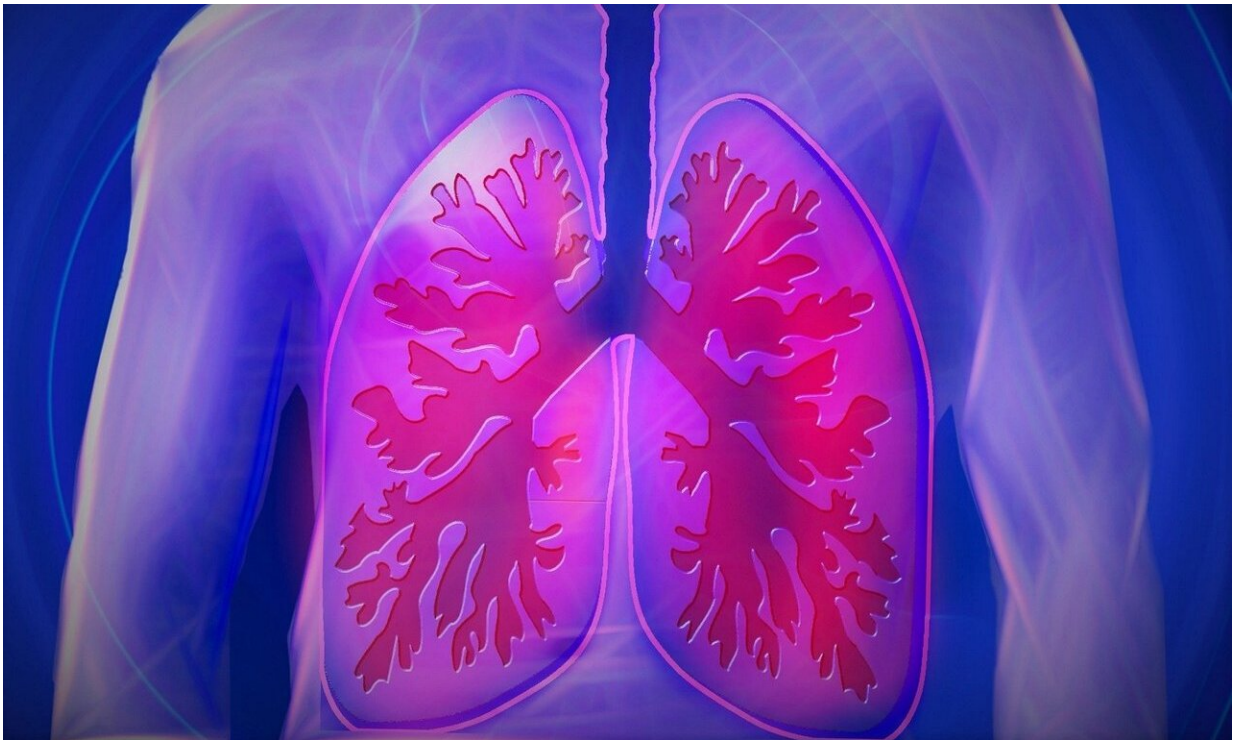


# Researcher develops advanced lung cancer prediction model

March 4 2019, by Dan Dakin

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A Brock University epidemiologist has produced a more powerful version of a tool used to predict a person's likelihood of developing lung cancer.

Professor of Health Sciences Martin Tammemägi designed the original

[lung cancer screening model](#) dubbed PLCOm2012 in 2013. It was able to make predictions based on calculations of a wide range of data such as the person's smoking or cancer history, age, ethnicity, socio-[economic status](#) and body mass index, among other variables.

Those identified as being at risk of developing [lung](#) cancer would be candidates for lung cancer [screening](#).

In his new model, published Friday, March 1 in the journal *JAMA Network Open*, Tammemägi combines the data of the original model with the results of more than 22,000 low-dose computed tomography (CT) lung screening scans.

"Adding the screening results improves the identification of who is at high risk of developing lung cancer in the future," says Tammemägi.

He and his research team found that:

- Having three consecutive CT scans with negative results for abnormal tissue is associated with reduced [cancer risk](#).
- A positive CT scan result increases the risk of getting future lung cancer.
- The more positive CT scan results a person has, the higher the cancer risk for future lung cancers.

This is in addition to other variables, such as a long history of heavy smoking, that increases the risk of developing lung cancer.

"The inclusion of screening results to the model helps better select individuals who would benefit from screening and informs them whether they need to go for screening or how often they need to continue screening," says Tammemägi, noting that his model is the first of its kind to include the results of past CT scans.

This model is accompanied by a spreadsheet calculator housed on Brock University's Lung Cancer Risk Calculator website. Individuals, universities, research institutes, hospitals and medical practices that are not-for-profit are free to download and use the tool.

Cancer Care Ontario is using Tammemägi's PLCOm2012 model in its [pilot project](#) to identify people at high risk of [lung cancer](#) in Ontario, and screening research studies and programs in the United Kingdom are also implementing his model.

"Lung cancer screening does save lives and some recent studies are finding that the benefits are even greater than we initially thought," he says. "If you are a current smoker, the most important thing you can do is to quit smoking; that is key to reducing morbidity and mortality (sickness and death) due to smoking-related diseases," he says.

Lung cancer is the most commonly diagnosed cancer among Canadians, accounting for a projected 28,600 new cases in 2017, or 14 percent of all cancers, according to the Canadian Cancer Statistics 2018 report. Lung cancer is the leading cause of death from [cancer](#) for both men and women in Canada.

**More information:** Martin C. Tammemägi et al. Selection Criteria for Lung-Cancer Screening, *New England Journal of Medicine* (2013). [DOI: 10.1056/NEJMoa1211776](https://doi.org/10.1056/NEJMoa1211776)

Martin C. Tammemägi et al. Development and Validation of a Multivariable Lung Cancer Risk Prediction Model That Includes Low-Dose Computed Tomography Screening Results, *JAMA Network Open* (2019). [DOI: 10.1001/jamanetworkopen.2019.0204](https://doi.org/10.1001/jamanetworkopen.2019.0204)

Provided by Brock University

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