

GeneXpert:

A game-changer for TB diagnosis and treatment

Tuberculosis has been around since ancient times. It's spread from person to person through the air – when someone sick with TB coughs, spits or sneezes, another person may inhale the germs and become infected.

For centuries, the source of the dreaded disease known as consumption was a mystery. When Robert Koch revealed in 1882 that he had discovered the tubercle bacillus – the bacteria that causes TB – it not only advanced society's understanding of one disease, it also underpinned germ theory and a modern, scientific approach to medicine.

Yet the discovery of the cause of TB didn't lead to other hoped-for breakthroughs: a cure and a vaccine. It wasn't until 1947 that antibiotics were successfully used to cure TB.

Tuberculosis is tenacious. Although global TB deaths fell by 22 percent since 2000, new data from the World Health Organization shows the epidemic is larger than previously thought – including more than 4 million “missing” cases of people who became ill but have not been diagnosed or started treatment. And there's the growing specter of drug-resistant TB – a mutated form of the disease that does not respond to first-line treatment.

The fact is, medical innovation has lagged when it comes to TB, allowing it to spread, kill and even evolve to become more deadly. We do have the tools to fight an ancient foe with modern technology – and one of the most promising is GeneXpert.

GeneXpert is an unassuming piece of hardware – some models are no bigger than a microwave. But it contains a fully automated molecular diagnostic system that improves on the current (yet centuries old) standard – sputum smear microscopy – in several key ways.

- It is faster and more accurate, delivering results in hours rather than days with fewer “false-negative” results.
- It can detect resistance to first-line drugs, so appropriate treatment can be started immediately after diagnosis. (Traditional testing for drug resistance takes weeks.)
- It does not require specialized labs or technicians; it can be deployed in any clinic or health post that has electricity.
- Depending on the model, it can test from four to 100 samples at a time.

“We have the opportunity to end TB in our lifetime – even drug-resistant TB. It all starts with timely, accurate diagnosis and treatment. Increasing access to GeneXpert devices will save lives today and prevent the spread of TB in the future,” says Eliud Wandwalo, the Global Fund's Senior Disease Coordinator for TB.

In addition to new testing methods, the Global Fund supported pilot projects to validate the effectiveness of a shorter treatment regimen for drug-resistant TB – cutting a patient's time on toxic medications from 18-24 months to 9-12 months. Not only is the shorter regimen less expensive, it's more effective because fewer people interrupt treatment or are lost to follow-up health services.

WHO backs these innovations in diagnosis and treatment as part of the ambitious, global [End TB Strategy](#), which aims to help countries reduce TB incidence by 80 percent and deaths by 90 percent by 2030. Together, we can bring lifesaving health innovations to even more people in need and end the epidemics. For good.