



## NEWS RELEASE

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### **IDPH Releases Cancer Assessment for Area Surrounding Sterigenics Facility**

*Scientists Plan on Additional Study as Analysis Shows Inconsistencies in Cancer Findings*

**CHICAGO** – In an initial study to determine if there are increased cancer cases in the area surrounding the Sterigenics facility in Willowbrook, the Illinois Department of Public Health (IDPH) found that some cancers were elevated. The study also found differences and inconsistencies between genders, across the study areas, and among types of cancer. This study was the first of its kind in the country, and scientists recommend further research in Illinois and at the national level to determine the risks associated with ethylene oxide.

“Our top priority at IDPH is protecting the health and safety of all Illinoisans, which is why we moved swiftly to release the results of this initial study,” said IDPH Director Dr. Ngozi Ezike. “This study was an important step in better understanding potential cancer risks that may be associated with ethylene oxide, and we are concerned that elevated incidence of some cancers were found in the area. We will immediately begin to design an additional research study to understand the impact of ethylene oxide on cancers so that residents have a more complete picture. IDPH is committed to making sure residents and policy-makers have accurate information in a timely manner moving forward.”

In December 2016, the U.S. Environmental Protection Agency (EPA) updated its cancer risk assessment and declared ethylene oxide (EtO) carcinogenic to humans. EtO is a chemical commonly used to sterilize some medical equipment. In response, the federal Agency for Toxic Substances and Disease Registry (ATSDR) evaluated the implications of the increased cancer risk associated with EtO emissions. Based on data from EPA air sampling, ATSDR concluded the increased cancer risk presented a public health hazard and recommended IDPH investigate whether there has been an increase in the number of people diagnosed with cancer (known as cancer incidence).

Using the Illinois State Cancer Registry, IDPH reviewed cancer cases that were diagnosed between 1995-2015, in residents of two specific study areas. The first study area, about 15 square miles, included the geographic area covered by the air sampling/exposure model used by the EPA. The second area included (1) all of the first study area, plus (2) most of the Willowbrook zip code, equaling a geographic area of about 40 square miles surrounding the facility.

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IDPH examined all cancers and divided them into two groups. The first group includes female breast, and lymphohematopoietic cancers. The lymphohematopoietic cancers specifically include Hodgkin's lymphoma, non-Hodgkin's lymphoma, myeloma, and lymphocytic leukemia. This group was selected because of their documented associations with EtO exposure in previous studies.

The second group includes other cancers routinely examined when conducting a cancer assessment study, which are oral cavity, esophagus, stomach, colon and rectum, liver, pancreas, lung and bronchus, bone, melanoma, breast, cervix, uterus, ovary, prostate, testis, bladder, kidney, brain, and nervous system, leukemia, thyroid, and all other cancers. This second category was examined to capture other possible cancer increases and generate new hypotheses for future studies.

In addition to the evaluation of adult cancers, this study also examined pediatric cancer for children ages 0-19 years old in both study areas. Sites examined include leukemia, lymphomas, central nervous system tumors, neuroblastoma, retinoblastoma, renal tumors, hepatic tumors, bone, soft tissue, germ cell tumors, and all other sites. The category 'all other sites' includes other malignant tumors and those that were unspecified or unclassified.

- A higher number of Hodgkin's lymphoma cases among women were observed in the first study area compared to the county and five collar counties (outside of Cook County) averages. The increase in observed cases in Study Area 1 (19) was almost 90% higher than expected (10).
- Breast cancer was higher in both study areas compared to the five collar counties, about 10% higher (747) than expected (681) in Study Area 1, and 7% higher (1,548) than expected (1,445) than expected in Study Area 2, but not significantly compared to the county.
- A steady, but slight increase in non-Hodgkin's lymphoma in women became more pronounced beginning in 2009 in both study areas
- Pediatric lymphoma cases were also elevated among females for both study areas for the duration of the study.
  - o Study Area 1 – seven observed vs. two expected
  - o Study Area 2 – 11 observed vs. five expected
- Other adult cancers observed to be diagnosed at higher rates than the county include:
  - o Prostate
    - Study Area 1 – 680 diagnosed vs. 630 expected
    - Study Area 2 – 1,367 diagnosed vs. 1,287 expected
  - o Female pancreatic
    - Study Area 1 – 77 diagnosed vs. 59 expected
    - Study Area 2 – 151 diagnosed vs. 126 expected
  - o Ovarian
    - Study Area 1 – 84 diagnosed vs. 67 expected

However, leukemia in women was found to be significantly lower than expected, as was lung cancer in both men and women.

- o Leukemia in women – Study Area 1
  - County – 38 diagnosed vs. 55 expected
  - Collar counties – 38 diagnosed vs. 54

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- Lung Cancer Men Study Area 2
  - County – 551 diagnosed vs. 603 expected
  - Collar counties – 551 diagnosed vs. 634 expected
- Lung Cancer Women Study Area 2
  - Collar counties – 541 diagnosed vs. 628 expected

Additional data can be found in the full report.

Cancer is not just one disease, but many different diseases, each with differing rates of occurrence, risks, causes, and chances of survival. Not all people develop the same cancer for the same reason. Rather, it is the interaction of many factors such as genetics, immunity, diet, occupation, lifestyle, and environment that lead to the development of any one case of cancer. As a result, no single study is likely to prove that a particular exposure definitively causes a particular disease. Cancer studies are inherently complex and in almost all cases the cause of a person's, or group of people's, cancers is difficult to determine.

Because of the limits of this first study, IDPH is committed to ensuring further studies, including with larger populations and multiple facilities, to confirm this assessment's findings. Moving forward, IDPH will seek to collaborate with national and regional researchers on epidemiological studies related to EtO and cancer issues.

The Willowbrook Cancer Incidence Assessment can be found on the IDPH at <http://www.dph.illinois.gov/sites/default/files/publications/sterigenicswillowbrookcancer-investigation-final.pdf>, along with Frequently Asked Questions <http://www.dph.illinois.gov/sites/default/files/publications/faq-sterigenicis.pdf>. IDPH will schedule a webinar with community members to review these findings.

Individuals with questions can contact the IDPH Division of Epidemiologic Studies at [ethyleneoxide-cancer@illinois.gov](mailto:ethyleneoxide-cancer@illinois.gov).

The ATSDR "Evaluation of Potential Health Impacts from Ethylene Oxide Emissions" report can be found at [https://www.atsdr.cdc.gov/HAC/pha/sterigenic/Sterigenics\\_International\\_Inc-508.pdf](https://www.atsdr.cdc.gov/HAC/pha/sterigenic/Sterigenics_International_Inc-508.pdf).

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