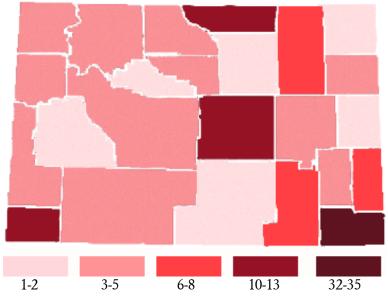
Burden Report

Vyoming is the ninth largest state in terms of land mass in the U.S.A.; covering approximately 97,100 square miles. The 2005 census estimate for Wyoming is 509,294, which is the smallest population of any state, resulting in an average of 5.1 persons per square mile. The Wyoming Economic Analysis Division estimates that 34.9% of the state's population lives in rural locations (see map below).

Persons per Square Mile: 2005, Wyoming by County



Source: U.S. Census Bureau, Population Estimates Program

Wyoming continues to see an increase in the age of its population. According to the Health Resources and Services Administration (HRSA), the total population of Wyoming is projected to grow 36% between 2000 and 2020, while the population of those 65 and over is projected to grow 113% during

the same time period. Utilizing vital statistics data for 2005 and 2006, an average of 84.2% of all heart disease related deaths in Wyoming

were persons age 65 and over. Using the same information, an average of 87.8% of all stroke related deaths in Wyoming were from the same age group.

While some health behaviors in Wyoming residents are encouraging, a great deal of work is needed to combat some of the major cardiovascular disease* (CVD) risk factors, including lack of physical activity, increased weight gain, high blood pressure*, and tobacco use.

> This plan is an important step comprehensive program to decrease the prevalence and incidence of heart disease and stroke in Wyoming's population through education, interaction, interventions.

in establishing a and community

The paragraph on the next page addresses CVD deaths in Wyoming. It must be noted that not all Wyoming hospitals report discharge data, nor does this plan account for those people who sought care outside of

Wyoming. The total numbers

are not representative of the entire state, and this does not undermine the fact that cardiovascular disease places a large burden on the state of Wyoming.

Cardiovascular disease is the number one cause of death in Wyoming.



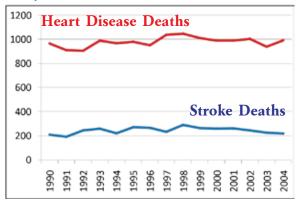
Cardiovascular disease (CVD), including coronary heart disease and stroke, is the number one cause of death in the state of Wyoming accounting for almost 37% of all deaths in 2004. From 1990-2004, a total of 14,669 Wyoming residents died from heart disease. This is an average of 978 men, women, and sometimes children dying from heart disease each year. According to the American Heart Association. 1 in every 3 adults in America has some form of cardiovascular disease (i.e., heart disease, peripheral artery disease*, or stroke). Utilizing and applying this same rate to the adult population in Wyoming (approximately 395,212 in 2005), means an estimated 131,700 adults in the state have some form of cardiovascular disease.

The table below represents the total number of deaths and yearly average of deaths in Wyoming residents from 1990-2004 for the top four diseases.

Cause of Death	Total Number	Yearly Average
Heart Disease	14,669	978
Cancer	12,488	832
Chronic Lower Respiratory Disease	4,030	269
Stroke	3,650	243

Figure 1 represents the total number of deaths per year in Wyoming for heart disease and stroke during the same time period.

Figure 1: Wyoming Heart Disease and Stroke Death Totals, 1990-2004



Source: Wyoming Vital Records

The figures on the following page represent age adjusted mortality rates, per 100,000 persons, by county for 2000-2004 for heart disease (see figure 2) and stroke (see figure 3) in Wyoming.





In terms of morbidity and economics, this may burden the state more than cancer, chronic lower respiratory disease, and unintentional accidents (the next three highest causes of death) combined. Stroke is the number one cause of disability in the nation with an average cost of \$140,048 per person for an ischemic stroke according to the American Heart Association (circ. ahajournals.org). This cost is a mean average and includes hospitalization, rehab, and follow-up care. The costs in the reference

article were converted to 1999 dollars by use of the medical component of the consumer price

Stroke is the number one cause of disability in Wyoming.



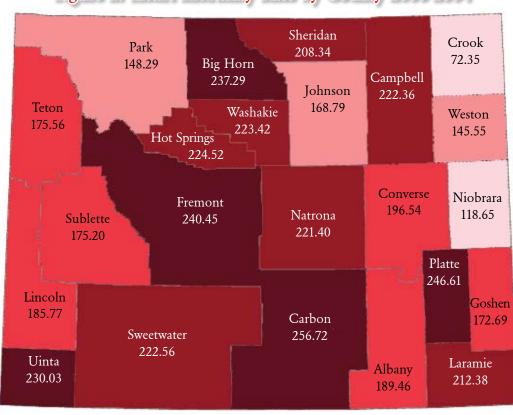
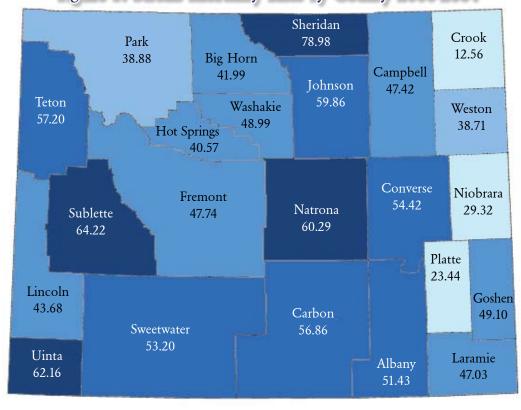
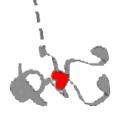


Figure 2: Heart Mortality Rate by County 2000-2004







index. It is estimated that the direct and indirect cost of stroke will be \$65.5 billion in 2008. This plan will examine the burden of cardiovascular disease on the state of Wyoming by utilizing data collected from a variety of sources including the 2000 United States Census, the 2006 Behavioral Risk Factor Surveillance Survey (BRFSS), and Discharge Data from Wyoming hospitals.

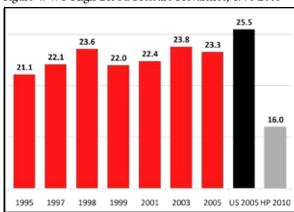
Major Risk Factors

The major risk factors associated with CVD are prevalent in Wyoming's population.

According to the 2005 Wyoming Behavior Risk Factor Surveillance System Survey (BRFSS):

- 23.3% of Wyoming's adult population reported having high blood pressure* (see figure 4),
- 27.9% reported having high blood cholesterol, and
- 73.8% said they had their blood cholesterol checked in the past five years.

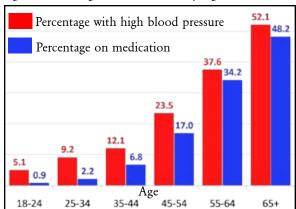
Figure 4: WY High Blood Pressure Prevalence, 1995-2005



Source: 2005 WY Behavior Risk Factor Surveillance System Survey

Figure 5 breaks high blood pressure rates down further into percent by age and percent of those on blood pressure medication. This figure does not indicate that the respondent's blood pressure is under control, but merely that the respondent is addressing their hypertension through the use of blood pressure medication (see figure 5).

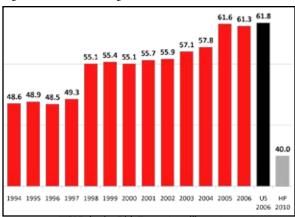
Figure 5: WY High Blood Pressure by Age, 2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

According to 2006 BRFSS data, using the weight and height ratios in the Body Mass Index (BMI*), 61.3% of Wyoming residents are overweight with a BMI ≥ 25 (see figure 6);

Figure 6: WY Overweight Prevalence, 1994-2006



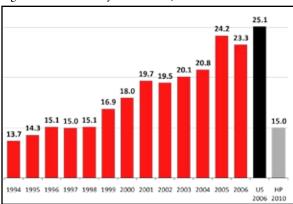
Source: 2006 WY Behavior Risk Factor Surveillance System Survey

An asterisk (*) indicates the word is defined in the Glossary, pages 29-30.



23.3% were considered obese with a BMI \geq 30 (see figure 7);

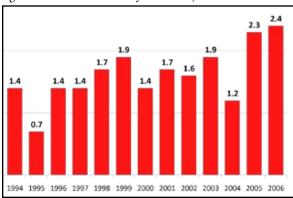
Figure 7: WY Obesity Prevalence, 1994-2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

and 2.4% were extremely obese with a BMI \geq 40 (see figure 8).

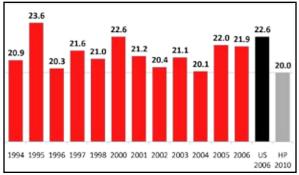
Figure 8: WY Extreme Obesity Prevalence, 1994-2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

The 2005 and 2006 BRFSS surveys also indicated that 22% of adults in the state do not engage in any leisure time physical activity (see figure 9).

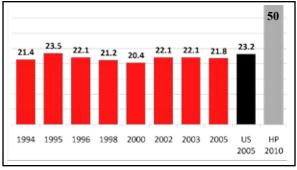
Figure 9: WY No Leisure Time Physical Activity Prevalence, 1994-2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

Only 21.8% of Wyoming citizens consume at least five servings of fruits or vegetables per day (see figure 10).

Figure 10: WY Fruit and Vegetable Consumption, 1994–2005



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

These figures clearly indicate that many Wyoming adults have behaviors and other risk factors that put them at increased risk for cardiovascular disease.

Adults are not the only citizens affected. According to the 2007 Youth Risk Behavior Survey (YRBS), 53.8% of high school youth had not participated in at least 30 minutes of vigorous physical activity on five or more of the past seven days of the survey. The same survey also revealed that only 17.3% of high school youth ate fruits or vegetables 5 or

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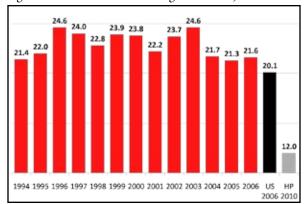
more times per day in the 7 days prior to the survey..

This source of information indicates that 71.4% of high school youth may not be getting the minimum recommended amount of rigorous exercise. Furthermore, 82.7% of our high school youth may not be getting the daily recommended servings of fruits and vegetables. This deficit of proper nutrition and exercise may lead to a decline in cardiovascular health.

Tobacco

Tobacco use (e.g., cigarettes, cigars, and smokeless) is the number one major modifiable risk factor related to heart disease and stroke prevention. Wyoming is no different from any other state when battling this addiction. Multiple statewide programs have been implemented to reduce the impact of tobacco use. There are also numerous resources across the state which use a variety of sources and techniques in the effort to reduce the number of smokers. The efforts of these groups have decreased the use of cigarettes from 23.8% to 21.6% since the year 2000 (see figure 11).

Figure 11: WY Current Smoking Prevalence, 1994-2006

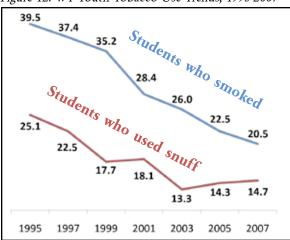


Source: 2006 WY Behavior Risk Factor Surveillance System Survey

While these tobacco cessation programs have shown promise at slowing the increase in the number of smokers (as evidenced by the BRFSS trend data), there is still work that needs to be done.

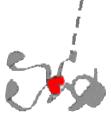
The trend of tobacco behavior among youth is just as encouraging. According to the Youth Risk Behavior Survey (YRBS), in the past twelve years (1995-2007) the rate of students who smoked cigarettes one or more times in the 30 days preceding the survey has decreased 19 percentage points. Likewise, the percentage of youth who smoked cigarettes 20 or more of the preceding 30 days has decreased 9.5 percentage points from 1995-2007. Smokeless tobacco (chewing tobacco, snuff) use among youth has also had a decrease of 10.4 percentage points over the past 12 years (see figure 12).

Figure 12: WY Youth Tobacco Use Trends, 1995-2007



Source: Wyoming Youth Risk Behavior Survey, 2007

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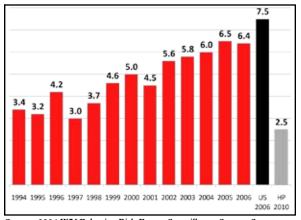


Diabetes

Diabetes Mellitus is a metabolic disease affecting the way the human body is able to produce or respond to the hormone insulin. Diabetes results when the pancreas cannot produce enough insulin to breakdown the glucose in the blood, which results in hyperglycemia or high blood sugar. This high blood sugar affects other organs and systems in the body and results in severe and potentially life-threatening complications, including cardiovascular disease and stroke, hypertension, lower-extremity amputations, neuropathy, blindness, and end-stage renal disease. Diabetes falls into two main categories: Type 1 (insulin dependent) or Type 2 (usually not insulin dependent initially).

According to the 2006 Wyoming Behavioral Risk Factor Surveillance Survey, 25,000 adults in Wyoming, or 6.4% of the adult population are estimated to have been diagnosed with diabetes. The prevalence of diabetes in Wyoming adults has been increasing over the years and has nearly doubled the rates from 1994-1998, which averaged about 3.5% (see figure 13).

Figure 13: WY Diabetes Prevalence, 1994-2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

The increase in diabetes prevalence in Wyoming is similar to the increase in obesity prevalence.

The most life-threatening complication of diabetes includes heart disease and stroke. In fact, heart disease affects people with diabetes twice as often as people without diabetes. In people with diabetes, the process of atherosclerosis appears to be accelerated due to narrowing of the arteries, which results in the loss of arterial flexibility.

The link between diabetes and cardiovascular disease is an important one and can go undetected for many years unless the individual partners with a physician for a yearly physical and lab work.

Cardiovascular disease complications develop at an earlier age in people with diabetes. In fact, it is often the cardiovascular disease that exposes the diabetes. Diabetes is not only a leading risk factor for heart disease, but it is also a high risk factor for stroke. People with diabetes are two to four times as likely to suffer a stroke and have recurrences. As with heart disease, atherosclerosis impacts the arteries that supply blood to the brain by narrowing the diameter of the artery. Once the artery fully occludes or ruptures, the patient suffers a stroke.

Access to Healthcare and Lack of Health Insurance

Not to be left out of the discussion on the burden of CVD* to Wyoming are the issues of access to healthcare and lack of health insurance. Although access to healthcare is affected by the lack of health insurance, they

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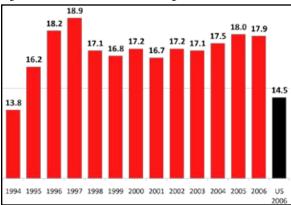


are different issues. Access to healthcare in Wyoming involves the following:

- a person's ability to obtain healthcare when they have health insurance,
- access to a personal doctor, and
- the ability to pay the doctor when the healthcare coverage is insufficient or nonexistent.

Lack of health insurance limits a persons options for obtaining preventive healthcare. Without health insurance or access to healthcare, the underserved have a limited means to preventive healthcare. Uncontrolled blood pressure, blood cholesterol, and blood sugar are "silent killers" needing preventive healthcare. Consequently, lack of access and insurance have an impact on the burden of chronic disease in Wyoming. A total of 17.9% of Wyoming adults reported having no health care coverage according to the 2006 BRFSS (See figure 14).

Figure 14: No Healthcare Coverage, 1994-2006

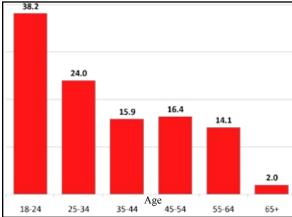


Source: 2006 WY Behavior Risk Factor Surveillance System Survey

Figure 15 breaks lack of healthcare coverage down further into age groups. More than one third (38.2%) of those in the 18-24 year age group reported no health coverage, as did

nearly one fourth (24%) of those in the 25-34 year age group (see figure 15).

Figure 15: Uninsured by Age Group, 2006

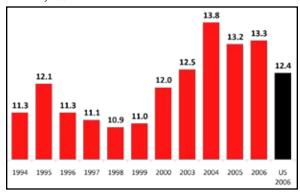


Source: 2006 WY Behavior Risk Factor Surveillance System Survey

These young adults are at increased risk for not getting the preventive health services necessary to reduce chronic disease burden later in life.

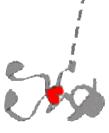
As figure 16 illustrates, 13.3% of Wyoming adults reported in 2006 that they were unable to see a doctor due to cost in the past year (see figure 16).

Figure 16: Unable to See Doctor in Past Year Because of Cost, 1994-2006



Source: 2006 WY Behavior Risk Factor Surveillance System Survey

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As this burden report illustrates, managing risk factors is key to preventing unnecessary cardiovascular disease burden to the state of Wyoming. The ability of citizens to access and pay for healthcare is a major factor with the ongoing efforts by the healthcare community to prevent chronic disease; and cardiovascular disease is no exception.



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