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Market overlap points to irresponsible use of tuberculosis drugs

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Tuberculosis prognosis: The private drug market can treat two thirds of those who develop TB.

People with active tuberculosis infections turn to the private market for treatment far more often than anyone had realized. And when they do, they encounter a chaotic array of treatment choices, many of which do not meet guidelines drawn up by the World Health Organization. These are the conclusions of a paper published on 4 May that counters the prevailing wisdom that the vast majority of people with tuberculosis are treated through publicly funded programs.

The study, conducted by the New York–based Global Alliance for TB Drug Development (TB Alliance), a nonprofit that supports the development of new tuberculosis drugs, examined data on private sources of medicines, such as pharmacies and the companies that stock them. The information was collected by IMS Health, a private consultancy that analyzes pharmaceutical sales data, in ten countries that together bear 60% of the world's tuberculosis burden.

The analysis, funded in part by the Seattle-based Bill & Melinda Gates Foundation, revealed that vast quantities of tuberculosis treatments are sold through the private market—enough to treat two thirds of the people who develop an active tuberculosis infection each year (*PLoS ONE* **6**, e18964, 2011). This puts the private market at about the same volume as the public market, the study found. And the discovery that the total in drug sales exceeds the number of cases points to overuse and improper use of the drugs.

Notably, the private sectors in both India and Indonesia are selling more than enough drugs to treat all of the new tuberculosis cases within these countries' borders each year, the study found. Given that the

governments of these countries also buy sizable amounts of tuberculosis treatments and receive donations through public philanthropies, the data underscore possible wasteful overtreatment and retreatment of tuberculosis cases in these countries. In addition, about a third of the 111 dosage combinations identified in the private sector were given in amounts that do not meet national and international treatment recommendations.

Treatment of tuberculosis currently requires that people adhere to a drug regimen that can last as long as eight months—or even up to two years for multidrug-resistant tuberculosis (MDR-TB). But in this large and messy private market, no one is ensuring that patients take adequate drug regimens or complete their entire drug regimens, which can lead to the development of new drug resistant strains of tuberculosis.

“All of this tells us that, without better regulation of the drugs, we are running the risk of anarchy,” says Mario Raviglione, director of the World Health Organization's Stop TB department in Geneva. “And this raises the additional risk of shifting from multidrug-resistant tuberculosis strains to extremely drug-resistant tuberculosis.”

This gives pause to drug developers, such as the TB Alliance, whose director of market access, William Wells, was the lead author of the study.

“We want to know what environment we are putting these new drugs into,” Wells says. “The concern is that in the poorly regulated, poorly operating private market as it is right now, you could spend all of this money developing new drugs, and you could lose them very quickly to resistance.”

Wells maintains that the problem can be dealt with on many levels, from government regulation of the drug market to beefing up public-private partnerships. These programs link private drug sellers to the public sector, which has developed extensive programs for tracking patients with tuberculosis and helping them adhere to their full treatment regimes.

But such programs have been underfunded, partly because public health officials didn't realize that such a large volume of tuberculosis cases were being treated outside of their programs. And Raviglione says that it is not always easy to convince governments to put the reins on the drug industries in their countries. “It is always a delicate issue, because drug producers are quite aggressive in their campaigns to have their drugs used,” he says.