The problem

Multidrug-resistant tuberculosis (MDR-TB) is a major public health threat.

More than 10 million cases of tuberculosis (TB) occur each year. An estimated 600,000 of these are drug resistant tuberculosis (DR-TB), the majority of which are multidrug resistant\(^1\) (MDR-TB). Resistance to antibiotics is a global concern. DR-TB could account for 1 in 4 deaths associated with antimicrobial resistance (AMR) by 2050, if left unaddressed\(^4\).

In 2010, fewer than 10 percent of MDR-TB cases were diagnosed due to weaknesses in centralised laboratory-based facilities. Long turnaround times for test results means some people never receive their results. This makes it less likely for MDR-TB cases to be linked to appropriate treatment and increases the risk of onward transmission.

An innovative testing technology, GeneXpert, was made available and was strongly recommended by the World Health Organisation (WHO) as an initial diagnostic test for suspected MDR- and HIV-associated TB cases\(^3\). However, the cost of GeneXpert was too high for many low- and middle-income countries, resulting in low uptake.

What did Unitaid do?

In 2012, Unitaid invested US $4.1 million to secure a 40 per cent price reduction for GeneXpert test cartridges\(^4\), and a further US $25.7 million to procure 1.4 million GeneXpert cartridges for use in 21 countries. The investments enabled detection of more than 50,000 DR-TB cases. Most importantly, the investments created market conditions for broader adoption and scale up.

Where are we now?

Today, 130 countries procure over 7 million GeneXpert cartridges per year at the lower price negotiated by Unitaid and partners. Global procurement volumes are five times greater than before this price reduction was secured, and GeneXpert is now a core component of national TB programmes in many countries.

What impact could GeneXpert have?

GeneXpert has been widely accepted because it is easier to use. Rapid detection of TB and MDR-TB could potentially offer more efficient and effective delivery of TB care. Bringing testing closer to patients could provide quicker diagnosis and treatment, improve clinical decisions due to the high accuracy of the GeneXpert test, reduce onward transmission of MDR-TB, and minimise the financial impact on individuals and families. Diagnostic testing can also reduce the misuse of antibiotics, which could mitigate some of the problems associated with antimicrobial resistance.

Looking ahead, delivering maximum impact from GeneXpert requires the reinforcement of health systems to find as many TB and DR-TB cases as possible.
GeneXpert offers faster and more convenient TB testing.

By 2016, global procurement of GeneXpert cartridges increased five-fold following the price reduction facilitated by Unitaid and partners.

Number of GeneXpert instrument modules and Xpert MTB/RIF cartridges procured under concessional pricing

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<th>Module</th>
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**Cumulative Modules**

- **2010**: 0
- **2011**: 5,000
- **2012**: 10,000
- **2013**: 15,000
- **2014**: 20,000
- **2015**: 25,000
- **2016**: 30,000

**Cumulative Cartridges**

- **2010**: 0
- **2011**: 10,000
- **2012**: 15,000
- **2013**: 20,000
- **2014**: 25,000
- **2015**: 30,000
- **2016**: 35,000

Concessional pricing was secured in 2012

Source: WHO

*The GeneXpert System is available in single or multiple module configurations. They use the same cartridge technology for every test.*

*Policy update: Xpert MTB/RIF assay for the diagnosis of pulmonary and extrapulmonary TB in adults and children*