MONTANA CLINICAL COMMUNICATION AND SURVEILLANCE REPORT

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MONTANA
CARDIOVASCULAR HEALTH AND DIABETES PROGRAMS

Montana Department of Public Health and Human Services
Chronic Disease Prevention and Health Promotion Program
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HYPERTENSION: A PREVIEW OF THE BURDEN

WHAT'S INSIDE

BACKGROUND

Although effective treatments for hypertension have been widely available for years, hypertension continues to be a major public health problem.[1] The number of persons with hypertension in the United States (US) has increased from an estimated 50 million in 1988-1994 to 65 million in 1994-2004, and the number of persons with uncontrolled hypertension also increased despite improvements in treatment and control rates over the past two decades. Public health programs are turning attention to hypertension because of its important impact on heart disease, stroke and kidney failure. The most current figures from the National Health and Nutrition Examination Survey from 1994-2004 show that 28% of Americans with hypertension are unaware of their hypertension, 39% are aware but are receiving no therapy and 65% of those who are being treated are not under control.[2]

Montana has not been spared. Several data sources show the impact of hypertension statewide. Participants in several telephone surveys reported the diagnosis of hypertension and related conditions. And mortality data for a number of conditions indicate the role of hypertension as an important contributor to mortality from a variety of causes including heart failure, now the most common discharge diagnosis for Medicare

beneficiaries.[3] This report is the first in a series about hypertension and describes the overall prevalence of self-reported hypertension and of hypertension-related mortality.

METHODS

Statewide Behavioral Risk Factor Surveillance System (BRFSS)

The Montana BRFSS is an annual statewide telephone survey of Montana adults (18 years and older) which gathers information on behavioral risk, health status, use of preventive services, as well as attitudes and knowledge of healthcare and healthcare practices. Centers for Disease Control and Prevention (CDC) BRFSS protocols were followed for survey sampling and interview. Montana BRFSS data were analyzed for the time-period of 1995 to 2007. For Montana, the data are weighted to account for the differences in the probability of selection. During the same time-period, for the US population (including the District of Columbia), the median of the states' prevalences was used.

For the statewide BRFSS, one randomly selected adult (18 years or older) was eligible to participate in the telephone survey. Respondents were asked, "Have you ever been told by a doctor, nurse or other health professional that you have high blood pressure?", "Have you ever been told by a doctor, nurse or other health professional that your blood cholesterol is high?", and "Have you ever been told by a doctor that you have diabetes?" Respondents who reported pre-diabetes or borderline diabetes were not considered to have diabetes. Female respondents who had been told by a doctor or other healthcare professional that they had gestational diabetes or high blood pressure during pregnancy were not considered to have diabetes or high blood pressure, respectively. Respondents who reported smoking every day or some days during the past month were categorized as current smokers, and former smokers were defined as those smoking at least 100 cigarettes in their lifetime but not currently smoking. Self-reported height and weight were used to calculate body mass index (BMI, kg/m^2).

Respondents who reported a history of a myocardial infarction or heart attack; angina or coronary heart disease; or stroke were categorized as having cardiovascular disease. Respondents were also asked how they would describe their health and whether they had any kind of healthcare coverage, including health insurance, prepaid plans such as HMOs, or government plans.

Mortality

Montana death record information is collected by the Montana Department of Public Health and Human Services, Office of Vital Statistics (OVS) and was analyzed for the time-period of 1999 to 2007. The Montana death record information lists one underlying cause of death and up to 20 contributing causes of death. International Classification of Diseases (ICD) codes were used to classify underlying and contributing causes of death. The following ICD-10 codes were used to categorize cardiovascular disease and hypertension as underlying causes of death, I00-I78 and I10-I15, respectively. Hypertension, as a contributing cause of death, was computed if listed in any of the 20 contributing causes of death fields. Estimates of adult Montanans with

hypertension were calculated using the 2007 prevalence estimates from the Montana BRFSS.[4] The Montana adult population (18 years and older) was based on estimates from the National Center for Health Statistics.[5] Data analysis was completed using SPSS V.17.0 (SPSS Inc., Chicago, IL). For the statewide BRFSS, data analysis for weighting purposes also included the use of Complex Samples software (SPSS Inc., Chicago, IL).

RESULTS

From 1995 to 2007, the prevalence of high blood pressure increased from 19.5% to 25% for all Montana adults, a relative increase of 29%. Therefore, in 2007, an estimated 200,000 of the approximate 738,000 adult Montanans (18 years and older) had high blood pressure. The prevalence of high blood pressure, among the US population, increased from 22.2% in 1995 to 28.1% in 2007, resulting in a relative increase of 26%. Among Montana's American Indian (AI) adult population, the prevalence of high blood pressure decreased from 31.8% in 2001 to 23.4% in 2007, a decrease of 8% percentage points or almost 26% (Figure 1). Due to small sample sizes and large confidence intervals, the decrease in high blood pressure prevalence among Montana's AI adult population is not significant. For Montana's white population, the high blood pressure prevalence increased from 19.4% in 1995 to 25.3% in 2007, a relative increase of 30%. In 2007, the percentage of respondents who reported high blood pressure increased as age increased for white Montanans and Montana AIs (Figure 2).

Figure 3 illustrates the prevalence of hypertension by diabetes status. Over a ten-year period (1997 to 2007), respondents with diabetes reported a greater and increasing prevalence of hypertension when compared to residents without diabetes. In 2007, the prevalence of hypertension among people who reported having diabetes was 66%, an increase

Figure 1. Prevalence of high blood pressure for Montana American Indians, Montana whites and the US, 1995 to 2007.

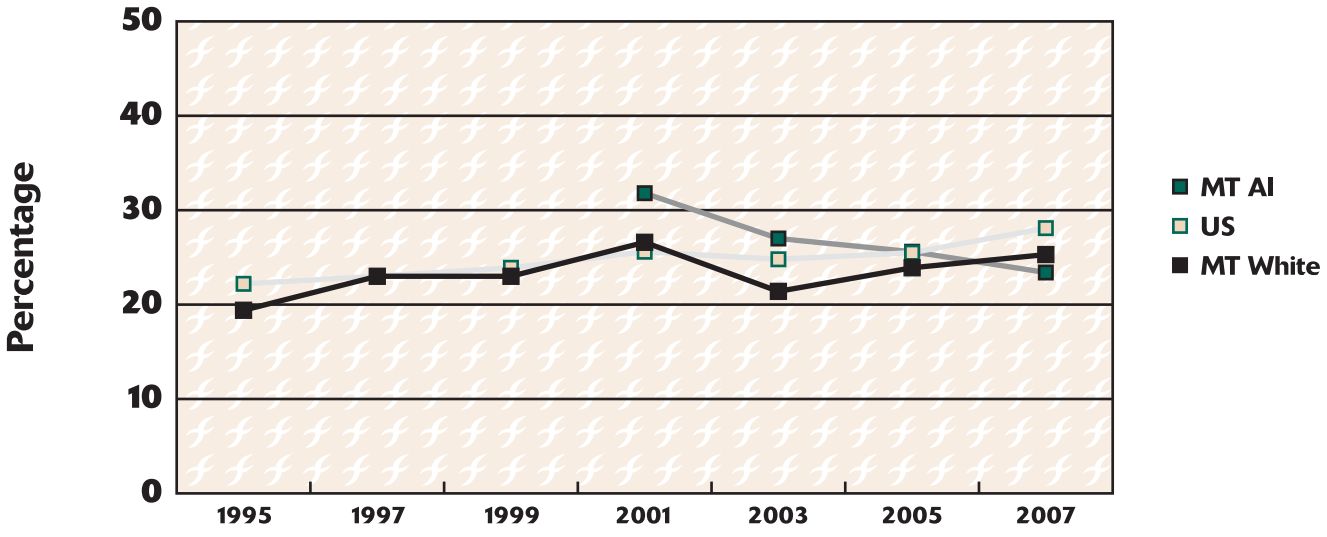
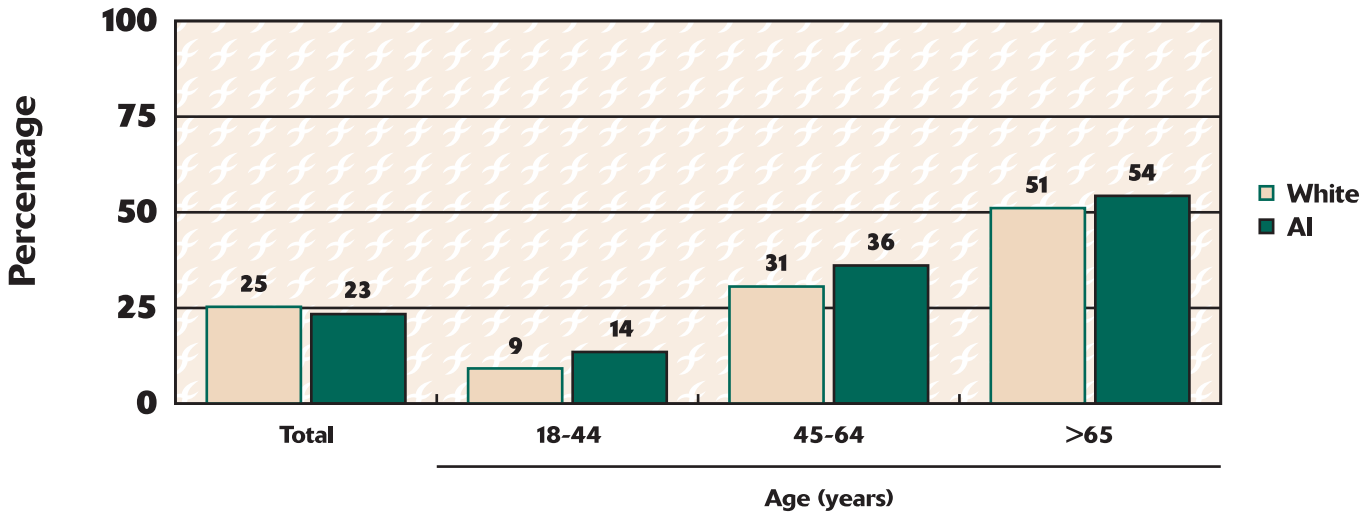


Figure 2. Percentage of Montana adults with hypertension by age and race, 2007.



of 17 percentage points over the 49% reported in 1997. Among respondents without diabetes, the prevalence of high blood pressure has remained constant over the same ten-year period at 22%.

In 2007, among Montana's white and AI adult respondents, there was a higher prevalence of hypertension among those with insurance, in poor to fair health, with cardiovascular disease, with diabetes, former smokers and with a higher BMI (Table 1).

In Montana, from 1999 to 2007, 884 deaths listed hypertension as the underlying cause of death and an additional 5,349 deaths listed hypertension as a contributing cause. These 6,233 hypertension-related deaths represent 8.3% of all deaths in Montana during this time-period. From 1999 to 2007, of Montana residents with hypertension as the underlying cause of death, 97% were white, 62% were female and 74% were 75 years or older (Data not shown). The common underlying causes of death, with hypertension listed as any contributing cause of death and not an underlying cause of death, are similar between Montana's white and AI populations (Figures 3 & 4), although hypertension-related deaths with diabetes as an underlying cause of death are over two times higher in AIs compared to whites (18% vs. 8%).

DISCUSSION

In Montana, as with the rest of the nation, the prevalence of hypertension continues to rise. The picture of hypertension presented in this report underlines the importance of the condition in Montana. One quarter of Montana adults now report being diagnosed with hypertension. Hypertension is the most common reason for visits to primary care nationwide.[6] Yet, many other factors can contribute to the control of hypertension including weight loss, reduction in sodium intake and adherence to prescribed medication. As the National Heart, Lung, and Blood Institute prepares new guidelines for the treatment and control of hypertension, the Montana Cardiovascular Health (CVH) Program is conducting a statewide survey of

Figure 3. Prevalence of high blood pressure by diabetes status, Montana, 1997 to 2007.

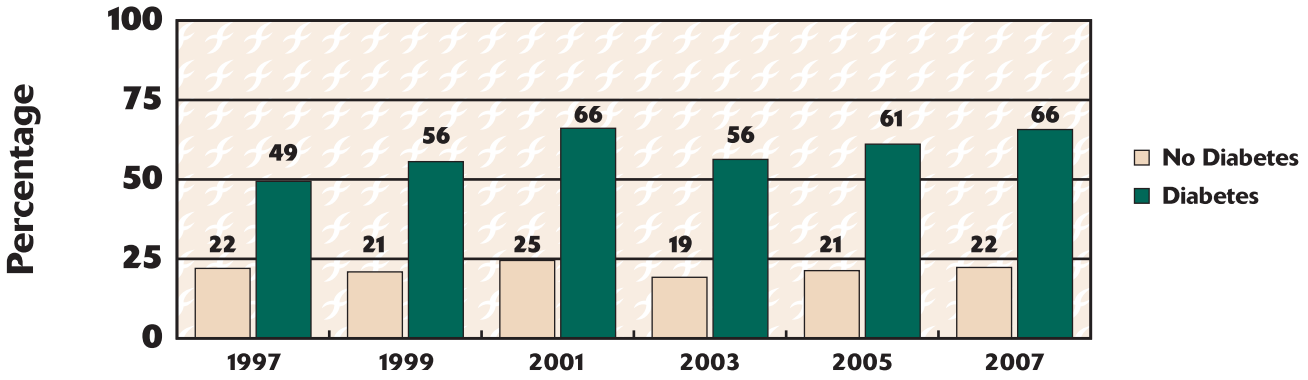
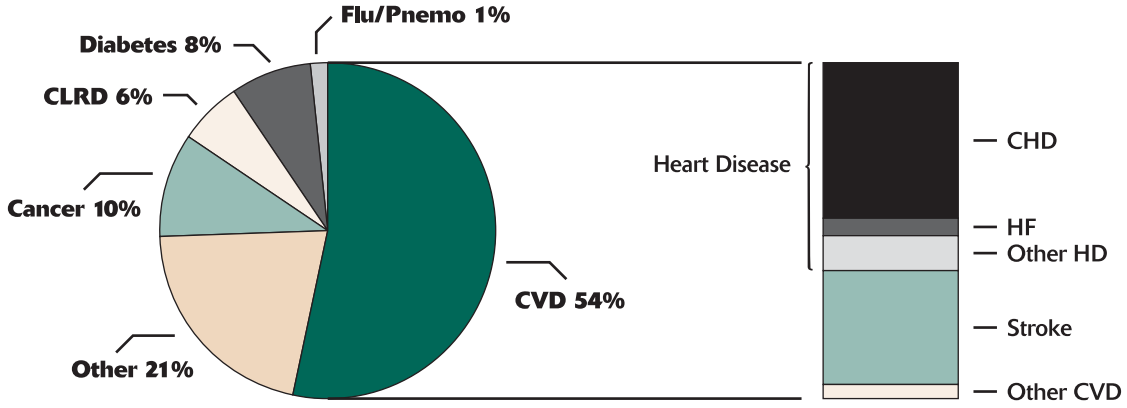


Table 1. Prevalence of hypertension among adult (18 years and older) Montanans, 2007.

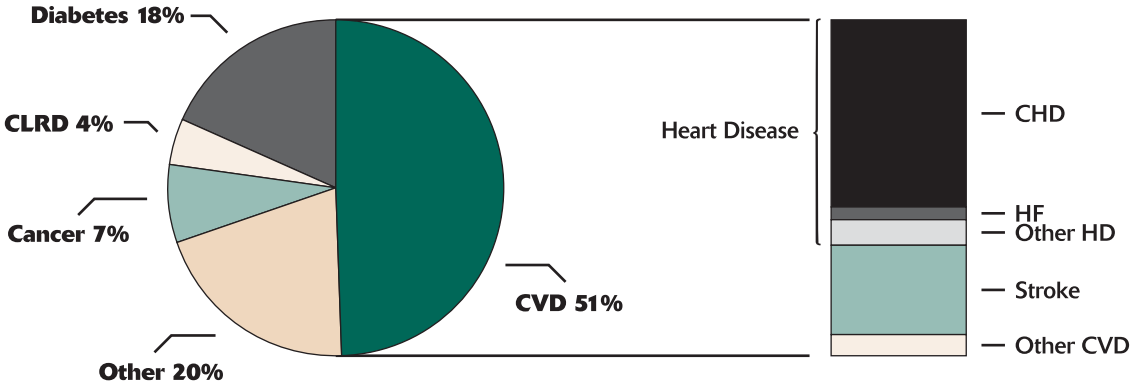
Characteristics	White	American Indian
Total	25	23
Gender		
Male	25	24
Female	25	23
Health Insurance		
Yes	27	30
No	19	13
Health Status		
Good - Excellent	22	18
Fair - Poor	45	42
CVD		
Yes	61	53
No	22	21
Diabetes		
Yes	66	55
No	23	19
Smoking Status		
Current	24	26
Former	34	35
Never	21	13
BMI Category (kg/m^2)		
<25.0	16	12
25 - 29.9	27	26
≥30.0	38	31

Figure 4. Underlying causes of death where hypertension is listed as a contributing cause and not an underlying cause of death, Montana white population, 1999-2007.



CLRD – Chronic lower respiratory disease · HF – Heart failure · CVD – Cardiovascular disease

Figure 5. Underlying causes of death where hypertension is listed as a contributing cause and not an underlying cause of death, Montana American Indian population, 1999-2007.



CLRD – Chronic lower respiratory disease · HF – Heart failure · CVD – Cardiovascular disease

individuals with hypertension to assess patient awareness and practices related to hypertension. Information from the survey will be reported to help Montana healthcare providers treat and achieve blood pressure control in their patients with hypertension. In the upcoming year, the Montana CVH Program is launching a hypertension initiative. In conjunction with the initiative, the CVH Program will be forming a statewide Hypertension Workgroup of health professionals to focus on improving hypertension control of Montanans. For more information, contact Marilyn McLaury (406-444-6968 or e-mail: mmclaury@mt.gov) or Crystelle Fogle (406-947-2344 or e-mail: cfogle@mt.gov).

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[6] Chobanian AV. Impact of non-adherence to antihypertensive therapy. Editorial. Circulation 2009; 120:1558-60.

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FEBRUARY 4-5, 2010

Cody Hotel & Inn - Cody, Wyoming

The Cardiovascular, Diabetes and Cancer Education Update Series will be held on Thursday and Friday, February 4th and 5th, 2010. For more information, contact Dian True at (307) 527-1947 or e-mail dtrue@billingsclinic.org.

MONTANA CARDIOVASCULAR HEALTH SUMMIT

APRIL 8-9, 2010

Hilton Garden Inn - Missoula, Montana

The Cardiovascular Health Program's annual professional conference will be held on Friday, April 9th, 2010 in Missoula, Montana at the Hilton Garden Inn. This year, a pre-conference Hypertension Workshop will be held on Thursday, April 8th, 2010 at the same location. For more information, contact Crystelle Fogle at (406) 947-2344 or e-mail cfogle@mt.gov.

WHAT ARE THE MONTANA DIABETES PREVENTION AND CARDIOVASCULAR HEALTH PROGRAMS AND HOW CAN WE BE CONTACTED?

The Montana Diabetes Control and Cardiovascular Health Programs are funded through cooperative agreements with the Centers for Disease Control and Prevention and Health Promotion (1U58DP001977-01), the Division for Heart Disease and Stroke Prevention (5U50 DP000736-03) and through the Montana Department of Public Health and Human Services.

The mission of the Diabetes Control and Cardiovascular Health Programs is to reduce the burden of diabetes and cardiovascular disease among Montanans. Our web pages can be accessed at http://www.diabetes.mt.gov and http://montanacardiovascular.state.mt.us.

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