

TB in 2014: Reasons for Optimism and Vigilance

An Interview with Mario Raviglione

By Claire Topal
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Despite global efforts to eliminate tuberculosis (TB) through improved prevention, diagnosis, and treatment mechanisms, TB continues to pose a grave threat to health today. According to the World Health Organization (WHO), TB incidence in Southeast Asia accounts for 39% of the global burden of the disease, and India accounts for 26% of TB cases worldwide.¹ However, new drugs and diagnostics breakthroughs have revolutionized the field, and encouraging progress in TB control has been documented in China.² As a follow-up to the 2009 Pacific Health Summit on multidrug-resistant tuberculosis (MDR-TB), NBR recently spoke with Dr. Mario Raviglione (WHO) about progress in fighting this disease.

Q. What does the international community need to understand about overall progress in fighting TB globally?

We are at a crossroads in TB. On one hand, we have made tremendous progress. The TB death rate dropped 45% between 1990 and 2012, and the use of DOTS (directly observed treatment, short-course) and the Stop TB Strategy has saved an estimated 22 million lives. In addition, we finally have new tools to fight the disease. On the other hand, there is an annual financial gap of \$1.6–\$2 billion between what countries and donors are now spending and what we need to spend to continue our progress. As I see it, the international community essentially has two options:

¹ "Tuberculosis Control in the South-East Asia Region: Annual TB Report 2014," World Health Organization (WHO), http://reliefweb.int/sites/reliefweb.int/files/resources/annual_tb_report_2014.pdf.

² Bill & Melinda Gates Foundation, "China Makes Historic Gains against TB," March 23, 2014, <http://www.impatientoptimists.org/Posts/2014/03/China-Makes-Historic-Gains-against-TB>.



Dr. Mario C. Raviglione has been Director of the Global TB Programme at the World Health Organization (WHO) since 2003. He joined WHO in 1991 to work on TB/HIV research and TB epidemiology, and was Coordinator for Strategy

and Operations from 1999–2003. He is editor of the third and fourth editions of *Tuberculosis: A Comprehensive International Approach* and received the Princess Chichibu Memorial Global TB Award in 2005 and the Wolfheze 20 Year Jubilee Award in 2010 for his contributions to modern TB control practices in Europe.

we can invest in further progress and maintain our footing or we can ignore financial needs and lose the ground we have gained, allowing millions of unnecessary deaths.

I appreciate that that all budgets are constrained and many priorities exist, but TB competes with HIV/AIDS as the greatest killer worldwide that arises from a single infectious agent, and it is present in all countries. While 95% of TB deaths occur in low- and middle-income countries, populations in every country suffer from TB, which has enormous implications for economic productivity and output, not to mention quality of life. TB is among the top three causes of death for women aged 15–44.

Q. Traditionally, diagnosing each case of TB could take up to two months, but in 2011 all that changed. Please tell us about new developments in TB diagnostics?

We now have a new rapid diagnostic, Xpert, which is extremely simple and can make a diagnosis of TB and of rifampin-resistant TB (as a proxy of MDR-TB) within 100 minutes. It is not yet the point-of-care test that we all want, but it is a revolutionary advance that facilitates early detection and much faster treatment of TB and MDR-TB. Xpert is being rolled out in 90 developing countries as well as Europe and the United States. This represents a major, rapid transfer of technology. Equally noteworthy is its pricing and affordability structure: the test costs about 70 euros in Europe and less than \$10 in developing countries. Other tests in the development pipeline include drug susceptibility testing for first- and second-line drugs. In 2013, Xpert enabled a major increase in the number of cases diagnosed and treated as MDR-TB. Without accurate diagnosis, doctors will treat a case as if it were normal TB; not only does the patient not get cured, but they may also transmit drug-resistant TB to others before perishing.

Q. What about progress on new TB drugs?

Two new drugs have been approved for MDR-TB—one by the U.S. FDA (Janssen Pharmaceuticals' *bedaquiline*), the first in 40 years, and the second by the European Medicines Agency (Otsuka Pharmaceutical Company's *delemanid*). The WHO has endorsed the former and will be looking at the latter next month before endorsing it for use (Phase III clinical trials for *delemanid* have just recently started). Additionally, we are waiting for final results from a TB Alliance trial on the use of fluoroquinolones (a class of antibiotics) to shorten treatment of normal TB from 6 to 4 months. Those results should be available very soon and will be assessed together with those of other recent trials. All these developments are game-changing in the world of TB.

Q. The current TB vaccine has been around since 1921. Has there been progress in the creation of new TB vaccines?

Here the story is less clear. There was a vaccine candidate that went through trials, but results from final tests last year unfortunately failed to show efficacy. Vaccinologists now talk of 2024 as a likely turning point. This is the tough part—we just don't have the basic science at the moment to guarantee much rapid progress. On the other hand, there are a dozen TB vaccine candidates in the advanced pipeline—something unthinkable 5–10 years ago.

Q. Does information and communications technology play an important role in how we address TB today?

Yes, text messaging and e-health services provided through cell phones facilitate follow-up with patients during treatment, surveillance, rapid sharing of information, and other opportunities. In fact, the WHO will soon be embarking on an analysis of existing evidence about e-health and its contribution to TB care, surveillance, and control.

Q. In addition to sustained financial investment, what do you most want the international community to understand about continued efforts to address TB?

Most of all, I want the international community to share our optimism. Game-changing new tools exist, finally, and the world of TB treatment is actually quite excited. Enormous challenges are still ahead, but we are making significant progress. An alliance with the pharmaceutical industry and the biotechnology industry is necessary for increased investments in R&D for new tools. Such collaboration is also critical for continued progress in understanding the pathogenesis of the disease and its natural history, so that more effective tools can be developed and assessed.



This interview was conducted by Claire Topal, Senior Advisor for International Health at NBR.



THE NATIONAL BUREAU of ASIAN RESEARCH

1414 NE 42ND STREET, SUITE 300
SEATTLE, WA 98105 • 206-632-7370

1301 PENNSYLVANIA AVENUE NW, SUITE 305
WASHINGTON, D.C. 20004 • 202-347-9767

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