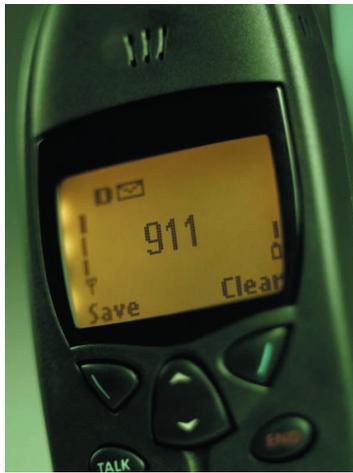
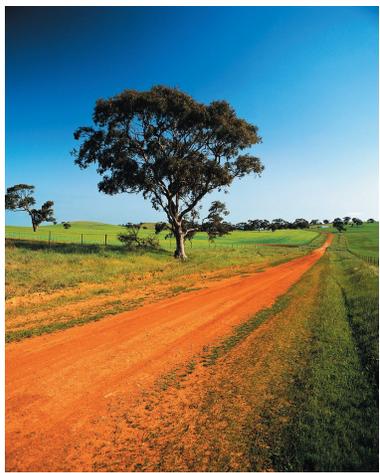


# NEBRASKA

## HEART DISEASE AND STROKE

### STATE PLAN

#### 2007-2012



AUGUST 2007

# NEBRASKA HEART DISEASE AND STROKE STATE PLAN 2007-2012

*“Promoting collaboration and capacity building in community, worksite, and healthcare settings to advance cardiovascular disease prevention and management through education, policy, systems, and environmental change.”*

Financial Support was provided through a Cooperative Agreement (U50/CCU721341-01) with the Centers for Disease Control and Prevention (CDC). Development of the Plan was facilitated by the Nebraska Cardiovascular Health Program.

Printed: August 2007

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## Suggested Citation:

Nebraska Department of Health and Human Services, Division of Public Health, Nebraska Cardiovascular Health Program, Nebraska Heart Disease and Stroke State Plan 2007-2012, August 2007.



AA/EOE/ADA



Division of Public Health

State of Nebraska

Dave Heineman, Governor

February 10, 2007

Dear Nebraskans:

This document, entitled Nebraska Heart Disease and Stroke State Plan 2007-2012, is a comprehensive plan developed over a two-year period by the Nebraska Department of Health and Human Services with the input and guidance of a numerous community, worksite, healthcare and policy experts from across the state.

The plan represents the efforts of these very dedicated individuals to identify cardiovascular disease prevention activities that can be developed and implemented in settings consistent and important to all Nebraskans. These setting include community, worksite, and healthcare. The setting focus provides opportunities to initiate, collaborate, and sustain policies and programs at the local level that will lead to a measurable reduction of heart disease and stroke through consistent prevention and control of risk factors.

Cardiovascular Disease (CVD) continues to be the leading cause of death for both genders and in most racial and ethnic groups in Nebraska. During 2004, CVD killed 5,173 Nebraska residents, accounting for more than one-third of all Nebraska deaths. Although CVD is often perceived as a disease of the elderly, it is actually the second leading cause of premature death before age 75 among Nebraska residents. Between 2002 and 2004, Nebraska residents lost an average of more than 19,000 years of productive life each year due to CVD.

CVD is also the leading cause of hospital care in Nebraska. In 2003, more than 28,000 inpatient hospitalizations and more than 8,600 emergency department visits occurred due to CVD among Nebraska residents in Nebraska hospitals. The cost of cardiovascular care in Nebraska is enormous and appears to be increasing. In 2003, the average estimated charge for a hospitalization due to CVD was \$23,700, an 84 percent increase from the \$12,900 per hospitalization in 1996. This increase far exceeds the rate of inflation.

Please use this plan as a resource to bring out change in your community, worksite, and healthcare settings and to reduce the occurrence of and costs associated with CVD. Your participation is vital to the success of this collaborative effort throughout Nebraska. Feel free to contact the program staff or me if you have any questions or comments. I look forward to hearing of your success and encourage you to share with others across the state.

Very truly yours,

Joann Schaefer, M.D.  
Director, Division of Public Health and Chief Medical Officer  
Nebraska Department of Health and Human Services

# FOREWORD AND ACKNOWLEDGEMENTS

The Nebraska Heart Disease and Stroke State Plan 2007-2012 is a comprehensive plan developed over a two-year period by the Nebraska Department of Health and Human Services' Cardiovascular Health Program with the input and guidance of numerous community, worksite, healthcare and policy experts from across the state. Special recognition goes to these experts for sharing their knowledge, time and experience to develop a working plan that, if embraced, will result in the reduction of death and disability due to cardiovascular disease across the state. The expert members of the working group who generously gave of their time and talents are listed below.

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## PURPOSE

The Nebraska Heart Disease and Stroke State Plan 2007-2012 focuses on heart disease, stroke, and cardiovascular disease risk factors, in particular high blood pressure and high cholesterol. The priority service areas for the plan are community, worksite, and healthcare. In addition, the plan identifies the need to improve state and local capacity and support to address heart disease, stroke and related risk factors in Nebraska.

## INTRODUCTION

The Nebraska Heart Disease and Stroke State Plan 2007-2012 was developed with the input and advice of a diverse group of experts from across the state. The workgroup included specialists from health care, education, public health professionals at both the local and state levels, as well as representatives from other state agencies with an interest in cardiovascular health. Over the last two years, the experts convened in two main meeting sessions and in several subcommittee sessions to develop goals, objectives and suggested strategies with the intent of engaging the interest and commitment from potential partners and stakeholders to implement the Nebraska Heart Disease and Stroke State Plan 2007-2012.

After years of health promotion efforts focusing on the individual, the public health community has learned that the environment in which a person lives and works, plays a role in health behavior. This plan is a call-to-action for all Nebraskans to recognize and address unacceptable levels of blood pressure, diabetes, and cholesterol, and the continuing disparities in health outcomes in specific populations, all in relationship to environment, systems and policies.

The Nebraska Heart Disease and Stroke State Plan 2007-2012 is the result of a statewide planning effort to promote collaboration and capacity building in community, worksite, and healthcare settings to advance cardiovascular disease prevention and management through education, policy, systems, and environmental change. The setting focus provides opportunities to build capacity to initiate and sustain policies and programs that will lead to a measurable reduction of heart disease and stroke in Nebraska through consistent prevention and control of risk factors.

The Centers for Disease Control and Prevention, Division of Heart Disease and Stroke Prevention (DHDSP), has outlined the following priorities for all State Programs:

- Increase the number of people with high blood pressure who have it under control.
- Increase the number of people with total blood cholesterol less than 200mg/dL.
- Increase the number of people who know the signs and symptoms of heart attack and stroke, the risk factors for heart disease and stroke, and the importance of calling 9-1-1.
- Improve Emergency Response.
- Improve Quality of Care.
- Eliminate Disparities (in terms of race, ethnicity, gender, geography, or socio-economic status). This is an overarching priority. Emphasis should be placed on strategies among priority populations in all settings.

# SOCIO-ECOLOGICAL MODEL

The Nebraska Heart Disease and Stroke State Plan 2007-2012 is based on a multi-level approach to change, referred to as the Social-Ecological Model. This theoretical model is based on the understanding that health promotion includes not only educational activities but also advocacy, organizational change efforts, policy development, economic supports, environmental change and multi-method strategies. This ecological perspective highlights the importance of approaching public health problems at multiple levels and stressing interaction and integration of factors within and across levels.

Research shows that behavior change is more likely to endure when both the individual and the environment undergo change simultaneously. Together, the two approaches create synergy, having a far greater influence on individuals, organizations, communities, and society as a whole than either individual or environmental strategies could alone.

As a result, the objectives and strategies included within this plan cover the broad spectrum of levels located in the social-ecological model. It is our belief that this approach is the most likely to result in both short term and long term sustainable behavioral change to reduce the occurrence of and costs associated with cardiovascular disease in Nebraska.



The levels of influence within the socio-ecological model include:

1. Individual: awareness, knowledge, values, belief, attitudes, preferences.
2. Interpersonal: family, friends, peers that provide social support and identity.
3. Institutional/Organizational: rules, policies, procedures, environment and informal structures within an organization system.
4. Community: social networks, norms, standards and practices among organizations.
5. Public Policy: local, state, and federal government policies, regulations and laws.

# THE IMPACT OF HEART DISEASE AND STROKE IN NEBRASKA

Cardiovascular disease (CVD) includes all diseases of the heart and blood vessels, which includes coronary heart disease, stroke, congestive heart failure, hypertensive disease, and atherosclerosis.

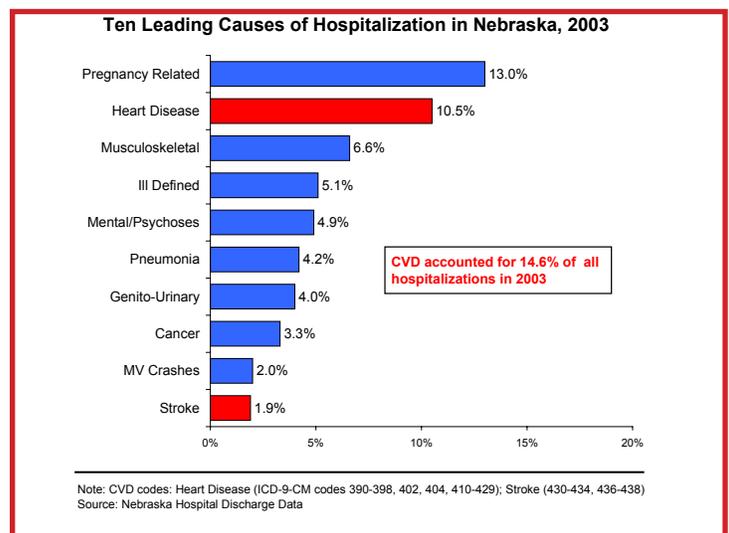
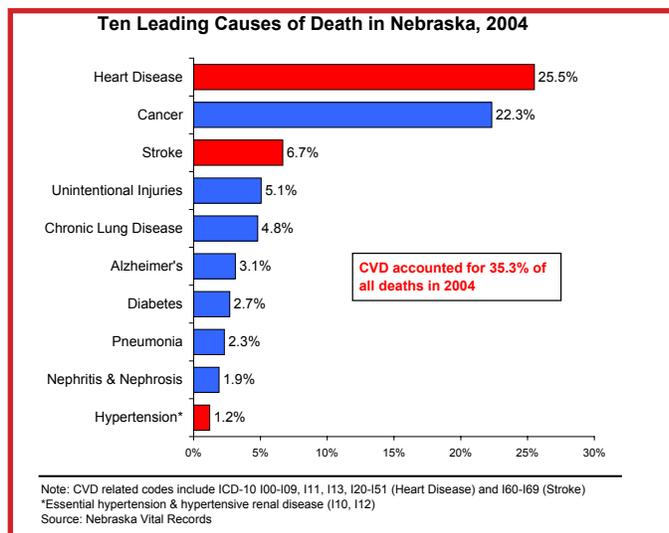
In 2005, approximately 1 in every 14 Nebraska adults (7.2%) reported ever having had a heart attack, stroke, or having been diagnosed with coronary heart disease. This translates into a statewide population of approximately 92,000 Nebraska adults.

Cardiovascular disease continues to be the leading cause of death among both genders and all racial and ethnic groups (except Asians) in Nebraska. During 2004, CVD killed 5,173 Nebraska residents, accounting for more than one-third of all Nebraska deaths. CVD claimed more lives in 2004 than the next four leading causes of death combined. However, the age-adjusted mortality rate for CVD declined from 496.2 in 1979 to 255.7 deaths per 100,000 populations in 2004.

Although CVD is often perceived as a disease of the elderly, it is actually the second leading cause of premature death before age 75 among Nebraska residents. Between 2002 and 2004, Nebraska residents lost an average of more than 19,000 years of productive life each year due to CVD.

Cardiovascular disease is also the leading cause of hospital care in Nebraska. In 2003, more than 28,000 inpatient hospitalizations and more than 8,600 emergency department visits occurred due to CVD among Nebraska residents in Nebraska hospitals. Of all hospitalizations due to CVD among Nebraska residents in 2003, approximately 1 in 25 (4.0%) resulted in death prior to discharge, 1 in 11 (9.4%) resulted in discharge to a skilled nursing home, and 1 in 5 (19.1%) resulted in discharge to an intermediate, short-term, or other type of facility for follow-up care.

The cost of cardiovascular care in Nebraska is enormous and appears to be increasing. In 2003, Nebraska acute care hospitals charged payers an estimated \$665 million for hospitalizations among Nebraska residents due to CVD, a dramatic increase from the \$344 million in charges in 1996. In 2003, the average estimated charge for a hospitalization due to CVD was \$23,700, an 84 percent increase from the \$12,900 per hospitalization in 1996 (an increase far exceeding the rate of inflation).



# THE IMPACT OF HEART DISEASE AND STROKE IN NEBRASKA

## HEART DISEASE

Roughly 1 in every 18 Nebraska adults (5.7%) reported in 2005 that they had had a heart attack or had been diagnosed with coronary heart disease (nearly 73,000 Nebraska adults).

Heart disease (in all its forms) killed 3,736 Nebraska residents in 2004, making it the leading cause of death in the state.

Of all the forms of heart disease, ischemic (coronary) heart disease claimed the largest number of lives- 2,135 followed by heart failure at 563 deaths.

In 2003, there were more than 20,000 hospitalizations for heart disease among Nebraska residents in Nebraska hospitals, making it the leading cause of inpatient hospitalization in Nebraska (when excluding pregnancy- related hospitalizations).

Charges for inpatient hospitalization due to heart disease among Nebraska residents totaled more than \$525 million in 2003. The average charge per heart disease hospitalization in Nebraska increased from \$14,300 in 1996 to \$26,000 in 2003, an 82% increase (these dollars were not adjusted for inflation).

## STROKE

Roughly 1 in every 18 Nebraska adults (2.4%) reported in 2005 that they had had a stroke (an estimated 30,000 Nebraska adults).

Stroke killed 977 Nebraska residents in 2004, making it the third leading cause of death.

Age-adjusted death rates for stroke have declined since the late 1970s, however, the rate of decline has slowed considerably since the early 1990s.

In 2003, there were more than 3,700 hospitalizations for stroke among Nebraska residents in Nebraska hospitals, making it the ninth leading cause of inpatient hospitalization in Nebraska when excluding pregnancy- related hospitalizations.

Charges for inpatient hospitalization due to stroke among Nebraska residents totaled \$63 million in 2003. The average charge per stroke hospitalization in Nebraska increased from \$8,900 in 1996 to \$17,100 in 2003, for a 91% increase; a steeper increase than observed for heart disease (these dollars were not adjusted for inflation).

**Death From Heart Disease, Stroke, and Hypertension among Nebraska Residents compared to all U.S. Residents, 2004**

Cause of Death*	Nebraska		U.S.		Relative Risk** NE:U.S.
	Deaths	rate^	Deaths	rate^	
Heart Disease	3,736	188.9	654,092	217.5	0.87
Stroke	977	48.9	150,147	50.0	0.98
Hypertension	175	8.6	22,953	7.6	1.13

\*Heart Disease (ICD-10 codes I00-I09, I11, I13, I20-I51); Stroke (ICD-10 codes I60-I69); Essential Hypertension and Hypertensive Renal Disease (ICD-10 codes I10, I12)

\*\*Relative Risk represents the Nebraska to U.S. rate ratio

^Age-adjusted rate per 100,000 population (2000 U.S. standard)

Sources: Nebraska Vital Records; Preliminary death data for 2004, NCHS

# RISK FACTORS FOR CARDIOVASCULAR DISEASE

## HIGH BLOOD PRESSURE

Blood pressure is the force of blood against the walls of the arteries. High blood pressure (also referred to as hypertension) occurs when an individual has a systolic blood pressure at or above 140 mg/dL or a diastolic blood pressure at or above 90 mg/dL. High blood pressure is a serious health concern that raises the risk for heart disease, stroke, and kidney failure. In 2003, roughly 1 in every 3 adults in America (about 65 million people) had high blood pressure, with more than 50,000 dying from it. Unfortunately, high blood pressure often goes undetected or is not properly controlled. According to the American Heart Association (AHA), of those with high blood pressure, 30 percent do not even know they have it while an additional 25 percent are on medication but do not have their high blood pressure under control.

In 2005, 1 in every 4 Nebraska adults (24.5%) reported having been diagnosed with high blood pressure during their lifetime. This percentage of 24.5% was similar to the national median of 25.5%. The trend for diagnosed high blood pressure among Nebraska adults has increased slightly (although not significantly) between 2001 and 2005; increasing from 22.6% in 2001, to 23.5% in 2003, to 24.5% in 2005. Among Nebraska adults ever diagnosed with high blood pressure, in 2005, 3 in every 4 (76.8%) were taking medication for their high blood pressure.

Unlike declining trends in death for heart disease and stroke, the death rate for essential hypertension and hypertensive renal disease (ICD-10 codes I10 and I12) has increased in recent years. Between 1999 and 2004, the number of deaths has increased from 113 to 175, respectively, while the age-adjusted death rate has increased 48% during this time period, increasing from 5.8 to 8.6 deaths per 100,000 population, respectively.

## HIGH BLOOD CHOLESTEROL

Cholesterol is a waxy, fat-like substance found in the walls of cells in all parts of the body. Excess cholesterol in the blood can become trapped in artery walls and form plaque, which can lead to atherosclerosis (or hardening of the arteries). High blood cholesterol is a major risk factor for heart disease, and should be kept below 200 mg/dL. Fortunately, healthy cholesterol levels can usually be maintained through regular activity, healthy eating, weight control, and a variety of lipid-lowering drugs. Yet, according to the American Heart Association, less than half of persons who qualify for any kind of lipid-modifying treatment for coronary heart disease risk reduction are receiving it. The National Institutes for Health (NIH) recommends that adults in America should have their cholesterol checked at least every five years.

In 2005, roughly 7 in every 10 Nebraska adults (70.7%) had their cholesterol checked during the past five years. While this percentage has increased dramatically from 53.6% in 1989, it was still lower than the national median of 73.0%.

Among Nebraska adults who had ever had their cholesterol checked, more than 1 in every 3 (35.2%) reported having been diagnosed with high cholesterol during their lifetime. This percentage of 35.2% was similar to the national median of 35.6%. The trend for diagnosed high blood cholesterol among Nebraska adults has increased steadily since 2001; increasing from 27.8% in 2001, to 30.5% in 2003, to 35.2% in 2005.

# RISK FACTORS FOR CARDIOVASCULAR DISEASE

## DIABETES

Diabetes (also called diabetes mellitus or “sugar diabetes”) is a disease in which the body does not produce or properly use insulin, a hormone that is needed to convert glucose into energy. Diabetes can lead to a variety of disabling and life-threatening complications, including heart disease, stroke, blindness, kidney failure, nerve damage, and lower-extremity amputation.

In 2005, 1 in every 14 Nebraska adults (7.3%) reported having been diagnosed with diabetes (excluding cases of gestational and pre-diabetes) during their lifetime. This percentage of 7.3% was identical to the national median of 7.3%. The trend for diagnosed diabetes among Nebraska adults has increased steadily from 4.3% in 1999 to 7.3% in 2005.

## CIGARETTE SMOKING

Cigarette smoking, the leading cause of preventable death in the United States, has long been linked with increased risk for CVD. In 2004, cigarette smoking contributed to an estimated 2,389 deaths among Nebraska residents, of which one-third (766 deaths) resulted from CVD, making CVD the second leading cause of smoking related death behind cancer at 935 deaths.

In 2005, roughly 1 in every 5 Nebraska adults (21.3%) reported that they currently smoke cigarettes. This percentage of 21.3% was similar to the national median of 20.6%. The trend for cigarette smoking among Nebraska adults has remained virtually unchanged over the last decade.

While smoking rates among adults have remained unchanged during recent years, policies prohibiting secondhand smoke in homes and work places have increased. According to results from the Nebraska Adults Tobacco/Social Climate survey, the percentage of Nebraska adults reporting they had rules prohibiting smoking in any part of the home increased from 71.1% in 2000 to 77.9% in 2005. In addition, among adults who were employed, the percentage reporting that smoking was prohibited from all indoor work areas increased from 64.9% in 2000 to 80.8% in 2005.

## OVERWEIGHT AND OBESITY

Overweight and obesity are increasing at epidemic proportion in both Nebraska and the nation, a clear reflection of an imbalance between physical activity and nutrition. The physical and emotional impacts of overweight and obesity are extraordinary. Overweight and obesity substantially increase the risk for (among other diseases) coronary heart disease, type 2 diabetes, some forms of cancer, and certain musculoskeletal disorders such as osteoarthritis. Overweight and obese individuals also may suffer from social stigmatization, discrimination, and poor body image.

In 2005, nearly 2 in every 3 Nebraska adults (63.2%) was either overweight or obese (BMI 25.0 or greater) with 1 in every 4 (26.0%) being obese (BMI or 30.0 or greater). The percentage of obese Nebraska adults was slightly higher than the national median of 24.4% among the 50 U.S. states and District of Columbia in 2005. Between 1990 and 2005, obesity among Nebraska adults more than doubled, increasing from 11.6% to 26.0%.

# RISK FACTORS FOR CARDIOVASCULAR DISEASE

## LACK OF PHYSICAL ACTIVITY

Regular physical activity reduces the risk for heart attack, colon cancer, diabetes, and high blood pressure, and may reduce the risk for stroke. It also helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among older adults; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications. Moreover, physical activity need not be strenuous to be beneficial; people of all ages benefit from physical activity, such as 30 minutes of brisk walking on most days of the week.

In 2005, less than half of Nebraska adults (47.3%) engaged in a recommended amount of physical activity, which consists of 30 minutes or more of moderate activity on five or more days per week or 20 or more minutes of vigorous activity on three or more days per week. The percentage of Nebraska adults engaging in the recommended amount of physical activity has increased in recent years from 34.1% in 2001 to 44.6% in 2003 to 47.3% in 2005. However, the 2005 percentage for Nebraska adults engaged in the recommended amount of physical activity was slightly lower than the national median of 49.1%.

When asked specifically about leisure time physical activity, 1 in every 4 Nebraska adults (23.8%) reported they do not engage in any physical activity during their leisure time. This percentage was identical to the national median of 23.8%.

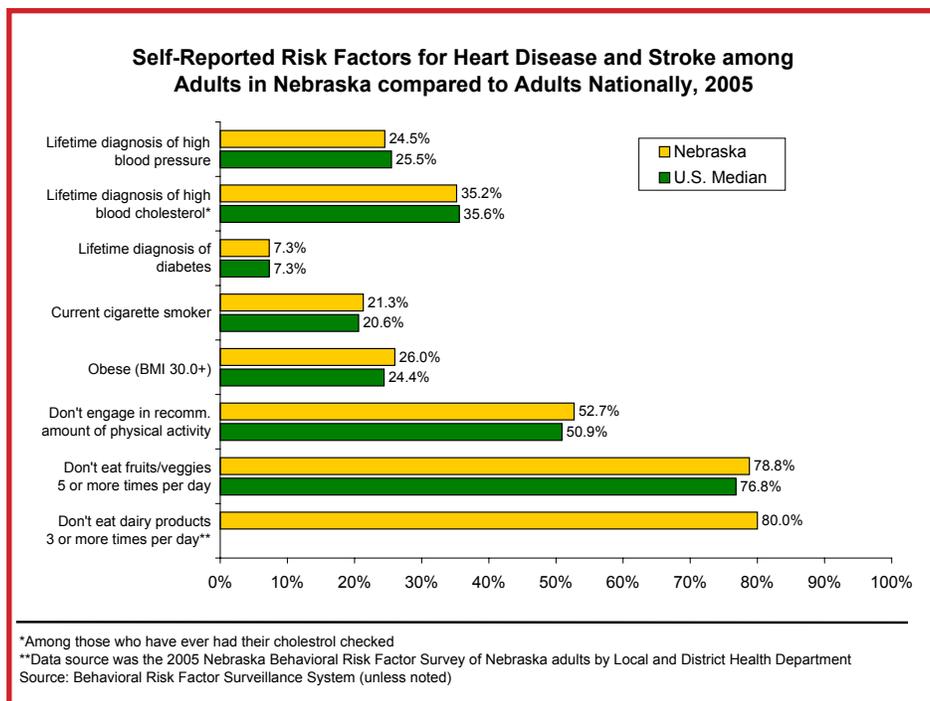
## UNHEALTHY EATING

Research shows that good nutrition lowers people's risk for many chronic diseases, including heart disease, stroke, some types of cancer, diabetes, and osteoporosis. A diet rich in fruits and vegetables is one of the best ways to maintain good

health and reduce the risk of heart disease, some types of cancer, and other chronic diseases. In addition, there is a

growing body of evidence that regular dairy consumption may accelerate weight loss and decrease the risk for becoming overweight or obese.

In 2005, just 1 in every 5 Nebraska adults (20.2%) consumed fruits and vegetables five or more times per day (5-a-day). This percentage of 20.2% was substantially lower than the national median of 23.2%. On a positive note, the percentage did increase in 2005 from 17.8% in 2003. Similar to fruit and vegetable consumption, just one-fifth of Nebraska adults (20.0%) consumed dairy products three or more times per



day in 2005.

## PRIORITY POPULATIONS

Work completed through this state plan will target the following three populations. This approach was selected to ensure the greatest use of available resources and to eliminate health disparities that currently exist between populations within the state.

### AFRICAN AMERICANS

Between 1999 and 2003, African Americans in Nebraska were more likely than Whites in Nebraska to die from heart disease (relative risk of 1.23 based on age-adjusted death rates) and stroke (relative risk of 1.48). In addition, beyond differences in age during 2005, African American adults in Nebraska were significantly more likely than White adults to have ever been diagnosed with high blood pressure, to have diagnosed diabetes, to be obese, to have three or more (of seven) risk factors for CVD, and were about twice as likely to have no health care coverage; while they were less likely to engage in leisure time physical activity.

### NATIVE AMERICANS

Between 1999 and 2003, Native Americans in Nebraska were 1.5 times more likely than Whites in Nebraska (relative risk 1.52) to die from heart disease (based on age-adjusted death rates). In addition, beyond differences in age between 2001 and 2005, Native American adults in Nebraska were significantly more likely than White adults to have diagnosed diabetes, to smoke cigarettes, to be obese, to have three or more (of seven) risk factors for CVD, and were more than two and one-half times as likely to have no health care coverage.

### LOW SOCIOECONOMIC STATUS

During 2005, beyond differences in age, Nebraska adults with a low education and income (less than \$25,000 annual household income and an education of high school or less) compared to those with a high education and income (greater than \$50,000 annual household income and at least some college) were significantly more likely to have ever been diagnosed with high blood pressure, to have diagnosed diabetes, to smoke cigarettes, to be obese, to have three or more (of seven) risk factors for CVD, and were nine times more likely to have no health care coverage; while being less likely to have had a cholesterol screening during the past five years and to engage in physical activity. Furthermore, in 2001, Medicaid enrollees (who are low income, with adult enrollees being largely disabled) had an age-adjusted death rate 3.5 times higher than non-Medicaid enrollees in Nebraska.

## SPECIAL INTEREST POPULATIONS

While rates for morbidity, mortality, and risk factors among these populations may not vary greatly from the population as a whole, specific health inequalities do exist. These health inequalities warrant attention throughout the implementation of this plan.

### HISPANICS

While death rates for heart disease and stroke in Nebraska are lower for Hispanics, when compared to Whites, there are indicators suggesting that this difference may not continue if things remain on their current path. In 2005, beyond differences in age, Hispanic adults in Nebraska were significantly more likely than White adults to have diagnosed diabetes and were nearly three times as likely to have no health care coverage; while they were less likely to have had a cholesterol screening during the past five years and were less likely to engage in physical activity. However, on a positive note, Hispanic adults were significantly less likely than White adults to have smoked cigarettes during 2005.

### RURAL NEBRASKA

Nebraska residents living in rural areas of the state have less health care access than residents in urban areas. In 2005, beyond differences in age, Nebraska adults living outside of Douglas, Lancaster, and Sarpy counties had a higher percentage (although not significant) for no health care coverage, and had a significantly lower percentage for having had their cholesterol checked during the past five years. When asked how close they lived to an emergency department in 2005, residents living in more rural counties of the state reported much farther distances than residents in more urban counties. Rural residents also have longer EMS response times and less advanced 9-1-1 services. In addition, due to their larger older adult populations, residents of rural counties place a greater per-capita demand on the health care system.

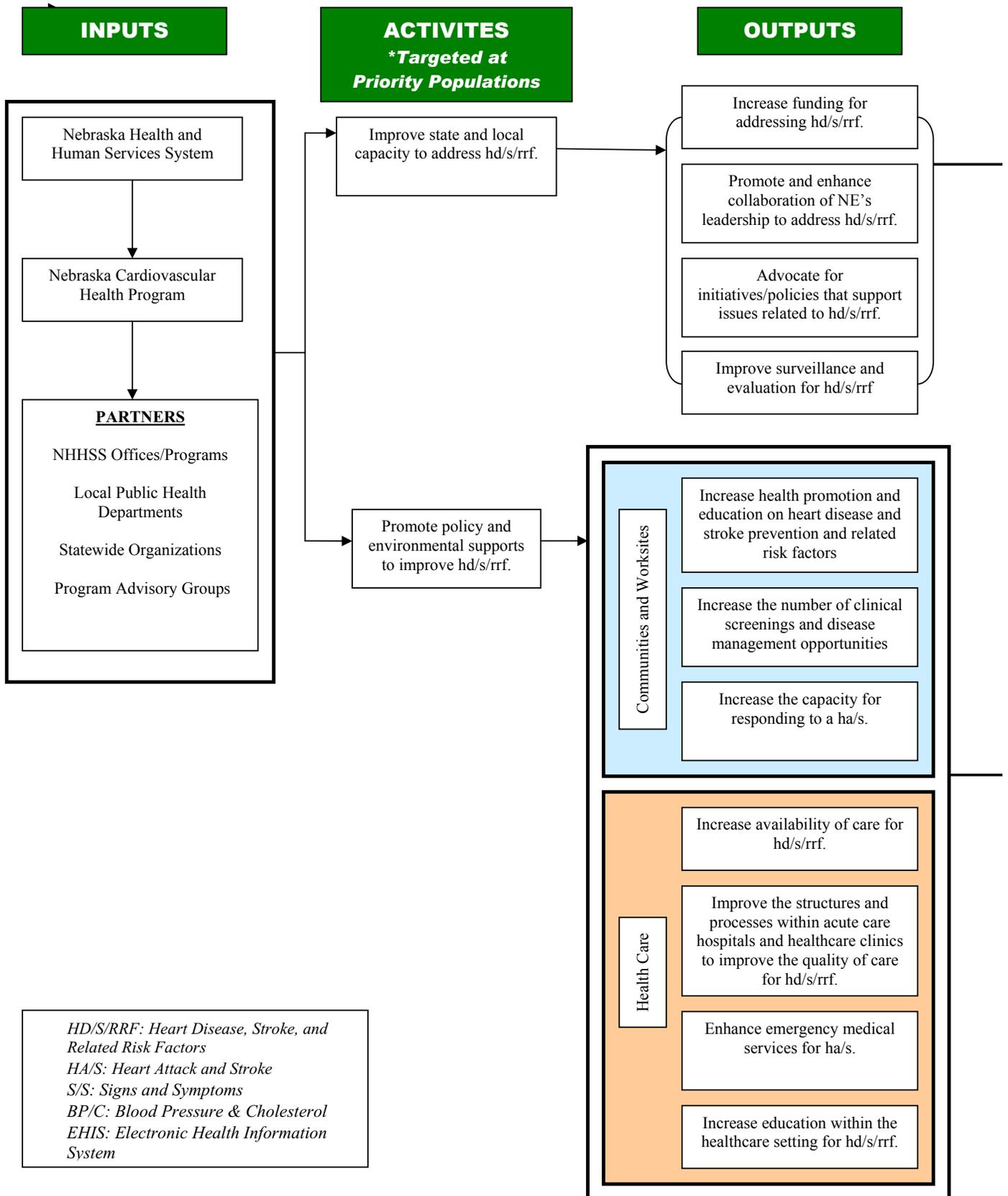
### WOMEN

Although women in Nebraska, compared to men, have lower (age-adjusted) heart disease and stroke death rates, more women actually die from heart disease and stroke each year. In 2004, CVD killed 3,031 females in Nebraska (accounting for 40% of all deaths) compared to 2,517 males (35% of all deaths). Unfortunately, many women do not recognize heart disease and stroke as serious health concerns. In 2005, when asked what the leading cause of death was for all women, only half of adult women in Nebraska (54.6%) identified heart disease/attack as the leading cause of death. When asked what the one greatest health problem facing women today was, just 17.3% identified heart disease/attack while 33.3% identified cancer (with 21.0% identifying breast cancer specifically).

### MIDDLE AGE ADULTS

From an economic standpoint, middle age adults are in their most productive years of life. However, they are also at an age when cardiovascular disease begins developing and progressing if proper precautions are not taken. Unhealthy behaviors and untreated health problems can result in missed work days and less productivity, which can be detrimental to Nebraska's economy. Between 2002 and 2004, CVD killed 1,720 Nebraska adults age 45-64 years, for an average of 573 deaths per year. Furthermore, obesity is most common among Nebraska adults 45-64 years of age.

# Nebraska Cardiovascular Health Program Logic Model



# OUTCOMES

## SHORT TERM

Provide training to enhance local capacity

Increase partnerships, especially w/ priority populations

Use data to assess needs, barriers, & gaps.

## INTERMEDIATE

Receive Basic Implementation Funding

Fund staff at LPHD for addressing chronic disease

Secure Funding for a Statewide Stroke Registry

Update CVD Burden Rept.

Educate decision makers about heart healthy & stroke free communities

## LONG TERM

Increase capacity at state and local level to address hd/s/rrf

Increase policy & environmental supports in the community, worksites, & healthcare settings

Promote legislation to improve hd/s systems of care

## IMPACT

Decrease prevalence of hd/s/rrf

Decrease he/s/rrf death & disability

Reduce hd/s/rrf disparities

Offer education on s/s of ha/s & importance of calling 9-1-1

Increase knowledge of 9-1-1 usage

Offer screenings for bp/c

Educate on the importance of knowing bp/c levels

Increase knowledge of ha/s s/s and 9-1-1 use

Increase worksites w/ insurance plans covering CVD risk factor screening & treatment

Increase programs for management of high bp/c

Decrease time from symptom onset to ED arrival

Increase usage of 9-1-1 & EMS for ha/s

Increase awareness of bp/c control

Increase control of high bp/c

Facilitate NE Stroke Advisory Council

Education on formalized stroke protocol/team

EMS Trng. On stroke scale & pre-hosp. communication

Facilitate NE Registry Partnership

Trngs. on bp/c treatment guidelines

Increase utilization of stroke protocols/teams

Increase use of telehealth network for stroke

Adoption of stroke module in required EMT training

Increased use of EHIS

Increased use of bp/c guidelines

State guideline for stroke transport developed

Increase in tPa usage.

Stroke designated as an EMS high priority area

Improved care/control of hd/s/rrf.



# IMPLEMENTATION GOALS, OBJECTIVES, AND STRATEGIES

## LONG-TERM GOAL:

Decrease morbidity and mortality resulting from heart disease and stroke in Nebraska.

## INTERMEDIATE GOAL:

Decrease the prevalence of risk factors associated with heart disease and stroke.

## SHORT-TERM GOALS:

### Short Term Goal 1:

Engage in behaviors to prevent and/or control risk factors for heart disease and stroke.

### Short Term Goal 2:

Improve individual knowledge and skills related heart disease and stroke.

The Nebraska Heart Disease and Stroke State Plan 2007-2012 outlines four implementation goals in the following areas: capacity building; community; worksite; and healthcare.

Each of the four goals has corresponding objectives and strategies to achieve short-term, intermediate, and long-term goals. The strategies were developed by the Nebraska Heart Disease and Stroke State Plan 2007-2012 Working Group and represent a wide range of activities that will provide for a comprehensive approach to reducing the occurrence of heart disease and stroke.

Each strategy is important but may not be appropriate or every organization or entity to incorporate into their program activities. The strategies are not meant to be prescriptive or inclusive but rather are meant to provide suggestions for action. To achieve the greatest measurable impact, it is important that organizations understand their capacity and their target population(s) in order to select their most appropriate strategies.

## IMPLEMENTATION GOAL FOR CAPACITY BUILDING:

Improve state and local capacity and support to address heart disease, stroke and related risk factors in Nebraska.

## IMPLEMENTATION GOAL FOR COMMUNITY:

Promote policy and environmental supports within communities to improve heart disease and stroke prevention and risk factor control.

## IMPLEMENTATION GOAL FOR WORKSITES:

Promote policy and environmental supports for worksites to improve heart disease and stroke prevention and risk factor control.

## IMPLEMENTATION GOAL FOR HEALTHCARE:

Improve the availability, quality, and timeliness of healthcare services for heart attack, stroke, and related risk factors.

# CAPACITY BUILDING

For the purposes of this plan, capacity building is defined as identifying and securing the resources needed to achieve the plan goals, objectives and strategies within the time period allowed.

**IMPLEMENTATION GOAL FOR CAPACITY BUILDING:** Improve state and local capacity and support to address heart disease, stroke and related risk factors in Nebraska.

**Objective 1:** Increase the funds available for heart disease, stroke and related risk factors.

Strategy 1: Enhance collaboration among state and local programs to maximize available resources for heart disease and stroke.

Strategy 2: Secure additional grant funds from state and federal sources and direct at high-risk populations when appropriate.

**Objective 2:** Promote and enhance collaboration of Nebraska's leadership to address heart disease, stroke and related risk factors.

Strategy 1: Provide training to further enhance local capacity to address heart disease and stroke.

Strategy 2: Establish statewide advisory groups that meet at least bi-annually for heart disease and stroke.

Strategy 3: Secure partnerships with organizations that address risk factors and topics related to the prevention and management of heart disease and stroke.

Strategy 4: Partner with organizations to provide targeted interventions for the prevention and management of heart disease and stroke in high-risk populations.

**Objective 3:** Advocate for initiatives or policies that support issues related to heart disease, stroke and related risk factors.

Strategy 1: Educate decision makers about policy and environmental changes that would promote the prevention and control of heart disease, stroke and related risk factors.

Strategy 2: Promote legislation to improve heart disease and stroke systems of care.

## CAPACITY BUILDING CONTINUED....

**Objective 4:** Improve surveillance and evaluation for heart disease, stroke and related risk factors.

Strategy 1: Continue to assess data systems for heart disease, stroke and related risk factors to determine quality and gaps in available data.

Strategy 2: Expand collection of data within the healthcare system to better understand capacity for addressing the care of heart disease, stroke and related risk factors.

Strategy 3: Expand the use of electronic health information systems to improve care for heart disease, stroke and related risk factors within the hospitals and health clinics.

Strategy 4: Explore opportunities to create a statewide stroke registry system.

## COMMUNITY

For the purposes of this plan, community is defined as any place where the general public gathers away from work (athletic event, school event, faith gatherings, community centers, etc.). Objectives and strategies for this goal are divided among three program areas: Health Promotion and Education; Screening; and Emergency Response.

**IMPLEMENTATION GOAL FOR COMMUNITY:** Promote policy and environmental supports within communities to improve heart disease and stroke prevention and risk factor control.

### HEALTH PROMOTION AND EDUCATION

**Objective 1:** Increase health promotion and education on heart disease and stroke prevention and related risk factors.

Strategy 1: Offer education on the signs and symptoms of heart attack and stroke (media, print materials, community events).

Strategy 2: Educate about the importance of calling 9-1-1 as the first emergency response for heart attack or stroke.

Strategy 3: Educate about the importance of being screened, knowing your numbers (blood pressure, cholesterol, blood glucose and BMI), and controlling your risk factors.

## COMMUNITY CONTINUED....

Strategy 4: Offer health and wellness programs or support groups on cardiovascular disease or associated risk factors.

Strategy 5: Educate about the importance of compliance with prescribed medication and/or lifestyle changes to control cardiovascular disease and associated risk factors (healthy eating, reduced sodium, physical activity, etc.).

### SCREENING

**Objective 1:** Increase the number of clinical screening opportunities offered for blood pressure, cholesterol, blood glucose and BMI, through community groups, faith based organizations or other community events.

Strategy 1: Offer and promote screening events for community members at reduced or no cost.

Strategy 2: Offer and promote regular blood pressure screenings.

### EMERGENCY RESPONSE

**Objective 1:** Increase the capacity for community response to a heart attack or stroke.

Strategy 1: Offer CPR/AED trainings through community organizations.

Strategy 2: Place Automatic External Defibrillators (AED) in communities following national placement guidelines.

Strategy 3: Promote statewide ability to dial 9-1-1 for emergency services.

## WORKSITES

For the purpose of this plan, worksite is defined as the physical location of an individual's place of employment. Objectives and strategies for this goal are divided among three program areas: Health Promotion and Education; Screening and Disease Management; and Emergency Response.

**IMPLEMENTATION GOAL FOR WORKSITES:** Promote policy and environmental supports for worksites to improve heart disease and stroke prevention and risk factor control.

### HEALTH PROMOTION AND EDUCATION

**Objective 1:** Increase health promotion and education on heart disease and stroke prevention and related risk factors.

Strategy 1: Offer education on the signs and symptoms of heart attack and stroke.

Strategy 2: Offer health messages on cardiovascular disease and associated risk factors (pamphlets, brochures, posters, video or email).

Strategy 3: Offer health and wellness programs or support groups on cardiovascular disease or associated risk factors.

### SCREENING AND DISEASE MANAGEMENT

**Objective 1:** Increase the number of clinical screenings (blood pressure, cholesterol, blood glucose and BMI) and disease management opportunities

Strategy 1: Offer one or more health insurance plans that cover annual physicals and/or for cardiovascular disease risk factors for employees.

Strategy 2: Offer on-site screening events for cardiovascular disease risk factors for employees.

Strategy 3: Offer weekly/monthly blood pressure screenings.

### EMERGENCY RESPONSE

**Objective 1:** Increase the capacity for responding to a heart attack or stroke within worksites.

Strategy 1: Offer a CPR/AED course annually.

Strategy 2: Place AEDs in worksites following national placement guidelines.

Strategy 3: Adopt a formalized protocol for responding to a heart attack or stroke among employees and others utilizing the facility.

# HEALTHCARE

For the purposes of this plan, healthcare is defined as any system, organization or agency that provides services related to the health and medical care of an individual. Objectives and strategies for this goal are divided among four program areas: Access to Care; Quality of Care; Emergency Response; and Education.

**IMPLEMENTATION GOAL FOR HEALTHCARE:** Improve the availability, quality and timeliness of healthcare services for heart attack, stroke and related risk factors.

## ACCESS TO CARE

**Objective 1:** Increase the availability of care for heart disease, stroke, and related risk factors particularly within underserved populations.

Strategy 1: Encourage larger healthcare systems to offer more outpatient rehabilitation services for heart attack and stroke in rural and local communities where services are not available.

Strategy 2: Enhance transportation services for patients needing care for heart disease, stroke and related risk factors.

## QUALITY OF CARE

**Objective 1:** Improve the structures and processes within acute care hospitals and healthcare clinics to improve the quality of care for heart disease, stroke, and related risk factors

Strategy 1: Implement a formalized stroke protocol and/or form a stroke team within acute care hospitals available.

Strategy 2: Expand the equipment and medications within acute care hospitals for proper diagnosis and treatment of stroke.

Strategy 3: Expand the number of healthcare facilities that utilize an electronic health information system for monitoring patient care and compliance for heart disease, stroke and related risk factors.

Strategy 4: Utilize the guidelines for diagnosis, treatment, care, education, and follow-up for acute myocardial infarction.

Strategy 5: Develop guidelines for utilizing the telehealth network for diagnosis and treatment of heart disease and stroke.

# HEALTHCARE CONTINUED...

## EMERGENCY RESPONSE

**Objective 1:** Enhance emergency medical services for heart attack and stroke.

Strategy 1: Establish statewide guidelines for diversion of a stroke patient to the nearest stroke- ready facility.

Strategy 2: Improve pre-arrival communication between EMS and hospitals for suspected heart attack and stroke patients.

Strategy 3: Classify suspected stroke as a high priority medical emergency for EMS Dispatch.

Strategy 4: Adopt a stroke tool for evaluating a possible stroke patient (statewide).

Strategy 5: Provide all EMS dispatch centers with a standardized tool to assess suspected heart attack and stroke.

## EDUCATION

**Objective 1:** Increase education within the healthcare setting for heart disease, stroke and related risk factors.

Strategy 1: Educate administrators of healthcare facilities about structures and processes needed to improve heart disease and stroke patient care.

Strategy 2: Educate healthcare providers about treatment guidelines and promising practices for heart disease, stroke and related risk factors.

Strategy 3: Educate EMS providers about evaluation and transport of heart attack and stroke patients.

Strategy 4: Educate EMS dispatchers about signs and symptoms of heart attack and stroke.

Strategy 5: Enhance education about utilizing the Nebraska Statewide Telehealth Network for diagnosis and treatment of heart disease and stroke.

# MEASUREMENT AND EVALUATION BENCHMARKS

Benchmarks	Baseline		
	Data Source	Measure	Year
<b>Long Term Goal: Decrease morbidity and mortality resulting from heart disease and stroke in Nebraska</b>			
Age-adjusted mortality rate for all heart disease (per 100,000 population)	Nebraska Vital Records	188.9	2004
Age-adjusted inpatient hospitalization rate for all heart disease (per 10,000 population)	Nebraska Hospital Discharge Data	109.1	2003
Age-adjusted mortality rate for ischemic (coronary) heart disease (per 100,000 population)	Nebraska Vital Records	106.7	2004
Age-adjusted inpatient hospitalization rate for ischemic (coronary) heart disease (per 10,000 population)	Nebraska Hospital Discharge Data	51.6	2003
Age-adjusted mortality rate for stroke (per 100,000 population)	Nebraska Vital Records	48.9	2004
Age-adjusted inpatient hospitalization rate for stroke (per 10,000 population)	Nebraska Hospital Discharge Data	19.7	2003
<b>Intermediate Goal: Decrease the prevalence of risk factors associated with heart disease and stroke</b>			
Percentage of Nebraska adults reporting they have ever been diagnosed with high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	24.5%	2005
Percentage of Nebraska adults reporting they have been diagnosed with high blood pressure on two or more different visits	Nebraska Behavioral Risk Factor Surveillance System	19.7%	2005
Percentage of Nebraska adults reporting they currently take medication for high blood pressure, among those who have ever been told their blood pressure was high	Nebraska Behavioral Risk Factor Surveillance System	76.8%	2005
Percentage of Nebraska adults reporting they have ever been diagnosed with high cholesterol, among those who have ever had their cholesterol checked	Nebraska Behavioral Risk Factor Surveillance System	35.2%	2005
Increase the percentage of Medicaid managed care enrollees who have their blood pressure under control	HEDIS measure; Nebraska Medicaid Encounter Data	67.0%	2005
Among rural health clinic patients with cardiovascular disease, increase the percentage who have their high blood pressure under control	Nebraska Registry Partnership Data	Baseline collection spring 2007	
Among rural health clinic patients with cardiovascular disease, increase the percentage who have their lipid measures under control	Nebraska Registry Partnership Data	Baseline collection spring 2007	

# MEASUREMENT AND EVALUATION BENCHMARKS

## Short Term Goal 1: Engage in behaviors to prevent and/or control risk factors for heart disease and stroke

Increase the percentage of Nebraska adults who received a cholesterol screening during the past five years	Nebraska Behavioral Risk Factor Surveillance System	70.7%	2005
Among Nebraska adults with diagnosed high blood pressure, high cholesterol, diabetes, coronary heart disease, heart attack, and/or stroke, who do not have health problems or conditions preventing aspirin use, increase the percentage taking aspirin daily or every other day	Nebraska Behavioral Risk Factor Surveillance System	48.4%	2005
Among Nebraska adults with high blood pressure, increase the percentage who are changing their eating habits to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	63.1%	2005
Among Nebraska adults with high blood pressure, increase the percentage who are cutting down on salt or avoiding salt to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	79.3%	2005
Among Nebraska adults with high blood pressure, increase the percentage who are reducing alcohol use to help lower or control their high blood pressure, among those who drink alcohol	Nebraska Behavioral Risk Factor Surveillance System	59.3%	2005
Among Nebraska adults with high blood pressure, increase the percentage who are exercising to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	65.3%	2005

## Short Term Goal 2: Improve individual knowledge and skills related heart disease and stroke

Increase the percentage of Nebraska adults who can correctly identify the heart attack signs and symptoms (based on six questions with one being a decoy)	Nebraska Behavioral Risk Factor Surveillance System	13.3%	2005
Increase the average number of heart attack signs and symptoms correctly identified by Nebraska adults (based on six questions with one being a decoy)	Nebraska Behavioral Risk Factor Surveillance System	4.25	2005
Increase the percentage of Nebraska adults who can correctly identify the stroke signs and symptoms (based on six questions with one being a decoy)	Nebraska Behavioral Risk Factor Surveillance System	21.2%	2005
Increase the average number of stroke signs and symptoms correctly identified by Nebraska adults (based on six questions with one being a decoy)	Nebraska Behavioral Risk Factor Surveillance System	4.37	2005
Increase the percentage of Nebraska adults who identify 9-1-1 as the first emergency response option for heart attack and stroke	Nebraska Behavioral Risk Factor Surveillance System	84.9%	2005
Increase the percentage of Nebraska adults who were certified in CPR during the past 12 months	Point in time survey of Nebraska adults by local/district health department	15.3%	2005

# MEASUREMENT AND EVALUATION BENCHMARKS

Increase the percentage of Nebraska women who identify heart disease or heart attack as the leading cause of death for all women	Point in time survey of Nebraska adults by local/district health department	54.6%	2005
Increase the percentage of Nebraska women who identify heart disease or heart attack as the one greatest health problem facing women today	Point in time survey of Nebraska adults by local/district health department	17.3%	2005
Increase the percentage of Nebraska adults who identify cardiovascular disease (in any form) as something that high blood pressure can lead to.	Point in time survey of Nebraska adults by local/district health department	82.1%	2005
Increase the percentage of Nebraska adults who specifically identify stroke as something that high blood pressure can lead to.	Point in time survey of Nebraska adults by local/district health department	43.2%	2005
<b>Implementation Goal for Community: Promote policy and environmental supports within communities to improve heart disease and stroke prevention and risk factor control</b>			
Increase to 93 the number of Nebraska counties covered by enhanced 9-1-1 services	Nebraska Public Service Commission	82*	2006
Increase the percentage of public middle and high schools in Nebraska that have an emergency response plan that includes heart attack and stroke	Nebraska School Administrator Survey	78%	2005
Increase the percentage of public middle and high schools in Nebraska that have an AED on-site	Nebraska School Administrator Survey	53%	2005
*includes counties who have enhanced 9-1-1 or are implementing enhanced 9-1-1			
<b>Implementation Goal for Worksites: Promote policy and environmental supports for worksites to improve heart disease and stroke prevention and risk factor control</b>			
Increase the percentage of Nebraska worksites that have an emergency response plan that includes heart attack and stroke	Nebraska Worksite Wellness Survey	47.5%	2005
Increase the percentage of Nebraska worksites that offered a CPR course during the past 12 months	Nebraska Worksite Wellness Survey	33.5%	2005
Increase the percentage of Nebraska worksites that offered structured education on how to recognize heart attack and/or stroke signs and symptoms during the past 12 months	Nebraska Worksite Wellness Survey	14.5%	2005
Increase the percentage of Nebraska worksites that have an AED on-site	Nebraska Worksite Wellness Survey	12.3%	2005
Increase the percentage of Nebraska worksites that offered health or wellness programs, support groups, counseling, classes, or contests for (a) heart disease, (b) stroke, and (c) high blood pressure for employees during the past 12 months	Nebraska Worksite Wellness Survey	(a) 5.5% (b) 5.0% (c) 7.3%	2005

# MEASUREMENT AND EVALUATION BENCHMARKS

Benchmarks	Baseline		
	Data Source	Measure	Year
Increase the percentage of Nebraska worksites that offered (a) blood pressure and (b) cholesterol screening for employees during the past 12 months	Nebraska Worksite Wellness Survey	(a) 15.7% (b) 10.8%	2005
Increase the percentage of Nebraska worksites that have permanent on-site access for employees to check their blood pressure	Nebraska Worksite Wellness Survey	16.7%	2005
<b>Implementation Goal for Healthcare: Improve the availability, quality, and timeliness of healthcare services for heart attack, stroke, and related risk factors</b>			
Increase the percentage of acute care hospitals in Nebraska that have a written protocol in the emergency department for treatment of acute stroke.	Assessment of Acute Stroke Treatment in Nebraska Hospitals	64.2%	2006
Increase the number of acute care hospitals in Nebraska that have national certification for providing acute stroke treatment (such as JCAHO or Get With The Guidelines-Stroke)	www.jointcommission.org; www.americanheart.org	2	2006
Increase the number of rural health clinics in Nebraska that are participating in the Nebraska Registry Partnership	Nebraska Health and Human Services System	14 + HRSA	2006
Increase the percentage of heart attack patients given an ACE inhibitor or ARB for left ventricular systolic dysfunction in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	83%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given aspirin at arrival in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	88%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given aspirin at discharge in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	88%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given beta blocker at arrival in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	75%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given beta blocker at discharge in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	88%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given PCI within 120 minutes of arrival in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	85%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given smoking cessation advice/counseling in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	76%	04/ 05 – 03/ 06
Increase the percentage of heart attack patients given thrombolytic medication within 30 minutes of arrival in Nebraska hospitals	U.S. Dept of Health and Human Services; www.hospitalcompare.hhs.gov	27%	04/ 05 – 03/ 06
Among Nebraska adults with high blood pressure, increase the percentage who report that a doctor or other health professional has ever advised them to change their eating habits to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	54.1%	2005

# MEASUREMENT AND EVALUATION BENCHMARKS

Benchmarks	Baseline		
	Data Source	Measure	Year
Among Nebraska adults with high blood pressure, increase the percentage who report that a doctor or other health professional has ever advised them to cut down on salt to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	63.5%	2005
Among Nebraska adults with high blood pressure, increase the percentage who report that a doctor or other health professional has ever advised them to reduce alcohol use to help lower or control their high blood pressure, among those who drink alcohol	Nebraska Behavioral Risk Factor Surveillance System	31.9%	2005
Among Nebraska adults with high blood pressure, increase the percentage who report that a doctor or other health professional has ever advised them to exercise to help lower or control their high blood pressure	Nebraska Behavioral Risk Factor Surveillance System	69.8%	2005