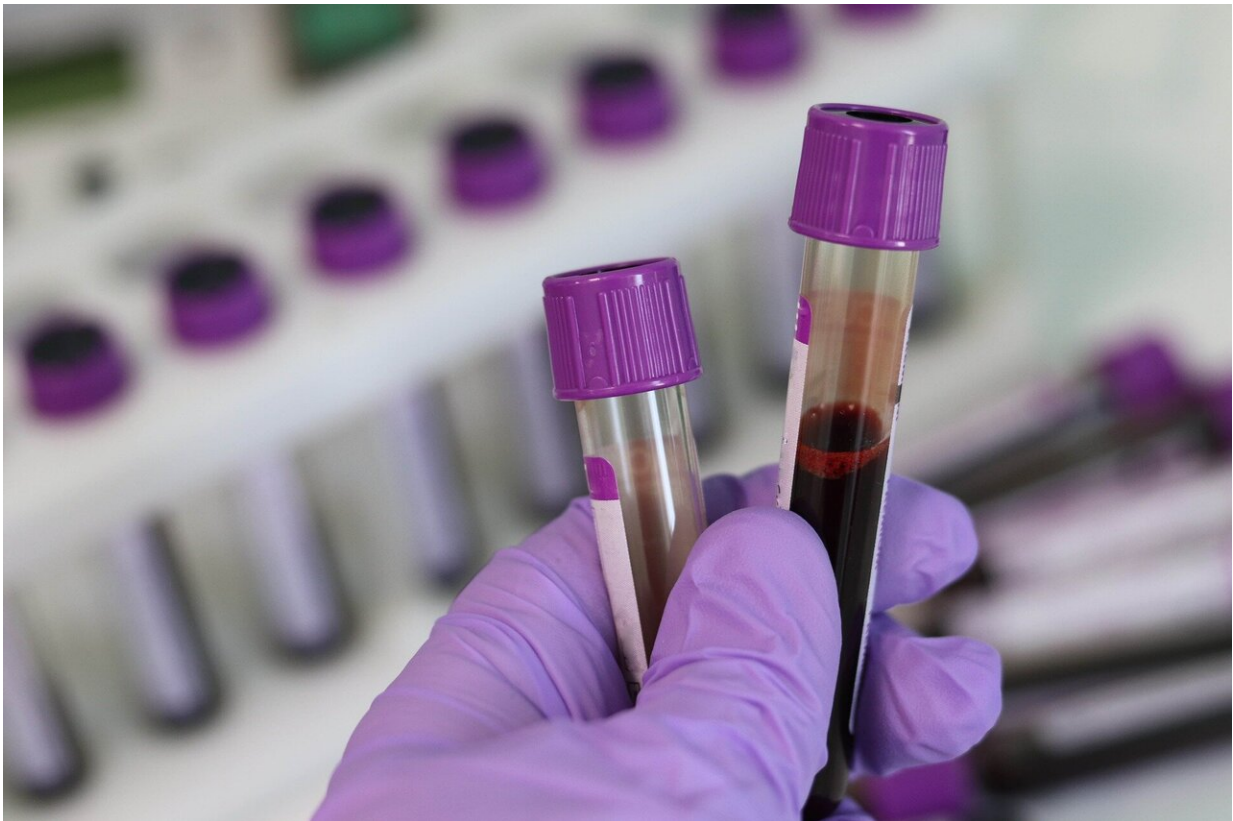


# Blood test helped detect cancer before symptoms, study finds

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For the first time, a blood test has been shown to help detect many types of cancer in a study of thousands of people with no history or symptoms of the disease.

The [test](#) is still experimental. Even its fans say it needs to be improved and that Tuesday's results are not ideal. Yet they show what benefits and drawbacks might come from using these gene-based tests, called liquid biopsies, in routine care—in this case, with PET scans to confirm or rule out suspected tumors.

"We think that it's feasible," said Nickolas Papadopoulos, a Johns Hopkins University scientist who helped develop the test. Using it along with standard screening methods "doubled the cancers that were detected" in the study, he said.

But the test also missed many more cancers than it found and raised some false alarms that led to unnecessary followup procedures. It was only studied in women 65 to 75 years old and needs to be tried in men, other ages and more diverse groups.

"This is not at the place where it could be used today," said Dr. Len Lichtenfeld, deputy chief medical officer for the American Cancer Society. "It will need many more studies to demonstrate value," including whether it improves survival, he said.

Results were [published](#) in the journal *Science* and discussed at an American Association for Cancer Research conference that was held online because of the coronavirus pandemic.

Many companies are working on liquid biopsies, which look for DNA and other things that tumors shed into blood, to try to find [cancer](#) at an early stage. This test was invented by Hopkins doctors who formed a company, Thrive Earlier Detection Corp., to develop it with Third Rock Ventures, a biotech finance firm.

Until now, these multi-cancer detection tools have been tested on blood samples from people with and without cancer to estimate their accuracy.

The new study was the first "real world" test in routine medical care, following patients through surgery or other treatment to see how they fared.

Nearly 10,000 women 65 to 75 years old with no history of cancer were recruited through the Geisinger Health System in Pennsylvania and New Jersey. That's because some deadly cancers such as ovarian have no screening test now, and women in this age group have a higher risk for cancer yet are young enough to benefit from finding it early, Papadopoulos said.

They were encouraged to continue regular screenings such as mammograms and colonoscopies and were given the [blood test](#), which was repeated if findings suggested cancer. If the second test also was suspicious, they were given a whole-body PET-CT scan, an [imaging test](#) that costs around \$1,000 and can reveal the location of any tumors.

After one year, 96 cancers had been diagnosed. Usual screenings found 24 and the blood test helped find 26 others. The remaining 46 were found because symptoms appeared or the cancer was discovered in other ways, such as an imaging test for a different reason.

Blood testing "made a genuine difference in discovering cancers in a small number of patients," took seven months on average, and led 1% of women to get a PET scan they turned out not to need, Lichtenfeld said.

The blood test helped reveal six [ovarian cancers](#), including one in Rosemary Jemo, 71, a hairdresser and exercise instructor who lives near Hazleton in eastern Pennsylvania.

"I would have never known ... I didn't feel anything" before the football-sized tumor was found, she said. Surgeons were able to remove it and she is being monitored now.

Alberto Bardelli, a cancer specialist at the University of Turin in Italy who discussed the study at the conference, called it "extraordinary" and said it shows a way to move liquid biopsies into routine care.

The test still needs to be improved, but "it can become very valuable," he said.

The research was funded by foundations and government grants. Many study leaders have financial ties to Thrive or other companies related to the work and Johns Hopkins holds some patent rights.

Some companies may seek to market liquid biopsies under rules that allow certain tests to be sold without federal Food and Drug Administration approval.

Thrive's CEO Dave Daly said the company plans a larger, definitive study and is committed to working with the FDA, but that "all options are on the table" for developing the test.

Cost hasn't been decided, he said, but will be "in the hundreds of dollars, not the thousands."

**More information:** Feasibility of blood testing combined with PET-CT to screen for cancer and guide intervention, *Science* (2020).

[science.sciencemag.org/lookup/.../1126/science.abb9601](https://science.sciencemag.org/lookup/.../1126/science.abb9601)

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