

Medical Mysteries This is a series that spotlights rare diseases or unusual conditions.

Living with invisible conditions that affect the immune system

Common symptoms of the disorder are severe, persistent and unusual infections

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In 2020, software engineer Jerry Tan was in and out of the GP clinic for a year with constant diarrhoea and sinus infections.

"I had recurring infection, causing fever and cough. I was given MCs," he told The Sunday Times.

Being ill so often was, sadly, a condition he was all too familiar with. When he was a child, Mr Tan said, he would have a fever once every four or six months, though nothing so bad that he would have to be hospitalised.

"Being sick in 2020 felt different. I suffered constant abdominal pain, I had nausea and I had severe diarrhoea, and it lasted for a year. I thought my gut was weakened because of the constant food poisoning," said the 41-year-old.

A colonoscopy at Sengkang General Hospital found small lumps in the gut.

Believing they were nodules caused by his immune system, the hospital referred Mr Tan to the Department of Rheumatology, Allergy and Immunology at Tan Tock Seng Hospital (TTSH), where he underwent blood tests to determine his levels of infection-fighting proteins called immunoglobulins.

Mr Tan was then diagnosed with primary immunodeficiencies (PIDs).

"The whole journey to getting a diagnosis had been quite overwhelming. But after knowing what I have, I actually felt relieved. At least now my sickness could be managed," he said.

Equally overwhelmed was administrator Brian Chan, 30. He was frequently and inexplicably ill, suffering recurring pneumonia after he turned 16. It had necessitated

yearly "staycations" at the hospital ever since, he said wryly.

"It continued while I was in polytechnic, when I was doing my national service and during my university days in Australia. I was really sick there," he recounted.

It was after a thorough investigation and a battery of tests that the Australian doctors diagnosed him with PIDs.

PIDs, increasingly referred to as inborn errors of immunity, are disorders caused when some parts of the immune system, mainly cells and proteins, do not work properly.

"In short, PIDs are not simply about having a weak immune system. The immune system can be underactive, overactive or dysregulated," said Dr Lim Xin Rong, a senior consultant with the Department of Rheumatology, Allergy and Immunology at TTSH.

Symptoms can emerge at any age from infancy to adulthood, and they vary widely.

Dr Lim said the most common symptoms of a PID are severe, persistent, unusual and recurrent infections. Sufferers may have inflammation affecting the lungs, liver and intestines, autoimmune issues, severe allergies or an increased risk of tumours.

There are now more than 550 recognised types of PIDs, and Dr Lim said that while the vast majority are caused by genetic mutations that disrupt how the immune system develops and functions, not all patients will have a recognised genetic cause.

"This does not mean one doesn't exist. It simply means the relevant gene has not yet been discovered, or the condition involves complex interactions that current testing cannot fully capture," she said.

Examples of PIDs include severe combined immunodeficiency, one of the most severe forms, where ba-



(From left) Mr Brian Chan and Mr Jerry Tan, who were diagnosed with primary immunodeficiencies, with Dr Lim Xin Rong of the Department of Rheumatology, Allergy and Immunology at Tan Tock Seng Hospital. ST PHOTO: ARIFFIN JAMAR

abies are born with a non-functional immune system. It was historically known as the "bubble boy disease". Another example is common variable immunodeficiency, a common form in adults who have low levels of antibodies, leading to recurrent infections.

Dr Lim said the key insight is that PIDs are probably far more common than thought and that doctors have been underdiagnosing them.

"Many patients, particularly adults with milder or atypical symptoms, go years before receiving a correct diagnosis. As aware-

ness grows and testing improves, the number of recognised cases rise as we get better at identifying them," she added.

While historically, symptomatic PIDs have been estimated at about one in 8,000 to one in 100,000 people, newer data suggests prevalence may be closer to one in 3,000 people.

Although the genetic defect causing PID is present at birth, some people with the condition may not develop symptoms until they are several months old. In some cases, they were not diag-

nosed until later in childhood or even adulthood.

"Unlike infants, who are often identified early due to severe infections, adults tend to develop symptoms more gradually, and these may be milder at first. Symptoms can affect almost any organ system, including the lungs, gut, blood, skin or joints. There is no single 'typical' presentation, which is why diagnosis is often delayed," Dr Lim said.

The simplest way to remember the warning signs is a framework called "too frequent, too severe, too

unusual". "Too frequent is when the infections happen again and again, beyond what would be expected; too severe is when the infections require hospitalisation or intravenous antibiotics, especially when most people would recover easily at home; and too unusual is when the infections are caused by uncommon organisms, infections that would not resolve despite treatment, or infections that keep recurring shortly after treatment ends," she said.

Both Mr Tan and Mr Chan are currently treated every six to eight weeks with immunoglobulin replacement therapy intravenously, and this treatment is usually life-long. The therapy helps improve antibody levels and reduce disease impact.

Dr Lim said they have a choice of receiving the therapy subcutaneously under the skin – a new and well-tolerated treatment – which Mr Chan categorically declined.

The therapy is administered via a small needle placed under the skin, typically through a portable infusion pump or manual push method, allowing treatment to be given at home.

"I take part in MMA (mixed martial arts), and with the implant in my body and the shorter, more frequent subcutaneous method, it would prevent my participation in the contact sport," he said.

As for Mr Tan, he is used to having a longer downtime with the infusion, which allows him to travel frequently with his wife.

The frequent bouts of illness can take a toll on the mental and emotional well-being of people with PID. Having a community of others who have the condition can help.

Over the years, parents of children with PID and individuals with the condition have come together under the Singapore Immunodeficiency Network (SPIN) to connect with and support one another through awareness, education and access to care.

Dr Lim said more adults with PID and those around them should be part of the group.

To build a stronger patient and advocacy community in Singapore, the group needs to be patient-led.

"These are people with common experiences and concerns, and who are able to provide emotional and moral support for one another," she said.

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• To volunteer or support its efforts, contact spin.immuno@gmail.com

Singaporean Sean Tan, who used the ring name Dante Chen in World Wrestling Entertainment (WWE), was among over 20 wrestlers released by the outfit on April 24. He was the first Singaporean wrestler to be signed by WWE. PHOTO: COURTESY OF DANTE CHEN



Singaporean Dante Chen's run as WWE wrestler ends after 5 years

Sherlyn Sim

Professional wrestler Sean Tan, the first Singaporean to join the World Wrestling Entertainment (WWE), has finished his five-year run with the outfit after 147 bouts.

In a Facebook post on April 25, he wrote: "Goodbye and thank you, WWE..."

"The list of names of people I want to thank is endless. I am proud to be the first Singaporean-born WWE Superstar, and I hope that inspires everyone that anything can be achieved."

Tan, who on April 10 had urged his 4,700 Facebook followers to get their hands on some "merchandise", did not say what the future held for him in his April 25 post, beyond telling fans to "stay tuned".

Tan, whose ring name in the WWE is Dante Chen, was among over 20 WWE wrestlers released by the outfit on April 24.

WWE typically does a mass re-

lease of stars every year, according to the American news outlet USA Today.

Other names released this week include Nikki Cross, Bo Dallas (Uncle Howdy) and Santos Escobar.

The last exercise took place in February 2025.

One of WWE's rising stars, Oba Femi, took to social media to pay tribute to Tan, saying: "Respect from me always Dante!"

Fans also took to social media to wish Tan all the best.

"You have flown and continue to fly the flag for SEA excellence, could not be prouder of all you've done, and all you shall do!" wrote user mrsamsee.

Another user, Seraphoem10, wrote: "The accolades speak for themselves. Great run, champ. Godspeed, and catch you down the road."

The 30-year-old Tan, who was scouted by WWE officials during a tryout in Shanghai in 2019, told The Straits Times in an interview in 2021 that he was inspired to start wrestling after spending

much of his teenage years playing video games that featured WWE stars, including his idol Shawn Michaels.

In 2012, he joined professional wrestling school SG Pro Wrestling (SPW), training and competing under the name Trexxus.

In 2021, Tan became the first Singaporean wrestler signed by WWE, and won his first match – competing on NXT – in September that year.

Since then, he has featured in NXT in singles and tag-team action.

In 2024, he faced Bron Breaker, one of the United States pro wrestling juggernaut's most highly touted young stars, on WWE's Friday Night SmackDown.

SmackDown is one of two major WWE episodic shows – the other being Monday Night Raw – and Tan's appearance made him the first Singaporean wrestler to appear on national television in the US.

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Team members from Changi Airport Group's Airport Emergency Service and a staff member from Mandai Wildlife Group bolting woven strips of the decommissioned fire hoses to a steel frame. The volunteers ended up making four hammocks for lions and primates. PHOTO: CHANGI AIRPORT GROUP



Old airport fire hoses upcycled into hammocks for lions, monkeys

Esther Loi

Mr Justin Ong was at Tennoji Zoo in Osaka, Japan, in January 2026, when he saw monkeys swinging around on old fire hoses in their enclosure.

Inspiration struck him, and when the staff officer of future operations at Changi Airport Group's (CAG) Airport Emergency Service returned to Singapore, he asked his colleagues if they would like to try upcycling fire hoses as a team bonding activity.

They agreed, and that was how the lions and monkeys at the Mandai Wildlife Reserve ended up with four hammocks made from repurposed fire hoses to lounge and rest comfortably on.

Mr Nazmi Mohamed Nazali, a fire sergeant at CAG's Airport Emergency Service, helped to gather more than 20 unserviceable fire hoses from the firefighting units at Changi and Seletar airports as well as military airbases.

These fire hoses had either exceeded their 15- to 20-year lifespan or sustained damage beyond repair.

Mr Ong then contacted Mandai Wildlife Group to explore the possibility of converting the hoses into structures that the animals could use. The group confirmed that this was feasible, and also offered to host a hammock-building workshop.

For four hours in February, around 20 volunteers from the Airport Emergency Service worked together at the workshop to build the hammocks from scratch using the collected fire hoses, together with steel frames.

Describing the cutting process as "quite difficult", Ms Yvonne Sin, assistant manager of administration and finance at the Airport Emergency Service, explained that it was challenging to handle the larger garden shears needed to cut the thick fire hoses into long strips.

The volunteers then had to weave the strips into a crisscross pattern – similar to that of ketupat

wrapping – before bolting them to the steel frames.

The hammocks needed to be sturdy enough to support the animals' weight, but Mr Halil Iskander wanted to go the extra mile by making his visually appealing as well.

The senior fire warrant officer in fire prevention said he colour-coded the hammock he was working on so that the monkeys could have a special hammock with strips in different shades of red.

"I was a bit extra, so I could tell my kids that this particular (hammock) is the one I made," he added.

Mr Grant Kother, curator of behavioural research and management for veterinary healthcare and scientific programmes at Mandai Wildlife Group, told The Sunday Times that the Asian lions are using their two hammocks as additional resting places. The other two smaller hammocks support enrichment activities for the primates.

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