

## Thailand's fight against drug-resistant tuberculosis

**The battle against the disease is hampered by out-of-date practises and budgetary concerns**

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Thanawat Noointara was diagnosed with tuberculosis in early March at King Chulalongkorn Memorial Hospital. Chest X-rays and mucus test results were all positive, and he was given first-line, or standard, anti-TB drugs.



What comes next: The first steps after a diagnosis can be crucial to treatment.

But Mr Thanawat had another worry: What if his strain of TB was resistant to drugs?

Chulalongkorn Hospital's laboratory declined Mr Thanawat's request to perform drug susceptibility tests (DSTs) on his infection, on the grounds that they had to be approved by his doctor.

When he asked to see the doctor, an assistant nurse told him "it was not possible".

Mr Thanawat, ironically a 19-year-old pharmaceutical student at Chulalongkorn University, then sought treatment at a private hospital.

The difficulty in obtaining a DST has become a standard problem for the majority of the 80,000 new TB cases diagnosed in Thailand each year. And to make the need for DSTs more pressing, incidence of drug-resistant TB is on the rise.

### NO CARE, NO CURE

Since 1998, Manoon Leechawengwongs has been a staunch campaigner for TB strains to be tested for drug resistance as soon as a patient has been diagnosed.

Doctors in Thailand, he said, use a method of "guessing" which drugs will work, even before any resistance testing.

"What they usually do is wait for two months to see if the patient gets better. If they don't, then a DST is performed," said Dr Manoon, who is also chairman of the Drug-Resistant Tuberculosis Research Fund and a chest specialist at Vichaiyut Hospital. "But during these two months there is a risk of transmission, and giving a patient the standard short course of drugs will only increase drug resistance."

Drug resistance in TB arises due to improper use of antibiotics by TB patients. Some patients do not complete their course of treatment, others take their medication haphazardly. This can lead to strains of TB that are resistant to treatment that can then be transmitted to other people. Multidrug-resistant (MDR) TB is one such strain; it does not respond to the first-line drugs isoniazid and rifampicin.

The World Health Organisation says TB remains a major global health problem. An estimated 8.6 million people worldwide developed TB in 2012 and 1.3 million died from the disease. Although incidence rates have been falling worldwide for about a decade, the overall decline of 2% per year remains slow.

Thailand has remained on the WHO's list of TB "high burden" countries since 1998. Of 22 countries where TB is considered critical, Thailand ranks 18.

Worldwide, drug-resistant TB is growing faster than ever, with about 450,000 new MDR-TB cases in 2012 and 170,000 deaths. In Thailand, about 1,760 cases of MDR-TB emerged in 2012, of which 800 are new cases, although Dr Manoon estimates the figures to be much higher at around 2,700 and 1,400 respectively.

The WHO says drug-resistant TB represents a significant threat to global TB control efforts, but global trends in the rise of MDR-TB infections cannot as yet be inferred from pooled national data given their incompleteness. >>

Chawetsan Namwat, director of the Department of Disease Control's Bureau of Tuberculosis, told Spectrum that the Public Health Ministry has a goal of lowering the number of new TB cases per year by 25% by 2019, using 2012 as the base year. That means that within five years, the number of new TB cases should drop from 80,000 per year to 60,000.

Dr Manoon, however, argued that as long as the government concentrates on treating non-drug resistant patients, the situation regarding drug-resistant TB will only worsen.

"Their [the government's] vision hasn't changed since 1990, despite the increased incidence of MDR-TB," he said. "Thai doctors choose not to do it [perform DSTs], and some medical schools think of it as unnecessary. They are taught by an older generation of doctors that it is a waste of money."

#### MUCH ADO ABOUT NOTHING

As head of the country's Bureau of TB, Dr Chawetsan faces a dilemma in terms of communicating the risks of the disease.

"It sounds scary when you say it's an airborne transmission, but if you say it's hard to catch, people will ignore it and fail to seek treatment," he said. "Although TB is spread through coughing and sneezing, it's not as easy to transmit as the flu."

Household contact with a person with active TB results in a 30-40% chance of being infected, said Dr Chawetsan, but only 10% of those infected with TB bacteria have a lifetime risk of falling ill, with the disease usually attacking the lungs.

People with TB can infect up to 10-15 other people through close contact over the course of a year. If no treatment is sought, 50% of TB patients die within two years.

Dr Manoon, on the other hand, has been advising patients with active TB to wear masks when in public since 2002.

"But many people resisted this idea. A doctor from the Department of Disease Control called me at the beginning of the campaign and warned that this would deter foreign tourists from coming to Thailand," he said.

To make matters worse, the HIV epidemic made the TB situation more serious, as TB is the most common infectious disease among those with Aids. The number of confirmed cases of TB in Thailand peaked in 2001-02, in tandem with the HIV epidemic.

About 13% of TB patients in 2012 were people who also tested positive for HIV.

"Early diagnosis is therefore an essential means to solve the problem," Dr Chawetsan said.

TB can normally be cured over a six-month period, with treatment costing 2,000-4,000 baht. But for MDR-TB, the cost goes up to 200,000 baht, over a period of at least 18-24 months, which involves daily injections for six months.

Extensively drug-resistant (XDR) TB does not respond to conventional treatments and is often incurable, with drugs costing up to 1.5 million baht.

But even though the government has made anti-TB drugs available free of charge under the universal healthcare scheme, only 30% of patients who are at a high risk of contracting MDR actually undergo a DST.

The 2013 National Tuberculosis Control Programme Guidelines suggest that only certain priority cases should be sent for testing. These priorities include patients who have relapsed, require re-treatment or have not responded to first-line drugs.

"If all TB strains are tested as soon as they are found in a patient, it will be a burden for our [the government's] budget, and it's not really worth it," Dr Chawetsan said.

#### WHAT THE WHO SAYS

In its most recent guidelines, the WHO recommends that all patients undergo DST at the start of their treatment. But whether this recommendation can be followed depends on a country's resources and laboratory capacity. Of new patients in Thailand, only 2% have MDR-TB, compared to 19% in re-treatment cases.

"So the priority would be to test all re-treatment patients first, where the burden of MDR is nine times higher, and then all new patients, resources permitting," said Nawinda Limamapar, a representative of WHO Thailand.

But WHO figures also show that of 61,208 notified TB cases in Thailand, 94% are new cases, prompting Dr Manoon to argue that MDR-TB cases come from new patients more than re-treatment patients.

He pointed out that the WHO's compilation of data gathered by the government is only a random sampling of some provinces in Thailand. At certain "hot spots" such as Makarak in Kanchanaburi province, MDR-TB is found in 8% of new cases.

"So, if we concentrate only on re-treatment cases, we'll miss out a lot on new cases," Dr Manoon said. "I think the whole thing boils down to money."

The WHO says coverage of DST for TB patients remains low and thus only a minority of drug-resistant TB patients are detected and notified.

It recommends a costly rapid screening test, where results can be obtained within two hours. Thailand has 14 laboratories capable of conducting this test, and this number will increase to 25-30 in the next two years.

Until recently, the major barrier to controlling drug-resistant TB was the lack of cheap, quick and accurate diagnostic testing methods. But today this test is available at a cost of 150 baht.

The Drug-Resistant Tuberculosis Research Fund is one of 33 facilities currently capable of conducting DST for MDR-TB. Under the patronage of HRH Princess Galayani Vadhana, the fund has been providing free DSTs for state hospitals since its establishment, 13 years ago. Costing around 150 baht per test for private hospitals, results can be obtained in four weeks.

"It's worth the money to screen every TB patient if it costs only 150 baht," Dr Manoon said. "But they don't listen. We'd even do it for free, but they still don't agree that it's important to screen for MDR-TB unless they suspect MDR-TB."

#### A TOUGH STRUGGLE

Many TB patients are slow to recover as they often fail to complete their treatment, and inconsistent treatment is the main obstacle controlling the spread of the disease.

Introduced in the 1990s, the WHO's main strategy to control TB is known as "directly observed treatment, short course", which involves using trained health professionals to watch over patients as they take their long courses of antibiotics.

In Thailand, a "nanny" would be dispatched to ensure TB patients complete their full course of medication, or at least for the first two months of treatment. Sometimes patients are asked to travel to local healthcare centres to take their medication in front of the nannies, Dr Chawetsan said.

"Private hospitals lack medical follow-up on TB cases, which is hampering national efforts to cope with MDR-TB," he said.

According to the WHO, notified cases of MDR-TB in Southeast Asia increased from 68 cases in 2005 to 19,202 in 2012.



Chawetsan Namwat.

Thailand's budget for combating TB totalled 446 million baht last year, which included the cost of drugs, laboratories, treatment and follow-ups. Of the total budget, 51% is funded locally, and 49% is made up of foreign donations.

Dr Chawetsan said migrant workers are also an at-risk group, with rates of TB in Myanmar, Laos and Cambodia three to four times higher than in Thailand. And this situation may be exacerbated with the establishment of the Asean Economic Community at the end of next year, he said.

However, a recent initiative allows migrant workers from Cambodia, Myanmar and Laos to buy health insurance cards at a discount — 1,600 baht, down from 2,200 baht, and valid for one year. This will provide them with more access to treatment, Dr Chawetsan said.

In 2012, 587,000 migrant workers had physical check-ups and 2,034 were diagnosed with TB, 195 of whom were in the infective stage.

#### A STRONG DOSE

Sunthorn Saengow contracted TB in 1946, the year after World War II ended.

"It was a very tough time. All my friends who had TB died," he said.

After close monitoring for more than 50 years, he is now free of the disease. But others are less fortunate.

Take Darinthorn Thongpeng's father, who refused to take medicine due to the side effects. He died within five years, but before his death, he transmitted MDR-TB to his mother-in-law, as well as Ms Darinthorn.

His mother-in-law also died of MDR-TB.

"I was very discouraged. It was like torture. The doctor said my treatment would take two years. I thought I'd rather die," she said.

Meanwhile, Dr Manoon has had a new idea: Patients who refuse treatment should be ordered to stay at home, with GPS-tracking devices strapped to their ankles to make sure they stay put.

"We need strong medicine for an almost always fatal and very expensive to treat disease," said Dr Manoon, adding that a similar method is used in the US, enforced by the courts.

But until the Department of Disease Control finally recognises drug-resistant TB as a critical contagious illness, Dr Manoon faces an uphill struggle in his fight against the disease.



raising awareness: An anti-tuberculosis campaign organised by Rak Thai and Supamitr foundations at Hua Lamphong station. The campaign was held to explain the risks of the disease.





realising the danger: A mother and her child take a close look at a sample of TB-infected lung shown at an event to mark World Tuberculosis Day at Hua Lamphong station.

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