Lung and Bronchus Cancer

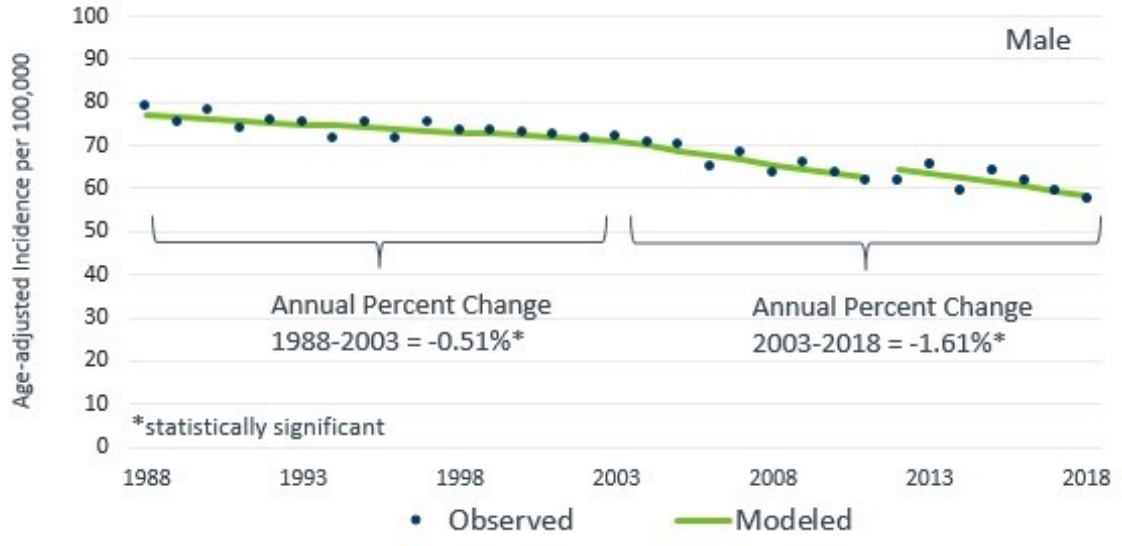
FACTS AND FIGURES – INCIDENCE AND MORTALITY IN MINNESOTA

Cancers diagnosed in the lungs and bronchus are called lung cancer. Lung cancers typically start in the cells lining the bronchi and parts of the lung such as the bronchioles or alveoli. [1] Most lung cancers are diagnosed in adults. In 2018, lung cancer was the second most common newly diagnosed cancer and the leading cause of cancer death in both men and women in Minnesota.

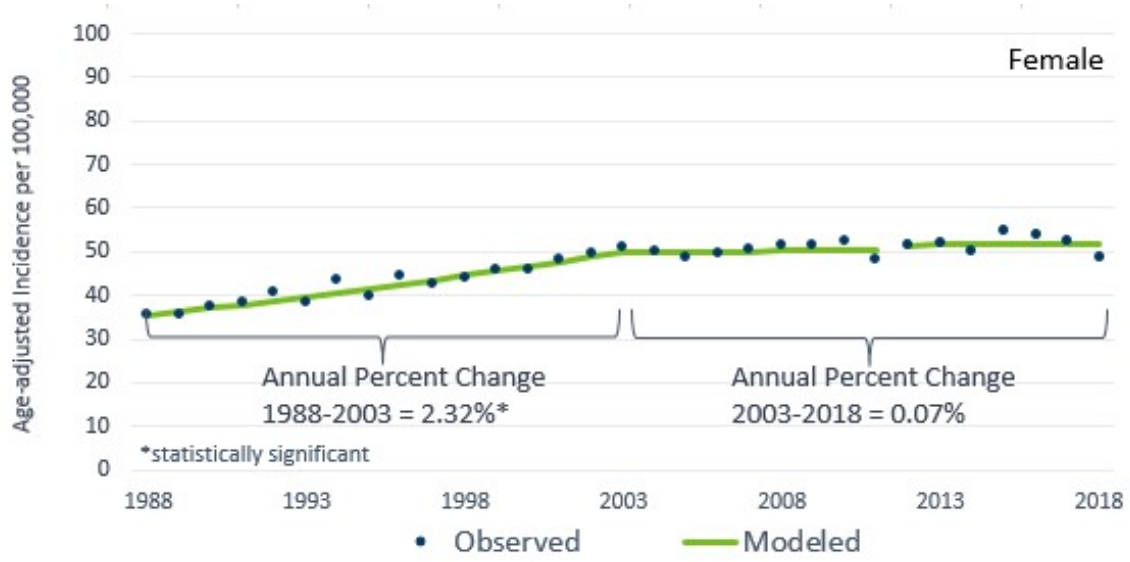
Trends in lung cancer incidence differ between men and women

Between 1988 and 2018, for both sexes combined the rate of new lung cancer diagnoses in Minnesota increased by 0.3% per year. However, as shown in the trendlines below, when broken down by sex the trends for males and females are notably different. The rate of new lung cancer diagnoses in men decreased by 0.9% each year between 1988 and 2018. In contrast, the rate of new lung cancer diagnoses in women increased by 1.3% each year. Prior to 2012, all new cancers reported to the Minnesota Cancer Reporting System (MCRS) had to have tissue confirmation. Beginning in 2012, the reporting rules expanded to include new cancers diagnosed without tissue confirmation. This means that prior to 2012, lung cancer incidence may have been underestimated.

Among men, lung cancer incidence has decreased over the past 20 years.

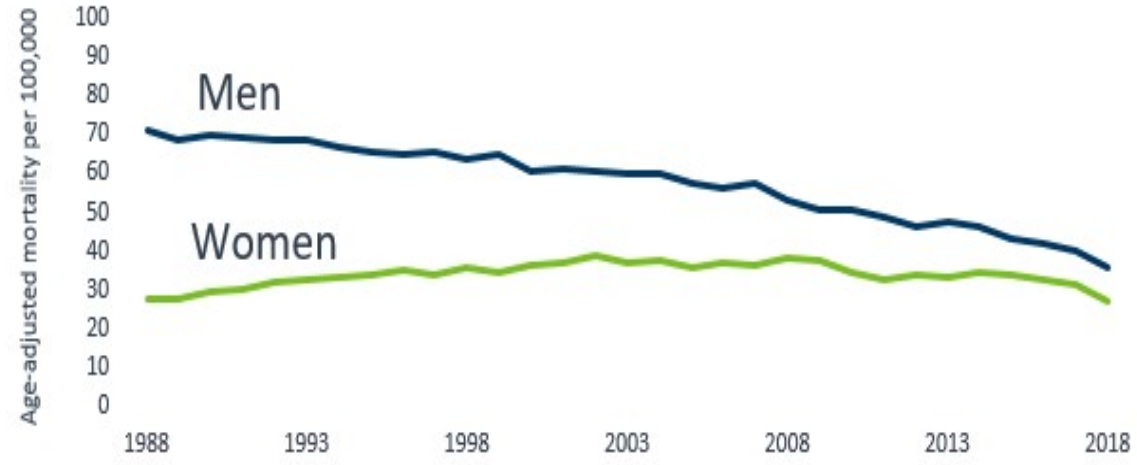


Among women, lung cancer incidence increased until 2003 and then remained stable.



Lung cancer mortality trends differ between men and women.

Since 1988, lung cancer mortality rates have decreased for men and fluctuated for women.



Lung cancer burden, 2014-2018

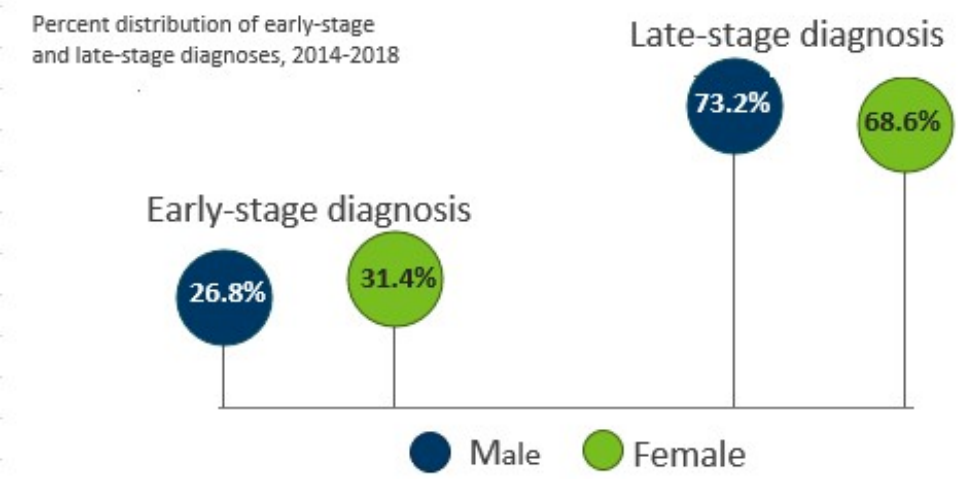
Between 2014 and 2018, there were 18,418 lung cancer diagnoses and 11,862 deaths from lung cancer in Minnesota. Ninety-eight percent of these occurred in Minnesotans aged 50 or more years. The age-adjusted rates per 100,000 were 55.6 for incidence and 35.8 for mortality. Approximately two-thirds were diagnosed at either a regional or distant stage. As such, five-year relative survival for lung cancer diagnosed between 2011 and 2017 is low. Overall, 50% of Minnesotans will survive their lung cancer for 15.9 months after diagnosis.

Stage at diagnosis	2014-2018 Number	2014-2018 Percent	5-Year relative survival for 2011 to 2017	Median relative survival (months)
Localized	4,895	27%	67.1%	~
Regional	3,920	21%	38.8%	32.5
Distant	8,005	43%	7.4%	6.4
Unstaged	1,598	9%	19.6%	11.3
Overall	18,418	100%	28.7%	15.9

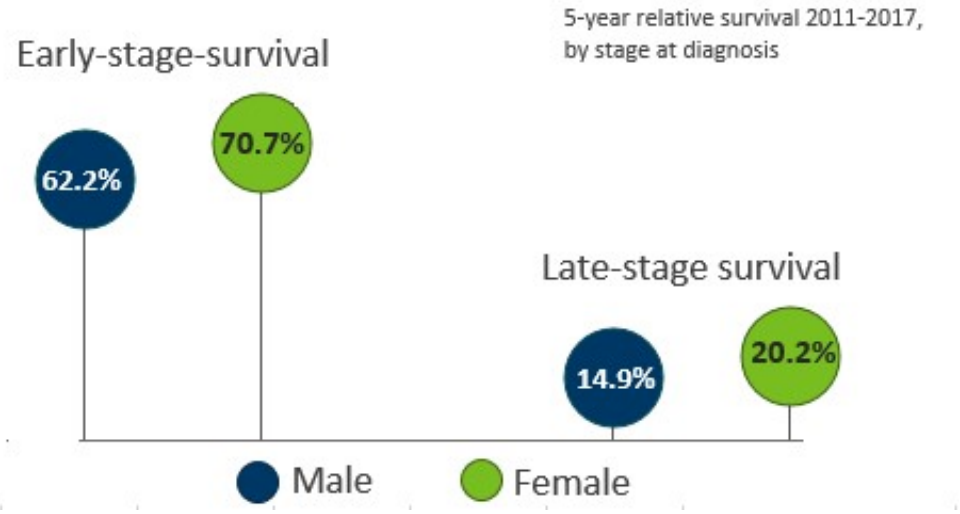
Women have somewhat higher 5-year relative survival than men.

Thirty-three percent of women survived their cancer five years. For men, 5-year relative survival was 24.5%. This pattern was also seen when looking at stage at diagnosis.

Women tend to be diagnosed at an earlier stage of lung cancer.



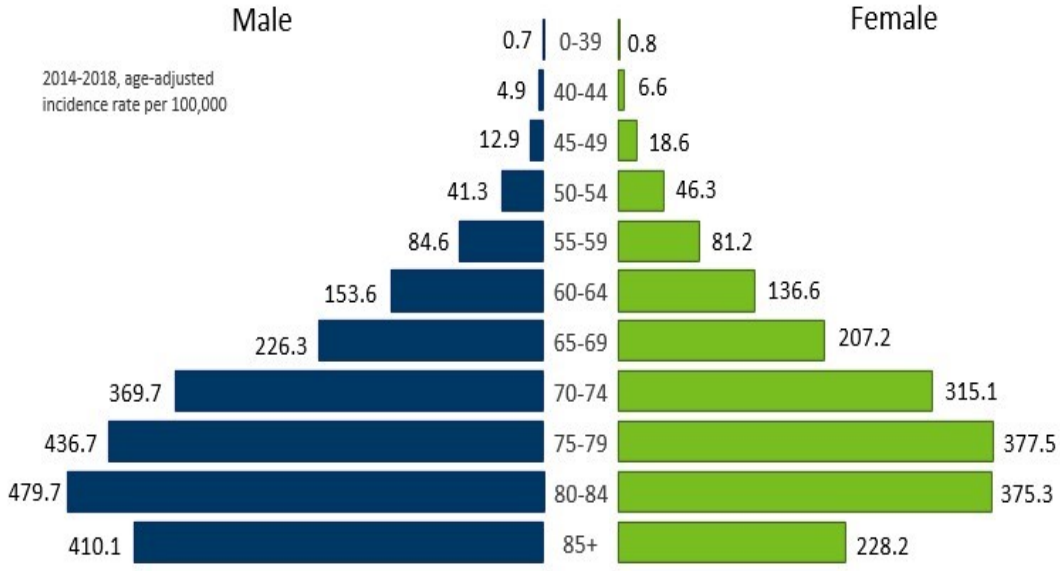
Women had higher survival than men for both early- and late-stage lung cancer.



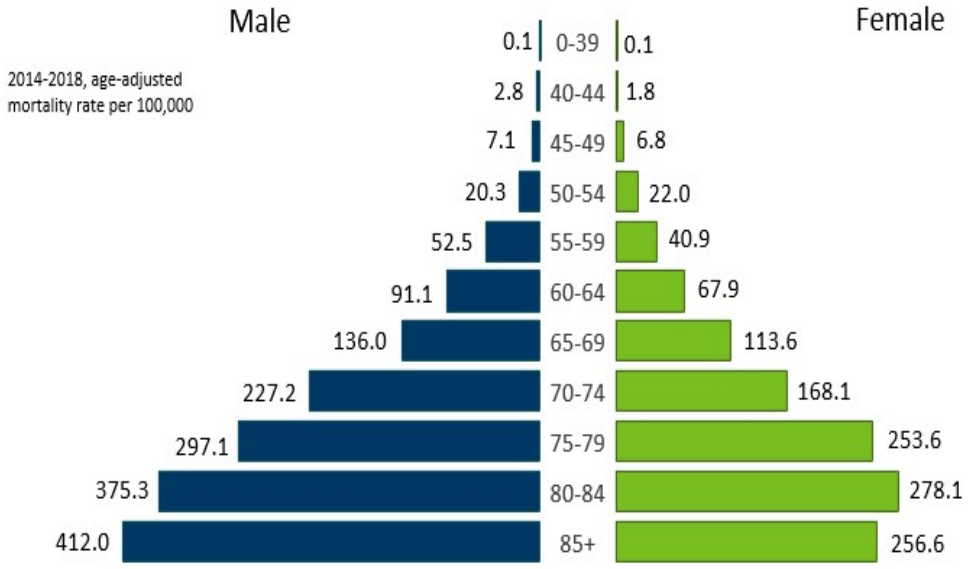
The rate of newly diagnosed lung cancers increases with age and is highest for men

Among men and women between the ages of 0 and 39 years the rate of lung cancer incidence and mortality is extremely low. Rates increase with age until late in life.

Men aged 60 and older have higher lung cancer incidence rates than women.



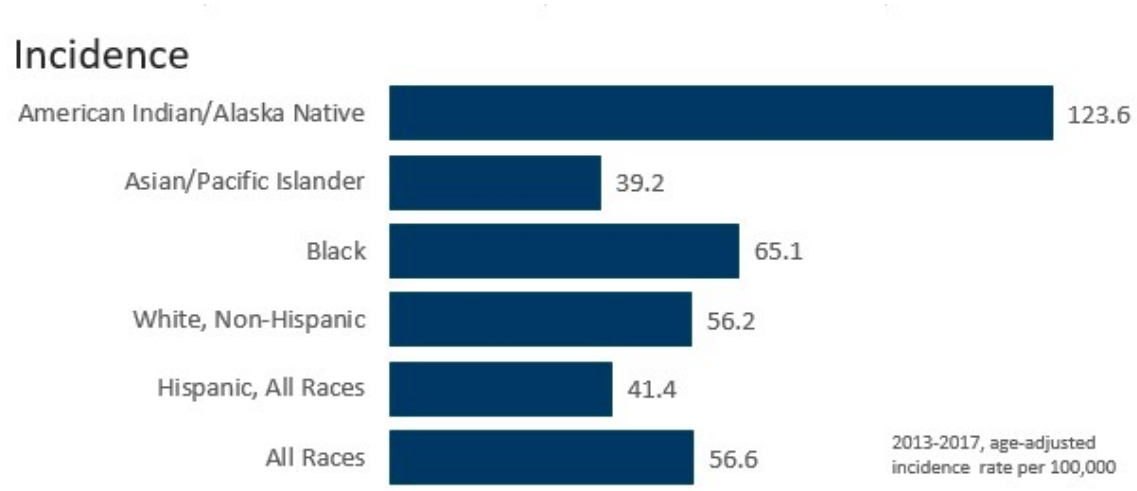
Men aged 55 and older have higher lung cancer mortality rates than women



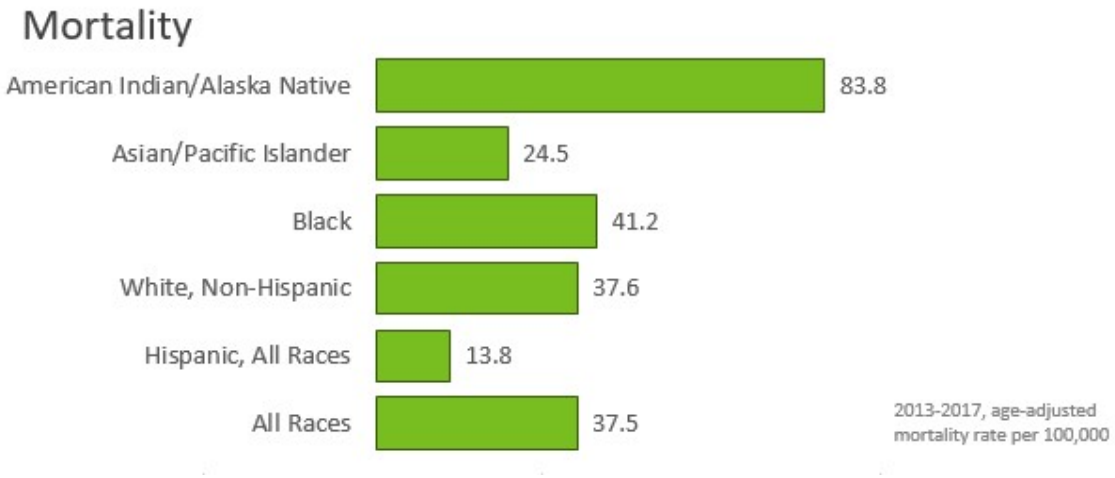
Incidence and mortality vary by race and ethnicity.

Between 2013 and 2017, rates of new lung cancer diagnoses and deaths were highest among American Indian men and American Indian women and were lowest among Hispanic men and Asian Pacific Islander women.

American Indians had the highest lung cancer incidence rate.



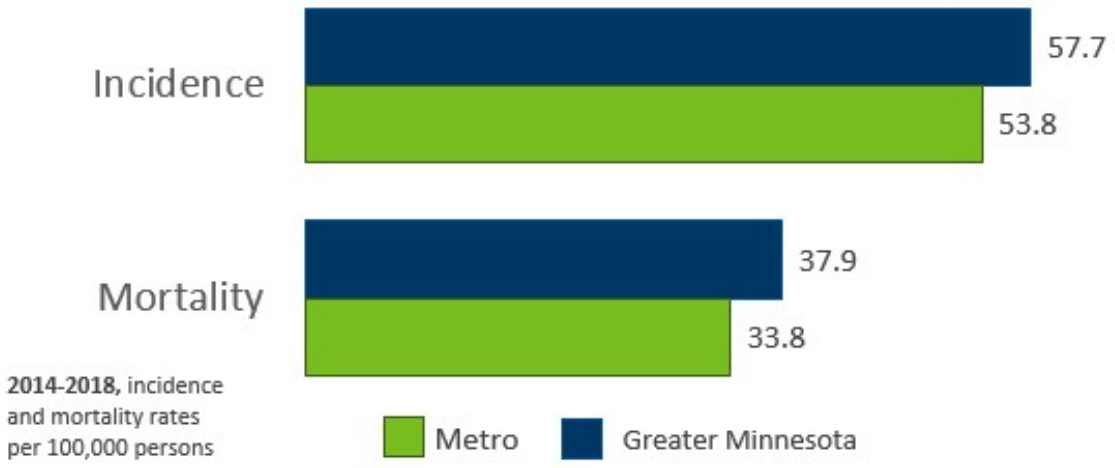
American Indians had the highest lung cancer mortality rate.



Lung cancer incidence and mortality rates vary across Minnesota.

Rates of new lung cancer cases and deaths were different by geographic location within Minnesota. Between 2014 and 2018, the rate of new lung cancer cases in Greater Minnesota was 57.7 per 100,000 and the rate of new lung cancer deaths was 37.9 per 100,000. In the Twin Cities 7-County Metropolitan Area the rate of new lung cancer cases was 53.8 per 100,000 and the rate of new lung cancer deaths was 33.8 per 100,000.

The highest rates of new lung cancer cases and deaths occurred in Greater Minnesota.



Signs and symptoms of lung cancer [3, 4]

- A cough that doesn't go away or gets worse
- Coughing up any amount of blood or rust colored sputum (spit or phlegm)
- Chest pain
- Hoarseness
- Unexplainable weight loss
- Loss of appetite
- Shortness of breath
- Feeling weak or tired
- Lung infections that don't go away or keep returning
- Wheezing
- Bone pain
- Headache

Risk and protective factors for lung cancer

In the United States, cigarette smoking is linked to about 80% to 90% of lung cancer deaths. [5] The biggest modifiable risk factor for lung cancer is cigarette smoking.

- **Tobacco** [3,4]– Cigarette smoking is the number one risk factor for lung cancer.
- **Secondhand smoke** [3,4] – Breathing in other people's tobacco also causes lung cancer.
- **Radon** [3,4,6] – Radon exposure is the second leading risk factor of lung cancer among smokers and the leading cause for nonsmokers. The average radon level in Minnesota is more than three times higher than the U.S. radon level. In Minnesota, more than two in five homes have radon levels that pose a significant public health risk.
- **Work-place exposures** [4] – Exposures to substances such as asbestos, arsenic, beryllium, cadmium, vinyl chloride, silica, nickel compounds, chromium compounds, coal products, mustard gas, chloromethyl ethers, and diesel exhaust found in some workplaces increase the risk of developing lung cancer. The risk increases for smokers. The government and industry have worked to help protect workers from these exposures.
- **Personal or family history of lung cancer** [4] – Lung cancer survivors are at risk of developing another lung cancer, especially if they smoke. Having a parent, sibling or child with lung cancer slightly increases the risk of developing lung cancer. Whether this is due to shared genes or shared household exposures is unclear.

- **Certain dietary supplements** [4] – Two large studies that looked at the possible role of vitamin supplements in reducing lung cancer risk found that people who smoked and took beta carotene supplements had an increased risk of lung cancer. People who smoke should avoid taking beta carotene supplements.
- **Arsenic in drinking water** [4] – Studies suggest that people exposed to levels of arsenic in drinking water have an increased of lung cancer. For most Americans on public water systems, drinking water is not a major source of arsenic.
- **Previous radiation to the lungs** [4] – Radiation therapy to the chest for other cancers increases the risk of lung cancer, particularly for people who smoke. Women who have radiation therapy to the breast after a lumpectomy do not appear to have an increased risk of lung cancer.
- **Air pollution** [4] – The risk of developing lung cancer appears to be slightly increased by exposure to air pollution, especially near heavily trafficked roads in cities.
- **Age** [7] – Advanced age is an important risk factor for cancer overall and for lung cancer. Nationally, the median age of diagnosis for lung cancer is 71 years.

Resources

1. American Cancer Society. What is lung cancer? (https://www.cancer.org/cancer/lung-cancer/about/what-is.html) Accessed October 27, 2021.
2. American Cancer Society. Can lung cancer be found early? (https://www.cancer.org/cancer/lung-cancer/about/what-is.html) Accessed October 21, 2021.
3. Mayo Clinic. Lung cancer symptoms and causes. (https://www.mayoclinic.org/diseases-conditions/lung-cancer/symptoms-causes/syc-20374620). Accessed October 21, 2021.
4. American Cancer Society. Lung cancer risk factors. (https://www.cancer.org/cancer/lung-cancer/causes-risks-prevention/risk-factors.html). Accessed October 20, 2021
5. Centers for Disease Control (CDC). What are the risk factors for lung cancer? (https://www.cdc.gov/cancer/lung/basic_info/risk_factors.htm). Accessed October 14, 2021.
6. Minnesota Department of Health (MDH). Radon in homes. (https://www.health.state.mn.us/communities/environment/air/radon/index.html). Accessed October 21, 2021.
7. National Cancer Institute (NCI). Age and cancer risk. (https://www.cancer.gov/about-cancer/causes-prevention/risk/age). Accessed October 21, 2021.

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