Guidelines for Investigating Clusters of Health Events

Definition, Background, and Characteristics of Clusters

As used in these guidelines, the term "cluster" is an unusual aggregation, real or perceived, of health events that are grouped together in time and space and that are reported to a health agency.

Several breakthroughs and triumphs in infectious disease control have resulted from the epidemiologic evaluation of clusters of cases. Well-known examples include the epidemic of cholera in London in the 1850s (1), the investigation of cases of pneumonia at the Bellevue-Stratford Hotel in Philadelphia in 1976 (2), and the report in 1981 that seven cases of Pneumocystis carinii pneumonia had occurred among young, homosexual men in Los Angeles (3).

Investigations of noninfectious disease clusters have also resulted in notable examples of breakthroughs, such as angiosarcoma among vinyl chloride workers (4), neurotoxicity and infertility in kepone workers (5), dermatitis and skin cancer in persons wearing contaminated gold rings (6), adenocarcinoma of the vagina and maternal consumption of diethylstilbestrol (7), and phocomelia and thalidomide (8).

A review of these landmark events and other material on clusters enables public health personnel to identify characteristics of a cluster from which an investigation might lead to important results. Usually, such a cluster has a definable health outcome, either new or rare; a potential exposure or agent is suspected, along with a connection between the exposure and the health event; the situation is highly unusual, and statistical testing confirms the investigator's impression; and the short-term public health impact is immediate and self-evident.

The reported experience of health agencies confirms, however, that major associations between exposures and outcomes are rare. Minnesota, for example, has reported results from over 500 investigations of clusters (9), six of which were full-scale investigations. In one instance, in an occupational setting, an important public health outcome concerning cancer was documented (10). Missouri (11) and Wisconsin (12) have reported similar experiences: large numbers of requests for investigations have been received, but only an occasional in-depth evaluation is warranted. CDC has been consulted in over 100 such investigations, and again, major associations between exposures and outcomes have been rare (13).
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Number of retraction notices

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- The data