



Rutgers Center for
State Health Policy

The Institute for Health, Health Care Policy and Aging Research

White Paper on Cardiovascular Disease in New Jersey: Review of Current Strategies and Opportunities

Mary Ellen Cook, M.P.P.

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October 2006

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Mary Ellen Cook, M.P.P. and Joel Cantor, Sc.D.

Executive Summary

Commissioned by the New Jersey Department of Health and Senior Services (NJDHSS), this report is a “state of the state” snapshot of cardiovascular disease (CVD) in New Jersey. The main components of this paper include:

- An overview of cardiovascular disease in New Jersey and nationally,
- A review of New Jersey's current approach to addressing cardiovascular health,
- Identification of innovative strategies employed by other states, and
- An outline of options for strengthening New Jersey's approach.

The first part of this report serves to define cardiovascular disease and outline the prevalence of the disease nationally and in New Jersey. As is the case nationally, cardiovascular disease is the leading cause of death in New Jersey. This report reveals that patterns of cardiovascular disease in New Jersey parallel those of the nation. However, New Jersey is a highly diverse state with unique circumstances, leading to some important considerations for the management of cardiovascular disease, as it is not controlled evenly among the state’s racial and ethnic subgroups.

The second part of this paper tracks New Jersey’s response to cardiovascular disease. New Jersey has applied surveillance techniques, policy measures and risk reduction interventions to address cardiovascular disease statewide. The NJDHSS works with the state legislature, advocacy groups, health care organizations, and individuals across its twenty one counties to identify cardiovascular disease risk factors that affect all New Jerseyans. There are a number of offices and programs that address cardiovascular disease including the Office of Emergency Medical Services, the Office of Minority and Multicultural Health, the Office on Women’s Health, and the NJ Diabetes Prevention and Control Program. This report discusses the risk reduction, outreach, prevention, and direct service efforts of these offices and programs that influence the health of potential and existing cardiac patients.

In many states, efforts to eliminate cardiovascular disease are partially, if not entirely, funded by the Centers for Disease Control and Prevention (CDC). The third section of this report tracks several states that receive CDC funding; Connecticut, Ohio, the District of Columbia, New York, Florida, and Arkansas. The cardiovascular programs in these states focus on education, policy changes, system changes, and environmental changes to effect cardiovascular disease.

Finally, three recommendations are made to strengthen the state's ability to maximize the impact of existing and new resources it invests in for addressing cardiovascular disease:

- Create a centralized CVD control program,
- Provide resources dedicated to address CVD statewide, and
- Analyze the need for primary versus secondary CVD intervention to maximize the impact of outreach efforts.

Implementation of these recommendations should contribute to reductions in cardiovascular disease by ensuring that services are coordinated and targeted to the neediest populations. Additionally, more research should be conducted to determine the best way to distribute dedicated CVD funding. More in-depth state case studies could also provide New Jersey with a comprehensive look at successful practices across the nation for addressing cardiovascular disease that may be replicated to benefit our state.

White Paper on Cardiovascular Disease in New Jersey: Review of Current Strategies and Opportunities

Mary Ellen Cook, M.P.P. and Joel Cantor, Sc.D.

Introduction

Cardiovascular disease (CVD), also known as heart and blood vessel disease, is the leading cause of death in the United States and in New Jersey. In 2003 alone, over 26,000 New Jerseyans died from heart disease and stroke combined (NJDHSS Center for Health Statistics, 2005). More than 70 million Americans suffer from heart disease, accounting for approximately one quarter of the entire U.S. population (US Department of Health and Human Services, 2005). Cardiovascular disease is broad-based and can affect individuals from many different backgrounds, ages, races, and lifestyles. Risk factors for cardiovascular disease are varied but many are reducible. In order to address reducible risks, the state of New Jersey employs a broad range of strategies focused on cardiovascular disease and preventive services. The state has implemented several interventions and pilot studies and policy related activities to improve overall cardiovascular health. State resources also fund governmental and non-governmental organizations to address cardiovascular disease as well as surveillance programs to ensure that consumers of cardiovascular health care are receiving the best possible medical intervention and preventive services. The State also publishes an annual Cardiac Surgery Report and Hospital Performance Report, providing consumers with extensive information on cardiovascular disease care in the state's hospitals.

Commissioned by the New Jersey Department of Health and Senior Services, this report:

- Provides an overview of cardiovascular disease in the United States and New Jersey,
- Reviews New Jersey's current approach to addressing cardiovascular health,
- Identifies innovative strategies for addressing cardiovascular disease as employed by other states, and
- Outlines options for strengthening New Jersey's approach.

For the purposes of this report, we use a broad definition of cardiovascular disease, unless otherwise noted. This definition includes peripheral vascular disease, stroke, both

ischemic and hemorrhagic, hypertension, angina, myocardial infarction, and congestive heart failure.

Overview of Cardiovascular Disease

Cardiovascular disease can be broken down into two major categories: coronary artery disease and cerebrovascular disease. Characteristics of each of these are varied. Coronary artery disease occurs as the result of the restriction of blood flow through the arteries that supply the heart muscle. This can lead to angina, acute myocardial infarction (commonly referred to as *heart attack*), arrhythmias, congestive heart failure, and ultimately, cardiac arrest (American Heart Association, 2005). Cerebrovascular disease results from either occlusion or hemorrhage of an artery supplying an area of the brain, which can lead to stroke. Stroke is defined as a sudden impairment of the brain resulting from interruption of circulation to one or another of its parts (US Department of Health and Human Services, 2003). Detected and treated promptly, some individuals can make a full recovery from these circulatory system conditions, but there is also the potential to be faced with an impairment or even death as a result of cardiovascular disease.

There are many risk factors for cardiovascular disease. Gender plays a role in the incidence of cardiovascular disease with men having a greater risk of heart attack. Age is also related to cardiovascular disease; over 83% of people who die from cardiovascular disease are over the age of 65 (US Department of Health and Human Services, 2003). There are also large differences in rates of cardiovascular disease by other demographic characteristics. For example, African American males are more likely to suffer from cardiovascular disease than their white counterparts. However, it is not clear the extent to which cultural factors, genetics, discrimination, or other factors contribute to demographic disparities. In addition, socioeconomic status is linked with an individual's ability to access affordable, quality health care services, another factor that must be accounted for when analyzing race as a risk factor for cardiovascular disease.

Many major risk factors for cardiovascular disease can be addressed through lifestyle changes and/or medication. Potentially modifiable risk factors identified by the American Heart Association (AHA) are shown in Table 1. The risk factors associated with an increased susceptibility to stroke are similar to those for cardiovascular disease, including hypertension, tobacco use, high blood cholesterol, physical inactivity and obesity, diabetes, and excessive alcohol use. Risk factors specific to stroke, according to the American Stroke Association, are described in Table 2.

Table 1: Risk Factors Associated with Coronary Artery Disease

Risk Factor	Definition
<i>Tobacco Use</i>	The AHA notes that the use of tobacco products increases a person's likelihood of contracting some form of cardiovascular disease by two to four times that of nonsmokers. Often, sudden cardiac arrest is associated with smoking for individuals who suffer from heart disease.
<i>High Blood Cholesterol</i>	As an individual's blood cholesterol level increases, so does their risk of heart disease. This risk factor in combination with any of others mentioned can greatly increase the likelihood of a heart attack.
<i>Hypertension</i>	Hypertension, also termed high blood pressure, causes the heart to work harder than necessary to pump blood through the body. During this process, the increased workload of the heart can cause the heart to become stiffer and thicken (American Heart Association, 2005). Again, in combination with other risk factors, the risk of heart disease increases with the detection of high blood pressure.
<i>Physical Inactivity</i>	Physical inactivity is another contributor to heart disease that plagues the United States. Physical inactivity can lead to an individual being overweight or obese, or suffering from hypertension and stress. Rigorous exercise decreases the risk of heart disease and works to eliminate other risk factors.
<i>Obesity and Overweight</i>	Excess weight increases an individual's risk of contracting heart disease. The National Health and Nutrition Examination Survey, administered between 1999 and 2000, found that more than 64% of all adults in the United States are either overweight or obese (American Heart Association, 2005). The risk factor associated with weight gain increases when fat build up is located in the middle portion of the body.
<i>Diabetes Mellitus</i>	Diabetes greatly increases an individual's risk of heart disease, even when blood sugar levels are kept under control.
<i>Alcohol Consumption</i>	Excessive alcohol consumption increases the risk of heart disease. However, 1.5 fluid ounces of 80-proof spirits per day for women and two per day for men has been associated with a lower risk of cardiovascular disease (North American Association for the Study of Obesity, 2005). Although the American Heart Association recognizes that controlled alcohol use does lower the risk of cardiovascular disease, the AHA does not recommend that non-drinkers begin to drink or that current drinkers increase their alcohol intake.
<i>Stress</i>	Life stress can add greatly to an individual's risk for heart disease. Stress can lead to high blood pressure and can also contribute to other risk factors such as overeating or smoking. Stress is more likely to occur in combination with physical inactivity.

Table 2: Additional Risk Factors Associated with Cerebrovascular Disease

Risk Factor	Definition
<i>Carotid or Other Artery Disease</i>	This disease affects the carotid arteries that supply blood to the brain. Individuals who suffer from this disease often have carotid arteries that become narrowed by fatty deposits, restricting blood flow to the brain and causing a stroke.
<i>Atrial Fibrillation</i>	This risk factor is associated with a pooling of blood in the heart due to an irregular beat. Consequently, the pooled blood can clot and potentially travel to the brain, causing a stroke.
<i>Certain Blood Disorders</i>	A high red blood cell count can lead to the formation of blood clots, increasing an individual's risk of having a stroke. Another blood disease, sickle cell anemia, is prevalent in African Americans. It causes an individual's red blood cells to stick to blood vessel walls, causing a clot to form resulting in stroke.
<i>Transient Ischemic Attacks</i>	Also known as "mini-strokes", a series of mild strokes can be an indicator of a more permanent episode in the future.
<i>Other Types of Heart Disease</i>	Individuals who suffer from other types of heart disease are more susceptible to stroke.

Morbidity and Mortality in the United States

In the United States, cardiovascular diseases account for over a quarter of the population's total deaths. However, the number of deaths due to cardiovascular diseases has been following a downward trend nationally. Despite this decrease, heart disease and stroke are the first and third (respectively) causes of death in the U.S (American Heart Association, 2005). Many Americans are unaware, or choose to ignore, that the lifestyle decisions they make on a daily basis can contribute to cardiovascular disease including overeating, inactivity, and smoking. Fortunately, individuals can be educated on these risk factors to change their behaviors and reduce the likelihood of disease developing or progressing. At times, however, other social factors exist that block some individuals from receiving the education and acting on their increased awareness of risks and/or accessing care needed to prevent or control cardiovascular disease.

Disparities in Cardiovascular Disease

The 1979 Surgeon General released *Healthy People: National Health Promotion and Disease Prevention Objectives* which outlined a set of national “health targets”, including an overall reduction in mortality for various age groups. Building on the health objectives of the 1979 report, *Healthy People 2000* was released in 1990 and outlined national health care goals for the country including decreasing racial and ethnic health care disparities. The latest set of national health objectives published was *Healthy People 2010*, released in 2000 by the US Department of Health and Human Services. This report focused on increasing the quality and years of healthy life for individuals and eliminating health disparities in the United States (US Department of Health and Human Services, 2003).

According to the National Center for Health Statistics (NCHS), data from the National Health and Nutrition Examination Survey and the National Health Interview Survey show that black or African American men in the United States are more likely to die from diseases of the heart (371.1 men per 100,000) than men of any other race. The death rate for white men (294.1 men per 100,000) is followed by Hispanic/Latino men and then Native-American men (See Table 3). Asian or Pacific Islander men run the lowest risk of death from diseases of the heart, with 169.8 deaths per 100,000. The NCHS definition of diseases of the heart includes categories outlined by the World Health Organization’s International Classification of Diseases and excludes cerebrovascular disease (see Table 3).

Similar to men, the NCHS study revealed that black or African American women have the highest cardiovascular disease death rate than women of any other race or ethnicity (263.2 women per 100,000). The second highest cardiovascular death rate is for white women (192.1 women per 100,000), followed by Hispanic/Latino women, Native-American women and finally Asian or Pacific Islander women (See Table 3).

**Table 3: Diseases of the Heart[§] and Cerebrovascular Diseases[¥],
Death Rates for all Ages per 100,000 Population, 2002***

	American Indian or Alaska Native	Asian or Pacific Islander	Black or African American	Hispanic or Latino	White
Diseases of the Heart, Women	123.6	108.1	263.2	149.7	192.1
Diseases of the Heart, Men	201.2	169.8	371.1	219.8	294.1
Cerebrovascular Diseases, Women	38.0	45.4	71.8	38.6	53.4
Cerebrovascular Diseases, Men	37.1	50.8	81.7	44.3	54.2

Source: National Center for Health Statistics. Health, United States, 2005. With Chartbook on Trends in the Health of Americans. Hyattsville, MD: 2005.

§ Disease of the Heart are defined as World Health Organization International Classification of Diseases-10th Revision including I00-I02, Acute rheumatic fever, I05-I09, Chronic rheumatic heart diseases I11 hypertensive heart disease, I13, hypertensive heart and renal disease, I20-I25, Ischaemic heart disease, I260I28, Pulmonary heart disease and diseases of the pulmonary circulation, I30-I51, Other forms of heart disease.

¥ Cerebrovascular Disease underlying causes of death are defined by the International Classification of Diseases (ICD)-10th revision

*Rates per 100,000 are age-adjusted using the 2000 U.S. standard population

Black or African American men also have the highest death rate for cerebrovascular diseases than any other race or ethnicity (81.7 men per 100,000) followed by white men (54.2 men per 100,000), Asian or Pacific Islander men (50.8 men per 100,000), Hispanic/Latino men (44.3 men per 100,000) and finally Native American or Native Alaskan men (37.1 men per 100,000). Similarly, Black or African American women are most likely to die of cerebrovascular disease (71.8 women per 100,000) than women from any other racial or ethnic group. White women have the second highest death rate from cerebrovascular diseases (53.4 women per 100,000) followed by Asian or Pacific Islander women, Hispanic/Latino women, and finally Native-American or Native Alaskan women (See Table 3).

The NCHS data also outline racial and ethnic disparities for selected cardiovascular and cerebrovascular health indicators including hypertension, obesity, and diabetes (Table 4). Although derived from the same document, it is important to note that the racial and ethnic categories vary between Table 3 and Table 4. According to these data, 28.2% of black or African

American males suffer from hypertension followed by Mexican men (of any race) at 21.5%, and finally white men with 17.6% of the population. A higher percentage of black or African American women suffer from hypertension (28.9%) than Mexican women (of any race) (21.2%) and white women (18.5%).

Table 4: Percent of Population Experiencing Disparities in Hypertension, Obesity and Diabetes by Race, Ethnicity and Sex, United States, 20 Years and Over, Age Adjusted 1999-2002

Health Indicator	Black or African American, non-Hispanic	White, non-Hispanic	Mexican
Hypertension, Men*	28.2%	17.6%	21.5%
Hypertension, Women*	28.9%	18.5%	21.2%
Obese, Body Mass Index ≥ 30 kg/m ² , Men	27.8%	28.0%	27.8%
Obese, Body Mass Index ≥ 30 kg/m ² , Women	48.8%	30.7%	38.0%
Diagnosed with Diabetes (All sexes combined, including physician-diagnosed and undiagnosed)	14.8%	8.0%	13.6%

Source: National Center for Health Statistics. Health, United States, 2005. With Chartbook on Trends in the Health of Americans. Hyattsville, MD: 2005.

* Defined as a person having blood pressure greater than 140/90 mm Hg or reporting current antihypertensive therapy

According to these data, a larger proportion of black or African American and Mexican women are also considered overweight or obese compared to their white counterparts. As illustrated in Table 4, 48.8% of all black or African American women and 38% of all Mexican women have a Body Mass Index of ≥ 30 kg/m². In comparison, only 30.7% of white women have a BMI of ≥ 30 kg/m². As described earlier, being obese and overweight greatly increases an individual's chance of suffering from cardiovascular disease. The information presented in Table 4 for those individuals who suffer from diabetes (both physician diagnosed and undiagnosed) combines both sexes. Black or African American men and women along with Mexican men and women have higher rates of diabetes (14.8%, 13.6%, respectively) when compared to their white counterparts (8%).

Additionally, socioeconomic factors play a role in an individual's ability to access health care services. More African Americans (24.7%) and Hispanics (21.9%) are living in poverty as opposed to white, non-Hispanic (10.8%) individuals (DeNaves-Walt, Carmen, 2005). Based on data from the Centers for Disease Control and Prevention's 2005 National Health Interview

Survey, a greater proportion of Hispanic individuals do not have health insurance (30.5%) when compared to black (17.4%) or white (10.2%) non-Hispanics (Cohen, RA, 2005).

In sum, a number of risk factors, both reducible and unmodifiable, contribute to the prevalence of cardiovascular disease in the United States. Some risk factors such as gender, race, and age are not modifiable; however, the difference in CVD rates may be related to modifiable factors such as smoking, obesity, alcohol consumption, and access to care that is culturally competent. These risk factors are similar to those experienced in New Jersey. Cardiovascular disease prevalence in New Jersey is similar to that found nationally.

Cardiovascular Disease in New Jersey

Similar to the nation, cardiovascular disease is the leading cause of death in New Jersey. This portion of the White Paper outlines state-specific patterns and trends in cardiovascular diseases. Overall, mortality due to cardiovascular disease has decreased in the State. The 2005 update of *Healthy New Jersey 2010* prospectively outlines the state's cardiovascular disease health objectives for the decade. This update includes targets and endpoints that differ from those presented in earlier versions of *Healthy New Jersey 2010* due to the adoption of the World Health Organization's ICD-10 codes and the utilization of the 2000 standard population for statistical age-adjustment. Included in these objectives is a goal to reduce the age-adjusted death rate for coronary heart disease for African Americans and whites to 165.6 per 100,000 by 2010. A target and endpoint could not be established for Hispanic or Asian and Pacific Islander populations due to a small sample size and the data being statistically unreliable. The state also set a target to reduce the number of deaths due to cerebrovascular diseases to 38.6 per 100,000 people by 2010 for African Americans and whites. Achieving these goals depends not only on the state to conduct surveillance of cardiovascular disease, to promote awareness of disease risk factors, and to improve access to health care, but also on the individual to lead a healthier lifestyle.

State Trends in Cardiovascular Mortality

New Jersey is home to over 8.5 million individuals. Encompassing over 7,400 square miles, New Jersey is the most densely populated state in the country, with 1,134 persons per square mile (US Census, 2005). Like the US, cardiovascular disease and stroke are the first and third leading causes of death respectively.

**Table 5: Cardiovascular Disease-Related Death Rates in New Jersey
per 100,000, 1999-2003**

	Heart Disease	Stroke	Total
1999	281.0	49.3	330.3
2000	281.4	51.2	332.5
2001	267.0	47.1	314.1
2002	262.5	46.8	309.3
2003	255.2	45.9	301.1

Source: New Jersey Department of Health and Senior Services, NJSHAD Query System

In New Jersey, the cardiovascular disease death rate for heart disease declined from 281.0 in 1999 to 255.2 persons per 100,000 by 2003 (see Table 5). The death rate for stroke also declined from 49.3 persons per 100,000 in 1999 to 45.9 persons per 100,000 by 2003. Both heart disease and stroke death rates increased between 1999 and 2000 but began a steady decline in 2001.

The largest decline in Table 5 can be seen with heart disease between the years 2000 and 2001 where the heart disease death rate decreased from 281.4 to 267.0 persons per 100,000. According to the New Jersey Center for Health Statistics' Health Data Fact Sheet published in 2004, the reasons for this decline included reductions in the number of cardiovascular disease risk factors experienced by individuals as well as improvements in treatments for cardiovascular disease.

Racial and Ethnic Groups

New Jersey residents are highly diverse in terms of race and ethnicity. According to the 2000 U.S. Census, the state's largest minority group is African American (13.6%), followed closely by Hispanics (13.3%). New Jersey is also home to many individuals of Asian descent, comprising 5.7% of the state's population. There are also many other ethnic groups, particularly groups consisting of recent immigrants, that adds to the state's diversity. Similar to national trends, coronary artery disease and cerebrovascular disease in New Jersey is not experienced evenly among racial and ethnic subgroups (See Table 6).

Table 6: New Jersey Age-adjusted Mortality Rates from Coronary Artery Disease and Cerebrovascular Disease per 100,000 Standard Population, 1999-2002

	White	Black	Hispanic*	Asian/Pacific Islander*
Heart Disease in 1999	215.0	218.9	126.2	91.4
Heart Disease in 2000	208.5	228.2	133.3	102.5
Heart Disease in 2001	194.0	221.2	128.6	87.9
Heart Disease in 2002	185.5	211.5	115.7	93.3
Cerebrovascular Disease in 1999	45.4	65.7	27.3	33.2
Cerebrovascular Disease in 2000	46.7	71.5	39.2	30.8
Cerebrovascular Disease in 2001	41.9	65.6	35.2	35.8
Cerebrovascular Disease in 2002	41.1	66.2	25.8	30.3

Source: New Jersey Department of Health and Senior Services. "Healthy New Jersey 2010, Update 2005." Trenton, NJ: June 2001. Available at <http://www.state.nj.us/health/chs/hnj.htm>. Accessed July 2005.

*The number of Hispanic and Asian/Pacific Islander deaths is known to be understated.

As outlined in the 2005 update of *Healthy New Jersey 2010* (Table 6), African Americans were more likely to die from coronary artery heart disease and cerebrovascular diseases than their white counterparts between the years 1999 and 2002. While the rates for Hispanics and Asian/Pacific Islanders appear much lower, the data for these populations were known to understate the number of deaths. Therefore, these data cannot be relied upon for drawing concrete conclusions about the prevalence of coronary artery or cerebrovascular disease among these groups.

New Jersey Risk Factor Profile

Overall, the percentage of New Jersey residents who have cardiovascular disease risk factors mirrors that of the nation. Table 7 provides prevalent statistics for selected cardiovascular risk factors among adults age 18 and older in New Jersey compared to the nation. As seen in Table 7, 18.8% of New Jersey adults used tobacco in 2004 as compared to 20.8% of adults nationally. Tobacco use is a significant risk factor for cardiovascular disease in New Jersey and according to a study of smokers in the state, "...half of respiratory disease deaths, over a quarter of all cancer deaths, and nearly 20 percent of CVD deaths in New Jersey in 1996-1998 were attributed to smoking cigarettes" (Baron, April 2001).

New Jersey's cholesterol check rates were slightly below the national average for individuals who had not had their cholesterol checked within 5 years (see Table 7). The most recent statistics retrieved from the Behavioral Risk Factor Surveillance System (BRFSS), a survey conducted by the NJDHSS and funded by the CDC, shows that of those who had their blood cholesterol level checked in 2003, 34.5% were told by a doctor that they had high cholesterol levels. Lack of regular monitoring of blood pressure and cholesterol can contribute to the progression of cardiovascular disease.

**Table 7: Prevalence of Cardiovascular Disease Risk Factors Among Adults
(age 18 and older): New Jersey vs. United States, Various Years**

	New Jersey	United States
Tobacco Use (2004)*	18.8%	20.8%
No Cholesterol Check within 5 Years, Data (2003)	18.8%	23.3%
No Blood Pressure Check Within 2 Years, Data (1999)	5.0%	5.4%
Physical Inactivity (2003)++	55.3%	52.8%
Obesity by Body Mass Index (2002)**	19.0%	22.1%
Alcohol Consumption (2004)~	4.5%	4.8%

Source: Centers for Disease Control and Prevention (CDC). *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta, Georgia: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, 2005.

* Current Smoker

++ Adults with 30+ minutes of moderate physical activity five or more days per week, or vigorous physical activity for 20+ minutes three or more days per week

** Body Mass Index (BMI) is 30.0 or more. BMI is defined as weight in kilograms divided by height in meters squared

~ Heavy drinkers (adult men having more than two drinks per day and adult women having more than one drink per day)

In New Jersey, the prevalence of risk factors was also slightly below the national average for alcohol consumption in 2004 and obesity in 2002. As shown in Table 7, physical inactivity was the only risk factor that was greater in New Jersey than in the nation overall. In 2003, 55.3% of New Jersey citizens reported that they were physically inactive in comparison to 52.8% of individuals nationally. The data in Table 7 also reveals that in 1999, 5% of New Jerseyans and 5.4% of the national population had not had their blood pressure checked within two years. By 2003, according a BRFSS report, 25.6% of New Jersey residents were told by a doctor, nurse, or other health professional that they had high blood pressure.

New Jersey State Sponsored Cardiovascular Disease Programs

New Jersey has applied surveillance techniques, policy measures and risk reduction interventions to address cardiovascular disease statewide. The NJDHSS works with the state legislature, advocacy groups, health care organizations, and individuals across the state to address cardiovascular disease risk factors that affect all New Jerseyans. NJDHSS addresses these risk factors at all levels of government and in the public and private sectors, playing an integral role in implementing efforts to address cardiovascular disease through dedicated resources and organizations, quality of care initiatives, risk reduction interventions and policy related activities.

Data and Surveillance

The NJDHSS conducts a number of surveillance programs to identify and track cardiovascular disease and underlying risk factors for the disease. The Center for Health Statistics (CHS) is an integral part of the state's surveillance and data tracking system. CHS "...collects, researches, analyzes, and disseminates New Jersey health data and information and serves as a resource to the Department in development of health data policy" (Center for Health Statistics, September 2005). Many of these data sets are available for public access through CHS's online reporting systems.

Several data systems managed by CHS track risk factors associated with cardiovascular disease, including the Behavioral Risk Factor Surveillance System. The BRFSS, partially funded by the CDC, is a long-standing state-based surveillance program that uses a monthly telephone survey to monitor "...major behavioral risk factors and chronic conditions associated with disability and death among adults" (Division of Adult and Community Health, CDC, 1995-2004). Cardiovascular disease risk factors are included in this survey as well as heart health statistics. The results from the BRFSS survey are used to monitor progress toward statewide public health objectives, such as those set forth in *Healthy New Jersey 2010*.

CHS also provides the public with other forms of cardiovascular surveillance data, including:

- *The New Jersey State Health Assessment Data Query System (NJ SHAD)*: This interactive query system provides individuals with customized maps and tables of New Jersey health data on a wide range of topics such as "...the number of births to teenagers, the percentage of deaths due to HIV disease, the motor vehicle injury death rate, and the number of marriages [in New Jersey]..." (Center for Health Statistics, October 2005). The NJ SHAD query system can also be used to determine the number of cardiovascular disease-related deaths in the state in any given year, broken down by a variety of risk factors.
- *The New Jersey Health Statistics Report Series*: These yearly reports summarize deaths, births, marriages, and population statistics for the state and its counties. Information is also available for selected municipalities. Together with NJ SHAD, users are able to customize tables and maps at the state, county, and municipal level.
- *Healthy New Jersey 2010*: In a response to the national *Healthy People 2010*, Healthy New Jersey 2010 outlines the state's health care goals for the current decade. Included in these goals are reductions in mortality due to cardiovascular disease and diabetes by the year 2010. Progress toward the Healthy New Jersey 2010 goals was reported in 2005 using more current cardiovascular disease statistics.
- *Topics in Health Statistics*: This series of reports covers a variety of topics including inpatient hospitalizations, sexual risk status and behavior, suicides, and estimates of healthy life expectancies. The topics that pertain to cardiovascular disease include cardiac arrest death statistics and trends, alcohol-attributable mortality, obesity and overweight studies, and smoking-attributable mortality.

The Center for State Health Statistics data systems provide vital information regarding the trends and patterns of cardiovascular disease and corresponding risk factors. This information is critical to monitoring cardiovascular disease in New Jersey.

In addition to this information, there are also several mortality data systems and reports that address quality of care initiatives and diabetes surveillance reports as they pertain to cardiovascular disease risk factors. These will be discussed below.

The Office of Health Care Quality Assessment (HCQA) maintains patient-level data registries for each adult patient that undergoes a diagnostic or interventional cardiac catheterization or an open-heart surgery in New Jersey. HCQA also maintains patient-level data for all hospital inpatients diagnosed with congestive heart failure, acute myocardial infarction, and community-acquired pneumonia. Finally, HCQA maintains the New Jersey Discharge Data Collection system, which contains a copy of every hospital inpatient and emergency department admission, including patient-level demographic and clinical information. Data from these various data bases, alone or in combinations, are used to assess compliance with hospital cardiac licensure standards, to evaluate competing hospital certificate of need applications, and to assess the quality of hospital care in specific areas (See Performance Assessment below).

Risk Reduction Interventions

The US Department of Health and Human Services (DHHS) provides states with funding to address many of the risk factors associated with cardiovascular disease. In New Jersey, this DHHS funding has been used to create programs that address individual tobacco use, diabetes prevention, and obesity and overweight risk factors for cardiovascular disease.

The New Jersey Comprehensive Tobacco Control Program is part of the Office of the State Epidemiologist and receives funding from a settlement agreement between 46 states and the tobacco industry. This program encourages individuals in New Jersey to quit smoking, offering resources for those struggling with tobacco addiction, including:

- *NJ Quitnet (www.nj.quitnet.com)*: An online resource developed at Boston University, NJ Quitnet provides 24 hour on-line services that are tailored to meet an individual's needs. The site allows smokers to set a quit date and track their progress as well as provides an opportunity for those quitting smoking to network and lend support to one another.
- *NJ Quitline (1-888-NJ-STOPS)*: Operated by the Mayo Foundation, this toll free service provides trained counselors in 26 languages to assist individuals to quit smoking. The quitlines are open 6 days a week during and after business hours.
- *NJ Quitcenters*: These regional centers provide one-on-one counseling for those trying to quit smoking as well as group counseling.
- *Youth prevention activities*: These activities include the creation of "REBEL" (Reaching Everyone by Exposing Lies), a group of teens statewide that educate their

- peers on the dangers of tobacco use. In addition, the State sponsors “Not for Sale” a youth driven anti-tobacco advertising campaign against Big Tobacco companies.
- *Community prevention activities:* The State partners with many local citizen groups and nonprofit organizations, including NJBreathes, an anti-tobacco coalition of over 40 statewide organizations working to reduce tobacco use in the state. NJGASP is another anti-tobacco organization that provides, “...technical support to municipalities to reduce tobacco use in the community”(NJDHSS, May 2006). In addition, the State works with the Communities Against Tobacco coalition (CAT) in all 21 counties. The CAT strives to reduce tobacco use on the local level. The University of Medicine & Dentistry of New Jersey (UMDNJ) also offers a Tobacco Dependence Program to train health professionals on how to implement smoke free environments in many settings.

In addition, the State legislature recently passed and implemented the Smoke-Free Air Act, banning indoor smoking in all indoor public places and work places across the state. It is estimated that, by reducing the number of smokers and amount of smoking, these resources have saved New Jerseyans over 54 million dollars since October of 2000 in cigarette and health care costs associated with smoking (New Jersey Quitnet, October 2005, <http://nj.quitnet.com/>).

In 2005, the NJDHSS published a diabetes surveillance report estimating that over 440,000 individuals statewide suffer from a form of diabetes, including over 176,000 individuals who have diabetes but have not been diagnosed (Diabetes Prevention and Control Program, May 2005, <http://nj.gov/health/fhs/diabpub.shtml>). To address diabetes in the state, the New Jersey Diabetes Prevention and Control Program (DPCP) was established within the Department’s Division of Family Health Services. The DPCP seeks to reduce the burden of diabetes in the state and to eliminate the disproportionate burden among population subgroups. Since 65% of people with diabetes die from heart attack or stroke, diabetes prevention and control efforts are integral to cardiovascular disease prevention and control efforts. Specific DPCP objectives focus on; 1) enhancing diabetes surveillance; 2) primary prevention of diabetes; 3) improving disease management for those who already have diabetes (i.e. increasing rates of foot exams, eye exams, HbA1c testing, and immunizations among people with diabetes); 4) diabetes public health infrastructure improvement; and 5) elimination of racial/ethnic disparities. The DPCP engages in a broad range of activities, including:

- Publication of an extensive diabetes surveillance report that includes demographic, behavioral risk factor, morbidity, and mortality data relative to diabetes and associated complications, such as cardiovascular disease;
- Funding the Diabetes Outreach and Education System, a community and professional diabetes education project that serves a five county area of southern New Jersey (Ocean, Atlantic, Cape May, Cumberland, and Salem counties);
- Social marketing campaigns such as distributing educational material via billboards, newsletters, email campaigns, and radio and newspaper public service announcements that are geared to disseminating messages about the prevention of diabetes and its complications;
- Funding the Commission for the Blind and Visually Impaired to conduct the Diabetic Eye Disease Detection Program, which provides eye screening services for low income, uninsured persons with diabetes;
- Supporting local health department primary and secondary diabetes prevention activities;
- Supporting efforts to improve the quality of diabetes care in Federally Qualified Health Centers and other venues;
- Supporting the New Jersey Diabetes Council, an advisory Council to the Department. The Council is made up of 100 members and has a mission to “Improve the health and quality of life for the people of New Jersey by encouraging programs and policies that translate evidence-based research into prevention, detection, and treatment of pre-diabetes, diabetes, and related disorders” (Diabetes Prevention and Control Program, May 2005, <http://nj.gov/health/fhs/diabpub.shtml>); and
- In conjunction with statewide partners, assessing the state diabetes public health system and development of a strategic plan for addressing diabetes in New Jersey.

The NJDHSS Office of Minority and Multicultural Health (OMMH) addresses health care concerns of minority populations in New Jersey. The mission of this office is “...to foster accessible and high-quality programs and policies that help all racial and ethnic minorities in New Jersey achieve optimal health, dignity and independence” (Office of Minority and Multicultural Health, <http://nj.gov/health/commiss/omh/mission.shtml>). OMMH has offered grant funding for community-based organizations to focus on cardiovascular disease-centered outreach in the community. Most recently, OMMH has awarded grants focused on diabetes prevention and control. The OMMH funded five minority community-based organizations to

conduct outreach, education, screenings, referrals, and follow-up focusing on diabetes, a health disparity area.

The Office of Women's Health (OWH) is involved in a risk reduction program that focuses on women and heart disease. OWH recently funded a 20 month initiative, "Take New Jersey Women to Heart", that included a campaign to "...raise awareness and educate the general public as well as professionals about heart disease in women..."(Office on Women's Health, http://www.state.nj.us/health/fhs/owh/cardiovascular_disease.shtml). In addition, the NJ Council on Physical Fitness and Sports, housed in the Division of Family Health Services, advocates for "...health enhancing policies and legislation" (Division of Family Health Services, http://www.state.nj.us/health/fhs/documents/annual_report.pdf). Focused on overall health statewide, the Council addresses many risk factors associated with cardiovascular disease.

Emergency Cardiac Care

The Office of Emergency Medical Services (OEMS) oversees a statewide network of emergency services that are provided for all citizens of New Jersey. Emergency Medical Services in New Jersey offer basic life support (BLS) and advanced life support (ALS) pre-hospital care for patients with signs and symptoms of cardiovascular disease. When a patient calls 9-1-1 for a medical problem or trauma, an ALS services ambulance is dispatched if a patient's symptoms meet certain criteria, including cardiac problems, respiratory distress and/or a diabetic emergency. In 2004, New Jersey's ALS services responded to a total of 161,062 calls. Of these, a total of 44,697 were cardiac calls (including cardiac arrest). ALS service providers are equipped with 12 lead EKG's, allowing timely transmission of key information to hospital emergency departments for the diagnosis of heart attack, or acute myocardial infarction, before arriving at the hospital. New Jersey is ahead of the rest of the country in requiring 12 lead EKGs on all ALS vehicles.

OEMS has also overseen three major distributions of free automated external defibrillators (AED) to emergency first responders. In 1999, a total of 156 AED's were distributed statewide to police and fire departments, and 441 AED's were given to volunteer first aid squads throughout the state in 2001. The most recent distribution effort was in 2004-2005, with over 1,500 defibrillators distributed to law enforcement agencies statewide, equipping every patrol unit in the NJ State Police with an AED. Since police officers are often the first to arrive at a medical emergency site, cardiac patients receive the benefits of state-of-the-art rescue care prior

to arrival at the hospital. By providing readily accessible treatment that can be safely provided by people immediately on the scene, a cardiac arrest patient's survival rate is increased.

Prominently placed and easy to operate, these defibrillators,

“...are phonebook-sized, battery-powered devices that evaluate a patient's heart rhythm, generate and deliver an electric charge to someone whose heart has stopped, and then re-evaluates the heart. The AEDs provide both voice and visual prompts that lead users through each rescue step (NJ Department of Health and Senior Services, <http://www.state.nj.us/health/news/p00807a.htm>).”

In 2001, the DHSS adopted certificate of need rules that permit hospitals with diagnostic cardiac catheterization laboratories to also offer primary, or emergency, angioplasty to patients having a heart attack. With a growing body of research suggesting that angioplasty when performed quickly is more effective than thrombolytic drugs and therefore the treatment of choice for heart attack patients, the Department adopted rule changes that would increase access to this life-saving treatment. Primary angioplasty is now offered at community hospitals, in addition to the eighteen cardiac surgery centers in the State.

Quality of Care Monitoring and Reporting

New Jersey has launched several initiatives intended to improve the quality of care delivered to persons with cardiovascular disease. Published since 1997, the *Cardiac Surgery in New Jersey* report card for consumers calculates risk-adjusted coronary artery bypass graft surgery (CABG) mortality rates in New Jersey hospitals performing open-heart surgery. Generated by the Office of Health Care Quality Assessment (HCAQ), this report card indicates how each hospital's and individual surgeon's rates compare to the State average. This report has been associated with a more than 50% reduction, on a risk-adjusted basis, in mortality following CABG surgery between 1994 and 2003 (Department of Health and Senior Services, February 2006, <http://www.state.nj.us/health/hcsa/documents/cardconsumer03.pdf>).

Starting in 2004, HCQA has published annually the *New Jersey Hospital Performance Report* which provides consumers information on how often hospitals apply nationally-recognized best practices in treating patients with community-acquired pneumonia, heart attack, and congestive heart failure (starting with the report to be published in the fall, 2006). Starting with the 2007 report, data on application of best practices for prevention of infection in surgical

patients will also be published. The report provides five indicators of the adequacy of treatment for heart attack: 1) delivering aspirin on arrival at the hospital; 2) delivering aspirin at discharge from the hospital; 3) delivering a beta blocker on arrival at the hospital; 4) delivering a beta blocker on departure from the hospital; and 5) delivering an ACE inhibitor at discharge (NJ Department of Health and Senior Services, September 2005, <http://web.doh.state.nj.us/hpr/hpr2005.pdf>). These five treatments are known to significantly increase a heart attack patient's chances of survival and decrease the likelihood of the individual suffering from another heart attack. The 2006 report will add three other heart attack treatment indicators: 1) smoking cessation counseling for smokers; 2) length of time to performance of primary angioplasty; and 3) length of time to administration of thrombolytics, as well as four measures for treatment of congestive heart failure: 1) use of ACE inhibitors; 2) assessment of left ventricular function; 3) smoking cessation counseling for smokers; and 4) appropriate discharge instructions. Although New Jersey ranked very low in studies of state performance on process of care indicators published early in the decade, by 2005 hospitals in NJ were outperforming hospitals in all other states on these process of care indicators. (New Jersey Department of Health and Senior Services, March 13, 2006).

In 2005, the State released the latest version of the annual *HMO Performance Report*. Published since 1997, this document provides "...information on the performance of New Jersey's managed health care plans, how well these plans deliver important health care services, and how members rate the services they receive (New Jersey Department of Health and Senior Services, <http://www.state.nj.us/cgi-bin/dhss/hmo/individual.pl?year=2004&page=introduction>). The report identifies HMOs as better, the same or worse than the statewide average on a number of indicators related to the care of patients with cardiovascular disease. Overall HMO performance has slowly but steadily improved since the first report was issued. While these performance reports have stimulated improvements in the care provided to New Jersey residents, much remains to be done.

Policy Related Cardiovascular Activities

As mentioned above, NJDHSS continually reviews its certificate of need (CN) and licensure standards for hospital-based cardiovascular services to improve access to and quality of these services and reduce mortality and disparities associated with cardiovascular disease. For well over a decade, the Department has benefited from the advice of the Cardiovascular Health Advisory Panel (CHAP), a group of cardiac surgeons, cardiologists, and other health care

professionals, in formulating its CN and licensure standards and in developing the cardiac surgery performance report.

To expand access to cardiovascular care, the NJDHSS's Certificate of Need and Acute Care Licensing Office has used its CN authority to "link expansion of the number of cardiac surgery centers in New Jersey to demonstrated efforts to improve access to minorities" (New Jersey Department of Health and Senior Services, <http://www.state.nj.us/health/csh>). When considering competing applications, the Department gives preference to applicants more likely to enhance access to care for minority and medically underserved patients. This same consideration informed the Department's initial pilot expansion of low-risk diagnostic cardiac catheterization laboratories to community hospitals, to its subsequent policy of permitting widespread expansion of full risk diagnostic cardiac catheterization as well as primary angioplasty, referred to above. The demand for elective angioplasty in New Jersey has been growing steadily, from 16,976 cases in 1998 to 27,346 in 2004, largely as the result of the introduction of drug-eluting coronary artery stents, which have allowed lower risk catheterization procedures to substitute for a large proportion of higher risk CABG open-heart procedures. During this same period open heart surgeries have declined from 11,312 cases to 9,875. Because of this trend, and the widespread interest of both consumers and community hospitals in making elective angioplasty widely available, in 2005 the Department approved nine New Jersey hospitals to offer primary angioplasty as part of a three year, multi-state, prospectively randomized study. This study is led by Johns Hopkins University researchers and is designed to determine whether elective angioplasty can be safely offered in hospitals that do not also offer cardiac surgery on-site.

In the area of cerebrovascular disease, the State enacted a law in 2004 designed to promote improvements in the treatment of stroke. The law articulated detailed standards for hospitals seeking designation as either a primary or comprehensive stroke treatment center. It also provided three million dollars annually in grants to help hospitals meet these stringent standards. To date, six million dollars have been awarded to hospitals statewide that will be seeking designation as a stroke treatment center (Stroke Center Designation Grant, http://www.state.nj.us/health/hcsa/rfa_notice.pdf).

Obesity Prevention: Other State Agencies Playing a Role in Cardiovascular Disease Control

In the past, New Jersey has had a higher rate of increase in obesity than the national average. BRFSS revealed that between 1991 and 2002, the percent of NJ citizens considered obese rose from 9.9% of the population to 18.8% of the population. Further analysis of BRFSS data revealed that 59.6% of New Jerseyans were considered overweight or obese in 2004. A study published in 2001 by the Center for State Health Statistics noted that less well educated, minority males disproportionately are more likely to be overweight and obese in the state. The study concluded that since eating and activity patterns are established in childhood, more emphasis on physical activity is needed at home by parents and in schools (Boeslager, Georgette, July 2001).

The State has formed a Taskforce on Obesity to address obesity and overweight risk factors. This task force is made up of members appointed by the Governor and includes individuals representing the food industry, medicine and public health fields, education, physical fitness, and recreation. The task force has been charged with creation of a statewide action plan with measurable goals to “...study and evaluate, and develop recommendations relating to, specific actionable measures to support and enhance obesity prevention among the residents of this State, with particular attention to children and adolescents” (New Jersey State Legislature, <http://www.njleg.state.nj.us/2002/bills/pl03/303 .htm>). The action plan has been completed and includes such topics as the promotion and dissemination of food guidelines, the monitoring of school children’s body mass index and the development of school and community based programs for physical activity and fitness.

The Department of Agriculture has implemented a model school nutrition policy to promote healthy eating. The model policy asks that state Boards of Education recognize that “...child and adolescent obesity has reached epidemic levels in the United States and that poor diet combined with the lack of physical activity negatively impacts on students’ health, and their ability and motivation to learn” (NJ Dept. of Agriculture http://www.nj.gov/agriculture/divisions/fn/childadult/school_model.html). To this end, the New Jersey Department of Agriculture asks that that healthy lunch options be provided for students and that physical activity be integrated into the school schedule.

The Department of Education requires that state public elementary and secondary schools adhere to a set of core curriculum standards in comprehensive health and physical education. Included in this curriculum is personal health, growth and development, nutrition, diseases and health conditions, safety, and social and environmental health (New Jersey Department of Education, http://www.nj.gov/njded/cccs/s2_chpe.htm#26). Fitness is also included as part of the curriculum, including physical activity, training and achieving and assessing fitness, and teaching students how to maintain a healthy lifestyle to remain disease free.

National and Other State Cardiovascular Disease Control Strategies

While New Jersey has been active in cardiovascular disease surveillance, risk reduction, and care enhancement activities, it is beneficial to review innovative strategies addressing cardiovascular disease control nationwide, including other states' preventive measures. Analysis of these programs could assist New Jersey in efforts to reduce cardiovascular disease because despite all of the state's risk reduction efforts, gaps do still exist in primary and secondary cardiovascular disease prevention methods statewide.

Centers for Disease Control and Prevention: Innovative Strategies Overview

In many states, efforts to eliminate cardiovascular disease are partially, if not completely, funded by the Centers for Disease Control and Prevention (CDC). The CDC has addressed cardiovascular disease by funding state programs to create a cardiovascular program specific to their population needs, but the CDC stresses several areas where state cardiovascular programs should focus their attention; education, policy changes, system changes, and environmental changes. In the past, the CDC has funded programs that focus on four priorities to guide state cardiovascular planning:

- *Increasing State Capacity:* Includes planning, implementing, tracking, and ultimately sustaining interventions that address CVD as well as CVD risk factors.
- *Surveillance:* Conduct surveillance of CVD and related risk factors in the state and assess existing state programs that target CVD.
- *Promising Strategies:* Identify promising strategies to promote statewide heart healthy interventions.
- *Promote CV health in a variety of settings:* Settings should include health care facilities, worksites, schools and community settings, etc.

In 1998, Congress approved funding for eight states to initiate a national, state-based heart disease and stroke prevention program. Today, 32 states and the District of Columbia receive CDC funding to operate prevention programs. Twenty one states are funded as “capacity building” states and 12 states are currently funded as “basic implementation” states, striving to enhance all capacity-building program activities through training and technical assistance. Starting with an overview of capacity building states, selected states highlighted below can serve as models for New Jersey.

Capacity-Building States: Connecticut, Ohio, and the District of Columbia

CDC-funded capacity-building states focus on several objectives to effectively address cardiovascular disease including;

- Facilitating collaboration between interested stakeholders from both the public and private sectors,
- Assessing the CVD burden statewide and creating strategies for primary and secondary heart disease and stroke prevention,
- Creating a plan for addressing cardiovascular disease based on heart-healthy policies,
- Changing physical and social environmental issues and eliminating disparities, and
- Identifying culturally appropriate approaches to promote healthy lifestyles and focus on increasing awareness of CVD signs and symptoms (State Programs Homepage, CDC, http://www.cdc.gov/dhdsp/state_program/index.htm).

Connecticut has received CDC funding since 2000 and has teamed with the local business and industry association to develop a survey to assess employer’s attitudes toward policies and environmental issues affecting CVD risk factors (State Program: Connecticut Capacity Building, http://www.cdc.gov/DHDSP/state_program/ct.htm). Connecticut is also using its funding to create Cardiovascular Health Pilot Projects to address CVD and stroke risk factors in various community settings. Ohio has used its CDC funding to develop a CVD profile paper outlining the burden of CVD in the state. In addition, Ohio used these funds to create a state plan as well as to identify priority populations that are vulnerable to cardiovascular disease. Since 2001, the District of Columbia has utilized its funding to coordinate a coalition that provides technical assistance and program support for addressing CVD secondary prevention and risk factors. The District also coordinated a Chronic Disease Conference and developed a series of reports that contain mortality and risk factor data.

Basic Implementation States: New York, Florida, and Arkansas

Basic implementation states have relied on CDC funding to enhance and expand existing cardiovascular programs. Since 1998, New York State has used CDC funding to support several initiatives for its “Healthy Heart Program.” Like Connecticut, New York has targeted worksites by developing “Heart Check,” a survey tool to measure worksite support of healthy heart policies and environments. New York has funded county health departments, hospitals, and other non-governmental organizations to perform training for worksites in need of change to promote heart health (State Program New York, http://www.cdc.gov/DHDSP/state_program/ny.htm). New York also used CDC funding for mini-grants to faith communities who serve minority populations.

Since 2002, Florida has used dedicated cardiovascular disease and stroke prevention funding for establishing a Cardiovascular Health Council to develop a statewide CVD plan and coordinate existing resources, at times partnering with existing cardiovascular-related programs to promote heart health. Florida has also used dedicated CVD monies to implement a public awareness campaign for women, specifically over the age of 65, about the signs, symptoms, and dangers of heart disease and stroke (State Program Florida, http://www.cdc.gov/DHDSP/state_program/fl.htm).

Beginning in 2000, Arkansas has received CDC funding for basic implementation and most recently for a two-year demonstration project to survey and present information on state hypertension and cholesterol control. Arkansas has joined the CDC funded Delta States Stroke Consortium comprised of 80 members from “the states of Alabama, Arkansas, Louisiana, Mississippi, and Tennessee, who have come together for the purpose of identifying and documenting opportunities for additional interventions that may reduce the burden of stroke in the central to west-central portion of the Southeastern United States” (Delta States Stroke Consortium, <http://www.uabchp.org/page.asp?id=48>). In addition, CDC funding has been used to support the distribution of clinical practice guidelines to over 3,600 health clinics statewide to promote evidence-based medicine and consistency in patient care.

Conclusions and Recommendations

New Jersey has been addressing cardiovascular disease statewide through activities including disease surveillance, risk factor identification and education, enhancing access to care, and monitoring quality of care for a number of years. Like other states, cardiovascular disease remains the number one cause of death in NJ and continues to disproportionately affect African American men and women.

While in a constrained resource environment it may be difficult to fund extensive new investments to address CVD; the state's ability to maximize the impact of existing and new resources it invests for addressing cardiovascular disease could be strengthened by the following three recommendations:

- *Create a centralized CVD control program:* A variety of efforts to address cardiovascular disease are currently spread over several state offices and departments. Consolidating CVD information into one centralized location to create a control program would allow for more cross-program analysis and more refined priority setting and program evaluation. These steps could lead to better use of existing CVD resources and establishing priorities for new resources.
- *Provide resources dedicated to addressing CVD statewide:* New Jersey should seek funding to be used specifically to address CVD, conduct outreach, and eliminate racial disparities.
- *Analyze the need for primary versus secondary CVD intervention to maximize the impact of outreach efforts:* New Jersey should conduct a thorough analysis of existing CVD outreach efforts to determine what the focus of ongoing CVD efforts should be statewide.

Implementation of these recommendations should contribute to reductions in cardiovascular disease statewide. Additionally, more research should be conducted to determine the best way to distribute dedicated CVD funding. More in-depth state case studies would also provide New Jersey with a comprehensive look at national best practices for addressing cardiovascular disease.

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