Illinois Department of
PUBLIC HEALTH

Rod R. Blagojevich, Governor
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AUG 11 2003
Division of
Environmental Health

MEMORANDUM

DATE: August 8, 2003

TO: George Rudis, Acting Chief
Division of Vital Records

FROM: Tiefu Shen, MD, PhD
Chief, Division of Epidemiologic Studies

RE: Cancer in Stephenson County, IL.

In response to your request, we have reviewed the report by GDR International for the Freeport Weed and Seed Martin Luther King Jr. Community Service group concerning environmental toxins and cancer in Freeport, Illinois. The report suggested that the levels of chemicals found in soil samples pose a public health hazard. A separate news report by the Journal Standard on July 25, 2003, entitled "Dangerous Ground," further stated that Stephenson County's cancer mortality rate among African-Americans was much higher than the state/national average. We defer to the Division of Environmental Health, IDPH, for soil sample results. This memo reviews the cancer situation (both incidence and mortality) in Stephenson County.

The race-combined total cancer incidence rate, according to data from the Illinois State Cancer Registry (ISCR), is 432.9 per 100,000 in Stephenson County for diagnosis years 1996-2000. This rate is statistically lower than the state average (482.1 per 100,000) or the SEER (i.e., national) average (480.4 per 100,000). A further race-specific analysis provided an explanation for this low incidence rate in Stephenson County. The cancer incidence rate in Stephenson County among the white population, which accounts for more than 85 percent of the total population, is statistically lower than the corresponding state and national rates (423.1 versus 474.5 in Illinois and 486.4 in SEER, Figure 1). Among African-Americans, the incidence rate in Stephenson County is 520.9, while the rate for the state is 518.5 and for SEER is 525.1. The cancer incidence rate among African-Americans in Stephenson County is not different from that of the state or the country (Figure 2).

The cancer mortality, based on data for 1996-2000 from CDC's National Center for Health Statistics, mirrored what was observed in cancer incidence: Among whites, the mortality rate is significantly lower than that of the state or the country (Figure 3). Among African-Americans, the rate is 379.2 per 100,000 and seems to be higher than the state rate of 283.4 or the national rate of 257.1. However, statistical tests failed to indicate that the Stephenson County's rate is really lower. The county rate was based only on 41 cases and carries a wide 95 percent confidence interval, which overlaps the confidence interval of the state or national rate (Figure 4).

Trend analysis revealed no systematic elevation of Stephenson County's rates among African-Americans relative to the state average for either incidence (Figure 5), or mortality (Figure

(Figure 6). The large ups and downs in the county's rate were caused by small numbers associated with the county statistics.

We determined that cancer mortality rates calculated by the county and reported by the Journal Standard claiming that "Stephenson County's cancer mortality rate among blacks is nearly twice that for blacks nationwide" were based on outdated population numbers. The U.S. Census Bureau, working with the National Cancer Institute, has recently published corrections to these numbers but, unfortunately, some public health datanases, including CDC Wonder from which the county obtained the rates, have not caught up with the change. Using the old population numbers, we were able to reproduce the Journal Standard's rates, confirming our belief that incorrect population denominators were used by the county.

In conclusion, we found that cancer incidence and mortality rates in Stephenson County are not higher than those of state or the country, either for African-Americans or whites. To be sure, cancer rates among African-Americans are higher than those among whites in Stephenson County, consistent with patterns observed elsewhere. While this certainly reflects the existence of cancer disparity, a key question relevant to local environmental concerns is whether cancer rates in Stephenson County are higher than the state or national average. Our analysis of existing data suggests that the answer to this question is no.

Based on our analysis, we recommend the following:

1) Continue to monitor cancer incidence and mortality in Stephenson County through our Division's annual county cancer statistics review.

2) Meet with concerned communities to present our data and results. Answer questions and establish dialogue to allay the fear of perceived cancer risks in the community.

3) Consider conducting a "high-resolution" cancer cluster evaluation focusing on ZIP code 61032, which contains Freeport.

4) Establish epidemiologic and GIS capabilities to detect cancer clusters early and proactively.

Cc: Quin Golden
Dr. Margaret Richards
Mel Lehnherr
Mike Moomey