

Comments on the Illinois Department of Public Health's 11/01 report: "Cancer Incidence in Populations Living Near Chicago O'Hare and Midway Airports, Illinois 1987-1997"

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The Illinois Department of Public Health's (IDPH) 2001 report "Cancer Incidence in Populations Living Near Chicago O'Hare and Midway Airports, Illinois 1987-1997" concludes, "No consistent pattern was observed to indicate a general elevation of cancer incidence among populations living near the Chicago O'Hare and Midway airports". These conclusions are based on large-scale averaging distortions and comparative objectives that miss the real mark of detailed examination of such data to search out potential "higher than typical" cancer incidence patterns. *[It is emphasized that "typical" does not mean "acceptable". Typical, or "average" cancer incidence levels are too high, state and country wide, and getting worse in many cases.]*

The charter of the IDPH Epidemiological department includes the maintenance of certain databases e.g. cancer registry and the investigation of, when called upon, claims of "cancer cluster" potential. For instance, they were involved in a Plum Grove incident where the faculty of the school thought that there were too many people there contracting and dying of cancer. [In this case they demonstrated that the dying was at or near the "typical" rate.]

It is apparent that the driving motivation for the subject study was to examine cancer incidence rates in response to the now-famous Park Ridge study, by Environ Inc., which concluded that O'Hare airport toxic emissions were causing excessive neighborhood concentrations, leading to elevated cancer incidences, as based on USEPA standards and regulations. The IDPH study thus focused on a "fit to the Environ contours" paradigm, in order to maximize coincidence to the results of the Environ study (see Appendix map, showing contours of excess cancer incidence rates).

Unfortunately, this intense focus on comparison to Environ results caused a very detailed analysis of trees but not forest. That is, the broader issue of a search for cancer incidence rate patterns in the Chicago area, particularly around O'Hare Airport, was subverted to disputing the Environ results. This was somewhat doomed to begin with, as the Environ results were "lifetime" incremental incidence rates whereas the cancer registry database used by IDPH only presents yearly rates. The IDPH conclusions themselves state: "...due to the lack of information on residency history, they [study results] are not sufficient to evaluate cancer risk for a lifelong exposure to airport pollutants as predicted from risk assessment studies." [i.e. Environ 's].

This drive to compare results led to a selection of several groupings of zip code areas to be examined, with the groupings designed to "fit" within the Environ cancer incidence contours (see Appendix). In other words, in a sense, the geographic incidence patterns were pre-selected rather than searched for! This pre-selection of the "trees" to be examined largely eliminated the finding of any other patterns in the "forest". This effect was compounded by also including Midway airport in the selection process and analysis, even though the Environ study was O'Hare specific.

The selection process resulted in groups of zip code areas chosen to be about the same distance from O'Hare/Midway, the major failing being that direction was not considered, nor any other parameter e.g. closeness to the lake. This failing might have been partially overcome if the cancer incidence rates were mapped in some fashion, for all the zip code areas as separate

entities. But no such mapping was done and therefore no visual clues of possible patterns were presented. Instead, all of the incidence rates for a given group were averaged together, further burying any variances. Worse, even some correlation of incidence rate to distance could not really be assessed because, in choosing zip code areas to best “fit” the Environ contours, the distance-from-airport variance within any group was huge (e.g. up to 4:1).

Thus, the net cancer incidence results for a group was constructed by lumping together wide-spread zip code area data (e.g. far north plus far south), covering widely varying distances from O’Hare Airport, (e.g. 7-28 miles), without any directional sense from the airport and, finally, averaging together of all of the many areas within the group (in some cases more than 100 different zip code areas).

Is it any wonder that the basic conclusion was that no trends were seen and things were, well, just average.

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### Epilog

Perhaps the co-author, Melinda Lehnerr, is already too biased to accept the fact that cancer could have strong connections to pollution. Perhaps the IDPH Department of Epidemiology has concluded that if cancer rates are up to significantly high rates everywhere (almost 50% of deaths are due to cancer), then there will be no small "clusters", just one big, nationwide cluster. The IDPH analysis and report left one with the feeling that the goal was to disprove cancer connections to pollution, rather than searching through the myriad of data to attempt to find associations that might exist between cancer and possible causative agents or sources. One would think that’s what epidemiology is all about. However, epidemiology fails in the search for truth if the epidemiologists pre-determine that there appears to be no epidemic.

Such bias might be sensed in a citing of a recent article by the same author as this report, Melinda Lehnerr.

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Pollution Rarely Found to Cause Cancer Clusters: According to a recent article in the Chicago Sun-Tribune, investigations of possible cancer clusters at schools, offices, factories and neighborhoods rarely find environmental causes. Only about 2 percent of all cancers have been linked to pollution. By comparison, an estimated 30 percent of cancers are caused by smoking and another 30 percent by poor diet and obesity, according to Melinda Lehnerr of the Illinois Public Health Department. Between 1961 and 1982, the Centers for Disease Control and Prevention investigated 108 suspected cancer clusters, finding no clear cause for any of them. The National Institute for Occupational Safety and Health investigated 61 purported cancer clusters between 1978 and 1984. In only 16 cases did investigators find a higher-than-expected cancer rate. And among those 16 cases, investigators could find only five that could be linked to chemical exposures. In the United States, men have a 1-in-2 lifetime risk of getting cancer and women have a 1-in-3 lifetime risk. Thus, it's perhaps not surprising that people are quick to spot cancer clusters where true ones don't exist, notes the article.

APPENDIX

Environ map showing excess cancer incidence rate contours.

