

# Early findings fail to connect breast cancer and wastewater

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In August, Silent Spring Institute announced it was initiating a study examining the possibility that nitrogen in wastewater that enters the drinking water supply could increase a woman's risk of breast cancer.

This week, a new, peer-reviewed study by Silent Spring seemed to dispute those early findings. A paper by Silent Spring Institute published online in *Environmental Health: A Global Access Science Source* found no consistent evidence of an association between indicators of wastewater (nitrate-nitrogen levels) in drinking water and breast cancer, Silent Spring announced this week. The study also found no consistent association with land use and building in the surface areas that feed into the public drinking water wells.

"While we found no association, it is important to point out that this study has limitations that may explain why we found no association, even where there may be one," explained scientist Julia Brody of Silent Spring. "For example, nearly everyone in the study had been exposed at some level, so there were few women with no exposure for comparison. Also - by using proxies (nitrate-nitrogen and land use) to determine levels of exposure to endocrine disruptors, our measurement was inexact and requires further study."

This research is part of the Cape Cod Breast Cancer and Environment Study, which will continue to examine groundwater contaminants and routes of exposure to hormone-disrupting chemicals.

As part of the research, the study assessed yearly exposures since 1972 to contaminated public drinking water for 824 Cape Cod women diagnosed with breast cancer between 1988 and 1995 and 745 controls. Controls are women who were selected randomly for the study from women who are permanent residents of Cape Cod and similar in age to the women in the study who were diagnosed with breast cancer. The study compared women with breast cancer to the controls. Eligible study participants lived in homes served by public drinking water supplies and never lived in a home served by a Cape Cod private well.

More than 85 percent of the homes and businesses on Cape Cod are served by septic systems.

Drinking water contaminated by wastewater is a potential source of exposure to mammary carcinogens and endocrine disrupting compounds, or EDCs. These contaminants are hypothesized to increase breast cancer risk. To investigate a woman's exposure, the study needed indicators to quantify exposure over many years. Because these contaminants are not routinely measured in drinking water, the study used two proxy indicators: nitrate levels in public supply wells (an established indicator of wastewater impact) and the extent of developed land in drinking water recharge zones.

A 2006 Silent Spring Institute study by Swartz et al., published in *Environmental Science & Technology*, found troubling estrogenic contamination of Cape Cod groundwater and documented that EDCs from septic systems leach into groundwater. Further research is needed to determine the levels at which women are exposed to these endocrine disruptors, which may contribute to increased risk of hormonally responsive disease, including breast cancer, Brody said.

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For more information on the Environmental Health paper, check online at [www.ehjournal.net/content/5/1/28](http://www.ehjournal.net/content/5/1/28). For more information about Silent Spring, go to [www.silentspring.org](http://www.silentspring.org)