



Association between Residence on Cape Cod, Massachusetts, and Breast Cancer

Women who have lived longer on Cape Cod, MA, an area with elevated breast cancer risk since 1982, are at higher risk for the disease than new arrivals, according to results of the Cape Cod Breast Cancer and Environment Study slated for publication in February 2004 in the peer-reviewed scientific journal *Annals of Epidemiology*. The study conducted by Silent Spring Institute interviewed 2113 Cape Cod women about their addresses over the past 50 years and took into account other breast cancer risk factors, including the women's age, family history of breast cancer, childbearing experience, education, and overweight. Women who lived on Cape Cod for 25-29 years were at highest risk: 72 percent higher risk than women who lived there fewer than five years.

The study is part of the Cape Cod Breast Cancer and Environment Study (Cape Cod Study), conducted by Silent Spring Institute since 1994 with funding from the Massachusetts Department of Public Health, foundations, and private donations. Silent Spring Institute researchers collaborated with researchers at Boston University on this portion of the Cape Cod Study.

The new results add to the evidence that residence on Cape Cod is associated with increased breast cancer risk. The strength in these results lies in their use of women's addresses dating back years before their breast cancer was diagnosed, providing information about the time when the tumor developed, rather than just one address at the time the cancer was diagnosed.

One of the questions many people have wondered about is whether higher breast cancer rates on Cape Cod are due to in-migration, even though the statistics are age-adjusted to take into account the retirement population. These results provide evidence that recent arrivals do not explain higher breast cancer risk in the region.

Studies of unexplained geographic variation in breast cancer rates provide evidence that additional, modifiable risk factors can be identified. A limitation of this study is that it does not clarify what these risk factors may be or how they are related to specific years of residence on Cape Cod. In addition to the Cape Cod Study, other regional breast cancer studies include the Long Island Breast Cancer Study Project and research in Marin County, CA.

When higher disease incidence is observed in a geographic region, the first questions researchers ask are "Is this likely due to chance?" and "Is this explained by known risk factors for the disease or better access to screening, such as mammography?" Analyses of three different data sources, including the new study, suggest that the answer to these questions is "no" for Cape Cod. Massachusetts Cancer Registry data analyzed by Silent Spring Institute showed 20% higher breast cancer incidence on Cape Cod compared with the rest of the state for the years 1982 (when the Cancer Registry was founded) to 1994, while a state survey of mammography use showed lower mammography rates in the area. The Collaborative Breast Cancer Study showed about 20% higher risk for Cape Cod women compared with others in the state, after taking into account known breast cancer risk factors.

The scientific journal article is referenced as follows: McKelvey W, Brody JG, Aschengrau A, Swartz CH. In Press. Association between residence on Cape Cod, Massachusetts, and breast cancer. *Annals of Epidemiology*. Available online: doi: 10.1016/S1047-2797(03)00120-0