

the disturbing paradox of tuberculosis

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Recently, hundreds of millions of dollars have been invested in research projects to develop new drugs, diagnostics and vaccines for tuberculosis. However, no laboratory advance will save even one of the millions facing death this year and next.

March 24 will mark the 17th year the global health community comes together to advocate for the eradication of tuberculosis. There is a tragic paradox in this observance: we have tuberculosis cures that we are not bringing to the millions who will die without them.

With the hemisphere's highest TB rate, Haiti crystallizes this paradox in microcosm: even before the earthquake, its state clinics struggled to keep pace with 30,000 new cases a year. There, as in dozens of developing countries, underfunded TB programs have been losing ground even before disasters have struck.

WE'VE BEEN HERE BEFORE

In 1952, Selman Waksman of Rutgers University won the Nobel Prize for discovering streptomycin, an antibiotic that kills the bacterium that causes tuberculosis. Shortly after Waksman's discovery, treatment became available and it became apparent that a TB diagnosis need no longer be a death sentence. In his Nobel Prize lecture, Waksman said confidently, "The conquest of the 'Great White Plague', undreamt of less than 10 years ago, is now virtually within sight." Since 1952, hundreds of millions of people have died from tuberculosis.

Flash forward to 2010. Nearly 2 million people will die of TB this year alone, most in developing countries. Tuberculosis cases in Africa, fueled by the HIV epidemic, are increasing rapidly. There are at least 500,000 persons in the world with multidrug resistant tuberculosis, and probably no more than 30,000 of them are even being treated.

ENTER THE GATES

The Bill & Melinda Gates Foundation, National Institutes of Health and others have allocated hundreds of millions of dollars to develop new drugs, new diagnostics and new vaccines for tuberculosis. Such generosity and commitments demonstrate a long-overdue recognition of TB as an under-funded area of public health. It has not, however, sufficiently addressed our ability to deliver the cures we have now to the people who need them most.

Case in point: Swaziland ran out of TB drugs just before Christmas of last year and did not replenish its supplies until the end of February. Local news reports suggested this was because the government could not pay the Indian drug manufacturer. Such a drug shortage will affect thousands of patients and leave many vulnerable to death and or drug resistant strains.

It's not just drug supplies that we're short on, though. People are part of today's cure for TB: trained observers watching patients take their medicine increases cure rates dramatically. The technique, called directly observed therapy (DOTS), prevented over a million TB deaths in India due in the 1990s. Here in New York City, DOTS reduced overall TB rates and especially rates of MDR-TB from 13% of all TB cases in 1992 to less than 1% of cases today. Peru was removed from the list of the 20 countries with the highest rates of TB because of a well-implemented DOTS program. The problem with DOTS is a lack of funding to recruit and train enough workers to manage the current caseload.

BACK TO BASICS

There are three things donors and governments can do immediately to balance our search for the cures of tomorrow with saving lives today. First, they should increase support for current diagnostic techniques. A recent survey of 114 laboratories in Ghana found that the majority of microscopes, the most basic tool for diagnosis, did not work.

Second, we need to ensure adequate supply and delivery of existing medications. The pipeline of drugs in clinical stages of testing for tuberculosis is woefully short and a new vaccine is probably decades away. As such, it is unacceptable that universally accepted and inexpensive drugs such as isoniazid and rifampin are not widely available. Third, we can expand DOTS coverage by emphasizing recruitment and training and by investing in localized techniques for delivery.

What we have now can capture more than 70% of the most infectious cases if deployed adequately. How much investment is needed? The gap between available resources and the cost of implementing the ten-year WHO's Global Plan To Stop TB stands at \$31 billion. The challenge is large, but not insurmountable. Nothing is more maddening than a cure sitting on a shelf, as people die, for the lack of funding to deliver it.