



2017-2021

CANCER IN MONTANA



MONTANA CENTRAL TUMOR REGISTRY ANNUAL REPORT

July 2024
Helena, Montana



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All-site Cancer in Montana
Quick Stats

6,322
MONTANANS

DIAGNOSED WITH CANCER EACH YEAR BETWEEN 2017—2021

NUMBER
TWO

CAUSE OF DEATH AMONG MONTANANS EACH YEAR

ONE
IN TWO

MEN WILL BE DIAGNOSED WITH CANCER IN THEIR LIFETIME

ONE
IN THREE

WOMEN WILL BE DIAGNOSED WITH CANCER IN THEIR LIFETIME

All-site Cancer in Montana

Cancer is a common disease; 2 in 5 (40%) people will be diagnosed with cancer in their lifetime.¹ This report describes the burden of cancer among Montanans and includes a special feature on lung cancer trends and prevention measures.

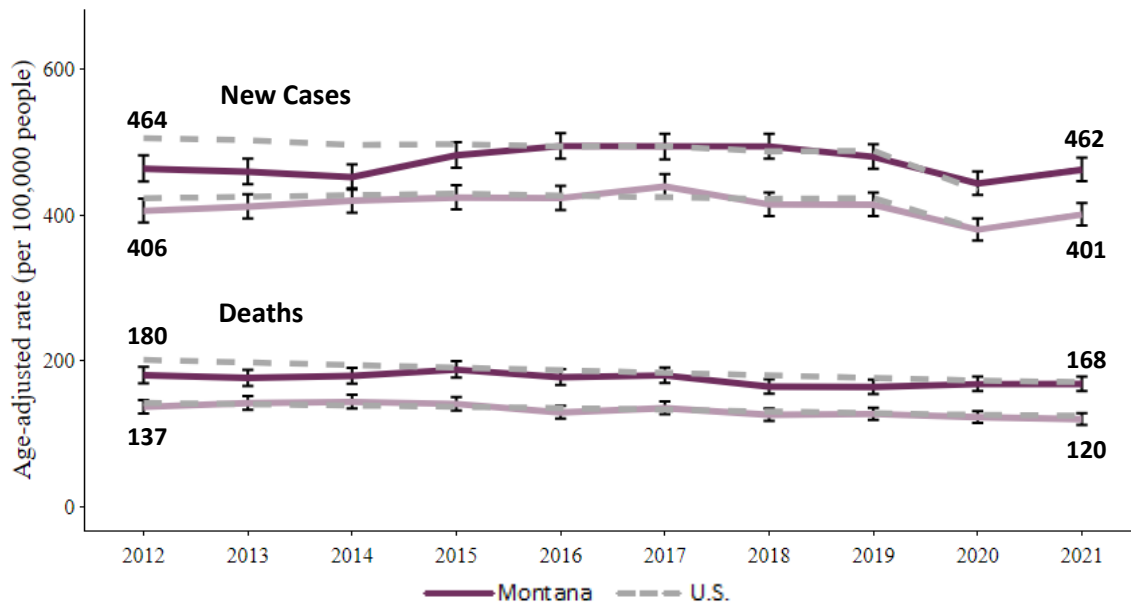
A total of 38,722 incident cancer cases were reported to the Montana Central Tumor Registry (MCTR) between 2017—2021, including invasive and in-situ cancers, benign tumors, and tumors of uncertain behavior. Invasive cancers accounted for 32,020 cases (83%); carcinoma in-situ accounted for 5,536 cases (14%). An average of 6,322 invasive cancers were diagnosed each year among Montana residents between 2017 and 2021.

Over half (54%) of cancers diagnosed in Montana occurred among men. The cancer incidence rate was higher among males compared to females in Montana and the U.S. from 2017—2021 (Figure 1).

Cancer incidence stayed relatively constant over the past 10 years. Following a significant decrease in cancer diagnoses among both men and women in 2020 likely due to the disruption of healthcare services caused by the COVID-19 pandemic, cancer rates in Montana returned to norm in 2021 (Figure 1). Cancer incidence in 2021 was not significantly different from pre-pandemic levels (2017-2021), suggesting that any diagnostic delays during the pandemic did not result in a subsequent surge of new cases the year following.

Cancer was the second leading cause of death in Montana from 2017—2021, following heart disease. There were a total

Figure 1. Trends in age-adjusted cancer incidence (new cases) and mortality (deaths) rates in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2021

¹ American Cancer Society. Lifetime Probability of Developing and Dying from Cancer, 2017-2021 (Cancer Facts & Figures 2023 Supplemental Data). 2024. Accessed at <https://www.cancer.org/cancer/risk-prevention/understanding-cancer-risk/lifetime-probability-of-developing-or-dying-from-cancer.html> on June 7th, 2024.

of 9,763 cancer deaths from 2017—2021; for an average of 1,952 cancer deaths each year over this time period. The cancer mortality (death) rate among Montana residents was not significantly different than the U.S. (Figure 1). Four types of cancer accounted for 50% of all new cancers diagnosed in Montana from 2017—2021. These cancers were prostate (17%), female breast (15%), lung (11%), and colorectal (8%).

Nearly one in four cancer-related deaths in Montana were due to lung cancer (23%), followed by colorectal (9%), pancreatic (8%), and prostate (7%) and female breast (7%), (Table 1).

The incidence rate for cancer overall in Montana was estimated to be 3% below the U.S. incidence rate. This difference was

statistically significant and, therefore, we can conclude that the overall cancer incidence rate in Montana was lower than the U.S. (Figure 2). The incidence rate of lung, non-Hodgkin lymphoma, and uterine cancers were statistically significantly lower in Montana compared to the U.S. (Figure 2). In contrast, the incidence rates of leukemia, bladder, melanoma, and prostate cancers were statistically significantly higher than the U.S. rates (Figure 2).

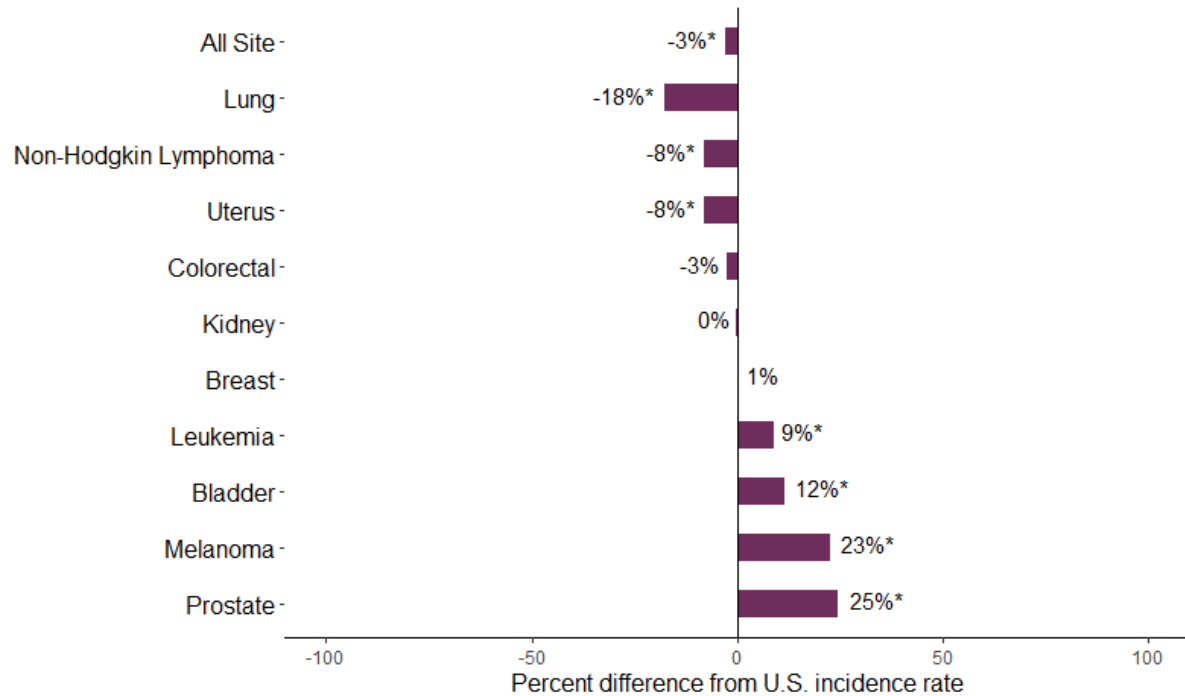
The cancer mortality rate for all-site cancer in Montana was significantly lower than the U.S. (Figure 3). Six cancer sites, lung, breast, liver, Non-Hodgkin Lymphoma, pancreas, and colorectal had significantly lower mortality rates than the U.S. (Figure 4). Mortality in Montana was statistically higher for prostate cancer compared to the U.S. (Figure 4).

Table 1. Number and percent of new cancer cases (incidence) and cancer-related deaths (mortality)

New Cancers				Deaths			
Rank	Site	Avg. # per year	Percent	Rank	Site	Avg. # per year	Percent
1	Prostate	1057	17%	1	Lung	451	23%
2	Female Breast	948	15%	2	Colorectal	178	9%
3	Lung	716	11%	3	Pancreas	155	8%
4	Colorectal	508	8%	4	Prostate	141	7%
5	Melanoma	378	6%	5	Female Breast	140	7%
6	Bladder	328	5%	6	Liver	92	5%
7	Non-Hodgkin Lymphoma	277	4%	7	Leukemia	83	4%
8	Kidney	247	4%	8	Non-Hodgkin Lymphoma	71	4%
9	Leukemia	216	3%	9	Brain	70	4%
10	Uterus	192	3%	10	Esophagus	65	3%
11	Pancreas	185	3%	11	Bladder	63	3%
12	Thyroid	155	2%	12	Kidney	60	3%
13	Liver	113	2%	13	Myeloma	48	2%
14	Myeloma	106	2%	14	Ovary	46	2%
15	Brain & other CNS	94	1%	15	Uterus	35	2%
All new cancers (total)		6,322	100%	All cancer-related deaths (total)		1,952	100%

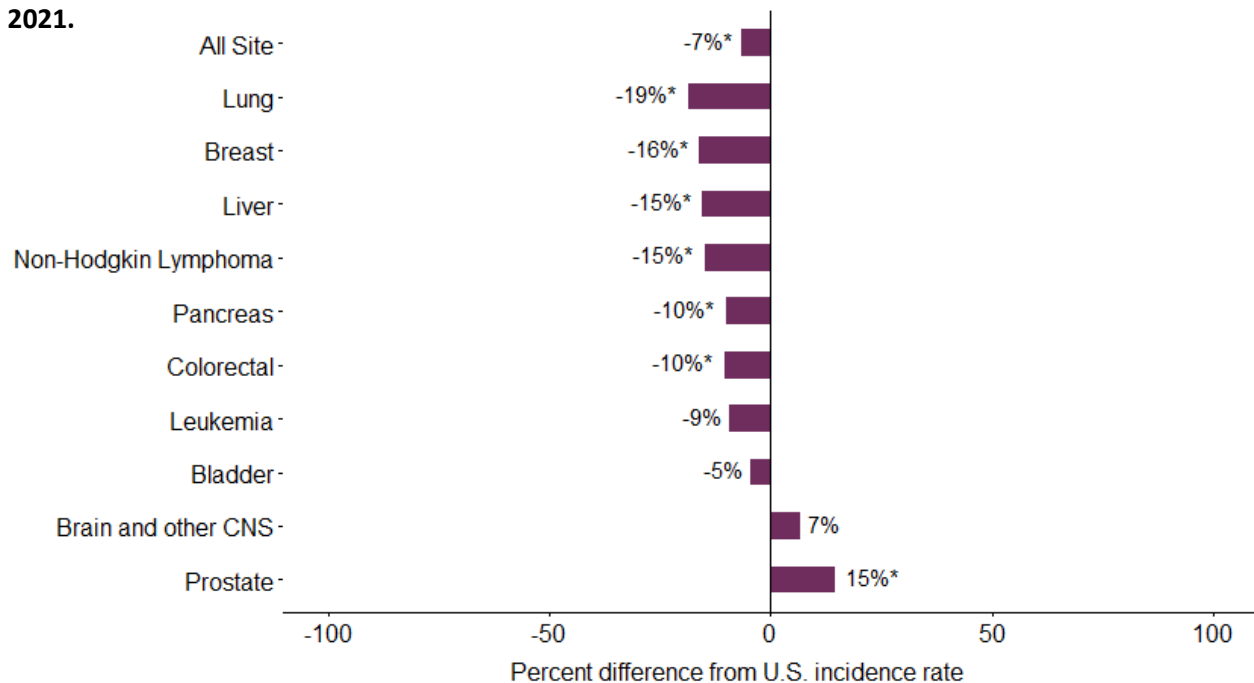
Data Source: Montana Central Tumor Registry, 2017—2021; Montana Death Records, 2017—2021

Figure 2. Comparison of Montana and U.S. incidence rates for the select cancer sites, 2017—2021.



All-site Cancer

Figure 3. Comparison of Montana and U.S. mortality rates for the select cancer sites, 2017—2021.



Figures 2 and 3 depict the Montana -U.S. Standardized Incidence Rate Ratio (SIRR) and Standardized Mortality Rate Ratio (SMRR). The SIRR and SMRR indicate which types of cancers among Montanans were above or below the U.S. age-adjusted incidence rate or mortality rate, respectively. This information is important in understanding the unique burden cancer presents to Montana.

*Statistically significantly different rates between Montana and the U.S

Data Source: Montana Central Tumor Registry, 2017—2021; Montana Death Records, 2017—2021; United States Cancer Statistics, 2016—2020

Cancer Among Montana American Indians
Quick Stats

325
NEW CASES

OF CANCER DIAGNOSED EACH YEAR

CANCER INCIDENCE RATE AMONG MT AI WAS

26 PERCENT
HIGHER

THAN AMONG MONTANA WHITES

103
DEATHS

DUE TO CANCER EACH YEAR AMONG MONTANA
AMERICAN INDIANS

6
CANCER SITES

ACCOUNT FOR THE HIGHER CANCER INCIDENCE AND MORTALITY
AMONG MONTANA AMERICAN INDIANS.

Cancer among American Indians in Montana

Cancer presents a significant burden to American Indian communities in Montana.

From 2017—2021, there were a total of 1,649 Montana American Indians (MT AI) diagnosed with cancer for an average of 330 each year.

Female breast and lung cancer were the most commonly diagnosed cancer among MT AI followed by prostate, colorectal, and kidney cancers (Table 2). These five types of cancer accounted for 60% of all cancers diagnosed among MT AI.

MT AI men and women had about the same cancer incidence rate from 2017—2021 (571 new cases per 100,000 men and 523 new cases per 100,000 women). The average age at diagnosis was 62 years old among MT AI men and 61 years old among MT AI women.

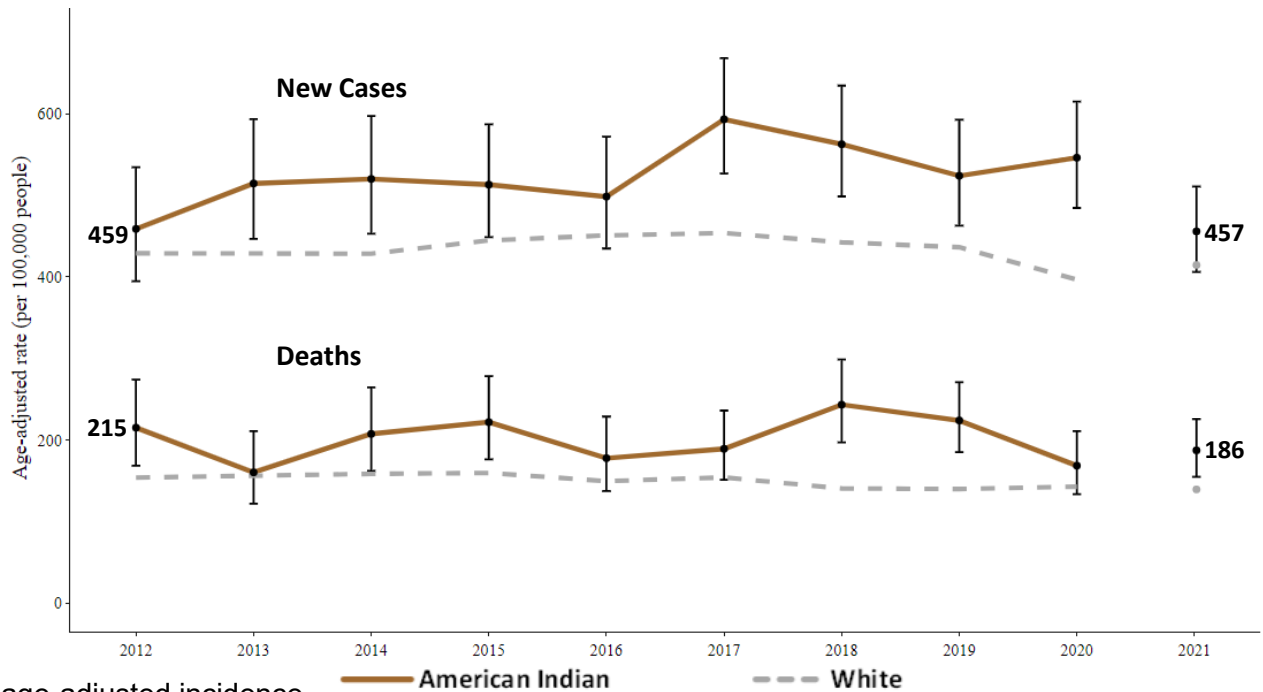
From 2017—2021, cancer was the second leading cause of death with 515 cancer related deaths among MT AI. On average, there were 103 cancer deaths each year. Lung cancer accounted for 25% of cancer related deaths among MT AI (Table 2).

Table 2. Number and percent of new cancer cases and cancer-related deaths among American Indians for the 10 most common cancers in Montana from 2017—2021.

New Cancers				Deaths			
Rank	Site	Avg # per year	Percent	Rank	Site	Avg # per year	Percent
1	Female Breast	53	16 %	1	Lung	26	25%
2	Lung	50	15%	2	Colorectal	12	11%
3	Prostate	40	12%	3	Liver	8	8%
4	Colorectal	34	10%	4	Female Breast	8	8%
5	Kidney	22	7%	5	Pancreas	7	7%
6	Liver	13	4%	6	Prostate	6	5%
7	Pancreas	10	3%	7	Kidney	5	4%
8	Non-Hodgkin Lymphoma	10	3%	8	Leukemia	4	3%
9	Thyroid	10	3%	9	Non-Hodgkin Lymphoma	3	3%
10	Uterus	9	3%	10	Stomach	3	3%
	All new cancers (total)	330	100%		All cancer-related deaths (total)	103	100%

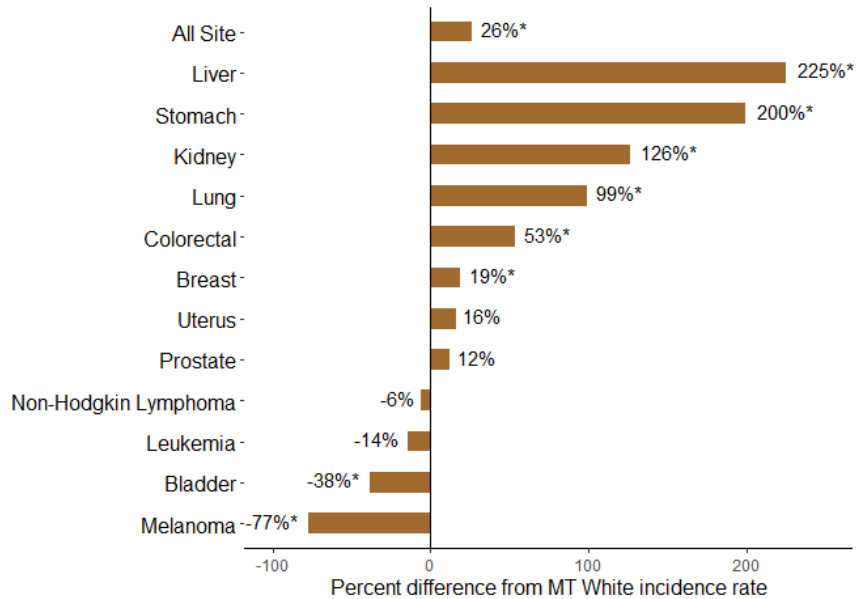
Data Source: Montana Central Tumor Registry, 2017—2021; Montana Death Records, 2017—2021

Figure 4. Age-adjusted cancer incidence and mortality trends in Montana by race, 2012—2021.



- The age-adjusted incidence rate for Montana American Indians went down in 2021 (Figure 4). This decrease is likely in part due to a change from bridged-race to single race population estimates. This methodology change resulted in an increase in Montana’s 2021 AI population estimates and in turn, lower incidence rates.
- The overall cancer-related death rate (mortality) was also significantly greater among MT AI (173.4 deaths per 100,000 people) compared to MT Whites (124.1 deaths per 100,000) (Figure 4).
- There were six types of cancer which occurred at significantly greater rates among MT AI compared to MT Whites. These cancers were liver, kidney, stomach, lung, colorectal, and breast (Figure 5).
- Cancer mortality rates were significantly greater among MT AI for stomach, kidney, liver, colorectal

Figure 5. Comparison of American Indian and White incidence for select cancer sites in Montana, 2017—2021.



Figures 5 and 6 present the Montana American Indian-White Incidence Rate Ratio (IRR) and Mortality Rate Ratio (MRR) respectively. The IRR and MRR indicate which types of cancers among American Indians were above or below the age-adjusted rate of MT White population. This information is important in understanding the unique burden cancer presents to MT AI.

* Statistically significantly different. Data Source: Montana Central Tumor Registry, 2017—2021; Montana Death Records, 2017—2021

lung, and prostate cancers compared to MT Whites (Figure 6).

- Bladder cancer and melanoma occurred at significantly lower rates among MT AI compared to MT Whites (Figure 5).
- Mortality rates from bladder cancer were significantly lower among MT AI compared to MT Whites (Figure 6).

Reducing Cancer Burden in American Indian Communities in Montana

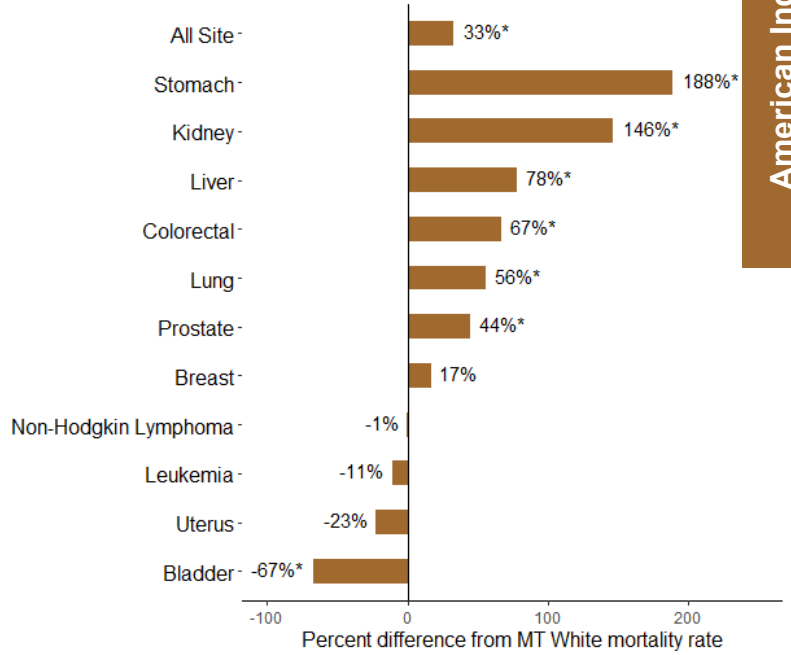
The cancer sites with higher incidence and mortality rates among MT AI have many behavioral risk factors in common. Commercial tobacco use increases the risk of all five sites; being obese increases the risk of kidney, liver, stomach, and colorectal cancers; and heavy alcohol use increases the risk of liver and colorectal cancer. More than twice as many AI adults reported current commercial tobacco use than White adults in 2021 (Figure 7).

The cancer disparity between MT AI and MT Whites could be reduced by reducing tobacco use and obesity and by increasing physical activity. Interventions focused on creating communities that support healthy behaviors with easy access to healthy food and safe physical activity and restrictions on unhealthy behaviors like smoke-free policies are an important step to reducing cancer risk.

Identifying American Indian patients in the Montana Central Tumor Registry (MCTR)

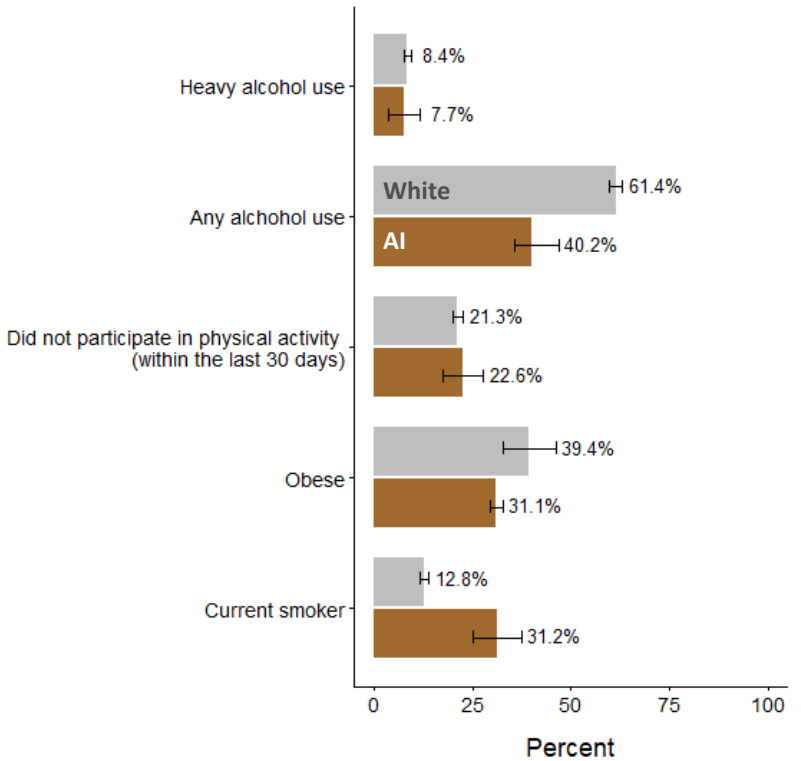
American Indians are often misclassified in health record systems. To better identify MT AI patients the MCTR links with Indian Health Services administrative files of enrolled recipients of IHS services from 1990 forward each year. This record linkage allows MCTR to identify additional AI patients in the registry. The addition of these patients greatly improves MCTR’s ability to describe the cancer burden among MT AI.

Figure 6. Comparison of American Indian and White Mortality for select cancer sites in Montana, 2017–2021.



American Indian

Figure 7. Percent of Adults who Report Select Risk Behaviors by race, Montana, 2021.



Data Source: Montana Behavioral Risk Factor Surveillance System, 2021

Female Breast Cancer in Montana
Quick Stats

939
WOMEN

WERE DIAGNOSED WITH BREAST CANCER EACH YEAR

NUMBER
ONE

TYPE OF CANCER DIAGNOSED AMONG WOMEN

NUMBER
TWO

CAUSE OF CANCER DEATH AMONG WOMEN

68
PERCENT

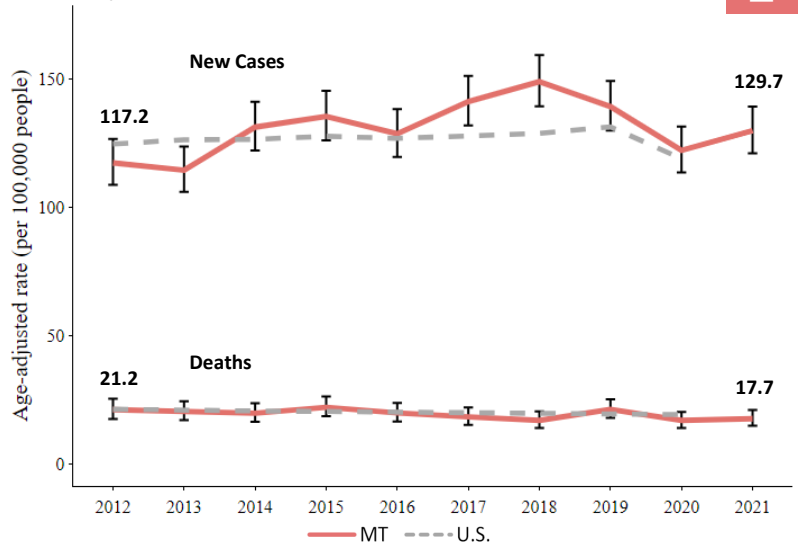
DIAGNOSED AT THE LOCAL STAGE

Female Breast Cancer Incidence & Mortality in Montana

Breast cancer was the most common cancer diagnosed among Montana women, accounting for 33% of new cancers.

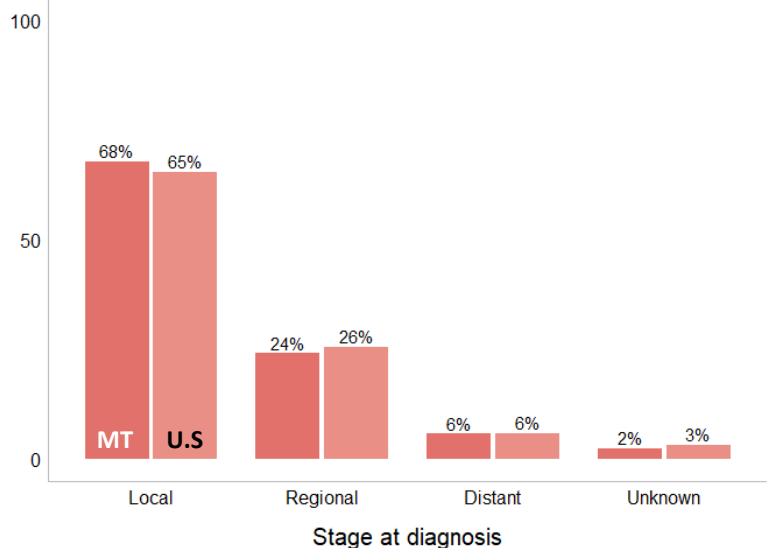
- 4,696 women in Montana were diagnosed with invasive breast cancer between 2017—2021, for an average of 939 women each year.
- 699 women died of breast cancer in Montana between 2017—2021 for an average of 140 women each year.
- In 2021, the age-adjusted incidence rate of breast cancer in Montana was 129.7 new cases per 100,000 women and the mortality rate was 17.7 deaths per 100,000 women (Figure 8).
- Over the past 10 years the incidence and mortality rates of breast cancer among Montana women were similar to U.S. women (Figure 8).
- In Montana, 68% of breast cancers were diagnosed at the local stage. Stage at diagnosis in Montana was similar to the U.S. (Figure 9).
- Women were, on average, 64 years old at the time of diagnosis (data not shown).
- Age at diagnosis ranged from 21 to 103. 15% of female breast cancer cases were diagnosed in women under the age of 50 (data not shown).

Figure 8. Trends in age-adjusted female breast cancer incidence and mortality in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2020

Figure 9. Stage at diagnosis percent of female breast cancer



Data Source: Montana Central Tumor Registry, 2017—2021; United States Cancer Statistics, 2016—2020

Prostate Cancer in Montana
Quick Stats

**1057
NEW CASES**

OF PROSTATE CANCER WERE DIAGNOSED EACH YEAR

**SECOND
LEADING**

CAUSE OF CANCER RELATED DEATH AMONG MEN

**141
DEATHS**

DUE TO PROSTATE CANCER EACH YEAR

**75
PERCENT**

DIAGNOSED AT LOCAL STAGE

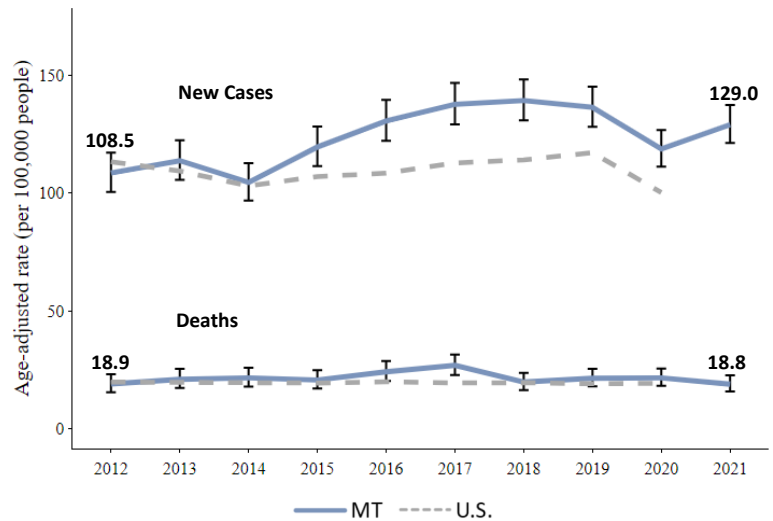
Prostate Cancer Incidence & Mortality in Montana

Prostate cancer was the most common cancer diagnosed among men, accounting for 31% of new cancers among Montana men.

- 5,286 Montanans were diagnosed with prostate cancer between 2017—2021, for an average 1,057 new cases each year.
- 703 men died of prostate cancer between 2017-2021 for an average of 141 deaths each year in Montana.
- Prostate cancer was the 2nd leading cause of cancer-related deaths among Montana men from 2017-2021.
- In 2021, the age-adjusted incidence rate of prostate cancer in Montana was 129 cases per 100,000 men and the mortality rate was 18.8 deaths per 100,000 men (Figure 10).
- Over the past 10-years (2012—2021) the incidence rate of prostate cancer in Montana has statistically significantly increased* (Figure 10).
- The prostate cancer incidence rate in Montana was higher than that of the U.S in recent years. Prostate cancer mortality rates in Montana were similar to the U.S. (Figure 10).
- 75% of prostate cancers were diagnosed at the local stage. Stage at diagnosis in Montana was similar to the U.S. (Figure 11).
- In Montana the average age at diagnosis was 68 years (data not shown).

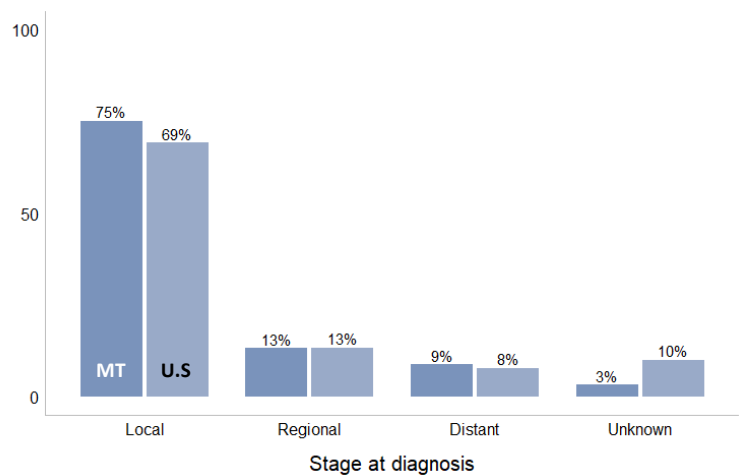
* Much of the increase in prostate cancer incidence is likely due to the changes in prostate cancer screening recommendations.

Figure 10. Trends in age-adjusted prostate cancer incidence and mortality rates in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2020

Figure 11. Stage at diagnosis percent of prostate cancer in Montana and the U.S., 2017—2021.



Data Source: Montana Central Tumor Registry, 2017—2021; United States Cancer Statistics, 2016—2020

Lung Cancer in Montana
Quick Stats

716
NEW CASES
OF LUNG CANCER DIAGNOSED EACH YEAR

41
PERCENT
OF LUNG CANCER CASES DIAGNOSED AT DISTANT STAGE

NUMBER
ONE
CAUSE OF CANCER RELATED DEATHS

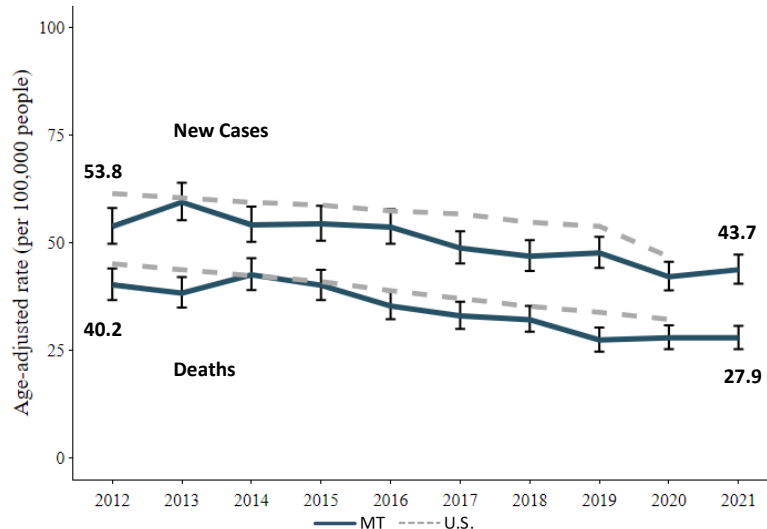
451
DEATHS
DUE TO LUNG CANCER EACH YEAR

Lung Cancer Incidence & Mortality in Montana

Lung cancer was the 3rd most common cancer among all Montanans accounting for about 11% of all cancer cases. It is also one of the most deadly cancers and is the leading cause of cancer-related death.

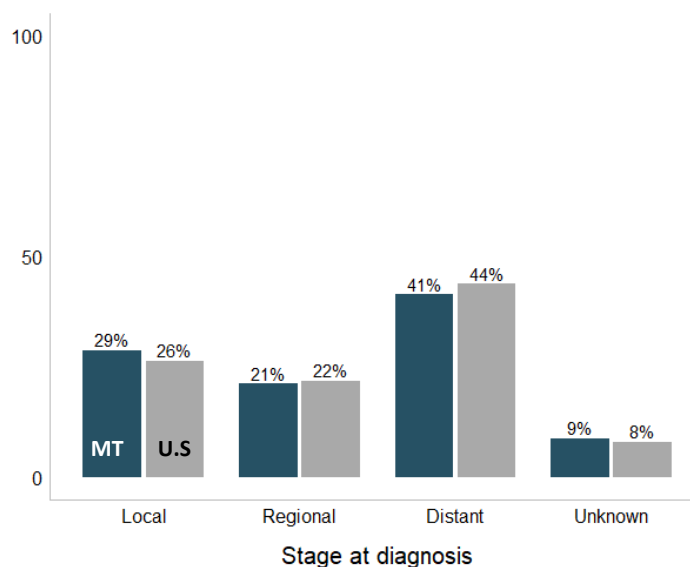
- 3,582 Montanans were diagnosed with lung cancer between 2017—2021, for an average of 716 new cases each year.
- 2,256 Montanans died of lung cancer between 2017—2021 for an average of 451 deaths each year.
- Lung cancer was the leading cause of cancer-related deaths from 2017—2021, accounting for 23% of cancer-related deaths.
- In 2021 the age-adjusted incidence rate of lung cancer in Montana was 43.7 new cases per 100,000 people and the mortality rate was 27.9 deaths per 100,000 people (Figure 12).
- Lung cancer incidence and mortality rates continue to decrease in Montana and the U.S. (Figure 12)
- In Montana, 41% of lung cancers were diagnosed at the distant stage while only 29% were diagnosed at the local stage. Stage at diagnosis in Montana was similar to the U.S. (Figure 13).
- The average age at diagnosis was 71 years for both men and women (data not shown).

Figure 12. Trends in age-adjusted lung cancer incidence and mortality rates in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2020

Figure 13. Stage at diagnosis of lung cancer, Montana and U.S., 2017—2021.



Data Source: Montana Central Tumor Registry, 2017—2021; SEER, 2016—2020

Colorectal Cancer in Montana
Quick Stats

**SECOND
MOST COMMON**

TYPE OF CANCER-RELATED DEATH

**178
DEATHS**

DUE TO COLORECTAL CANCER EACH YEAR

**508
NEW CASES**

OF COLORECTAL CANCER ARE DIAGNOSED EACH YEAR

**32
PERCENT**

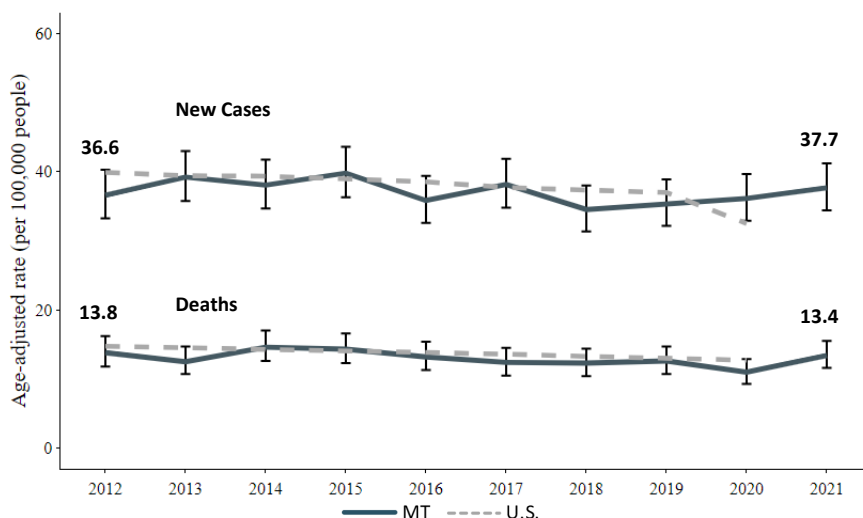
OF CASES ARE DIAGNOSED AT THE LOCAL STAGE

Colorectal Cancer Incidence & Mortality in Montana

Colorectal cancer (CRC) is the fourth most common type of cancer diagnosed and the second most common cause of cancer-related death among men and women in Montana.

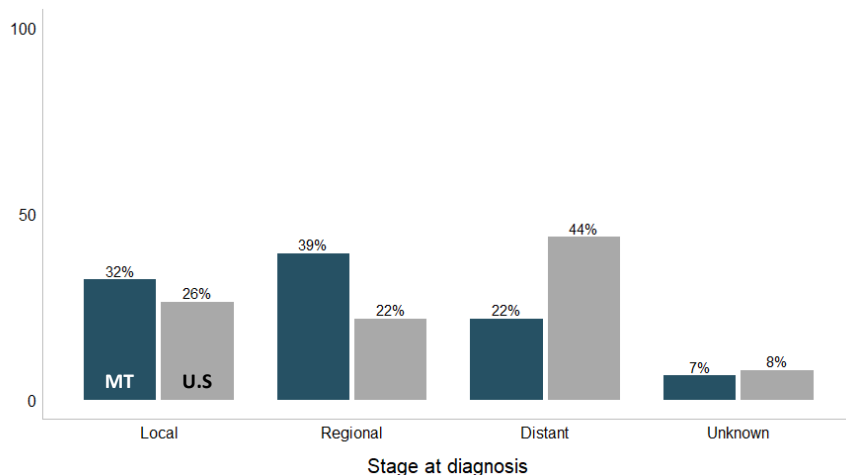
- 2,539 Montanans were diagnosed with CRC between 2017—2021 for an average of 508 cases each year.
- 888 Montanans died of CRC between 2017—2021 for an average of 178 deaths each year.
- In 2021 the age-adjusted incidence rate of colorectal cancer in Montana was 37.7 cases per 100,000 people and the mortality rate was 13.4 deaths per 100,000 people (Figure 14).
- CRC incidence and mortality in Montana has been about the same as in the U. S. since 2012 (Figure 15).
- 56% of CRC cases occurred among men and 44% among women.
- From 2017-2021, the average age at diagnosis was 66 years among men and 68 years among women (data not shown).
- 61% of CRC cases in Montana were diagnosed at the regional or distant stage (Figure 15).

Figure 14. Trends in age-adjusted colorectal cancer incidence and mortality rates in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2020

Figure 15. Stage at diagnosis of colorectal cancer in Montana and the U.S., 2017-2021.



Data Source: Montana Central Tumor Registry, 2017—2021; SEER, 2016—2020

Melanoma in Montana
Quick Stats

378
NEW CASES

OF MELANOMA DIAGNOSED EACH YEAR

95 %
OF CASES

ARE CAUSED BY EXPOSURE TO ULTRAVIOLET (UV) LIGHT²

THIRD
MOST COMMON

CAUSE OF CANCER AMONG TEENS AND YOUNG ADULTS (AGED 15 TO 39) IN MONTANA

85
PERCENT

DIAGNOSED AT THE LOCAL STAGE

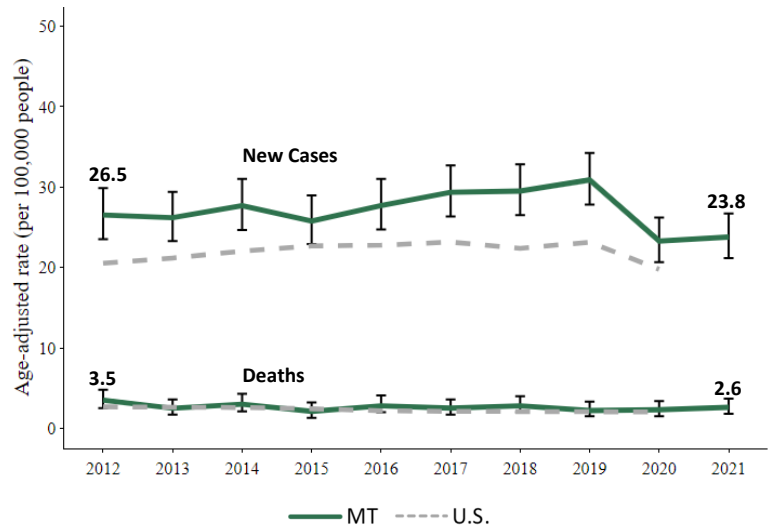
Melanoma

Incidence in Montana

Melanoma is the most dangerous form of skin cancer and is the most likely to spread to other areas of the body. Melanoma is the fifth most common type of cancer in Montana.

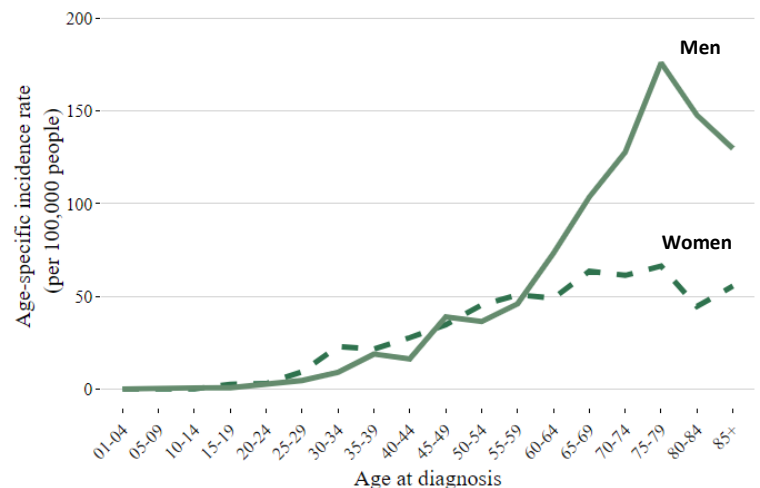
- 1,888 Montanans were diagnosed with melanoma between 2017—2021, for an average 378 new cases each year.
- 172 Montanans died of melanoma between 2017—2021 for an average of 34 deaths each year.
- Melanoma was the 3rd leading cause of cancer among teens and young adults aged 15 to 39, accounting for 12% of cases in that age group from 2017-2021 (data not shown).
- In 2021, the age-adjusted incidence rate of melanoma in Montana was 23.8 cases per 100,000 people and the mortality rate was 2.6 deaths per 100,000 people (Figure 16).
- Melanoma incidence in 2021 remained significantly lower than rates immediately prior to the COVID-19 pandemic
- The melanoma incidence in Montana was significantly higher than in the U.S but mortality was similar in Montana and the U.S. (Figure 16).
- In Montana the average age at diagnosis was 66 years for men and 56 years for women (data not shown).
- The overall incidence rate for males and females was similar but females have higher incidence at younger ages and males have higher incidence at older ages (Figure 17).

Figure 16. Trends in age-adjusted melanoma incidence and mortality rates in Montana and the U.S., 2012—2021.



Data Source: Montana Central Tumor Registry, 2012—2021; Montana Death Records, 2012—2021; United States Cancer Statistics, 2012—2020

Figure 17. Melanoma incidence rates by age group among males and females in Montana, 2017—2021.



Data Source: Montana Central Tumor Registry, 2017—2021;



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