

MONTANA'S STATE PUBLIC HEALTH ASSESSMENT 2012

MONTANA DEPARTMENT OF PUBLIC HEALTH AND HUMAN SERVICES
PUBLIC HEALTH AND SAFETY DIVISION



A Message from the Director



Thank you for your interest in the health of Montana's citizens. This report is intended to inform all Montanans about some key opportunities to improve the health of our citizens.

It is the hope of the Department of Public Health and Human Services (DPHHS) that readers of this report take action by:

- ❖ Targeting their work and resources on the prevention of leading causes of death and disability in Montana
- ❖ Informing state, local and tribal policymakers about the health issues that have the greatest impact on the populations they represent
- ❖ Improving their own health and the health of those around them

The DPHHS is committed to leading the state in health improvement by targeting our resources on programs and practices that have the most impact on health. However, we cannot do this alone. It is important that as a state we work together. This report is the first step in that process and I thank the DPHHS staff and partners that have worked together to bring you this information.

Working with you for a healthier Montana,

Anna Whiting Sorrell
Director

EXECUTIVE SUMMARY

Immunizations, improved sanitation, and availability of antibiotics were key advances that led the transition from infectious causes of sickness and death that prevailed a century ago to the chronic disease causes that prevail today. These two medical advances that we take for granted today changed the face of personal and public health forever. Today sickness, disability, and premature death are almost entirely under personal control through lifestyle choices and compliance with health care recommendations. Public policy also plays a major role. The impacts that recent national health care reform initiatives will have on Montana's population are uncertain. Nevertheless, we can assess our current health status and make solid recommendations to achieve improvements.

Leading causes of death in Montana in 2009¹

- | | | | |
|---------------------------|-----|--|-----|
| • Cardiovascular diseases | 28% | | |
| • Cancer | 23% | • Late entry into prenatal care ¹ | 27% |
| • Respiratory diseases | 11% | • Drinking and driving | |
| • Injury and poisoning | 10% | Adults | 5% |
| | | Adolescents ³ | 14% |
| | | • Fail to use seatbelts regularly | |
| | | Adults | 28% |
| | | Adolescents ³ | 30% |

Modifiable health risk behaviors²

- Physical inactivity 64%
- Overweight or obesity 61%
- Smoking
 - Adults 19%
 - Adolescents³ 19%
- Adults not screened for
 - Cholesterol 28%
 - Breast cancer 29%
 - Colorectal cancer 56%
- Adults not immunized for
 - Seasonal influenza 35%
 - Pneumonia 28%
- Children not fully immunized⁴ 38%

¹ Montana Office of Vital Statistics Annual Report, 2009
<http://www.dphhs.mt.gov/statisticalinformation/vitalstats/2009/2009report.shtml>

² Montana Behavioral Risk Factor Surveillance System 2010 Survey
<http://74.205.72.25/html/brfss-index.shtml> except as noted

³ Montana Youth Risk Behavior Survey, 2009 <http://opi.met.gov/Reprots&Data/YRBS.html>

⁴ National Immunization Survey, 2009 <http://www.cdc.gov/nchs/nis.htm>

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INTRODUCTION

Mortality is an easily measured endpoint and covers the entire population, but it provides only a partial picture of health burdens. There are a few ways to track morbidity for the entire population.

- The Montana Central Tumor Registry was established in 1979 by the state legislature as a mandatory, statewide system to monitor cancer incidence and mortality.⁵
- The Montana Hospital Discharge Data System obtains information on more than 95% of all hospital admissions in the state. It was established in 2010 and contains data from 2000 forward.⁶
- The Trauma Registry, established in 1990, receives reports of approximately 90% of all serious injuries in the state.⁷
- Newborn screening was mandated in Montana in 1972, requiring screening of all infants for galactosemia, congenital hypothyroidism, and phenylketonuria. Screening was expanded in 2008 to include 28 debilitating and potentially life threatening conditions.⁸ In addition, all newborns are screened for hearing deficits.
- More than 60 communicable diseases are reportable by Montana statute, including most of the vaccine-preventable childhood diseases.⁹

Surveys can estimate the proportion of the population affected by some aspects of morbidity and the prevalence of risk factors. Montana collaborates with the Centers for Disease Control and Prevention to conduct three surveys designed to produce statewide estimates:

- The Behavioral Risk Factor Surveillance System (BRFSS) is an anonymous, random-dialed telephone survey of adult residents of states. It collects self-reported data about health status and health risk behaviors.¹⁰ Montana has participated in BRFSS since its inception in 1984.
- The Adult Tobacco Survey (ATS) is similar to the BRFSS, but focuses specifically on tobacco use and attitudes.¹¹
- The Youth Risk Behavior Survey (YRBS) is a confidential, classroom-administered survey about health risk behaviors among middle school and high school students. The YRBS is conducted every other year by the Montana Office of Public Instruction.¹²

Several other data sources focus on specific segments of the population, such as Medicaid enrollees, WIC recipients, or children with special health care needs. Although these are not population-based data collection systems, they provide important information about vulnerable segments of the population.

Several kinds of disparities affect the health of Montana's population. Some groups in Montana are particularly affected. One important example of groups with disparate health experience involves race: the Montana population is 93% White, 6% American Indian, and 1% all other races. Wherever possible, we have provided comparative data on White and American Indian residents. It is not always clear what factors contribute to any differences observed between the races. Other kinds of health disparities exist: living in rural and remote areas with limited access to health care and socioeconomic differences are among the most important.

⁵ <http://www.dphhs.mt.gov/PHSD/cancer-control/tumor-registry-index.shtml>

⁶ <http://www.dphhs.mt.gov/PHSD/MTHDDS/index.shtml>

⁷ http://www.dphhs.mt.gov/ems/trauma/trauma_menu.html

⁸ www.newborn.hhs.mt.gov

⁹ <http://www.dphhs.mt.gov/PHSD/epidemiology/commun-disease-epi-reporting.shtml>

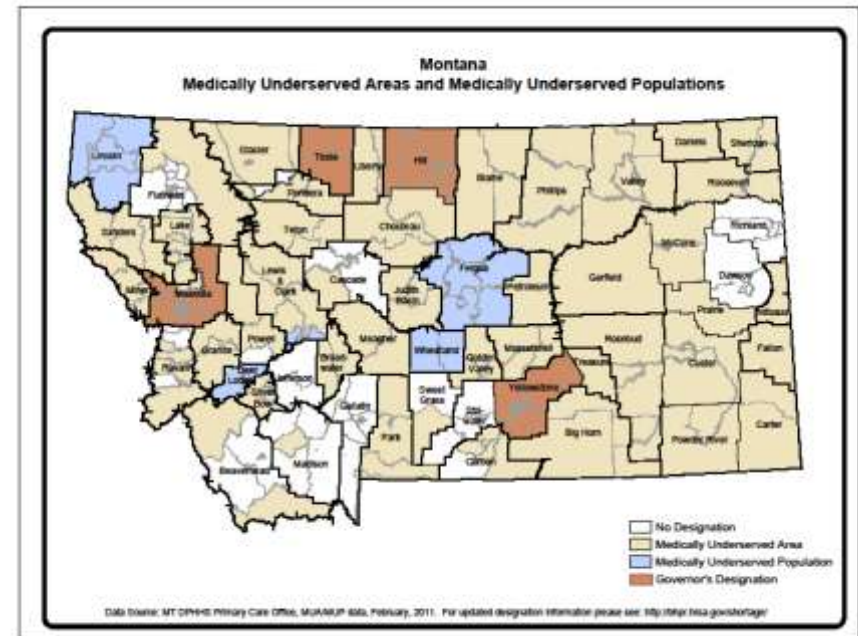
¹⁰ <http://74.205.72.25/html/brfss-index.shtml>

¹¹ <http://tobaccofree.mt.gov/publications/index.shtml>

¹² <http://opi.mt.gov/Reports&Data/YRBS.html>

MONTANA'S POPULATION

Montana covers an area of nearly 146,000 square miles and in 2011, the population reached one million for the first time. There are only seven cities with more than 10,000 residents and only 13 cities with 5,000 to 10,000 residents.¹³ As a result, 45% of our population lives in rural or frontier counties,¹⁴ characterized by lack of essential services including health care, both general and specialized, in their local communities, and long distances from and long travel times to essential services.¹⁵ Most Montana counties are designated as medically underserved.¹⁶



¹³ <http://ceic.mt.gov/Census2010.asp>

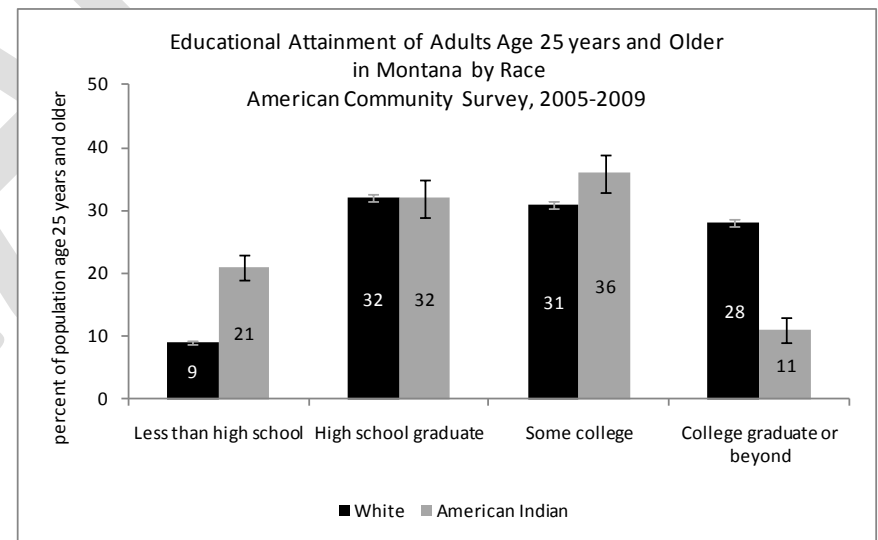
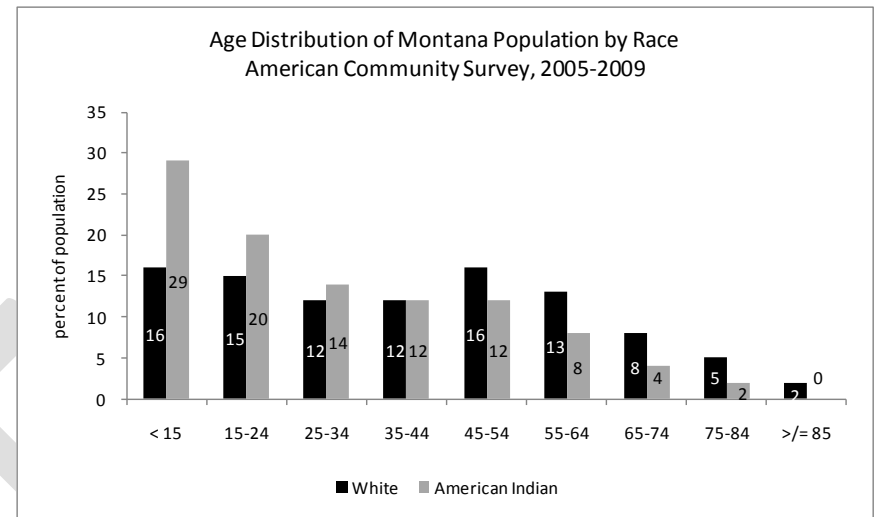
¹⁴ <http://www.raconline.org/states/Montana.php>

¹⁵ Larson EH et al. *State of the Health Workforce in Rural America*. Rural Health Research Center, University of Washington, Seattle, 2003.

¹⁶ <http://bhpr.hrsa.gov/shortage/muaps/index.html>

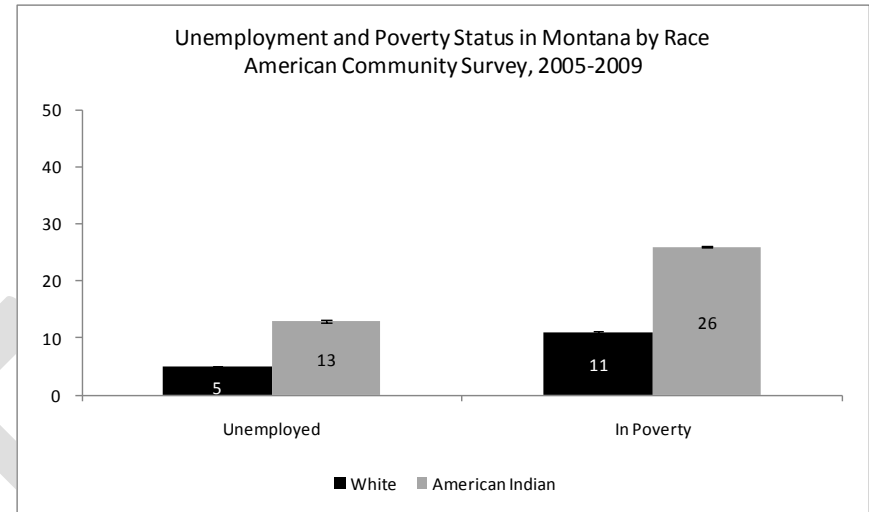
The population of Montana is 93% White and 6% American Indian; only 1% of Montana residents are of other races.¹⁷ The American Indian population of Montana is younger than the White population. The median age of White residents is 41 years and the median age of American Indian residents is 26 years; 21% of White residents are under age 18 years compared to 35% of American Indian residents; and 15% of White residents are age 65 years or older, compared to 6% of American Indian residents.¹⁶

American Indians tend to live in more rural areas of the state: only 18% lived in Montana's seven cities of 10,000 or more in the 2010 Census, compared to 65% of all state residents. As a group, American Indian residents tend to have lower educational attainment than White residents.



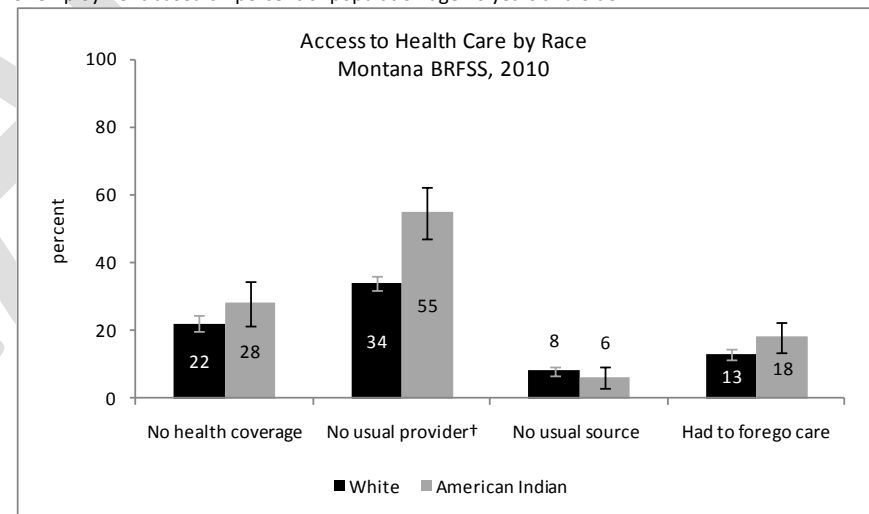
¹⁶
http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuid=datase ts_2&_lang=en

American Indian residents experience four times the unemployment rate as White residents. More than one third of American Indian residents live below the federally defined poverty level, compared to only 13% of white residents, but numerically nearly twice as many Montana residents who live in poverty are White (107,000 vs. 57,000).^{18,19}



Unemployment based on percent of population age 16 years and older.

A quarter of Montana residents report that they have no health insurance coverage; this does not differ by race. However, American Indian residents are more likely than White residents to report that they do not have a person they think of as their regular health care provider. However, relatively few reported that they did not have a usual place to go to seek care. One in six residents reported that they were not able to see a doctor when they needed to in the past year because of cost.



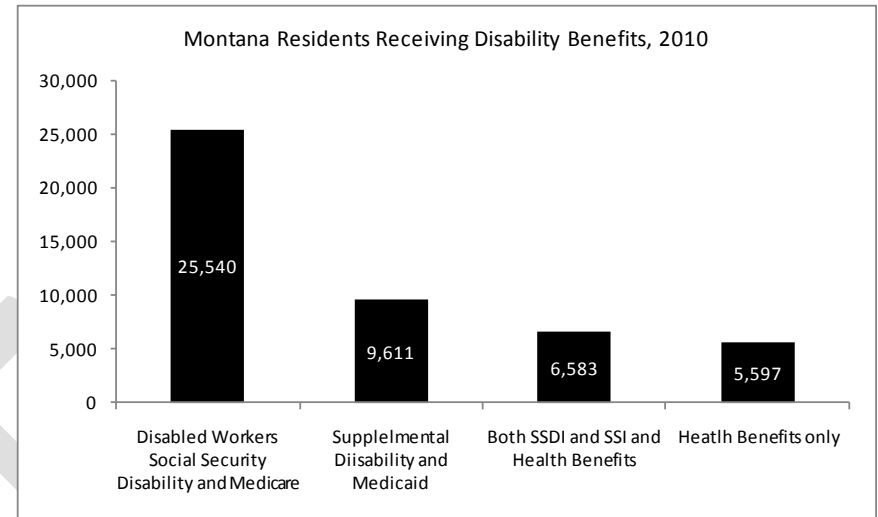
† Statistically significantly different by race

¹⁸ http://pubdb3.census.gov/macro/032007/pov/new46_001.htm

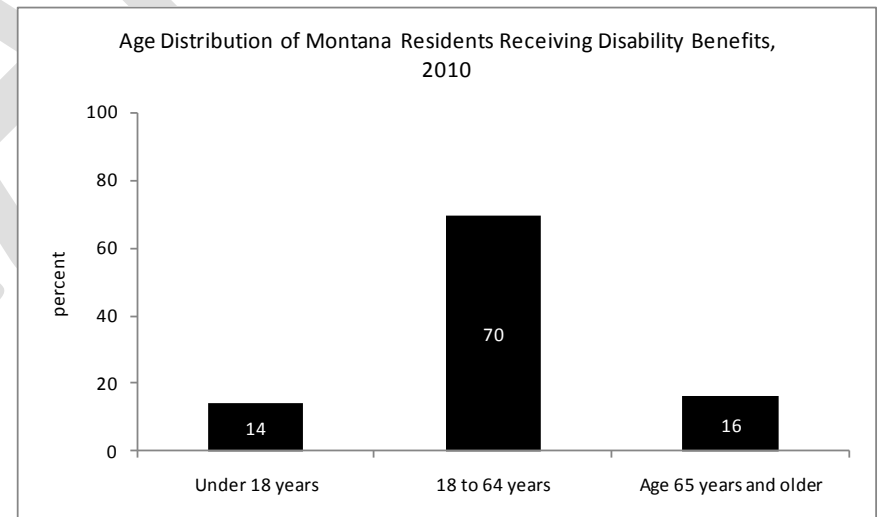
¹⁹ http://factfinder.census.gov/servlet/DTGeoSearchByListServlet?ds_name=ACS_2009_5YR_G00_&lang=en&ts=317148289930

Disability²⁰

Nearly 50,000 Montana residents, or 5% of the total population, received some form of disability benefits in 2010. More than half (54%) of the recipients are disabled workers who receive Social Security Disability Insurance (SSDI) and Medicare. Only 20% receive Supplemental Security Income (SSI) and Medicaid. An additional 14% receive both SSDI and SSI and 12% receive only health benefits.



Seventy percent of Montana residents who receive disability benefits are between the ages of 18 to 64 years.



²⁰ http://mwww.ba.ssa.gov/policy/docs/factsheets/cong_stats/2010/mt.html

CAUSES OF DEATH²¹

More than half of all Montana residents die of two broad classes of chronic disease: cardiovascular disease (heart and cerebrovascular) and cancer. For the population as a whole, the leading causes of death in 2009 were

- Cardiovascular disease 28%
- Cancer 23%
- Respiratory diseases 11%
- Unintentional injury 7%

The causes of death varied substantially by age group.

Infants under 1 year of age

- Conditions arising in the perinatal period 33%
- Congenital malformations and chromosomal anomalies 24%
- Sudden Infant Death Syndrome 17%

Children age 1 to 14 years

- Unintentional injury 44%
- Cancer 15%

Adolescents age 15 to 19 years

- Unintentional injury 65%
- Suicide 24%

Young adults age 20 to 34 years

- Unintentional injury 51%
- Suicide 23%

Adults age 35 to 49 years

- Unintentional injury 23%
- Cancer 18%
- Cardiovascular disease 14%
- Suicide 10%

Adults age 50 to 64 years,

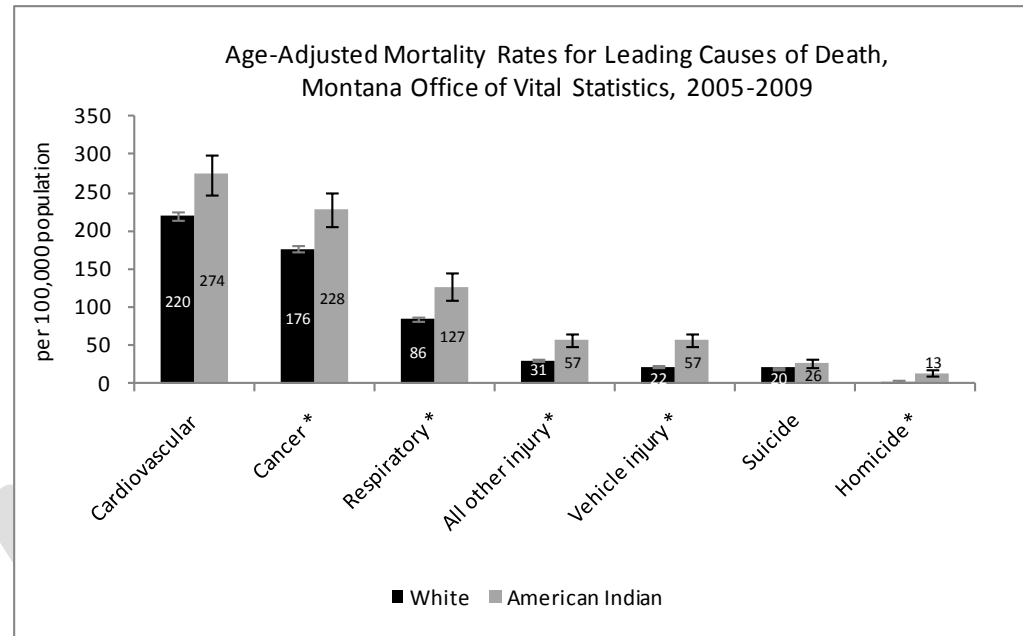
- Cancer 32%
- Cardiovascular disease 24%

Adults age 65 years and older

- Cardiovascular disease 32%
- Cancer 22%
- Respiratory diseases 13%

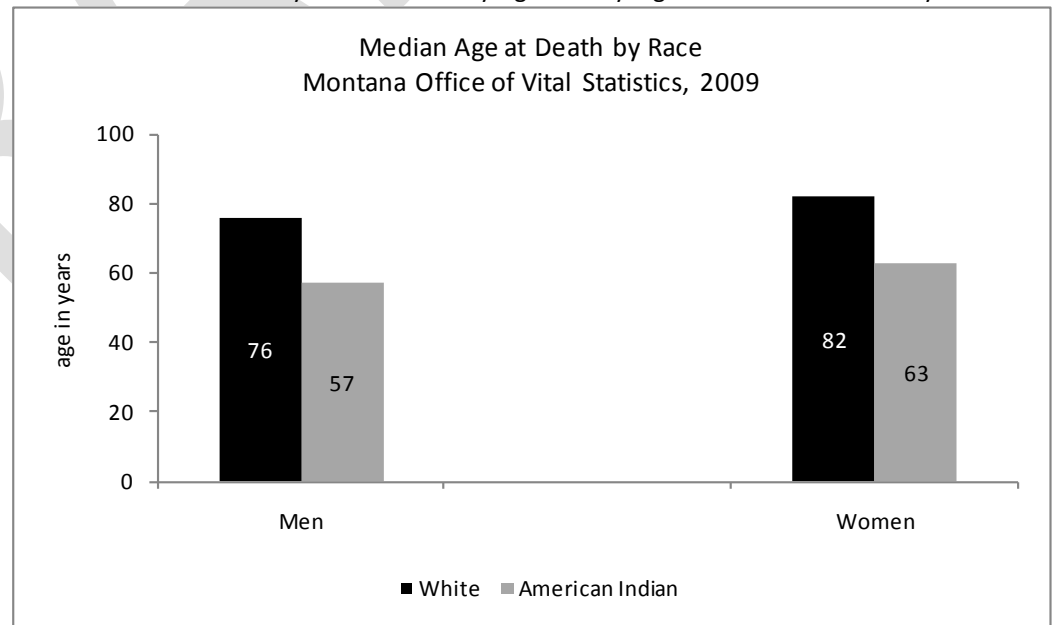
²¹ Unless otherwise noted, all data in this section are from the Montana Office of Vital Statistics Annual Report for 2009, <http://www.dphhs.mt.gov/statisticalinformation/vitalstats/2009/2009report.shtml>

The age-adjusted mortality rate for White residents of Montana was substantially lower than for American Indian residents: 760.2 per 100,000 (95% Confidence Interval 752.7 -767.7) compared to 1152.6 per 100,000 (1,101.4 – 1,205.8). In addition, for all but cardiovascular diseases and suicide, the mortality rates for each of the leading causes of death were lower for White residents than American Indian residents.



* American Indian mortality rates statistically significantly higher than White mortality rates.

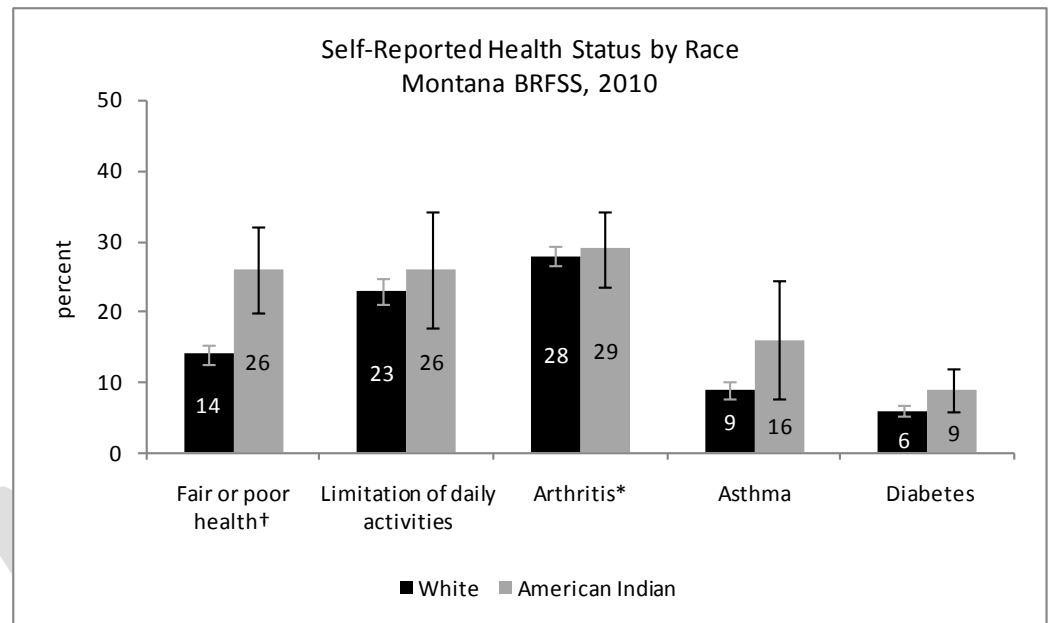
American Indian residents of Montana died an average of 19 years younger than White residents. In both groups, women lived an average of six years longer than men.



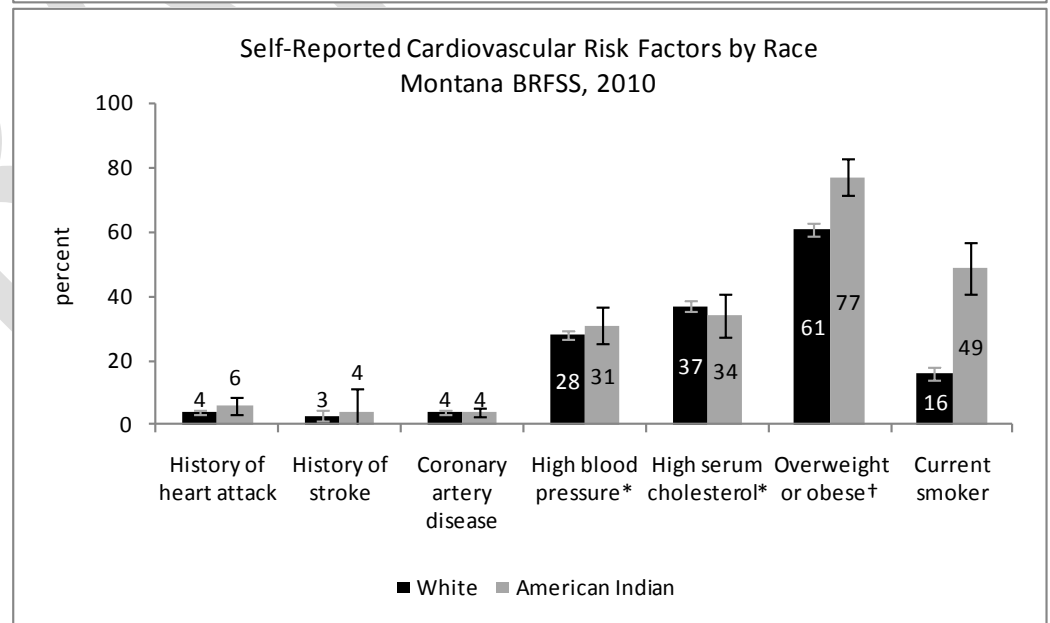
CHRONIC DISEASE²²

Self-Reported Health Status

A substantial number of Montana adults characterize their own health as fair or poor and report limitations of daily activities attributable to physical or mental disabilities. This was more common among American Indian respondents than among White respondents. The most common chronic disease reported by both races was arthritis, followed by asthma and diabetes.



Cardiovascular disease is the biggest killer of adults in Montana. Eleven percent of White residents and 14% of American Indian residents report a diagnosis of coronary artery disease, a history of heart attack, or a history of stroke. More than a quarter report being diagnosed with high blood pressure and more than a third report being diagnosed with high serum cholesterol. Nearly two thirds of White respondents and more than three quarters of American Indians are overweight or obese. Smoking remains substantially higher among American Indian than among White residents. All are risk factors for cardiovascular disease. These conditions are not mutually exclusive; respondents may have a history of more than one critical health event or more than one high-risk condition.

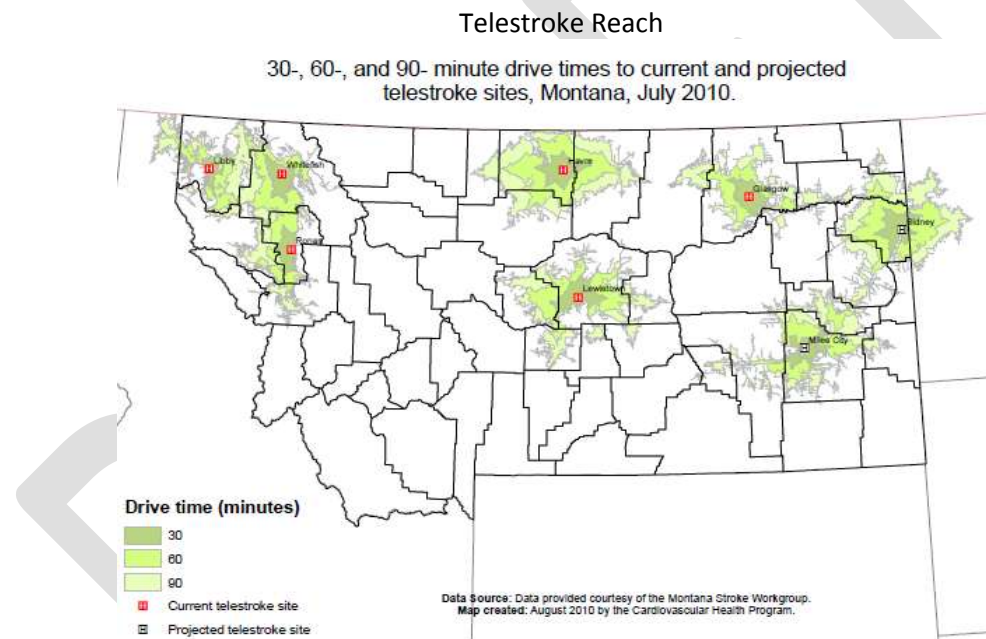


²² Unless otherwise noted, all data in this section are from the Montana Behavioral Risk Factor Surveillance System 2010 survey <http://74.205.72.25/html/brfss-index.shtml>

* From Montana BRFSS 2009 survey; † Statistically significantly different by race.

The Montana Telestroke Project

Survival and recovery from stroke are optimized when effective and advanced treatments are delivered as quickly as possible. Most rural areas lack access to stroke neurologists that can provide advanced care in the early hours of a stroke. The Cardiovascular Health Program, in collaboration with the Montana Stroke Initiative and the Montana Health Research and Education Foundation, has developed telestroke capabilities in Montana using Master Settlement Agreement (MSA) funding. The Cardiovascular Health Program partnered with neurologists from Montana, Washington and Colorado to offer 24/7 coverage for Montana's hospitals that use the Stroke-DOC telestroke system. The telestroke system's two-way audio/video allows the stroke specialist to examine patients remotely. In turn, patients and Emergency Department staff at the remote facility can see stroke neurologists. Brain images such as CAT scans can be sent over the system directly to the specialist, greatly reducing the "decision to treat time." Telestroke systems are operational at Central Montana Medical Center in Lewistown, St. John's Lutheran Hospital in Libby, St. Luke Community Hospital in Ronan, Frances Mahon Deaconess Hospital in Glasgow, Northern Montana Hospital in Havre, and North Valley Hospital in Whitefish. A system is in the pre-operational stage at Sidney Health Center in Sidney and in the early stages of development at Holy Rosary in Miles City.

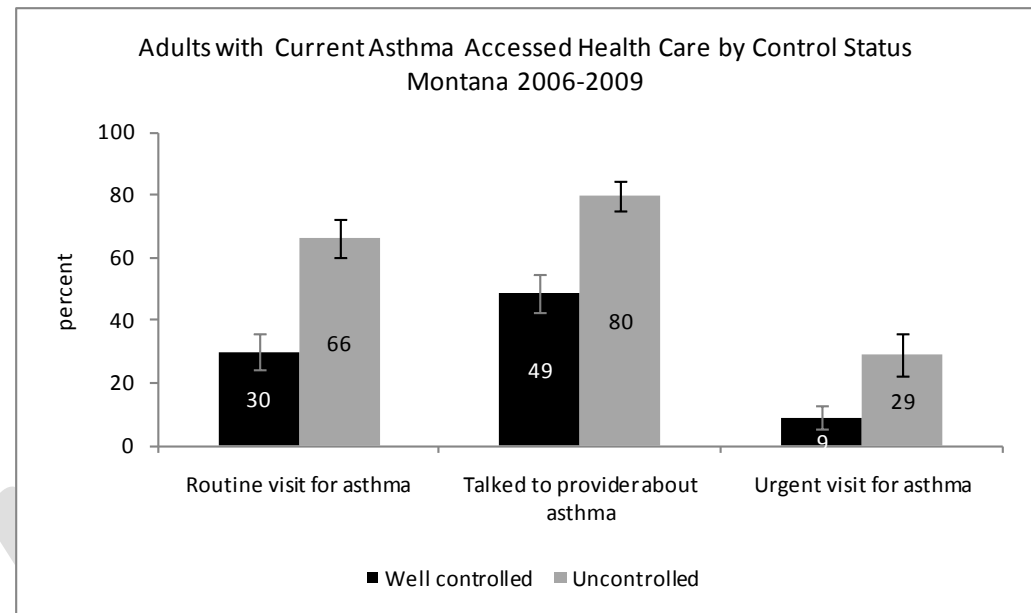


Outcomes: From June 2009-February 2011, 18 neurologist consults were completed using Montana's telestroke systems. In five of 16 cases, patients received the clot-busting medication t-PA which can interrupt a stroke and limit the damage caused by reduced blood flow. In nine cases, the hospitals documented that the patients' symptoms improved or resolved. With the long-term plan to have nine telestroke systems statewide, the goal is to improve acute treatment of stroke, particularly in rural areas, and reduce disability and death caused by stroke.

Asthma²³

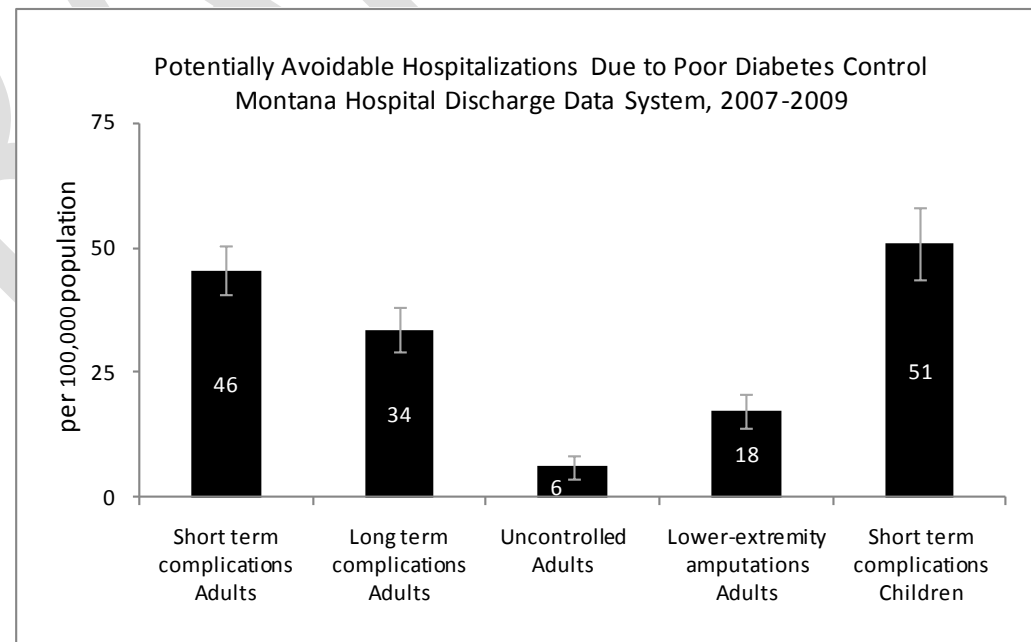
In 2009, an estimated 8% of adults and 6% of children in Montana had asthma. Nearly half of Montana adults and more than a quarter of children with active asthma reported that their disease was not well controlled. People with uncontrolled asthma had more frequent visits to Urgent Care centers or Emergency Departments than people with well-controlled asthma and reported more frequent encounters with health care providers.

Despite being an at-risk population, 23% of adults with current asthma in Montana report smoking cigarettes, compared to 17% of Montana adults in general.²⁴ In addition, 12% of children (ages 0-17 years) with current asthma were exposed to environmental tobacco smoke at home.



Diabetes

In 2010, 7% of adult respondents to the BRFSS said they had been diagnosed with diabetes.²⁵ Complications of diabetes contributed to 104 potentially avoidable hospitalizations per 100,000 among adults and 51/100,000 among children ages 6 to 17 years for the three-year interval 2007 through 2009.²⁶ These hospitalizations cost \$12.5 million in 2009 alone.



²³ Montana Asthma Call Back Survey, 2006-2009, <http://dphhs.mt.gov/asthma>

²⁴ Montana Asthma Surveillance Report, Jan-Mar 2011

²⁵ Montana Behavioral Risk Factor Surveillance System 2009 survey <http://74.205.72.25/html/brfss-index.shtml>

²⁶ Montana Prevention Quality Indicators, 2000-2009, <http://www.dphhs.mt.gov/PHSD/MTHDDS/index.shtml>

Adult rates age-adjusted to the population age 18 years and older; children's crude rate per 100,000 children 6-17 years.

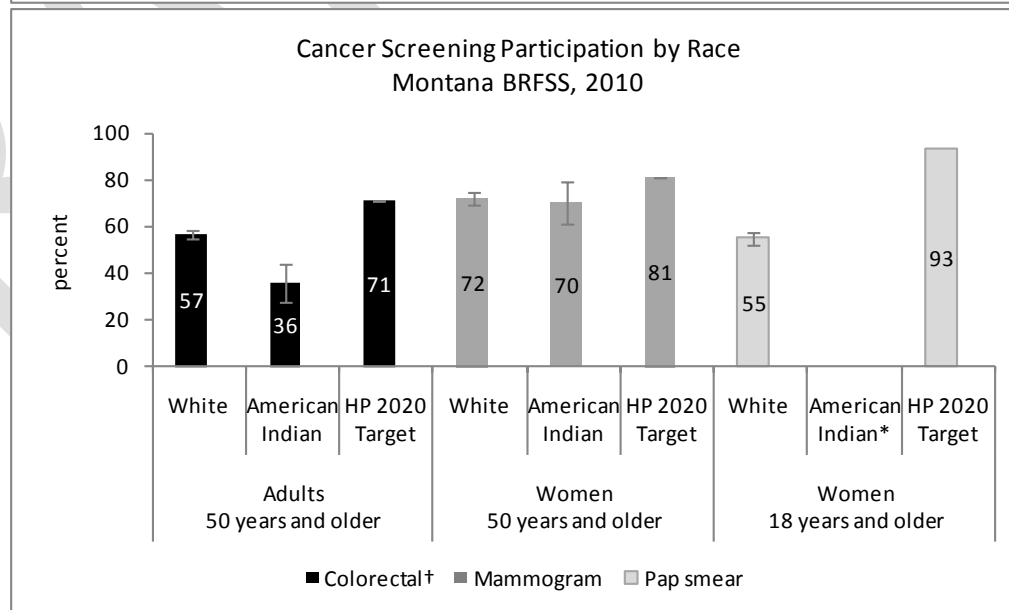
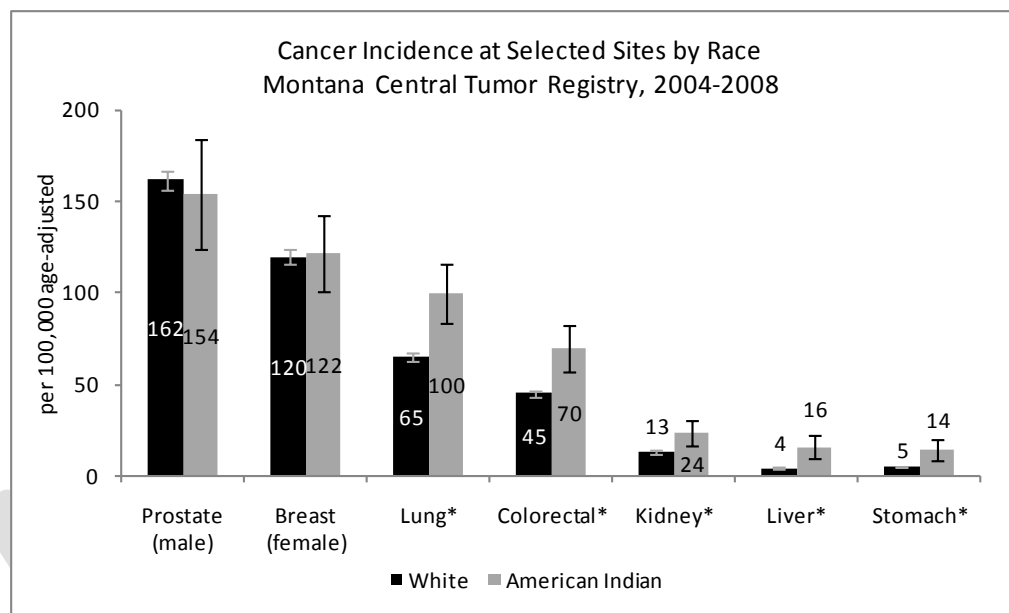
Cancer

Cancer is the second leading cause of death in Montana. An average of 5,000 new cases are diagnosed each year.²⁷ The most common types in Montana and the nation as a whole are prostate (18%), lung (15%), breast (14%), and colorectal cancer (10%). Jointly, these sites account for more than half of all newly diagnosed cancers. No other kind of cancer accounts for even 5% of cases, and many account for less than 1%.

American Indian residents of Montana have substantially higher incidence rates of lung cancer than White residents, attributed to a higher prevalence of smoking among American Indian residents. They also have higher incidence rates of colorectal, kidney, liver, and stomach cancers. The higher incidence rate of colorectal cancer may be due in part to notably lower participation in screening. The higher incidence rate of liver cancer may be due to higher prevalence of cirrhosis of the liver and hepatitis.

The single most effective way to reduce cancer incidence is to avoid tobacco use, which is estimated to cause 85%-90% of lung cancer and to increase the risk for one third of other cancers throughout the body.

The most important way to reduce cancer mortality is to participate in regular screening for colorectal, breast, and cervical cancer. Colorectal and cervical cancer screening can prevent cancer by finding precancerous lesions. The Pap test has reduced cervical cancer from the most common cause of cancer death among US women in 1900, to one of the least common today. Colorectal cancer screening has the potential to have a similar impact if people are screened according to guidelines, but only slightly more than half of Montana adults report being screened by either fecal occult blood tests (FOBT) or endoscopy.



* 95% confidence interval for American Indian women exceeds reporting guidelines.

† Statistically significantly different by race.

²⁷ Montana Central Tumor Registry Annual Report, 2010.
<http://www.dphhs.mt.gov/PHSD/cancer-control/tumor-registry-index.shtml>

Montana Cancer Screening Programs

The Montana Cancer Control Program, in collaboration with the federal Centers for Disease Control and Prevention, began offering free breast and cervical cancer screening to uninsured or underinsured women between 40 to 64 years old in 1997. Nearly 20,000 women have been screened through this program and 684 cases of breast cancer and 31 cases of cervical cancer have been diagnosed and treated. Seventy five percent of the cases of breast cancer diagnosed through the Cancer Screening Program were discovered at the distant or invasive stage, compared to only 29% among all women diagnosed with breast cancer in Montana during the same time period. This is attributable to the limited access to screening for uninsured and underinsured women and underscores the need for continued free and low-cost screening programs.

In January 2010, the Montana Cancer Screening Program added colorectal cancer screening for eligible adults age 50 to 64. By March 2011, more than 775 residents had been screened and 271 cases of colorectal cancer or precancerous conditions have been diagnosed and treated. This high yield of reflects a large number of underscreened adults.

Montana's American Indian Screening Initiative began in 2000. It provides outreach to all seven reservations and eight tribes in Montana and to five Urban Indian Centers. To date, almost 4,000 American Indian women have received breast and cervical cancer screening through this initiative and activities have recently been expanded to bring American Indian men into the program for colorectal cancer screening. The Montana American Indian Women's Health Coalition (MAIWHC), made up of American Indian women throughout Montana who donate their time, energy, and talent to assist American Indian communities with outreach, recruitment and education on the cancer continuum (prevention, screening, treatment and survivorship) in Indian Country. MAIWHC has been instrumental in bringing American Indians into the screening programs.

COMMUNICABLE DISEASE²⁸

Immunization Coverage²⁹

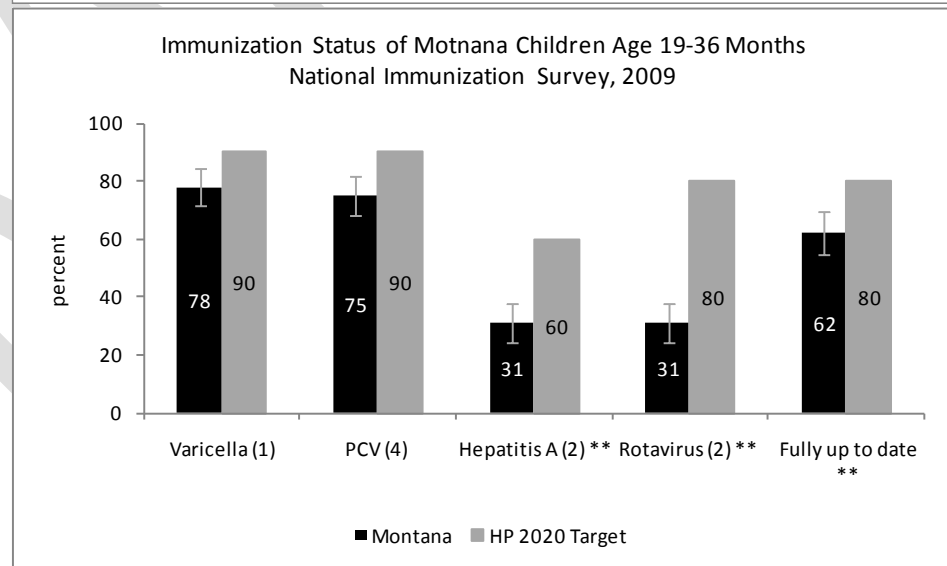
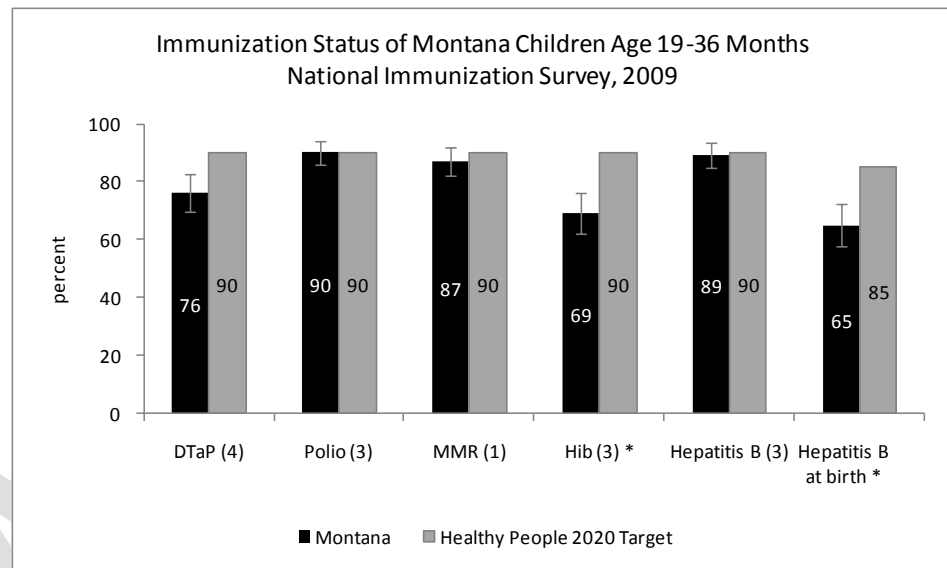
Healthy People 2020 targets for most vaccinations at 36 months are 90%. The goal for being up to date on all vaccines is 80%. Haemophilus influenza B (Hib) vaccine was in limited supply nationally in 2008 and 2009 so many children did not receive a fourth dose on time. This may have some impact on Montana children not being fully up to date on all required vaccines. Montana law does not require all ACIP-recommended vaccines.

HP 2020 recommends a population-based electronic data base of childhood vaccination covering 95% of all children under six years of age, and that states collect vaccination status of all children at enrollment in Kindergarten. Montana schools must report the immunization status of children at Kindergarten enrollment to ensure that they are up to date according to the Administrative Rules of Montana for school entry (ARM 37.114.705). Montana is developing a population-based immunization registry that will meet the 12 minimum functional standards of the National Vaccine Advisory Council.

Montana has experienced recent outbreaks of pertussis and varicella. There were 115 cases of pertussis in 2006 and 586 in 2005. There were 336 cases of varicella in 2008 and 424 in 2007. Upsurges in these and other vaccine-preventable diseases may be expected to increase in the future unless vaccination rates improve.

²⁸ Except as otherwise noted, data in this section are from the Montana Communicable Disease Control and Prevention Bureau <http://www.dphhs.mt.gov/PHSD/Communicable-disease/commun-disease-index.shtml>

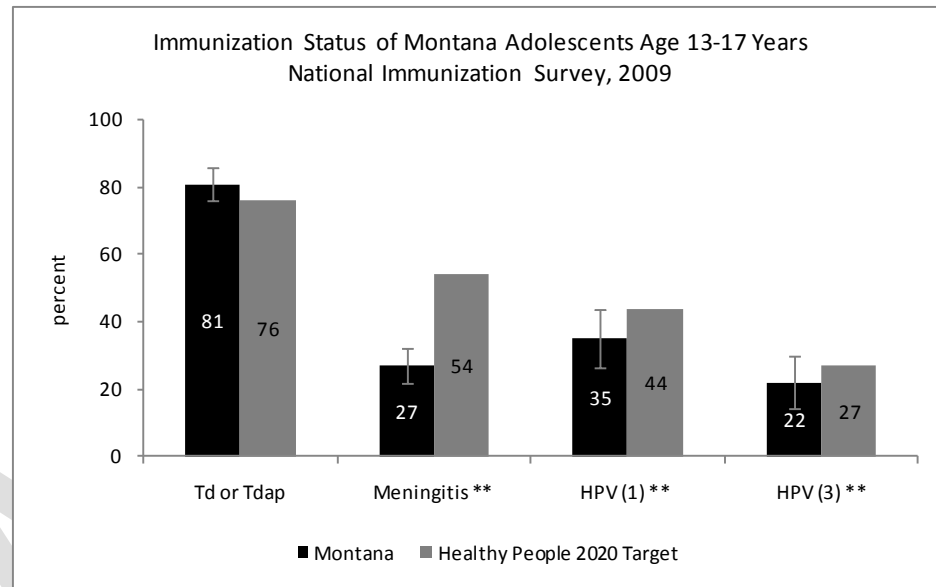
²⁹ National Immunization Survey, 2009, <http://www.cdc.gov/nchs/nis.htm>



* Estimate considered unreliable; 95% Confidence Interval greater than 20% of point estimate

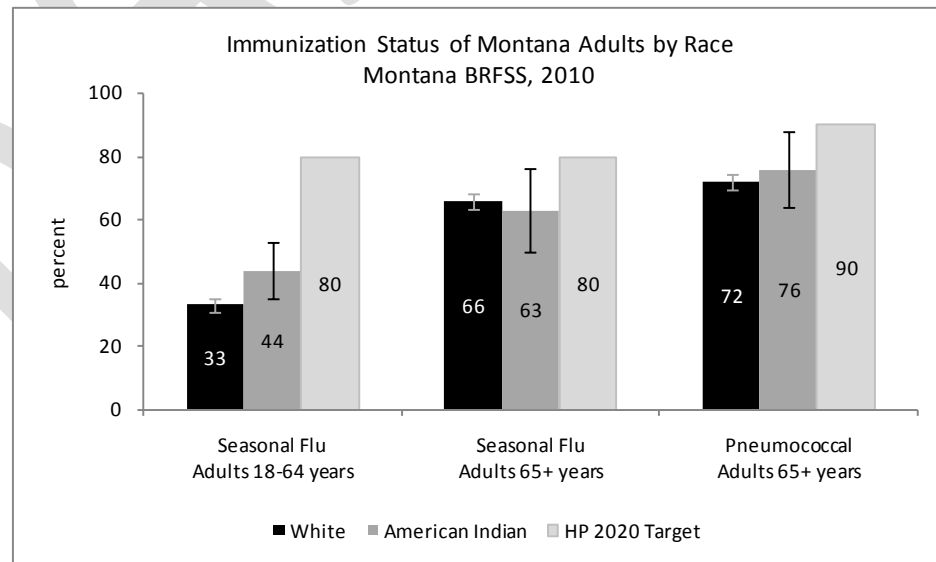
** Estimate considered unreliable; 95% Confidence Interval greater than 40% of point estimate

Adolescent vaccination coverage for tetanus and diphtheria (Td) or tetanus, diphtheria, and acellular pertussis (Tdap) are high in Montana, exceeding the *Healthy People 2020* target. However, coverage for the newer vaccines for meningitis and HPV are low.



** Estimate considered unreliable; 95% Confidence Interval greater than 40% of point estimate

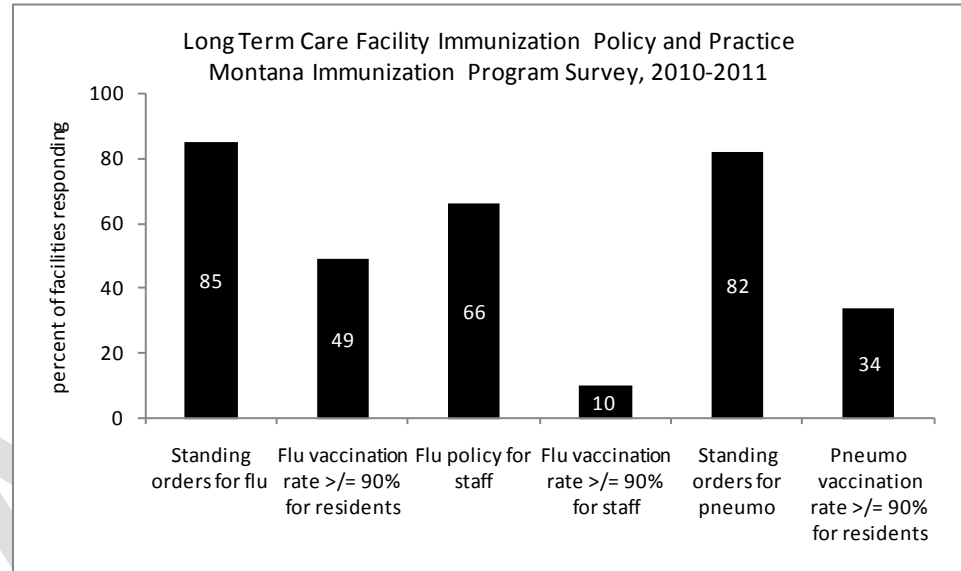
The *Healthy People 2020* targets for adult vaccination coverage are 80% for annual seasonal influenza for all adults and 90% for pneumococcal pneumonia for adults age 65 years and older. About one third of Montana adults between the ages of 18 and 64 have had a seasonal flu shot in the past year but two thirds of those age 65 years and older have been vaccinated.³⁰ In addition, nearly two thirds of Montanans over age 65 years have received the pneumococcal vaccine.



³⁰ Montana Behavioral Risk Factor Surveillance System 2010 survey <http://74.205.72.25/html/brfss-index.shtml>

Residents of long-term care facilities are especially vulnerable to influenza and pneumococcal pneumonia. The *Healthy People 2020* target is for 90% coverage of all residents. The use of standing orders programs are effective in increasing vaccination coverage for residents. The Advisory Committee on Immunization Practices recommends 100% coverage of health care providers and other employees of such facilities.

The Montana Immunization Program surveyed the 87 licensed long-term care facilities between October 2010 and January 2011; 61 responded. Although the majority of facilities reported having policies or using standing orders for vaccination for both influenza and pneumococcal pneumonia for residents, fewer than one half reported achieving 90% coverage for influenza among residents and only one third reported achieving 90% coverage for pneumococcal pneumonia. Two thirds of facilities reported influenza vaccination policies for employees but only 10% reported achieving 90% vaccination coverage for employees.



Sexually Transmitted Diseases

Chlamydia

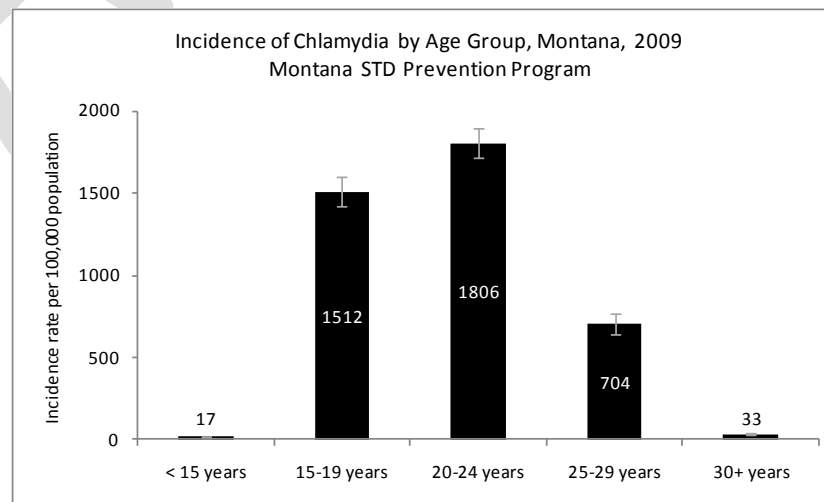
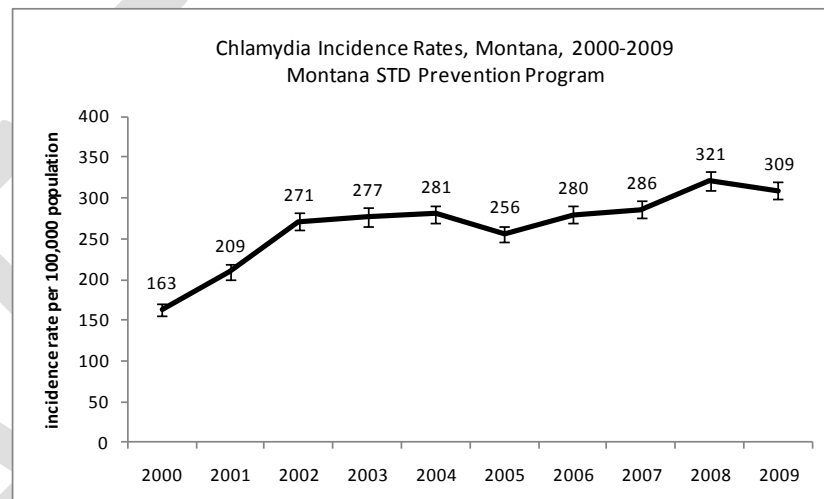
Chlamydia is the most commonly reported infectious disease in Montana and the U.S. Infections in women are usually asymptomatic and can result in pelvic inflammatory disease, a major cause of infertility, ectopic pregnancy, and chronic pelvic pain. Women are diagnosed more than twice as often as in men because women are often diagnosed when seeking reproductive health services; this may also account for the strong age clustering between the ages of 15 and 29 years. Because of the large burden of disease and risks associated with infection, the Centers for Disease Control and Prevention recommends that all sexually active women younger than age 26 years receive an annual Chlamydia screening.

Since 2000, both the number of reported cases and the crude incidence rate has approximately doubled in Montana, from 163/100,000 (95% CI 154.1-171.0) to 316/100,000 (95% CI 297.2-319.3) in 2009, compared with a national rate of 409/100,000. The increase may be attributable to more complete reporting as well as to a true increase.

Montana's 28 Family Planning Clinics perform approximately 75% of the state's Chlamydia testing among young women. These clinics identify and treat the majority of the state's cases. In 2009, 6.1% of women between the ages of 15 to 24 years attending the clinics tested positive for Chlamydia, in line with the *Healthy People 2020* target of 6.7%.

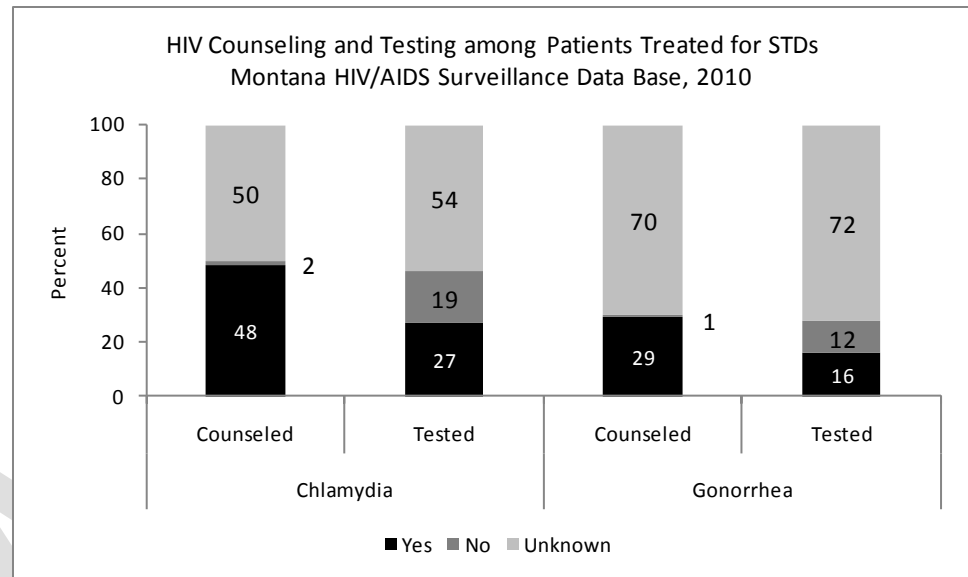
Gonorrhea and Syphilis

Gonorrhea and syphilis are apparently less prevalent than Chlamydia in Montana. In 2009, Montana's overall incidence rates for both were well below the national average. Montana reported 80 cases of gonorrhea (8.2/100,000, 95% CI 6.5-10.2) compared to the national incidence rate of 99.1/100,000) and only four cases of primary or secondary syphilis, substantially below the national incidence rate of 4.6/100,000.

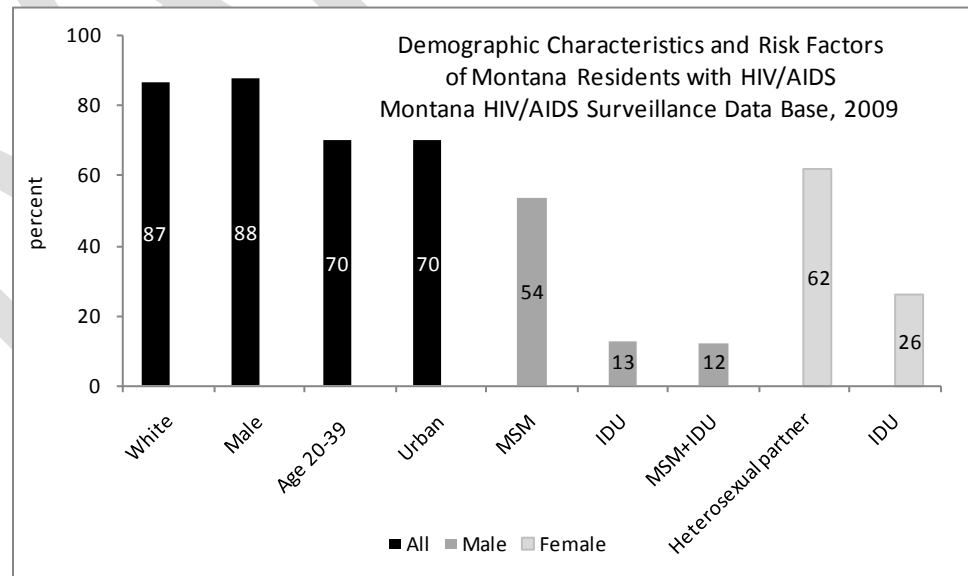


HIV and AIDS

The 2010 Centers for Disease Control and Prevention screening guidelines state that all individuals who seek evaluation and treatment for STDs should be counseled and screened for HIV infection, regardless of the presence of known behavioral risk factors for HIV. Fewer than half of patients diagnosed with Chlamydia or gonorrhea in Montana in 2010 were documented to have received pre-test HIV counseling and approximately one quarter were documented to have been tested for HIV infection. However, the counseling status of 50% of patients with Chlamydia and 70% of patients with gonorrhea was unknown, as was the testing status of 54% of patients with Chlamydia and 72% of patients with gonorrhea. A substantially higher proportion of patients with Chlamydia and gonorrhea may be counseled and tested for HIV but data to assess this are inadequate.



Montana has been a low-incidence state since HIV and AIDS became reportable conditions in 1985. In 2009, 30 new cases of HIV infection (3.1/100,000, 95% CI 2.1-4.4), and 27 new cases of AIDS (2.8/100,000, 95% CI 1.8-4.0) were reported in Montana, compared to national incidence rates of 11.2/100,000 and 17.4/100,000 respectively. Individuals with HIV in Montana are predominantly white, male, between the ages of 20 and 39 years, and live in Montana's seven most populous counties. Identified risk factors for acquiring HIV among men are sexual contact with men, injection drug use, or both. Risk factors among women are heterosexual contact and injection drug use.



Vector-Borne Diseases

Vector-borne diseases that can affect people in Montana include

- Colorado Tick Fever
- Rocky Mountain Spotted Fever
- Tick-Borne Relapsing Fever
- Tularemia (transmitted by ticks, deer flies, and contact with host animals)
- Plague (transmitted by fleas and contact with host animals)
- West Nile Virus (transmitted by *Culex* mosquitoes)
- Jamestown Canyon Virus (transmitted by *Aedes* mosquitoes)

Risk of exposure increases with some occupational and recreational activities and with contact with some animal species. Risk is seasonal, generally from April through the first hard freeze, when the vector insects are most active. In general, morbidity and mortality from most of these diseases are low in Montana.

- The incidence of Rocky Mountain Spotted Fever spiked in 2009.
- Seventeen cases of Lyme Disease were reported in Montana in 2008 but these were acquired out of state; the Lyme disease tick vector has not yet been identified in Montana.
- Montana's experience with West Nile Virus reflects the weather sensitivity of the mosquito vector. 2003 and 2007 were peak years for human cases, with more than 200 cases, including 5 deaths in 2007. Human cases of West Nile Virus were much less common in 2008 and 2009. No other deaths from vector-borne diseases have been identified in Montana in recent years.
- The first human case of Jamestown Canyon Virus (JCV) in Montana was reported in 2009.³¹

	Colorado Tick Fever	Jamestown Canyon Virus	Lyme Disease	Rocky Mountain Spotted Fever	Tick-Borne Relapsing Fever	Tularemia	West Nile Virus Total Cases†
2005	3	0	0	1	0	2	26
2006	1	0	1	2	0	4	34
2007	2	0	7	1	0	0	202*
2008	1	0	17	4	1	0	5
2009	1	1	3	10	1	2	5

* Includes 5 deaths

† includes both neuroinvasive and non-neuroinvasive cases.

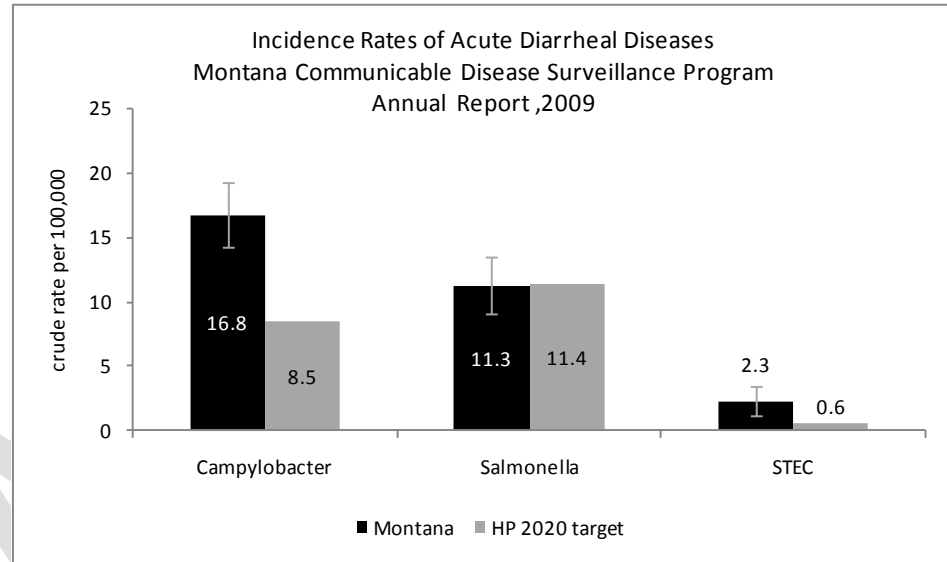
³¹ Lowell J, et al. 2011. Human Jamestown Canyon Virus Infection --- Montana, 2009. *MMWR* 60(20);652-655
http://www.cdc.gov/mmwr/preview/mmwrhtml/mm6020a3.htm?s_cid=mm6020a3_w

Diarrheal Diseases³²

Campylobacter infections are the leading cause of bacterial acute gastroenteritis in Montana. In 2009, 164 cases) of campylobacteriosis were reported.

The second leading cause is *Salmonella* infection. During 2009, 110 cases) of salmonellosis were reported.

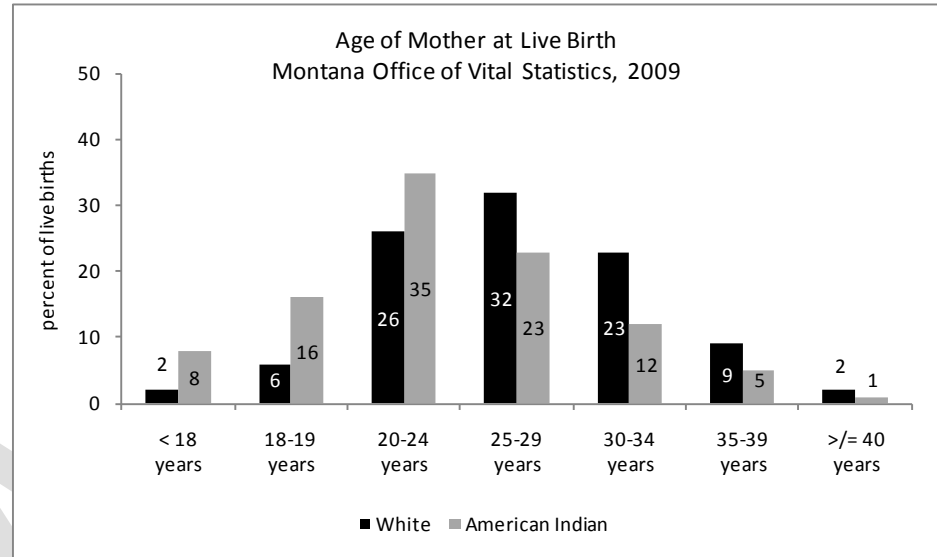
In 2009, 22 cases of bacterial gastroenteritis caused by Shiga-toxin producing *E. coli* (STEC O157:H7) were reported. While these infections are less common than those caused by *Campylobacter* and *Salmonella*, they can result in hospitalization, post-diarrheal hemolytic-uremic syndrome (HUS), and even death. Two cases of HUS occurred in Montana in 2009 as a result of STEC O157:H7 infections, one in a child less than five years old.



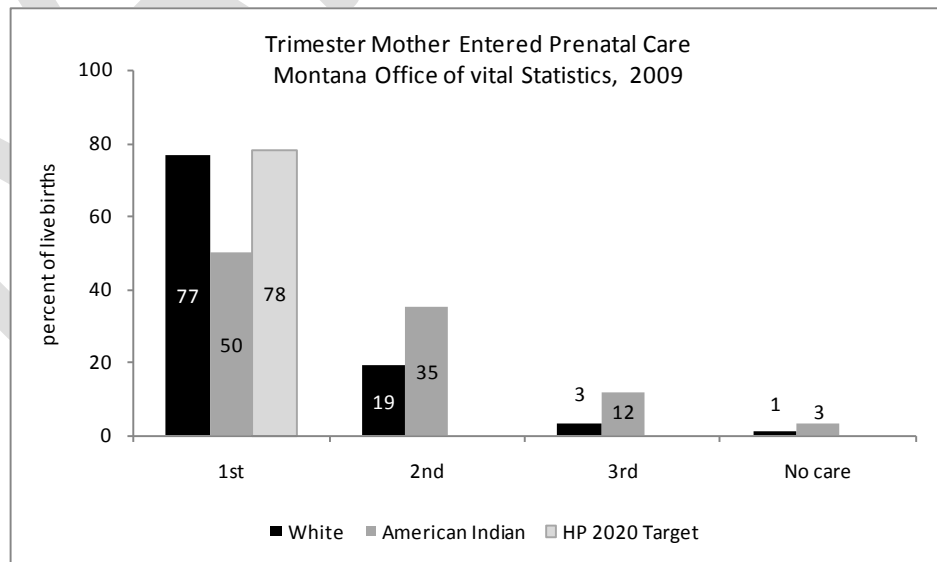
³² <http://www.dphhs.mt.gov/PHSD/epidemiology/commun-disease-epi-surv.shtml>

MATERNAL AND INFANT HEALTH³³

In 2009, 81% of White babies and 74% of American Indian babies in Montana were born to women between the ages of 20 and 34 years. However, 2% of White babies and 8% of American Indian babies were born to girls less than age 18 years, and an additional 11% of White babies and 6% of American Indian babies were born to women age 35 years or older.

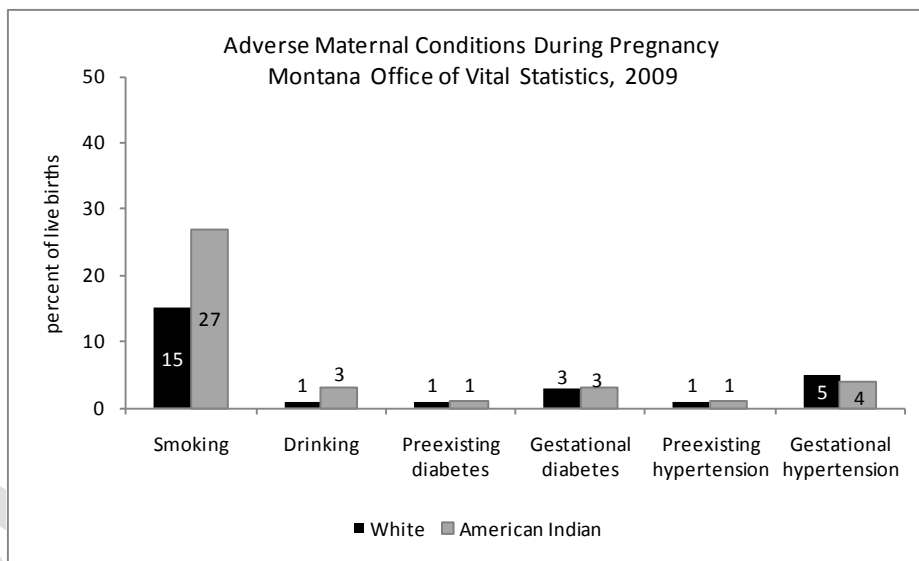


More than three quarters of White mothers but only half of American Indian mothers entered prenatal care in the first trimester. More than one third of American Indian mothers entered prenatal care in the second trimester and 12% delayed until the third trimester. Very few women did not seek prenatal care at all.

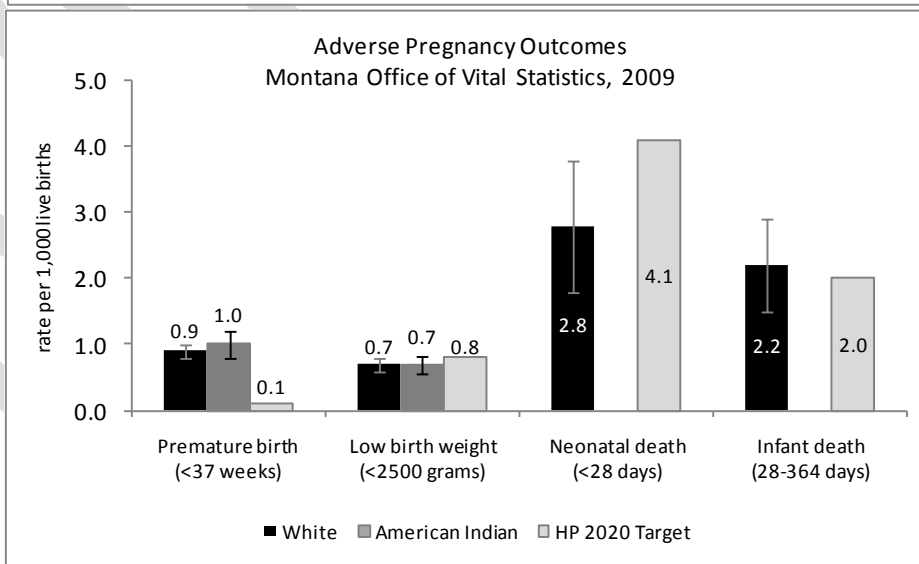


³³ Except as otherwise noted, data in this section are from the Montana Office of Vital Statistics Annual Report 2009, http://www.dphhs.mt.gov/statisticalinformation/vitalstats/2009/2009report_shtml

The most common adverse maternal condition of pregnancy among Montana women is smoking (15% among White women and 27% among American Indian women), much higher than the *Healthy People 2020* target of 1%. Few women reported drinking during pregnancy. In addition, about one in ten pregnancies were complicated by either preexisting diabetes, gestational diabetes, preexisting hypertension, or gestational hypertension. Diabetes and hypertension are not mutually exclusive and a given pregnancy may be complicated by both conditions. All are risk factors for adverse outcomes such as prematurity, low birth weight, and neonatal death.

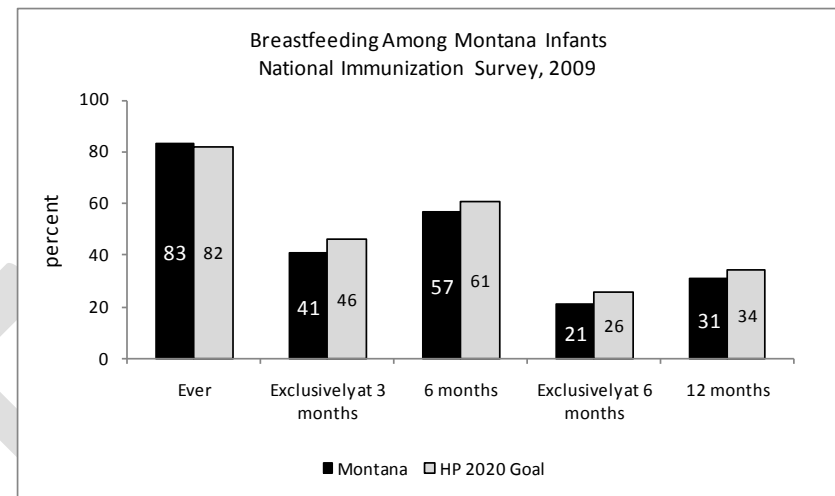


Montana had modest rates of adverse pregnancy outcomes although rates of premature birth were noticeably higher than the *Healthy People 2020* target. Fewer than 1 per 1,000 live-born infants were premature (born before 37 weeks gestation) or of low birth weight (< 2500 grams or 5.5 pounds). Nevertheless, 5 babies per 1,000 died before their first birthday in 2009. More than half of infant deaths were associated with complications of labor and delivery (36%) or with birth defects (19%).



There were too few neonatal (n=10) and infant (n=7) deaths among American Indian infants to compute reliable rates.

Montana is meeting Healthy People 2020 the target for initiating breastfeeding and appears to be tracking the targets closely through one year of age, although it is difficult to evaluate this rigorously in the absence of confidence intervals for estimated rates from the source data, the National Immunization Survey conducted by the Centers for Disease Control and Prevention.³⁴



Note: confidence intervals are not available from NIS report card.
<http://www.cdc.gov/breastfeeding/data/reportcard/outcome2009.htm>

³⁴ <http://www.cdc.gov/nchs/nis.htm>

Montana's Expanded Newborn Screening Programs

There are more than 12,000 live births in Montana each year. Since 2008, all newborns are screened for 28 metabolic conditions and hearing. Newborns with abnormal screening results are either rescreened on a second blood sample or are referred to specialist providers for confirmation, definitive diagnosis and, if necessary, treatment and follow-up care. For the babies screening early diagnosis treatment are of paramount importance to their survival and future quality of life.

Montana Newborn Screening Summary, 2008-2010
Laboratory Services Bureau

Number	2008	2009	2010
Screened	12,451	12,118	11,959
Initial abnormal screening result	285	257	298
Referred to specialist care for possible diagnosis	41	26	23
Confirmed diagnosis of condition identified by newborn screening	17	15	9

Children's Special Health Services (CSHS) and Children's Health Referral and Information System (CHRIS)

CSHS promotes access to care for Children and Youth with Special Health Care Needs. In 2010, CSHS provided services to 5,596 children and youth. CSHS maintains a statewide database of children and youth with special needs. CHRIS facilitates coordinated services for children with chronic conditions such as diabetes and asthma, birth defects such as cleft lip/palate and congenital heart defects, children with genetic conditions, and children who are deaf/hard of hearing or have vision loss. CSHS services include: 1) limited financial assistance to qualifying families, 2) resource and referral information, such as health coverage options, the availability of specialty care in Montana, and facilitation of care coordination, and 3) partnering with three regional sites to provide and facilitate pediatric specialty care in Montana. CSHS sponsors team cystic fibrosis, cleft/craniofacial, and metabolic clinics, in addition to clinics for other conditions which are held at the Regional Pediatric Specialty Clinic (RPSC) sites. There were a total of 4,092 visits to the RPSC during 2010 for a variety of conditions. Visits to pulmonary and endocrine clinics together account for 30% of visits. For a list of clinics available to families see www.cshs.mt.gov

The Montana Fetal, Infant, and Child Mortality Review (FICMR) Program

FICMR was authorized by Montana statute MCA 50-19-406 in 1997. Its goal is to reduce preventable fetal, infant, and childhood deaths through a comprehensive review of each fatality by local county teams. The teams work with the state coordinator in the Family and Community Health Bureau to make recommendations for prevention of future deaths, based on reviews of the deaths and trends seen over time. The qualitative and quantitative data captured in a review report are critical to the development of policies at the state and local level.

FICMR teams review all fetal deaths over 20 weeks gestation or 350 grams, and all deaths of infants and children through age 18 years. The team assesses basic demographics, the full range of data available from birth and death certificates and medical records, maternal medical history, and social factors that may be reported by child and family services interactions. The teams produce a narrative about each death to help understand circumstances related to the death, to make local policy and practice recommendations, to assess the concurrence of team conclusions with the death certificate, and to recommend additional services as needed. FICMR teams make determinations about potential preventability, primary risk factors involved in preventable deaths, risk factors for undetermined causes of deaths, prevention activities, and target populations for prevention intervention.

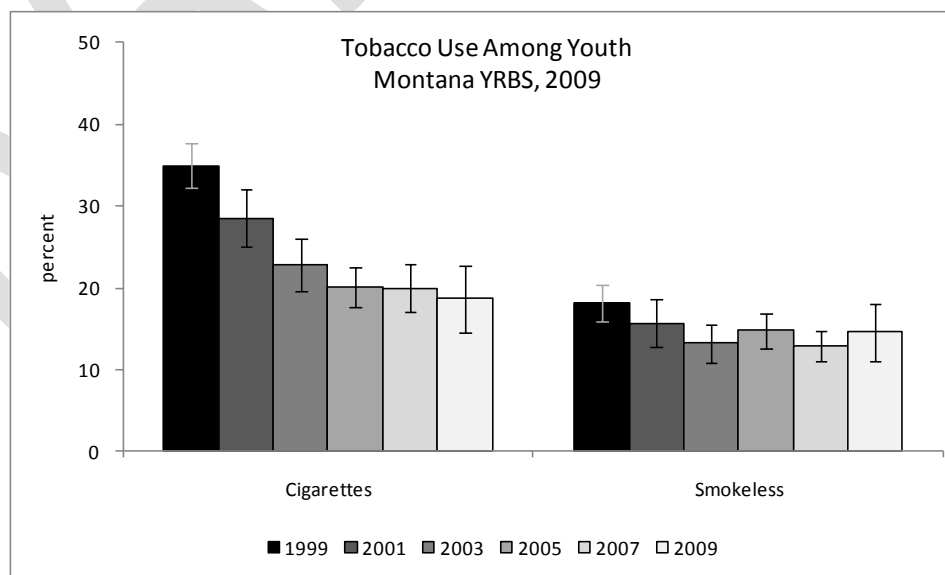
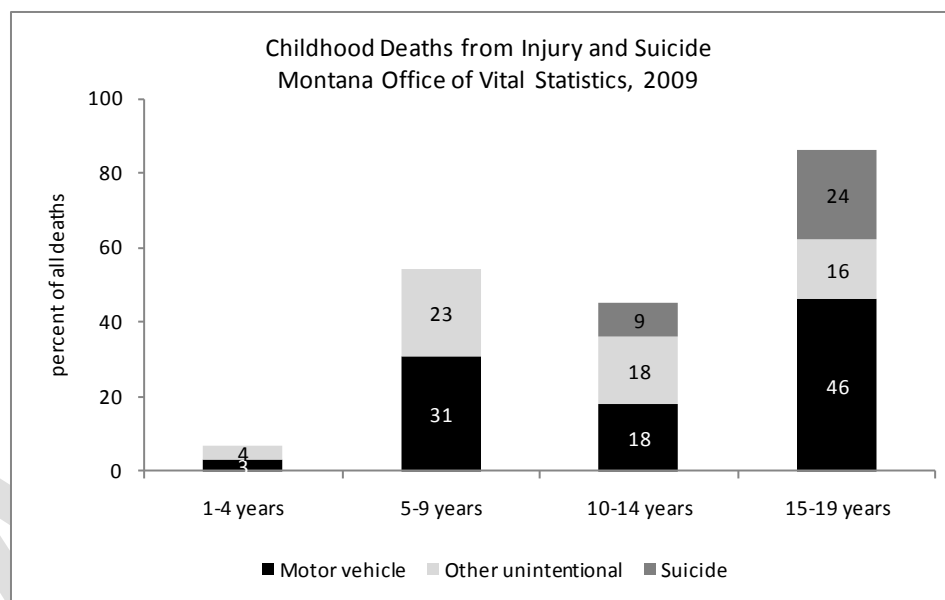
CHILD AND ADOLESCENT HEALTH

The most frequent causes of death for Montana children and adolescents between the ages of 5 and 19 years are injury and suicide.³⁵ Across all age groups, half or more of unintentional injury deaths involve motor vehicles; the rate is even higher among adolescents age 15 to 19 years. Suicide accounts for nearly one quarter of deaths among teens age 15 to 19 years.

Alcohol is a major risk factor for Montana youth.³⁶ In the 2009 Youth Risk Behavior Survey, 43% of teens reported having one drink in the month before the survey, and 30% reported having five or more drinks on a single occasion in the month before the survey. Even more troubling, 14% reported drinking and driving and 29% reported riding with a driver who had been drinking.

More than a quarter (27%) of youth reported being depressed in the year before the survey, 17% reported having suicidal thoughts, and 8% reported attempting suicide.¹⁸

Teens in Montana begin using tobacco early.³² Smoking cigarettes has not declined significantly since 2003 and use of smokeless tobacco has not declined significantly since 1999.



³⁵ Montana Office of Vital Statistics Annual Report, 2009
<http://www.dphhs.mt.gov/statisticalinformation/vitalstats/2009/2009report.shtml>

³⁶ Montana Youth Risk Behavior Survey, 2009.
<http://opi.mt.gov/Reports&Data/YRBS.html>

UNINTENTIONAL INJURY³⁷

Unintentional injury is the leading cause of death for Montanans between the ages of 1 and 49 years. The age-adjusted unintentional injury mortality rate in Montana was 60.4/100,000 in 2009, dramatically higher than the US rate of 40.0/100,000. The majority of unintentional injury deaths among Montana residents are attributable to motor vehicle crashes (35%), falls (20%), and poisoning, the majority from abuse or misuse of prescription or illicit drugs (18%).

The most common risk factors associated with death or incapacitating injury in motor vehicle crashes are lack of seat belt use and driving under the influence of alcohol or other drugs. According to the Montana Department of Transportation, 70% - 80% of individuals who died in motor vehicle crashes were unrestrained.^{32,33}

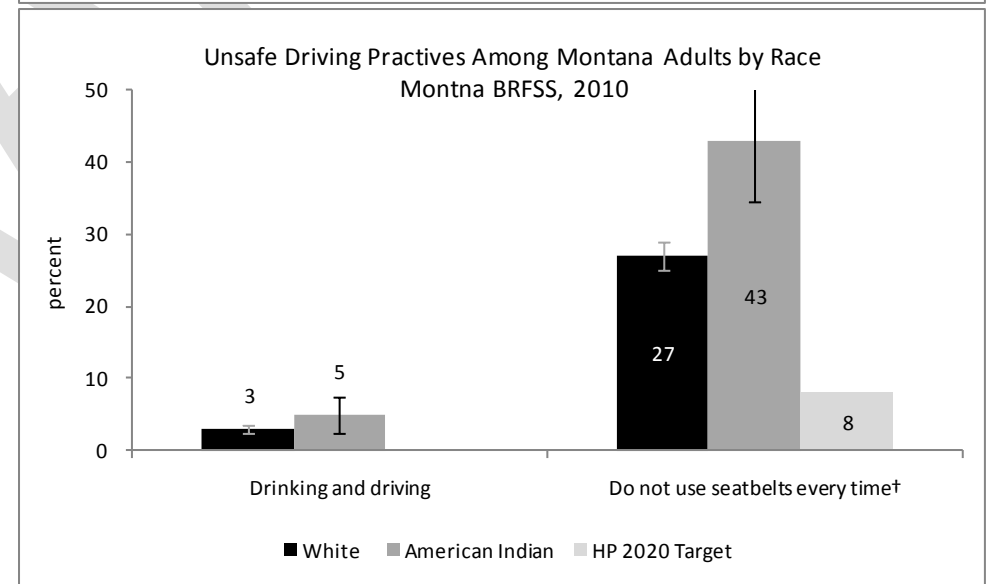
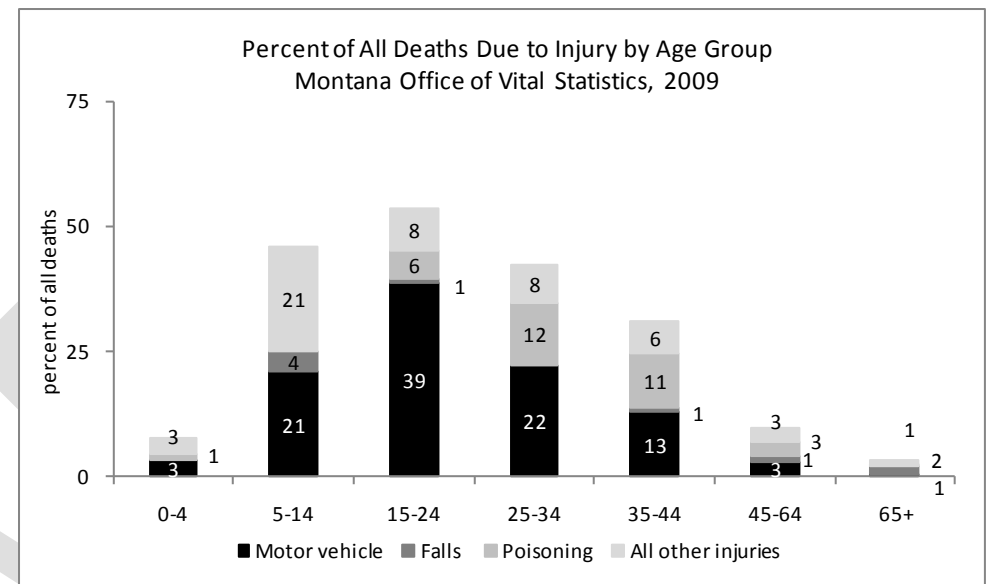
Most adults age 18 years and older report always using seatbelts but fewer than half of middle school and high school students reported always using seat belts.³³

Alcohol and other drugs contribute to 10% of all crashes, 18% of all injury crashes, and nearly 50% of all fatal crashes. Drivers age 18 to 20 years experience the highest rate of fatal alcohol-related crashes.³⁸ Only 5% of adults surveyed report drinking and driving, but 14% of youth report they have done so, and 29% report they have ridden with a drunk driver.³⁹

³⁷ Unless otherwise noted, data in this section are from the Montana Office of Vital Statistics Annual Report 2009, <http://www.dphhs.mt.gov/statisticalinformation/vitalstats/2009/2009report.shtml>

³⁸ Montana Traffic Safety Problem Identification, FFY 2010. Montana Department of Transportation, June 2010. <http://www.mdt.mt.gov/safety/safetyprg.shtml>

³⁹ Montana Behavioral Risk Factor Surveillance System 2010 survey; Montana Youth Risk Behavior Survey, 2009. <http://opi.mt.gov/Reports&Data/YRBS.html>



† Statistically significantly different by race

Stepping On: A Fall Prevention Program for Seniors

Falls are the second most common cause of unintentional injury for Montanans of all ages and the most common cause for those age 65 years and older.⁴⁰ One in five Montana residents age 45 years or older report having a fall in the past three months and more than one quarter were injured as a result of the fall.⁴¹ Montana's mortality rate from falls (11 per 100,000) is one of the highest in the nation and is nearly twice the national rate (6 per 100,000).⁴² Falls have been the leading cause of injury-related death for Montanans age 65 and older since 1991.⁴³ Risk factors for falls include inactivity and lack of regular balance and strength exercise; changes in vision; use of medications that may cause side effects such as dizziness or drowsiness; and home environments that may include poorly lit walkways, clutter on the floor, unsecured throw rugs, and lack of grab bars in bathrooms area or hand rails in stairways. Aging is associated with a variety of changes in health and physical function, including gait and balance deficits, muscle weakness, visual deficit, arthritis, medication use, and hazards in the home. As Montana's population ages, the burden from falls is likely to increase, resulting in more serious injuries and more premature deaths.

The Montana Injury Prevention Program has implemented an evidence-based fall prevention intervention called *Stepping On* for individuals age 60 years and older who are independently mobile (including with a cane or walker) but who have either had a fall in the past year or have a fear of falling. *Stepping On* is a comprehensive educational program that reduces falls among participants by 30%. The program provides participants the opportunity to begin or increase activity through balance and strength exercises, and teaches strategies to reduce the risk for falls such as home safety, vision exams, medication reviews, calcium and vitamin D supplementation, and safe footwear. The *Stepping On* program is being piloted in three communities in Montana. The program is well received by not only participants, but also by the healthcare providers who facilitate the classes. The number of self-reported falls is lower among participants, and the level of confidence in engaging in daily activities has increased upon course completion.

⁴⁰ CDC Injury Mortality Report. *Wisqars*. 2005-2007. <http://webappa.cdc.gov>

⁴¹ Montana Behavioral Risk Factor Surveillance System 2008 survey <http://74.205.72.25/html/brfss-index.shtml>

⁴² CDC Injury Mortality Report. *Wisqars*. 1991-2006. <http://webappa.cdc.gov>

⁴³ Montana Office of Vital Statistics, Annual reports, 1991 through 2009 <http://www.dphhs.mt.gov/statisticalinformation/vitalstats/index.shtml>

LABORATORY SERVICES

The DPHHS Laboratory provides medical testing for diseases and conditions of public health significance and environmental testing in support of safe drinking water and pollution monitoring programs.

Major work for medical testing are concentrated on Sexually Transmitted Diseases (including Chlamydia, Gonorrhea, Syphilis, HIV, Hepatitis B and Hepatitis C), Vaccine-Preventable Diseases (including Influenza, Pertussis, Varicella, Measles, Rubella, and Mumps), Newborn Screening for 28 conditions, and Tuberculosis diagnosis. In addition, capacity is maintained for testing for enteric pathogens (including Salmonella, Shigella, Campylobacter, toxigenic E. coli, and Norovirus) and for more unusual diseases, such as Hantavirus, parasites, antimicrobial resistant bacteria, and biological terrorism agents.

Major work for environmental analyses are focused on finding contamination with coliform bacteria, nitrates, heavy metals and organic compounds in public and private drinking water supplies. The laboratory does similar testing on recreational waters, mostly rivers and streams, to evaluate point-source pollution.

Laboratory Testing Summary, 2008-2010
Laboratory Services Bureau

Test Type	Number of tests FY 2008	Number of tests FY 2009	Number of tests FY 2010
Sexually Transmitted Diseases	37,835	34,826	32,750
Vaccine-Preventable Diseases	2,986	3,353	6,672
Newborn Screening	14,079	13,654	13,176
Tuberculosis	6,062	5,923	5,736
Other Medical Testing	13,356	12,595	9,877
Environmental Testing	23,841	19,829	15,499
TOTAL	98,159	90,180	83,710

APPENDIX: DATA SOURCES

Centers for Disease Control and Prevention (CDC), Injury Mortality Report (*Wisqars*), <http://webappa.cdc.gov>
Health Resources and Services Administration (HRSA), <http://bhpr.hrsa.gov/shortage/muaps/index.html>
Larson EH et al. *State of the Health Workforce in Rural America*. Rural Health Research Center, University of Washington, Seattle, 2003.
Montana Asthma Control Program, <http://www.dphhs.mt.gov/PHSD/asthma/chronic-disease-asthma-index.shtml>
Montana Behavioral Risk Factor Surveillance System <http://74.205.72.25/html/brfss-index.shtml>
Montana Central Tumor Registry, <http://www.dphhs.mt.gov/PHSD/cancer-control/tumor-registry-index.shtml>
Montana Communicable Disease Control and Prevention Bureau <http://www.dphhs.mt.gov/PHSD/Communicable-disease/commun-disease-index.shtml>
Montana Expanded Newborn Screening Programs, www.newborn.hhs.mt.gov
Montana Hospital Discharge Data System, <http://www.dphhs.mt.gov/PHSD/MTHDDS/index.shtml>
Montana Office of Vital Statistics Annual Reports <http://www.dphhs.mt.gov/statisticalinformation/vitalstats/index.shtml>
Montana Tobacco Use Prevention Program, <http://tobaccofree.mt.gov/index.shtml>
Montana Traffic Safety Problem Identification, FFY 2010. Montana Department of Transportation, June 2010. <http://www.mdt.mt.gov/safety/safetyprg.shtml>
Montana Trauma System Program, http://www.dphhs.mt.gov/ems/trauma/trauma_menu.html
Montana Youth Risk Behavior Survey, Montana Office of Public Instruction, <http://opi.mt.gov/Reports&Data/YRBS.html>
National Immunization Survey, CDC, <http://www.cdc.gov/nchs/nis.htm>
Rural Assistance Center, <http://www.raonline.org/states/Montana.php>
US Census Bureau, American Fact Finder, http://factfinder.census.gov/servlet/DatasetMainPageServlet?_program=ACS&_submenuId=datasets_2&_lang=en
US Census Bureau, Current Population Survey, http://pubdb3.census.gov/macro/032007/pov/new46_001.htm