MONTANA
CHRONIC DISEASE
PREVENTION & HEALTH
PROMOTION BUREAU

Lung Cancer Among Non-Smokers

Key Messages

Lung cancer is the 3rd most common cancer diagnosed, and the leading cause of cancer-related death in Montana. While smoking is by far the leading cause of lung cancer, accounting for an estimated **402 (Table 1)** deaths in Montana each year, lung cancer also impacts many people who have no smoking history.

An estimated 10-20% of lung cancer deaths are among people who have never smoked[1]. If classified as its own category, lung cancer among non-smokers would be between the 7th to 12th most common cancer death in Montana (Table 1). A decrease in smoking leads to a lower overall incidence of lung cancer. While lung cancer incidence among non-smokers is not expected to rise, the **proportion of lung cancer cases among non-smokers will likely increase** as the smoking population shrinks. (Figure 1).

Several factors (aside from smoking) can increase someone's risk of developing lung cancer. These include, but are not limited to, exposure to second-hand smoke, indoor radon, occupational hazards, and ionizing radiation. Understanding your own personal risk, and how it may be mitigated, is key to decreasing your chances of developing lung cancer.

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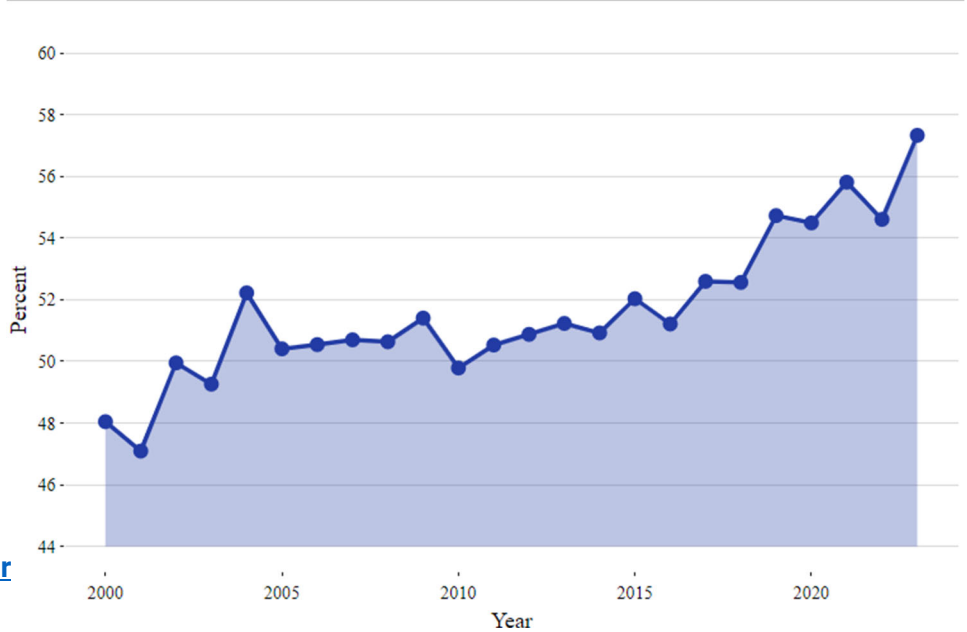
https://dphhs.mt.gov/publichealth/Cancer/DataStatistics

Table 1. Average yearly cancer deaths by site in Montana 2018—2022

Average Yearly Montana Cancer Deaths			
Rank	**Site**	**Avg. # per year**	**Percent**
1	Lung (Smokers)*	358-402	17%-19%
2	Colorectal	182	8%
3	Pancreas	160	7%
4	Breast	142	7%
5	Prostate	138	6%
6	Liver	95	4%
7-12	Lung (Non-Smokers)*	45-89	2%-4%
8	Leukemia	82	4%
9	Brain	74	3%
10	Lymphoma	67	3%

*Estimated based on 10-20% of lung cancer deaths occurring among non-smokers[1]
Data Source: Montana Vital Statistics

Figure 1. The percent of non-smokers* in Montana has been steadily increasing since 2000.



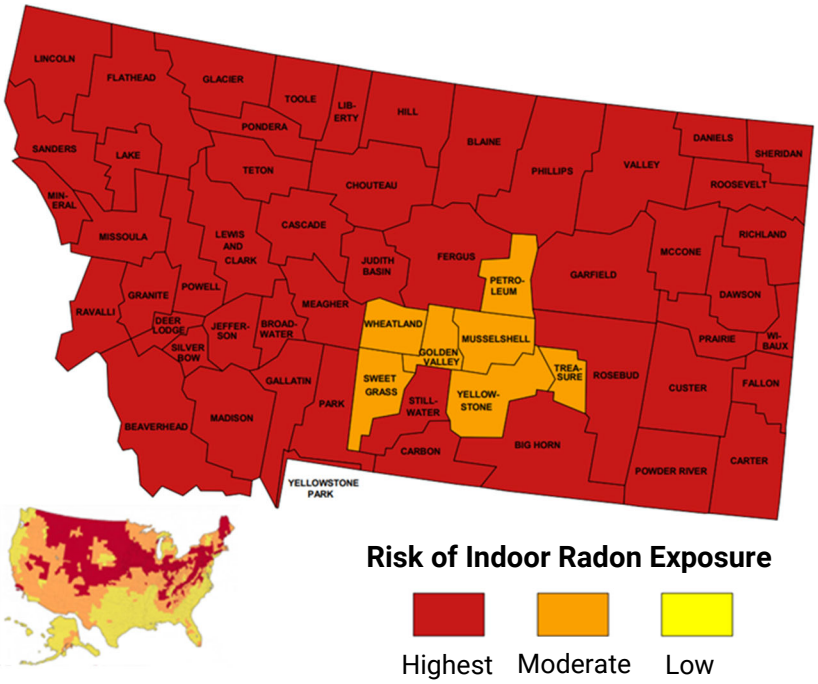
* Non-smokers are defined as adults (aged 18+) who have smoked less than 100 cigarettes in their lifetime. Data source: Montana Behavioral Risk Factor Surveillance System, 2000 – 2022.

Radon

Radon gas exposure is estimated to be the second leading cause of lung cancer in the United States behind smoking[2]. Radon is a naturally occurring radioactive gas which is invisible and odorless. Exposure to the gas often occurs when it seeps into the foundation of a building from the soil and becomes trapped. It is estimated that 9-13% of lung cancer cases in the U.S are due to radon exposure[2]. Based on this estimate, **40-58 lung cancer cases each year in Montana would be attributable to radon exposure**. This number might be even higher because radon levels in the state are greater than in much of the U.S. (Figure 2). **Radon gas exposure poses an even greater risk of lung cancer among those who smoke[3]**.

Radon levels vary greatly by geography. Differences in local geologic levels of radon can cause high variation in radon exposure risk even between neighbors. Other differences in home construction, HVAC type, and occupant behavior (e.g. opening windows) can also result in variation from building to building. This is why getting your home tested for radon is important to understand your risk.

Figure 2. Map of average indoor radon levels by county in Montana, U.S.



Source: https://www.epa.gov/radon/epa-map-radon-

Testing your home for radon is the only way to know if you or your family are at risk. When indoor radon is found to be at or above 4.0 picocuries per liter (pCi/L) the Environmental Protection Agency (EPA) recommends mitigation.

Montana has significantly higher average radon levels than the U.S. as a whole, and according to the Montana Department of Environmental Quality "approximately half of the homes tested for radon have levels at or above 4.0 pCi/L"[4]. The American Lung Association ranks Montana as the state with the second largest radon testing disparity, which compares the number of radon tests per housing unit performed in a state with its average radon level[5]. This indicates that Montanans are not adequately testing their homes for radon.

Resources

The State of Montana Radon Control Program provides subsidized radon testing kits. Whether you are a home owner or renter, it is important to test your home for radon to understand if mitigation is needed. Further information on testing kits and radon gas mitigation can be found at: https://deq.mt.gov/energy/programs/radon

Second-hand Smoke

Second-hand smoke, or environmental tobacco smoke exposure, increases the risk of developing lung cancer in those who have never smoked by more than 20%[6].

Air Pollution

Globally, indoor air pollution is a leading cause of lung cancer among non-smokers[7]. Cooking or heating your home with solid fuels such as wood, charcoal, and other biomass creates small particles which can be inhaled and increase the risk of lung cancer. While most homes in the U.S. are heated with natural gas or electricity, Montana has the third-highest share of wood-burning households of any state[8]. To reduce risk consider switching to well-ventilated natural gas heaters or electric stoves.

Family History

A family history of some types of lung cancer are associated with increased risk of developing the disease among smokers and non-smokers alike[9]. Communicating your family history of cancer with your doctor can help you understand your risk of the disease, even if you have never smoked.

Asbestos

Asbestos is a naturally occurring, carcinogenic mineral that was commonly used in construction through the 1970s. Exposure to asbestos causes mesothelioma as well as other forms of lung cancer. Vermiculite mines in Libby, Montana were closed in 1990 after they were found to be contaminated with asbestos, exposing miners and residents to the carcinogen. To this day, the town and the surrounding areas have elevated rates of asbestos-associated diseases[10].

More information on asbestos mitigation in Montana can be found at
https://deq.mt.gov/cleanupandrec/Programs/asbestos

Lung Cancer Screening

The United States Preventive Services Task Force (USPSTF) currently recommends lung cancer screening for individuals aged 50-80 with a 20-pack-year smoking history (equivalent to smoking a pack a day for 20 years)[11]. However, anyone experiencing lung cancer symptoms like a persistent, worsening cough or coughing up blood should speak to their health care provider immediately, regardless of whether they meet these screening criteria. Additionally, if you're concerned about lung cancer but do not fall into the high-risk group, discuss risk reduction strategies with your health care provider.

References

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