

Cancer Prevention and Control

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National Program of Cancer Registries



Cancer Clusters

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What is a cancer cluster?

A disease cluster is 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. Cancer clusters may be suspected when people report that several family members, friends, neighbors, or coworkers have been diagnosed with cancer.

For an extensive overview of cancer clusters, including facts about cancer, environment, and heredity; methods used in investigating suspected cancer clusters; guidelines for reporting suspected cancer clusters; and a list of additional resources, visit the National Cancer Institute, [National Institutes of Health Cancer Cluster Web site](#).

How are cancer clusters identified?

Various statistical methods are used to determine whether the reported number of cancer cases is really a larger number than would normally be expected to occur. Central cancer registry data are used to compare expected cancer rates in certain categories, such as geographic area, age, or racial group, with rates reported in a suspected cancer cluster, to determine whether an actual excess of cases has occurred.

When reviewing information about a suspected cancer cluster, it is important to look at

- The type(s) of cancer present in a community;
- Possible common or causative factors or agents; and
- The rate of cancer in an area compared to the expected rate in the state.

Who investigates cancer clusters?

Reported disease clusters, including suspected cancer clusters, may be investigated by epidemiologists—scientists who study the frequency and distribution of diseases in populations. However, investigations of suspected cancer clusters can be limited by

- Current status of scientific knowledge and tools related to genetics;
- Effects of environmental factors on humans;
- Availability of statistics on cancer and other diseases by local area; and
- Resources.

How is a true cancer cluster confirmed?

Many cluster reports do not meet the scientific requirements for true cancer clusters. A cluster may occur when the cancer cases may have a common cause or may be the coincidental occurrence of unrelated causes. The number of cases may seem high, particularly among the small group of people who have something in common with the cases, such as working in the same building. Although the occurrence of a disease may be random, the distribution of that disease may not be uniform, and clusters of disease may arise by chance alone.

According to epidemiologists, a suspected cluster is more likely to be a true cluster if it involves

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

These situations may indicate a common source or mechanism of carcinogenesis (the process by which cancer develops).

Who responds to cancer cluster inquiries?

The first level of response to inquiries about suspected cancer clusters involves state health departments and other relevant state agencies, which have the most current local data and resources at their disposal. Many local and state health departments have established criteria that they use for responding to reports of suspected cancer clusters. When citizens contact the CDC with concerns about cancer clusters, they are referred to their state epidemiologist, who may, in turn, refer the inquirer to the appropriate local health official.

Complete the [inquiry form](#) if you have any questions or concerns about cancer clusters.

[State health departments](#) and [cancer registries](#) may also be able to provide assistance and additional information.

Cancer Cluster Investigations: CDC's Evolving Role and Coordination with Other Government Agencies

From 1961 to 1982, the CDC investigated 108 reported cancer clusters in 29 states and 5 foreign countries (Twenty-two Years of Cancer Cluster Investigations at the Centers for Disease Control, Glyn G. Caldwell, *American Journal of Epidemiology*, Vol. 132, Suppl. No. 1, 1990). The studies were initiated in hopes of identifying a single causative agent of cancer. During these investigations, however, no clear cause was determined for any of the reported clusters. A separate CDC investigation of a non-occupational cancer cluster in the early 1980s did lead to the discovery of a causal agent—HIV and Kaposi's sarcoma in otherwise healthy homosexual men. Since the mid-1980s, no CDC staff have been dedicated to working full-time to identify and investigate cancer clusters.

On limited occasions, as illustrated in the following examples, CDC works with specific state health departments to address public health concerns about potential cancer clusters:

- Fallon, Nevada
[Childhood Leukemia*](#)
- Toms River, New Jersey
[Childhood Cancer Incidence Summary](#) ( PDF-154K)*
- Woburn, Massachusetts
[Childhood Leukemia Study*](#)

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