

Executive Summary: Heart Disease and Stroke Statistics—2010 Update

A Report From the American Heart Association

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Statistics Committee and Stroke Statistics Subcommittee

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*The findings and conclusions of this report are those of the authors and do not necessarily represent the views of the Centers for Disease Control and Prevention. The 2010 Statistical Update full text is available online at <http://circ.ahajournals.org/cgi/content/full/121/7/e46>.

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Appendix I: List of Statistical Fact Sheets. URL:
<http://www.americanheart.org/presenter.jhtml?identifier=2007>

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Summary

Each year, the American Heart Association, 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 disease 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 2000, the Statistical Update has been cited more than 6500 times in the literature (including citations of all annual versions). In 2008 alone, the various Statistical Updates were cited approximately 1300 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. For this year’s edition, the Statistics Committee, which produces the document for the American Heart Association, updated all of the current chapters with the most recent nationally representative data and inclusion of relevant papers from the literature over the past year. In future years, the Committee plans for the Statistical Update to be a major source for monitoring both cardiovascular health and disease in the population, with a focus on progress toward achievement of the American Heart Association’s 2020 Impact Goals. In addition, future Statistical Updates will begin to incorporate the vast amounts of data becoming available from large population-based efforts to study the genetics of cardiovascular disease (CVD). Below are a few highlights from this year’s Update.

Death Rates From CVD Have Declined, Yet the Burden of Disease Remains High

- The 2006 overall death rate from CVD (*International Classification of Diseases 10*, I00–I99) was 262.5 per 100 000. The rates were 306.6 per 100 000 for white males, 422.8 per 100 000 for black males, 215.5 per 100 000 for white females, and 298.2 per 100 000 for black females. From 1996 to 2006,

death rates from CVD declined 29.2%. Mortality data for 2006 show that CVD (I00–I99; Q20–Q28) accounted for 34.3% (831 272) of all 2 426 264 deaths in 2006, or 1 of every 2.9 deaths in the United States.

- On the basis of 2006 mortality rate data, nearly 2300 Americans die of CVD each day, an average of 1 death every 38 seconds. The 2007 overall preliminary death rate from CVD was 250.4. More than 151 000 Americans killed by CVD (I00–I99) in 2006 were <65 years of age. In 2006, nearly 33% of deaths due to CVD occurred before the age of 75 years, which is well before the average life expectancy of 77.7 years.
- Coronary heart disease caused approximately 1 of every 6 deaths in the United States in 2006. Coronary heart disease mortality in 2006 was 425 425. In 2010, an estimated 785 000 Americans will have a new coronary attack, and approximately 470 000 will have a recurrent attack. It is estimated that an additional 195 000 silent first myocardial infarctions occur each year. Approximately every 25 seconds, an American will have a coronary event, and approximately every minute, someone will die of one.
- Each year, approximately 795 000 people experience a new or recurrent stroke. Approximately 610 000 of these are first attacks, and 185 000 are recurrent attacks. Mortality data from 2006 indicate that stroke accounted for approximately 1 of every 18 deaths in the United States. On average, every 40 seconds, someone in the United States has a stroke. From 1996 to 2006, the stroke death rate fell 33.5%, and the actual number of stroke deaths declined 18.4%.
- In 2006, 1 in 8.6 death certificates (282 754 deaths) in the United States mentioned heart failure.

Prevalence and Control of Traditional Risk Factors Remains an Issue for Many Americans

- Data from the National Health and Nutrition Examination Survey (NHANES) 2003–2006 indicate that 33.6% of US adults ≥20 years of age have hypertension (Table 6-1). This amounts to an estimated 74 500 000 US adults with hypertension. The prevalence of hypertension is nearly equal between men and women. African-American adults have among the highest rates of hypertension in the world, at >43%. Among hypertensive adults, approximately 78% are aware of their condition, 68% are using antihypertensive medication, and only 44% of those treated had their hypertension controlled.
- Despite 4 decades of progress, in 2008, among Americans ≥18 years of age, 23.1% of men and 18.3% of women continued to be cigarette smokers. In grades 9 through 12, 21.3% of male students and 18.7% of female students reported current tobacco use. The percentage of the non-smoking population with detectable serum cotinine (indicating exposure to secondhand smoke) was 46.4% in 1999–2004 and was highest for those 4 to 11 years of age (60.5%) and those 12 to 19 years of age (55.4%).
- An estimated 35 700 000 adults ≥20 years of age have total serum cholesterol levels ≥240 mg/dL, with a prevalence of 16.2% (Table 11-1).
- In 2006, an estimated 17 200 000 Americans had diagnosed diabetes, representing 7.7% of the adult population. A further 6 100 000 had undiagnosed diabetes, and 29% had prediabe-

tes, with abnormal fasting glucose levels. African-Americans, Mexican-Americans, Hispanic/Latino individuals, and other ethnic minorities bear a strikingly disproportionate burden of diabetes in the United States (Table 14-1).

The 2010 Update Expands Data Coverage of the Obesity Epidemic and Its Antecedents and Consequences

- The estimated prevalence of overweight and obesity in US adults (≥ 20 years of age) is 144 100 000, which represents 66.3% of this group in 2006. Fully 32.9% of US adults are obese (body mass index ≥ 30 kg/m²). Men and women of all race/ethnic groups in the population are affected by the epidemic of overweight and obesity (Table 13-1).
- Among children 2 to 19 years of age, 31.9% are overweight and obese (which represents 23 500 000 children), and 16.3% are obese (12 000 000 children). Mexican-American boys and girls and African-American girls are disproportionately affected. Over the last 3 decades, the prevalence of obesity in children 6 to 11 years of age has increased from approximately 4% to more than 17%.
- Although there is some debate regarding the amount of excess mortality associated with overweight, it is clear that obesity (body mass index ≥ 30 kg/m²) 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, CVD end points (including coronary heart disease, stroke, and heart failure), and numerous other health conditions, including asthma, cancer, degenerative joint disease, and many others.
- The prevalence of diabetes 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 34% (35.1% among men and 32.6% among women).
- 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 2007, among adolescents in grades 9 through 12, 31.8% of females and 18% of males 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 ≥ 5 days per week.
- Fifty-nine percent of adults who responded to the 2008 National Health Interview Survey reported engaging in no vigorous activity (activity that causes heavy sweating and a large increase in breathing or heart rate).
- Data from 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; see Chart 17-1).
- The increases in calories consumed during this time period are attributable primarily to greater average carbohydrate intake, particularly of starches, refined grains, and sugars. Other specific changes related to increased caloric intake in the United States include larger portion sizes, greater food quan-

tity and calories per meal, and increased consumption of sugar-sweetened beverages, snacks, commercially prepared (especially fast food) meals, and higher energy-density foods.

The 2010 Update Provides Critical Data Regarding 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 CVDs. The Update provides these critical data in several sections.

Quality-of-Care Metrics for CVDs

Chapter 18 reviews many metrics related to the quality of care delivered to patients with CVDs, as well as healthcare disparities. In particular, quality data are available from the American Heart Association's "Get With the Guidelines" programs for acute coronary syndromes and heart failure and the American Stroke Association/American Heart Association's "Get With the Guidelines" program for acute stroke. Similar data from the Veterans Healthcare Administration, national Medicare and Medicaid data, and NCDR ACTION Registry data are also reviewed. These data show impressive adherence with guideline recommendations for many, but not all, metrics of quality of care for these hospitalized patients. Data are also reviewed on screening for cardiovascular risk factor levels and control.

Cardiovascular Procedure Utilization and Costs

Chapter 19 provides data on trends and current usage of cardiovascular surgical and invasive procedures. For example, from 1996 to 2006, the total number of inpatient cardiovascular operations and procedures increased 33%, from 5 444 000 to 7 235 000 annually (American Heart Association computation based on National Center for Health Statistics annual data).

Chapter 20 reviews trends and current projections of direct and indirect healthcare costs related to CVDs, stroke, and related conditions. The total direct and indirect cost of CVD and stroke in the United States for 2010 is estimated to be \$503.2 billion. This figure includes health expenditures (direct costs, which include the cost of physicians and other professionals, hospital and nursing home services, prescribed medications, home health care, and other medical durables) and lost productivity resulting from morbidity and mortality (indirect costs). Total hospital costs (inpatients, outpatients, and emergency department patients) projected for the year 2010 are estimated to be \$155.7 billion. 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 American Heart Association, 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. The 2007 preliminary mortality data have been released. More information can be found at the National Center for Health Statistics Web site, http://www.cdc.gov/nchs/data/nvsr/nvsr58/nvsr58_01.pdf.

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 American Heart Association 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 Heart Disease and Stroke Statistics Writing Group

Note: Population data used in the compilation of NHANES prevalence estimates will now agree with the latest year of the NHANES survey being used. Extrapolations for NHANES prevalence estimates are based on the census resident population for 2006 because this is the most recent year of NHANES data used in the Statistical Update. An exception is the provisional smoking data from the 2008 National Health Interview Survey.

Disclosures

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Nathan D. Wong	University of California, Irvine	Merck†; Pfizer†	None	Speaking fees for various CME programs/lectures on various topics including dyslipidemia, hypertension, diabetes/metabolic syndrome†; Takeda†	None	None	Consultant for Novartis, Inc. for diabetes project (ended in spring 2008)†	None
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*Modest.

†Significant.