**Invisible Harm: Radon Exposure and Lung Cancer**

In North Dakota, lung cancer is the leading cause of cancer deaths, with about 2,500 lung cancer deaths from 2017-2021. One of the best ways to reduce lung cancer risk is to stop smoking. However, in addition to smoking, there is another cause of lung cancer in North Dakota: Radon.

Radon is a gas released from the soil that finds its way into almost all buildings with a basement through cracks in the foundation. Radon is difficult to detect because it's colorless and odorless, making it dangerous. This, coupled with the fact that radon is radioactive, makes it doubly dangerous.

Although other health risks are thought to be related to radon, like leukemia, lung cancer has been definitively linked to radon exposure. How does radon cause lung cancer? When those radioactive particles that can't be seen or smelled are breathed in, over time, they trigger cancer changes in the cells of the lungs. Depending on the concentration, this can happen in as little as 5 years or as many as 25 years.

In contrast to the cases of lung cancer caused by smoking, it's difficult to estimate the exact number of people in North Dakota whose lung cancer is caused by radon exposure. But radon is impacting North Dakotans because, according to the Environmental Protection Agency (EPA), North Dakota is one of the only states in the U.S. with *every* county having a Zone 1 ranking that indicates the highest concentration of indoor radon levels. This means that the many North Dakotans living in homes with high radon concentrations are at a higher risk of radon-caused lung cancer. If they're spending more time indoors in the winter months or especially if they're spending more time in their basement relaxing with family, they might also be spending more time with radon.

A home needs to be tested for radon to determine if it's present in harmful amounts and if the level needs to be addressed. The EPA recommends testing every floor in a home below the 3$^{rd}$ floor. Tests can be obtained online from the North Dakota Department of Environmental Quality by searching "Radon Test Kit Order Form" on their website, from a local hardware store, or even from some local public health departments. If the initial test result is greater than 4pCi/L or higher, a repeat test is recommended. If the average of both tests is higher than 4pCi/L, then the EPA recommends fixing the home, which can include radon reduction systems.

Although radon increases a person's risk of lung cancer, if a person has been exposed to radon *and* smokes, then lung cancer risk increases by 10-20 times, according to the Centers for Disease Control and Prevention. For those who smoke, it can be even more important to do home radon testing. In addition to quitting smoking being a great way to reduce lung cancer risk, North Dakotans who smoke and those who are smoke-free alike need to be familiar with the risk posed by radon's ability to cause lung cancer. Because radon is a gas that can't be seen or smelled, testing home levels can be lifesaving.

Blair Stewig is a third-year medical student at the University of North Dakota School of Medicine & Health Sciences. She has written this column to provide North Dakotans with health information about radon and lung cancer. The information is not for diagnosis or treatment and should not be used in place of previous medical advice provided by a licensed provider.