



Summary of Southeast Kansas Health Study

Final Report

Conducted by the Center for Environmental and Occupational Health
The University of Kansas Medical Center

June 30, 2003

Background

A health study was conducted by the Center for Environmental and Occupational Health, the University of Kansas Medical Center, for the U.S. Environmental Protection Agency in four southeast Kansas cities where hazardous waste burners are operated. The study communities included Chanute, Coffeyville, Fredonia, and Independence. A fifth community, Sedan, which has no industrial operations and is located upwind from the other communities, was selected as the control city. The objective of the study was to determine if health problems in the study communities could be related to the operation of the hazardous waste burners and other potential sources of emissions in the area. The study investigated respiratory health, using a respiratory health survey, and cancer incidence and mortality rates in the study communities. The study also included an extensive air quality monitoring component at seven sites.

Respiratory Health Survey

Data collected on the respiratory health survey were analyzed to compare the overall respiratory health of residents of the case cities to the residents of the control city. This allowed for comparisons of self-reported respiratory illness rates such as asthma, emphysema, pneumonia, and bronchitis as well as comparisons of respiratory related symptoms such as coughing, phlegm, wheezing, and colds. There were no differences found that would indicate that the respiratory health of residents in the case cities was any worse than that in the control city. However, smokers, regardless of residency, were found to have significantly higher rates of respiratory symptoms and illness.

Air Quality Survey

Data was also collected on the air quality in the case cities based on the concentration levels of different particles. This data was correlated with the number of respiratory related emergency visits to local hospitals in order to see if increased air pollution yielded more ER visits. For the most part, the correlation was not significant. In two of the cities, the increased presence of specific air pollutants did correlate with the number of respiratory related ER visits. However, since the concentration levels of these pollutants remained well below EPA guidelines for all samples, we believe that the significant correlation occurred merely by chance or by the presence of another unmeasured factor.

Comprehensive Cancer Investigation

In response to community concerns about an excess of cancer occurring in the study communities, a comprehensive cancer investigation was done. This included comparing incidence and mortality observed and expected cases for the exposed cities and counties. Comparison was made to population equivalent counties and cities in Kansas. In addition, medical records were compared to cancer records at the state cancer registry. A literature review was conducted for occupational exposures to firefighters, hazardous waste operators, incinerator operators, and petroleum refinery workers. Reports from a community informant were compared to the state cancer registry. A questionnaire survey was distributed to community residents. Results showed no increased risk for cancers that might be possibly related to exposures of concern. There were no excess of pediatric cancer cases or deaths. The cancer registry had excellent reporting. Several pediatric cancers that were reported by the informant were not confirmed by the registry. A number of strengths and weaknesses

Comprehensive Cancer Investigation continued

are noted by the study investigators. Additional surveillance research and a tobacco use prevention and control program are recommended for the counties.

Air Quality Monitoring Study

In conjunction with comprehensive cancer and respiratory investigations, an air quality monitoring study was conducted in Southeast Kansas. Monitoring sites were established in Chanute, Coffeyville, Fredonia, and Independence. In addition, monitoring sites were established in Sedan, Tyro, and Labette County to assess background air quality and pollutant transport. Pollutants measured included particulate matter (PM_{2.5} and PM₁₀), trace metal content in selected PM_{2.5} samples, ozone, nitrogen oxides, sulfur dioxide, and mercury content of wet and dry deposition. With very few exceptions, concentrations of these pollutants were below established state and federal standards and other published risk levels throughout the study. Selected volatile organic compounds (VOCs) also were monitored during the study. Concentrations above risk levels were found for some VOCs, although infrequently. It was not shown conclusively that the targeted sources contributed significantly to these concentrations.

For More Information

A copy of the "Southeast Kansas Health Study" final report (excluding the appendices) is available at the following web site:

- <http://www2.kumc.edu/ceoh/skhs/chapters/final.pdf>

Copies of the complete report are available through local libraries in Chanute, Coffeyville, Fredonia, Independence, and Sedan..