

Stratford Birthweight & Cancer Study

March 1998

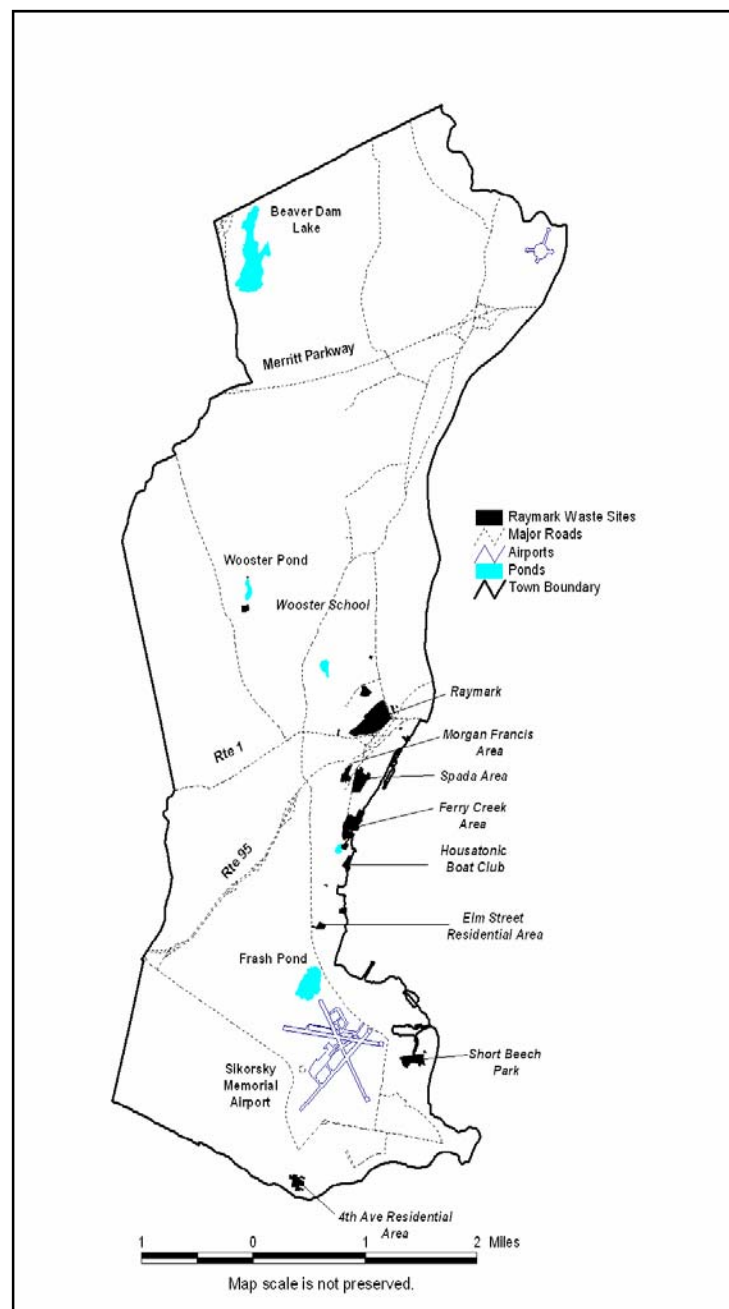
Health Information on Hazardous Waste Sites

This fact sheet is a summary of a recent study of birthweight and cancer in Stratford, Connecticut by the CT Department of Public Health (CT DPH). The purpose of the study was to investigate whether low birthweight and cancer incidence in Stratford were associated with how close residents lived to Raymark waste sites. This study was requested by the citizens of Stratford. For a copy of the complete study, contact the CT DPH (See address and phone on page 6).

Important Public Health Messages:

- ⇒ Town-owned property, 46 residential sites and the Raymark facility have been cleaned up.
- ⇒ The study did not show any association between low birthweight and residential proximity (how close one lived) to Raymark waste.
- ⇒ The study did not find any association between mesothelioma, testicular cancer, and all cancer cases occurring to persons under the age of twenty-five in Stratford, and residential proximity to Raymark waste.
- ⇒ Bladder cancer rates were slightly higher around some Raymark sites. This type of analysis does not provide information on whether an individual's cancer was caused by exposure to waste.
- ⇒ The remaining Raymark waste (Ferry Creek, etc) will be cleaned up.

Raymark Sites in Stratford



BACKGROUND

The former Raymark Industries (formerly Raybestos) operated on East Main Street in Stratford from 1919 until 1989. The facility produced brakes, clutch parts and other friction products. Wastes from Raymark's manufacturing processes have been found to contain lead, asbestos, PCBs (polychlorinated biphenyls), and solvents. Waste was disposed of both on the property and other locations in Stratford. By 1993, Raymark waste was identified on several separate locations around Stratford, including recreational, residential and commercial sites. Since that time, a number of public health activities have occurred. These are described in the Public Health Assessment document which is available from the Stratford Health Department or the CT DPH. As of November 1997, 46 residential sites, Short Beach Park, Wooster School, and the Raymark facility have been cleaned up. The EPA is planning to issue a proposed clean-up plan for the remaining sites along Ferry Creek and the Housatonic River later this year.



Glossary: What Do These Words Mean?

Cancer incidence: New cases of cancer diagnosed in a population.

Cancer incidence rate: The number of new cases of cancer divided by the population. Rates are usually expressed as number of cases per 1,000, 10,000 or 100,000 persons. Rates allow the comparison of cancer incidence in populations that are of different sizes.

Early Onset Cancer: EOC is any type of cancer occurring in those less than age twenty-five.

Epidemiology: The study of the distribution and factors that affect the distribution of disease in the population.

Latency Period: the time between exposure and the development of disease.

Mesothelioma: Cancer of the lung's pleural lining; almost always associated with exposure to asbestos.

Risk Factors: Traits, exposures or habits that may influence the development of disease. For example, a person who has the risk factor of smoking has an increased risk of developing emphysema.

Population-based studies: Epidemiology studies that include a group rather than individuals in the analysis. In this study, all of the Stratford population was included.

Site of Diagnosis: The place in the body where the cancer is found (e.g., bladder, lung, colon).

Statistically significant: When the results are less likely to be due to random chance.

Testicular Cancer: Cancer of the testes.

Understanding the Study: Methods and Difficulties

When researchers were asked to investigate the association between specific health concerns in Stratford and exposure to environmental contamination related to Raymark waste, several pieces of information had to be considered first. Researchers needed to consider these questions:

- What were the health concerns of the public?
- What were the environmental contaminants?
- Where was the contamination located?
- Were people exposed ?
- Is it likely that the contaminants could cause adverse health effects?

To help the public understand how the Stratford study was done and what can be concluded from the results, the next few paragraphs will provide an overview of how the study was conducted and some of the difficulties in this type of research.

Studying Cancer

In Stratford, residents expressed concern about cancer. Connecticut has one of the oldest and best Tumor Registries in the country. This Registry provides a comprehensive listing of people who have been diagnosed with cancer. The information in the Registry is collected in a consistent and standardized way. Researchers can be confident that the diagnoses and the date of diagnosis are accurate. This is important because it allows researchers to compare the data from one geographic area to another and one time period to another. Using these types of comparisons, researchers can identify geographic areas, such as a town, or time periods, such as a year, where cancer rates are



higher. The Registry was used to collect information on the cancer cases for this study. Mesothelioma and bladder cancer rates were included in this study because these cancers have been linked to exposure to asbestos and solvents, which are present in Raymark wastes. Testicular and early onset cancer were studied because of citizen concerns.

The Latency Problem

One difficulty in looking at cancer and environmental contamination is the long latency period. This is the time between exposure and the development of disease. Most cancers have a latency period of 10 years or more. Therefore, it is very difficult to go back many years and try to understand what was in a person's environment that may have influenced the development of disease.

Studying Birthweight

In addition to cancer, researchers chose to look at birthweight. Low birthweight (about 5.5 lbs. or less) and Very Low Birthweight (about 3.3 lbs. or less) may be the result of maternal exposures to a number of different risk factors including environmental exposures. Because pregnancy only lasts nine months, it was possible to evaluate if birth weight was related to residential proximity to Raymark waste. For every birth in

Connecticut, a Birth Certificate is filed with the State. These vital records were used to collect information on all births in Stratford so that researchers could look at this in relationship to Raymark waste.

Evaluating Contamination and Potential Exposure

In addition to gathering the information necessary to look at the health outcomes, information was collected on the environmental contamination. Knowledge about the contamination and the location of waste was obtained from the environmental sampling conducted by the Environmental Protection Agency. Maps were produced and used to identify locations in Stratford that were identified as having waste. The presence of waste does not necessarily mean exposure has occurred. Because the waste was located primarily in soil, direct contact with the soil was the primary way in which people could have been exposed. It would be impossible to determine if and how every person in Stratford may have come in contact with the waste sites, particularly since much of the exposure would have taken place many years earlier. Direct contact includes soil ingestion, inhalation and absorption through the skin. Recognizing this, an assumption was made that the closer one lived to the waste sites, the higher the risk of exposure. In addition, we assumed that if one lived near more than one waste site, the risk of exposure increased as well. Using these assumptions, models were developed that assigned an exposure 'score' to the residents of Stratford.

Analyzing the Data

Using this exposure information, researchers were able to compare the rates of cancer incidence to determine if the cancer rates were higher in the higher exposure 'score' areas. This was done to compare birthweight as well.

This type of analysis does not provide information on whether an individual's cancer or a low birthweight baby was caused by exposure to waste. This type of analysis only allows us to look at the association between exposure and a health outcome in the population as a whole.

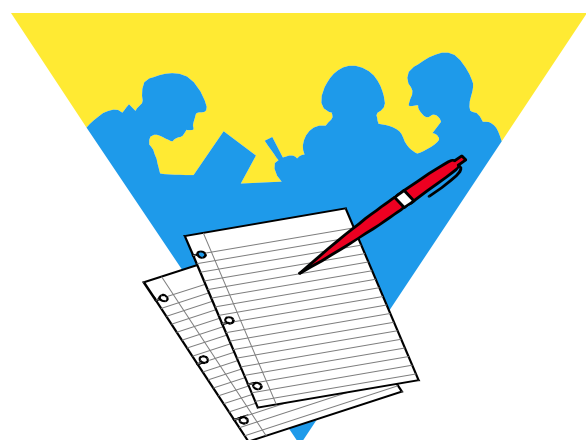
Other Risk Factors

One weakness of this type of study is the inability to control for (account for) other factors that affect an individual's risk of developing disease. Some factors which may contribute to an individual's risk of developing cancer or having a low birthweight baby include smoking status, diet, age, occupation and family history. Researchers did not have this type of information for all the residents of Stratford, therefore it could not be considered in the analyses.

Study Results

Birthweight

The study did not find a relationship between residential proximity to Raymark waste and low or very low birthweight. However, the study did find high numbers of low and very low birthweight births in certain Stratford neighborhoods not near waste sites. The high



numbers of these births appear to be related to other factors, such as maternal age and race.

Bladder Cancer

Bladder cancer was slightly higher among those who lived closer to Raymark waste. Women had a higher rate which was statistically significant. However, this does not mean there is a cause and effect relationship between exposure to Raymark waste and developing bladder cancer. Other factors, such as smoking and occupational history, may explain the higher rates.

Mesothelioma

The study did not find an association between proximity to Raymark waste and mesothelioma. Almost all mesothelioma cases in general are likely to be related to occupational exposures.

Testicular Cancer

This study did not find an association between proximity to Raymark waste and testicular cancer. Testicular cancer has not been associated with environmental exposures in the research literature.

Early Onset Cancer (EOC)

The risk for Early Onset Cancer was slightly higher in some areas near Raymark waste. These areas had very low population (near the airport) and so these findings were not statistically significant.

Study Conclusions

1. Birthweight was not shown to be associated with residential proximity to Raymark waste.
2. Mesothelioma and testicular cancer were not shown to be associated with residential proximity to Raymark waste.

3. Bladder cancer was slightly higher among those who lived closer to Raymark waste. Women had a higher rate which was statistically significant.
4. The risk for Early Onset Cancer was slightly higher among those who lived closer to Raymark waste, though not statistically significant.

Recommendations

1. No further population-based studies are needed to investigate the association between cancer and birthweight, and exposure to Raymark waste.
2. Citizens who have individual medical questions should talk with their health provider. None of the study findings suggest the need for medical testing of residents who lived near Raymark waste.
3. CT DPH will provide information about the results of this study to Stratford area health professionals.



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For More Information:

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