

# The Wisconsin Plan for Heart Disease and Stroke Prevention 2010-2015

A VISION FOR A HEART HEALTHY WISCONSIN



Wisconsin Heart Disease and Stroke Alliance

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## Acknowledgments

The authors of this plan, the Wisconsin Heart Disease and Stroke Alliance, represent health systems, community-based and professional organizations, policymakers, businesses, and local and state government who share an interest in improving cardiovascular health in Wisconsin. The group's mission is to reduce the impact of heart disease, stroke, and other vascular diseases in Wisconsin through the creation, implementation and modification of this plan. Their vision for cardiovascular health in Wisconsin and the desire for practical, high-impact interventions inspired the analysis, strategies and tactical ideas reflected in this plan.

Production of this document was coordinated by the Wisconsin Heart Disease and Stroke Prevention Program, Bureau of Community Health Promotion in the Division of Public Health (DPH) and was supported through Cooperative Agreement Number: 5U50DP000760-02 from the Centers for Disease Control and Prevention (CDC). The contents of this publication are solely the responsibility of the authors and do not represent the official views of the CDC.

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P-43083 (07/09)

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Suggested citation:

Department of Health Services, Division of Public Health, Heart Disease and Stroke Prevention Program, WI Heart Disease and Stroke Alliance. *Wisconsin Plan for Heart Disease and Stroke Prevention 2010-2015*. 2009.

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Dear Colleagues and Friends,

With obesity, hypertension and high cholesterol on the rise, improving cardiovascular health remains one of our highest health priorities. We are making great strides in diminishing this huge problem, but there remains a great deal to do.

Progress toward a heart-healthier Wisconsin is up to all of us. The *Wisconsin Plan for Heart Disease and Stroke Prevention 2010-2015* offers a blueprint for our collective efforts. The success of the plan will require widespread stakeholder participation to influence policies, to change systems and environments, and to modify personal and collective behavior. Here is how individuals and organizations can get involved:

- 1) Commit to Positive Change—Make a pledge to take action personally, professionally, or in the community to support cardiovascular health.
- 2) Take Action—Review this plan with others in your organization or community. Align on a specific objective and implement one or more of the strategies suggested.
- 3) Reach Out—Share this plan with others and encourage them to get involved. Even just having conversations about ways to improve cardiovascular health can spark ideas to change environments, processes, policies and behavior. Joining the Heart Disease and Stroke Alliance can facilitate continued learning and sharing about cardiovascular-related initiatives.
- 4) Collaborate—Maximize resources and magnify your impact by working with and learning from others. You can find a list of HDS Alliance partners and current HDS Program projects at: <http://dhs.wisconsin.gov/health/cardiovascular>.
- 5) Share Your Progress—Look for opportunities through professional and business groups to exchange information about interventions you have undertaken and lessons you have learned.

Your interest and participation make a difference. We invite you to join us in making this plan a reality. Working together, we can reduce the burden of heart disease and stroke in Wisconsin.

Sincerely,



Karen E. Timberlake, Secretary  
Department of Health Services

Jay A. Gold, JD, MD, MPH, Chair,  
Heart Disease and Stroke Alliance



Patrick McBride, MD, MPH, Chair-Elect  
Heart Disease and Stroke Alliance



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# I. Introduction

## Purpose of the Plan

As the number one and number three causes of death in Wisconsin, heart disease and stroke place a tremendous burden on our state. The loss of life, the toll of disability, and the emotional and financial stress on individuals, families, and communities is immense. Rates of obesity, high blood pressure and high cholesterol are on the rise in Wisconsin, and cardiovascular risks are affecting residents earlier in life than ever before. Reducing these trends and the burden of heart disease and stroke demands a strategic plan and synergistic efforts from a multitude of organizational partners across the state.

*The Wisconsin Plan for Heart Disease and Stroke Prevention 2010-2015* was developed to provide strategic direction for interventions intended to reduce the burden of heart disease and stroke. The plan is an opportunity for those who share a vision for a heart-healthy Wisconsin to expand the impact of individual efforts by working with statewide partners to attack the problems from multiple angles at all levels. The plan is meant to

- ✓ educate decision makers about the burden of heart disease and stroke in Wisconsin,
- ✓ foster the development of environments and policies that support heart-healthy behaviors,
- ✓ provide a unified vision and framework for partners to mobilize around, and
- ✓ offer suggestions for measuring progress.

The State of Wisconsin Heart Disease and Stroke Prevention Program (HDSP), in the Division of Public Health, receives funding from the Centers for Disease Control and Prevention (CDC) to build the state's capacity to prevent heart disease and stroke. This plan provides a strategic blueprint for HDSP and statewide partners while satisfying a CDC funding requirement and allows Wisconsin to compete for federal funds.

## Plan Development

This plan is a collaborative effort between the HDSP and the Heart Disease and Stroke Alliance (HDS Alliance), an independent consortium of individuals committed to improving cardiovascular health in Wisconsin. The HDS Alliance includes representation from private industry, health systems, academic institutions, professional and community organizations and state and local government.

Development of the *Wisconsin Plan for Heart Disease and Stroke Prevention 2010–2015* included a six-month process to reflect on progress from the first strategic plan (2005–2009), share current knowledge in relevant areas, assess needs, and develop a roadmap. The interventions in this plan represent collective thought—based on individuals' areas of expertise—on strategies and activities considered to have the greatest potential impact on reducing the cardiovascular burden.

Through a series of in-person meetings, teleconferences and electronic communications, partners across the State provided strategic and tactical input for several iterations of the 2010–2015 plan.

## Plan Content and Implementation

This plan is intended to inform heart disease and stroke prevention programming, initiatives, and evaluation at the state and local levels, and to serve as a catalyst for the creation of heart disease and stroke-related policies. The plan includes four sections:

- **The Burden of Heart Disease and Stroke in Wisconsin**—data about heart disease and stroke risk factors, death rates and higher risk populations. This can be valuable information to educate and increase awareness of the problem among constituencies, legislators and the media, and to provide references that support cardiovascular-related funding requests.
- **Heart Disease and Stroke Prevention Work Plan**—strategies and interventions. Organizations are encouraged to use these as a guide when planning prevention and quality improvement (QI) efforts, requesting grant funding, and allocating resources. The strategies can also spark ideas for possible opportunities to collaborate on interventions and maximize resources. The work plan's framework is based on five elements of the CDC's guidance for state heart disease and stroke programs
  1. Prevention of risk factors
  2. Detection and treatment of risk factors
  3. Identification and treatment of adverse events
  4. Prevention of recurrence
  5. Development of heart disease and stroke-related policies
- **Evaluation and Measurement**—available resources and methods to measure progress. Each goal area also includes sample measures for success, based on outcome indicators recommended by the CDC.
- **Appendices**—data tables for Wisconsin cardiovascular-related information and listings of regional and national resources for professionals.

The work that needs to be done requires participation from diverse organizations: from local coalitions and municipalities to community and professional groups to businesses, government agencies and other chronic disease programs. The HDSP builds its annual work plan around the statewide strategic plan, focusing on a few projects achievable within its funding. Most of the plan activities, however, will be initiated or continued by individual organizations, associations or coalitions.

## II. Statement of Cardiovascular Burden

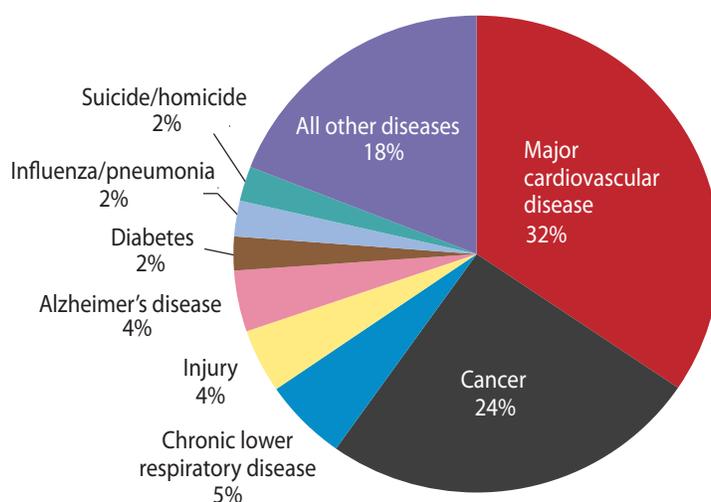
### 1. The Burden of Cardiovascular Disease in Wisconsin

Although cardiovascular disease (CVD) mortality rates have declined in the past 25 years, heart disease still remains the number one killer and stroke the number three killer in Wisconsin when all age groups are combined. CVD deaths accounted for 32% (14,836) of all deaths in 2007<sup>1</sup>. The high prevalence of CVD and ensuing incidence of deaths present an urgent need to prevent heart disease and stroke and provide care services.

The cost of hospitalization and treatment for heart disease and stroke consume enormous health and financial resources. In Wisconsin during 2007, there were 87,327 hospitalizations for cardiovascular disease, accounting for over \$2.78 billion in associated charges.<sup>2</sup>

For 2008, the estimated total direct costs for treatment (health care, provider visits, hospital and nursing home services, medications, and home care) and associated indirect costs (such as lost productivity due to morbidity and mortality) was \$8.97 billion in Wisconsin.<sup>3</sup> This does not include the intangible costs of CVD such as emotional impact on caregivers and family. Given the substantial burden of CVD on the state's economy and human suffering, heart disease and stroke prevention and care are a priority public health concern for the state.

**Figure 1: Leading Causes of Death (all age groups), Wisconsin 2007**



Source: Wisconsin Deaths 2007, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services

**Table 1: Major Cardiovascular Disease Deaths by Category, Wisconsin 2007**

Disease Category	Number of Deaths	% of CVD Deaths
<b>Major Cardiovascular Disease (CVD)</b>	14,836	100.0 %
Diseases of the Heart	11,167	75.3 %
Ischemic (coronary) Heart Disease	6,824	46.0 %
Hypertensive Heart Disease	470	3.2 %
Congestive Heart Failure	1,419	9.6 %
Other Diseases of Heart	2,454	16.5 %
Primary Hypertension/Hypertensive Renal Disease	401	2.7 %
Cerebrovascular Disease (Stroke)	2,632	17.7 %
Atherosclerosis	104	0.7 %
Other Diseases of the Circulatory System	532	3.6 %

Source: Wisconsin Deaths 2007, Wisconsin DHS, DPH, BHIP

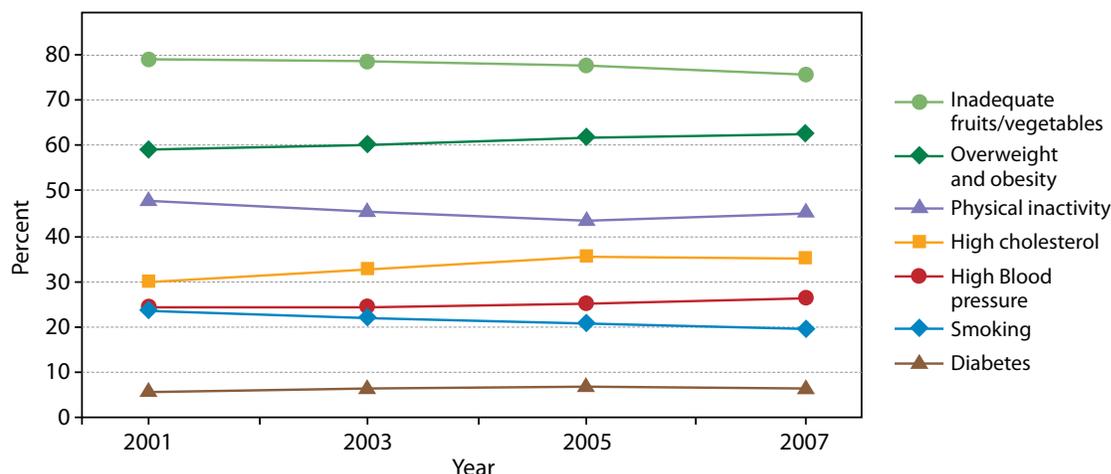
Maps of cardiovascular death rates by county can be found at the end of this plan.

## Statement of Cardiovascular Burden

### 2. Prevalence of Cardiovascular Disease Risk Factors

The relatively high prevalence of CVD risk factors among Wisconsin adults puts residents at increased risk for heart disease and stroke. While rates of smoking and inadequate fruits and vegetable consumption decreased slightly from 2001 to 2007, rates of obesity/overweight and high blood pressure increased. The rates of high cholesterol and diabetes increased from 2001 to 2005, then leveled off. Overall, the prevalence for each of the seven significant CVD risk factors has not changed dramatically since 2001, and each has consistently remained higher than recommendations in *Healthy People 2010*. This will continue to pose a challenge for Wisconsin residents with respect to the eventual development of cardiovascular disease.

**Figure 2: Trends of Cardiovascular Risk Factors, Wisconsin 2001-2007**



Source: Wisconsin Behavioral Risk-Factor Survey, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services

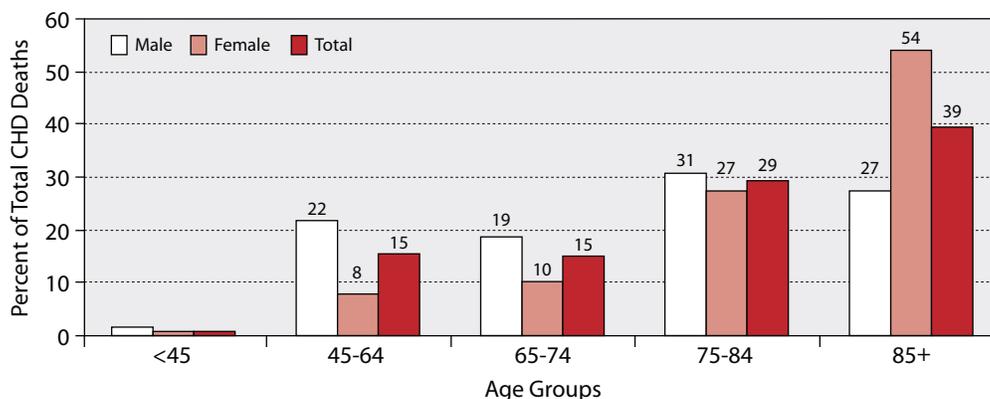
### 3. CVD Mortality by Gender and Age

The age-adjusted CVD mortality rates for males in every ethnic group are higher than that for females. However, the total number of women who died of CVD over the past five years exceeds the total number of men.<sup>1</sup> This is explained by the fact that women live longer and have a larger epidemiological burden after age 85, an age at which heart disease is highly prevalent.

Although disease and stroke are often associated with age, many CVD-related deaths in Wisconsin occur during some of the most productive years of life. During the years 2004–2006, almost one-in-three deaths from coronary heart disease (CHD) was premature (occurring before age 75). During the same period one-in-five stroke-related deaths was premature (under age 75).<sup>1</sup>

The following charts show the percentages of CHD deaths and stroke deaths by age group and sex.

**Figure 3: Percentage of CHD Deaths by Age Group and Sex, Wisconsin 2004–2006**

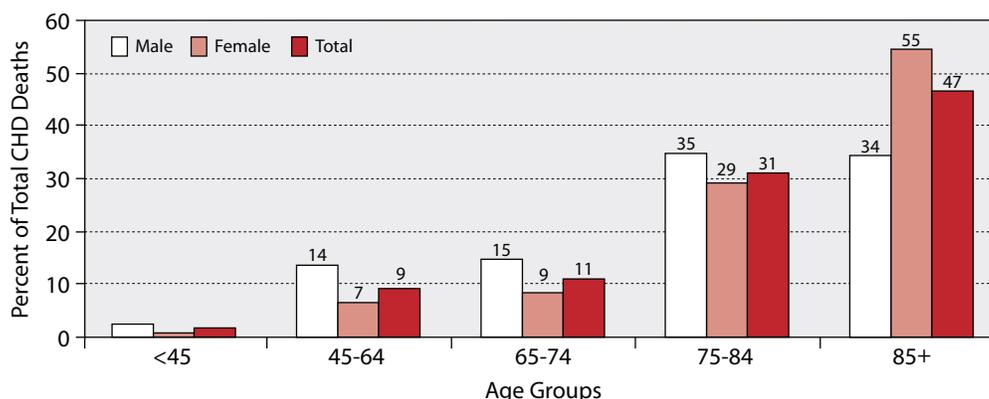


Source: Wisconsin Deaths 2004-2006, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services

During 2004–2006, 24% of all men and 9% of all women who died of CHD were younger than 65 years of age.<sup>1</sup> For African Americans, the percentages were even higher—46% of African American men and 36% of African American women who died of CHD were younger than 65 years of age.<sup>1</sup>

## Statement of Cardiovascular Burden

**Figure 4: Percentage of Stroke Deaths by Age Group and Sex, Wisconsin 2004-2006**



Source: Wisconsin Deaths 2004-2006, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services

During 2004–2006, 17% of all men and 8% of all women who died of stroke were younger than 65 years of age.<sup>1</sup> For African Americans, the percentages were even higher—53% of African American men and 46% of African American women who died of stroke were younger than 65 years of age.<sup>1</sup>

### 4. CVD Mortality by Race/Ethnicity

In Wisconsin, the CHD mortality rate among American Indians is 10% higher than whites; the stroke mortality rate among African Americans is 27% higher than whites. Recent data suggest the stroke mortality rate for Asian Americans is on the rise.<sup>1</sup>

**Table 2: Age-Adjusted Death Rates for CHD, Stroke, and CHF by Race/Ethnicity, Wisconsin 2004–2006**

Age Adjusted Death Rates (per 100,000)					
	Whites	African Americans	American Indians	Asians	Hispanics
CHD	118.1	132.7	149.9	54.6	44.8
Stroke	45.1	59.9	46.4	59.2	26.7
CHF	22.4	15.8	**	**	**
Absolute Number of Deaths					
	Whites	African Americans	American Indians	Asians	Hispanics
CHD	21,565	681	132	69	103
Stroke	8,411	318	39	69	60

\*\* cell count under 30, rate unreliable

Source: Wisconsin Deaths 2004-2006, Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services

### 5. Rehabilitation and Prevention of Recurrence

Many Wisconsin survivors of heart disease or stroke are susceptible to future cardiovascular events and disability. Stroke is the leading cause of serious long-term disability in the United States. In 2007, as many as 30% of the 4.5 million stroke survivors in America were permanently disabled, requiring extensive and costly care.<sup>4</sup> Wisconsin hospital inpatient discharge data for 2007 show that 17% (2,423) of stroke patients, 17% (2,468) of heart failure patients, and 6% (1,684) of coronary heart disease patients were discharged to skilled nursing facilities. Another 5%, 12%, and 7% respectively (another 4,315 patients) were discharged to home under organized home health services.

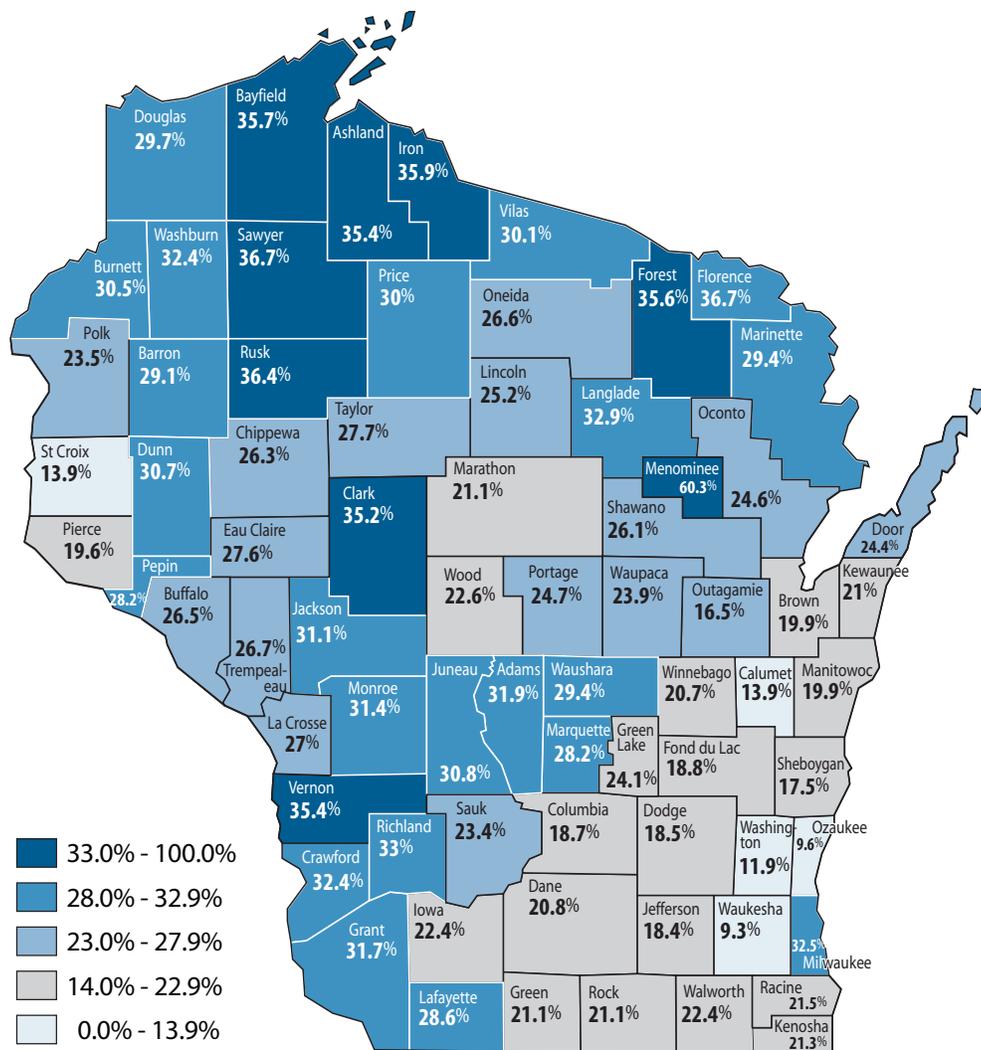
As more people survive heart attacks, there is an increase nationally in the percentage of people dying of congestive heart failure (CHF)<sup>1</sup>. Given the progressive nature of CHF, it is likely that the number of people living with CHF is also growing. From 1986–2005, rates for CHF mortality in Wisconsin were consistently higher than the national average<sup>5</sup>. This suggests that the percentage of people living with CHF in Wisconsin also exceeds the national average. The American Heart Association estimates that 22% of men and 46% of women who survive a heart attack will be disabled from CHF within six years<sup>3</sup>. These findings suggest an urgent need for statewide efforts to reduce the recurrence of heart attack and stroke and to improve effectiveness of cardiac and stroke rehabilitation services.

# Statement of Cardiovascular Burden

## 6. Poverty and Other Social Determinants of Health

Addressing the social determinants of health is critical for preventing heart disease and stroke. Social determinants are life-enhancing resources, such as food supply, housing, economic and social relationships, the built environment, transportation, education, and health care, whose distribution across populations effectively determines length and quality of life.<sup>6</sup> More information and a large number of reference documents are available online at the “Unnatural Causes: Is Inequality Making Us Sick?” Website: [www.unnaturalcauses.org/](http://www.unnaturalcauses.org/). The following map illustrates the distribution of poverty in Wisconsin by county.

**Map 1: Percentage of Population Living Under 200% of Poverty Level\*, Wisconsin 2000**



Source: US Census Bureau, Census 2000 Summary File

\*Data were compiled based on 200% of the federal poverty guidelines, a cut-off point used by many social services in Wisconsin to determine residents' eligibility for services. In 2000, 200% of the federal poverty guidelines for a four-person family equated to \$34,100. For more details on poverty level guidelines see <http://aspe.hhs.gov/poverty/figures-fed-reg.shtml>.

### III. Work Plan 2010–2015

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The work plan is a call to action against heart disease and stroke on all fronts. Our comprehensive statewide strategy reflects CDC's direction and prioritizes five key areas to improve cardiovascular health:

1. Prevent risk factors
2. Detect and treat risk factors
3. Identify and treat heart disease and stroke early
4. Prevent recurrence of heart disease and stroke
5. Develop heart disease and stroke-related policies

The first four areas cover broad goals and include recommended strategies and activities to work toward those goals. The fifth area presents suggestions for policy development. Some of the interventions are applicable to multiple goal areas. To avoid repetition, these are listed under the closest fitting goal.

Identifying and eliminating health disparities among subpopulations is an overarching objective. To maintain focus on questions of equity, each of the first four goals includes ideas for disparities-specific interventions.

The work plan also includes sample measures of success to serve as a guide in evaluating interventions.\* More information on measuring progress can be found in the evaluation section of this plan.

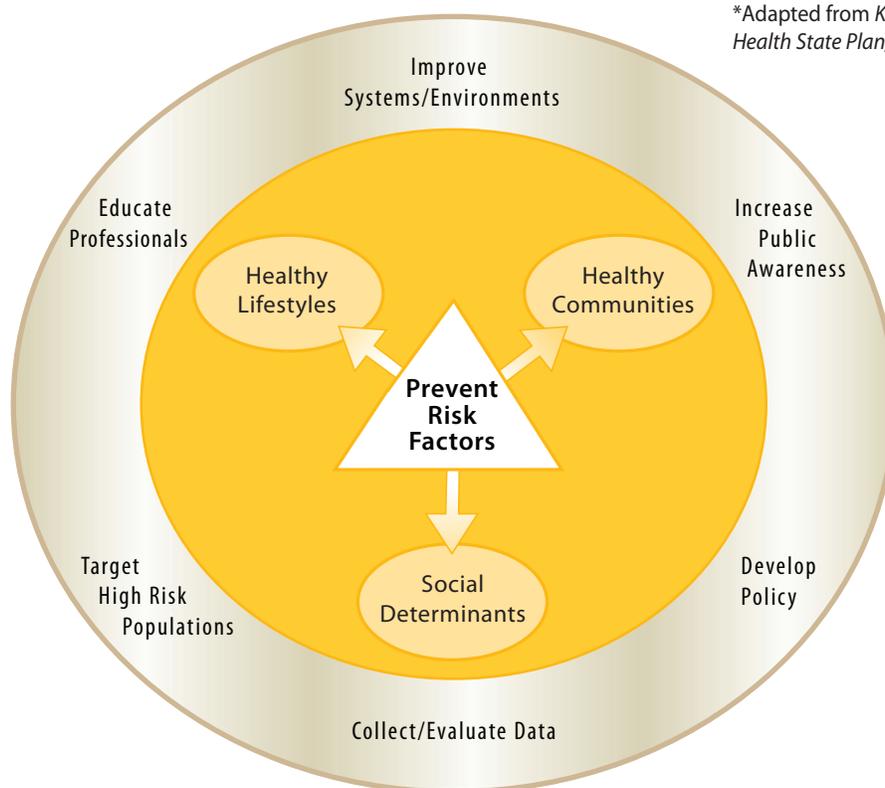
\*Indicators were adapted from the CDC publication, "Policy and System Outcome Indicators for State Heart Disease and Stroke Prevention, 2008."

## Work Plan 2010–2015: Prevent Risk Factors

### Goal: Prevent the development of heart disease and stroke risk factors among Wisconsin residents.

Strategies designed to prevent CVD risk factors are covered in this section. These strategies encompass the whole population and are not limited to individuals with recognized cardiovascular disease risk factors. The diagram below illustrates the key components involved in the prevention of risk factors.

#### Model 1: Key Components in Preventing Cardiovascular Risk Factors\*



\*Adapted from *Kansas Cardiovascular Health State Plan, 2006*

The critical elements include:

#### Healthy lifestyles

- ✓ Avoid addictive behavior/harmful substances (e.g., tobacco)
- ✓ Limit use of alcohol, refined sugar and salt
- ✓ Exercise (minimum 30 minutes most days)
- ✓ Manage stress
- ✓ Maintain healthy weight
- ✓ Get adequate sleep
- ✓ Develop healthy relationships
- ✓ Make healthy food choices (e.g., low sodium, low fat, high fiber, increase fruits and vegetables per day)

#### Healthy communities

- ✓ Clean indoor air
- ✓ Parks/recreation areas/bikeways
- ✓ Nutritious school lunches
- ✓ Worksite wellness
- ✓ Easy access to healthy food choices

#### Social determinants

- ✓ Good housing
- ✓ Sufficient employment and income
- ✓ Educational opportunities
- ✓ Safe neighborhoods and schools
- ✓ Universal, quality healthcare

These elements involve statewide collaboration with partners focusing on other chronic conditions and those dealing with specific risk factors.

## Work Plan 2010–2015: Prevent Risk Factors

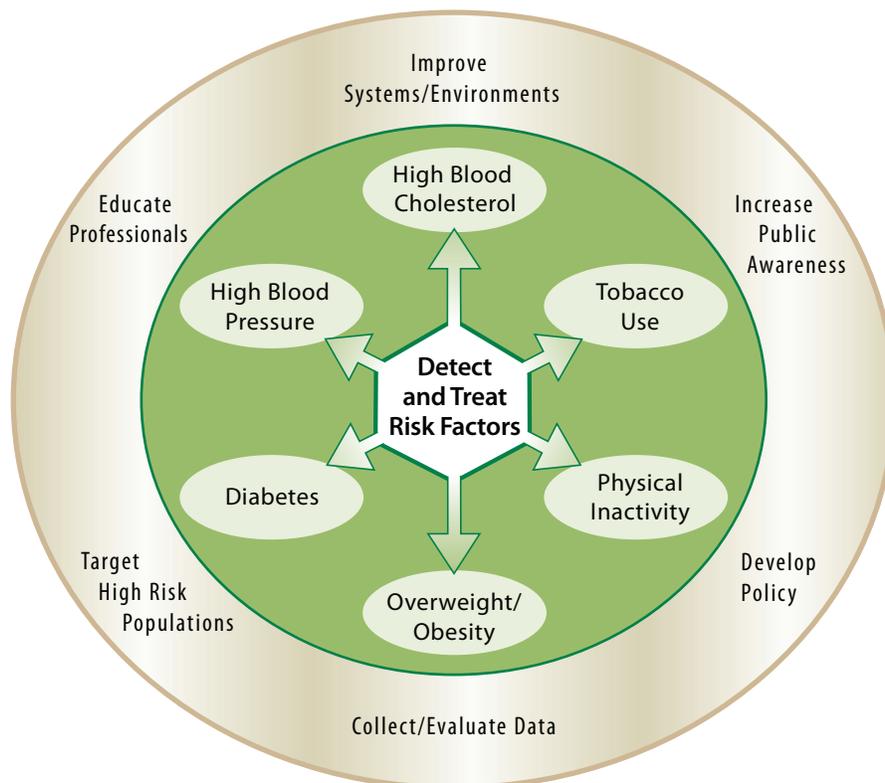
Objectives	Sample Measures of Success
<b>HEALTHY LIFESTYLES</b>	
<p><b>Promote awareness, development and maintenance of healthy lifestyles (prevention of tobacco use, increased physical activity, and adoption of healthy eating habits) among Wisconsin residents.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Support comprehensive and culturally competent lifestyle intervention efforts in communities, schools and worksites.</li> <li><input type="checkbox"/> Coordinate with of other state programs (Tobacco Control, Obesity, Diabetes, Cancer, Arthritis, etc.) to maximize opportunities and resources.</li> <li><input type="checkbox"/> Support local public health prevention efforts and workforce development.</li> <li><input type="checkbox"/> Promote <i>Heart-Healthy and Stroke-Free: A Social Environment Handbook</i> to local public health agencies</li> <li><input type="checkbox"/> Build collaboration with employers to promote heart-healthy work environments.</li> <li><input type="checkbox"/> Promote the Wisconsin Worksite Wellness Toolkit.</li> <li><input type="checkbox"/> Support platforms of non-governmental organizations presenting statewide prevention messages.</li> <li><input type="checkbox"/> Support health system-sponsored community education programs.</li> <li><input type="checkbox"/> Encourage employers to offer health insurance that provides coverage for prevention.</li> </ul>	<p>Proportion of individuals who have participated in at least one educational program regarding healthy lifestyles (e.g., smoking cessation, blood pressure control, weight management, cholesterol control, exercise, nutrition, diabetes management)</p> <p>Proportion of workplaces, communities and schools with environmental changes that promote healthy lifestyles (e.g., smokefree buildings, access by biking or walking, bike racks, walking paths, access to weight management or exercise programs)</p> <p>Proportion of employers offering incentives for healthy behaviors (e.g., smoking cessation) and outcomes (e.g., weight loss)</p> <p>Prevalence of smoking, obesity, hypertension, and hypercholesterolemia, regular physical activity and consumption of fruits/vegetables among adults</p>
Disparities-Specific Issues/Objectives	Sample Measures of Success
<b>SOCIAL DETERMINANTS OF HEALTH</b>	
<p><b>Improve understanding of the impact of social determinants as root causes of chronic disease and explore strategies to address these.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide policy makers with viewing opportunities of the documentary “Unnatural Causes: Is Inequality Making Us Sick?”</li> <li><input type="checkbox"/> Research potential interventions and incorporate into a statewide plan.</li> <li><input type="checkbox"/> Partner with other chronic disease programs to pilot neighborhood projects designed to bring social determinants into the public health agenda.</li> <li><input type="checkbox"/> Enlist local public health leadership in efforts to address social determinants.</li> </ul>	<p>Number of public and professional events addressing social determinants and their impact on chronic disease</p> <p>Number of community leaders who are aware of social determinants and their impact on health</p> <p>Number of interventions identified and/or piloted</p>

## Work Plan 2010–2015: Detect and Treat Risk Factors

### Goal: Improve detection and treatment of heart disease and stroke risk factors among Wisconsin residents.

This goal is aimed at the management of risk factors for heart disease and stroke in order to prevent or postpone the onset of the disease. The diagram below summarizes the key risk factors.

#### Model 2: Key Components in Detecting and Treating Cardiovascular Risk Factors



The critical areas to address for detection and treatment of risk factors include the following:

- ✓ **High blood pressure** is the most important controllable risk factor for stroke and contributes to heart attack, stroke, kidney failure, and CHF.
- ✓ **High blood cholesterol:** The relationship between low-density lipoprotein (LDL) levels and CHD risk is continuous over a broad range of LDL from low to high.
- ✓ **Diabetes:** Diabetes is an independent risk factor even when glucose levels are under control.
- ✓ **Obesity:** Excess body fat and large waist circumference are independent risk factors for heart disease and stroke.
- ✓ **Tobacco:** Smokers' risk of developing CHD is 2–4 times that of nonsmokers. Cigarette smoking is an independent risk factor for sudden cardiac death in patients with CHD.
- ✓ **Physical Inactivity:** Being inactive increases the risks of high blood pressure, high blood cholesterol, diabetes, heart disease and stroke.

The Wisconsin Heart Disease and Stroke Prevention Program is a leader in developing strategies to prevent and treat hypercholesterolemia and hypertension. Other public health programs play a leading role in reducing tobacco use, physical inactivity, obesity and diabetes. Where this plan mentions tobacco use, physical inactivity, and obesity, it is in the context of supporting interventions that can improve detection and treatment of hypertension and hypercholesterolemia. Both behavior modification and pharmacotherapy can reduce high blood pressure and high blood cholesterol, which will help to prevent the development of heart disease and stroke.

**Other Important Factors:** Excess sodium is a risk factor for CVD\*. Excess alcohol\*\* can raise blood pressure, cause heart failure and lead to stroke. Depression, stress and genetics are also important risk factors. An effective provider/patient interaction is also critical.

\* Excess sodium is defined as  $\geq 1500$  milligrams of sodium for middle-aged and older adults and African Americans; 2,300 milligrams for younger people<sup>7</sup>

\*\* Excess alcohol is defined as more than two drinks for men and more than one for women daily<sup>8</sup>

## Work Plan 2010–2015: Detect and Treat Risk Factors

Objectives	Sample Measures of Success
<b>RAISE AWARENESS</b>	
<p><b>Increase the reach of educational opportunities for awareness of heart disease and stroke risk factors and preventive strategies</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lead efforts for the celebration of American Heart Month (February) and National Stroke Awareness Month (May) to support ongoing research and education about risk factors.</li> <li><input type="checkbox"/> Make information resources accessible to consumers.</li> <li><input type="checkbox"/> Support local public health awareness building efforts.</li> <li><input type="checkbox"/> Promote worksite wellness toolkit.</li> <li><input type="checkbox"/> Promote <i>Heart-Healthy and Stroke-Free: A Social Environment Handbook</i> to local communities.</li> </ul>	<p>Proportion of individuals who are aware of CVD risk factors</p> <p>Degree of reduction in disparities between general and priority populations regarding awareness of cardiovascular risk factors</p>
<b>DETECT HIGH BLOOD PRESSURE/HIGH CHOLESTEROL</b>	
<p><b>Increase the number of adults aged 18 and older who have been screened for high blood pressure.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Lead efforts for the celebration of American Heart Month (February) and National Stroke Awareness Month (May) to support ongoing research and education about risk factors.</li> <li><input type="checkbox"/> Make information resources accessible to consumers.</li> <li><input type="checkbox"/> Support local public health awareness building efforts.</li> <li><input type="checkbox"/> Promote worksite wellness toolkit.</li> <li><input type="checkbox"/> Promote <i>Heart-Healthy and Stroke-Free: A Social Environment Handbook</i> to local communities.</li> </ul> <p><b>Increase the percentage of adults aged 18 and older who have had a lipid panel done within the preceding five years or within the last two years if risk factors are present.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Promote worksite wellness toolkit.</li> <li><input type="checkbox"/> Encourage employers to offer insurance coverage for prevention.</li> <li><input type="checkbox"/> Improve access to resources for indigent populations.</li> <li><input type="checkbox"/> Identify and inform practitioners about relevant guidelines.</li> </ul> <p><b>Increase the percentage of adults who have had their cholesterol/LDL tested.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Improve access to resources for indigent populations.</li> <li><input type="checkbox"/> Identify and inform practitioners about relevant guidelines.</li> <li><input type="checkbox"/> Increase awareness of importance of lipid control through media campaigns.</li> <li><input type="checkbox"/> Work with HMOs to improve the Healthcare Effectiveness Data and Information Set (HEDIS®) CVD measures for LDL tested after a cardiovascular event.</li> </ul>	<p>Proportion of individuals who are aware of normal blood pressure and/or cholesterol levels.</p> <p>Number of community hypertension screenings</p> <p>Number of worksites that offer blood pressure screening</p> <p>Number of worksites that provide health risk assessments that include blood pressure</p> <p>Degree of reduction in disparities in hypertension levels between general and priority populations that are diagnosed with high blood pressure</p> <p>Degree of reduction in disparities in high cholesterol levels between general and priority populations that have been diagnosed with hypercholesterolemia</p>

continued

## Work Plan 2010–2015: Detect and Treat Risk Factors

Objectives	Sample Measures of Success
<b>TREATMENT</b>	
<p><b>Increase the percentage of adults who are taking appropriate actions to control their high blood pressure.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Expand hypertension monitoring.</li> <li><input type="checkbox"/> Increase awareness of importance of blood pressure control through media campaigns.</li> <li><input type="checkbox"/> Increase adherence to medication and lifestyle changes through effective patient/provider interaction.</li> </ul> <p><b>Increase the percentage of Wisconsin adults with high blood pressure under control.*</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Share information with healthcare providers on trends in the HEDIS® measures.</li> <li><input type="checkbox"/> Research promising approaches to improving blood pressure control and share information with healthcare providers.</li> <li><input type="checkbox"/> Work with community health centers to improve the Universal Data Set (UDS) measure for blood pressure control.</li> </ul> <p><b>Increase the percentage of adults who have had their LDL under control.*</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and inform practitioners about relevant guidelines.</li> <li><input type="checkbox"/> Through media campaigns, increase awareness of importance of lipid control.</li> <li><input type="checkbox"/> Work with HMOs to improve the HEDIS® CVD measures for LDL tested after a cardiovascular event.</li> </ul> <p>*control as defined by current guidelines</p>	<p>Number and reach of media messages about blood pressure control</p> <p>Proportion of individuals who know what therapeutic lifestyle behavior changes are associated with improved blood pressure and/or cholesterol</p> <p>Proportion of healthcare systems with evidence-based health education programs for blood pressure or cholesterol control and treatment</p> <p>Proportion of healthcare systems with electronic medical records for blood pressure and/or cholesterol control and treatment (including pharmacological and lifestyle modification)</p> <p>Proportion of employers that cover payment for services to control high blood pressure and/or high cholesterol</p> <p>Proportion of patients in compliance with their blood pressure/high cholesterol medication regimen</p> <p>Proportion of individuals diagnosed with high blood pressure and/or high cholesterol whose blood pressure and/or cholesterol is under control</p>
<b>QUALITY IMPROVEMENT</b>	
<p><b>Increase the number of QI initiatives in the ambulatory health care setting</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage use of HEDIS® and Wisconsin Collaborative for Healthcare Quality (WCHQ) measures to assess performance on care and service.</li> <li><input type="checkbox"/> Work with health care systems to increase their CVD HEDIS® measure rates for LDL screening and control.</li> <li><input type="checkbox"/> Work with health care systems to increase their CVD HEDIS® and WCHQ measure rates for high blood pressure control.</li> <li><input type="checkbox"/> Research promising approaches and share information with healthcare providers.</li> </ul>	<p>Number of quality improvement initiatives to improve HEDIS® and WCHQ measures</p> <p>Proportion of healthcare systems that use a multi-disciplinary team approach to control blood pressure</p> <p>Proportion of healthcare systems that follow up with patients screened for high blood pressure and/or high cholesterol</p>

continued

## Work Plan 2010–2015: Detect and Treat Risk Factors

Objectives	Sample Measures of Success
<b>PUBLIC REPORTING</b>	
<p><b>Increase public reporting of heart disease and stroke performance measures among ambulatory care providers.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage providers to join in the Physician Quality Reporting Initiative (PQRI) that authorizes CMS to make incentive payments for reporting quality measures data.</li> <li><input type="checkbox"/> Encourage use of PQRI resources to assist professionals in the successful integration of PQRI measurement into their practices.</li> </ul>	<p>Proportion of providers participating in PQRI</p>
<b>SPECIAL DEMOGRAPHIC FOCUS</b>	
<p><b>Increase awareness about women’s risks for heart disease and stroke.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Increase awareness of risks for heart disease and stroke among women, their partners, and their providers.</li> <li><input type="checkbox"/> Provide tools to promote heart-healthy lives for women.</li> <li><input type="checkbox"/> Support and promote existing programs across the state.</li> </ul>	<p>Proportion of public who are aware of the seriousness of a woman’s risk for heart attack and stroke</p> <p>Number of educational events to raise awareness of women's risks for heart disease and stroke</p>

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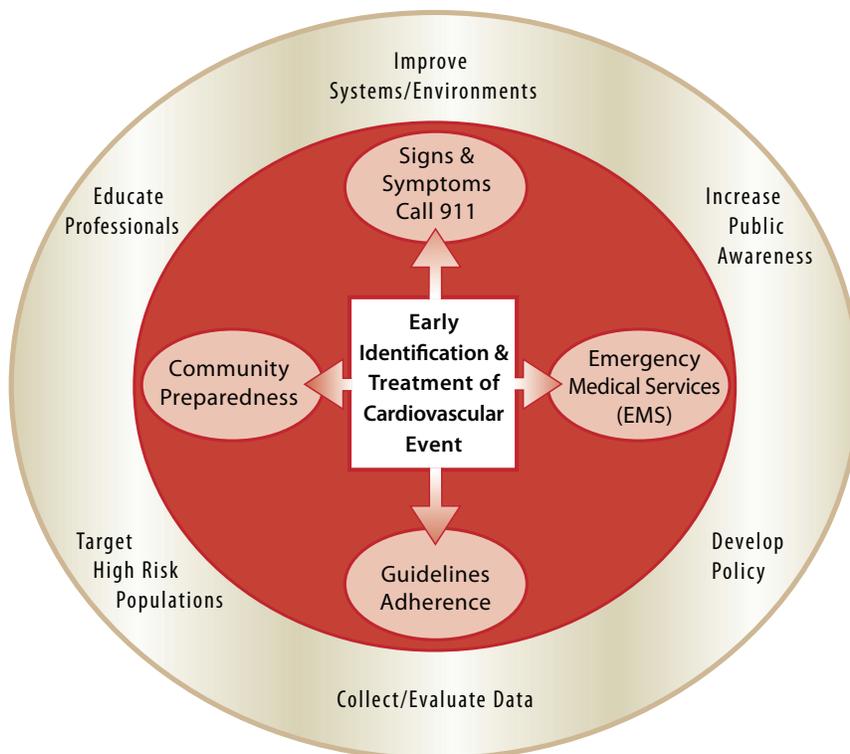
## Work Plan 2010–2015: Detect and Treat Risk Factors

Disparities-Specific Issues/Objectives	Sample Measures of Success
<b>UNINSURED/UNDER-INSURED</b>	
<p><b>Increase to 3,000 annually the number of uninsured women screened and provided risk reduction counseling for cardiovascular risk factors.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Implement cardiovascular screening to WISEWOMAN Program participants.</li> <li><input type="checkbox"/> Improve access to resources for indigent populations.</li> <li><input type="checkbox"/> Encourage availability and utilization of free and low-cost screenings.</li> </ul> <p><b>Increase the percentage of Federally Qualified Healthcare Centers (FQHC) clinic patients with high blood pressure and high cholesterol treated to goal.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Increase the number of CVD educational opportunities provided to FQHC providers.</li> <li><input type="checkbox"/> Disseminate culturally appropriate information on blood pressure and cholesterol control.</li> <li><input type="checkbox"/> Increase the number of CVD quality improvement cycles (PDSAs) at each participating health center.</li> </ul> <p><b>Increase the percentage of free-clinic patients with high blood pressure and cholesterol treated to goal.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inventory locations of free clinics throughout the State.</li> <li><input type="checkbox"/> Inventory, review, and assess heart disease and stroke resources available to clinics.</li> <li><input type="checkbox"/> Share lessons learned by FQHCs and educational opportunities provided to FQHCs.</li> </ul>	<p>Number of uninsured women who receive free screening and/or treatment for cardiovascular disease</p> <p>Number of places (e.g., clinics or pharmacies) offering free screenings and counseling for cardiovascular risks</p> <p>Proportion of participants whose blood pressure is under control</p> <p>Proportion of individuals reporting lifestyle behavior change to control high blood pressure and/or high cholesterol</p> <p>Degree of reduction in disparities in high blood pressure and/or high cholesterol control between general and priority populations</p>
<b>PUBLIC AWARENESS IN MINORITY COMMUNITIES</b>	
<p><b>Increase the number of interventions that promote awareness of heart disease and stroke risks among populations with health disparities.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Review available data to identify disparities.</li> <li><input type="checkbox"/> Design and implement methods to increase awareness of CVD risks and disparities that exist.</li> <li><input type="checkbox"/> Support and promote existing programs across the state.</li> <li><input type="checkbox"/> Work with FQHCs to distribute culturally appropriate information on how to reduce the occurrence of heart disease and stroke.</li> </ul> <p><b>Increase awareness among African Americans that they are at greatest risk for stroke and that stroke may be preventable.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Support partner community programs such as the American Stroke Association's (ASA) <i>Power To End Stroke</i> that mobilizes community leaders and collects personal stroke health pledges.</li> <li><input type="checkbox"/> Implement annual regional messaging on stroke awareness and risk factor education for African Americans.</li> <li><input type="checkbox"/> Enlist local public health departments and other partners in awareness building and education on stroke risk factors for African Americans.</li> </ul>	<p>Number and reach of cardiovascular awareness building activities among priority populations</p> <p>Number of those in priority populations that complete a personal stroke health pledge</p> <p>Proportion of African Americans aware of their increased risk for stroke</p> <p>Proportion of African Americans aware of ways to decrease the risks for stroke and heart disease</p>

### Goal: Promote early identification and treatment of heart disease and stroke among Wisconsin residents.

This section describes efforts to increase awareness about the signs and symptoms of a heart attack or stroke, the importance of seeking prompt treatment, and to increase provisions for early treatment. Early treatment of heart attacks and stroke is critical in preventing disability and recurrence of events. The following diagram summarizes the key components involved in this goal.

#### Model 3: Key Components in Early Treatment of Heart Disease and Stroke



Most Wisconsin residents recognize some of the signs and symptoms of heart attack and stroke, but according to the 2005 Behavioral Risk Factor Survey (BRFS) data, only about one-third (34%) recognize all five symptoms of heart attack and less than half (48%) recognize all five symptoms of stroke. Studies report that the majority of women are unaware of the symptoms of a heart attack that are more common to women than men (indigestion, fatigue, neck and shoulder pain).

Ensuring quick response to heart attack and stroke to all Wisconsin residents requires a system-wide approach. We need an informed population, coordination and collaboration between EMS services and hospitals, and adherence to best practice guidelines. This plan builds on the tradition of Wisconsin hospital involvement with EMS in coordinating heart disease and stroke treatment using protocol-based medicine and process improvement science.

With regard to heart disease,

- ✓ There are 16 Wisconsin hospitals accredited with the Society of Chest Pain Centers, a society that bridges cardiology, emergency medicine and other professions focused on improving care for patients with acute coronary syndromes and acute heart failure.

- ✓ Many Wisconsin hospitals participate in “D2B: An Alliance for Quality”, a program that provides hospitals with strategies and supporting tools needed to reduce their door-to-balloon times. The goal is to achieve door-to-balloon times of  $\leq 90$  minutes for at least 75 percent of non-transfer primary percutaneous coronary intervention (PCI) patients with ST-segment elevation myocardial infarction (STEMI).
- ✓ The American Heart Association launched “Mission: Lifeline”, a community-based initiative aimed at establishing a STEMI system of care.

With regard to stroke, twenty-five Wisconsin hospitals have Primary Stroke Center designation. A continuing focus on stroke systems of care will increase the number of hospitals certified as Primary Stroke Centers and the number of hospitals reporting standardized and evidence-based performance measures that build a foundation for assessing performance.

Maximizing use of technology to get appropriate care to all Wisconsin residents requires a wider exploration of the role of telemedicine for heart disease and stroke and the proliferation of 12-lead ECG in EMS vehicles..

## Work Plan 2010–2015: Identify and Treat Heart Disease and Stroke Early

Objectives	Sample Measures of Success
<b>IDENTIFY SIGNS AND SYMPTOMS AND CALL 911</b>	
<p><b>Increase public awareness of the signs and symptom of heart attacks and strokes.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Develop consumer information campaigns regarding signs and symptoms.</li> <li><input type="checkbox"/> Expand community education regarding the gender differences in signs and symptoms.</li> <li><input type="checkbox"/> Expand professional education regarding the gender differences.</li> </ul> <p><b>Increase public understanding of the importance of calling 911 when a heart attack or stroke is suspected.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Develop compelling messages to communicate that timely treatment reduces disability and death.</li> <li><input type="checkbox"/> Design and implement consumer information campaigns.</li> </ul>	<p>Proportion of the public who are aware of three or more signs and symptoms of heart attack and stroke</p> <p>Proportion of the public who know the importance of calling 911 when a heart attack or stroke is suspected</p>
<b>ADHERENCE TO GUIDELINES</b>	
<p><b>Increase and improve hospital tracking and evaluation of quality of care.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage adoption and use of electronic medical records systems that facilitates track and evaluate the quality of care.</li> <li><input type="checkbox"/> Encourage development, adoption, and use of performance improvement tools for care of heart attack, CHF, and stroke.</li> <li><input type="checkbox"/> Identify and eliminate obstacles hospitals may have for tracking and evaluating process quality and outcomes.</li> <li><input type="checkbox"/> Establish registries for the collection of the incidence of heart attack and stroke using established national data elements.</li> <li><input type="checkbox"/> Inventory hospitals by level of stroke care and identify roles and responsibilities for each hospital.</li> <li><input type="checkbox"/> Encourage every hospital to have a plan in place with protocols for triage, treatment, and transfer of stroke patients who are outside the hospital's capabilities.</li> </ul> <p><b>Improve performance among Wisconsin hospitals on core measures for stroke, AMI, and heart failure.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Increase the number of systems publicly reporting heart disease and stroke performance measures.</li> <li><input type="checkbox"/> Inventory the number of hospitals publicly reporting standardized cardiac and stroke measures.</li> <li><input type="checkbox"/> Encourage all hospitals to report publicly.</li> </ul>	<p>Proportion of healthcare systems with computer-based clinical decision support systems</p> <p>Number of hospitals using registries to track heart attack and stroke data</p>

continued

## Work Plan 2010–2015: Identify and Treat Heart Disease and Stroke Early

Objectives	Sample Measures of Success
<b>EMS</b>	
<p><b>Increase the number of EMS units with standardized stroke and cardiac protocols.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Develop and finalize <i>Model Protocols</i>.</li> <li><input type="checkbox"/> Gain acceptance of protocols in EMS community.</li> <li><input type="checkbox"/> Provide education on protocol implementation.</li> <li><input type="checkbox"/> Establish hospital designation of stroke capacity.</li> <li><input type="checkbox"/> Increase adoption of 12-lead EKG in ambulances with trained staff.</li> <li><input type="checkbox"/> Develop EMS Stroke and STEMI transfer protocols.</li> <li><input type="checkbox"/> Inventory hospital designation of stroke capacity.</li> <li><input type="checkbox"/> Inventory hospital designation of STEMI capacity.</li> <li><input type="checkbox"/> Research proper staffing for patient transfer.</li> </ul>	<p>Proportion of EMS units educated on standardized stroke and cardiac protocols</p> <p>Proportion of EMS units with 12-lead EKG in ambulances</p> <p>Dissemination and use of EMS Stroke and STEMI Transfer protocols</p>
<b>COMMUNITY PREPAREDNESS</b>	
<p><b>Promote the use of cardio-pulmonary and cardio-cerebral resuscitation.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Support the efforts of not-for-profit organizations to promote CPR and CCR.</li> </ul> <p><b>Increase access to and use of automatic external defibrillators (AEDs).</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Disseminate information on the use of AEDs.</li> <li><input type="checkbox"/> Encourage and help to facilitate community centers, shopping malls, schools, businesses, faith-based organizations, EMS, fire and police vehicles, and other venues to be equipped with AEDs.</li> </ul>	<p>Proportion of training events for CPR and CCR</p> <p>Number of people who are trained for CPR or CCR</p> <p>Number of AEDs and the number of people trained to use them</p>
<b>SPECIAL DEMOGRAPHIC FOCUS</b>	
<p><b>Increase awareness of female symptoms of heart disease and stroke.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Provide tools to promote awareness of unique signs and symptoms of heart attack and stroke among women.</li> <li><input type="checkbox"/> Support and promote existing programs across the state.</li> </ul>	<p>Proportion of HMOs/health systems that have disseminated information on female symptoms of heart disease and stroke</p>

continued

## Work Plan 2010–2015: Identify and Treat Heart Disease and Stroke Early

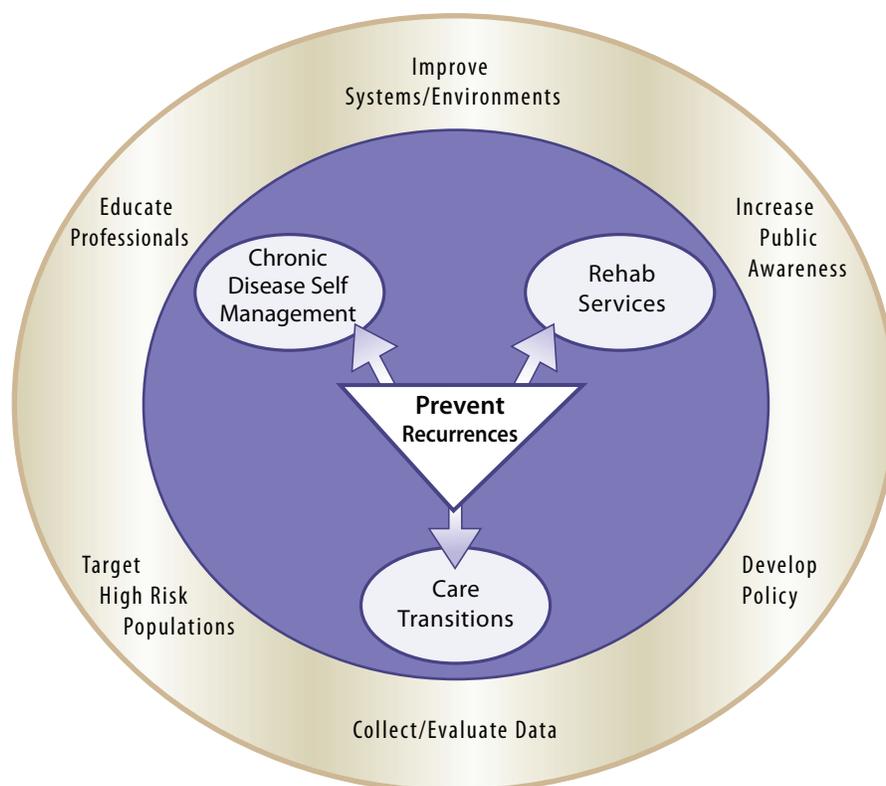
Disparities-Specific Issues/Objectives	Sample Measures of Success
<b>TELEMEDICINE</b>	
<p><b>Develop a systematic approach to the use of telemedicine in Wisconsin for stroke and cardiac care.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Engage stakeholders in a dialog regarding the feasibility of using telemedicine in Wisconsin.</li> <li><input type="checkbox"/> Evaluate the current technology available and models used in other communities.</li> <li><input type="checkbox"/> Ensure that every Wisconsin resident lives within one hour of acute stroke and cardiac care.</li> </ul>	<p>Proportion of stakeholders interested in using telemedicine</p> <p>Development of a plan for piloting and implementing telemedicine</p> <p>Proportion of Wisconsin residents within recommended timeline to receive acute stroke and cardiac care</p>
<b>QUALITY IMPROVEMENT</b>	
<p><b>Encourage hospitals to identify and reduce disparities in treatment outcomes in ongoing quality improvement efforts.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Include outcome disparities in hospital measures.</li> <li><input type="checkbox"/> Apply quality improvement techniques to improve outcomes in hospitals.</li> </ul>	<p>Number of hospitals collecting data on disparities in outcomes</p> <p>Number of quality improvement projects to address disparities in care and outcomes</p>

## Work Plan 2010–2015: Prevent Recurrence

### Goal: Prevent recurrence of heart disease and stroke among Wisconsin residents.

Early treatment and hospital adherence to guidelines in the first hours following a heart attack or a stroke form the first-line of defense in preventing recurrence. This section focuses on those who have experienced heart disease and/or stroke and need interventions subsequent to hospital care. Restoring function and improving quality of life are critical to reducing the human and economic burden of disability and the risk of recurrence. The following diagram summarizes the key components involved in this goal.

#### Model 4: Key Components in Preventing Recurrence of Cardiovascular Events



The objectives in this section reflect the need to address both the re-hospitalization rate following an acute care event and the longer term follow-up of patients having rehabilitation services.

The Wisconsin Cardiac Rehabilitation Outcomes Registry (WiCORE), first available in July 2008, can be used to develop and implement a standardized and evidence-based approach to quality improvement in the rehabilitation of heart disease.

Although there are best practices that guide stroke rehabilitation, these seem to focus more on returning function and less on preventing recurrence than we see in cardiac rehabilitation. This presents an opportunity to encourage consensus on recurrence-relevant outcomes. It also presents an opportunity to encourage widespread and consistent use of quality improvement techniques for preventing recurrence of cerebrovascular accidents.

Persons who do best after stroke are those with strong family and social ties. Chronic disease self-management programs (CDSMP) are designed to help people gain self-confidence in their ability to manage how their health problems affect their lives.

As in primary prevention, healthy lifestyles and detection and treatment of risk factors form the foundation for preventing recurrence.

## Work Plan 2010–2015: Prevent Recurrence

Objectives	Sample Measures of Success
<b>REHABILITATION SERVICES</b>	
<p><b>Decrease the percentage of recurrent heart attacks within 12 months reported to WiCORE.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage outpatient cardiac rehab (OCR) programs to participate in continuous quality improvement (CQI).</li> <li><input type="checkbox"/> Promote subscription to WiCORE.</li> <li><input type="checkbox"/> Identify potential statewide CQI opportunities.</li> <li><input type="checkbox"/> Educate OCR clinicians on practical approaches to CQI.</li> <li><input type="checkbox"/> Promote CQI adoption and use.</li> <li><input type="checkbox"/> Increase the use of CQI to improve secondary prevention measures (e.g., <math>\beta</math>-blocker, aspirin given at discharge).</li> <li><input type="checkbox"/> Encourage long-term follow-up of rehab patients by OCR programs.</li> </ul> <p><b>Decrease the percentage of recurrent strokes within 12 months of discharge from outpatient rehab programs.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Develop consensus on stroke patient outcomes that are relevant to preventing recurrence.</li> <li><input type="checkbox"/> Develop a system for tracking stroke patient outcomes.</li> <li><input type="checkbox"/> Identify potential statewide CQI programs in stroke rehab.</li> <li><input type="checkbox"/> Educate rehab clinicians on practical approaches to CQI in the rehab setting.</li> <li><input type="checkbox"/> Encourage stroke rehab programs to participate in CQI efforts.</li> <li><input type="checkbox"/> Encourage long-term follow-up of patients discharged from outpatient stroke rehabilitation.</li> </ul>	<p>Proportion of cardiac rehab programs with quality improvement initiatives</p> <p>Proportion of OCR programs participating in WiCORE</p> <p>Proportion of OCR graduates who adhere to a prescribed therapeutic and lifestyle plan</p> <p>Proportion of stroke rehab programs with CQI initiatives</p> <p>Proportion of stroke rehab graduates who adhere to a prescribed therapeutic and lifestyle plan</p>
<b>CHRONIC DISEASE SELF MANAGEMENT</b>	
<p><b>Increase the ability of Wisconsin residents to manage the effects of their chronic conditions and to be more effective partners with their healthcare providers.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Promote awareness of and use of CDSMP such as <i>Living Well with Chronic Conditions</i>.</li> <li><input type="checkbox"/> Work with the Wisconsin Area Agencies on Aging and the Wisconsin Collaborative Diabetes Quality Improvement Project in applying the chronic disease self management model to rehab settings.</li> <li><input type="checkbox"/> Enlist the help of local public health departments in promoting CDSMP.</li> </ul>	<p>Proportion of public health departments and other partners promoting this service</p> <p>Number of chronic disease self-management programs throughout the state</p>

## Work Plan 2010–2015: Prevent Recurrence

Objectives	Sample Measures of Success
<b>CARE TRANSITIONS</b>	
<p><b>Increase hospital 30-day follow-up procedures for AMI, HF and stroke patients to reduce re-admissions and recurrence.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Encourage hospitals to gather 30-day information on mortality, re-hospitalization, follow-up visits, medication adherence, rehabilitation and patient education.</li> <li><input type="checkbox"/> Establish best practice work groups on patient follow-up.</li> <li><input type="checkbox"/> Assess significance of 30-day follow-up in reducing mortality and disability.</li> </ul> <p><b>Increase referrals to cardiac and stroke rehabilitation.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Review guidelines for outpatient rehab referral.</li> <li><input type="checkbox"/> Investigate ways to increase referral rates to rehabilitation.</li> <li><input type="checkbox"/> Improve linkages between rehabilitation services and primary care physicians.</li> </ul> <p><b>Increase the use of standardized hospital discharge package for stroke patients.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Survey current materials and methods of inpatient education.</li> <li><input type="checkbox"/> Educate stroke patients and families on risk factors, medications, stroke warning signs, and rehabilitation options.</li> <li><input type="checkbox"/> Design and implement a CQI process around patient education.</li> <li><input type="checkbox"/> Facilitate the development of guidelines on standardization of materials and methods.</li> <li><input type="checkbox"/> Increase the number of hospitals with discharge instructions.</li> </ul>	<p>Proportion of hospitals that collect 30-day follow up information on patients who have been treated for AMI, HF or stroke</p> <p>Number of referrals to cardiac and stroke rehabilitation from family physicians</p> <p>Proportion of hospitals with discharge instructions on stroke</p>
<b>Disparities-Specific Issues/Objectives</b>	
<b>DATA COLLECTION</b>	
<p><b>Develop data sufficient to assess post-rehabilitation outcome disparities based on race, ethnicity, sex, geographic area, socio-economic status and age.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Use WiCORE to investigate patterns of disparity in OCR outcomes.</li> <li><input type="checkbox"/> Use these results to design and implement CQI interventions that reduce disparate outcomes.</li> </ul>	<p>Proportion of cardiac rehab programs participating in WiCORE</p> <p>Number of stroke rehabilitation programs reporting data</p>

## Goal: Encourage statewide partners to develop and take action on policies that can enhance heart disease and stroke prevention and treatment.

Legislation and other policy initiatives are among the most effective strategies for achieving broad public health goals. Both formal and informal policies have the ability to affect large numbers of people by improving the environments in which they live and work. For example, supporting exercise and healthy food choices.

Policy is defined as a directive for the purposeful action by an organization or institution to address an identified problem or issue through executive, legislative or administrative means. It can be voluntary or legally binding. While people often think of policies directed from federal, state or local government, policies developed at the level of associations, employers or departments within organizations also can be influential in causing positive change.

Through the deliberative process of constructing the *Wisconsin Plan for Heart Disease and Stroke Prevention 2010-2015*, HDS Alliance partners identified policy opportunities important in preventing death, disability and dependence due to heart disease and stroke. The HDS Alliance is exploring the formulation of a heart disease and stroke prevention policy agenda for partners and friends to coalesce around.

HDS Alliance partners identified the following areas for policy development. The HDSP will collaborate with other state chronic disease programs (e.g., Tobacco Control Program, Cancer Control Program, Diabetes Prevention and Control Program, and Physical Activity and Nutrition) to advocate for policies where there is a shared interest.

### Social Determinants

The United States of America spends more on health care than any other country, yet it ranks 37th in life expectancy<sup>9</sup>. Current findings suggest we need to target social determinants of health—including housing, education, employment and healthcare—to reduce chronic diseases, the leading causes of death.

- ✓ Inform policy makers regarding social determinants of health.
- ✓ Develop or identify strategic policy recommendations.
- ✓ Support local, state and federal policies that improve social determinants of health.

### Sodium Reduction

The strength of the association between salt consumption and high blood pressure is strong. Experts at the National Heart, Lung, and Blood Institute estimate that halving the salt content of processed and restaurant foods would save about 150,000 lives in the U.S. each year. Controlling high blood pressure is critically important in preventing stroke and heart disease, and reducing salt consumption is essential to effectively treating heart failure. *The Dietary Guidelines for Americans, 2005*<sup>7</sup> reports that approximately 75% of total salt intake is from processed food.

- ✓ Support FDA efforts to regulate sodium from a generally recognized as safe (GRAS) ingredient to that of a food additive.
- ✓ Label foods as “high in sodium,” and place warning notices on high-sodium foods or on nearby supermarket shelves.
- ✓ Enhance menu labeling: List sodium, calorie, carbohydrate, saturated and trans fat content on restaurant menus.
- ✓ Develop procurement guidelines for public agencies and institutions.

### Tobacco

As many as 30% of all CHD deaths in the United States each year are attributable to cigarette smoking, with the risk being strongly dose-related.<sup>1,2</sup> Smoking also nearly doubles the risk of ischemic stroke.<sup>3</sup> Smoking acts synergistically with other risk factors, substantially increasing the risk of CHD.<sup>5</sup> Smokers are also at increased risk for peripheral vascular disease, cancer, chronic lung disease, and many other chronic diseases.<sup>10</sup>

- ✓ Support increased FDA regulation of tobacco.
- ✓ Advocate for comprehensive statewide smoke free workplace legislation.
- ✓ Advocate for local smoke free ordinances.
- ✓ Support excise tax on tobacco products.

### Physical Activity

According to the latest joint American Heart Association/ American College of Sports Medicine guidelines on physical activity, all healthy adults ages 18–65 should be getting 30 minutes of at least moderate physical activity five days per week. The relative risk of CHD associated with physical inactivity ranges from 1.5 to 2.4, an increase in risk comparable with that observed for high cholesterol, high blood pressure and cigarette smoking.<sup>11</sup>

- ✓ Encourage communities to use parks, walking paths, biking trails, etc.
- ✓ Support school policies regarding physical education and recess.
- ✓ Encourage employers to improve worksite activity options.

# Work Plan 2010–2015: Develop Heart Disease and Stroke-Related Policy

## Trans Fats

*The New England Journal of Medicine* published a research review in April 2006 that concluded, near-elimination of industrially produced trans fats could prevent 72,000 to 228,000 heart attacks, strokes and other cardiovascular complications each year.

- ✓ Improve nutritional value of foods offered in schools, including more fruits and vegetables.
- ✓ Encourage government agencies and employers to reduce sodium and trans fats in cafeteria and vending machine foods
- ✓ Regulate restrictions on the content of artificial trans fats in baked, fried and prepared foods.

## Funding for Heart Disease and Stroke

The magnitude of the burden of CVD – approximately \$9 billion in direct treatment and indirect costs in 2008 is far greater than the government funding to address it.<sup>2,3</sup> Heart Disease and Stroke are the number one and number three leading causes (respectively) of death in Wisconsin. In addition to mortality, the disability burden is high both in terms of human suffering and economic costs.

- ✓ Inform policy makers of the importance of funding to achieve successful outcomes.
- ✓ Increase funding for chronic disease and risk factor initiatives, including heart disease and stroke prevention.

## Insurance Coverage for Prevention

Heart disease and stroke are often due to modifiable risk factors. In 2007, prevention accounted for only 1-3% of total healthcare expenditures. Health plans spend heavily on acute care or long-term care, covering costly technologies sometimes without evidence of benefit, while proceeding cautiously to cover preventive services.<sup>12</sup> Preventive services are cost-efficient and effective.

- ✓ Encourage employers to provide prevention coverage for detection and treatment of high blood pressure and high cholesterol and healthy lifestyle counseling.
- ✓ Insure coverage of cardiovascular preventive benefits in state Medicaid and private health insurance programs.
- ✓ Inform policy makers about the importance of secondary prevention and what they can do to enact measures.

- ✓ Advocate for improved coverage for lifestyle counseling (e.g., nutrition and physical activity).
- ✓ Advocate for improved coverage of rehabilitation services to prevent recurrence.

## Clinical Practice Guidelines

Applying clinical best practices in the treatment of heart disease and stroke for all Wisconsin residents is likely to improve outcomes. Tracking treatment outcomes relative to recommended guidelines, encouraging public reporting of data, and gaining consensus on standards of care are a few ways to increase guideline use.

- ✓ Establish and expand statewide registries (e.g., stroke rehabilitation).
- ✓ Develop consensus on the definition of hospitals' heart treatment levels.
- ✓ Develop consensus on the definition of hospitals' stroke treatment levels.
- ✓ Promote telemedicine.

## EMS

Advancing medical knowledge and technology make rapid identification and treatment for both heart attack and stroke possible. STEMI carries a substantial risk of death and disability that can be dramatically reduced if PCI occurs within 90 minutes. Pre-hospital use of 12-lead EKG is important in identifying a STEMI. Likewise, for selected patients with ischemic stroke, intravenous tissue plasminogen activator (tPA) is a therapy that may prevent death and disability if administered within three hours of onset of symptoms. The following are intended to reduce transport times and increase the effectiveness of hospital treatment.

- ✓ Encourage adoption of stroke protocol by statewide EMS partners.
- ✓ Encourage adoption of STEMI protocol by statewide EMS partners.
- ✓ Upgrade EMS systems to use pre-hospital 12-lead EKG units and trained ambulance staff.

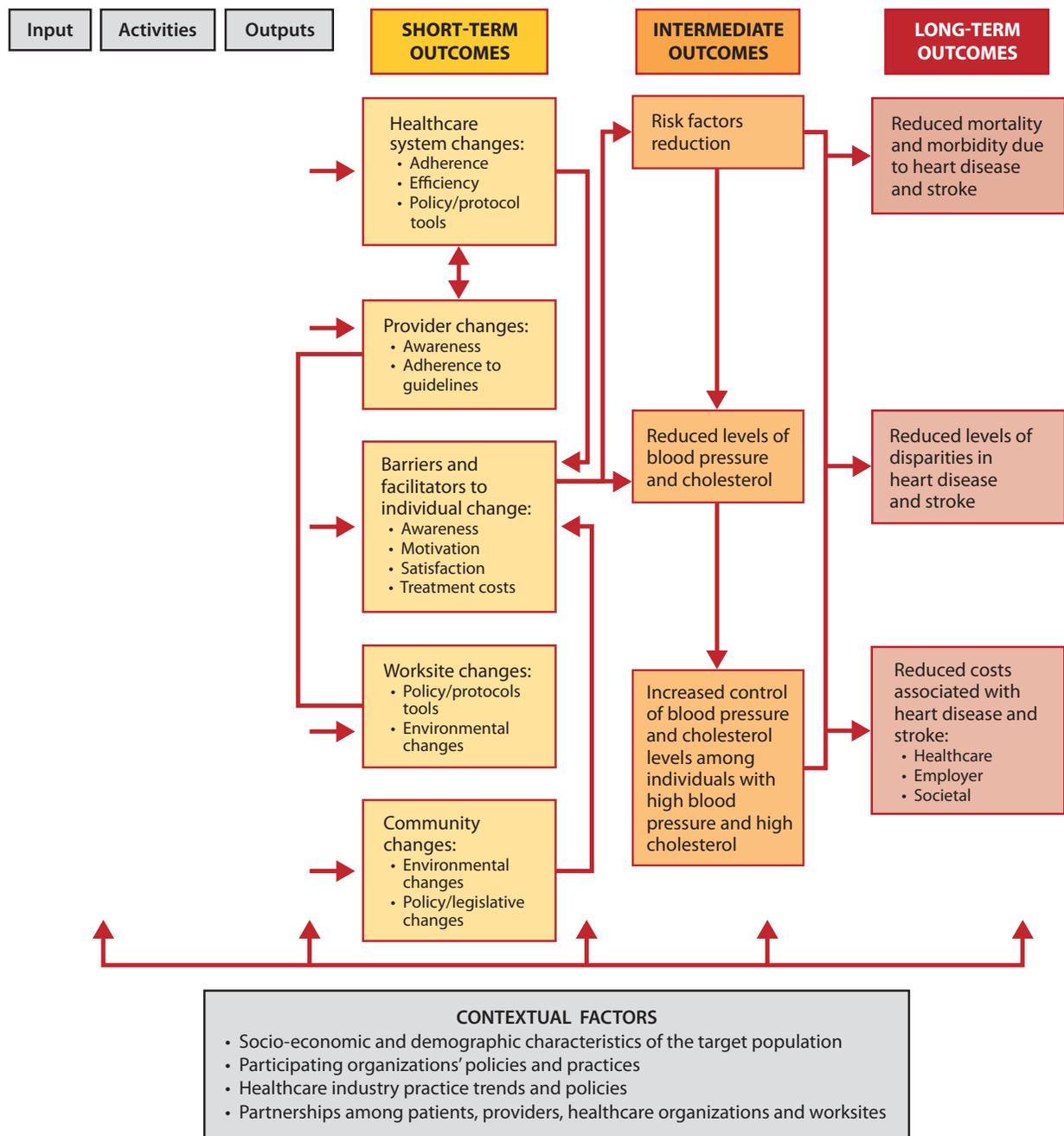
## Work Plan 2010–2015: Develop Heart Disease and Stroke-Related Policy

POLICY DEVELOPMENT	
Advance heart disease and stroke-related policy at the state, organizational, community and individual level.	
Objectives	Sample Measures of Success
<p><b>Create a policy work group to lead heart disease and stroke policy efforts.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Inventory statewide partners' current policy efforts and interests.</li> <li><input type="checkbox"/> Determine the scope and objectives for the Work Group.</li> </ul> <p><b>Develop and promote a statewide plan for heart disease and stroke policy.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Reach consensus on priority policies.</li> <li><input type="checkbox"/> Create a policy agenda and annual work plan.</li> <li><input type="checkbox"/> Communicate the policy work plan to HDS Alliance members and policy influencers.</li> <li><input type="checkbox"/> Seek out media relation opportunities to raise visibility of policy efforts.</li> </ul> <p><b>Provide ongoing education on policy and advocacy opportunities.</b></p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Identify and use resources for ongoing communication efforts.</li> <li><input type="checkbox"/> Create messages to educate and engage HDS Alliance members and policy influencers.</li> <li><input type="checkbox"/> Mobilize the support of HDS Alliance members and policy influencers.</li> </ul>	<p>Consensus document on heart disease and stroke policy created</p> <p>Number of policy actions taken by state partners</p> <p>Percentage of measures passed</p>

## IV. Evaluation

The HDS Alliance chose interventions for this plan that they believe offer the best chance for reaching the five key goals. Evaluation helps to determine the effectiveness of each strategy and activity, and monitors progress at the level of health-care systems, providers, worksites and communities. As shown in this logic model adapted from the CDC, short-term outcomes across these sectors are a critical first step toward improving risk factor prevention, reducing the proportion of those affected by high blood pressure and high cholesterol, and achieving better control among those who have these risk factors.

**Model 5: Logic Model for Strategies and Interventions to Improve Cardiovascular Health**



## Evaluation

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Organizations are encouraged to develop an evaluation plan at the onset of implementing a specific strategy. The measures of success listed for each of the strategies in this plan are samples and are not meant to be comprehensive. Actual measures will depend on the activity implemented. Here are eight steps to follow when considering evaluation:

1. Develop evaluation questions
  - What do you want to know?
2. Determine indicators
  - What will you measure?
  - What type of data will you need to answer the evaluation question?
3. Identify data sources
  - Where can you find these data?
4. Determine the data collection method
  - How will you gather the data?
5. Specify the time frame for data collection
  - When will you collect the data?
6. Plan the data analysis
  - How will you analyze and interpret the data?
7. Communicate results
  - With whom and how will you share results?
8. Designate staff responsibility
  - Who will oversee the completion of this evaluation?

As organizations implement various strategies, the HDSP may be able to offer assistance with data sources and data collection. Several and varied data sources are available to measure and evaluate progress. Some of these include:

- Wisconsin Mortality Data
- Wisconsin Behavioral Risk Factor Survey (BRFS)
- Wisconsin Youth Risk Behavior Survey (YRBS)
- Wisconsin Inpatient Hospitalization Discharge Database
- Wisconsin Medicaid Program Data
- Medicare Program Data for Wisconsin
- Wisconsin Census Records and Population Estimates
- Wisconsin Family Health Survey
- HEDIS® Cardiovascular Measures
- Wisconsin Collaborative for Healthcare Quality (WCHQ) measures
- Federally Qualified Health Centers (FQHC) pertinent collected registry data
- WARDS data
- WiCORE
- GWTG-Stroke
- ACTION – GWTG
- CheckPoint
- SHOW
- Physician Quality Reporting Initiative
- Accreditation/Certification lists

In addition, the HDSP continues to seek out appropriate data sources to enhance its surveillance system. Ongoing evaluation of heart disease and stroke-related data will continue to provide insight into successful interventions and areas needing greater attention in reaching the state plan goals.

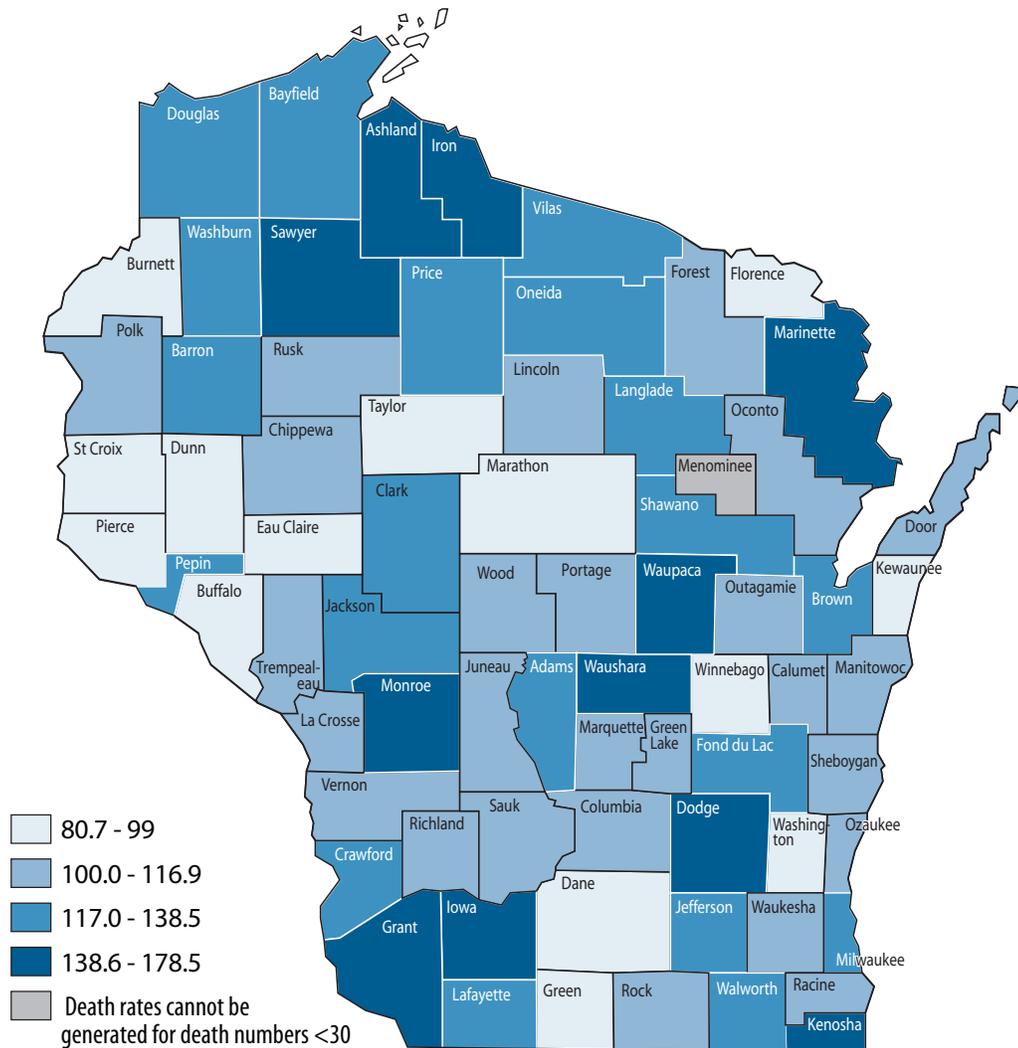
## V. References

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1. Bureau of Health Information and Policy, Division of Public Health, Wisconsin Department of Health Services, *Wisconsin Deaths 2007*.
2. Wisconsin Hospital Association Information Center. *Wisconsin Inpatient Discharge Data 2007*.
3. American Heart Association. *Heart Disease and Stroke Statistics -- 2008 Updates*.
4. American College of Preventive Medicine. [www.acpm.org/pol\\_ama\\_resolution\\_stroke.htm](http://www.acpm.org/pol_ama_resolution_stroke.htm)
5. Heart Disease and Stroke Prevention Program, Bureau of Community Health Promotion, Wisconsin Division of Public Health, *Wisconsin Heart Disease and Stroke Prevention Surveillance Summary 2007*.
6. Brennan Ramirez LK, Baker EA, Metzler M. *Promoting Health Equity: A Resource to Help Communities Address Social Determinants of Health*, Atlanta, Georgia. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention; 2008.
7. U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans*, 2005. 6th Edition, Washington, DC: U.S. Government Printing Office, January 2005. <http://www.health.gov/dietaryguidelines/dga2005/document/default.htm>
8. Chobanian et al. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure: The JNC 7 Report. *JAMA* 2003;289(19):2560-71.
9. World Health Organization. *The World Health Report 2000 – Health Systems: Improving Performance*. Geneva, Switzerland. 2000. <http://www.photius.com/rankings/healthranks.html>
10. Ockene I., Houston Miller N. *Cigarette Smoking, Cardiovascular Disease and Stroke: A Statement from the American Heart Association*. *Circulation*. 1997;96:3243-3247.)
11. American Heart Association. *Physical Activity and Cardiovascular Health Fact Sheet* – [www.americanheart.org](http://www.americanheart.org)
12. Woolf, Steven H. The Power of Prevention and What It Requires (commentary). *JAMA* 2008: 299(20).

## VI. Data Map: Coronary Heart Disease Death Rates

Age-adjusted Coronary Heart Disease Death Rate by County, Wisconsin 2004-2007\*



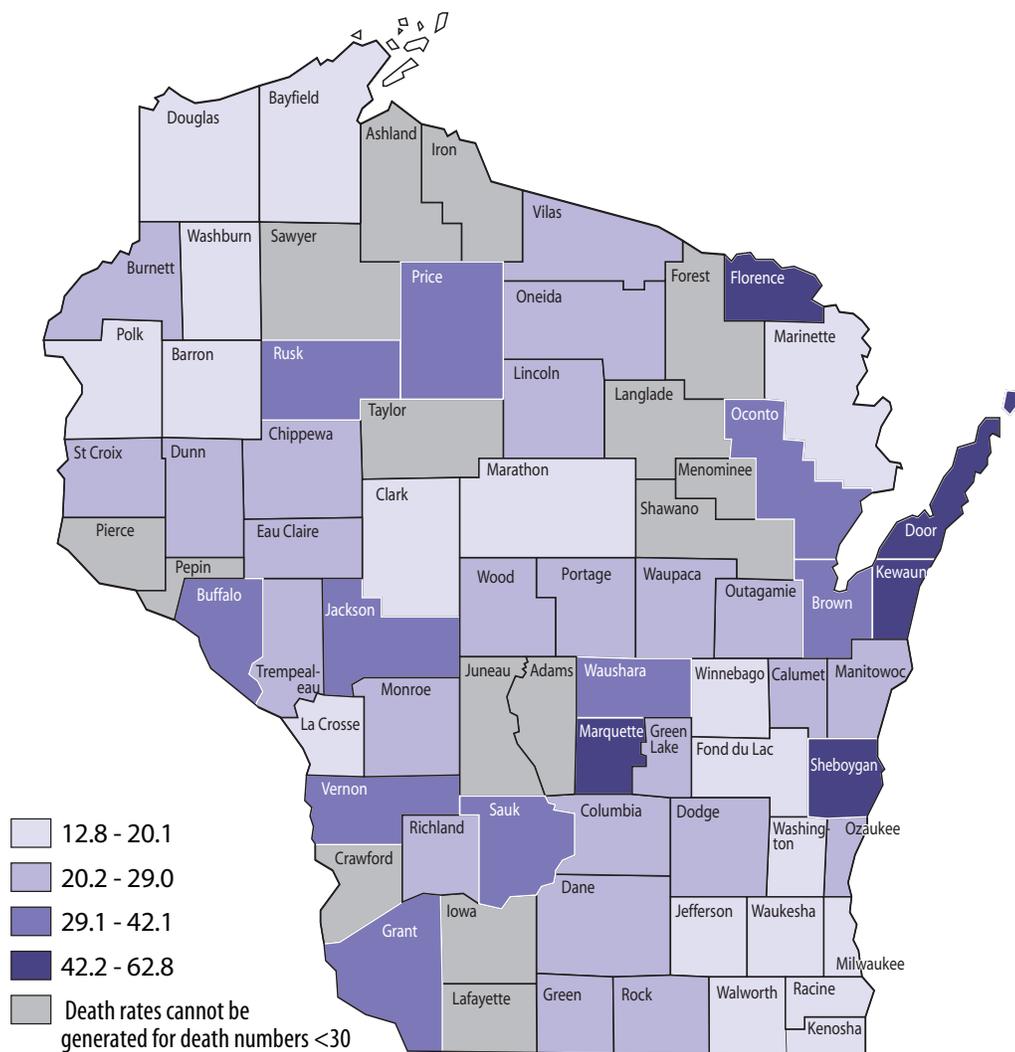
\*The death rate is adjusted with U.S. 2000 Standard Population and expressed in per 100,000 population.

Data source: Mike Yuan, Epidemiologist, 608-267-2487, Heart Disease and Stroke Prevention Program, Wisconsin Department of Health Services.

Map created by: Aaron Weier, GIS Analyst, 608-267-2360, Bureau of Information Technology Services, Wisconsin Department of Health Services.

# Data Map: Congestive Heart Failure Death Rates

## Age-adjusted Congestive Heart Failure Death Rate by County, Wisconsin 2004-2007\*



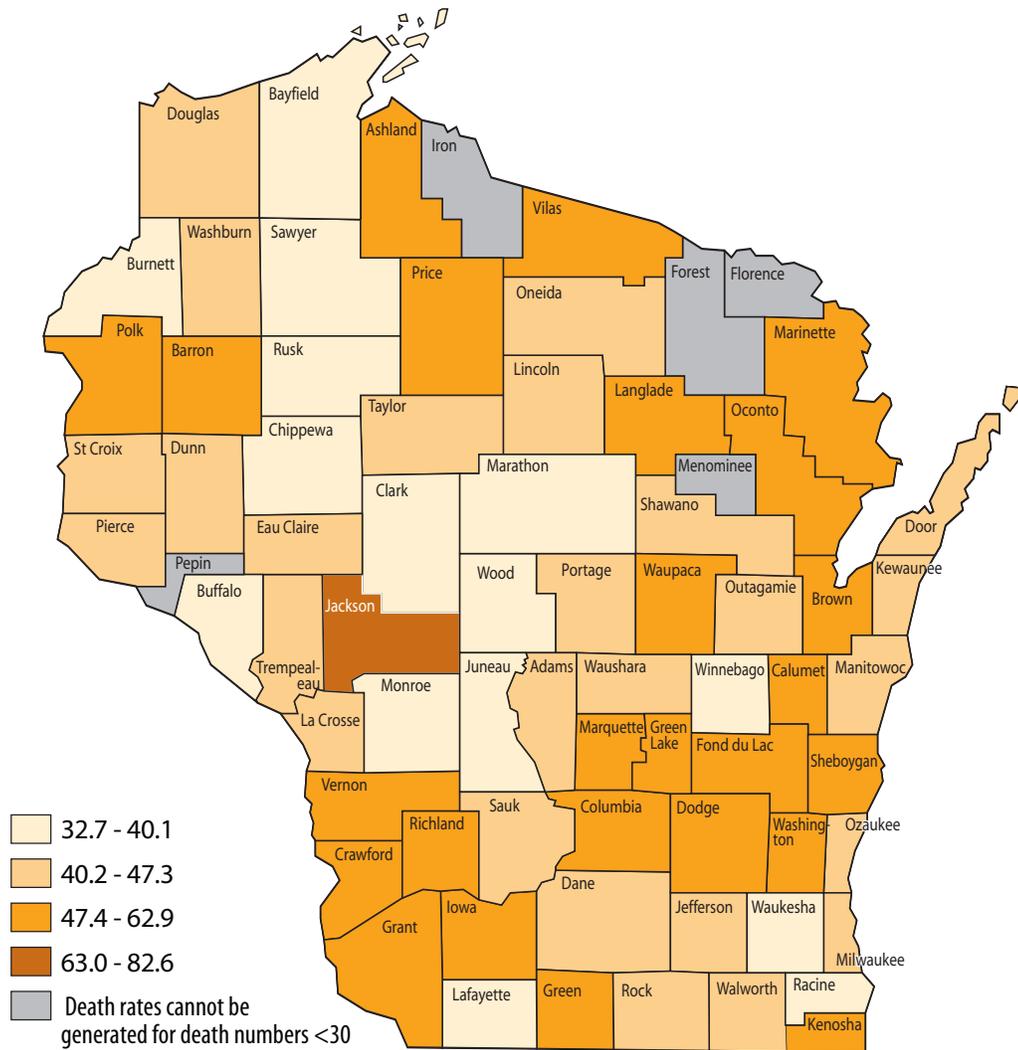
\*The death rate is adjusted with U.S. 2000 Standard Population and expressed in per 100,000 population.

Data source: Mike Yuan, Epidemiologist, 608-267-2487, Heart Disease and Stroke Prevention Program, Wisconsin Department of Health Services.

Map created by: Aaron Weier, GIS Analyst, 608-267-2360, Bureau of Information Technology Services, Wisconsin Department of Health Services.

# Data Map: Stroke Death Rates

## Age-adjusted Stroke Death Rate by County, Wisconsin 2004-2007\*



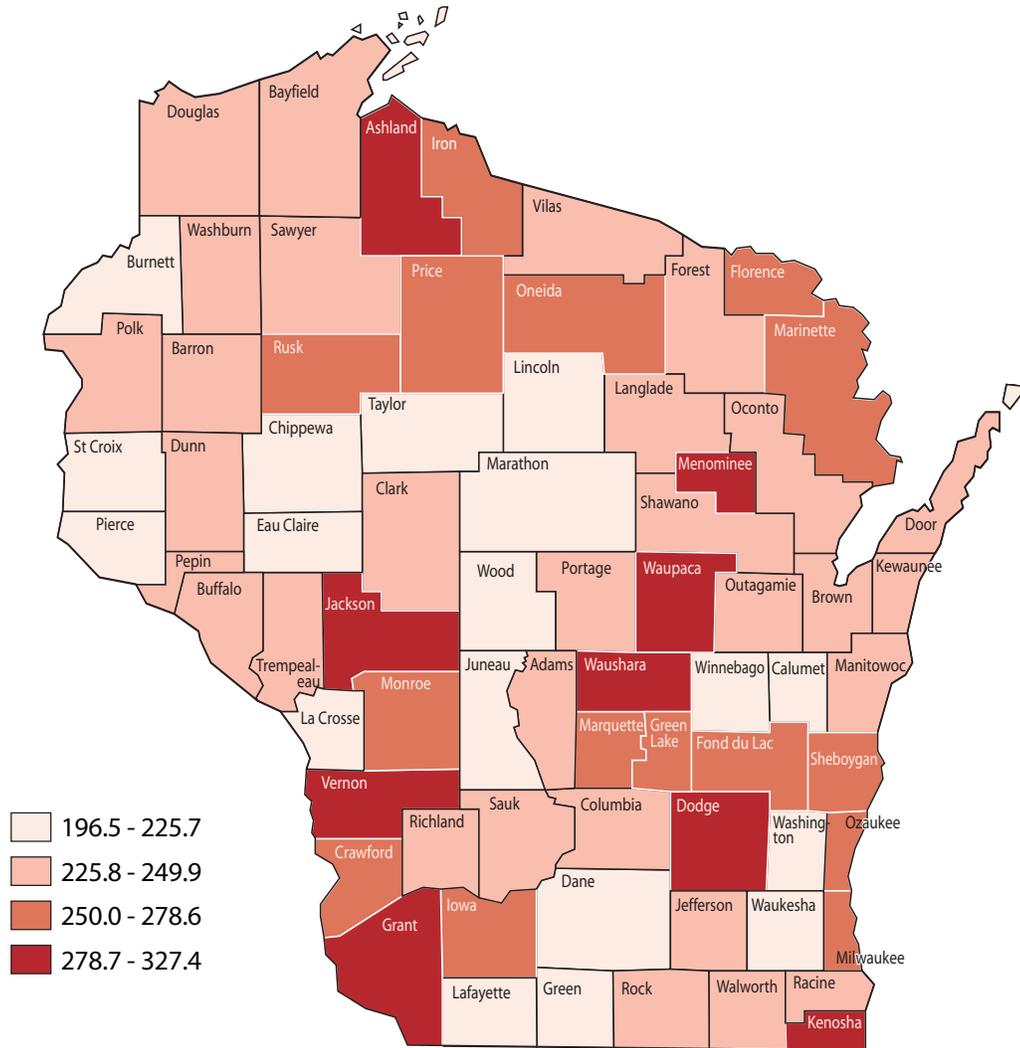
\*The death rate is adjusted with U.S. 2000 Standard Population and expressed in per 100,000 population.

Data source: Mike Yuan, Epidemiologist, 608-267-2487, Heart Disease and Stroke Prevention Program, Wisconsin Department of Health Services.

Map created by: Aaron Weier, GIS Analyst, 608-267-2360, Bureau of Information Technology Services, Wisconsin Department of Health Services

# Data Map: Cardiovascular Disease Death Rates

## Age-adjusted Total Cardiovascular Disease Death Rate by County, Wisconsin 2004-2007\*



\*The death rate is adjusted with U.S. 2000 Standard Population and expressed in per 100,000 population.

Data source: Mike Yuan, Epidemiologist, 608-267-2487, Heart Disease and Stroke Prevention Program, Wisconsin Department of Health Services.

Map created by: Aaron Weier, GIS Analyst, 608-267-2360, Bureau of Information Technology Services, Wisconsin Department of Health Services.

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