc.gov/diabetes>