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Mr Leong Weng, 84, was treated for rifampicin-resistant tuberculosis in 2024. His care team from Tan Tock Seng Hospital included (clockwise from top left) Ms Siti Syafiqah, senior patient service associate; staff nurse Ho Li Mei; nurse clinician Tiffany Tan; and Dr Caroline Choong, clinical director of the hospital's National Tuberculosis Care Centre. ST PHOTO: TARYN NG

# 4 things to know about the long fight against TB

**Tuberculosis, though curable, is still considered the world's deadliest infectious disease**



**Akshita Nanda**  
Correspondent

In May 2024, a 36-year-old software engineer developed a persistent cough. Doctors prescribed antibiotics, but a few months later, he began coughing up coloured phlegm every day. He also found it harder to do his thrice-weekly runs, taking seven minutes a kilometre, instead of his usual six. In January, he was diagnosed with tuberculosis (TB) and started

a six-month course of antibiotics to treat it.

His wife was discovered to have latent TB, where her immune system keeps the infection in check. She was given a four-month course of antibiotics. Colleagues he had been in contact with were also tested for TB.

The patient was told to isolate for three weeks at the start of treatment, to not infect others.

"I was quite worried for my parents, who are in their 60s," he told The Straits Times. "I also realised there were a lot of things I didn't know about TB."

He asked not to be identified by name to limit the number of people who know about his case.

Doctors say that stigma and misunderstanding persist about TB, a bacterial infection which the World Health Organisation (WHO) calls "the world's deadliest infectious disease".

TB is caused by mycobacterium tuberculosis and commonly affects the lungs. It is then known as pulmonary TB, which can cause permanent lung damage and breath-

**Pulmonary TB can cause permanent lung damage and breathing problems. It spreads when an infectious person with it coughs or sneezes. Extra-pulmonary TB affects the bones, joints, lymph nodes or other organs.**

ing problems. The disease spreads when an infectious person with pulmonary TB coughs or sneezes. Extra-pulmonary TB affects the bones, joints, lymph nodes or other organs.

According to the WHO, each day, over 3,400 people around the world lose their lives to TB, and

close to 30,000 people fall ill with it. It is the leading cause of death for those with HIV.

Treatment for TB involves at least six months of taking different antibiotics daily. Patients are usually considered not infectious after a few weeks of treatment.

TB is endemic in Singapore and notifications of infections are compiled in the weekly infectious disease bulletins released by the Ministry of Health. The week 52 bulletin of 2024 reported a cumulative 1,062 infections from the start of the year, compared with 1,138 infections reported in the week 52 bulletin of 2023.

Respiratory physician Steve Yang says: "We always have to be on guard against tuberculosis. It's never gone away."

Dr Yang, who is treating the software engineer, says patients should know there is no stigma to being infected. Neither should others shun those with TB. The disease is curable.

Here are four things to know about it ahead of World Tuberculosis Day on March 24.

## 1 MOST INFECTIONS ARE LATENT, WITH NO SYMPTOMS

The National Tuberculosis Care Centre at Tan Tock Seng Hospital manages the majority of Singapore's TB cases. Its clinical director Caroline Choong says the majority of people who are infected with TB have latent TB.

"People living with latent TB don't feel sick and are not infectious," she adds.

About 10 per cent of people with latent TB go on to develop active TB, when the immune system can no longer hold the infection in check.

Dr Yang says people who are immunocompromised are at higher risk of contracting TB. These include older people; people with diabetes, cancer or HIV; and patients who are receiving immunosuppressants to treat other conditions.

Symptoms of active TB may include weight loss despite eating well, and night sweats without reason, adds Dr Yang, who practises at

Parkway East Hospital, Gleneagles Hospital and Mount Elizabeth Hospital.

Dr Khong Haojun, a family physician and associate consultant at Ang Mo Kio Polyclinic, says that as pulmonary TB progresses, the cough worsens and patients may cough up blood.

"The coughing up of blood signifies extensive lung damage, with damage to the blood vessels within the lungs, and if left untreated, leads to progressive lung damage and eventual death."

In patients with compromised immune systems, TB can affect multiple organs, adds Dr Khong, who is also adviser, Infectious Diseases & Immunisation, at National Healthcare Group Polyclinics.

Dr Choong says catching and treating TB infections early reduces the risk of long-term consequences, such as impaired lung function.

"Some patients will feel back to normal very quickly, while others may take a few months," she adds.

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**2 TB CAN BE HARD TO DIAGNOSE**

Dr Yang says patients with symptoms of active TB can be diagnosed through chest X-rays, lung CT scans and sputum tests.

However, diagnosing TB can be difficult, he adds.

TB is a slow-growing bacterium. The definitive diagnostic test, a bacterial culture, takes weeks.

Patients may also not consider the symptoms seriously enough in the early stages.

In the case of the software engineer, the patient thought his persistent cough was due to a Covid-19 infection in 2024.

He chose to go for telemedicine consultations and delayed going for tests such as a CT scan of the lungs. Abnormalities in that scan indicated that TB was a possibility.

Dr Yang recalls another patient in his mid-20s who sought medical treatment after repeated episodes of coughing up blood.

The sputum test was clear, but the CT scan of his lungs revealed abnormalities.

The patient started antibiotic treatment for bacterial pneumonia and got better. Two months later, however, the bacterial culture revealed the presence of TB, and he had to start a different antibiotic regimen.

Dr Yang says: "Diagnosis is not easy. The bacterium is very elusive. Sometimes you can do a smear test, a DNA PCR test, a blood test, but all the tests are negative. Treatment will still be started if the clinical suspicion for TB is high."

**3 NOT COMPLETING TREATMENT CAN LEAD TO ANTIMICROBIAL RESISTANCE**

TB treatment requires taking antibiotics daily for at least six months. The Health Ministry's 2024 update on TB in Singapore says patients who do not adhere strictly to their treatment regimen risk relapse and risk developing multi-drug resistant TB.

Another concern is rifampicin-resistant TB. Rifampicin is one of the first-line drugs used to treat the infection.

Drug-resistant versions of TB are more difficult to treat and have lower cure rates, says the MOH update.

To ensure patients take their medicines correctly and for the prescribed duration, Singapore's



Catching, treating TB early reduces risk of long-term consequences

Graphic designer Jezreel Nathan, 40, who still suffers from the after-effects of drug-resistant TB and its treatment, built up her stamina after joining a gym. ST PHOTO: GIN TAY

National TB Programme includes directly observed therapy (DOT). In this, healthcare professionals administer TB medicines to people with the infection.

DOT is available at polyclinics, but an outreach programme offers home visits by healthcare workers to people unable to commute because of age and infirmity. Video-observed therapy is available on a case-by-case basis.

Dr Choong says DOT ensures patients take the correct dosage and combination of the drugs, and complete the course of treatment. If they do not complete it, the TB germ could become drug resistant.

"DOT also allows the healthcare worker to monitor closely for any side effects the patients may have and they can receive prompt medical attention," she adds.

"More than 95 per cent of patients are cured if they take their medications correctly," she says.

**4 NEW TREATMENTS FOR DRUG-RESISTANT TB**

Previously, patients with drug-resistant TB took antibiotics for a year or more. This is changing, thanks to a breakthrough drug regimen discovered in 2023, Dr Choong says.

Now, a course of four antibiotics for six months can be used to treat multi-drug resistant TB and rifampicin-resistant TB.

"The new treatment has a lower rate of side effects compared with the traditional 20-month regimen, and improved cure rates," says Dr Choong.

One of the patients who benefited was Mr Leong Weng, 84, who was diagnosed with rifampicin-resistant TB in May 2024. He was isolated for five weeks in hospital, and continued treatment till November through DOT.

He lives alone and a healthcare worker visited his home to give him the medication five days a week. He took his weekend doses by himself.

"The medicine is very strong," recalls Mr Leong, who was a commercial artist and then a taxi driver before retirement. "I felt lethargic and had no appetite." He also had episodes of nausea and vomiting until halfway through the treatment.

He is now back to going for dance sessions twice a week at his neighbourhood community centre in Toa Payoh. He also goes for a walk after breakfast every day.

"I encourage other people to listen to their doctor and follow their doctor's instructions, then they will recover faster," he says.

In contrast, Ms Jezreel Nathan, 40, had a different experience after contracting drug-resistant TB in 2013. She had to take antibiotics until 2015. Her treatment included

oral doses as well as daily injections for about a year.

The India-born graphic designer moved to Singapore in 2018, after she was cured.

The TB bacterium infected lymph nodes in her neck, rather than the lungs, and the glands had to be removed.

The disease and treatment took a toll, she recalls.

TB caused drastic weight loss. The 1.6m-tall woman was only 42kg when she started treatment, which classified her as underweight. "A friend said I looked like I was wasting away," she says.

She developed drug-related hepatitis because of the number of medications she was taking. She was bedridden, in pain, and found it hard to walk. "I didn't have the energy to stand up straight then," she says.

She tried seeing a therapist, but would forget what she was there to

talk about.

A decade after being cured, she still experiences after-effects, such as the sensation of pins and needles in her limbs, and short-term memory loss.

She felt as if her body were not her own until 2024, when she engaged a personal trainer and joined a gym.

She still goes to that gym, Ultimate Performance Singapore, once a week, while also playing the racket sport padel and doing weight training on her own. That has helped her build up her stamina and reach a healthier weight of 53kg.

"Training has been the therapy I didn't know I needed. I feel stronger," she says.

"It's been so many years since I was declared TB-free, but only now do I feel absolutely free of the emotional impact."

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Swiss doctors prescribe museum visits for mental health

NEUCHÂTEL, Switzerland – Swiss doctors are expanding the range of prescriptions for patients with mental health conditions and chronic illnesses to include strolls in public gardens, art galleries and museums.

The city of Neuchâtel, in western Switzerland, launched the pilot project with doctors in February to help struggling residents and to promote physical activity.

"For people who sometimes have

difficulties with their mental health, it allows them, for a moment, to forget their worries, their pain, their illnesses, to go and spend a joyful moment of discovery," said Dr Patricia Lehmann, who is taking part in the programme.

"I'm convinced that when we take care of people's emotions, we allow them, somehow, to perhaps find a path to healing."

Five hundred prescriptions will be handed out for free visits to

three museums and the city's botanical garden.

One of them went to a 26-year-old woman suffering from burnout. She was at the Neuchâtel Museum of Art and History, which has masterpieces by Claude Monet and Edgar Degas, as well as a collection of automated dolls.

"I think it brings a little light into the darkness," she said, asking to remain anonymous.

The authorities say the idea



A patient, who is a part of a project in which doctors prescribe museum visits, looking at artworks in the Neuchâtel Museum of Art and History in Switzerland. PHOTO: REUTERS

came from a 2019 World Health Organisation study exploring the role of the arts in promoting health and dealing with illness.

During Covid-19 lockdowns, museum closures hit people's well-being, said Ms Julie Courcier Delafontaine, head of the city's culture department.

"That was a real trigger, and we were really convinced that culture is essential for the well-being of humanity," she added.

The initiative will be tested for a year and could be expanded to other activities such as theatre.

"We'd love this project to take off and have enough patients to prove its worth, and that one day, why not, health insurance covers culture as a form of therapy," said Ms Courcier Delafontaine. REUTERS

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