

UK scientists devise one-hour test for TB

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Scientists in the UK say they have devised a new ultra-sensitive test which can diagnose the presence of the tuberculosis bacterium in one hour.

The test has been developed by the Health Protection Agency (HPA).

Its developers claim the test can spot all strains of the disease and could reduce both the incidence and the consequences of the disease worldwide.

According to the [World Health Organization](#), in 2008, an estimated 1.3 million people died from TB worldwide.

Genetic signature

The standard identification test for TB involves taking mucus coughed up from the lungs and growing a bacterial culture in the laboratory.

But it can take up to eight weeks to reach a diagnosis, by which time the individual might have infected many more people.

Other more rapid tests exist which scan for an antigen found in many TB strains, but they may not detect all infections, say the HPA.

The new test focuses on a particular DNA region within the bacterium which the researchers says is present in all strains of the disease.

Once a sample is taken, a scientific technique known as a polymerase chain reaction is used to amplify the volume of DNA available so that the genetic signature can be identified.

In the UK, around 9,000 cases of TB are reported each year, mainly in big cities like London. *Source: World Health Organization/HPA*

This is a new test, says the HPA's Dr Cath Arnold, who led the study. We're looking for a genetic marker which is present in all strains of TB we've seen so far.

We're confident that it will pick up very small amounts and tests so far have shown that it seems to be as sensitive as the gold standard of using culture, but there are various aspects which we need to develop further before we can offer it as an off-the-shelf product. □

Details of the work are being presented at the HPA's annual conference at the University of Warwick.

The HPA test comes just weeks after details of a rival project were published in the New England Journal of Medicine.

The rival test is called Xpert MTB/RIF and its developers claim it can deliver a diagnosis in under two hours. They say their automated cartridge machine can also identify resistance to drugs used to treat TB.

Difficult diagnosis

Dr Mario Raviglione, director of the World Health Organization's Stop TB department, says these new generation tests could potentially revolutionise TB treatment.

The diagnosis of TB is extremely difficult today. If you had a test which rapidly and at the point of care could detect TB immediately you would gain weeks or months in treating that person and avoid them going around for another five to eight weeks infecting others. □

The WHO estimates that a third of the world's population carry TB bacteria. Only 5-10% of people who are infected become sick or infectious at some time during their life. People with HIV and who carry TB bacteria are much more likely to develop the disease.

Recent years have seen a resurgence in TB infections in developed countries, and have seen the rise of strains resistant to medication. Last year in the UK, the number of cases rose by more than 5% to 9,153, according to provisional figures from the HPA. More than a third of the cases were in London.