

# CHRONIC DISEASE PREVENTION AND MANAGEMENT

**Note to readers and users of the *Healthiest Wisconsin 2020* Profiles:** This *Healthiest Wisconsin 2020* Profile is designed to provide background information leading to collective action and results. This profile is a product of the discussions of the Focus Area Strategic Team that was convened by the Wisconsin Department of Health Services during September 2009 through November 2010. The objectives from this Focus Area have been recognized as objectives of *Healthiest Wisconsin 2020*. (Refer to Section 5 of the *Healthiest Wisconsin 2020* plan.) A complete list of *Healthiest Wisconsin 2020* Focus Area Strategic Team Members can be found in Appendix A of the plan.

## Definition

In general terms, chronic diseases are defined as illnesses that last a long time, do not go away on their own, are rarely cured, and often result in disability later in life (adapted from McKenna and Collins, 2010).

The goals of *chronic disease prevention and management* are to prevent disease occurrence, delay the onset of disease and disability, lessen the severity of disease, and improve the health-related quality and duration of the individual's life (adapted from Doll, 1985). The line between what constitutes prevention and management is somewhat blurred. However, prevention efforts traditionally involve interventions performed before the clinical onset of disease or early in the course of disease, while management efforts may occur later in the disease course and are often focused on reducing the undesired consequences of diseases (adapted from McKenna and Collins, 2010).

## Importance of the Focus Area

Chronic diseases – such as heart disease, stroke, cancer, diabetes, asthma and arthritis – are among the most common and costly of all health problems in the United States (National Center for Chronic Disease Prevention and Health Promotion, 2009b). The good news is that chronic diseases are also among the most preventable diseases.

Currently, seven of the 10 leading causes of death in Wisconsin and the United States as a whole are due to chronic diseases, accounting for approximately 2 out of every 3 deaths annually (McKenna and Collins, 2010; Wisconsin Interactive Statistics on Health, 2009). In addition, over 80 percent of the \$2 trillion spent on health care in the United States each year goes toward treatment of chronic diseases (McKenna and Collins, 2010). A significant portion of this care is publicly funded. Medicaid spending has grown rapidly in recent years and is placing a significant burden on state budgets (National Center for Chronic Disease Prevention and Health Promotion, 2009a).

Four modifiable health risk behaviors— unhealthy diet, insufficient physical activity, tobacco use and secondhand smoke exposure, and excessive alcohol use — are responsible for much of

the illness, suffering, and early death related to chronic diseases. There are proven, evidence-based strategies that can be used to combat chronic diseases, and when the focus turns to addressing those four modifiable risk factors, a reduction in the number of people living with and dying from chronic diseases in Wisconsin can be expected. The World Health Organization (2005) estimates that by eliminating the risk factors leading to chronic disease, at least 80 percent of all heart disease, stroke and type 2 diabetes would be prevented, as would over 40 percent of all cancers.

Moreover, as documented by the *Trust for America's Health* (2008), prevention yields a remarkable return on investment. An investment of just \$10 per person per year in community-based programs that address insufficient physical inactivity, unhealthy diet, and tobacco use would yield a return of \$5.60 for every dollar spent over the course of five years. Remarkably, even that substantial return can be considered an underestimate since it doesn't include gains in worker productivity, reduced absenteeism at work and school, and enhanced quality of life. Despite these convincing numbers, the vast majority of health care spending in the United States, as much as 95 percent, is directed toward medical care and biomedical research and not on prevention (Institute of Medicine, 2003).

Although chronic diseases usually become clinically apparent in adulthood, the exposures and risk factors that precede disease onset occur at every stage of life. Therefore it is important to address opportunities to prevent risky health behaviors as early as possible and throughout the life span. Childhood and adolescence are critical times to deliver and reinforce health education messages to prevent the onset of tobacco and alcohol use and to establish patterns that will result in a lifetime of healthy eating and sufficient exercise.

However, in order to be truly effective, prevention messages must be accompanied by social and environmental changes that make healthy lifestyle choices more likely. For example, imagine someone without a car and living in an environment where the nearest source of fresh fruits and vegetables is a 30-minute drive away, yet alcohol and calorie-dense foods of little nutritional value are available on every street corner. Simply delivering a message to eat healthier is likely to have little impact on that person. Similarly, if there are no open spaces for safe recreation in a given neighborhood, merely encouraging residents to increase their level of physical activity will be unlikely to produce sustained behavioral change. To truly eliminate chronic disease risk factors, the healthy choices stressed in public health campaigns must also be the easy choices for people to make. Therefore, the public health community must work closely with policy makers to help bring about structural changes to the environment.

The unfortunate reality is that chronic disease prevention is not always possible, so it is important that effective management of chronic disease is also part of the health care system. There are many definitions of chronic disease management, but one of the more comprehensive of these was developed by the Disease Management Association of America (2010). Key elements of this definition include supporting the relationship and plan of care between the care provider and the patient, an emphasis on preventing worsening of disease using evidence-based practice guidelines and patient empowerment strategies, and ongoing evaluation of outcomes with the goal of improving overall health. The American Heart Association developed its own definition by listing eight domain areas of disease management (Krumholz, et al., 2006). The

important point is that many parts must work together for a chronic disease management system to be effective, and the system has to be comprehensive and grounded on solid evidence. Following these principles of chronic disease management can greatly reduce the disease burden for the individual.

Finally, the public health system has had to evolve from primarily focusing on communicable diseases and epidemics (the major causes of death in the early 1900s) to focusing more on chronic diseases (the current leading causes of mortality). However, current primary care delivery systems that were developed around acute visits and crisis management models have not been successful in meeting chronic disease care needs. Patient-provider interactions are brief and infrequent, and therefore are not sufficient to provide the sustained support needed to maintain the healthy lifestyle changes critical to prevention and management of chronic diseases. To better meet the needs of Wisconsin residents who are living longer and living with multiple chronic conditions, these care systems must adapt by working more closely with the broader public health system.

## **Wisconsin Data Highlights**

### ***Cardiovascular disease, including heart disease and stroke***

- Cardiovascular disease is consistently the leading cause of mortality for Wisconsin residents, accounting for more than 16,000 deaths annually, or 35 percent of all deaths (*The Burden of Cardiovascular Disease in Wisconsin, 2005*).
- In 2005, the estimated total cost of cardiovascular disease in Wisconsin was over \$7 billion (*The Burden of Cardiovascular Disease in Wisconsin, 2005*).
- In 2001-2004, American Indians had the highest mortality rate for coronary (ischemic) heart disease in Wisconsin at an age-adjusted rate of 157 per 100,000 population, compared to Whites at 139; Blacks/African Americans at 133, Asians at 60, and Hispanics/Latinos at 52. The hospitalization rate in 2004 for coronary (ischemic) heart disease was highest among Whites at 6.2 per 1,000, compared to Blacks/African Americans at 4.3 per 1,000, American Indians at 3.8 per 1,000, Hispanics/Latinos at 2.0 per 1,000, and Asians at 1.4 per 1,000 (*Wisconsin Heart Disease and Stroke Surveillance Summary, 2007*).

### ***Cancer***

- Each year from 2002 through 2006, an annual average of 27,256 cancers were diagnosed among Wisconsin residents. The average age-adjusted incidence rate for all cancers was 470.3 per 100,000 Wisconsin residents (*Wisconsin Cancer Incidence and Mortality, 2002-2006, 2009*).
- For the years 2002-2006, Blacks/African Americans had the highest incidence of cancer in Wisconsin at an age-adjusted rate of 536.1 per 100,000, compared to Whites at 465.5, American Indians at 391.2, Hispanics/Latinos at 348.2, and Asians at 262.5. Blacks/African Americans also had the highest rate of age-adjusted cancer mortality at 254.2 per 100,000, compared to American Indians at 219.0, Whites at 182.1, Asians at 100.7, and Hispanics/Latinos at 87.4 (*Wisconsin Cancer Incidence and Mortality, 2002-2006, 2009*).

### ***Diabetes***

- From 2004 to 2007, diabetes-related hospitalizations increased nearly 11 percent, from 85,113 to 94,331. Diabetes prevalence among adults increased more than 27 percent, from 329,460 to 419,870 (2008 Burden of Diabetes in Wisconsin, 2008).
- In 2007, direct costs for diabetes care in Wisconsin were estimated at \$3.46 billion. Indirect costs added an estimated \$1.73 billion; therefore, total estimated costs were \$5.19 billion (2008 Burden of Diabetes in Wisconsin).
- Among racial and ethnic groups in the state, American Indians had the highest age-adjusted rate of diabetes in 2006, at 46 percent, compared to 19.2 percent for Blacks/African Americans, 16.7 percent for Hispanics/Latinos, and 8.5 percent for Whites (2008 Burden of Diabetes in Wisconsin).
- Nearly one-quarter (23 percent) of hospitalizations among American Indians in 2006 were diabetes-related; this was a higher proportion than for hospitalizations among Blacks/African Americans (17.6 percent), Whites (14.7 percent), and Hispanics/Latinos (12.5 percent) (2008 Burden of Diabetes in Wisconsin).
- In 2008, American Indians also had the highest rate of diabetes-related mortality in the state, at 37.9 deaths per 100,000 population, compared with Whites (20.7) and Blacks/African Americans (15.6) (Wisconsin Interactive Statistics on Health, mortality module, 2010).

### ***Asthma*** (Source: Drawn from *The Burden of Asthma in Wisconsin – 2007*)

- In 2005, more than 5,500 Wisconsin residents were hospitalized for asthma and more than 22,000 sought emergency room care for asthma.
- While overall differences are small (and not statistically significant), Wisconsin does appear to have a higher asthma prevalence in the most urban area of the state compared to suburban and small urban areas. Milwaukee County, the only large central metro county in Wisconsin, had the highest estimated asthma prevalence in 2002-2005, at 13.6 percent. It also had the highest asthma mortality rate for 2000-2005, at 17.3 deaths per million population.
- Among racial groups, Blacks/African Americans had the highest lifetime prevalence of asthma (19 percent in 2002-2005); were hospitalized for asthma at 5 times the rate of Whites (36.6 versus 7.1 hospitalizations per 10,000 population in 2005) and had an asthma mortality rate 3.5 times than Whites (41.2 versus 12.0 deaths per million in 2000-2005). American Indians also had higher asthma hospitalization rates than Whites (11.7 versus 7.1 hospitalizations per 10,000 population in 2005).

### ***Arthritis*** (Source: Drawn from *Arthritis in Wisconsin – 2009*)

- More than 27 percent of Wisconsin adults aged 18 years and older (1.1 million) reported that they had some form of arthritis during 2003–2007.

- Costs related to arthritis and rheumatic conditions in Wisconsin total nearly \$2.4 billion per year. This amount includes \$1.5 billion in direct costs (medical expenditures) and \$895 million in indirect costs (lost earnings).
- While the prevalence of arthritis among Blacks/African Americans is not different from prevalence among non-Hispanic Whites and Hispanics/Latinos, arthritis symptoms have a more significant effect on reported disability, activity limitation, and quality of life among Blacks/African Americans.

## **Objective 1**

**By 2020, increase sustainable funding and capacity for chronic disease prevention and management programs that reduce morbidity and mortality.**

### **Objective 1 Indicators**

- State and federal funding for chronic disease prevention and management. (Indicator to be developed.)
- Medicaid spending related to prevention of chronic disease. (Indicator to be developed.)
- Insurance coverage for chronic disease prevention and management. (Indicator to be developed.)

### **Objective 1 Rationale**

Chronic diseases create a huge burden on Wisconsin in both human and economic costs. These diseases are largely preventable. It has been proven that investment in evidence-based interventions to target risk factors, such as unhealthy diet, insufficient physical activity, tobacco use and secondhand smoke exposure, and excessive alcohol use, can have a significant return on investment. Furthermore, by supporting the use of evidence-based chronic disease management and disease self-management programs, the impact of chronic diseases on the overall health of state residents dealing with one or more chronic diseases can be limited. This would lead to decreased disease and death and greatly decrease costs to the medical system.

## **Objective 2**

**By 2020, increase access to high-quality, culturally competent, individualized chronic disease management among disparately affected populations of differing races, ethnicities, sexual identities and orientations, gender identities, and educational or economic status.**

### **Objective 2 Indicators**

- Population group-specific incidence of chronic disease (heart disease and cancer), hospitalization and emergency department utilization rates (asthma) (Behavioral Risk Factor Survey, Youth Risk Behavior Survey, Wisconsin hospital data, Wisconsin Cancer Reporting System).
- Incidence of risk factors (e.g., obesity, smoking), early detection (e.g., blood pressure, diabetes and cancer screening), and chronic disease management (e.g., proportion of diabetic patients with A1c value under 7 percent). (Behavioral Risk Factor Survey, Youth Risk Behavior Survey, Wisconsin hospital data, Wisconsin Cancer Reporting System, Medicare Healthcare Data Reports; some indicators to be developed.)

- Proportion of asthma patients receiving seasonal influenza vaccinations (Survey of the Health of Wisconsin (SHOW)). (Indicator to be developed.)

### **Objective 2 Rationale**

To successfully address the burden of chronic disease in Wisconsin, effective interventions that reach disparate population groups will have to be employed. If interventions within these groups are to be successful, they must be developed in a culturally competent manner (Guide to Community Preventive Services, 2010). A health care setting that facilitates partnerships between individual patients and their personal physicians, and when appropriate the patient's family, is vital in developing the trust that leads to increased use of health care services (Joint Principles of the Patient-Centered Medical Home March 2007; American Academy of Family Physicians, American Academy of Pediatrics; American College of Physicians; American Osteopathic Association).

### **Objective 3**

**By 2020, reduce the disparities in chronic disease experienced among populations of differing races, ethnicities, sexual identities and orientations, gender identities, and educational or economic status.**

#### **Objective 3 Indicators**

Disparity ratios for populations of differing races, ethnicities, sexual identities and orientations, gender identities, and educational or economic status in the incidence or prevalence of:

- Chronic disease (heart disease and cancer) and hospitalization and emergency department utilization rates (asthma) (Wisconsin Department of Health Services, Behavioral Risk Factor Survey; Wisconsin Department of Public Instruction, Youth Risk Behavior Survey; Wisconsin hospital data; Wisconsin Cancer Reporting System).
- Risk factors (e.g., obesity, smoking), early detection (e.g., blood pressure, diabetes and cancer screening), and chronic disease management (e.g., proportion of diabetic patients with A1c value under 7 percent) (Wisconsin Department of Health Services, Behavioral Risk Factor Survey; Wisconsin Department of Public Instruction, Youth Risk Behavior Survey; Wisconsin hospital data; Wisconsin Cancer Reporting System).
- Asthma patients receiving seasonal influenza vaccinations (Survey of the Health of Wisconsin (SHOW)). (Indicator to be developed.)

#### **Objective 3 Rationale**

Often public health interventions have the unintended effect of increasing disparities, as they are targeted at those who have a high level of health literacy or who already have good access to health care. If interventions are not sensitive to addressing specific disparate populations, with specific strategies identified to reach those populations, disparities will worsen.

## **Potential evidence- or science-based actions to move the focus area objectives forward over the decade**

- Environmental and policy approaches designed to provide opportunities, support, and cues to help people develop healthier behaviors can lessen the burden of chronic disease. These approaches are often more permanent than many programs focused on individual-level behavioral change. (Brownson, 2006).
- One individual-level intervention that has been shown to lessen the burden of chronic disease is the Chronic Disease Self-Management Program. This program has improved participants' level of exercise, cognitive symptom management, communication with physicians, self-reported general health, health distress, fatigue, disability, and social/role activities limitations (Living Well with Chronic Conditions, 2009).
- An emerging patient-centered model of the Medical Home seeks to overcome issues of uncoordinated care and barriers to access, shortage of primary care clinicians, and the increasing prevalence of chronic diseases. Changing health care delivery systems to focus more on comprehensive care coordination requires a change in care delivery methods that necessitates training of the current health care workforce and establishment of the Medical Home model of care (Patient Centered Primary Care Collaborative, 2009).
- Policy and environmental changes can affect large segments of the population simultaneously. Proven social, environmental, policy, and systems approaches support healthy living for individuals, families, and communities (The Power of Prevention, 2009).
- Policies and programs that address the multiple drivers for health improvement have been identified (Booske, 2009). A selection of the 35 strategies identified from this report are included below:
  - Allocate funding to expand WIC and Senior Farmers Market Nutrition Programs
  - Make water available; promote its consumption
  - Modify vending machine options to increase healthy beverage choices
  - Increase availability of fruits and vegetables, and other nutritious options
  - Ensure on-site cafeterias follow healthy cooking practices
  - Offer healthy foods at meetings, conferences, and catered events
  - Prohibit the sale of non-nutritious food for school fund-raising activities
  - Support tax credits for locating farmers markets/farm stands in lower-income neighborhoods
  - Use point-of-decision prompts to highlight fruits and vegetables, and promote water consumption
  - Enact snack taxes, including food and sugared soft drinks
  - Label foods served in public eating outlets to show serving size and nutritional content
  - Expand school-based physical education classes
  - Provide nutrition information in clinic waiting rooms
  - Provide patients with nutrition "prescriptions" and tools for self-assessment and recording

- Develop and support breastfeeding promotion programs
- Establish minimum school physical education requirements and standards
- Set nutritional standards for competitive foods in schools
- Establish policy regulating nutrition education standards
- Support comprehensive, center-based early childhood development programs (Head Start)
- Enact statewide ban on smoking in public places
- Support housing Rehabilitation Loan and Grant programs
- Support weatherization Assistance Programs

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