Cancer Clusters

Answers to Frequently Asked Questions

What is cancer?

Cancer is a group of diseases characterized by the uncontrolled growth and spread of abnormal cells. In the human body, normal cells grow, divide and die in an orderly process. Cancer cells outlive normal cells and continue to grow and make new abnormal cells.

Cancer cells will often clump together and form tumors. These tumors can invade and destroy normal cells and tissues. Tumors can be malignant (cancerous) or benign (non-cancerous). Some cancers such as leukemia do not form tumors but invade the blood and blood-forming organs. Cancer cells can travel (metastasize) through the blood or lymph system to other areas of the body where they can settle and form new tumors.

What are the key facts about cancer?

Cancer is the second-leading cause of death in the United States and Ohio. According to the National Cancer Institute, 38.5 percent of men and women in the United States will be diagnosed with cancer of any site at some point during their lifetime, based on 2012-2014 data. Other important cancer facts:

- **Cancer is not a rare disease.** Although some forms of cancer are rare, cancer is much more common than most people realize.

- **Cancer is not one disease, but many.** There are more than one hundred different kinds of cancer, many of which have different, and often unknown, causes and risk factors.

- **Cancer is mostly a disease of middle and older age.** Cancer may strike at any age; however, nearly 88 percent of all new cancers in Ohio in 2014 were diagnosed in people age 50 and older.

- **Cancer has many causes.** Cancer causes vary by cancer type, and the primary causes of many cancers have yet to be identified.

- **Cancer can take a long time to develop:** After an exposure to a carcinogen (cancer-causing agent), there can be a "latency period" lasting years or even decades before cancer develops, making it difficult to identify when a person was exposed to the carcinogen.

What are cancer risk factors?

A "risk factor" is anything that increases a person's chance of getting a disease. Some cancer risk factors such as tobacco use, drinking a lot of alcohol, having a poor diet, lack of physical activity, unprotected exposure to the sun and occupational (work) exposures can be changed, while other risk factors such as a person's age, sex and family medical history (genetics) cannot be changed.

A person with a cancer risk factor is more likely to develop the disease at some point in his or her life. However, having one or more risk factors does not always mean a person will get cancer. Some people with one or more risk factors never develop the disease, while other people who develop cancer may have no apparent risk factors. Even when a person who has a risk factor is diagnosed with cancer, there is no way to prove that the risk factor actually caused the cancer.

Cancer most often results from a combination of risk factors rather than one single factor. The risk of developing most types of cancer can be reduced by changes in a person's lifestyle. By quitting smoking, eating healthier foods and being physically active, a person can reduce his or her risk of developing cancer.

What is a cancer cluster?

According to the Centers for Disease Control and Prevention (CDC), the National Cancer Institute (NCI) and the Ohio Department of Health (ODH),

"A cancer cluster is a greater than expected number of cancer cases that occurs within a group of people in a geographic area over a defined period of time."

Perceived higher numbers of cancer cases are sometimes called "cancer clusters" by concerned communities. Cancer clusters may be suspected when people learn about family members, friends, neighbors or coworkers who have been diagnosed with cancer. Upon further evaluation, these concerns are often not true cancer clusters, but are the result of the unfortunate reality that cancer is common in communities throughout our nation.

What causes cancer clusters?

Identifying the cause of a cancer cluster has proven to be extremely difficult because the exact cause(s) of many cancers are unknown. Over the last several decades, very few cluster investigations resulted in the identification of a single external cause or hazard. In fact, cancer clusters most often occur due to the following:

- Shared behaviors and lifestyle factors such as high rates of tobacco use;
- Lack of access to preventive health care;
- Increased rates of screening (which may identify previously undiagnosed cases);
- Low socioeconomic status; and
- Chance.

The role of the environment in cancer clusters depends on the definition. Most people associate the environment with air, water and soil. However, the environment can also be defined as surrounding things, conditions or influences, or social and cultural forces that shape the life of a person or population. Thus, to say that a particular cancer was caused by the environment does not mean that it was caused by a cancer-causing chemical in the air, water or soil.

What about carcinogens?

A carcinogen is a substance or agent known to cause cancer. In the *14th Report on Carcinogens*, the National Toxicology Program of the U.S. Department of Health and Human Services identified 62 substances *known to be human carcinogens*. The report also lists 186 substances that are *reasonably anticipated to be human carcinogens*. For a list of the 248 substances included in the report, visit https://ntp.niehs.nih.gov/pubhealth/roc/index-1.html.

However, cancer can take years, or even decades, to develop. Whether a carcinogen will cause cancer depends on the following:

- **Type of exposure:** Did a person breathe it, touch it, drink it or eat it? Each substance causes cancer in a different way.
- **Sensitivity to exposure:** Each person's body is different and will react differently.
- **Duration of exposure:** How long was the person exposed?
- **Amount of exposure:** How much of the substance was the person exposed to?

How can public health officials address community cancer concerns?

Knowing its cancer burden can help a community plan and conduct cancer prevention and control activities. Ohio's city and county health departments, university-based researchers, other health agencies and persons dedicated to cancer prevention and control may use cancer data from the Ohio Cancer Incidence Surveillance System (OCISS) to identify the rate of cancer in a community, the types of cancer found in that community and high-risk populations for targeted education and outreach efforts.

Health officials often use a protocol when they conduct a cancer cluster investigation, such as the *Ohio Community Cancer Concerns Response Protocol*, to help determine the need for further action. Further action may be considered if the concern involves one type of cancer or related cancers; unusual types of cancer in a particular population; an unusual geographic or time distribution; and/or a known exposure pathway to a cancer-causing agent. For more information, please visit the websites listed under "Resources" below.

Resources

Cancer Programs at ODH:
http://www.odh.ohio.gov/health/cancer/cancprgms.aspx

ODH, OCISS:
http://www.odh.ohio.gov/health/cancer/ocisshs/ci_surv1.aspx

ODH, Community Cancer Concerns:
http://www.odh.ohio.gov/en/health/cancer/cancercon/Community-Cancer-Concerns

Cancer Clusters: A Toolkit for Communicators. A Collaboration of the CDC and the National Public Health Information Coalition. Available at:
http://www.nphic.org/toolkits/cancer-cluster

Morbidity and Mortality Weekly Report (MMWR). Investigating Suspected Cancer Clusters and Responding to Community Concerns: Guidelines from CDC and the Council of State and Territorial Epidemiologists. Available at: http://www.cdc.gov/mmwr/preview/mmwrhtml/rr6208a1.htm

American Cancer Society: http://www.cancer.org

NCI: http://www.cancer.gov

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