Drug-resistant tuberculosis threatens millions

Debra Watson
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The super-deadly strains of drug-resistant tuberculosis that killed 500 people in New York City in the early 1990s are now turning up in alarming numbers in the underdeveloped countries.

Each year over 2 million people, mostly poor, die from the disease. Just 22 countries, designated high burden countries, account for 80 percent of the world's tuberculosis cases. These include China, India, Bangladesh, Pakistan, Indonesia, Russia and the Philippines. Of new TB cases, fully 95 percent are in the underdeveloped world.

One third of the people in the world are believed to carry the tuberculosis microbe. Of the estimated 2 billion infected, one in ten are expected to develop active tuberculosis at some time in their lives. The bacterial infection can live for years in its host, causing chronic debilitation, and is often fatal. Drug treatment has been available for over 50 years that can easily kill susceptible strains of the bacteria, yet even at a cost of $10 per patient in the underdeveloped world, treatment remains out of reach for millions.

It costs $5,000 per patient to treat the new drug-resistant strains and multidrug-resistant strains are often incurable even with modern antibiotics. Drug resistance is a wholly man-made phenomenon. Selective mutation of the microbe burden in a host results from inadequate or intermittent drug supply for the patient or from the misuse of available anti-tuberculosis drugs.

Health workers fear that the high cost of treating drug-resistant strains will be impossible in countries already reeling from several epidemics of infectious disease as well as social and political factors such as war, massive poverty and inequality and economic crisis.

"Our biggest worry is that drug-resistant TB will also begin increasing in other developing countries," said Dr. David Heymann, executive director of Communicable Diseases for the World Health Organization (WHO). "North America and Europe may have the billions of dollars required to contain this emergency. The worst affected countries in Asia, Africa and Latin America do not," Heymann added. During the five years of the New York City epidemic it cost over $1 billion to treat approximately 3,800 patients and to contain further spread of the deadly strains in the US.

WHO estimates 50 million people worldwide are already infected with drug-resistant tuberculosis. There are several “hot spots” in the world where multidrug-resistant tuberculosis (MDR-TB) makes up more than 3 percent of new TB cases. Growing numbers of drug-resistant tuberculosis cases apparently are being contracted directly through breathing the same air as a person already sick from a resistant strain. Researchers believe a person with TB infects another 10 to 15 people each year he remains ill.

In Estonia nearly 37 percent of new TB cases were resistant to at least one drug. Resistance to all four drugs tested was 8.5 percent among new tuberculosis patients there and the country also had the highest level of MDR-TB of any area of the world in TB patients who had never before been treated—14.1 percent. MDR-TB is defined as resistance to at least the drugs Isoniazid and Rifampicin.

MDR-TB in new cases was also found in large numbers in Henan province in China, 10.8 percent and Latvia, 9 percent. In Russia in Ivanovo Oblast it was also 9 percent and in Tomsk Oblast it was 6.5 percent, well above the global median of 1 percent. Iran also had high levels, 5.8 percent of new tuberculosis cases were resistant to at least two drugs.

Estonia is also a documented example of increasing levels of drug resistance. In 1998 the percentage of patients with MDR-TB who had been previously treated for tuberculosis was 37.8 percent, up from 19.2 percent in 1994.

Anti-tuberculosis drug-resistance in the world, Report No. 2 follows up on a 1997 report from WHO and the International Union Against Tuberculosis and Lung Disease. Researchers now warn that unchecked epidemics in underdeveloped countries will spill over into more affluent countries. Already in the earlier report they documented cases of MDR-TB in every one of 35 geographical areas surveyed between 1994 and 1996, and on every continent.

Transnational tuberculosis, spread across the world in human hosts via global travel, is suspected as the cause of rising drug-resistant TB and the more dangerous multidrug-resistant TB in Europe and other countries with few overall cases. In Germany and Denmark the percentage of TB patients resistant to a single drug has increased by 50 percent since 1996. It doubled in one year in New Zealand. Germany is currently treating over 100 cases of MDR-TB.

MDR-TB was not found to be any more prevalent among immigrants than in natives of low-incidence countries. However in Israel there was significantly higher incidence of MDR-TB found among immigrants than in the settled population, which indicated to researchers that the source was immigration from countries where MDR-TB is already epidemic.

The report also notes: "A similar explanation has been offered in the case of Iran, suggesting that most foreign-born patients are from countries with political turmoil, war and lack of proper TB control, and therefore bear a possibly high MDR-TB burden." The authors of the report go on to point out that these are also among the factors causing people to emigrate, and the dangers of MDR-TB epidemics spreading globally is exacerbated by such adverse conditions.

The leading source of MDR-TB in Western Europe is thought to be the epidemic in the countries once part of the Soviet Union, and medical personnel work in a crisis of epic proportion in parts of Russia. In Russia the total cases of TB were estimated to be over 150,000 in 1998.

Another report entitled *The Global Impact of Drug-Resistant Tuberculosis* was commissioned by the Open Society Institute and was prepared by Harvard Medical School. In the 1999 report the authors commented: "In North America and Europe the resurgence is linked to reduction in, or dismantling of, public health services; an increase in the number of the urban poor and homeless; immigration from high prevalence countries; and, in some cases, the HIV epidemic."

According to the Harvard report, the severe economic crisis in countries of the former Soviet Union brought these factors to acute levels, reversing the spectacular decline in TB in the Soviet Union since the 1917 revolution. They noted: "Whatever their long-term merits, far-reaching social and economic changes have in the short term dealt severe blows to Russia's large medical and public-health systems, leading in turn to decreased capacity to deal with the country's most significant health crises

in decades. Economic stagnation has led to problems with drug supply, as well as failure to pay medical personnel."

An infected person develops tuberculosis when stress to the victim such as malnutrition, immune system dysfunction or disease allow the bacilli to proliferate in the body, usually in the lungs. Poor sanitation, cramped living conditions and an unchecked AIDS epidemic are also fuel for turning a carrier of the microbe into an active TB case. It is then spread through the air when a victim of the active disease coughs or sneezes, infecting others.

Better living standards for the urban masses and the growing science of microbes and communicable disease led to significant declines in disease rates in Europe even before antibiotics were developed. When anti-tuberculosis drugs were discovered in the 1940s disease rates fell even faster. By the late 1960s many believed the disease was on the verge of extinction.

Today the massive and completely unexpected rise in the former Soviet Union of all three forms of tuberculosis—susceptible, drug-resistant and multidrug-resistant—has been called an epidemiological Chernobyl, recalling the eighteenth and nineteenth century European epidemics when the destructive disease came to be called the white plague.

A section of the Harvard report focuses on prisons in Russia as a major contributor to the tuberculosis crisis: "Russia and the United States are neck-and-neck in the race for the highest per capita rates of detention. In the context of social and economic turmoil, Russia has pulled ahead, with a national incarceration rate of almost 700 per 100,000 population; in certain regions, that number exceeds 1,000 per 100,000 population. Fully 29 percent of convicted prisoners are younger than 25 years of age."

In 1999, over 98,000 inmates—almost 10 percent of all Russian prisoners—were sick with tuberculosis. Some 80 percent of prisoners may already be infected with some form of the bacteria. Disease rates greater than 3,000 per 100,000 prisoners in several oblasts have been reported. The rate of MDR-TB among inmates with tuberculosis is 20 percent in some prisons.

The Russian prison system is described as "an epidemiological pump, releasing into society tens of thousands of active TB cases and hundreds of thousands of infected individuals every year." They found that “many detainees become infected during pre-trial detention before they are ever convicted of a crime.” Since 1985 the incidence of TB cases in Russians who work in direct contact with TB patients tripled, to 702.7 per 100,000 in 1997. Federation-wide case notification has more than doubled since 1991, to 82 per 100,000 in 1997.

The WHO report on multidrug resistance only surveyed two oblasts in the Russian Federation, Ivanovo and Tomsk. Only 11 of the 22 countries with high levels of tuberculosis were surveyed for drug resistance.

In several other populous countries only a few administrative units were surveyed. India and China are two such examples. India has more cases of tuberculosis than any country in the world, 1.8 million. China has an estimated 1.4 million cases. In the areas of these two countries that were included in the WHO survey, WHO found high percentages of drug-resistant tuberculosis cases.

Of the four Chinese provinces surveyed, the highest rates of drug-resistant TB and MDR-TB were in Henan province, the most populous province in China. The prevalence of any drug resistance among new TB cases was 35 percent, and ranged around the already high rate of 15 percent in the other provinces surveyed.

Resistance in previously treated cases was the highest in the world in Henan province. The rate of these types of cases, defined as anyone who received more than one month of anti-tubercular medicine at any time in their life, was 66 percent. MDR-TB was found in 35 percent of previously treated cases in Zhejiang Province, the highest rate among countries testing more than 100 of these cases.

With the largest burden of TB in the world, India spends $3 billion on TB prevention, diagnosis and control annually. Even so, over 400,000 people die from TB in India each year. Because it usually strikes workers in the prime of their lives, the resulting loss of a breadwinner's wages accounts for economic hardship for millions more family members. Of Indian families who had a TB sufferer, 75 percent living in urban areas went into debt fighting the disease. WHO surveyed the state of Tamil Nadu and found another MDR-TB hot spot with 3.4 percent of new cases found to be multidrug resistant.

After China and India, Indonesia has the next highest overall TB burden, over half a million. Drug resistance surveys are under way now in Indonesia. But recent IMF-dictated cuts in the already crippled Indonesian health system will further hamper efforts to document cases and to fight TB there.

WHO's other report entitled *Global Tuberculosis Control Report 2000* is the fourth to assess the world burden of tuberculosis since the agency declared the disease a global emergency in the early part of the last decade. TB is now a leading killer among infectious diseases. The new report surveys estimates of TB infection and disease throughout the world and the results of WHO-sanctioned control efforts in several countries.

The only country in Africa considered an MDR-TB hot spot is Mozambique, with levels exceeding 3.5 percent in new cases. However, there are many African countries on the WHO list of 22 high-burden countries. They include Ethiopia, The Democratic Republic of the Congo, The United Republic of Tanzania, Kenya and Uganda. Nigeria has 260,000 estimated cases of TB.

The highest rate of tuberculosis in the world is in Zimbabwe, with over 550 cases per 100,000 population. South Africa also had a high disease rate at nearly 440 per 100,000 people in the country ill with tuberculosis.

The AIDS epidemic has had the effect of increasing overall TB rates, especially in sub-Saharan Africa. Twenty-three million people in Saharan Africa are infected with AIDS and over 5,000 new infections occur every day, according to WHO. Eleven million people in the world are infected with both TB and HIV. HIV infection is responsible for 15 percent of all new cases of TB. TB is also counted as the single largest killer of people with HIV.

According to *Global Tuberculosis Control Report 2000* the number of people with access to the recommended treatment for tuberculosis named DOTS (or DOTS-plus for drug-resistant areas) has doubled since 1995. Still, less than one in five of the world's tuberculosis cases were treated with DOTS protocols in 1998. The greatest number of TB patients without access to good treatment was where the numbers were greatest, in Asia, particularly in Bangladesh, India, Indonesia, Pakistan and the Philippines.

There is growing concern in official circles of the political impact of infectious disease epidemics, particularly tuberculosis, malaria and HIV/AIDS. The Open Society Institute hosted a conference of world leaders last year to address the tuberculosis epidemic. George Soros, the billionaire investor and anticommunist behind the institute, has provided funds to tuberculosis control in Russia and Latin America.

The World Bank has also provided funds for tuberculosis and malaria control projects through loans to several countries. The World Bank and WHO marked World TB day in 2000 with a conference entitled TB and Sustainable Development. Delegates included finance and health ministers from 20 of the 22 high burden countries as well as UN representatives and US Health Secretary Donna Shalala.

Figures on the existing debt of these countries presented to the meeting were staggering. In some African countries the total debt per capita is greater than the annual Gross Domestic Product per capita. What can be the effect of the paltry and shrinking amounts of aid and loans being provided by the capitalist institutions for disease control on areas where staggering debt coupled with falling commodity prices has already created massive poverty? These initiatives are undertaken primarily by these capitalist concerns to protect their growing transnational investments.

The fear of political upheaval resulting from unchecked disease was evident in the decision of the Clinton administration to recently designate the global spread of AIDS as a threat to US national security. Such a designation for any infectious disease is unprecedented for the US government.

A National Intelligence Estimate prepared in January concluded a quarter of southern Africa's population will die from AIDS and the number of people dying from the disease will rise for a decade. In referring to the catastrophic death rate from HIV/AIDS in Africa (despite the existence of life-saving drugs for AIDS) they predicted that "at least some of the hardest-hit countries, initially in sub-Saharan Africa and later other regions, will face a demographic catastrophe. This will further impoverish the poor and often the middle class and produce a huge and impoverished orphan cohort unable to cope and vulnerable to exploitation and radicalization."