

What Is Cancer?

Cancer is a very common disease that affects thousands of people each year in Minnesota. When a person is diagnosed with cancer, it is often difficult and frightening. It is understandable that people want to find a reason for why they have cancer. They may have questions about the causes of a specific cancer in a specific person or community. Unfortunately, it is often very difficult to identify what exactly caused cancer to develop.



Cancer is not a single disease.

It is a complex, large, and diverse group of diseases that usually develops over time. Cancer is an umbrella term for more than 100 different diseases that occur when cells grow uncontrollably and then may spread through the body. Cancers differ in their causes, risk factors (something that increases the chance of developing cancer), treatment, and how likely you are to survive. Even single cancer types in the same organ may be different diseases. For example, there are many different types of breast cancer and each type has its own risks, treatments, and outcomes.

Cancers are also different in the way they act within the body. Cancerous tumors that can grow in place but can't

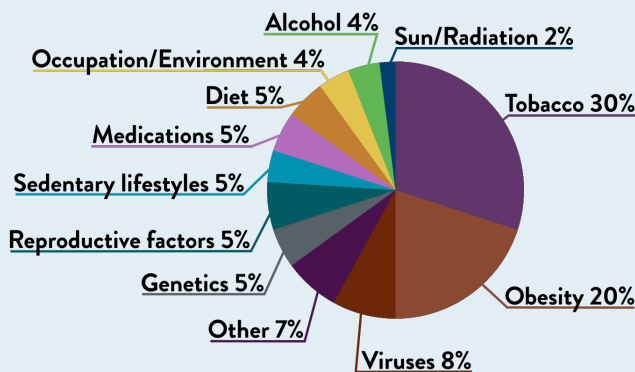
spread to other areas are referred to as "benign." Tumors that start in one place and can spread to other areas are referred to as "malignant." Malignant tumors are more likely to cause significant disease than benign tumors.

How does cancer develop?

Cancer is the late stage of a process that starts with small changes in the genes of some cells, followed by uncontrolled cell division and growth over time. The time from genetic change to the development of cancer, known as the "latency period," is usually decades long, often 30 years or longer. **This means that many cancers diagnosed today may be from exposures causing genetic changes that occurred in cells a long time ago.**

Known causes of cancer deaths

Approximately 30% of all cancer deaths are related to smoking, and the risk of dying from lung cancer is 10 to 20 times higher for smokers compared to non-smokers. Smoking is the most preventable cause of death in our society.



Who is affected by cancer?

Unfortunately, cancer is not rare, especially when considered in terms of lifetime risk. Lifetime risk is one way to measure how common cancer is. Not including the most common forms of skin cancer, the average lifetime risk of developing some type of serious cancer is approximately 41% among males and 39% among females (National Cancer Institute: The Cancer Query System).

More than 30,000 Minnesotans are diagnosed each year, and nearly 300,000 (about 5%) are currently living with cancer. **Fortunately, we are learning more about cancer every day, and ways to diagnose and treat cancer are getting better all the time.**

Four in ten Minnesotans will be diagnosed with some form of cancer in their lifetimes. There are 85 new cancer diagnoses in Minnesota per day.

The burden of cancer falls more heavily on certain communities, especially Indigenous communities, and communities of color. People in these communities may

have been affected by racism and historical trauma, which makes it harder to access care and resources that support health. This may put them at increased risk of developing a serious cancer and dying from it. MDH and other state agencies are aware that there are many social and political factors that contribute to increased cancer risk. We strive to address health disparities as part of a broad spectrum of public investments in housing, transportation, education, economic opportunity, and criminal justice.

Cancer is much more common among older versus younger people. Cancer rates increase with age. Nearly 90% of all cancers are diagnosed in adults over the age of 50. As people are living longer, we expect to see more Minnesotans diagnosed with cancer.

Childhood cancers are different. Cancer is less common in children compared to older adults. Approximately 200 Minnesota children under the age of 15 will be diagnosed each year. The types of cancers diagnosed in children are different from those diagnosed in adults.

Childhood cancer is not well understood. Scientists have learned that certain genetic changes inside cells can cause them to become cancer cells. Factors that have been studied that play a role in childhood cancers include inherited genetic abnormalities, infectious diseases, prenatal conditions, environmental pollutants, and radiation. These factors could play a role in childhood cancer, but few studies have consistently linked these factors with childhood cancers.

Most Common Types of Cancer in Children Ages 0-15	Most Common Types of Cancer in Adults in Minnesota
Leukemias (Primarily Acute Lymphocytic Leukemia)	Breast
Tumors of the Brain and Central Nervous System	Prostate
Lymphomas (Hodgkin and non-Hodgkin)	Lung and Bronchus
Soft Tissue Tumors	Colon and Rectum
Tumors of the Kidney and Renal Pelvis	Melanoma of the Skin

What Causes Cancer?

Since cancer is not a single disease, it does not have a single cause. The exact causes of many cancers are unknown.

While many cancers do not have one specific cause, some cancers do have known risk factors. Certain types of cancer can be attributed to specific exposures. For example, 85-90% of lung cancer is attributable to smoking and 95% of cervical cancer is due to the human papillomavirus (HPV). Other types of cancer are more difficult to connect to a specific exposure. Because people's lifestyles and environments vary greatly over their lifespan, it is almost impossible to identify the specific cause(s) of cancer diagnosed in an individual.

But we do know there are a variety of risk factors (or things that cause cancer) that affect individuals and neighborhoods. The known risk factors listed below account for a significant proportion of cancer occurrence. These risk factors add up over many years to increase an individual's chance of developing cancer.

Risk factors for cancer. According to the National Cancer Institute (NCI), the most studied risk factors for cancer are listed below (not in any particular order).

- Age
- Diet
- Obesity
- Alcohol use
- Commercial tobacco use
- Certain types of radiation
- Hormones
- Immunosuppression
- Chronic inflammation
- Excessive exposure to the sun

- Certain chemicals and other substances (such as benzene, asbestos, trichloroethylene, lead, and radon)
- Certain viruses and bacteria (such as hepatitis viruses and human papillomavirus [HPV])

Family history also plays a role in cancer. This means that if your family members had a type of cancer, then you may be at higher risk for the same cancer, such as breast, melanoma, prostate, and colon cancer. It is not unusual for several cases to occur within a family.

Things we do in our daily lives can decrease our chance of developing cancer. These factors are sometimes called "lifestyle factors," or modifiable risk factors (risk factors we can reduce). It is estimated that modifiable risk factors account for three in five cancer deaths in the U.S.

Making healthy choices can lower your risk:

- Quit commercial tobacco use, including e-cigarettes and vapes
- Reduce the amount of alcohol you drink
- Eat healthy foods
- Practice safer sex
- Be active
- Avoid excessive unprotected sunlight exposure

Women without children or those who do not breastfeed may also be at increased risk.

Commercial tobacco use, like smoking, is a leading cause of cancer deaths in the U.S. today. In addition to being responsible for 80-90% of lung cancers, cigarette smoking is also associated with leukemia and cancers of the mouth, pharynx, larynx, stomach, esophagus, pancreas, kidney, bladder, cervix, and endometrium (lining of the uterus). Thirty percent of deaths from all types of cancer are attributed to smoking.

What about chemicals in the environment?

Exposure to some human-made chemicals and naturally-occurring substances in the environment can cause cancer. The term “environment” includes air, water, and soil, but also substances and conditions in the workplace, schools, home, and other places people live, work, and play. The type and amount of harmful exposure has a large impact on the risk of developing cancer.

The most significant risks of developing cancer come from lifestyle factors. However, exposures to certain chemicals in the environments where people live, work, and play may contribute to an individual’s risk of developing cancer. Benzene, asbestos, vinyl chloride, radon, and arsenic are examples of toxic substances that can increase the risk of cancer when people are exposed

A list of substances known to cause cancer (or elevate cancer risk) can be found at www.health.state.mn.us/cancerandenvironment. Not all exposures to these chemical substances lead to cancer. In general, the risk of cancer grows as the amount of exposure to cancer-causing substances increases.

to them. The International Agency for Research on Cancer (IARC) has classified these substances as *known human carcinogens*. We know some other chemicals have been shown to cause cancer in animals, but there is not enough evidence yet to show these chemicals cause cancer in people.

Not all exposures to these chemical substances lead to cancer. It is also likely that some causes of cancer are not yet recognized. In general, the risk of cancer grows as the amount of exposure to cancer-causing substances increases.

Because people’s lifestyles and environments vary greatly over their lifespan, it is almost impossible to confidently connect a single case of cancer to a specific cause, such as a chemical or other environmental exposure.

Most of what we know about chemicals and cancer in humans comes from scientists’ observations of workers. Historically, the most significant exposures to cancer-causing chemicals have occurred in workplaces where large amounts of toxic chemicals were used. That is why safe work practices, personal protection, ventilation, and other controls are so important in protecting workers.

The amount of toxic chemicals found in food, air, soil, and drinking water are typically much lower than in work environments where cancer causing substances are heavily used and adequate worker protections are not used. Cancer risk from environmental exposures is likely to be much lower compared to the risk in such workplaces. In fact, the cancer risk that can be linked to environmental exposures is so low that it is difficult to measure in scientific studies.

YOU ARE NOT ALONE





How can I report concerns about cancer in my community?

To share concerns about cancer in your community, please contact the **Minnesota Cancer Reporting System** at 651-201-5900 or email health.mcrs@state.mn.us.

To report concerns about cancer in your community due to exposure to an environmental contaminant, please contact the **Minnesota Department of Health Environmental Health Division** at 651-201-4897 or email health.hazard@state.mn.us.

Did You Know?

Cancer diagnosed today is usually related to events that happened many years ago. It can take several decades for cancer to grow to the point where it can be detected in your body. The time between possible exposure to a carcinogen (something that causes cancer) and development of cancer makes it difficult to identify the original causes.



What can I do if I have concerns about cancer?

Talk to a health care provider. If you have health concerns about cancer it is important to discuss your questions with a health care professional, such as a physician, nurse practitioner, traditional healer, community health worker, or community health representative.

Screening can identify certain cancers early when they are more easily treatable and reduce the risk of death from those cancers. Effective screening programs exist for breast, cervical, colorectal, and lung cancers.

Learn more. Visit our website at www.health.state.mn.us for information about cancer, or www.health.state.mn.us/cancerandenvironment for information about cancer and the environment.

Review lifestyle factors. Preventing cancer through healthy daily living is important. For more information, see the “Lowering Your Risk for Cancer” information sheet www.health.state.mn.us/cancerandenvironment.

Resources

A list of substances known to elevate the risk of cancer can be found on our website, www.health.state.mn.us/cancerandenvironment.

The American Cancer Society (ACS) (www.cancer.org/about-us/local/minnesota.html) also provides information and resources for Minnesotans with cancer.

To learn more about cancer, cancer resources, and prevention, visit us at our website, www.health.state.mn.us/cancerandenvironment.



The Minnesota Department of Health is here for you.

Our vision is for health equity in Minnesota, where all communities are thriving and all people have what they need to be healthy.