Cancer Incidence in Silver Bow County, Montana, and the United States

MONTANA
CHRONIC DISEASE PREVENTION AND HEALTH PROMOTION BUREAU

Figure 1. Age-adjusted incidence rate of all-site cancer, Silver Bow County, Montana and the U.S.

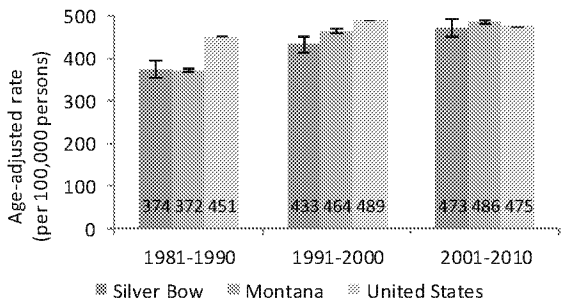
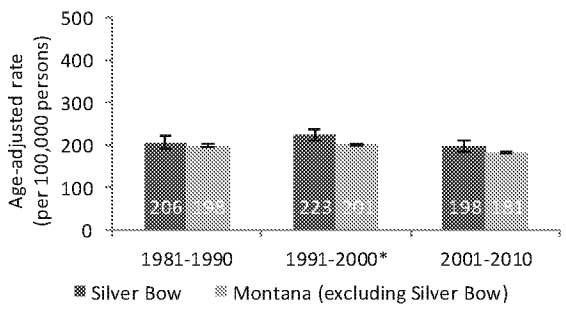


Figure 2. Age-adjusted mortality rate of all-site cancer, Silver Bow County and Montana



Cancer is a common disease in Montana and the United States. Approximately, 5,000 Montanans are diagnosed with cancer each year. A person can develop cancer for many reasons: genetics, environmental exposures, and life style behaviors (such as cigarette smoking, drinking alcohol, etc.). Unfortunately, however, it is often difficult to determine the exact cause for an individual's cancer.

The State of Montana has very complete data on cancer incidence. Cancer incidence is the number of newly diagnosed cancer cases each year. This data comes from the Montana Central Tumor Registry (MCTR). State law requires every case of cancer that is diagnosed or treated in Montana be reported to the MCTR (Montana Code Annotated 50.15.7). The MCTR has been collecting cancer data since 1979. The MCTR is very complete, over 95% of all cancer cases are in the registry.

Cancer incidence data for Montana and Silver Bow County was provided by the Montana Central Tumor Registry. Caner incidence data for the United States was provided by the National Cancer Institute's Surveillance Epidemiology and End Results (SEER) program. Data on cancer mortality was provided by the Montana Office of Vital Statistics. All incidence and mortality rates in this report are age-adjusted to the U.S. Standard Million Population.

The incidence of cancer for all sites was the same among residents of Silver Bow County compared to the residents of the state of Montana (Figure 1). The U.S. all-site cancer incidence rate was higher than both Silver Bow County and Montana during the diagnosis period of 1981-1990 and 1991-2000 (Figure 1). The U.S. incidence rate was the same as Silver Bow County and Montana during the diagnosis period of 2001-2010 (Figure 1).

Mortality due to cancer (all-site) was the same in Silver Bow County as the rest of Montana for the periods 1981-1990 and 2001-2010 (Figure 2). The all-site cancer mortality rate for the period 1991-2000 was higher in Silver Bow County than the rest of Montana (Figure 2).

MT Cancer Surveillance & Epidemiology Program
1400 E Broadway
Helena, Montana 59260-2951
(406) 444-0064

http://www.dphhs.mt.gov/publichealth/cancer/datastatistics.shtml

MONTANA Department of Public Health & Human Services

May 2012

Figure 3. Incidence of prostate cancer among residents in Silver Bow County, Montana, and the U.S.

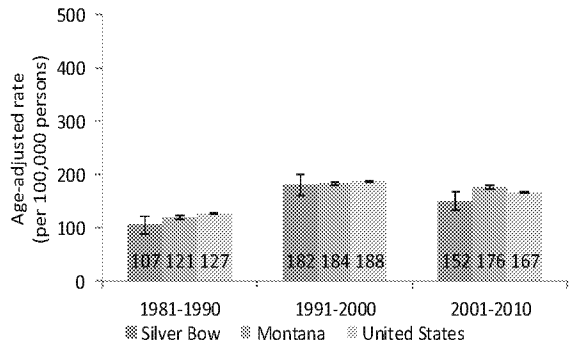


Figure 4. Incidence of breast cancer among female residents of Silver Bow County, Montana, and the U.S.

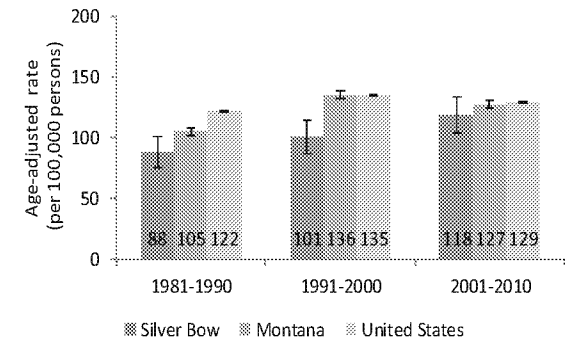


Figure 5. Incidence of colorectal cancer among residents of Silver Bow County, Montana, and the U.S.

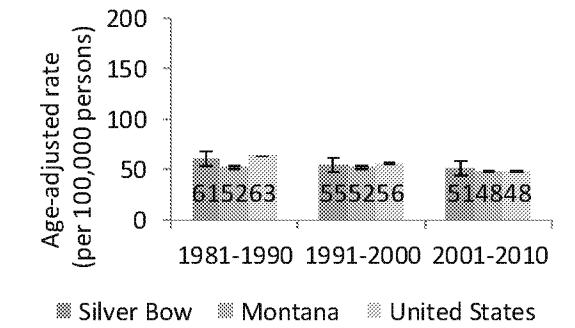
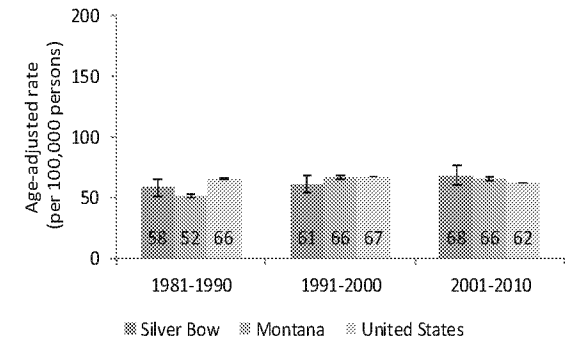


Figure 6. Incidence of lung & bronchus cancer among residents in Silver Bow County, Montana, and the U.S.



Incidence of the Most Common Cancers

The most common types of cancer in Silver Bow County are also the most common in Montana and in the United States. None of these cancers (except for lung cancer) are known to be affected by the heavy metals or chemicals of concern in Silver Bow County. Lung cancer is also associated with arsenic exposure. However the majority of lung cancer cases are caused by cigarette smoking (87% of cases among men and 74% of cases among women).

Prostate Cancer Incidence

Prostate is the most diagnosed cancer in Montana and in the US. The incidence of prostate cancer among residents of Silver Bow County was the same as Montana and the United States for the time intervals 1981-1990 and 1991-2000 (Figure 3). From 2001-2010, the incidence rate in Silver Bow County was lower than Montana (Figure 3).

Female Breast Cancer Incidence

The incidence of female breast cancer among residents of Silver Bow County was lower than Montana and the United States for the time periods 1981-1990 and 1991-2000 (Figure 4). From 2001-2010, the incidence rate in Silver Bow County was the same as Montana and the United States (Figure 4).

Colorectal Cancer Incidence

The incidence of colorectal cancer among residents of Silver Bow County was the same as Montana and the United States for all three time intervals (Figure 5).

Lung & Bronchus Cancer Incidence

The incidence of lung & bronchus cancer was the same among residents of Silver Bow County and Montana for all three time intervals (Figure 6).

Mortality of the Most Common Cancers

Prostate Cancer Mortality
Mortality due to prostate cancer among residents of Silver Bow County was the same as Montana for all three time intervals (Figure 7).

Female Breast Cancer Mortality
Mortality due to female breast cancer among residents of Silver Bow County was the same as the rest of Montana for all three time intervals (Figure 8).

Colorectal Cancer Mortality
Mortality due to colorectal cancer among residents of Silver Bow County was higher than the rest of Montana for all three time intervals (35% higher in 1981-90, 50% higher in 1991-00, and 50% higher in 2001-10) (Figure 9).

Lung & Bronchus Cancer Mortality
Mortality due to lung & bronchus cancer was the same among residents of Silver Bow County as the rest of Montana for all three time intervals (Figure 10).

Figure 7. Mortality of prostate cancer among residents in Silver Bow County and Montana

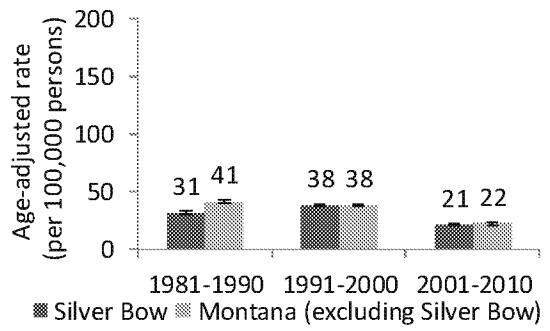


Figure 8. Mortality of female breast cancer among residents of Silver Bow County and Montana

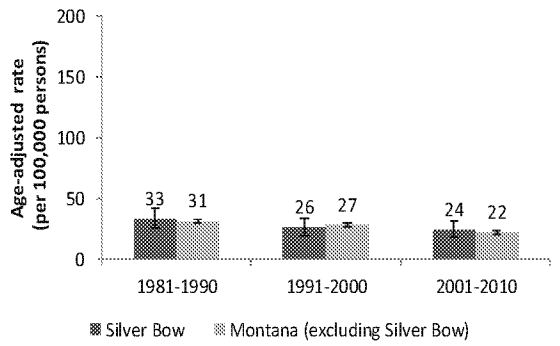


Figure 9. Mortality of colorectal cancer among residents of Silver Bow County and

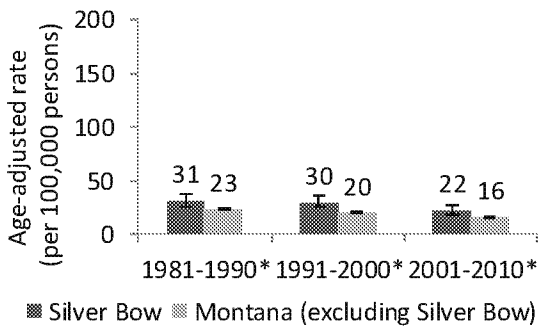


Figure 10. Mortality of lung & bronchus cancer among residents in Silver Bow County

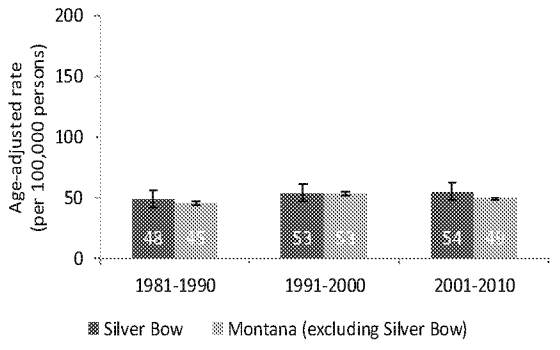


Figure 11. Incidence of bladder cancer among residents of Silver Bow County, Montana, and the U.S.

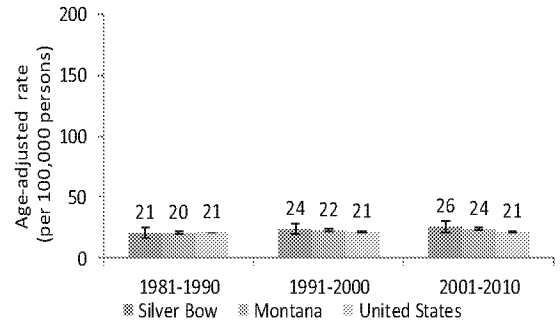


Figure 12. Mortality of bladder cancer among residents of Silver Bow County and Montana

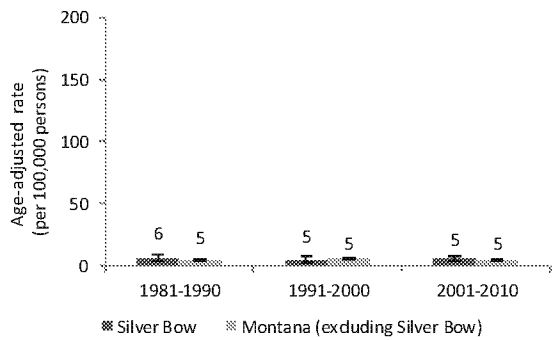
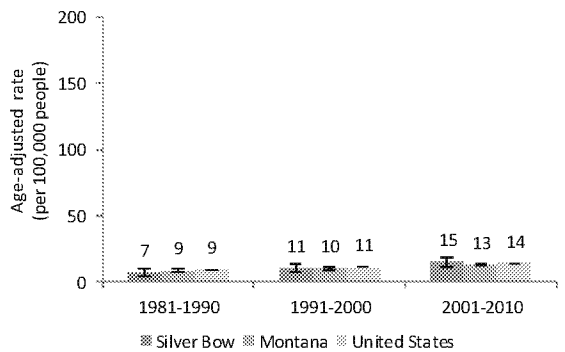


Figure 13. Incidence of kidney cancer among residents of Silver Bow County, Montana, and the U.S.



Cancers associated with Environmental exposures

Assessing cancer risk of humans due to exposure to environmental compounds requires the review of multiple scientific studies. These studies assess cancer risk in humans, animals, and in the laboratory. National and international agencies use the results of these studies to classify environmental compounds as to their cancer-causing potential. The International Agency for Research on Cancer (IARC) and the Agency for Toxic Substances and Disease Registry (ATSDR) have classified the carcinogenicity of the following heavy metals and chemical of concern in Silver Bow County:

Arsenic: *Carcinogenic to humans (Group 1)*
Inorganic Lead: *Probably carcinogenic to humans (Group 2A)*
Organic Lead: *Not classifiable as to its carcinogenicity to humans (Group 3)*
Metallic Mercury & Inorganic Mercury: *Not classifiable as to its carcinogenicity to humans (Group 3)*
Methylmercury compounds: *Possibly carcinogenic to humans (Group 2B)*
Pentachlorophenol (PCP): *Possibly carcinogenic to humans (Group 2B)*

Arsenic Exposure

Cancers known to be associated with arsenic exposure (via food or water contamination) include lung & bronchus, bladder, kidney, and skin cancer (squamous cell carcinoma). Squamous cell carcinoma of the skin is not a reportable cancer by Montana State Law. The MCTR does not have complete data on the incidence of this type of skin cancer, therefore it is not reported here.

Lung & Bronchus cancer

The incidence of lung & bronchus cancer was the same among residents of Silver Bow County and Montana for all three time periods (Figure 6). Mortality due to lung & bronchus cancer was the same among residents of Silver Bow County and as the rest of Montana for all three time intervals (Figure 10).

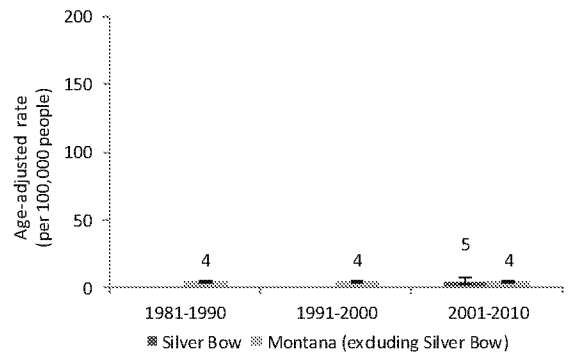
Bladder Cancer

The incidence of bladder cancer among residents of Silver Bow County is the same as Montana and the United States during each of the three time periods (Figure 11). Mortality due to bladder cancer was the same in Silver Bow County as the rest of Montana for three time intervals (Figure 12).

ED_002601_00004597-00004

Kidney Cancer
The incidence of kidney cancer among residents of Silver Bow County is the same as Montana and the United States during each of the three time periods (Figure 13). There were too few deaths due to kidney cancer in Silver Bow County during the time intervals 1981-90 and 1991-00 to compute a rate (14 and 16 deaths, respectively). From 2001-2010 mortality due to kidney cancer in Silver Bow County was the same as the rest of Montana (Figure 14).

Figure 14. Mortality of kidney cancer among residents of Silver Bow County and Montana



Pentachlorophenol (PCP) Exposure

Pentachlorophenol is possibly carcinogenic to humans (Group 2B). There is inconclusive evidence of cancer in humans. However, increases in liver, adrenal gland, and nasal tumors have been found in lab animals. Cancers of the adrenal gland and the nasal cavity had too few cases in Silver Bow County to report.

Liver Cancer
The incidence of liver cancer was the same among residents of Silver Bow County, Montana and the United States during the time intervals of 1991-00 and 2001-10 (Figure 15). There were too few cases of liver cancer during the1981-90 time interval to calculate a rate. There were too few deaths due to liver cancer in Silver Bow County to calculate a rate during all three time intervals. The mortality rate of liver cancer in Montana remained the same during all three time intervals (Figure 16).

Figure 15. Incidence of liver cancer among residents of Silver Bow County, Montana, and the U.S.

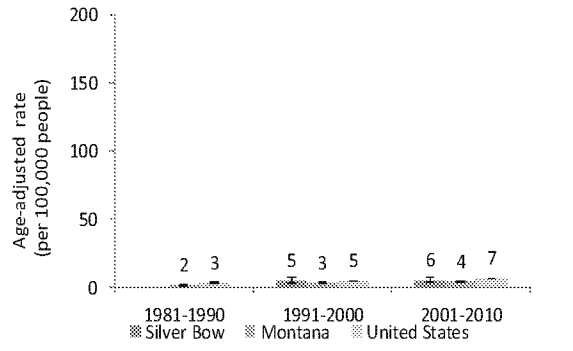
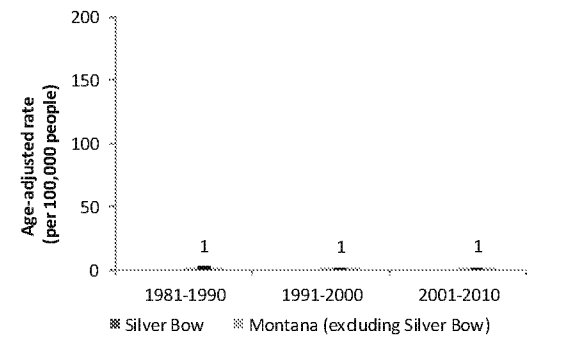



Figure 16. Mortality of liver cancer among residents of Silver Bow County and Montana