

Predicting colorectal cancer risk among average risk persons

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Regenstrief Institute and Indiana University School of Medicine research scientists have developed and tested one of the first U.S.-based models to predict personal risk for advanced precancerous polyps and colon cancer in average risk individuals.

Colorectal cancer is the third most common cancer and second most

lethal cancer in the U.S.

Especially during the COVID-19 pandemic, when many people are hesitant to visit [medical facilities](#) and healthcare resources are stretched, the new risk estimation model could help physicians determine whether an average risk patient's specific risk indicates an at-home stool test would be a good screening option or points to a colonoscopy as the most appropriate option.

"Our model helps to refine where on the average risk continuum an individual falls," said study leader Thomas Imperiale, M.D., of Regenstrief Institute and IU School of Medicine. "This information could be used to guide doctor-patient discussions about screening options, with the potential to increase patient acceptance of screening by giving them a choice correlated to their individual risk—true precision medicine. Studies have shown that giving individuals a choice increases screening uptake as many people look for alternatives to colonoscopy."

Personalized risk-based tailoring of colorectal screening is commonly recommended but not generally used, except for decisions about when to commence screening based on race and family history.

Eight out of 10 individuals who fall within the range for whom [colorectal cancer](#) screening is recommended by national guidelines are considered to be at average risk of the disease. The new predictive model for average risk individuals considers age, sex, lifestyle, diet, smoking history and eight other factors.

The study deriving and validating the tool evaluated 4,500 individuals ages 50 to 80 who had not had a previous colonoscopy and identified sizeable lower risk and higher risk groups among average risk individuals. About a quarter of average risk individuals in the study were found to be at 2 percent risk, which is considered low risk.

Approximately 60 percent were found to be medium risk, reflective of truer "average risk." About 10 percent were deemed high risk for which a screening colonoscopy is appropriate.

"The importance of colorectal cancer screening cannot be overstated," said Dr. Imperiale. "A home annual FIT [fecal immunochemical test] testing, which looks for blood in the stool and is inexpensive, or stool DNA and blood testing every three years, are efficient ways to screen those at the low-risk end of the average risk population. "Particularly during the COVID-19 pandemic, as we see people less willing to consider [screening](#) colonoscopies, having an accurate risk assessment tool to determine for whom other options are perfectly good and letting them know which options are suitable is essential. It also has the added benefits of enabling us to prioritize those who are in greatest need of colonoscopy while conserving potentially scarce resources—from masks and other PPE (personal protective equipment) to the ancillary costs of anesthesia."

"Derivation and validation of a predictive model for advanced colorectal neoplasia in asymptomatic adults" is published in *Gut*, an official journal of the British Society of Gastroenterology, published by *BMJ*.

More information: Thomas F Imperiale et al. Derivation and validation of a predictive model for advanced colorectal neoplasia in asymptomatic adults, *Gut* (2020). [DOI: 10.1136/gutjnl-2020-321698](https://doi.org/10.1136/gutjnl-2020-321698)

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