

Clinical trial launches to develop breath test for multiple cancers

January 3 2019

Researchers have launched a clinical trial to develop a breath test, analysing molecules that could indicate the presence of cancer at an early stage.

This is the first test of its kind to investigate multiple cancer types.

A cancer [breath test](#) has huge potential to provide a non-invasive look into what's happening in the body and could help to find cancer early, when treatment is more likely to be effective.

The Cancer Research UK Cambridge Centre is running the PAN Cancer trial for Early Detection of Cancer in Breath in collaboration with Owlstone Medical to test their Breath Biopsy technology.

Breath samples from people will be collected in the clinical trial to see if odorous molecules called volatile organic compounds (VOCs) can be detected.

Professor Rebecca Fitzgerald, lead trial investigator at the Cancer Research UK Cambridge Centre, said: "We urgently need to develop new tools, like this breath test, which could help to detect and diagnose cancer earlier, giving patients the best chance of surviving their disease.

"Through this clinical trial we hope to find signatures in breath needed to detect cancers earlier—it's the crucial next step in developing this technology. Owlstone Medical's Breath Biopsy technology is the first to

test across multiple cancer types, potentially paving the way for a universal breath test."

When cells carry out biochemical reactions as part of their metabolism they produce a range of VOCs. If their metabolism becomes altered, such as in cancer and various other conditions, cells can release a different pattern of VOCs. The researchers aim to identify these patterns using Owlstone Medical's Breath Biopsy technology.

The researchers in the trial will collect samples from 1,500 people, including healthy people as trial controls, to analyse VOCs in the breath to see if they can detect signals of different cancer types. The clinical trial will start with patients with suspected oesophageal and stomach cancers and then expand to prostate, kidney, bladder, liver and pancreatic cancers in the coming months.

The trial is recruiting patients to Addenbrooke's Hospital in Cambridge who have been referred from their GP with these specific types of suspected cancer. They will be given the breath test prior to other diagnostic tests. Patients will breathe into the test for 10 minutes to collect a sample, which will then be processed in Owlstone Medical's Breath Biopsy laboratory in Cambridge, UK.

By looking across [cancer types](#), this trial will help unpick if cancer signals are similar or different, and how early it's possible to pick these signals up. Some people will go on to be diagnosed with cancer, and their samples will be compared to those who don't develop the disease.

If the technology proves to accurately identify cancer, the team hope that breath biopsies could in future be used in GP practices to determine whether to refer patients for further diagnostic tests.

Billy Boyle, co-founder and CEO at Owlstone Medical, said: "There is

increasing potential for breath-based tests to aid diagnosis, sitting alongside blood and urine tests in an effort to help doctors detect and treat disease. The concept of providing a whole-body snapshot in a completely non-invasive way is very powerful and could reduce harm by sparing patients from more invasive tests that they don't need.

"Our technology has proven to be extremely effective at detecting VOCs in the breath, and we are proud to be working with Cancer Research UK as we look to apply it towards the incredibly important area of detecting [early-stage](#) disease in a range of cancers in patients."

Almost half of cancers are diagnosed at a late stage in England. This highlights the importance of early detection, particularly for diseases like oesophageal cancer where only 12% of oesophageal cancer patients survive their disease for 10 years or more.

Rebecca Coldrick, 54 from Cambridge, was diagnosed in her early 30s with Barrett's oesophagus, a condition where the cells lining the oesophagus are abnormal—often caused by acid reflux. Out of 100 people with Barrett's oesophagus in the UK, up to 13 could go on to develop oesophageal adenocarcinoma.

Rebecca Coldrick said: "About 20 years ago I developed acid reflux, and I began to live on Gaviscon and other indigestion remedies. I went to the doctors and shortly after I was diagnosed with Barrett's. Every two years I have an endoscopy to monitor my condition."

Monitoring patients to find those at high risk of developing a cancer, like oesophageal, is very intrusive for patients, who may not even develop the disease. Rebecca Coldrick decided to take part in the PAN Cancer trial for Early Detection of Cancer in Breath. A non-invasive test using this technology could help to further differentiate those likely to develop oesophageal cancer from those less likely to develop the disease.

She added: "I was very happy to take part in the trial and I want to help with research however I can. Initially, I thought I might feel a bit claustrophobic wearing the mask, but I didn't at all. I found watching the display on the computer during the test interesting and soon we were done, without any discomfort.

"I think the more research done to monitor conditions like mine and the kinder the detection tests developed, the better."

Dr. David Crosby, head of early detection research at Cancer Research UK, said: "Technologies such as this breath test have the potential to revolutionise the way we detect and diagnose cancer in the future.

"Early detection research has faced an historic lack of funding and industry interest, and this work is a shining example of Cancer Research UK's commitment to reverse that trend and drive vital progress in shifting cancer diagnosis towards earlier stages."

Recognising the importance of early detection in improving [cancer](#) survival, Cancer Research UK has made research into this area one of its top priorities and will invest more than £20 million a year in early detection research by 2019.

Provided by Cancer Research UK

Citation: Clinical trial launches to develop breath test for multiple cancers (2019, January 3) retrieved 24 April 2024 from

<https://medicalxpress.com/news/2019-01-clinical-trial-multiple-cancers.html>

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