

Stratford Bladder Cancer Follow-up Study

BACKGROUND

This fact sheet summarizes the October 2011 study titled *Follow-up Review of Bladder Cancer*. This is the second health study focusing on bladder cancer data in Stratford, prepared by the Connecticut Department of Public Health (DPH). The goal of the follow-up review was to address recommendations made in DPH's May 2001 bladder cancer study, and specifically to look at additional years of bladder cancer data. For a copy of this new study, contact the Stratford Health Department at (203) -385-4090 or go to their web site: <http://www.townofstratford.com/health>.



RECOMMENDATIONS

Based on the results of the 2011 bladder cancer follow-up study, DPH is not recommending any further cancer studies. DPH will continue to assist the Stratford Health Department with education and outreach to address any concerns the Stratford community has about exposure to Raymark Waste and health effects. Study results are summarized on pages 2-3.

WHY LOOK AT BLADDER CANCER AGAIN?

Bladder cancer has been a focus of health studies in Stratford since the initial 1993 DPH preliminary cancer review indicated elevated bladder cancer in Stratford, as compared with CT state rates. Prompted by the results of the 1993 preliminary review, DPH prepared its first cancer study in 1998 which focused on cancer and residential proximity to Raymark waste. Initial results showed a higher level of bladder cancer among women living near some of the Raymark waste areas. The 1998 results prompted a 2001 follow-up study which used improved methods to evaluate exposure to Raymark waste. The 2001 study did a better job of estimating where people lived within each of Stratford's 46 census blocks. This improved study method resulted in a more accurate assessment of potential exposure to Raymark waste. The 2001 study showed that the slight increase in bladder cancer among females living closer to Raymark waste did not persist over time. However, the 2001 study noted an apparent increase in male bladder cancer in Stratford over time. Because of these findings, the 2001 study recommended that another bladder cancer follow-up be conducted when additional years of cancer data were available. The October 2011 study discussed in this fact sheet is that second follow-up study.

SCOPE OF 2011 STUDY

The purpose of the 2011 study was to satisfy two recommendations from the earlier 2001 study:

- ⇒ Evaluate bladder cancer trends over time in Stratford using additional years of cancer data.
- ⇒ Compare bladder cancer incidence in Stratford with towns around Stratford.

STUDY METHODS

The CT Tumor Registry provided the number of bladder cancers for all CT residents diagnosed between 1965 and 2007. 1965 was selected as the starting point because it aligns with census population data. 1965 is also generally consistent with the earliest year evaluated in the previous cancer studies. 2007 is the most recent year for which cancer data were available. Age-adjusted incidence rates (expressed as cancers per 100,000 people) were calculated and graphed to show changes over time. Stratford was compared with the state of CT, with 15 towns of similar population and with the 5 towns bordering Stratford. To evaluate whether bladder cancer in Stratford is different from the comparison areas, Standardized Incidence Ratios (SIRs) were calculated. The SIRs were also graphed over time and analyzed to see whether any trends over time were evident.

What does
Age-Adjusted
Mean?



Age adjusting rates is a way to make fairer comparisons between groups with different age distributions. For example, a town with a high percentage of elderly people may have a higher rate of cancer than one with a younger population because the risk of cancer increases with age. Likewise, the age structure of a town's population changes over time. So, age adjustment makes the groups more comparable.



What is a SIR?



A **Standardized Incidence Ratio** compares the cancer rate reported for a specific geographic location (such as the town of Stratford) to the cancer rate that would be expected. The expected cancer rate is calculated based on the geographic area chosen for comparison. For example, if we want to compare Stratford with the entire state of Connecticut, the expected cancer rate would be calculated using the number of cancers reported for the entire state.

SIR > 1

Means more cancers in Stratford than expected

SIR < 1

Means less cancers in Stratford than expected

STUDY RESULTS

- ⇒ Over the 42 years of data evaluated in this study, there is no increasing or decreasing trend for male or female bladder cancer in Stratford.
- ⇒ During the 1985-1989 time interval, bladder cancer in males and females was higher than expected in Stratford (SIR=1.57). While the cancer elevations are not considered large, they were statistically significant.

- ⇒ During the 1995-1999 time interval, bladder cancer in Stratford females was lower than expected (SIR=0.59). This finding was also **statistically significant**.
- ⇒ The findings of elevated bladder cancer in Stratford during 1985-1989 and a decrease during 1995-1999 are not new findings. They were observed in earlier cancer studies.
- ⇒ It is not possible to determine the cause of the statistically significant elevation (or the statistically significant decrease) in cancer in Stratford from these types of studies because of study design.
- ⇒ Since 1989, bladder cancer rates in Stratford have not been elevated (with statistical significance) above state rates.



What is Statistical Significance? A result is statistically significant if it is unlikely to have occurred by chance.

WHAT CAUSED THE STRATFORD BLADDER CANCER INCREASE DURING 1985-1989?

We don't know for sure. Even though the bladder cancer elevation during 1985-1989 was statistically significant, it is still possible that random variation in cancer rates is the cause for the increase.

Cigarette smoking is the best understood risk factor for bladder cancer in men and women. Smokers have triple the risk of bladder cancer as compared with people who have never smoked. Some workers exposed to chemicals used in the rubber, leather, dye and printing industries have a higher risk of bladder cancer. Other workers with increased risk of bladder cancer include hairdressers (hair dye exposure) and truck drivers (diesel exposure). In some studies, drinking water containing chlorination byproducts has also been shown to increase bladder cancer risk.

While it is possible that the bladder cancer elevation was caused by exposure to solvents from Raymark (air emissions from the facility, vapors from contaminated groundwater in the Ferry Blvd. neighborhood), it is not likely. Previous studies looked at patterns of cancer in Stratford relative to known locations of Raymark waste and concluded that there were no statistically significant increases in bladder cancer as one moves closer to Raymark waste sites.



What Does a SIR of 1.57 Mean? What Does a SIR of 0.59 Mean?

An SIR of 1.57 means that bladder cancer rates were 57% higher in Stratford as compared with the

comparison area during the 1985-1989 period. An SIR of 0.59 means that bladder cancer rates were 41% lower in Stratford as compared with the comparison area during the 1995-1999 period. Although there was an increase and decrease during these two time periods, there is no increasing or decreasing trend for male or female bladder cancer in Stratford.

DID PREVIOUS CANCER STUDIES LOOK AT THE FERRY BLVD. NEIGHBORHOOD?

Yes. The Ferry Boulevard neighborhood is located within the same census block as the Morgan Francis waste area, which was specifically evaluated in earlier cancer studies as a source of exposure to Raymark waste. So, if ground water-related vapor intrusion exposures in the Ferry Blvd. neighborhood were associated with an increase in bladder cancer, the previous studies should have detected it. As previously stated, earlier cancer studies concluded that there was not a consistent correlation between living closer to Raymark waste and bladder cancer in Stratford.

DID PREVIOUS CANCER STUDIES LOOK AT MESOTHELIOMA?

Yes. Mesothelioma* was included in the 1993 Preliminary Cancer Review and the 1998 Cancer Study. The 1993 review reported that the number of mesothelioma cases in Stratford was higher than in CT, but the elevation was not statistically significant. The 1998 Cancer Study concluded:

- there was no increasing trend for mesothelioma in Stratford over time, and
- living near a Raymark waste area was not associated with an increased risk of mesothelioma.

Based on these findings, mesothelioma was not included in subsequent cancer studies.

*Mesothelioma is a rare cancer that occurs in the thin layer of tissue (pleura) that covers the majority of your internal organs and is associated with asbestos exposure.

FOR MORE INFORMATION

CT Department of Public Health
Meg Harvey
410 Capitol Ave., PO Box 340308
Hartford, CT 06134-0308
(860) 509-7742
margaret.harvey@ct.gov
<http://www.dph.state.ct.us>

Stratford Health Department
Andrea Boissevain, Director of Health
468 Birdseye Street
Stratford, CT 06615
(203) 385-4090
aboissevain@townofstratford.com
<http://www.townofstratford.com/health>



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