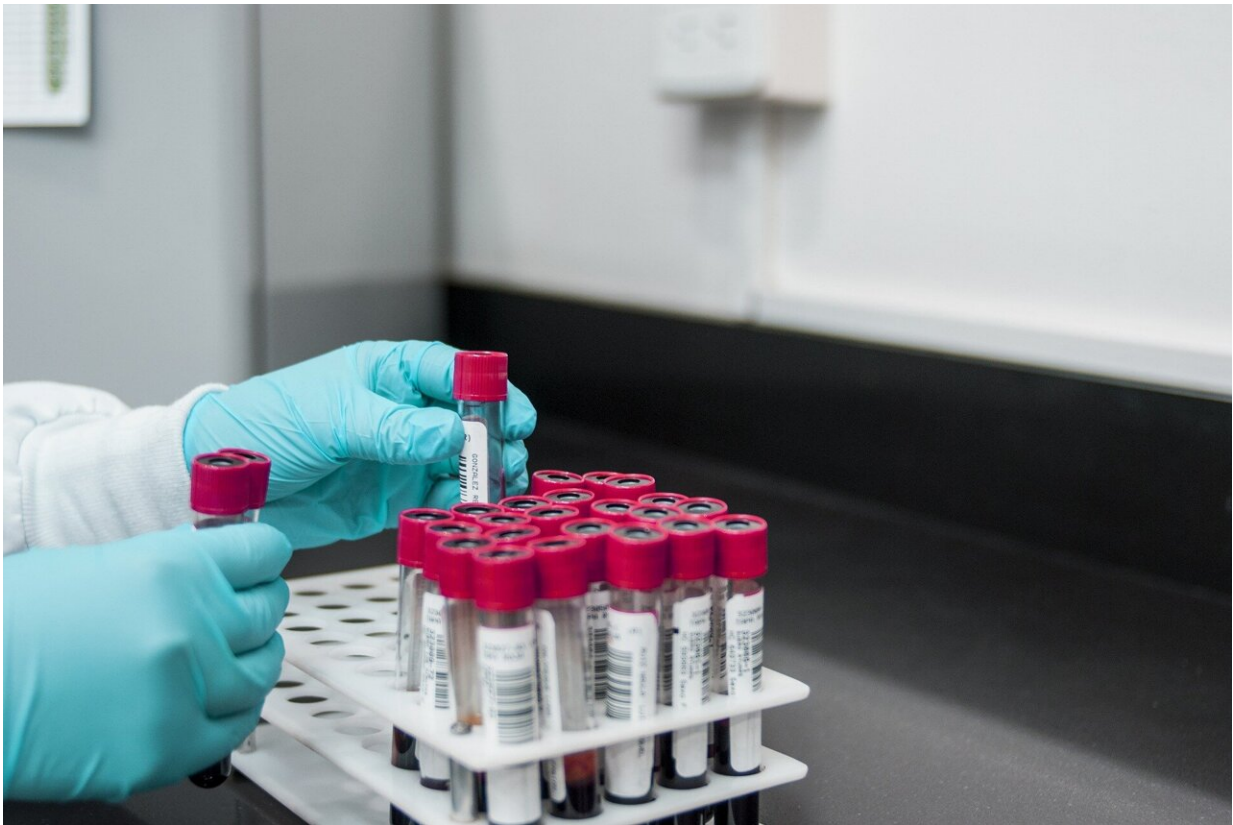


# Multi-cancer blood test shows real promise in trial

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An NHS trial of a new blood test for more than 50 types of cancer correctly revealed two out of every three cancers in more than 5,000 people who had visited their GP with suspected symptoms, in England or

Wales. The test also also correctly identified the original site of cancer in 85% of those cases.

The [SYMPLIFY study](#) is the first large-scale evaluation of a multi-cancer early detection (MCED) test in individuals who presented to their GP for diagnostic follow-up for suspected cancer.

The study enrolled 6,238 patients, aged 18 and older, in England and Wales who were referred for urgent imaging, endoscopy or other diagnostic modalities to investigate symptoms suspicious for possible gynecological, lung, lower GI or upper GI cancer, or who had presented with non-specific symptoms.

Participants provided a blood sample, from which DNA was isolated and tested. The most commonly reported symptoms leading to referral were unexpected weight loss (24.1%), change in bowel habit (22.0%), post-menopausal bleeding (16.0%), rectal bleeding (15.7%), [abdominal pain](#) (14.5%), pain (10.6%), difficulty swallowing (8.8%) and anemia (7.1%).

"Earlier cancer detection and subsequent intervention has the potential to greatly improve [patient outcomes](#). Most patients diagnosed with cancer first see a primary care physician for the investigation of symptoms suggestive of cancer, like weight loss, anemia, or abdominal pain, which can be complex as there are multiple potential causes. New tools that can both expedite [cancer diagnosis](#) and potentially avoid invasive and costly investigations are needed to more accurately triage patients who present with non-specific cancer symptoms," said Brian D. Nicholson, Associate Professor at Oxford's Nuffield Department of Primary Care Health Sciences, and co-lead investigator of the study.

"The high overall specificity, positive predictive value, and accuracy of the cancer signal detected and cancer signal origin prediction that was reported across cancer types in the SYMPLIFY study indicate that a

positive MCED test could be used to confirm that symptomatic patients should be evaluated for cancer before pursuing other diagnoses."

Within the study, 368 (6.7%) of the 5,461 evaluable patients were diagnosed with cancer through standard of care. The most common cancer diagnoses were colorectal (37.2%), lung (22.0%), uterine (8.2%), oesophago-gastric (6.0%) and ovarian (3.8%).

GRAIL's MCED test detected a cancer signal in 323 people, 244 in whom cancer was diagnosed, resulting in a [positive predictive value](#) (PPV) of 75.5%, negative predictive value (NPV) of 97.6%, and specificity of 98.4%. The overall sensitivity of the MCED test was 66.3%, ranging from 24.2% in stage I cancers to 95.3% in stage IV, and increased with age and later cancer stage. The overall accuracy of the top CSO prediction after a positive MCED test was 85.2%. The mean age of patients in the study was 62.1 years old.

"This is a fantastic example of how academia and industry can work together for patient benefit, recruiting over 6,000 patients to SYMPLIFY in under six months and within less than a year of launching the project," said Professor Helen McShane, director of the NIHR Oxford Biomedical Research Center.

"We are committed to diagnosing cancers earlier, when they can be cured, and this study is an important step on that journey. SYMPLIFY also shows that we can run trials at scale using digital systems to deliver research quickly and cost effectively, with the help of the NIHR's Clinical Research Network."

"GRAIL's earlier PATHFINDER study previously demonstrated that adding GRAIL's MCED testing to standard of care screening more than doubled the number of cancers detected compared with standard screening alone in adults with no symptoms or suspicion of cancer. Now,

the SYMPLIFY data confirm the potential benefit of methylation-based MCED blood tests as a diagnostic aid for use in the symptomatic patient population," said Sir Harpal Kumar, president of GRAIL Europe.

"These exciting results will inform our development of an optimized classifier for use in symptomatic patients with a suspicion of [cancer](#)."

Provided by University of Oxford

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