New ACS Study: Smoking Increases Risk for Many Second Cancers Even When First Cancers Not Smoking-Related

A new study by researchers at the American Cancer Society (ACS) shows a link between smoking and the risk of second primary cancers (SPCs) across various first primary cancers (FPCs) types, even when the first cancer is not smoking-related. The findings are to be presented today at this year's annual meeting of the American Association for Cancer Research (AACR) in Chicago, April 25-30, 2025.

In the report, led by Dr. Hyuna Sung, senior principal scientist, cancer surveillance research at the American Cancer Society, researchers identified 28,272 participants using the Cancer Prevention Study II Nutrition Cohort. Scientists analyzed individuals who were diagnosed with first primary invasive, non-metastatic cancer between January 1, 1992, and June 30, 2015, and survived for 1+ year, and followed them for SPC diagnoses until June 30, 2017.

Study results showed that approximately 59% of the participants were male and 49% were in their 70s at their FPC diagnosis. The most common FPCs were prostate (33%), breast (19%), colorectal (9%), and non-Hodgkin lymphoma (8%). Smoking prevalence was highest among those with FPC of the lung (88%), esophagus (78%), and bladder (75%), and lowest among those with uterine corpus (39%) and ovarian (non-mucinious, 39%) cancers. During a median follow-up of 7.0 years, 1,926 individuals (7%) developed smoking-related SPCs. Former and current smokers were more likely than never-smokers to develop smoking-related SPCs. The hazard ratio (HR) for current smokers varied across FPC types: 5.8 for uterine corpus, 4.9 for colorectal, 4.1 for prostate, 3.9 for melanoma, 3.3 for breast, 3.1 for non-Hodgkin lymphoma, and 2.8 for bladder. Among former smokers overall, HRs declined with years since quitting from 2.6 for less than 10 years to 1.3 for 30 or more years before FPC diagnosis. The risk reduction was most marked for uterine cancer survivors after 10 or more years and breast cancer survivors after 20 or more years since quitting, although a lower-level risk persisted for several other FPCs.

Researchers stress the finding highlights the importance of smoking cessation efforts in reducing the burden of second primary cancers in the expanding population of cancer survivors.

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About the American Cancer Society
The American Cancer Society is a leading cancer-fighting organization with a vision to end cancer as we know it, for everyone. For more than 110 years, we have been improving the lives of people with cancer and their families as the only organization combating cancer through advocacy, research, and patient support. We are committed to ensuring everyone has an opportunity to prevent, detect, treat, and survive cancer. To learn more, visit cancer.org or call our 24/7 helpline at 1-800-227-2345. Connect with us on Facebook, X, and Instagram.

For further information: FOR MORE INFORMATION, CONTACT: American Cancer Society, Anne.Doerr@cancer.org

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