

New trial of 'pill-on-a-thread' brings screening for esophageal cancer closer

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Credit: Professor Rebecca Fitzgerald/University of Cambridge

A man from Cambridge is the first to join the surveillance part of a clinical trial that could see routine screening for esophageal cancer introduced into the NHS, potentially halving deaths from this cancer every year.

The [capsule](#) sponge, known as the pill-on-a-thread, is a quick and [simple test](#) for Barrett's esophagus, a condition that can be a precursor to [cancer](#)

. Heartburn is a common symptom of Barrett's esophagus, a changing of cells in the food pipe.

The BEST4 trial launched at Addenbrooke's Hospital today is the final step to see if the capsule sponge can prevent esophageal cancer when used to screen or monitor those most at risk of the disease. If so, it could become a national screening program across the NHS, in the same way mammograms are used to screen for breast cancer.

The first stage of the trial, BEST4 Surveillance, is for people already diagnosed with Barrett's esophagus. It will look at whether the capsule sponge test could replace endoscopies to monitor their condition. Participants will receive both examinations during the trial with results used to assess their risk of developing esophageal cancer.

The second stage of the trial, BEST4 Screening, opens in the summer and will recruit 120,000 people aged over 55 on long-term treatment for heartburn.

The multi-million-pound trial is jointly funded by Cancer Research UK and the National Institute for Health and Care Research. It builds on decades of research led by Professor Rebecca Fitzgerald from the University of Cambridge. She and a team of scientists, clinicians and nurses at the Early Cancer Institute, University of Cambridge and Cancer Research UK Cambridge Center, invented and refined the capsule sponge test.

Professor Fitzgerald said, "The capsule sponge, a quick and simple test for Barrett's esophagus, could halve the number of deaths from esophageal cancer every year. Cases of esophageal cancer have increased six fold since the 1990s. On average only 12% of patients live more than five years after diagnosis. Most don't realize there's a problem until they have trouble swallowing. By then it is too late.

"The first phase of the trial looks at whether the capsule sponge can be used as a cancer early warning system for patients diagnosed with Barrett's. Using the capsule sponge and a new set of lab tests, we will be monitoring patients to see if we can prevent more cases of cancer."

Tim Cowper, 49, a brewer from Cambridge, has had acid reflux, or heartburn, every night since he was 16. A routine health check while he was at university resulted in the shock diagnosis of Barrett's esophagus. After his diagnosis, he has been monitored ever since.

Tim said, "I was alarmed when I was told that having Barrett's meant having pre-cancerous cells in my gullet. Cancer is never a nice word to hear, especially when you are so young, but luckily, I've had my condition monitored.

"Since my diagnosis, I've been going for an endoscopy at least once every three years to monitor my esophagus. It is not pleasant at all. Each time I have a thick tube pushed down through my mouth and I can feel every single one of the biopsies taken by the camera. Swallowing a capsule sponge is a much better experience and I now get the test before my regular endoscopy appointment."

Barrett's esophagus is currently identified via an endoscopy and a biopsy in hospital following a GP referral. It is time-consuming, unpleasant, and quite invasive for patients, as well as being expensive for the health care system.

The capsule sponge is a small, easy to swallow capsule on a thread, which contains a sponge. The patient swallows the capsule which dissolves in the stomach and the sponge expands to the size of a 50p coin.

The sponge is carefully pulled back up using the string, collecting cells

for laboratory testing. The test takes just 10 minutes and can be done in a GP surgery.

Cancer Research UK and others have funded several successful clinical trials to demonstrate that the test is safe, accurate and can detect 10 times more cases of Barrett's esophagus than standard practice.

The [test](#) is faster and cheaper than endoscopy, which is currently used to diagnose and monitor Barrett's esophagus and esophageal cancer. It has been piloted in [health services](#) in England, Scotland and Northern Ireland for patients who are currently on waiting lists for endoscopy because they have long-term heartburn or diagnosed with Barrett's esophagus.

Executive Director of Research and Innovation at Cancer Research UK, Dr. Iain Foulkes, said, "Around 59% of all esophageal cancer cases are preventable. Yet endoscopy, the gold standard for diagnosing and treating this cancer, is labor-intensive. We need better tools and tests to monitor people most at risk.

"Backed by funding from Cancer Research UK, the capsule sponge has become one of the most exciting early detection tools to emerge in recent years. It's a remarkable invention by Professor Fitzgerald and her team, and previous trials have shown how powerful it can be in identifying cancer earlier.

"There are 9,200 people diagnosed with esophageal cancer in the UK every year and the capsule sponge will mean they can benefit from kinder treatment options, if their cancer is caught at a much earlier stage."

The future Cambridge Cancer Research Hospital will bring together clinical and research expertise, including Professor Fitzgerald's work, under one roof. It will enable the development and discovery of more

non-invasive devices like the capsule sponge, to detect cancer earlier, and save more lives.

Provided by University of Cambridge

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