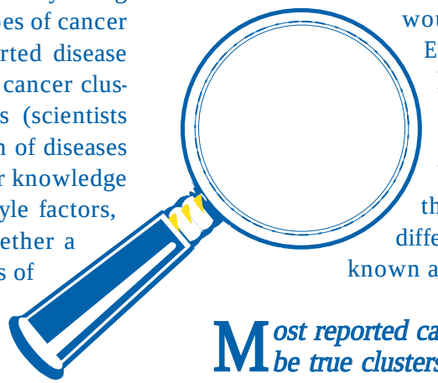
What is a cancer cluster?

Cancer clusters may be suspected when people report that several family members, friends, neighbors, or co-workers have been diagnosed with cancer. Cancer clusters are defined as the occurrence of a greater than expected number of cases within a group of people, a geographic area, or a period of time. Over the past several decades, a steadily rising number of suspected clusters of many types of cancer has been reported by the public. Reported disease clusters of any kind, including suspected cancer clusters, are investigated by epidemiologists (scientists who study the frequency and distribution of diseases in populations). Epidemiologists use their knowledge of diseases, environmental science, lifestyle factors, and biostatistics to try to determine whether a suspected cluster represents a true excess of cancer cases.



Epidemiologists have identified the conditions that are most likely to point to a true cluster:

- a large number of cases of one type of cancer, rather than several different types
- a rare type of cancer, rather than common types
- a number of a specific type of cancer in age groups not usually affected by that type of cancer

These situations are likely to indicate a common source or mechanism of carcinogenesis, which is the process by which cancer develops. The occurrence of several different types of cancer (for example, lung, breast and colon cancer) in a group of people or a geographic area generally does not constitute a cancer cluster.

Epidemiologists use various statistical methods to determine whether the reported excess of cases is really a larger number than would normally be expected. Epidemiologists also try to establish whether the suspected exposure has the potential to cause the reported cancer, based on what is known about that cancer's likely causes. Each different type of cancer has certain known and/or probable risk factors.

Most reported cancer clusters are shown not to be true clusters for a variety of reasons. Many reported cancer clusters simply do not include enough cases to allow epidemiologists to arrive at any conclusions. Sometimes there is a true excess, yet no explanation can be found for the excess. It is possible that the suspected carcinogen may be a low-level carcinogen that can cause cancer only under certain circumstances, making its impact difficult to detect. Also, today's populations move so often, it can be difficult to identify previous exposures, find old records, and follow up on possible cases in the future. Finally, the majority of cancer clusters are simply the result of chance. A random excess of any disease, including cancer, can occur in any given population, but this does not necessarily mean it can be linked to environmental or other factors.

How does the Cancer Registry Division investigate reports of suspected cancer clusters?

To begin investigating a reported cancer cluster, the Cancer Registry Division (CRD) of the Texas Department of Health (TDH) follows a protocol based on recommendations made by the Centers for Disease Control and Prevention (CDC). When a suspected cancer cluster is first reported, the CRD gathers information about the suspected cluster and also provides the caller with general information about cancer clusters. Reports of suspected cancer clusters are sometimes resolved at this initial contact stage because concerned individuals realize that what seemed like a cancer cluster is not a true cluster.

If a potential cancer cluster is indeed observed, it must be carefully evaluated to see if it is "real." The CRD epidemiologists begin by addressing the question: "Is the number of cancers that occurred in this population in this defined time period greater than would normally be expected?" To answer this question, the number of cancers observed in the community must be compared with the number expected for that population. The fact that cancer is so common means that many clusters will be explainable solely on the basis of chance. Statistical testing is used to determine if the community rates are significantly higher than the state rates.

If the rates are higher and chance can be statistically ruled out, a cancer cluster may exist. In that event, investigators must evaluate whether it might be because of factors known to be related to that type of cancer, or unknown factors. CRD epidemiologists review the most current cancer information available and consult with the environmental and risk assessment programs within TDH to make this determination.

If the rates are elevated and the initial evidence is compelling, the CRD will proceed to the final stage of an investigation and recommend a comprehensive epidemiological study of the proposed potential disease-exposure relationship. The primary purpose of such a study would be to pursue the epidemiologic and public health issues that the cluster generated — not necessarily to investigate the specific cluster. Most state health departments, including Texas, have reported that fewer than five percent of cancer cluster investigations reach the final stage of actually conducting the comprehensive study.

Cancer cluster investigations take time and effort; they cannot be done in an hour or a day. They require population data, cancer registry information, and statistical analyses. As data on the incidence of cancer in Texas become more complete, the CRD and other cancer researchers can more quickly and accurately determine if a cancer cluster exists in a community.

What is Cancer?

Cancer is a common disease; it strikes two of every five people and is the second-leading cause of death in this country. It is not unusual for several cases to occur within the same family or neighborhood. Scientific research has produced some concepts about cancer that can be helpful when trying to understand suspected cancer clusters:

- ***Cancer is the uncontrolled growth and spread of abnormal cells anywhere in the body.*** But cancer is not just one disease; it is actually an umbrella term for at least 100 different but related diseases, each of which may have its own set of causes. Cancer is not caused by injuries, nor is it contagious.

- ***Cancer is usually not caused by only one factor,*** but is almost always caused by a combination of factors, including lifestyle, heredity, and environment, which interact in ways that are not yet fully understood.

- ***Carcinogenesis involves a series of changes within cells that usually occur over the course of many years.*** There can be a period of a decade or more between the beginning of carcinogenesis and the diagnosis of cancer, making it difficult to pinpoint the cause of the cancer. Cancer is most likely to occur in older people, and because people are living longer, even more cases of cancer can be expected in the future. This, coupled with the fact that cancer is already quite common, can create an impression of an abnormally high number of cases.

Because most cancers are likely to be caused by a combination of factors related to heredity and environment (including behavior and lifestyle), studies of suspected cancer clusters usually focus on these two issues.

Do you want to know more?

To find out more about cancer cluster investigations or the Texas Cancer Registry, contact the Cancer Registry Division of the Texas Department of Health.

(512) 458-7523 or
1-800-252-8059

Thanks! This brochure was modeled in large part on information contained within the National Cancer Institute's website:

http://rex.nci.nih.gov

Visit Our Website

Additional information about the Texas Cancer Registry can be found at:

http://www.tdh.state.tx.us/tcr/

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Texas Cancer Registry | TDH

Cancer Clusters

'kləs-tər: the occurrence of a greater than expected number of cases of a particular disease within a group of people, a geographic area, or a period of time.

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