

Scientists trial 'pregnancy test' for chest infection

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A new test which could detect your risk of getting a chest infection in minutes has been trialed by scientists at the University of Dundee.

The neutrophil elastase airway test stik (NEATstik) detects the presence of an enzyme called neutrophil elastase, which is found in the phlegm produced when you cough.

During the body's natural response to infection, neutrophil elastase is used to attack bacteria which cause [chest](#) infections. Your body produces more neutrophil elastase when you have a [chest infection](#), which means that it can be used to detect the presence of a chest infection.

The NEATstik test works by using an antibody which binds to neutrophil elastase, which causes a chemical reaction which releases a colored dye. The patient provides a sample of phlegm from coughing into a tube, then the sample is added onto the NEATstik. If neutrophil elastase is present in the sample, the device produces two colored bands, similar to the ones seen in positive pregnancy tests.

The trial was conducted in people with chronic [lung](#) disease, as those people are at most risk of getting a chest infection. During the study, 124 patients with a [chronic lung disease](#) called bronchiectasis were asked to provide a phlegm sample, which was tested with the NEATstik test and compared with current tests for chest infection.

The study showed that the NEATstik test was able to detect both the presence and severity of a chest infection in patients with bronchiectasis, with the intensity of the coloured band giving an indication of the severity of the infection. The NEATstik test was able to replicate the results of existing tests for chest infections in people with bronchiectasis, but took only 10 minutes to administer.

Professor James Chalmers, GSK/British Lung Foundation Professor of Respiratory Research at the University of Dundee and lead author of the study, said, "We believe that this is the first study of its kind to show that you could take a test at home to find out if you are at risk of a chest infection.

"Although we need to conduct more studies to see if it can be used more broadly by the NHS, the NEATstik could help diagnose people with chest infections much more quickly, saving GPs and consultants valuable time in assessing patients for treatment.

Bronchiectasis is a type of lung disease where the airways widen abnormally within the lung. The widening causes mucus, which the lungs produce to clear out germs and other harmful substances, to be retained within the lung. Being unable to clear the mucus causes people with bronchiectasis to develop frequent chest infections, which take longer to clear than normal.

Su Kille is retired and lives in Dalgety Bay. She was diagnosed with bronchiectasis nine years ago. She believes that this test could make her life much easier by warning her of oncoming chest infections:

"When I get a chest infection it affects me badly and I can end up with a cough which lasts for weeks on end. It's debilitating and makes me feel miserable.

"At the moment I have to give a mucus sample and wait around 2 or 3 days before I can get the right antibiotics to deal with the infection, by which time my symptoms have deteriorated.

"Being able to take a test at home would let me identify the infection earlier, reducing the damage to my lungs and helping me get back to normal as quickly as possible."

Professor Chalmers adds, "For people living with lung disease, getting a chest infection is a serious issue which could result in a visit to hospital. This [test](#) can quickly assess who is at risk of [infection](#) and indicate who is at most need of urgent treatment, helping doctors to treat these people at a much earlier stage."

The research was published in the *European Respiratory Journal*.

More information: *European Respiratory Journal* (2019). doi.org/10.1183/13993003.00303-2019

Provided by University of Dundee

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