



Investigating Unusual Patterns of Cancer in Montana

FACTS ABOUT CANCER

- Cancer is a very common disease.
- One of every two men and one of every three women will be diagnosed with some form of cancer at some time in their lives¹.
- Cancer is a general term for at least 100 different but related diseases.
- Many cancer types have certain known or suspected risk factors associated with it.
- Cancer is almost always caused by a combination of factors that interact in ways that are not yet fully understood.

DEFINITION OF A CANCER CLUSTER

A cancer cluster is defined as a greater than expected number of the same or etiologically related cancer cases that occurs within a group of people in a geographic area over a defined period of time².

A greater than expected number:

When the number of observed cases is greater than typically observed in a similar setting.

Of the same or etiologically related cancer cases: Cases are of the same type, are within a family of tumors (e.g., Ewing's family of tumors), or have a known or suggested link to the same specific environmental or chemical exposures. It is possible to relate multiple cancer types when a known exposure (e.g., radiation or a specific chemical) is linked to more than one cancer type or when more than one contaminant or exposure type has been identified.

Within a group of people: The population in which the cancer cases are occurring is defined by its demographic factors (e.g., race, ethnicity, age, and sex).

In a geographic area: The geographic area may be based upon pre-existing geopolitical boundaries (e.g., census tract, county, or ZIP code/ZIP code tabulation area). The area may be defined to encompass the geographic distribution of potential exposures, and the existing boundaries which best reflect this.

Over a period of time: The time frame used to establish the beginning and end dates for analysis.

Montana Cancer Control Programs

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<https://dphhs.mt.gov/publichealth/Cancer/DataStatistics>

CONTACT

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CHALLENGES

Cancer cluster investigations are complex and difficult for several reasons. These include:

- Montana's relatively small population size, at times, limits an investigator's ability to reach meaningful conclusions. This challenge can be more relevant in Montana than other states, due to our states large size and small population.
- Exposure to cancer-causing agents may have occurred many years before cancer appeared.
- Combinations of cancer-causing agents and risk factors interact in a way that science does not yet fully understand.
- Individuals moving to or from different communities effects the ability to determine the impact of environmental exposures on disease occurrence.

IF YOU SUSPECT AN UNUSUAL PATTERN OF CANCER

- A suspected unusual cancer pattern may be reported to the Cancer Epidemiologist at Montana Department of Public Health and Human Services (DPHHS) (see contact information).
- Montana DPHHS takes reports of suspected unusual cancer patterns of cancer seriously and investigates each

FACTS ABOUT CANCER CLUSTERS

- Cancer clusters within communities or neighborhoods caused by an environmental carcinogen are rare.³
- The majority of cancer clusters identified in the United States have been among groups of workers exposed to carcinogens in the workplace, such as mesothelioma among workers exposed to asbestos or liver cancer among workers exposed to vinyl chloride.³
- To date, one cancer cluster has been identified in Montana among vermiculite mine workers and residents of Libby exposed to asbestos.⁴

1 American Cancer Society. Lifetime Probability of Developing and Dying from Cancer, 2017-2021 (Cancer Facts & Figures 2023 Supplemental Data). 2024. Accessed at <https://www.cancer.org/cancer/risk-prevention/understanding-cancer-risk/lifetime-probability-of-developing-or-dying-from-cancer.html> on June 7th, 2024.

2. Centers for Disease Control and Prevention. (2022). *Guidelines for examining unusual patterns of cancer and environmental concerns*. Centers for Disease Control and Prevention. <https://www.cdc.gov/cancer-environment/php/guidelines/index.html>

3. Goodman M, Naiman JS, Goodman D, LaKind JS. Cancer clusters in the USA: what do the last twenty years of state and federal investigations tell us? *Crit Rev Toxicol*. 2012 Jul;42(6):474-90. doi: 10.3109/10408444.2012.675315. Epub 2012 Apr 21. PMID: 22519802; PMCID: PMC3408895.

4. Larson TC, Williamson L, Antao VC. Follow-Up of the Libby, Montana Screening Cohort: A 17-Year Mortality Study. *J Occup Environ Med*. 2020 Jan;62(1):e1-e6. doi: 10.1097/JOM.0000000000001760. PMID: 31714372; PMCID: PMC8157313.