

## Executive Summary: Heart Disease and Stroke Statistics—2013 Update

### A Report From the American Heart Association

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## Summary

Each year, the American Heart Association (AHA), in conjunction with the Centers for Disease Control and Prevention, the National Institutes of Health, and other government agencies, brings together the most up-to-date statistics on heart disease, stroke, other vascular diseases, and their risk factors and presents them in its Heart Disease and Stroke Statistical Update. The Statistical Update is a valuable resource for researchers, clinicians, healthcare policy makers, media professionals, the lay public, and many others who seek the best national data available on heart disease, stroke, and other cardiovascular disease–related morbidity and mortality and the risks, quality of care, medical procedures and operations, and costs associated with the management of these diseases in a single document. Indeed, since 1999, the Statistical Update has been cited >10 500 times in the literature, based on citations of all annual versions. In 2011 alone, the various Statistical Updates were cited ≈1500 times (data from ISI Web of Science). In recent years, the Statistical Update has undergone some major changes with the addition of new chapters and major updates across multiple areas, as well as increasing the number of ways to access and use the information assembled.

For this year's edition, the Statistics Committee, which produces the document for the AHA, updated all of the current chapters with the most recent nationally representative data and inclusion of relevant articles from the literature over the past year. This year's edition also implements a new chapter organization to reflect the spectrum of cardiovascular health behaviors and health factors and risks, as well as subsequent complicating conditions, disease states, and outcomes. Also, the 2013 Statistical Update contains new data on the monitoring and benefits of cardiovascular health in the population, with additional new focus on evidence-based approaches to changing behaviors, implementation strategies, and implications of the AHA's 2020 Impact Goals. Below are a few highlights from this year's Update.

### The 2013 Update Expands Data Coverage of the Epidemic of Poor Cardiovascular Health Behaviors and Their Antecedents and Consequences

- Adjusted population attributable fractions for cardiovascular disease (CVD) mortality were as follows<sup>1</sup>: 40.6% (95% confidence interval [CI], 24.5–54.6) for high blood pressure; 13.7% (95% CI, 4.8–22.3) for smoking; 13.2% (95% CI, 3.5–29.2) for poor diet; 11.9% (95% CI, 1.3–22.3) for insufficient physical activity; and 8.8% (95% CI, 2.1–15.4) for abnormal glucose levels.

- Despite 4 decades of progress, in 2011, among Americans ≥18 years of age, 21.3% of men and 16.7% of women continued to be cigarette smokers. In 2011, 18.1% of students in grades 9 through 12 reported current cigarette use.
- The percentage of the nonsmoking population with detectable serum cotinine (indicating exposure to secondhand smoke) declined from 52.5% in 1999 to 2000 to 40.1% in 2007 to 2008, with declines higher for those 3 to 11 years of age (–53.6%) and those 12 to 19 years of age (–46.5%) than for those 20 years of age and older (–36.7%).
- The proportion of youth (≤18 years of age) who report engaging in no regular physical activity is high, and the proportion increases with age. In 2011, among adolescents in grades 9 through 12, 17.7% of girls and 10.0% of boys reported that they had not engaged in ≥60 minutes of moderate-to-vigorous physical activity, defined as any activity that increased heart rate or breathing rate, even once in the previous 7 days, despite recommendations that children engage in such activity 7 days per week.
- Thirty two percent of adults reported engaging in no aerobic leisure-time physical activity.
- Data from the National Health and Nutrition Examination Survey (NHANES) indicate that between 1971 and 2004, average total energy consumption among US adults increased by 22% in women (from 1542 to 1886 kcal/d) and by 10% in men (from 2450 to 2693 kcal/d).
- The increases in calories consumed during this time period are attributable primarily to greater average carbohydrate intake, in particular, of starches, refined grains, and sugars. Other specific changes related to increased caloric intake in the United States include larger portion sizes, greater food quantity and calories per meal, and increased consumption of sugar-sweetened beverages, snacks, commercially prepared (especially fast food) meals, and higher energy-density foods.
- The estimated prevalence of overweight and obesity in US adults (≥20 years of age) is 154.7 million, which represents 68.2% of this group in 2010. Fully 34.6% of US adults are obese (body mass index ≥30 kg/m<sup>2</sup>). Men and women of all race/ethnic groups in the population are affected by the epidemic of overweight and obesity.
- Among children 2 to 19 years of age, 31.8% are overweight and obese (which represents 23.9 million children) and 16.9% are obese (12.7 million children). Mexican American boys and girls and African American girls are disproportionately affected. Over the past 3 decades, the prevalence of obesity in children 6 to 11 years of age has increased from ≈4% to >20%.
- Obesity (body mass index ≥30 kg/m<sup>2</sup>) is associated with marked excess mortality in the US population. Even more notable is the excess morbidity associated with overweight and obesity in terms of risk factor development and incidence of diabetes mellitus, CVD end points (including coronary heart disease, stroke, and heart failure), and numerous other health conditions, including asthma, cancer, end-stage renal disease, degenerative joint disease, and many others.

### Prevalence and Control of Cardiovascular Health Factors and Risks Remains an Issue for Many Americans

- An estimated 31.9 million adults  $\geq 20$  years of age have total serum cholesterol levels  $\geq 240$  mg/dL, with a prevalence of 13.8%.
- Based on 2007 to 2010 data, 33.0% of US adults  $\geq 20$  years of age have hypertension. This represents 78 million US adults with hypertension. The prevalence of hypertension is nearly equal between men and women. African American adults have among the highest prevalence of hypertension (44%) in the world.
- Among hypertensive adults,  $\approx 82\%$  are aware of their condition and 75% are using antihypertensive medication, but only 53% of those with documented hypertension have their condition controlled to target levels.
- In 2010, an estimated 19.7 million Americans had diagnosed diabetes mellitus, representing 8.3% of the adult population. An additional 8.2 million had undiagnosed diabetes mellitus, and 38.2% had prediabetes, with abnormal fasting glucose levels. African Americans, Mexican Americans, Hispanic/Latino individuals, and other ethnic minorities bear a strikingly disproportionate burden of diabetes mellitus in the United States.
- The prevalence of diabetes mellitus is increasing dramatically over time, in parallel with the increases in prevalence of overweight and obesity.
- On the basis of NHANES 2003–2006 data, the age-adjusted prevalence of metabolic syndrome, a cluster of major cardiovascular risk factors related to overweight/obesity and insulin resistance, is  $\approx 34\%$  (35.1% among men and 32.6% among women).

### Rates of Death Attributable to CVD Have Declined, but the Burden of Disease Remains High

- The 2009 overall rate of death attributable to CVD (*International Classification of Diseases, 10th Revision*, codes I00–I99) was 236.1 per 100 000. The rates were 281.4 per 100 000 for white males, 387.0 per 100 000 for black males, 190.4 per 100 000 for white females, and 267.9 per 100 000 for black females.
- From 1999 to 2009, the relative rate of death attributable to CVD declined by 32.7%. Yet in 2009, CVD (I00–I99; Q20–Q28) still accounted for 32.3% (787 931) of all 2 437 163 deaths, or 1 of every 3 deaths in the United States.
- On the basis of 2009 death rate data,  $>2150$  Americans die of CVD each day, an average of 1 death every 40 seconds. About 153 000 Americans who died of CVD (I00–I99) in 2009 were  $<65$  years of age. In 2009, 34% of deaths attributable to CVD occurred before the age of 75 years, which is well before the average life expectancy of 78.5 years.
- Coronary heart disease alone caused  $\approx 1$  of every 6 deaths in the United States in 2009. In 2009, 386 324 Americans died of coronary heart disease. Each year, an estimated  $\approx 635$  000 Americans have a new coronary attack (defined as first hospitalized myocardial infarction or coronary heart disease death) and  $\approx 280$  000 have a recurrent attack. It is

estimated that an additional 150 000 silent first myocardial infarctions occur each year. Approximately every 34 seconds, 1 American has a coronary event, and approximately every 1 minute, an American will die of one.

- From 1999 to 2009, the relative rate of stroke death fell by 36.9% and the actual number of stroke deaths declined by 23.0%. Yet each year,  $\approx 795$  000 people continue to experience a new or recurrent stroke (ischemic or hemorrhagic). Approximately 610 000 of these are first attacks, and 185 000 are recurrent attacks. In 2009, stroke caused  $\approx 1$  of every 19 deaths in the United States. On average, every 40 seconds, someone in the United States has a stroke and dies of one approximately every 4 minutes.
- In 2009, 1 in 9 death certificates (274 601 deaths) in the United States mentioned heart failure. Heart failure was the underlying cause in 56 410 of those deaths in 2009. The number of any-mention deaths attributable to heart failure was approximately as high in 1995 (287 000) as it was in 2009 (275 000). Additionally, hospital discharges for heart failure remained essentially unchanged from 2000 to 2010, with first-listed discharges of 1 008 000 and 1 023 000, respectively.

### The 2013 Update Provides Critical Data About Cardiovascular Quality of Care, Procedure Utilization, and Costs

In light of the current national focus on healthcare utilization, costs, and quality, it is critical to monitor and understand the magnitude of healthcare delivery and costs, as well as the quality of healthcare delivery, related to CVD risk factors and conditions. The Statistical Update provides these critical data in several sections.

#### Quality-of-Care Metrics for CVDs

Quality data are available from the AHA's "Get With The Guidelines" programs for coronary artery disease and heart failure and from the American Stroke Association/AHA's "Get With The Guidelines" program for acute stroke. Similar data from the Veterans Healthcare Administration, national Medicare and Medicaid data, and Acute Coronary Treatment and Intervention Outcomes Network (ACTION)–"Get With The Guidelines" Registry data are also reviewed. These data show impressive adherence to guideline recommendations for many, but not all, metrics of quality of care for these hospitalized patients. Data are also reviewed on screening for CVD risk factor levels and control.

#### Cardiovascular Procedure Use and Costs

- The total number of inpatient cardiovascular operations and procedures increased 28%, from 5 939 000 in 2000 to 7 588 000 in 2010 (National Heart, Lung, and Blood Institute computation based on National Center for Health Statistics annual data).
- The total direct and indirect cost of CVD and stroke in the United States for 2009 is estimated to be \$312.6 billion. This figure includes health expenditures (direct costs, which include the cost of physicians and other professionals, hospital services, prescribed medications, home health care, and other medical durables) and lost productivity that results from morbidity and premature mortality (indirect costs).

- By comparison, in 2008, the estimated cost of all cancer and benign neoplasms was \$228 billion (\$93 billion in direct costs, \$19 billion in morbidity indirect costs, and \$116 billion in mortality indirect costs). CVD costs more than any other diagnostic group.

The AHA, through its Statistics Committee, continuously monitors and evaluates sources of data on heart disease and stroke in the United States to provide the most current data available in the Statistics Update.

Finally, it must be noted that this annual Statistical Update is the product of an entire year's worth of effort by dedicated professionals, volunteer physicians and scientists, and outstanding AHA staff members, without whom publication of this valuable resource would be impossible. Their contributions are gratefully acknowledged.

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*On behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee*

Note: Population data used in the compilation of NHANES prevalence estimates are for the latest year of the NHANES survey being used. Extrapolations for NHANES prevalence estimates are based on the census resident population for 2010 because this is the most recent year of NHANES data used in the Statistical Update.

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## Reference

1. Yang Q, Cogswell ME, Flanders WD, Hong Y, Zhang Z, Loustalot F, Gillespie C, Merritt R, Hu FB. Trends in cardiovascular health metrics and associations with all-cause and CVD mortality among US adults. *JAMA*. 2012;307:1273–1283.

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KEY WORDS: AHA Scientific Statements ■ cardiovascular diseases ■ epidemiology ■ risk factors ■ statistics ■ stroke

**Table 1. Males and CVD: At-a-Glance Table**

Diseases and Risk Factors	Both Sexes	Total Males	White Males	Black Males	Mexican American Males
<b>Smoking</b>					
Prevalence, 2011*	43.8 M (19.0%)	24.1 M (21.3%)	22.8%	23.3%	16.2%†
<b>PA‡</b>					
Prevalence, 2011*	21.0%	24.9%	26.2%	25.9%	19.0%†
<b>Overweight and obesity</b>					
Prevalence, 2010					
Overweight and obesity, BMI >25.0 kg/m²§	154.7 M (68.2%)	79.9 M (72.9%)	73.1%	68.7%	81.3%
Obesity, BMI >30.0 kg/m²§	78.4 M (34.6%)	36.8 M (33.6%)	33.8%	37.9%	36.0%
<b>Blood cholesterol</b>					
Prevalence, 2010					
Total cholesterol >200 mg/dL§	98.9 M (43.4%)	45.3 M (41.3%)	40.5%	38.6%	48.1%
Total cholesterol >240 mg/dL§	31.9 M (13.8%)	14.0 M (12.7%)	12.3%	10.8%	15.2%
LDL cholesterol >130 mg/dL§	71.0 M (31.1%)	35.2 M (31.9%)	30.1%	33.1%	39.9%
HDL cholesterol <40 mg/dL§	48.7 M (21.8%)	34.6 M (31.8%)	33.1%	20.3%	34.2%
<b>HBP</b>					
Prevalence, 2010§	77.9 M (33.0%)	37.2 M (33.6%)	33.4%	42.6%	30.1%
Mortality, 2009	61 762	27 668	20 286	6574	N/A
<b>DM</b>					
Prevalence, 2010					
Physician-diagnosed DM§	19.7 M (8.3%)	9.6 M (8.7%)	7.7%	13.5%	11.4%
Undiagnosed DM§	8.2 M (3.5%)	5.3 M (4.7%)	4.5%	4.8%	6.6%
Prediabetes§	87.3 M (38.2%)	50.7 M (46.0%)	47.7%	35.7%	47.0%
Incidence, diagnosed DM§	1.9 M	N/A	N/A	N/A	N/A
Mortality, 2009	68 705	35 054	28 205	5488	N/A
<b>Total CVD</b>					
Prevalence, 2010§	83.6 M (35.3%)	40.7 M (36.7%)	36.6%	44.4%	33.4%
Mortality, 2009	787 931	386 436	329 565	46 334	N/A
<b>Stroke</b>					
Prevalence, 2010§	6.8 M (2.8%)	3.0 M (2.6%)	2.4%	4.3%	2.3%
New and recurrent strokes	795.0 K	370.0 K	325.0 K	45.0 K	N/A
Mortality, 2009	128 842	52 073	43 190	6962	N/A
<b>CHD</b>					
Prevalence, CHD, 2010§	15.4 M (6.4%)	8.8 M (7.9%)	8.2%	6.8%	6.7%
Prevalence, MI, 2010§	7.6 M (2.9%)	5.0 M (4.2%)	4.4%	3.9%	3.6%
Prevalence, AP, 2010§	7.8 M (3.2%)	3.7 M (3.3%)	3.3%	2.4%	3.4%
New and recurrent CHD¶#	915.0 K	535.0 K	465.0 K	65.0 K	N/A
New and recurrent MI#	715.0 K	410.0 K	N/A	N/A	N/A
Incidence, AP (stable angina)**	500.0 K	320.0 K	N/A	N/A	N/A
Mortality, 2009, CHD	386 324	210 069	183 453	21 051	N/A
Mortality, 2009, MI	125 464	68 814	60 316	6717	N/A
<b>HF</b>					
Prevalence, 2010§	5.1 M (2.1%)	2.7 M (2.5%)	2.5%	4.1%	1.9%
Mortality, 2009	56 410	23 563	20 815	2341	N/A

CVD indicates cardiovascular disease; M, millions; PA, physical activity; LDL, low-density lipoprotein; HDL, high-density lipoprotein; BMI, body mass index; HBP, high blood pressure; N/A, data not available; DM, diabetes mellitus; K, thousands; CHD, coronary heart disease (includes heart attack, angina pectoris chest pain, or both); MI, myocardial infarction (heart attack); AP, angina pectoris (chest pain); and HF, heart failure.

\*Age ≥18 years (National Health Interview Survey).

†All Hispanic (National Health Interview Survey).

‡Met 2008 full Federal PA guidelines for adults.

§Age >20 years.

||All ages.

¶New and recurrent MI and fatal CHD.

#Age ≥35 years.

\*\*Age ≥45 years.



**Table 2. Females and CVD: At-a-Glance Table**

Diseases and Risk Factors	Both Sexes	Total Females	White Females	Black Females	Mexican American Females
<b>Smoking</b>					
Prevalence, 2011*	43.8 M (19.0%)	19.7 M (16.7%)	19.7%	15.1%	8.3%†
<b>PA‡</b>					
Prevalence, 2011*	21.0%	17.1%	20.0%	11.3%	11.5%†
<b>Overweight and obesity</b>					
Prevalence, 2010					
Overweight and obesity, BMI >25.0 kg/m²§	154.7 M (68.2%)	74.8 M (63.7%)	60.2%	79.9%	78.2%
Obesity, BMI >30.0 kg/m²§	78.4 M (34.6%)	41.6 M (35.6%)	32.5%	53.9%	44.8%
<b>Blood cholesterol</b>					
Prevalence, 2010					
Total cholesterol >200 mg/dL§	98.9 M (43.4%)	53.6 M (44.9%)	45.8%	40.7%	44.7%
Total cholesterol >240 mg/dL§	31.9 M (13.8%)	17.9 M (14.7%)	15.6%	11.7%	13.5%
LDL cholesterol >130 mg/dL§	71.0 M (31.1%)	35.8 M (30.0%)	29.3%	31.2%	30.4%
HDL cholesterol <40 mg/dL§	48.7 M (21.8%)	14.1 M (12.3%)	12.4%	10.2%	15.1%
<b>HBP</b>					
Prevalence, 2010§	77.9 M (33.0%)	40.7 M (32.2%)	30.7%	47.0%	28.8%
Mortality, 2009	61 762	34 094	26 201	6951	N/A
<b>DM</b>					
Prevalence, 2010					
Physician-diagnosed DM§	19.7 M (8.3%)	10.1 M (7.9%)	6.2%	15.4%	12.0%
Undiagnosed DM§	8.2 M (3.5%)	2.9 M (2.3%)	1.8%	2.9%	4.7%
Prediabetes§	87.3 M (38.2%)	33.6 M (30.5%)	30.0%	29.0%	31.9%
Incidence, diagnosed DM§	1.9 M	N/A	N/A	N/A	N/A
Mortality, 2009	68 705	33 651	25 908	6472	N/A
<b>Total CVD</b>					
Prevalence, 2010§	83.6 M (35.3%)	42.9 M (34.0%)	32.4%	48.9%	30.7%
Mortality, 2009	787 931	401 495	343 955	48 070	N/A
<b>Stroke</b>					
Prevalence, 2010§	6.8 M (2.8%)	3.8 M (3.0%)	2.9%	4.7%	1.4%
New and recurrent strokes	795.0 K	425.0 K	365.0 K	60.0 K	N/A
Mortality, 2009	128 842	76 769	65 574	8916	N/A
<b>CHD</b>					
Prevalence, CHD, 2010§	15.4 M (6.4%)	6.6 M (5.1%)	4.6%	7.1%	5.3%
Prevalence, MI, 2010§	7.6 M (2.9%)	2.6 M (1.7%)	1.5%	2.3%	1.7%
Prevalence, AP, 2010§	7.8 M (3.2%)	4.1 M (3.2%)	2.8%	5.4%	3.3%
New and recurrent CHD¶#	915.0 K	380.0 K	325.0 K	60.0 K	N/A
New and recurrent MI#	715.0 K	305.0 K	N/A	N/A	N/A
Incidence, AP (stable angina)**	500.0 K	180.0 K	N/A	N/A	N/A
Mortality, 2009, CHD	386 324	176 255	152 785	19 470	N/A
Mortality, 2009, MI	125 464	56 650	48 802	6567	N/A
<b>HF</b>					
Prevalence, 2010§	5.1 M (2.1%)	2.4 M (1.8%)	1.8%	3.0%	1.1%
Mortality, 2009	56 410	32 847	29 372	2987	N/A

CVD indicates cardiovascular disease; M, millions; PA, physical activity; LDL, low-density lipoprotein; HDL, high-density lipoprotein; BMI, body mass index; HBP, high blood pressure; N/A, data not available; DM, diabetes mellitus; K, thousands; CHD, coronary heart disease (includes heart attack, angina pectoris chest pain, or both); MI, myocardial infarction (heart attack); AP, angina pectoris (chest pain); and HF, heart failure.

\*Age >18 years (National Health Interview Survey).

†All Hispanic (National Health Interview Survey)

‡Met 2008 full Federal PA guidelines for adults.

§Age >20 years.

||All ages.

¶New and recurrent MI and fatal CHD.

#Age >35 years.

\*\*Age >45 years.

**Table 3. Race/Ethnicity and CVD: At-a-Glance Table**

Diseases and Risk Factors	Both Sexes	Whites		Blacks		Mexican Americans		Hispanics/ Latinos		Asians: Both Sexes	American Indian/ Alaska Native: Both Sexes
		Males	Females	Males	Females	Males	Females	Males	Females		
Smoking											
Prevalence, 2011*	43.8 M (19.0%)	22.8%	19.7%	23.3%	15.1%	12.3%		16.2%	8.3%	9.6%	26.7%
PA†											
Prevalence, 2011*	21.0%	21.7%		17.8%		15.4%		15.4%		16.7%	17.0%
Overweight and obesity											
Prevalence, 2010											
Overweight and obesity, BMI >25.0 kg/m²‡	154.7 M (68.2%)	73.1%	60.2%	68.7%	79.9%	81.3%	78.2%	N/A	N/A	N/A	N/A
Overweight and obesity, BMI >30.0 kg/m²‡	78.4 M (34.6%)	33.8%	32.5%	37.9%	53.9%	36.0%	44.8%	N/A	N/A	N/A	N/A
Blood cholesterol											
Prevalence, 2010											
Total cholesterol >200 mg/dL‡	98.9 M (43.4%)	40.5%	45.8%	38.6%	40.7%	48.1%	44.7%	N/A	N/A	N/A	N/A
Total cholesterol >240 mg/dL‡	31.9 M (13.8%)	12.3%	15.6%	10.8%	11.7%	15.2%	13.5%	N/A	N/A	N/A	N/A
LDL cholesterol >130 mg/dL‡	71.0 M (31.1%)	30.1%	29.3%	33.1%	31.2%	39.9%	30.4%	N/A	N/A	N/A	N/A
HDL cholesterol <40 mg/dL‡	48.7 M (21.8%)	33.1%	12.4%	20.3%	10.2%	34.2%	15.1%	N/A	N/A	N/A	N/A
HBP											
Prevalence, 2010‡	77.9 M (33.0%)	33.4%	30.7%	42.6%	47.0%	30.1%	28.8%	22.2%*		18.7*	25.8%*
Mortality, 2009§	61 762	20 286	26 201	6574	6951	N/A	N/A	N/A	N/A	N/A	N/A
DM											
Prevalence, 2010											
Physician-diagnosed DM‡	19.7 M (8.3%)	7.7%	6.2%	13.5%	15.4%	11.4%	12.0%	N/A	N/A	N/A	N/A
Undiagnosed DM‡	8.2 M (3.5%)	4.5%	1.8%	4.8%	2.9%	6.6%	4.7%	N/A	N/A	N/A	N/A
Prediabetes‡	87.3 M (38.2%)	47.7%	30.0%	35.7%	29.0%	47.0%	31.9%	N/A	N/A	N/A	N/A
Incidence, diagnosed DM‡	1.9 M	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Mortality, 2009§	68 705	28 205	25 908	5488	6472	N/A	N/A	N/A	N/A	N/A	N/A
Total CVD											
Prevalence, 2010‡	83.6 M (35.3%)	36.6%	32.4%	44.4%	48.9%	33.4%	30.7%	N/A	N/A	N/A	N/A
Mortality, 2009§	787 931	329 565	343 955	46 334	48 070	N/A	N/A	N/A	N/A	N/A	N/A
Stroke											
Prevalence, 2010‡	6.8 M (2.8%)	2.4%	2.9%	4.3%	4.7%	2.3%	1.4%	2.8%*		2.7%*	4.6%
New and recurrent strokes§	795.0 K	325.0 K	365.0 K	45.0 K	60.0 K	N/A	N/A	N/A	N/A	N/A	N/A
Mortality, 2009§	128 842	43 190	65 574	6962	8916	N/A	N/A	N/A	N/A	N/A	N/A
CHD											
Prevalence, CHD, 2010‡	15.4 M (6.4%)	8.2%	4.6%	6.8%	7.1%	6.7%	5.3%	N/A	N/A	N/A	N/A
Prevalence, MI, 2010‡	7.6 M (2.9%)	4.4%	1.5%	3.9%	2.3%	3.6%	1.7%	N/A	N/A	N/A	N/A
Prevalence, AP, 2010‡	7.8 M (3.2%)	3.3%	2.8%	2.4%	5.4%	3.4%	3.3%	N/A	N/A	N/A	N/A
New and recurrent CHD¶  #	915.0 K	465.0 K	325.0 K	65.0 K	60.0 K	N/A	N/A	N/A	N/A	N/A	N/A
Mortality, CHD, 2009§	386 324	183 453	152 785	21 051	19 470	N/A	N/A	N/A	N/A	N/A	N/A
Mortality, MI, 2009§	125 464	60 316	48 802	6717	6567	N/A	N/A	N/A	N/A	N/A	N/A
HF											
Prevalence, 2010‡	5.1 M (2.1%)	2.5%	1.8%	4.1%	3.0%	1.9%	1.1%	N/A	N/A	N/A	N/A
Mortality, 2009§	56 410	20 815	29 372	2341	2987	N/A	N/A	N/A	N/A	N/A	N/A

CVD indicates cardiovascular disease; M, millions; PA, physical activity; N/A, data not available; LDL, low-density lipoprotein; HDL, high-density lipoprotein; BMI, body mass index; HBP, high blood pressure; DM, diabetes mellitus; K, thousands; CHD, coronary heart disease (includes heart attack, angina pectoris chest pain, or both); MI, myocardial infarction (heart attack); AP, angina pectoris (chest pain); and HF, heart failure.

\*Age >18 years (National Health Interview Survey).

†Met 2008 full Federal PA guidelines for adults.

‡Age >20 years.

§All ages.

||Figure not considered reliable.

¶New and recurrent MI and fatal CHD.

#Age >35 years.

**Table 4. Children, Youth, and CVD: At-a-Glance Table**

Diseases and Risk Factors	Both Sexes	Total Males	Total Females	NH Whites		NH Blacks		Mexican Americans	
				Males	Females	Males	Females	Males	Females
Smoking, %									
High school students, grades 9–12									
Current cigarette smoking, 2011	18.1	19.9	16.1	21.5	18.9	13.7	7.4	19.5*	15.2*
Current cigar smoking, 2011	13.1	17.8	8.0	19.0	7.5	15.1	8.5	17.2*	9.1*
PA†									
Prevalence, grades 9–12, 2011‡									
Met currently recommended levels of PA, %	49.5	59.9	38.5	62.1	42.6	57.1	31.9	57.1*	33.0*
Overweight and obesity									
Prevalence, 2010									
Children and adolescents, ages 2–19 y, overweight or obese	23.9 M (31.8%)	12.7 M (33.0%)	11.2 M (30.4%)	30.1%	25.6%	36.9%	41.3%	40.5%	38.2%
Children and adolescents, age 2–19 y, obese‡	12.7 M (16.9%)	7.2 M (18.6%)	5.5 M (15.0%)	16.1%	11.7%	24.3%	24.3%	24.0%	18.2%
Blood cholesterol, mg/dL, 2010									
Mean total cholesterol									
Ages 4–11 y	161.9	162.3	161.5	160.9	161.6	165.2	157.9	159.6	160.7
Ages 12–19 y	158.2	156.1	160.3	156.8	161.1	154.1	160.6	157.8	158.0
Mean HDL cholesterol									
Ages 4–11 y	53.6	55.1	51.9	53.9	51.4	59.9	55.3	53.5	50.5
Ages 12–19 y	51.4	49.2	53.6	48.4	53.0	53.9	55.4	47.5	53.3
Mean LDL cholesterol									
Ages 12–19 y	89.5	88.6	90.5	90.4	90.9	85.8	91.8	90.6	87.1
Congenital cardiovascular defects									
Mortality, 2009§	3189	1754	1435	1370	1086	304	268	N/A	N/A

CVD indicates cardiovascular disease; NH, non-Hispanic; PA, physical activity; HDL, high-density lipoprotein; LDL, low-density lipoprotein; M, millions; and N/A, data not available. Overweight indicates a body mass index in the 95th percentile of the Centers for Disease Control and Prevention 2000 growth chart.

\*Hispanic.

†Regular leisure-time PA.

‡Eaton DK, Kann L, Kinchen S, Shanklin S, Flint KH, Hawkins J, Harris WA, Lowry R, McManus T, Chyen D, Whittle L, Lim C, Wechsler H; Centers for Disease Control and Prevention. Youth risk behavior surveillance: United States, 2011. *MMWR Surveill Summ*. 2012;61:1–162.

§All ages.



## Disclosures

## Writing Group Disclosures

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\*Modest.

†Significant.

## **Executive Summary: Heart Disease and Stroke Statistics—2013 Update: A Report From the American Heart Association**

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on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee

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