



OFFICE OF RESEARCH ON WOMEN'S HEALTH

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*Women of Color Health Information Collection*

# Cardiovascular Disease

# OFFICE OF RESEARCH ON WOMEN'S HEALTH NATIONAL INSTITUTES OF HEALTH

The Office of Research on Women's Health (ORWH), established in September 1990 within the Office of the Director, National Institutes of Health (NIH), works in partnership with the NIH Institutes and Centers (ICs) to ensure that women's health research is part of the scientific framework at NIH and throughout the scientific community. ORWH collaborates with the Advisory Committee on Research on Women's Health (ACRWH), comprising physicians, scientists, and other health professionals; and the Coordinating Committee on Research on Women's Health (CCRWH), composed of the NIH IC Directors or their designees to implement the NIH strategic plan for women's health and sex differences research.

## **The ORWH mission is to:**

- Advise the NIH Director and staff on matters relating to research on women's health.
- Strengthen and enhance research related to diseases, disorders, and conditions that affect women.
- Ensure that research conducted and supported by NIH adequately addresses issues regarding women's health.
- Ensure that women are appropriately represented in biomedical and biobehavioral research studies supported by NIH.
- Develop opportunities for, and support of, recruitment, retention, re-entry, and advancement of, women in biomedical careers.
- Support research on women's health issues.

For more information on the ORWH mission, programs, and the NIH strategic plan for women's health and sex differences research, *Moving into the Future with New Dimensions and Strategies for Women's Health Research: A Vision for 2020 for Women's Health Research*, visit <http://orwh.od.nih.gov>.

# WOMEN OF COLOR HEALTH INFORMATION COLLECTION: CARDIOVASCULAR DISEASE

## INTRODUCTION

The Women of Color Health Information Collection highlights the important role culture, race/ethnicity, socioeconomic background, geographic location, and other factors have on the health status of women of diverse backgrounds. Data on the health status of women of color are not readily available from a single source. Although clinical trials and population-based surveys may include diverse populations, many do not report results disaggregated by sex and race/ethnicity or for minority subpopulations.

This series of publications provides a variety of sources that highlight various diseases and conditions in women of color. Scientists, advocates, clinicians, and policymakers can use this information to better understand the health status of women of color in the United States to formulate policies and research

priorities, and to develop and implement clinical practices that promote the health of all women.

A challenge inherent to women's health research is to establish a scientific knowledge base that

will permit reliable diagnoses and effective prevention and treatment strategies appropriate for all women, including those of diverse racial/ethnic backgrounds. There is a need for better understanding of how sex, gender, and cultural and racial/ethnic differences influence the pathobiology, etiology, diagnosis, progression, treatment, and outcomes of diseases among different populations.


The expanded concepts of women's health and women's health research focus on the study and understanding of women's health as a reflection of the many elements that contribute to the overall quality of women's lives in the United States today. The ultimate goal of biomedical research is to increase knowledge gained through sound science to inform the development of policies and clinical practice standards from which all women and men can benefit.

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### A Note about Terms Used in this Booklet

*This booklet uses terms established by the U. S. Census Bureau to describe race and ethnic categories of people. When presenting data gathered by independent researchers, this booklet retains their terminology.*



Women's health issues have gained increased attention since the Office of Research on Women's Health was established two decades ago. Federal offices, programs, legislation, and policies have been created to encourage study of women's health issues and to promote including women and minorities in clinical research. This progress reflects the recognition that for biomedical and behavioral research results to be widely applicable, researchers and clinicians must consider in their research design or healthcare delivery, how cultural, racial, sex/gender, and ethnic differences may influence the causes, diagnoses, prognosis, treatment, and outcomes of diseases among different populations.

The NIH Revitalization Act of 1993, Public Law 103-43, requires that NIH-funded clinical research include women and minorities, as scientifically appropriate. NIH recognizes that barriers exist to recruiting and retaining women of diverse backgrounds as research subjects. These barriers include the effects of historical exclusion of women of child bearing age, mistreatment of minorities in clinical research, and current impaired access to health care because of the effects of poverty and inadequate health insurance. Cost, however, cannot be considered as a barrier, nor can it be used to justify excluding women and minorities from participating in clinical research, according to NIH policy based on the NIH Revitalization Act of 1993.

These barriers can be overcome by increasing cultural diversity among researchers, promoting collaborative relationships between researchers and communities, overcoming logistical issues related to women's roles as caregivers and in the workplace, and appreciating cultural beliefs of potential research participants.

## **WOMEN OF COLOR IN THE U.S. POPULATION**

Of the approximately 307 million estimated U.S. residents in 2009, about 51 percent were women according to the U.S. Census Bureau, as shown in Table 1. There is increasing racial and ethnic diversity in the United States and a growing population of non-White women. The Census Bureau estimated that in 2009, almost 11 percent of women were non-White, and Hispanic\* women constituted 7.61 percent of the total U.S. population.<sup>1</sup>

\*Hispanic origin is considered an ethnicity, not a race. Hispanics may be of any race.

**Table 1: Estimated Total and Female Population of the United States by Race and Hispanic Origin for 2009 Based on 2000 Census Data**

Race and Hispanic Origin	Total Male and Female	Female % of Total Population	Female
Total U.S. Population (Hispanic and Non-Hispanic)	307,006,550	50.67%	155,557,060
White	244,298,393	40.08%	123,062,670
Black	39,641,060	8.48%	20,704,909
American Indian/Alaska Native (AI/AN)	3,151,284	0.51%	1,569,803
Asian	14,013,954	2.36%	7,244,461
Native Hawaiian/Pacific Islander (NH/PI)	578,353	0.09%	284,281
Two or more races	5,323,506	0.88%	2,690,936
Hispanic (Total)	48,419,324	48.25%	23,362,405
White	44,447,153	44.18%	21,392,163
Black	1,959,516	2.04%	990,111
AI/AN	790,477	0.77%	373,571
Asian	327,871	0.34%	163,503
NH/PI	129,843	0.13%	61,229
Two or more races	764,464	0.79%	381,828
Non-Hispanic (Total)	258,587,226	51.12%	132,194,655
White	199,851,240	39.32%	101,670,507
Black	37,681,544	7.62%	19,714,798
AI/AN	2,360,807	0.46%	1,196,232
Asian	13,686,083	2.74%	7,080,958
NH/PI	448,510	0.09%	223,052
Two or more races	4,559,042	0.89%	2,309,108
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Adapted from Annual Estimates of the Resident Population by Sex, Race, and Hispanic Origin for the United States: April 1, 2000 to July 1, 2009 (NC-EST2009-03). <http://www.census.gov/popest/national/asrh/NC-EST2009-srh.html> Date Accessed: September 10, 2010.

## LEADING CAUSES OF DEATH IN FEMALES

The seven leading causes of death of women over age 18 in the United States are heart disease, cancer, stroke, chronic lower respiratory disease, Alzheimer’s disease, unintentional injuries, and diabetes mellitus. Based on 2007 data from the U.S. Centers for Disease Control and Prevention (CDC) shown in Table 2, heart disease and cancer are the first and second leading causes of death for African-American, White, and Hispanic women in the U.S. However, for American-Indian/Alaska-Native and Asian- or Pacific-Islander women, cancer is the leading cause of death and heart disease is the second leading cause of death. Stroke is the third leading cause of death for all women except for American-Indian/Alaska-Native women.<sup>2</sup>

**Table 2: Leading Causes of Death in Females Age 18 and Older for the United States in 2007 by Percentage\***

Condition	All	American Indian or Alaska Native	Asian or Pacific Islander	Black	White	Hispanic**
Heart disease	<b>25.5</b>	18.2	22.9	<b>26.0</b>	<b>25.6</b>	<b>23.8</b>
Cancer	22.4	<b>19.6</b>	<b>27.9</b>	22.7	22.3	23.2
Stroke	6.8	5.0	9.5	7.0	6.7	5.7
Chronic lower respiratory diseases	5.5	5.0	2.5	2.7	6.2	2.9
Alzheimer’s disease	4.4	N/A	2.4	2.6	4.8	3.0
Unintentional injuries	3.4	8.2	3.6	2.7	3.4	4.3
Diabetes mellitus	3.0	6.7	4.2	5.1	2.5	5.8

Adapted from U.S. Department of Health and Human Services, Health Resources and Services Administration, Maternal and Child Health Bureau. Women’s Health USA 2010. Rockville, Maryland: U.S. Department of Health and Human Services, 2010. <http://mchb.hrsa.gov/whusa10/hstat/hi/desc/208lcdTre.html>. Date Accessed: September 19, 2011.

\*The data represent the percentage of total deaths in the race category due to the disease indicated.

\*\*The racial groups (White, Black, American Indian or Alaska Native, and Asian or Pacific Islander) include only persons of non-Hispanic origin. Persons of Hispanic origin may be of any race.

Leading causes of death for each race/ethnicity appear in bold type.

# BACKGROUND


Cardiovascular disease (CVD) is an abnormal functioning of the heart or blood vessels.<sup>3</sup> Heart disease (HD) is a general term for a variety of heart conditions.<sup>4</sup> The most common form of HD in women is coronary heart disease (CHD), also called coronary artery disease (CAD) because it involves the coronary arteries. Other types of CVD include hypertension, congestive heart failure, stroke, congenital cardiovascular defects, hardening or narrowing (atherosclerosis) of the blood vessels, including the coronary arteries, and other diseases of the circulatory system.<sup>5</sup> Diabetes, hypertension, high cholesterol, obesity, lack of exercise, smoking, increased age, and family history are risk factors for cardiovascular (or heart) disease.

## **Research also indicates that women are less likely than men to receive evidence-based cardiac care after a heart attack.**

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In the United States, HD is the leading cause of death for Whites (men and women), Blacks (men and women), Hispanics (men and women), and American-Indian/Alaska-Native men. Cancer is the leading cause of death for American-Indian/Alaska-Native men and women and American-Indian/Native-American women.<sup>6</sup>

In 2007, 421,918 women died from all forms of CVD. More female lives were claimed by CVD than were claimed by cancer, chronic lower respiratory disease, Alzheimer disease, and accidents combined.<sup>5</sup> In the same year, heart disease accounted for significant shares of all deaths among women of each racial/ethnic subpopulation: White (25 percent), Black (25 percent), Hispanic (22 percent), Asian/Pacific Islander (22 percent), and American Indian/Alaska Native (17 percent).<sup>6</sup>



Many women are living with heart disease, but may not be aware of it: In 2008, about 5.8 percent of all non-Hispanic White women, 7.6 percent of non-Hispanic Black women, and 5.6 percent of Mexican-American women had coronary heart disease.<sup>5</sup> Almost two-thirds of the women who die suddenly of coronary heart disease have had no previous symptoms.<sup>5</sup>

More women than men die each year from CVD.<sup>7</sup> However, in a 2009 survey, 30 percent of women underestimated their risk for heart disease, with racial and ethnic minority women being more likely to underestimate their risk.<sup>8</sup> Surprisingly, only 53 percent of women surveyed said that they would call 9-1-1 if they believed they were having a heart attack. Additionally, only 54 percent of women chose CVD as the leading cause of death among women, and women of color (Black, Hispanic, or Asian) were significantly less likely to identify CVD as the leading cause of death.<sup>9</sup> While women of all races and ethnicities are affected by CVD, a disparity exists between women of color and other women in their awareness and personalization of the risk for the disease.

Furthermore, although 1 in 4 women in the United States dies from heart disease, a 2003 study showed that women comprised only 27 percent of participants in all heart-related research studies,<sup>10</sup> and a 2011 study found that in 325 landmark cardiovascular trials, the overall rate of enrollment of women was 30 percent.<sup>11</sup> Research also indicates that women are less likely than men to receive evidence-based cardiac care after a heart attack.<sup>12</sup>




# SUSCEPTIBILITY AND IMPACT

## MAJOR RISK FACTORS FOR CARDIOVASCULAR DISEASE

**Hypertension:** Hypertension is defined as an average systolic blood pressure greater than or equal to 140 mmHg or an average diastolic blood pressure of greater than or equal to 90 mmHg. Hypertension is more common in African-American women than in White women, and has a much higher prevalence among Black women than other women of color.<sup>5</sup> In 2008 in the U.S., 46 percent of non-Hispanic black women age 20 and older had hypertension, compared to about 31 percent of non-Hispanic White and 29 percent of Mexican-American women.<sup>5</sup> These rates of hypertension have been shown to vary with education level: the prevalence of hypertension among Black women with a high school education or higher is 37 percent, compared to 51.2 percent of Black women with less than a high school education. Among Mexican-American and White women, 15.5 percent and 31 percent of women with higher levels of education have hypertension, compared to 24.2 percent and 47.4 percent of their less educated counterparts, respectively.<sup>13</sup> African-American women also are at greater risk for severe complications from hypertension, such as stroke and heart failure.<sup>14</sup>

**Diabetes Mellitus:** Diabetes mellitus (DM) is a group of diseases marked by high levels of blood glucose resulting from inadequate insulin production or insulin action. DM can cause serious complications and premature death, and it is one of the leading causes of death and disability in the United States, especially among women of color.<sup>9</sup> As of 2011, an estimated 25.8 million children and adults, or 8.3 percent of the population, suffer from DM. It has major complicating effects on the cardiovascular system and frequently causes or exacerbates conditions such as kidney and nervous system disease.<sup>15</sup>

**Elevated Total Cholesterol:** High serum cholesterol is defined as 240 mg/dl and is one of the major risk factors for CVD. It was found in roughly equal proportions among all subpopulations of women age 20 and older in 2008. At that time, nearly one sixth of all non-Hispanic White (16.9 percent) and non-Hispanic Black (13.3 percent) women had high serum cholesterol, as did 14.0 percent of Mexican-American women.<sup>5</sup> The percentage of women with high serum cholesterol has decreased for all three groups of women since 2003-2004, and has decreased for men and women in each of these racial and ethnic groups since 1988-94.<sup>5</sup>



**Tobacco Use:** According to the American Heart Association, cigarette smoking is the “most important preventable cause of premature death in the United States.”<sup>16</sup> Smoking leads to the accumulation of plaque in the arteries; this build-up blocks blood flow and can cause coronary heart disease and heart attacks.<sup>16</sup> American Indians/Alaska Natives have an especially high prevalence of tobacco use: among American Indians/Alaska Natives age 18 and older in 2007, 36.7 percent of men and 36 percent of women smoked, compared to only 23.1 percent of White men and 19.8 percent of White women who smoked.<sup>17</sup>

**Physical Inactivity:** The American Heart Association recommends at least 150 minutes of moderate exercise per week (or 75 minutes per week of vigorous exercise) to promote cardiovascular fitness, since regular physical activity reduces the risk of dying from CVD.<sup>18</sup> In a survey conducted in the US from 2004-2008, 35.4 percent of White women, 54.2 percent of Black women, 53.9 percent of Hispanic women, 41 percent of Asian women, and 43.1 percent of American Indian/Alaska Native women said that they were “inactive,” defined as no light, moderate, or vigorous leisure-time physical activity lasting at least 10 minutes.<sup>19</sup>

**Overweight or Obesity:** The terms “overweight” and “obesity” refer to a person’s overall body weight. The NIH defines “overweight” as having extra body weight from muscle, bone, fat, and/or water and “obesity” as having a high amount of extra body fat.<sup>20</sup> Obesity can have significant effects on the body, especially the cardiovascular system; coronary heart disease, hypertension, and stroke are some of the major effects of obesity.<sup>21</sup> As of 2009, 23.3 percent of White women, 41.9 percent of African-American women, and 30.8 percent Hispanic-American women were categorized as obese.<sup>22</sup> One widely used measure of whether an individual is overweight or obese is body mass index (BMI). BMI is based on height and weight and can be used for men and women of all ages. Instructions on calculating BMI can be found at the web site for the National Heart, Lung, and Blood Institute: <http://www.nhlbisupport.com/bmi/>.

## INCIDENCE AND DEATH RATES FROM CARDIOVASCULAR DISEASE

**Heart Disease in Asians and Native Hawaiians/Pacific Islanders:** Asian-American adults have the lowest prevalence of heart disease, hypertension, or stroke of any major racial or ethnic group (among White, Black, Native Hawaiian/Pacific Islander, or Hispanic adults). These statistics are likely partly due to decreased behavioral risk factors for CVD in

the population: Asian-American adults are the least likely among the racial and ethnic groups to be current smokers or to be overweight or obese, and they are the most likely to get some leisure-time physical activity. However, when the population of “Asian” is disaggregated and different subgroups are analyzed independently, Native Hawaiians/Pacific Islanders are actually more likely than Whites to be obese or to classify themselves as inactive; more than 45 percent of Native Hawaiians/Pacific Islanders say they are inactive (defined as no light, moderate, or vigorous leisure-time activity lasting at least 10 minutes).<sup>23</sup> In 2007, the heart disease death rate was 82 per 100,000 Asian- and Pacific-Islander women, or approximately half the death rate from heart disease of non-Hispanic White women (Table 3).<sup>24</sup>


**Table 3: Age-Adjusted Heart Disease Death Rates in 2007**

Race and Hispanic* Origin	Men		Women	
	Rate per 100,000	Ratio to Non-Hispanic White	Rate per 100,000	Ratio to Non-Hispanic White
Non-Hispanic White	239.8	1.00	153.0	1.00
Asian/Pacific Islander	126.0	0.53	82.0	0.54
Black/African American	305.9	1.28	204.5	1.34
American Indian/Alaska Native	159.8	0.67	99.8	0.66
Hispanic or Latino(a)	165.0	0.69	111.8	0.73

Source: Table 3. Health, United States, 2010: With Special Feature on Death and Dying. Hyattsville, MD. 2011.

\*The race groups Black, Asian or Pacific Islander, and American Indian or Alaska Native include persons of Hispanic and non-Hispanic origin. Persons of Hispanic origin may be of any race. Death rates for the American Indian or Alaska Native and Asian or Pacific Islander populations are known to be underestimated.

**Heart Disease and African Americans:** African-American adults have the highest prevalence of coronary heart disease, hypertension, and stroke of all racial and ethnic groups studied (among White, Black, Native Hawaiian/Pacific Islander, or Hispanic adults). Among women, African-American women are more likely to suffer from each of these conditions than their non-Hispanic White and Hispanic counterparts.<sup>23</sup> African-American women also had the highest age-adjusted death rate from heart disease in 2007 (204.5 per 100,000), more than 1.3 times that of non-Hispanic White women (100 per 100,000, Table 3).<sup>24</sup> In 2009, nearly 11 percent of African-American women suffered from heart disease, while over 35 percent had high blood pressure.<sup>23</sup>



**Heart Disease and American Indians/Alaska Natives:** American-Indian/Alaska-Native adults are more likely to be obese than White adults; they are also more likely than white adults to describe themselves as “inactive,” or having no light, moderate, or vigorous leisure-time activity for at least 10 minutes. Among American Indians or Alaska Natives age 18 and older, 8 percent have heart disease, 4.1 percent have coronary heart disease, and 21.8 percent have hypertension.<sup>23</sup> In 2007, the death rate for heart disease was 99.8 per 100,000 American Indian or Alaska-Native females (Table 3).<sup>23</sup>

**Heart Disease and Hispanics:** Hispanic-American women are slightly less likely to have any form of heart disease than non-Hispanic women,<sup>23</sup> and Hispanic women are less likely to die from heart disease than White women.<sup>9</sup> Hispanic women are also less likely to be current smokers, but they are more likely than non-Hispanic White women to be obese and to be physically inactive in their leisure time. In 2009, 8.4 percent of Hispanic women had heart disease and 22.5 percent had hypertension.<sup>23</sup> In 2007, the death rate for heart disease was 111.8 per 100,000 Hispanic women (Table 3).<sup>24</sup>

# RESEARCH HIGHLIGHTS

## **American Heart Association Survey of Awareness, Knowledge, and Perceptions Related to Heart Disease and Stroke: U.S. Minority Women Know Less about Heart Disease**

Though women of color are at greater risk for CVD, they know less about risks and signs of the disease than White women, according to an American Heart Association (AHA) survey. Significantly more women surveyed in 2009 were aware that heart disease is the top killer of women than were aware in 1997 (54 percent in 2009 versus 30 percent in 1997). Awareness that heart disease is the leading cause of death for women approximately doubled among Hispanic women and nearly tripled among Black women surveyed between 1997 and 2009. However, the disparity in awareness of heart disease's mortality ranking among Black and Hispanic women (43 percent and 44 percent, respectively) compared to white women (60 percent) had not significantly improved since 1997. Even though more women surveyed in 2009 considered themselves well-informed about heart disease compared to women surveyed in 1997 (45 percent vs. 34 percent), knowledge of heart attack warning signs did not differ appreciably between the surveys.<sup>12</sup>


The study authors suggest that, “one potential way to eliminate or reduce health disparities in the United States is through more targeted efforts to raise awareness among racial and ethnic minorities who are least aware of heart disease and stroke, and also at greatest risk.”<sup>25</sup>

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## **Hot Flashes and Subclinical Cardiovascular Disease: Findings from the Study of Women's Health Across the Nation Heart Study**

Studies suggest that hot flashes may be related to changes in the vasculature in the perimenopausal period, but it is not known if hot flashes are associated with CVD. This study, initiated in 1996, examined the relation between menopausal hot flashes and several measures of subclinical CVD, with the hypothesis that women who experienced hot flashes would be more likely to have certain indices of subclinical CVD. The study analyzed data from the Study of Women's Health Across the Nation (SWAN) Heart Study and included 492 women (35




percent African American, 65 percent White), ages 45-58, who were free of clinical CVD. Measurements in this study included a brachial artery ultrasound to assess flow mediated dilation, electron beam tomography to assess coronary artery and aortic calcification, reported hot flashes (any/none, previous two weeks), and a blood sample for measurement of estradiol concentrations. Hot flashes were associated with significantly lower flow mediated dilation. The researchers found that women with hot flashes had arteries that did not dilate as well with increased blood flow, as well as increased calcification of the aorta. Study authors suggested that hot flashes may mark adverse underlying vascular changes among midlife women, meaning that this menopausal symptom could have clear clinical significance, in addition to its impact on quality of life.<sup>26</sup>

### **The Women's Ischemia Syndrome Evaluation**

This multicenter study initiated in 1996 greatly increased understanding about CHD in women and about gender-specific symptoms, risk factors, and pathology. The study enrolled and studied over 900 women who had symptoms of CHD (chest pain, shortness of breath) and were referred for diagnostic angiography. It found that women are more likely to have plaque build-up that spreads evenly along artery walls rather than forming large blockages. Even though women with this condition may have angina similar to people with large blockages and often go on to have heart attacks, they may be categorized as low risk for heart events because their arteries look clear. These findings indicate that CHD risk factors should be addressed aggressively in women with symptoms, even in the absence of a positive imaging for arterial blockages, and that better approaches to evaluate cardiac ischemia in women should be developed and used.<sup>27</sup>

### **Women's Health Study of Low-Dose Aspirin in Apparently Healthy Women**

This study, initiated in 1993, found that low-dose aspirin and vitamin E supplements play a minor role, if any, in protecting women from CVD. Contrary to results seen in men, aspirin use in women 45 and older did not prevent first heart attacks or CVD deaths. It did, however, reduce strokes by 17 percent in the overall study cohort and lower the risk of major CVD events by 26 percent among women who were 65 years of age or older.<sup>28</sup> The study also showed that vitamin E supplementation had no effect on heart attacks, strokes, or total deaths and, with regard to another hypothesized benefit, did not reduce rates of breast, lung,



colon, or other cancers.<sup>29</sup> Rather than an aspirin or vitamin E regimen, the NIH continues to recommend that women focus on other well-proven approaches for reducing their risk of heart disease and stroke: eating healthfully, getting regular physical activity, maintaining a healthy weight, abstaining from smoking, and controlling high cholesterol, high blood pressure, and diabetes.

### **The Growth and Health Study**

Results from the NHLBI Growth and Health Study, an observational study that followed cohorts of White and African-American girls from childhood to early adulthood, highlight the importance of teaching girls as young as age 9 about behaviors to maintain a healthy weight. Rates of being overweight increased from age 9 to 18 from 7 percent to 10 percent among White girls, and from 17 percent to 23 percent among African-American girls, with the greatest jump in weight gain occurring between ages 9 and 12 years. Girls who were overweight during childhood were 11 to 30 times more likely to be obese in young adulthood. Moreover, being overweight was significantly associated with high blood pressure and high cholesterol during adolescence. The findings underscore that efforts to reduce CVD risk in women should begin early in life.<sup>30</sup>

# CARDIOVASCULAR DISEASE PREVENTION PROGRAMS

## U.S. Centers for Disease Control and Prevention

**Heart Disease and Stroke Prevention Program:** In 1998, Congress provided funding to the U.S. Centers for Disease Control and Prevention (CDC) to create a national state-based heart disease and stroke prevention program. The goals of this program are to increase state capacity by planning, implementing, tracking, and sustaining population-based interventions that address heart diseases, stroke, and related risk factors (high blood pressure, high blood cholesterol, tobacco use, physical inactivity, and poor nutrition). The population-based strategies in this program focus on an identified population (women aged 35-65 years) or area (residents of state) rather than individual behavior change. Health departments in 41 states and the District of Columbia currently receive funding. The program stresses policy and education to promote heart-healthy and stroke-free living and working conditions.<sup>31</sup> [http://www.cdc.gov/dhdsp/programs/nhdsp\\_program](http://www.cdc.gov/dhdsp/programs/nhdsp_program).


**Well-Integrated Screening and Evaluation for Women Across the Nation (WISEWOMAN) Program:** WISEWOMAN provides low-income, under-insured, 40- to 64-year-old women with the knowledge, skills, and opportunities to improve their diet, physical activity, and other lifestyle behaviors to prevent, delay, and control cardiovascular and other chronic diseases. WISEWOMAN also provides cholesterol tests and other chronic disease risk factor screening. CDC funds 21 WISEWOMAN projects in 19 states and two tribal organizations.<sup>32</sup> <http://www.cdc.gov/wisewoman/>.

***Women and Heart Disease: An Atlas of Racial and Ethnic Disparities in Mortality:*** This publication presents national and state maps depicting disparities in county-level heart disease death rates among the five largest U.S. racial and ethnic groups. This information can help government agencies and communities tailor prevention policies and programs to areas with the greatest burden of heart disease. The second edition is currently available: 1-800-CDC-INFO (800-232-4636).

## Office of Women's Health, U.S. Department of Health and Human Services

**"Make the Call—Don't Miss a Beat" Campaign:** According to a 2009 American Heart Association survey only half of women indicated they would call 9-1-1 if they





thought they were having a heart attack and most women, especially among minorities, were unaware of the five most common heart attack symptoms.<sup>12</sup> This is a national public education designed to educate, engage, and empower women and their families to learn the seven most common symptoms of a heart attack and encourage them to call 9-1-1 as soon as those symptoms arise. A woman suffers a heart attack every minute in the United States.<sup>33</sup> <http://www.womenshealth.gov>.<sup>33</sup>

### **National Heart, Lung, and Blood Institute, NIH**

***“The Heart Truth” Campaign: The Healthy Heart Handbook for Women, 20th Anniversary Edition:*** This handbook contains the latest scientific information about heart disease in women and offers practical suggestions that women can use to reduce their risk of heart-related problems, including tips on following a nutritious eating plan, tailoring a physical activity program to specific personal goals, and getting the whole family involved in heart-healthy living. The handbook also contains a sample eating plan and a chart on how to read a nutrition label.<sup>34</sup> [http://www.nhlbi.nih.gov/health/public/heart/other/hhw/hdbk\\_wmn.pdf](http://www.nhlbi.nih.gov/health/public/heart/other/hhw/hdbk_wmn.pdf)

### **Additional Information**

Additional information on CDV and the health of women and women of color is available from these federal government sources:


- The NIH Office of Research on Women’s Health: <http://orwh.od.nih.gov/>
- The National Heart, Lung, and Blood Institute: <http://www.nhlbi.nih.gov/>
- The NHLBI Health Information Network: <http://hp2010.nhlbihin.net/joinhin/index.asp>
- The National Institute on Minority Health and Health Disparities: <http://www.nimhd.nih.gov/>
- National Library of Medicine Women’s Health Resources page: <http://www.womenshealthresources.nlm.nih.gov/>
- The CDC Heart Disease Page: <http://www.cdc.gov/heartdisease/>
- The HHS Office of Women’s Health, Heart Health and Stroke: <http://www.womenshealth.gov/heart-health-stroke/>
- The HHS Office of Minority Health, Heart Disease Section: <http://minorityhealth.hhs.gov/templates/browse.aspx?lvl=2&lvlid=23>

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FEBRUARY 2012

NIH PUBLICATION NO. 12-7680