The Commonwealth of Massachusetts
Executive Office of Health and Human Services
Department of Public Health
250 Washington Street, Boston, MA 02108-4619

Evaluation of Leukemia, Liver Cancer, and Lung Cancer in Marlborough, Massachusetts: 1982-2002

QUESTIONS AND ANSWERS

1. Q. Why did the Massachusetts Department of Public Health (MDPH) evaluate the incidence of cancer in Marlborough?

A. In January 2000, a resident of Marlborough contacted the federal Agency for Toxic Substances and Disease Registry (ATSDR) expressing concern about the incidence of cancer in residents living near a former orchard in the Glen Street neighborhood of Marlborough and historical pesticide use at the orchard. The MDPH conducted a Public Health Assessment (PHA) under its cooperative agreement with ATSDR and issued the Draft PHA for public comment in May 2000. Based on the findings of the Draft PHA and preliminary cancer incidence data released by the Massachusetts Cancer Registry (MCR), a recommendation was made in the PHA that the Community Assessment Program (CAP) within the MDPH Center for Environmental Health (CEH) conduct an evaluation of the incidence of three types of cancer in Marlborough.

2. Q. How did the study evaluate cancer?

A. Cancer incidence data for the years 1982-2002 were obtained for Marlborough from the MCR, a division of the Center for Health Information, Statistics, Research and Evaluation within MDPH. Cancer incidence rates were calculated for the city of Marlborough. MCR data consist of reports of new cancer diagnoses (not cancer deaths), beginning in 1982. The 21-year period 1982-2002 is the period for which the most recent and complete cancer incidence data were available at the time this analysis was conducted. In addition, because the MCR is a continual surveillance system for cancer, reports of more recent diagnoses of cancer (that is, cancers diagnosed between 2003 and May 2006) were also reviewed and evaluated qualitatively. As discussed below, a qualitative evaluation of the geographic distribution of residence at diagnosis was also conducted.

3. Q. Did the study review cancer patterns at the neighborhood level?

A. Yes. To evaluate trends at the neighborhood level, cancer rates were calculated for each census tract (CT) in Marlborough, including CT 3214 which includes the Glen Street neighborhood. In addition, a qualitative evaluation of the geographic pattern of individuals diagnosed with cancer at the neighborhood level was also conducted. This involved examining the address reported for each individual diagnosed with cancer to assess any possible concentrations of diagnoses in any one neighborhood. See attached Figure 1 showing the six CTs in Marlborough. (For confidentiality reasons, it is not possible to include maps showing the locations of individuals diagnosed with cancer in the report.)

4. Q. How did the CAP review cancer incidence for the city as a whole and at the neighborhood level?

A. To better characterize the pattern of cancer in Marlborough, case-specific information available from the MCR relating to type of cancer, date of diagnosis, place of residence at diagnosis, age at diagnosis, gender, smoking history, and occupational information was reviewed. When possible, comparisons were made between the Marlborough cancer incidence data and statewide and national cancer incidence data, to determine if any atypical trends or patterns were occurring in Marlborough or the Glen Street neighborhood.

5. Q. What types of cancer were studied and why?

A. The three types of cancer evaluated in this investigation were leukemia, liver cancer, and lung cancer. These cancer types were selected for evaluation based on elevations observed at the city level in a preliminary review of a published MCR report and potential associations with contaminants of concern at the former apple orchard as identified in the PHA.

In addition to these three types of cancer, a qualitative review was conducted of all types of cancer diagnosed between 1982 and May 2006 for the census tract in which the Glen Street neighborhood is located.

6. Q. What were the major environmental contaminants of concern related to the former apple orchard?

A. The major contaminants of concern at the site include the pesticides lead arsenate and DDT and its breakdown products.

7. Q. What did the study reveal about the incidence of cancer in Marlborough?

A. Cancer incidence rates of leukemia and cancers of the liver and lung were statistically significantly elevated in Marlborough during 1982-2002. However, an examination of available risk factor information for the individuals diagnosed with these types of cancer as well as the geographic and temporal patterns of the diagnoses did not reveal any atypical patterns nor did the evaluation suggest that a common factor (environmental or non-environmental) is likely related to the diagnoses of these cancer types in Marlborough.

8. Q. What did the study reveal about the incidence of cancer in the Glen Street neighborhood?

A. With respect to the Glen Street neighborhood and surrounding orchard property, there were no unusual patterns of cancer observed. During the 21-year time period evaluated, one individual was diagnosed with liver cancer in the census tract where the Glen Street neighborhood is located. Leukemia and lung cancer both occurred in this census tract at about expected rates and no unusual concentrations of either type of cancer were noted in the census tract. The patterns of the 18 different cancer types diagnosed among residents of the Glen Street neighborhood between 1982 and the present were generally consistent with national and statewide trends in cancer incidence.

9. Q. Did MDPH evaluate any environmental information related to past pesticide use at the former apple orchard?

A. Yes. The Environmental Toxicology Program within the CEH recently released its final *Public Health Assessment for Milham Brook Area (A/K/A Glen Street Neighborhood), Marlborough, Massachusetts* in which available environmental data for the former orchard were reviewed. This report concluded that available data, while limited, indicated that the contaminants detected at the site were not present at levels of health concern, particularly given the highly vegetated nature of the current site. However, the report identified a data gap in the lack of lead soil sampling data and recommended additional sampling to fill the data gap.

10. Q. Does the MDPH recommend any additional follow-up?

A. No. The MDPH recommends no further investigation of cancer in Marlborough at this time. The MDPH/CEH will however continue to monitor the incidence of leukemia, liver cancer, and lung cancer in Marlborough through the city/town cancer incidence reports published by the Massachusetts Cancer Registry. In addition, the MDPH Public Health Assessment identified future exposure concerns regarding development of the site, specifically concerns related to the potential for run-off of onsite surface water to the public water supply reservoir and the potential generation of airborne fugitive dust. If requested, the CEH's Environmental Health Education Program will work with the Marlborough Board of Health and the community to provide educational information and conduct outreach activities to Marlborough residents about ways to reduce their risk of cancer.

11. Q. Who should I contact for more information, or if I want to obtain a copy of the report *Evaluation of Leukemia, Liver Cancer, and Lung Cancer in Marlborough, Massachusetts: 1982-2002* or the *Public Health Assessment for Milham Brook Area (A/K/A Glen Street Neighborhood), Marlborough, Massachusetts*?

A. Both reports are available on the MDPH website at http://www.mass.gov/dph/ceh. Staff in the Community Assessment Program and the Environmental Toxicology Program can be reached at:

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