

# **Epidemiology of Cancer Cluster Investigations**

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# Outline

- Notification
- Services OEEB Can Provide
- Services OEEB Cannot Provide
- Challenges of Cluster Investigations

# Notification

- OEEB or Central Cancer Registry (CCR) notified of potential cluster
- CCR conducts statistical analysis and shares their report with OEEB
- OEEB decides whether or not any additional investigation is warranted
  - Often pressure from community and politicians to aggressively investigate, with the expectation that an environmental cause will be uncovered

# Services OEEB Can Provide

- Identify risk factors in the scientific literature and consult with CDC experts
- Assess environmental concerns expressed by cancer cases and their families
- Conduct site visit to look for obvious potential environmental issues in or near the community (observation only—no environmental sampling)

# Services OEEB Can Provide (cont.)

- Obtain information from Department of Environmental Quality (DEQ) on hazardous waste sites (both active and inactive) or leaking underground storage tanks in the community
- If necessary, administer questionnaire to cancer cases to collect additional information about demographics, medical history, occupation, and risk factors

# Services OEEB Can Provide (cont.)

- Encourage cases to participate in any research studies being conducted at nearby medical centers (if applicable)
- Make general environmental recommendations to the community
  - For example, test homes for radon and routinely test private wells for contaminants

# Services OEEB Cannot Provide

- OEEB does not have resources to conduct a research study to identify causal associations
- OEEB does not collect environmental or clinical samples for testing
- OEEB does not have the ability to identify new risk factors for cancer
  - We can only assess risk factors that have been identified in the scientific literature

# Challenges of Cluster Investigations

- Often involve small number of cases (making statistical analyses problematic)
- Failure to account for latency (length of time from exposure to carcinogen to development of cancer)
- Issues of in-migration to a community



# Challenges of Cluster Investigations (cont.)

- Lack of clinical or molecular tests that can determine the cause of cancer
- Analysis based on information that hospitals report to the CCR
- Cases not always evenly distributed throughout the state (groupings of cases can occur by chance)

# Challenges of Cluster Investigations (cont.)

- A recent study<sup>1</sup> reviewed 428 cancer cluster investigations from the past 20 years. Only one investigation revealed a clear cause.
- The study concluded, “It is fair to state that extensive efforts to find causes of community cancer clusters have not been successful.”

1. Goodman M, Naiman JS, Goodman D, LaKind J. Cancer clusters in the USA: what do the last twenty years of state and federal investigations tell us? *Critical Reviews in Toxicology*. 2012;42:474-490.

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