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Dayton & Montgomery County

Cancer Burden among Residents of Census Tract 903.02 Riverside, Montgomery County, Ohio 1996-2012

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Why was this assessment conducted?

- An inspection at Mullins Rubber Products (MRP) revealed that groundwater underlying a residential area boarding MRP had been contaminated with tetrachloroethylene (PCE) and trichloroethylene (TCE).
- The Environmental Protection Agency (EPA) began conducting a vapor intrusion investigation and installing vapor mitigation systems in affected homes.
- PCE is considered “likely to be carcinogenic to humans by all routes of exposure” by the EPA. Long-term exposure might lead to a higher risk of bladder cancer, multiple myeloma, or non-Hodgkin lymphoma.
- TCE has been classified as “carcinogenic to humans” by the EPA. Long-term exposure can cause kidney cancer and may cause liver cancer and non-Hodgkin lymphoma in humans.

What were the objectives of the assessment?

- To determine the number of cancer cases diagnosed among residents of Census Tract (CT) 903.02 in Riverside, Montgomery County, OH by cancer type and the percentage of cancer cases diagnosed by sex, race, and age group from 1996 to 2012.
- To identify the most common cancer cases by type diagnosed in CT 903.02
- To compare the number of cancer cases by type to the number of cases based on national rates, Ohio, and Montgomery County rates.

Who was included in the assessment? (See map on back)

- The assessment population was residents of CT 903.02 located in Riverside, Montgomery County, OH. This census tract contains MRP and the 545 properties that are part of the vapor intrusion investigation.
- Cancer cases were identified through the Ohio Cancer Incidence Surveillance System.
- The assessment period, 1996 to 2012, was chosen because these data are the most accurate and complete.

What are the results?

- 495 cancer cases were diagnosed among residents of CT 903.02 from 1996 to 2012.
- Lung cancer (132 cases, 27%), Breast (female) (60 cases, 12%), Prostate (48 cases, 12%), Colorectal (40 cases, 8%)
- Cases were equally diagnosed in men (49%) and women (51%), and 31% of cases were among residents 65 to 74.

Is the number of cancer cases in CT 903.02 higher than what is expected?

- **Yes.** The observed (O) number of cancer cases in CT 903.02 is significantly higher than expected (E) for lung cancer (O=132, E=59.92) and non-Hodgkin lymphoma (O=31, E=20.40).
- Non-Hodgkin lymphoma is associated with both PCE and TCE.
- “Significantly higher” means the number of cancer cases observed exceeded the expected number by more than would occur by chance (95% of time).

What are risk factors for the significant 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.
- Lung cancer: tobacco smoking; secondhand smoke; family history; radon, asbestos, and arsenic; and air pollution.
- Non-Hodgkin lymphoma: older age, sex - male, race - White, previous exposure to radiation or chemotherapy drugs, immunosuppressant drugs, chemical exposure, immune deficiency syndromes, and autoimmune diseases.

What can be concluded from this assessment?

- Smoking is a major risk factor for lung cancer; more than 75% of lung cancer cases were current or former smokers.
- There is not a single known cause of non-Hodgkin lymphoma; there are several risk factors that can contribute to a person’s risk of developing this cancer.
- A small number of non-Hodgkin lymphoma cases were diagnosed during the assessment period. This increases the likelihood that the results could have occurred by chance.
- It is not possible to determine if this exposure is associated with these particular cases.

What are the next steps?

- An EPA contractor will continue sampling residences and installing vapor mitigation systems
- PHDMC will remain informed of the contractor’s progress.
- PHDMC will continue to monitor cases of non-Hodgkin lymphoma in the area.

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