Long Island Breast Cancer Study Project Newsletter

Joseph L. Mailman School of Public Health
Columbia University

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Hotline Telephone #: (212) 305-9392

LIBCSP Field Operations Complete

We are pleased to announce that over 3,000 women participated in the Long Island Breast Cancer Study Project (LIBCSP). This epidemiologic study of breast cancer and the environment on Long Island began identifying women who were eligible to participate in August 1996 and completed the final interviews at the end of January 1998. Two groups of women participated in the LIBCSP: cases – women who were newly diagnosed with breast cancer between August 1, 1996 and July 31, 1997 and controls – women who were never diagnosed with breast cancer that were scientifically and randomly selected from the population of Long Island.

Currently, laboratory analyses of the biological samples (blood and urine) and the home environmental samples (dust, soil and water) are underway. The investigators at Columbia's Joseph L. Mailman School of Public Health as well as the LIBCSP collaborators at many other institutions have begun to prepare the data that was collected during the study for statistical analysis. The first scientific publications of the LIBCSP study results are expected in the year 2000.

We want to thank all of the study subjects, the hospitals and health care professionals, as well as the breast cancer advocates who have contributed their time and support to this study. The Long Island Breast Cancer Study Project could not be successful without their commitment to breast cancer research.

COMMONLY ASKED QUESTIONS ABOUT THE LIBCSP

WHAT IS THE LONG ISLAND BREAST CANCER STUDY PROJECT? Scientists at the Joseph L. Mailman School of Public Health of Columbia University, working in collaboration with other New York City and Long Island investigators, are conducting an epidemiologic study to determine whether certain environmental exposures increase the risk of breast cancer among women on Long Island. This study is funded by the National Cancer Institute (NCI) and the National Institute of Environmental Health Sciences (NIEHS).

WHAT IS THIS STUDY'S HISTORY? This research project grew from the concerns of Long Island women about the high rates of breast cancer in their community. They sought the help of their congressional representatives to have a scientific investigation of breast cancer and the environment conducted on Long Island. In June 1993, Congress voted that a study be done to look at the possible relationship of the environment to breast cancer. Public Law 103-43 directed the NCI and the NIEHS to conduct a case-control study on Long Island and two other areas.

WHAT IS A CASE-CONTROL STUDY? A case-control study is a commonly used study design for epidemiologic investigations. Women who are newly diagnosed with breast cancer (cases) are identified. Then, as a comparison, women without breast cancer (controls) are scientifically selected. Through the use of in-person interviews and donated blood and urine samples, the investigator can determine if women with breast cancer have higher levels of past exposure to environmental factors than women who do not have breast cancer. (continued on page 3)

LIBCSP Environmental Home Samples: The Facts

What are environmental home samples?

The samples collected in the Long Island Breast Cancer Study Project (LIBCSP) are small amounts of carpet dust, tap water and yard soil. The LIBCSP is the first epidemiologic study of breast cancer to collect samples from the home environment. These three types of samples were selected because they represent different paths of exposure to environmental factors.

Dust: Carpets are excellent collectors of dust and many organic chemicals accumulate in carpet dust. The organochlorine pesticides and PAHs that are being investigated in the LIBCSP can stay in carpet dust for years where they are protected from being broken down by environmental factors such as sunlight and moisture. The amount of chemicals measured in the collected dust may reflect the pattern of indoor exposure over the lifetime of the carpet.

Water: Tap water may contain pesticides or other contaminants. If this is true, the levels of chemicals measured in the samples would represent a current source of exposure that occurs during consumption of tap water.

Soil: The pollutants that are being studied in the LIBCSP can exist in the air and then can become deposited in the soil. The levels that are measured in the soil samples will be used as an indication of the outdoor exposure subjects may have experienced (see article on page 3).

Who was selected for home sampling?

Since we know that there is a long period between when a woman was exposed and when she is diagnosed with breast cancer, we collected environmental samples from a group of study participants who had lived in their current residence for 15 years or longer. This long-term residency requirement insured that samples collected would be representative of the indoor and outdoor home environment that a woman has been exposed to for at least 15 years.

How were the samples collected?

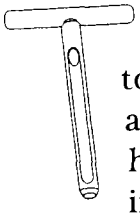
There was a very specific protocol for each type of environmental sample. This insured that all samples were collected in the same manner.

Dust: The dust samples were collected with a very high powered vacuum cleaner called the HVS3 (see photo). This is a commercial vacuum cleaner that has been modified to vacuum carpet dust at a specific air velocity and to collect dust particles through a cyclone into a catch bottle. The study interviewer would mark out an area of a subject's carpet and then carefully vacuum as much dust as possible. The dust container that was then sealed and sent to the laboratory for analysis.

Research Scientist Patrick M. Merritt collecting a dust sample

Water: Several containers of tap water were collected from a subject's kitchen sink. The water containers were then sent to the laboratory for analysis.

Soil: A total of four soil samples were collected from both the front and back yards of a subject's home. The soil sampling tool (see left) is a stainless steel tube, approximately one inch in diameter, that has a handle. Using this device, interviewers collected a two inch deep sample of soil. Each sample was stored in a plastic bag and then sent to the laboratory for analysis.



Who analyzed the samples?

Each of the home environment samples were analyzed by three different laboratories, each chosen for their expertise. South West Research Institute analyzed the dust samples. The water samples were analyzed by the Suffolk County Department of Health Services, while the American Health Foundation conducted the soil sample analysis.

Meet the Home Sampling Coordinator: Dr. Steven D. Stellman is a graduate of Ohio State University. He holds a doctorate in physical chemistry from New York University and a Master's degree in health policy and management from the Columbia University School of Public Health. He has served in the New York City Department of Health as Assistant Commissioner for Biostatistics and Epidemiological Research, where he directed studies of infectious and chronic diseases, tuberculosis, prison health, maternal and child health, and AIDS. Prior to that he was Assistant Vice President of the American Cancer Society where he designed and carried out a prospective study of more than one million American men and women. Dr. Stellman is a Consultant at the Memorial Sloan-Kettering Cancer Center and Associate Editor of the journal Women and Health. He has also been an NIH Fogarty Senior International Fellow at the International Agency for Research on Cancer in Lyon, France, where he studied cancer in Asian immigrants to New York City. He is currently Acting Head of the Division of Epidemiology with the American Health Foundation in New York City, where he is directing studies of both lung and breast cancer. He is co-investigator, together with his wife, Dr. Jeanne Stellman, of a new Columbia University - American Legion study of health effects of dioxin-contaminated herbicides such as Agent Orange on Vietnam veterans.

Highlight on Soil: Why Is It One of the Environmental Home Samples?

Soil is being measured because it is an indicator of the deposition of particulate matter that contains polycyclic aromatic hydrocarbons (PAH) from automobile exhaust and industrial sources. The measured levels will be used in two ways. First, they may provide some evidence that a household has been subjected to unusually high or low levels of PAH, and this information can help us to interpret breast cancer risk. However, since most people's PAH exposure is through food and air, soil is at best an indirect measure of exposure. For this reason, the PAH readings will be used to "calibrate" or adjust a broader geographical model of air pollution, which will be based upon environmental data from many official and private sources. These methods take into account traffic patterns, industrial emissions, and a variety of other sources of contamination, and will enable us to make an estimate of the PAH exposure of a household from airborne sources over a long period of time. This is being done in collaboration with Dr. Maureen Hatch of the Mt. Sinai School of Medicine and Dr. Jan Beyea of Consulting in the Public Interest.

Commonly Asked Questions about the LIBCSP (continued)

WHY IS THE LONG ISLAND BREAST CANCER STUDY PROJECT BEING CONDUCTED? The LIBCSP is a landmark investigation that will significantly add to our knowledge of the relationship between the environment and breast cancer. An important part of this research effort involves understanding differences between women who develop breast cancer and women who do not. The results of this study may improve our ability to:

- better identify women who are at risk of developing breast cancer,
- identify risk factors that can be changed, and
- aid in developing strategies to prevent breast cancer that will eventually benefit all women.

WHAT ENVIRONMENTAL EXPOSURES ARE BEING STUDIED? Recently, several studies suggested that certain environmental exposures affect estrogen production under laboratory conditions, increase mammary tumors in animals, and may increase a woman's risk of breast cancer.

These environmental exposures include:

- **Organochlorine compounds** - includes pesticides such as DDT, DDE, and chlordane; and PCBs, which were used as electrical insulators
- **Polycyclic Aromatic Hydrocarbons (PAH)** - formed during the incomplete burning of organic material; found in car exhaust, cigarette smoke and charcoal broiled foods
- **Electromagnetic Fields (EMF)** - invisible waves that result from the flow of electric current

The Long Island Breast Cancer Study Project

Marilie D. Gammon, Ph.D., Principal Investigator Alfred I. Neugut, M.D., Ph.D., Co-Principal Investigator
Susan L. Teitelbaum, MPH, Project Coordinator
Hotline: (212) 305-9392 E-mail: libcsp@columbia.edu Website: http://cpmcnet.columbia.edu/dept/sph/epi/libc/

The Investigative Collaborators

LIBCSP brings together investigators at institutions from Long Island, New York City, Maryland, New Jersey and Texas in an effort to determine whether environmental factors are associated with breast cancer among women on Long Island. We would like to recognize these institutions for the contributions they are making to the LIBCSP. The following is our list of collaborating institutions.

American Health Foundation
Beth Israel Medical Center
Brookhaven Memorial Hospital
Brunswick Hospital
Central Suffolk Hospital
Columbia School of Public Health
Columbia Presbyterian Medical Center
County of Suffolk
Eastern Long Island Hospital
Franklin Hospital Medical Center
Good Samaritan Hospital Medical Center
Health Insurance Plan of Greater NY
Hempstead General Hospital
Huntington Hospital
John T. Mather Memorial Hospital
Long Beach Memorial Hospital
Long Island Jewish Medical Center
Massapequa General Hospital
Memorial Sloan-Kettering Cancer Center
Mercy Medical Center
Mid-Island Hospital
Mineola Medical Lab
Mt. Sinai School of Medicine
Nassau County Medical Center
National Audubon Society
North Shore University Hospital at Glen Cove
North Shore University Hospital at Manhasset
North Shore University Hospital at Plainview
North Shore University Hospital at Syosset
St. Charles Hospital
St. Francis Hospital
St. John's Episcopal Hospital
South Nassau Communities Hospital
Southwest Research Institute
Southampton Hospital
Southside Hospital
Strang Cancer Prevention Center
University Medical Center at Stony Brook
Westat
Winthrop University Hospital

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Joseph L. Mailman School of Public Health, Columbia University
622 West 168th Street, PH-18, New York, NY 10032