**Breast cancer and Environmental toxins**

*Date:* In 1990, Barbara Balaban (a breast cancer survivor and activist as well as the director of the Adelphi New York Statewide Breast Cancer Hotline and Support Program) asserted a link between breast cancer and environmental toxins at a conference, where she publicly disagreed with the findings of a study of breast cancer on Long Island conducted by the New York State Health Department. The study addressed only biological and demographical causes of breast cancer. Balaban believed that there were additional risk factors responsible for the particular high incidence rates of breast cancer in the Long Island area.

*Forecast of impending disaster:* Following this event, several studies looked for correlations between the presence of environmental contaminants and the incidence of breast cancer. Most notably in 1993, Wolff, Toniolo, Lee, Rivera and Dubin suggested that environmental chemical contamination with organochlorine residues, such as DDT and PCBs, might be an important factor in breast cancer. They added that given the widespread dissemination of organochlorine insecticides in the environment, the implications are far-reaching for public health intervention, not only in Long Island, but worldwide.

*Forecasting Method:* Wolff and Toniolo compared DDE and PCB levels between a group of 58 women with a diagnosis of breast cancer 1-6 months after they entered New York University Women’s Health Cohort study and a second group of 171 subjects from the same cohort population who did not develop cancer. The results showed that mean levels of DDE and PCBs were higher for breast cancer patients than non-breast cancer patients, but did not provide evidence on the involvement of these chemicals in the development of breast cancer.

*Actions called for:* In the Senate, Tom Harkin of Iowa and Alphonse D’Amato from Long Island called for increased funding for breast cancer research. In 1992, Representative Henry Waxman (D-Calif.) drafted legislation that called for a government-funded case-control study “to assess biological markers for environmental and other risk factors contributing to the incidence of breast cancer…in the State of New York.”

*Endorsements of and challenges to the forecast:* Like Barbara Balaban, many breast cancer survivors and activists in Long Island, inspired by the success of AIDS activists, formed a number of organizations, such as One-in-Nine, to raise public concern regarding breast cancer and to press government funding to research into its causes. In 1991, the National Breast Cancer Coalition was formed to lobby Congress for research. To strengthen their case, famous speakers such as Susan Love (leading breast cancer surgeon and author) and Devra Lee Davis (epidemiologists) helped articulate the activists’ purpose. On the other hand, renowned epidemiologists such as Dr. Deborah Winn (National Cancer Institute), Michael Bracken (Yale University) gave criticism of the Long Island study. Bracken, in an interview conducted by the *New York Times*, said that such a study “is not so much science as a political response.”

*Outcomes of the conflict:* In June 1993, U.S. Congress passed Public Law 103-43, which directed the head of the National Institute of Environmental Health Sciences, to conduct the case-control study requested by Rep. Henry Waxman. This was an unusual piece of congressional law, which essentially dictated the type of study, the design, the population, and the hypothesis of the study. Under the specified experiment scheme, scientists merely analyzed the correlation between breast cancer and environmental toxin rather than identifying the cause of breast cancer. Other studies completed by the Long Island Breast...
Cancer Study Project, costing $30 million over nine years, showed no causal relation between environmental components, such as organochlorine compounds and electromagnetic fields, and breast cancer. In their updated study in 2000, Wolff, Toniolo and colleagues conducted a follow-up analysis recognized, “our results do not support a relationship between DDE or PCB levels and breast cancer in a prospective cohort of New York City women.” In retrospect, it shows how even highly competent scientists can get carried away by one phenomenon and that the scientific community can react with insufficient skepticism.