- UPDATE -
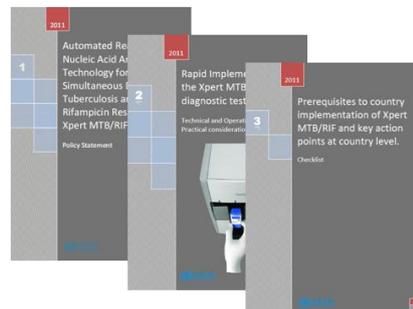**Implementation and roll-out of Xpert MTB/RIF**
February 2012

This document provides an update on the global roll-out of Xpert MTB/RIF, the WHO-endorsed test for the rapid and simultaneous detection of TB and rifampicin resistance.

For background and guidance on use of the test, including the WHO Policy Statement, Rapid Implementation document and the Checklist of prerequisites to country implementation, visit http://www.who.int/tb/laboratory/mtbrifrollout.
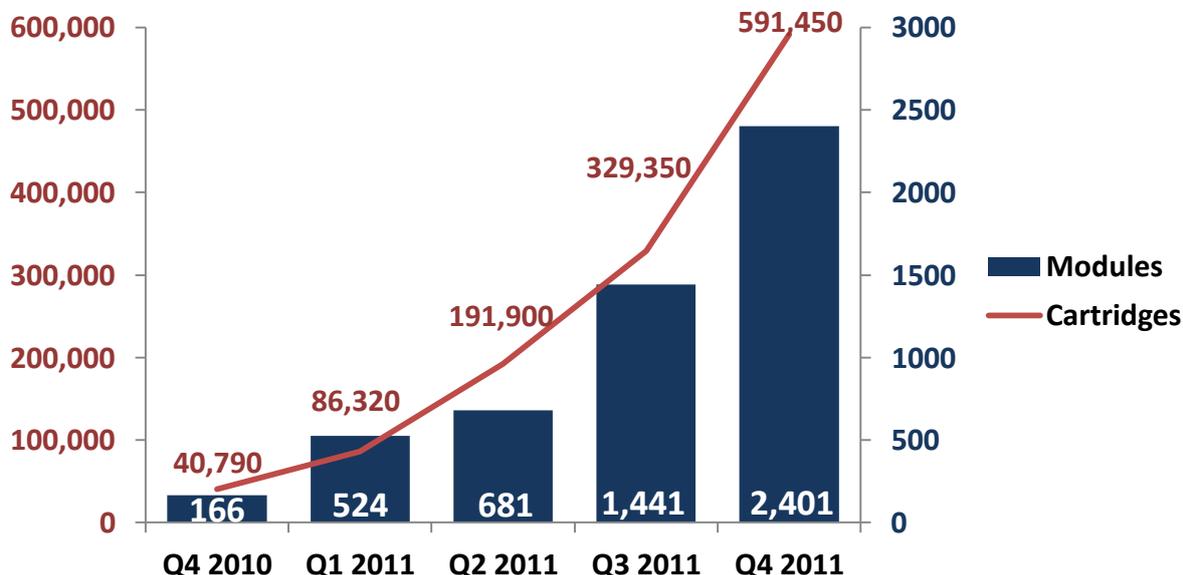

Monitoring the global roll-out of Xpert MTB/RIF

The TB Diagnostics and Laboratory Strengthening unit of the WHO Stop TB Department maintains a website (http://www.who.int/tb/laboratory/mtbrifrollout) monitoring the roll-out of Xpert MTB/RIF, in order to facilitate coordination among implementers, including countries, technical agencies, nongovernmental agencies, and other partners.

By the end of 2011, a total of 460 GeneXpert machines (comprising 2,401 modules) and 591,450 Xpert MTB/RIF test cartridges had been procured in 47 countries under concessional pricing.

Cumulative number of GeneXpert modules and Xpert MTB/RIF cartridges procured under concessional pricing

|	Q4 2010	Q1 2011	Q2 2011	Q3 2011	Q4 2011
Cartridges	40,790	86,320	191,900	329,350	591,450
Modules	166	524	681	1,441	2,401

Over half of the Xpert MTB/RIF cartridges (330,540 cartridges) have been procured for use in South Africa alone, followed by Pakistan (21,440), Kenya (20,140), the Philippines (17,440) and Swaziland (16,600). Data by country, provided by the manufacturer via FIND, are mapped at:
http://www.stoptb.org/wg/gli/assets/documents/map/1/atlas.html

WHO has also collected information from National TB control programmes and partners from 48 countries describing the planned orders, funding sources, placement of machines, and any problems with usage reported

from the field. This information, including detailed information by country, is available at: http://www.stoptb.org/wg/gli/assets/documents/map/2/atlas.html
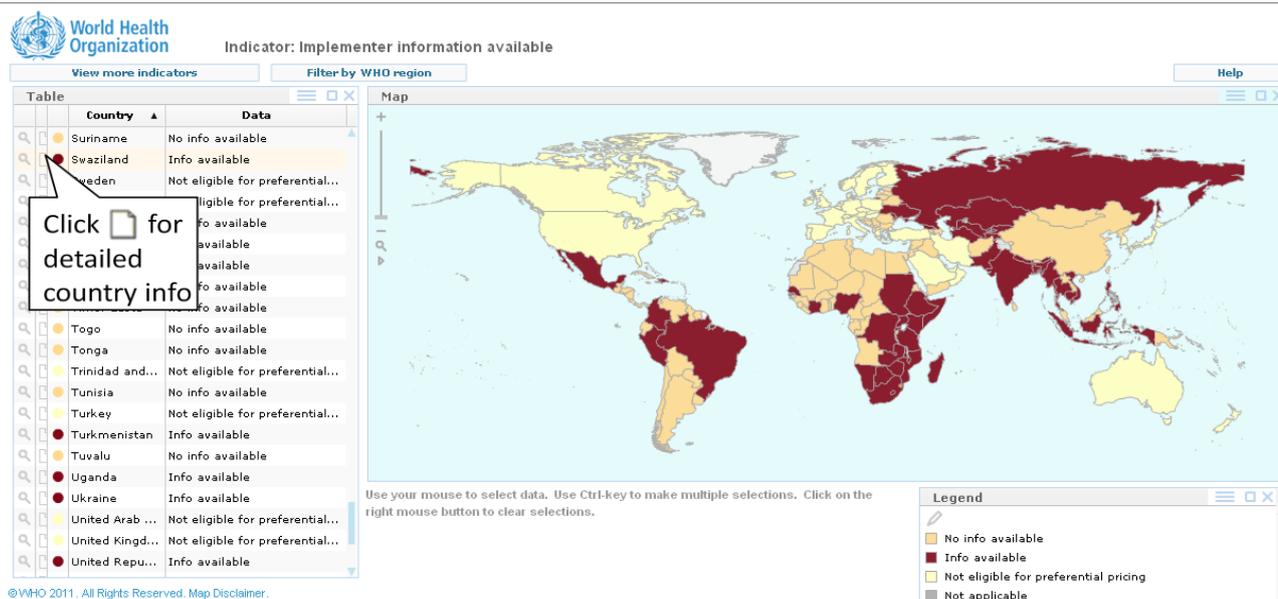
Countries for which the National TB control programme and/or partners have shared detailed information on placement of machines, funding, and planned orders

In order to have the most comprehensive and up-to-date information to facilitate coordination, we rely on all country implementers, partners, and funders to notify us of any updates/changes. A reporting form can be found at: http://www.stoptb.org/wg/gli/assets/documents/map/2/XpertMTBRIFreportingform.doc

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Collection of evidence on use of Xpert MTB/RIF: launch of website

Given the great interest of countries and partners to rapidly roll-out Xpert MTB/RIF, there are now hundreds of "early implementers of Xpert MTB/RIF", having varied experiences and generating additional evidence on the use of this diagnostic tool. Collectively this information would be invaluable to more effectively guide the thousands of laboratories, hospitals and clinics around the world that may soon be using this technology. The WHO Stop TB Department's Diagnostics and Laboratory Strengthening Unit is therefore asking the early implementers of Xpert MTB/RIF to kindly share some basic information on the ongoing use of their GeneXpert instruments. The information to be collected on a quarterly basis would measure the laboratory workload, the numbers of tests being performed and results, and the main logistical and operational problems being encountered, on a health facility basis. For more information on this initiative, visit:
http://www.who.int/tb/features_archive/xpert_use_web

Statement from FIND on Xpert MTB/RIF cartridge pricing

Cartridge pricing in 2012: as per the previously published information, the cartridge price is driven by manufacturing volumes. The current price is a direct function of the volumes as already published on the WHO and FIND sites as a table (http://www.finddiagnostics.org/about/what_we_do/successes/find-negotiated-prices/xpert_mtb_rif.html). As the table indicates, as the volumes rise there shall be a concomitant reduction in the price of the order of the numbers shown in the table. At this time these numbers are estimates to give an idea of the order of reduction. However, as the purchasing market for Xpert MTB/RIF cartridges only exists since ca 1 year and is still relatively volatile, at this time it is not possible to predict with accuracy the date at which the next volume-based price reduction could occur and the exact price at that volume. In the absence of contractually committed orders, the cumulative volumes are calculated as they accrue. As 2012 develops there shall be periodical discussions at least semi-annually, with the manufacturer, based on actual manufacturing volumes, to see if and when the next price point can be implemented. If/when this occurs, the manufacturer will reduce the price uniformly to all 145 countries in the current list.

Progress in roll-out: a spotlight on major implementers and partners

The National Health Laboratory Services (NHLS) of South Africa has been a global leader in rolling-out Xpert MTB/RIF, addressing the country's high TB incidence rate, frequency of TB/HIV co-infection, and burden of multidrug-resistant TB. South Africa has adopted a phased plan to roll-out Xpert MTB/RIF nationwide as a replacement for microscopy as the primary diagnostic test for TB. From March 2011 through 24 January 2012, the NHLS has already performed 227,968 Xpert MTB/RIF tests. As a reflection of Xpert MTB/RIF's superior sensitivity over microscopy, the TB positivity rate among suspects was found to have increased from 8% using microscopy to 17% after introduction of Xpert MTB/RIF. To date, approximately 7% of TB-positive specimens have had rifampicin resistance. 2% of all tests have had error results while invalid results, which likely represent sample problems, have occurred in less than 1%. These results are being monitored regularly and corrective action implemented where necessary. For more information on NHLS's roll-out of Xpert MTB/RIF, visit:
 http://www.nhls.ac.za/?page=genexpert_implementation&id=69.

The government of the United States of America, through the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NIH), the Office of the Global AIDS Coordinator (OGAC/PEPFAR), and the U.S. Agency for International Development (USAID), is playing an active role in the global roll-out of Xpert MTB/RIF. With funding from NIH, PEPFAR and USAID, the organizations and their supported partners have procured 115 GeneXpert instruments to date in 24 countries. Plans are in place to procure an additional 160 instruments in 2012, which in total will support 32 countries. Support for cartridges and other equipment and consumables has also been provided with the machines. Through intensive technical assistance in a number of countries, USG and their partners have developed a robust strategic approach to assist Ministries of Health begin planning and using Xpert in a number of sites. This approach covers a comprehensive package of support including: 1. Ministry of Health-led coordination of efforts and definition of priorities and needs, 2. development of an implementation and quality assurance plan; 3. preparation of laboratories and sites for implementation; 4. strengthening staff capacity; and 5. supervision, monitoring and evaluation. Through a coordinated and country-led approach, the USG will continue to support the roll-out of Xpert, monitor operations, and assess impact.

TB REACH is a 120 million CAD 5 year project administered by the Stop TB Partnership and supported by the Canadian International Development Agency (CIDA) to increase TB case detection through innovative approaches. TB REACH is supporting 33 projects implementing Xpert MTB/RIF in 18 countries, many for the first time in the country. In total, TB REACH grantees will be putting almost 150 GeneXpert instruments into service and testing over 200,000 TB suspects in the coming months. Projects have placed instruments in a variety of settings, including remote, rural areas, on mobile units, in private laboratories, reference laboratories and primary health facilities; and supplemented it by innovative case finding activities to improve access particularly to vulnerable and high risk population groups. Early results from the projects show a wide variety of experiences with the machine when put to use. In Tanzania the innovative approach of case finding along with the implementation of this new diagnostic test has helped increase TB case detection in the project area by 40% over the previous year. In Pakistan project areas in Karachi, TB positivity rates using Xpert MTB/RIF have been close to 20% even when testing among smear negative suspects. Procurement of equipment has been fast as a result of pooled procurement undertaken by the TB REACH Secretariat via the Global Drug Facility's mechanisms. For more information on TB REACH, visit: http://www.stoptb.org/global/awards/tbreach/ or contact tbreach@who.int.

Xpert MTB/RIF Research Mapping Project - find out about ongoing research and enter your own project
Who is doing research on Xpert MTB/RIF? Where? What populations are being assessed? What questions are being asked? Please have a look at the Xpert MRB/RIF research mapping tool, developed by The Union under the USAID-funded TREAT TB initiative. In parallel to efforts supporting and monitoring the scale-up of Xpert MTB/RIF, this online database aims to keep track of research projects around Xpert MTB/RIF and provide an information platform for researchers and policy makers alike.

The Xpert MTB/RIF mapping tool can be accessed at http://xrmt.treattb.org. For questions and comments please contact xpertmappingproject@theunion.org

Validation panels

As a complement to the internal validation checks of the Xpert MTB/RIF assay, a validation scheme has been developed under guidance of WHO-STB, in which panels comprised of artificial sputum specimens spiked with non-viable (dead) organisms have been produced. The panels are intended to be used with each new machine or with recalibrated modules, to validate expected performance of the modules at the time of installation or recalibration. These panels have been sent to a limited number of recipients as part of a pilot scheme, and results are currently being received and assessed. The usefulness of these panels will be evaluated before being made available more broadly.

Enhanced Xpert MTB/RIF cartridge (version G4)

In December 2011 Cepheid phased in an enhanced Xpert MTB/RIF cartridge (version G4), with the following features:

- Enhanced Probe B providing more robust rifampicin detection
- Signal loss detection error (5011 errors) virtually eliminated with fluidic and software changes
- Improved detection of probe E delay mutants
- High sensitivity and specificity for TB and rifampicin resistance detection retained

This enhanced assay has been recognized by WHO as a routine process modification in the product improvement cycle. Cepheid, FIND and the University of Medicine and Dentistry of New Jersey (UMDNJ) will continue to monitor clinical performance. The FIND report on the enhanced assay is available at: http://www.stoptb.org/wg/gli/assets/documents/map/findg4cartridge.pdf

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Published evidence on Xpert MTB/RIF

Upon the request of countries and partners, a list of published references about Xpert MTB/RIF continues to be regularly updated by WHO. This resource is available at: http://www.stoptb.org/wg/gli/assets/documents/map/XpertPublications.pdf.

Upcoming events

18-19 April 2012, Annecy, France: Xpert MTB/RIF Early Implementers Meeting

Back-to-back with the 4th GLI Partners' meeting and a consultation of the Supranational Reference Laboratory Network, the Xpert MTB/RIF Early Implementers Meeting will be an opportunity to exchange experiences and learn about the most recent progress and plans of implementers and partners. Please contact GLI_secretariat@who.int with queries about participation.

Joining this mailing list

If you have received this email as a forward, and would like to be added directly to our mailing list, please send a request to the contact below.

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