WISCONSIN DEPARTMENT OF HEALTH SERVICES

# The Epidemic of Chronic Disease in Wisconsin:

*Why it Matters to the Economy and What You Can Do to Help*

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These are tough economic times for Wisconsin and the nation. Policy makers in the coming years will face difficult budgetary decisions in the effort to reinvigorate Wisconsin's economy.

As part of those discussions, it is more important than ever that policy makers address the epidemic of chronic disease in Wisconsin. Not only do these diseases pose a great threat to the health of Wisconsin residents, but they also negatively affect the economy.

*Over 80 percent of the two trillion dollars spent on health care in the United States each year goes toward treatment of chronic diseases.*

One way chronic diseases impact the economy is by the direct costs to the health care system. Over 80 percent of the two trillion dollars spent on health care in the United States each year goes toward treatment of chronic diseases (McKenna and Collins, 2010). In Wisconsin, the estimated cost to the Medicaid system of six leading chronic diseases (heart disease, congestive heart failure, hypertension, stroke, diabetes and cancer) is $1.15 billion annually (CDC Chronic Disease Cost Calculator, 2010).

Another major impact to the economy from chronic diseases results from lost productivity as a result of prolonged illness. A healthy workforce is a productive workforce and critical to the success of Wisconsin businesses remaining competitive. Thus, addressing the epidemic of chronic disease through prevention will not only improve the health and save the lives of many Wisconsin residents, but will also decrease Medicaid expenditures and stimulate the economy.

This brief report will introduce you to the burden of chronic disease in Wisconsin and provide you with tools you can consider in your role as a policy maker to address this vital issue.

Henry A. Anderson, MD
State Health Officer
Wisconsin Division of Public Health

**For More Information . . .**

This report provides useful information on the economic and human burden of chronic disease and gives you a roadmap for how you can address this growing epidemic. What are your thoughts after seeing this information? Are you inspired to help promote chronic disease prevention? Are you still not quite convinced of its benefits? Are you interested in addressing chronic disease, but need more specific information on effective strategies? You are strongly encouraged to look deeper into this issue.

Contact Mark Wegner, MD, MPH, Chronic Disease Medical Director for the Wisconsin Department of Health Services (Mark.Wegner@dhs.wisconsin.gov).

**What are Chronic Diseases?**

In general, 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. Examples of the most common chronic diseases include heart disease, stroke, cancer, diabetes, asthma, arthritis, obesity, and oral disease; and all can potentially be prevented by modifying risk factors.

**Why are Chronic Diseases Important to Wisconsin?**

Chronic diseases have a huge impact on mortality both in Wisconsin and across the country. Today, seven of the ten 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). Figure 1 shows the leading causes of death in Wisconsin, with chronic diseases in bold. However, death is not the only way to measure the impact of chronic disease. Chronic diseases can be disabling and can cause significant pain and distress. People with chronic diseases or risk factors often require extensive medical care.

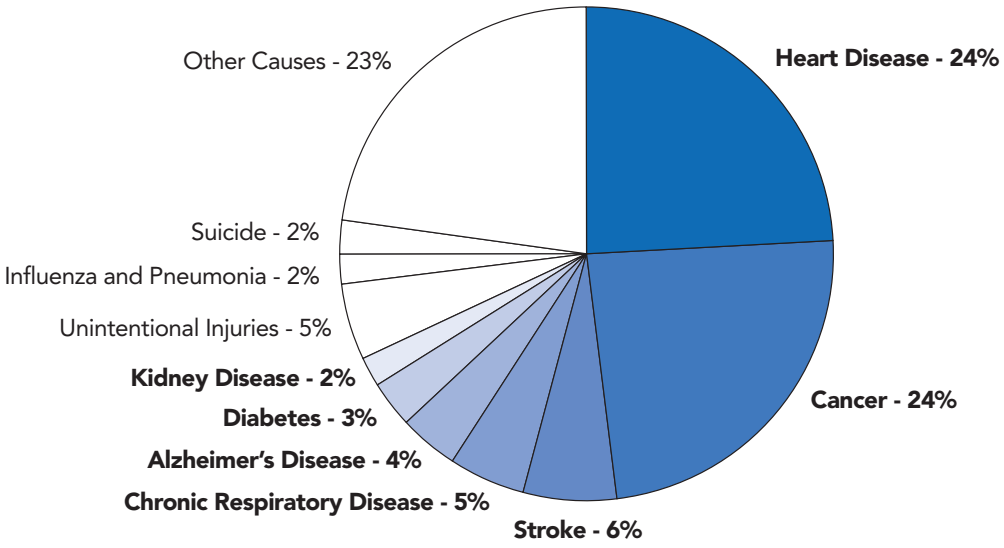


***Figure 1: The leading causes of death in Wisconsin, 2008. Chronic diseases (listed in bold and shaded in color) account for approximately two-thirds of all deaths.***

Nationally, medical costs for overweight and obesity (chronic conditions that don't appear specifically in Figure 1, but greatly contribute to the diseases shown) alone are estimated to be $147 billion annually - or 9.1% of U.S. health care expenditures – with half of these costs paid for publicly through the Medicare and Medicaid programs (Finkelstein, et al., 2009).

The good news is that chronic diseases are among the most preventable diseases because a small set of common risk factors are responsible for most of the leading chronic diseases:

- Unhealthy diet
- Insufficient physical activity
- Tobacco use and secondhand smoke exposure
- Excessive alcohol use

Table 1 provides a closer look at these major chronic disease risk factors and some examples of diseases for which they are responsible.

| | Chronic Diseases | | | | | |
|---|---|---|---|---|---|---|
| Modifiable Risk Factors | Heart Disease/ Stroke | Respiratory Disease/ Asthma | Type 2 Diabetes | Cancer | Oral Disease | Obesity |
| Unhealthy Diet | • | | • | • | • | • |
| Insufficient Physical Activity | • | | • | • | | • |
| Tobacco Use and Secondhand Smoke Exposure | • | • | • | • | • | |
| Excessive Alcohol Use | • | | | • | • | |

***Table 1: Modifiable risk factors and chronic diseases. A dot indicates a direct relationship between the risk factor and the disease.***

*It is easy to say that people need to take better responsibility for their own health, but unless we can create environments where healthy lifestyle choices are the easy or default choices, it will be difficult to sustain individual behavioral change.*

As can be seen from the types of risk factors that are important, the way we live in our communities today is directly related to whether we will develop a chronic disease later in our lives. It is easy to say that people need to take better responsibility for their own health, but unless we can create environments where healthy lifestyle choices are the easy or default choices, it will be difficult to sustain individual behavioral change. Implementing proven, evidence-based strategies that are focused on these four modifiable risk factors within a community can greatly reduce the number of people living with and dying from chronic diseases in Wisconsin, and simultaneously improve the financial health of the state.

**Fast Facts on Chronic Diseases and Risk Factors in Wisconsin**

- Over half of Wisconsin residents (56%) are living with with at least one chronic disease (BRFSS, 2007-08).
- One in five adults has not exercised in the last month (BRFSS, 2008).
- Three out of four Wisconsinites do not consume 5 or more fresh fruit or vegetable servings each day (BRFSS, 2007).
- One in five adults smokes cigarettes (Voskuil, et al., 2010).
- Nearly one in four adults binge drinks, and one in thirteen adults is a heavy drinker (BRFSS, 2009).
- 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.

*...the direct costs to the Medicaid system are estimated to total $1.15 billion annually in Wisconsin – this is equal to about 4% of the entire operating budget for the State.*

**So . . . How Does All This Relate to the Economy?**

Chronic diseases affect the economy in two major ways. The first is the direct costs of medical care to treat these diseases. As previously mentioned, the direct costs to the Medicaid system are estimated to total $1.15 billion annually in Wisconsin (CDC Chronic Disease Cost Calculator, 2010) – this is equal to about 4% of the entire operating budget for the State. Table 2 shows how this total breaks down by disease. Keep in mind that these numbers – as significant as they are – only represent costs to the Medicaid system. If costs to the private sector were included, the numbers would be significantly higher. For example, the total direct costs attributable to tobacco use and secondhand smoke exposure – which is only one of the four major risk factors described in this report – amount to $2.8 billion annually in Wisconsin (Voskuil, et al., 2010).

The other way chronic diseases affect the economy is through indirect costs, including lost productivity and lost wages. When someone is sick, he or she cannot work and cannot produce goods and services, thus leading to a further drain on the economy. Again, if we look at only tobacco use and secondhand smoke exposure, it is estimated that the indirect costs to Wisconsin's economy related to this risk factor alone are $1.7 billion annually (Voskuil, et al., 2010).

| Disease | Wisconsin Medicaid Costs |
|---|---|
| Stroke | $244,598,000 |
| Diabetes | $294,131,000 |
| Cancer | $47,533,000 |
| Heart Disease | $106,673,000 |
| Congestive Heart Failure | $47,505,000 |
| Hypertension | $408,018,000 |
| **TOTAL** | **$1,148,458,000** |

***Table 2: Estimated annual costs to the Medicaid system from six major chronic diseases. All figures come from the CDC's Chronic Disease Cost Calculator.***

**Prevention of Chronic Diseases is Powerful and Cost-effective**

*In Wisconsin, adequately funded community-based programs that address insufficient physical activity, unhealthy diet, and tobacco use would yield a return of $6.20 for every $1 spent over the course of five years, with a potential annual savings of $338 million.*

Given the huge economic impact of chronic diseases it is not surprising that their prevention yields a remarkable return on investment (ROI), as documented by the Trust for America's Health (2008). In Wisconsin, adequately funded community-based programs that address insufficient physical activity, unhealthy diet, and tobacco use would yield a return of $6.20 for every $1 spent over the course of five years, with a potential annual savings of $338 million. Remarkably, even such a substantial return can be considered an underestimate since it does not 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). The recent passage of national health care reform (The Patient Protection and Affordable Care Act) however, focuses on the importance of prevention as a means to reduce future health care costs.

Promoting healthy environments in communities is smart policy, because they enable community residents to live healthier lives. Studies increasingly suggest that businesses are also likely to benefit. For example, relatively low-cost environmental changes in the workplace that resulted in a 5% weight loss for overweight or obese employees would reduce annual medical/absenteeism costs by about $90 per person (Trogdon, et al., 2009).

**Back to the modifiable risk factors — Here are some key facts for you to know:**

**Unhealthy Diet**

Inactivity and an unhealthy diet influence an individual's caloric balance; together they represent a particularly powerful driver of obesity and related chronic diseases. According to a recent New England Journal of Medicine article, "the science base linking the consumption of sugar-sweetened beverages to the risk of chronic disease is clear. Many persons do not fully appreciate the links between consumption of sugar-sweetened beverages and health consequences, and they continue to make consumption decisions with imperfect information. ...Public support for food taxes has risen from 33% in 2001 to 54% in 2004." Support is highest when the raised revenue is directed to promoting health through childhood nutrition and obesity prevention programs (Brownell, et al., 2009).

There are many ways to measure a healthy diet, but some generally recognized measures include breastfeeding infants according to recommendations, eating the recommended amount of fruits and vegetables and limiting portion sizes and consumption of sugar-sweetened beverages and other energy-dense foods (Sherry, 2005).

An unhealthy diet is associated with an increased risk for heart disease and stroke, type 2 diabetes, cancer, oral diseases, and obesity (Table 1).

**Insufficient Physical Activity**

In adults, the recommended level of physical activity is to engage in at least 150 minutes of moderate-intensity physical activity or 75 minutes of vigorous-intensity physical activity per week. Children and adolescents should engage in at least 60 minutes of moderate- or vigorous-intensity activity each day.

Insufficient physical activity is associated with heart disease and stroke, type 2 diabetes, cancer, and obesity (Table 1).

**Tobacco Use and Secondhand Smoke Exposure**

There is no safe level of tobacco use for adults or children. The universally accepted recommendation is complete avoidance of tobacco products. This includes the use of cigarettes, pipes, cigars, bidis, kreteks, chewing tobacco, snuff, and snus.

Tobacco use and secondhand smoke exposure are associated with increased risk for heart disease and stroke, respiratory diseases and asthma, type 2 diabetes, cancer, and oral diseases (Table 1).

**Excessive Alcohol Use**

Unhealthy alcohol use can be measured by both the frequency of alcohol consumption (heavy drinking) and the amount consumed on one occasion (binge drinking).

Unhealthy alcohol use is associated with increased risk for heart disease and stroke, cancer, and oral diseases (Table 1).

**Environmental Factors – the Underlying "Fifth Risk Factor"**

All four of the major risk factors listed in this report are themselves influenced by environmental factors.

For a **healthy diet**, fresh fruits and vegetables need to be readily available and affordable in all communities. Likewise, for **physical activity**, the built environment (i.e., the man-made surroundings that provide the setting for human activity) needs to be safe, including paths for walking and parks for active play for children. To address **tobacco use**, it is vital that all people have access to smoke-free homes, work places and businesses to protect against the health effects of secondhand smoke and reduce the risk of youth initiating smoking. The availability of **alcohol**, in terms of number of bars and retailers as well as the settings in which the alcohol is consumed, affects the rates of alcohol abuse. Interventions designed to create environments that help people lead healthy lives are one important way to reduce the risk factors that lead to chronic disease.

**What can be Done to Address this Important Issue in Wisconsin to Save Lives and Improve the Economy?**

In considering how to address chronic diseases and their underlying risk factors through policy, it is helpful to have a conceptual framework for taking action. A recent commentary by Thomas Frieden (2010), the current Director for the Centers for Disease Control and Prevention (CDC), provides a five-tier pyramid model that shows the impact of different types of public health interventions (Figure 2). Efforts focused on the bottom of the pyramid are less dependent on individual effort and have greater population reach and effectiveness. However, for sustained impact, multiple interventions that address all levels of the pyramid must be implemented.

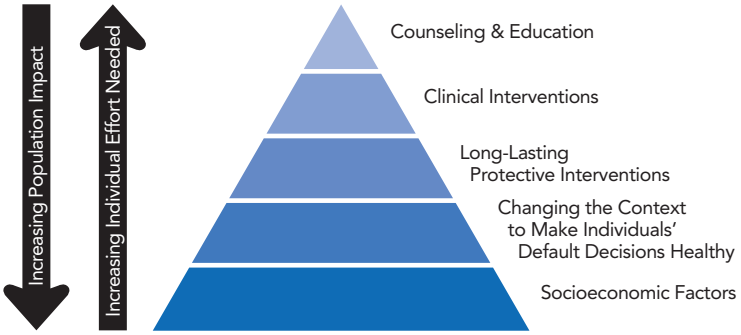


***Figure 2: The health impact pyramid. Adapted from Frieden, 2010.***

In general, successful and smart policies will be those that:

- Help people live healthier lives by making the healthy choice the easy or default choice.
- Create environments that support and encourage healthy lifestyles.
- Support programs that address and improve health behaviors.
- Invest in public health programs that address chronic diseases and the risk factors that cause them.

More specifically, Table 3 outlines some evidence-based policies from the University of Wisconsin School of Medicine and Public Health's 2009 report, *What Works? Policies and Programs to Improve Wisconsin's Health*. It is a testament to the outstanding leadership shown by Wisconsin legislators that some of these strategies have been at least partially addressed with recent legislation (as noted by the green shaded boxes in Table 3). Even more lives and money could be saved if more of these smart policies were supported in future legislative sessions. It is also important to note that addressing chronic disease is an ongoing process. Even those areas with some legislation passed must still be evaluated regularly, and cannot be considered "solved."

| **Risk Factor: Unhealthy Diet** | |
|---|---|
| **Policy** | **Status of Actions Taken** |
| Breastfeeding promotion programs | Right to Breastfeed bill signed into law March 10, 2010 |
| Label foods served in public eating outlets to show serving size and nutritional content | |
| Use of point-of-decision prompts to highlight fruits and vegetables and promote water consumption | |
| Farm-to-school programs | Statewide Farm-to-School bill signed into law May 12, 2010 to establish the infrastructure. However, no funding was attached to support it. |
| "Snack taxes," including on food and sugared soft drinks | |
| **Risk Factor: Insufficient Physical Activity** | |
| **Policy** | **Status of Actions Taken** |
| Developing bicycle/pedestrian master plans | Complete Streets bill signed into law May 13, 2010 |
| Offer grants/funding for mixed use development | |
| Expand school-based physical education classes | |
| Community promotion of recreational activities | |
| Workplace incentives for physical activity | |
| **Risk Factor: Unhealthy Diet and Insufficient Physical Activity Combined** | |
| **Policy** | **Status of Actions Taken** |
| Multi-component interventions aimed at diet, physical activity, and cognitive (behavioral) change | |
| **Risk Factor: Tobacco Use and Secondhand Smoke Exposure** | |
| **Policy** | **Status of Actions Taken** |
| Increase funding for comprehensive tobacco program. (Program funding in Wisconsin was reduced in 2009. CDC recommends a $64.3 million annual investment for an effective program. Wisconsin's program is currently funded at about 10% of that level – $6.85 million annually.) | |
| Increase cigarette tax | Tax raised from $.77/pack to $1.77 in 2008, and to $2.52 in 2009 |
| Statewide ban on smoking in public places | Passed effective July 5, 2010 |
| **Risk Factor: Excessive Alcohol Use** | |
| **Policy** | **Status of Actions Taken** |
| Responsible beverage service | Mandatory training enacted in 1993 |
| Increase penalties for drunk driving offenses | |
| Multi-component interventions with community mobilization to reduce alcohol-impaired driving | |
| Increase alcohol excise tax | |

***Table 3: Policies that work to address the major chronic disease risk factors. Successful action is noted in green.***

## Additional Supporting Facts

### Obesity

- Obesity is a risk factor for type 2 diabetes, cardiovascular disease, certain cancers, asthma, arthritis, high blood pressure, high cholesterol levels, and depression (Guh, et al., 2009; Liebhart, et al., 2008).
- Obesity is also related to poor reproductive outcomes, including infertility, hypertension or diabetes during pregnancy, cesarean birth, birth trauma, and stillbirth (Guh, et al., 2009; Liebhart, et al., 2008).
- Nearly a third (29%) of Wisconsin adults are obese, and about two thirds (66%) are either overweight or obese (CDC, 2009a).
- About 23% of Wisconsin high school students are overweight or obese (CDC, 2009c).
- Of the children, aged 2 through 4, participating in the Wisconsin Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), 31% are overweight or obese (CDC, 2009b).
- Based on current trends, Wisconsin's obesity rate is likely to increase by more than a third by 2018 (United Health Foundation, 2009).

### Tobacco

- Nearly 8,000 Wisconsin residents die from tobacco-related illnesses each year (Wisconsin Burden of Tobacco, 2010).
- 14% of births in Wisconsin are to women who smoke during pregnancy (Wisconsin Births and Infant Deaths, 2008).
- An estimated 900 Wisconsin non-smoking adults die each year from secondhand smoke exposure (Campaign for Tobacco-Free Kids, 2010).
- Each year, 7,900 Wisconsin kids become new daily smokers. That equals 22 new youth smokers each day (Campaign for Tobacco-Free Kids, 2010).
- Tobacco cost Wisconsin nearly $4.5 billion annually in health care costs and lost worker productivity (Wisconsin Burden of Tobacco, 2010).
- Each year, the tobacco industry spends $274 million in marketing and advertising in Wisconsin, compared to the state's investment of $6.8 million annually for tobacco prevention (Campaign for Tobacco-Free Kids, 2010).
- The Centers for Disease Control and Prevention recommends $64.3 million be spent annually for tobacco prevention and control in Wisconsin (CDC, 2007).

### Alcohol

Each year in Wisconsin, alcohol is responsible for

- 1,624 deaths (Wisconsin resident death certificate data and FARS, 2008).
- 4,319 motor vehicle injuries (Wisconsin Traffic Crash Facts, 2008).
- 50,119 hospitalizations (Wisconsin hospital inpatient discharge database, 2008).
- 94,029 arrests (Crime and Arrests in Wisconsin, 2008).
- About 480,000 people suffering with dependence or abuse (NSDUH, 2007-2008).
- $74 million in public funds spent on hospitalization and treatment (Human Services Reporting System, 2008).

## GLOSSARY

**Bidi** – A thin, often flavored, South Asian cigarette filled with tobacco flake and wrapped in a tendu leaf tied with a string at one end.

**Chronic diseases** – Illnesses that last a long time, do not go away on their own, are rarely cured, and often result in disability later in life. Examples of the most common chronic diseases include heart disease, stroke, cancer, diabetes, asthma, arthritis, obesity, and oral disease.

**Chronic disease prevention** – The goal is 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).

**Kretek** – A cigarette made with a blend of tobacco, cloves and other flavors.

**Mixed use** – Combining residential, commercial, industrial, office, institutional, or other land uses in a single site.

**Risk factor** – Something that increases the likelihood of developing a disease or condition. There are two types of risk factors: modifiable and non-modifiable. Modifiable risk factors can be changed through behavior and lifestyle modifications, such as eating a healthy diet, while non-modifiable risk factors (like age and genetics) cannot be altered. There are numerous modifiable risk factors for chronic diseases, but the four modifiable risk factors of unhealthy diet, insufficient physical activity, tobacco use and secondhand smoke exposure, and excessive alcohol use account for a large portion of all chronic diseases.

**Secondhand smoke** – The combination of smoke from the burning end of the cigarette and the smoke breathed out by smokers; presents a significant health risk.

**Snus** – A moist powder tobacco product originated from a variant of dry snuff, consumed by placing it under the lip for extended periods of time.

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Wisconsin Division of Public Health
1 West Wilson Street • Madison, WI 53701

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