

Lung cancer risk model refines decisions to screen

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A new method for determining lung cancer risk could more efficiently identify individuals for annual screening and catch more cancers early, according to a study published in this week's *PLOS Medicine*. The study, conducted by Martin Tammemägi of Brock University, Canada, and colleagues, evaluates a lung cancer risk prediction model and identifies a risk threshold for selecting individuals for annual lung cancer screening.

Computed Tomography (CT) [screening](#) can identify [lung tumors](#) while they are still treatable, and the US National Lung Screening Trial (NLST) found that annual screening of high-risk [smokers](#) can reduce [lung cancer](#) mortality by 20%. The best way to identify those at high risk remains an important question. The U.S. Preventive Services Task Force (USPSTF) recommends annual screening based on hard cutoffs for age and smoking duration/intensity, and doesn't recommend screening former smokers who quit more than 15 years ago. The PLCOm2012 model was developed based on studying lung cancer incidence in participants from the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial (PLCO). In addition to considering age, smoking duration/intensity, and quit time of former smokers, PLCOm2012 also considers race/ethnicity, socioeconomic circumstance, body mass index, personal history of cancer, chronic obstructive pulmonary disease, and family history of lung cancer to determine a risk score for lung cancer.

Tammemägi and colleagues used data from the NLST to identify a risk threshold (PLCOm2012 score ≥ 0.0151) to identify people who should receive annual CT screening. This threshold was applied, alongside the

USPSTF criteria, to smokers who were screened in the PLCO trial. The authors found that 8.8% fewer people exceeded the threshold than met the USPSTF criteria (p

Applying the PLCOm2012 risk threshold can more efficiently identify candidates for CT screening than the USPSTF criteria.

The authors say: "This should make [lung cancer screening](#) more attractive for policy-makers, and more affordable for health systems."

Data available for this study did not allow for cost-effectiveness evaluation.

More information: Tammemägi MC, Church TR, Hocking WG, Silvestri GA, Kvale PA, et al. (2014) Evaluation of the Lung Cancer Risks at Which to Screen Ever- and NeverSmokers: Screening Rules Applied to the PLCO and NLST Cohorts. *PLoS Med* 11(12): e1001764. [DOI: 10.1371/journal.pmed.1001764](https://doi.org/10.1371/journal.pmed.1001764)

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