



Reported Illness Clusters Near Base Stations

There has been speculation regarding alleged illness clusters (particularly cancer) near mobile communications antenna sites (base stations). However, subsequent examinations by independent health authorities have been unable to confirm any true clusters linked with either proximity to the base stations or the low level radio signals they transmit. Rare diseases are often distributed randomly in the community and this means that there will be chance instances of apparent clusters as antenna sites need to be located where people use phones.

What is an illness cluster?

An illness cluster is generally defined as a greater-than-expected number of illness cases (often cancer) that occurs within a group of people in a geographic area over a period of time. One of the difficulties of assessing whether a cluster is real is determining an unbiased definition of the geographic area and the period of time.

How are illness clusters identified?

First, a 'case' definition is developed, incorporating a time period of interest and the population at risk. Then the expected number of cases is calculated from available population statistics for the illness and compared to the observed number. A cluster is confirmed when there is a statistically significant greater number of observed than expected cases. Clusters can be misidentified due to incorrect definition of the population at risk, due to chance, miscalculation of the expected number of cases (e.g. due to unidentified risk factors) or due to differences in the definition between observed cases. A cancer cluster is more likely if it involves a single form of cancer or a rare type of cancer or a group not usually affected by that cancer, for example, a cancer type in children that is normally seen in adults. Follow-up investigations can be done, but can take years to complete and the results are generally inconclusive.

Reported brain cancer cluster at RMIT University, Melbourne Australia

In May 2006 there were speculative reports linking a possible cluster of brain cancer cases among RMIT University staff on the top floors of a building with the base station on the roof. In response, RMIT University commissioned independent expert reviews of the cases as well as comprehensive health and environmental testing. The investigations found that there was "no evidence of a brain cancer cluster" given cancer





incidence rates in the general population, and the number of people and time period involved. Furthermore, environmental assessments showed no evidence of excessive exposures to known or suspected occupational or environmental risk factors for brain cancer. The actual exposures from the rooftop base station were found to be more than 117,000 times below the World Health Organisation recommendations.

Reported cancer cluster in Cranlome, Northern Ireland:

In 2003, the Northern Ireland Cancer Registry (NICR) conducted an investigation into an alleged cancer cluster in the vicinity of a base station in Cranlome, Northern Ireland. The authors reported that the pattern of cancers among the twenty local cases was similar to what would be expected in the general population, and not that of a 'cluster.' True clusters usually involve a large incidence of one type of cancer rather than several different types as was observed. The report concluded that *"there is no evidence of a cancer cluster in the nearer or wider Cranlome area."*

Other investigations of reported clusters

There have been other investigations of suspected illness clusters around the Saint-Cyr-l'Ecole (France, 2004), Valladolid (Spain, 2001) and Lookout Mountain Antenna Farm (USA, 2004). None of the investigations have established an association between the alleged cluster and the radio transmitters. A May 2006 fact sheet from the World Health Organization *Base Stations and Wireless technologies* (No. 304) states:

"It should be noted that geographically, cancers are unevenly distributed among any population. Given the widespread presence of base stations in the environment, it is expected that possible cancer clusters will occur near base stations merely by chance. Moreover, the reported cancers in these clusters are often a collection of different types of cancer with no common characteristics and hence unlikely to have a common cause. ... From all evidence accumulated so far, no adverse short- or long-term health effects have been shown to occur from the RF signals produced by base stations."

Where to go for more information

GSM Association: <http://www.gsmworld.com/health/>

World Health Organization: <http://www.who.int/peh-emf/>

International Commission on Non-Ionising Radiation Protection: <http://www.icnirp.de/>

US Centre for Disease Control: <http://www.cdc.gov/nceh/clusters/about.htm>

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