Model more accurately predicts lung cancer risk

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Martin C. Tammemagi, Ph.D., from Brock University in St. Catharines, Canada, and colleagues used data from 80,375 persons who had ever smoked from the Prostate, Lung, Colorectal, and Ovarian (PLCO) Cancer Screening Trial to develop and validate a lung cancer risk prediction model. Data from the control group were used to develop the model and data from the intervention group were used to validate the model. The model was compared with screening criteria from the National Lung Screening Trial (NLST).

The researchers found that the area under the receiver-operating-characteristic curve was 0.803 using the development data and 0.797 using the validation data. Compared with screening criteria developed from the NLST, the PLCO criteria had significantly higher sensitivity (83.0 versus 71.1 percent) and positive predictive value (4.0 versus 3.4 percent), with similar specificity (62.9 versus 62.7 percent). Overall, the PLCO criteria would miss 41.3 percent fewer lung cancers. Using NLST data, the protective effect of low-dose computed tomography screening did not differ based on PLCO lung cancer risk (P = 0.61 for interaction).

"In conclusion, the $PLCO_{M2012}$ predicted the six-year risk of lung cancer with high accuracy and was more efficient at identifying persons for lung cancer screening, as compared with the NLST criteria," Tammemagi and colleagues write.

More information: Full Text (subscription or payment may be required)