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Exposure to Secondhand Cigarette Smoke Over a Lifetime Increased Breast Cancer Risk Later in Life

- Breast cancer risk increased with higher levels of exposure.
- Postmenopausal women had the strongest risk.
- Exposures during adulthood were most important.

PHILADELPHIA – Exposure to secondhand smoke for a prolonged period of time and in high quantity may increase the risk of breast cancer, even in women who never smoked cigarettes themselves.

“The question of whether exposure to side-stream smoke could increase risk of breast cancer is one that is unresolved,” said Peggy Reynolds, Ph.D., senior research scientist at the Northern California Cancer Center’s Berkeley office. “While no single epidemiologic study can answer the question, our findings suggest that cumulative high levels of exposure may contribute to breast cancer, adding to the evidence for a variety of other adverse health outcomes.”

Details of these results are published in *Cancer Epidemiology, Biomarkers & Prevention*, a journal of the American Association for Cancer Research. The December issue features a special focus on tobacco studies.

Reynolds and colleagues examined the risk of developing breast cancer among women who had never smoked tobacco products, but who had a history of exposure to secondhand smoke either at home, at work or in social settings. Participants also had no history of breast cancer.

The researchers collected detailed information via questionnaire from more than 57,000 women in the California Teachers Study, then followed them for a decade. Detailed questions helped the researchers to determine whether age at exposure, setting of exposure or amount of exposure influenced the risk of developing breast cancer.

In the years since completing the questionnaire, 1,754 newly diagnosed cases of invasive breast cancer occurred.

Overall, findings showed no evidence that simple measures of secondhand smoke were associated with breast cancer risk. Risk seemed to be confined to exposures experienced

during adulthood (among women aged 20 or older) and primarily among those who were postmenopausal; early-life exposures (before the age of 20) did not alone appear to increase their risk.

Women exposed to moderate to high levels for a combination of years and intensity of exposure had a significant dose response so that the risks for developing breast cancer increased as the cumulative exposure levels increased, according to Reynolds.

“We were initially surprised not to see much effect individually for exposure in household, workplace or social settings,” she said. “It does make sense though, if there is an effect for higher levels of exposure, the sum of exposures across settings would be more important than only partial measures of exposure.”

Based on these findings, Reynolds suggested that more research is needed to better assess overall exposure patterns. From a public health point of view, these results provide additional evidence for health risks from exposure to secondhand smoke.

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The mission of the American Association for Cancer Research is to prevent and cure cancer. Founded in 1907, the AACR is the world’s oldest and largest professional organization dedicated to advancing cancer research. The membership includes 30,000 basic, translational and clinical researchers; health care professionals; and cancer survivors and advocates in the United States and nearly 90 other countries. The AACR marshals the full spectrum of expertise from the cancer community to accelerate progress in the prevention, diagnosis and treatment of cancer through high-quality scientific and educational programs. It funds innovative, meritorious research grants, research fellowship and career development awards. The AACR Annual Meeting attracts more than 16,000 participants who share the latest discoveries and developments in the field. Special conferences throughout the year present novel data across a wide variety of topics in cancer research, treatment and patient care. The AACR publishes six major peer-reviewed journals: *Cancer Research*; *Clinical Cancer Research*; *Molecular Cancer Therapeutics*; *Molecular Cancer Research*; *Cancer Epidemiology, Biomarkers & Prevention*; and *Cancer Prevention Research*. The AACR also publishes *CR*, a magazine for cancer survivors and their families, patient advocates, physicians and scientists. *CR* provides a forum for sharing essential, evidence-based information and perspectives on progress in cancer research, survivorship and advocacy.