Systematic review, meta-analysis and economic modelling of molecular diagnostic tests for antibiotic resistance in tuberculosis

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Plain English summary

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Worldwide, there are almost 9 million cases of tuberculosis (TB) every year. The disease mainly affects the lungs and is spread person to person by breathing in droplets that contain the TB bacteria coughed up by someone else. TB can be cured but, if the bacteria have become resistant to the most effective drugs (isoniazid and rifampicin), the treatment can take up to 2 years, requires more toxic drugs and is less likely to be successful.

Although seeing bacteria in a person’s phlegm under a microscope is a quick way of making a diagnosis, often the bacteria cannot be seen. Growing the bacteria requires special materials and, although less likely to miss a case of disease, this can take weeks. Scientists have developed new tests that give results within a day and can identify cases almost as well as growing the bacteria.

This report describes the performance, cost and likely benefit of rapid tests for drug-resistant TB. It brings together all that is currently known on the subject from the world’s scientific literature and uses a computer model to explore what the impact of the tests could be (including the cost to the NHS). All of the new tests were good at telling when people had lung TB and when a case was likely to be cured by treatment with isoniazid and rifampicin. Faster diagnosis benefits patients by improving treatment results, including survival, can reduce costs of keeping patients in isolation until their diagnosis and may reduce spread of the disease between people.
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This report

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