Cancer Cluster Investigation Guidelines
A preliminary community cancer assessment is conducted to determine any excess of observed cases in the geographic area of interest. This assessment typically involves the analysis of previously collected data (cancer cases and cancer deaths). To determine whether there is an excess of cancer cases/deaths, the SCCCR uses standard analytic methods of evaluating the observed and expected number of cases/deaths. The smallest geographic area that the SCCCR uses to conduct a cancer assessment is at the zip code level. Using the most current 5-years of data available, the observed cases/deaths that occurred in the zip code of interest are obtained. To generate the expected number of cases/deaths in the zip code, the 5-year cancer and age-specific rate for the state is applied to the age-specific population of the zip code taking into account sex-specific cancer sites. The observed-over-expected (O/E) ratio is calculated and a chi-square statistic based on this value is obtained. Significance is determined at the .05 level (3.84).

Criteria that serve as guidelines for conducting a cluster investigation
(Note: It is recommended that ALL of the following criteria be met):
   I.   At least 5 cases/deaths of the disease must be expected in the geographic area of interest (for statistical stability).
   II.   An O/E ratio that corresponds to a chi-square value greater than 3.84 (significance at .05 level); and has more cancer cases observed than expected
   III.   The investigation is likely to have a public health impact. For example, a cluster in which data suggests the cause is an environmental contaminant that has already been cleaned up would not require further study other than to confirm adequate decontamination. A cluster in which data suggests a stable persistent problem could indicate the need for further study.
   IV.   For diseases of ***known or suspected etiology***, there must be a plausible exposure and route of exposure, including proper latency between the exposure and the onset of disease.
   V.   For diseases of ***unknown etiology***:
            a) There must be a unique exposure (i.e., an exposure which is not commonly found in the US) and a plausible route of exposure, AND
            b) The weight of the evidence from scientific literature should not render an association between the disease and the exposure highly unlikely.
            c) There is a large excess of the same cancer, with a 3-10 fold increase over the expected number.
            d) There is a biologically plausible exposure
            e) There is an unusual pattern of cases/deaths
   VI.   The increase occurs in a rarer type of cancer.

REFERENCES**:**
1. Washington State Department of Health, *Guidelines for Investigating Clusters of Chronic Disease and Adverse Birth Outcomes*
http://www.doh.wa.gov/EHSPHL/Epidemiology/NICE/publications/ClusterProt.pdf

2. Guidelines for investigating clusters of health events. MMWR, July 27, 1990/39(RR-11); 1-16.