



Cancer Incidence Among Residents of Census Tract 40, Dayton, Montgomery County, Ohio, 1996-2005



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Why was this study conducted?

- Elevated levels of perchloroethylene (PCE), trichloroethylene (TCE) and chloroform, chemicals that may cause certain cancers (urinary tract, kidney, cervix, leukemia, liver, non-Hodgkin's lymphoma, multiple myeloma, Hodgkin's lymphoma and prostate), were detected in some resident homes near the Delphi Home Avenue facility.
- Residents are concerned the number of cancers in the area is higher than expected.

What were the objectives of the study?

- To determine the number of cancer cases diagnosed among residents of census tract (CT) 40 in Dayton, by cancer type, from 1996 to 2005.
- To compare the number of cases, by cancer type, to the number expected, based on national rates.
- To identify the most common cancers so appropriate community cancer programs can be developed.
- To make recommendations for further action, if necessary.

Who was included in the study?

- The study population was residents of CT 40, the area of Dayton with elevated PCE, TCE and chloroform.
- Cancer cases were identified through the Ohio Cancer Incidence Surveillance System.
- The study period 1996-2005 was chosen because these data are the most accurate and complete.

What are the results?

- **49** cancer cases were diagnosed among CT 40 residents during the 10-year study period.
- These 49 observed cancer cases include: **9** colon and rectum; **8** lung and bronchus; **7** female breast; and **25** other cancer types.
- Cases were more likely to be black (94%), 30 or older (100%) and current/former tobacco users (at least 63%).
- The number of cases was higher in 1996-2002 vs. 2003-2005, possibly due to lower reporting in recent years.

Is the number of cancer cases in CT 40 higher than what is expected?

- **No.** The observed number of cases in CT 40 was not significantly higher than expected for all cancer types combined or any specific type, including the types associated with PCE, TCE and chloroform.
- "Significantly higher" means the likelihood of observing this number of cancer cases in CT 40 is expected to occur by chance fewer than five times out of 100.

What are the risk factors for the common types of cancer?

- A risk factor is anything that increases the chance of developing a disease.
- Each cancer type has multiple risk factors, and these factors often interact to increase cancer risk.
- **Colon and rectum cancer:** Family history of colorectal cancer; familial adenomatous polyposis; hereditary nonpolyposis colorectal cancer; intestinal polyps; chronic inflammatory bowel disease; poor diet; lack of physical activity; obesity; heavy alcohol consumption; and smoking.
- **Lung and bronchus cancer:** Tobacco smoking (80-85% of cases); secondhand tobacco smoke; radon, arsenic and asbestos; air pollution; tuberculosis and pneumonia; and family history of lung cancer.
- **Breast cancer:** BRCA1/BRCA2 mutations; family history of breast, ovarian, cervical, uterine or colon cancer; previous breast cancer; chest radiation; early menstruation/late menopause; not having children; having first child after 30; hormone replacement therapy; overweight/obese; heavy alcohol consumption.

What can be concluded from this study?

- The causes of each case of cancer cannot be determined because data on the amount and duration of lifetime PCE, TCE and chloroform exposure and other cancer risk factors are not available.
- The cancer types associated with PCE, TCE and chloroform are NOT significantly higher than expected.
- Cigarette smoking is a major risk factor for two of the three common cancers (lung and bronchus; colorectal), and at least 63% of the cancer cases are current or former tobacco users.
- The cancer burden in CT 40 can be reduced through smoking cessation; eating a sensible diet; increasing physical activity; and following recommended cancer screening guidelines.