

The NUS Yong Loo Lin School of Medicine has come far in 120 years. In the second of this two-part series, *The Straits Times* takes a look at some of its achievements and where it is headed.

Brought to you by National University of Singapore Yong Loo Lin School of Medicine

Salma Khalik

The NUS Yong Loo Lin School of Medicine is one of the world's best medical schools – and it is not the one saying it.

For the past six years, it has ranked among the world's top 20 medical schools in the Times Higher Education World University Rankings – at 17th in 2025. In 2024 and 2025, it ranked 18th in the QS World University Rankings for medicine.

But the school's dean, Professor Chong Yap Seng, wants more than that. He wants it to become the world's leading medical school to represent Asia on the global stage.

He said the school is well-positioned to produce Asia-contextualised research and knowledge to develop solutions that are relevant and effective for Asian communities. The top medical schools in the world today are largely American or European, and they cannot be counted on to understand and research Asian patterns of disease. This is reflected in medical literature that is based on Western perspectives and derived from Western research efforts.

Prof Chong wants to demonstrate that NUS Medicine and Asia can lead in setting new standards for medical education, research, health and healthcare, and most importantly, to be able to shape the future of global health.

He aims to do that by focusing the school's efforts on optimising health, moving beyond the treatment of disease and truly leveraging digital technology, data and artificial intelligence to unlock the value of health data.

This is not simply to have a claim to fame, he insisted. "Asians are quite different in the way they respond to drugs."

As an example, he cited warfarin, a common blood thinner used to prevent blood clots that could cause strokes or heart attacks. "If you give the normal dose for Caucasians to Singaporeans, they will probably bleed to death," he said.

Asians need, on average, half to two-thirds the dose given to Caucasians.

The medical school, which was started 120 years ago to train locals as assistants to colonial doctors, is ready to come into its own as the premier institution focusing on how diseases and treatments affect Asian populations differently, Prof Chong said.

Singapore is well poised to lead research in this area, having completed the whole genome sequencing of 100,000 locals, and having started on the genomes of another 450,000 patients with known diseases.

Some of the research has already improved outcomes for the population.

An ongoing longitudinal study begun by Prof Chong in 2009 has helped hundreds of women and their babies by identifying gestational diabetes and treating it early in pregnant women, thus avoiding serious complications.

NUS Medicine's target? To be world's top medical school for Asia

School well-placed to develop relevant, effective solutions for Asian communities, says dean



Professor Chong Yap Seng, dean of the NUS Yong Loo Lin School of Medicine, wants to demonstrate that NUS Medicine and Asia can lead in setting new standards for medical education, research, health and healthcare, and most importantly, to be able to shape the future of global health. ST PHOTO: CHONG JUN LIANG

The Growing Up in Singapore Towards Healthy Outcomes (Gusto) study found that one in five Asian women, even those without risk factors such as being overweight, suffers from gestational diabetes – double the rate in Caucasian women. Because of Gusto's findings, pregnant women are now routinely checked for this complication.

Prof Chong's aspiration has not been without criticism that he is over-valuing rankings, but he argued it is not a vanity project. "Actually, it is business. It is partly recognition, partly achievement, but also partly business. If you are not among the top, people don't really want to work with you," he asserted.

In March, the school signed a memorandum of agreement with the Harvard T.H. Chan School of Public Health on a women's health initiative. Ten years ago, said Prof Chong, Harvard – one of the world's top universities – might not even have agreed to meet him.

"The ability to be among the top in the world gives you the ability to work with the best people in the world. We have their full attention, which is very important for us to really make progress," he said.

Global ranking is based on many factors, such as an institution's international research networks, how often published articles by faculty are cited by others, the amount of grants it receives, and the quality of its education.

Prof Chong focused on driving up citations by increasing the quality of the school's research and publications.

"If we want to be world-class, we have to compete on the world stage in terms of quality and impact. If you are very well-cited, it means that your work is influencing other people and is driving the science," he said.

As a result, NUS Medicine's citation impact has gone up from 1.68 when he took over as dean in 2019,



NUS Medicine holding its commencement in 2024. Prof Chong plans to introduce lifestyle medicine into the undergraduate curriculum, to focus on four things that drive health: nutrition, physical activity, sleep and purpose. PHOTO: NUS MEDICINE

NOT A VANITY PROJECT

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NUS YONG LOO LIN SCHOOL OF MEDICINE DEAN CHONG YAP SENG, on why achieving higher rankings matters.

to 2.59 in 2024. The citation impact reflects the prestige of the article, with 1 signifying an average number of citations, and 2 meaning that the article has been referred to twice as often.

This even includes research published by students. For example, a study on gastric cancer by fifth-year student Joseph Zhao was published in 2022 in the *Journal of Clinical Oncology*, which had a very high impact factor of 45 in 2024. A study on liver cirrhosis by another fifth-year student, Ms Lim Wen Hui, was published in 2023 in the

Journal of Hepatology which boasts an impact factor of 26.8. An impact factor of 10 or higher is considered remarkable for medical journals.

To drive up citations, the medical school has been hiring quality researchers from around the world who do impactful work, with the potential to make significant contributions to the school's research goals.

Another change Prof Chong has instituted is to refocus medical training, from treating diseases to prolonging good health in people.

He said: "Every medical school is good at diagnosing and managing diseases. I believe that a medical school should go beyond disease. So we are now looking at health."

Life expectancy in Singapore has risen over the past decades, and people here are among those who live longest in the world today. But the increase in years of good health has not kept pace, he said. "We have to start looking at health span. What can we do to extend that?"

He added: "What I'm interested in is how long I can keep you healthy so that when you finally have a disability and start to experience frailty, that part is as short as possible."

In pursuit of that aspiration, Prof Chong plans to introduce lifestyle medicine into the undergraduate curriculum, to focus on the four things that drive health: nutrition, physical activity, sleep and purpose.

Purpose in life is important, he noted. "If people don't have a good reason to do what they're doing, or feel that what they're doing is not important, they won't maintain their health, and they won't have mental clarity. People who lose purpose in life, for example after retirement, often lose their health and die earlier," he said.

One change he has already made to the curriculum to prepare graduates to perform well into the 21st century is to make bioinformatics and artificial intelligence a compulsory minor subject.

All students enrolled from 2023 have to take this as a minor subject in their first three years.

With health data accounting for 30 per cent of all data produced in the world, it is crucial that doctors can understand and interpret it, to improve the care they give to patients, Prof Chong said.

As an example, he cited a check in 2016 conducted by one of the school's cardiologists, Associate Professor James Yip, on which

drug the department spent the most money on in treating patients. To Prof Yip's shock, instead of a heart-related drug, the largest expenditure was on proton pump inhibitors (PPIs) such as omeprazole, which is used to prevent gastric ulcers.

Doctors prescribe such medication to patients alongside aspirin, which is known to be damaging to the gastric wall. But Prof Chong said the aspirin prescribed is usually a low dose, and rarely causes ulcers. Instead of the more expensive PPI, a low-cost antacid would do. Since this discovery, there has been a conscious effort to reduce the use of PPIs, resulting in a 10 per cent drop in prescriptions.

Prof Chong said another example of medical school dogma, rather than new data, influencing prescriptions is the low uptake of SGLT-2 inhibitors, a medication that had become standard of care for diabetics and early-stage kidney and heart failure patients in 2017 – as it can reduce the risk of kidney and heart failure.

Despite the Ministry of Health providing subsidies for this drug, fewer than half of patients who could benefit are prescribed the medication. Prof Chong said doctors continue to prescribe drugs they are familiar with, instead of switching to better drugs as they become available, because they may not understand the data supporting the new drug.

He said there are now plans to use information technology to prompt doctors at specialist outpatient clinics within the National University Health System (NUHS) cluster to prescribe it to eligible patients.

"Doctors really need to master data, because that's the future," he added. "All data will be available digitally. It's a waste that they don't use it. If our doctors are not equipped to use it, they will be less effective compared with the doctors of other places who use it."

Looking back on NUS Medicine's long history, Prof Chong said the 120 years fall roughly into four major phases.

In 1905, when the school was opened, almost one in three children born here died before the age of one. The focus at the time was to provide medical care and improve public health.

The second phase in the 1950s was when it gained a reputation as a good medical school, attracting "the best students from Asia" to study here.

The third phase, occurring around the cusp of the millennium, is when it turned its eyes towards research.

Professor Tan Chorh Chuan, a nephrologist by training who was dean from 1997 to 2000, made major reforms to the school's curriculum with an emphasis on research. He later continued his push to make both the school and the National University of Singapore research-intensive in his roles as the university's senior deputy president (2004 to 2008) and president (2008 to 2017).

The Government's Biomedical Sciences Initiative in 2000 also fuelled Singapore's research boom. NUS Medicine started recruiting the best scientists they could find and establishing international research collaborations. The school geared up to attract global talent, aiming for better funding opportunities, developing world-class infrastructure, and fostering collaborations across academia, healthcare and industry.

In 2005, it received \$100 million from the Yong Loo Lin Trust – the largest single donation to a tertiary institution by a private donor. This was Professor John Wong's doing, said Prof Chong. Prof Wong, an oncologist-haematologist, was dean from 2003 to 2011.

Professor Yeoh Khay Guan, who was dean from 2011 to 2018, strengthened the clinician-scholar and clinician-scientist tracks. A noted researcher, he was listed among the world's top 2 per cent of scientists by Stanford University in 2023 in the field of clinical medicine. One of his most prominent research projects is the Singapore Gastric Cancer Consortium, which has made several breakthrough discoveries in diagnosing the cancer early.

Prof Yeoh, who is a gastroenterologist, currently holds the position of chief executive at NUHS.

Prof Chong has moved the school into its fourth phase: to transform the practice of medicine to focus more on preserving health rather than just treating illness.

As the school celebrates 120 years, he hopes his legacy as dean will be to have made a difference that matters. For him, this means making the school the best in terms of understanding and treating Asians, and for the doctors it trains to practise intellectual flexibility, be technology-savvy and have lifelong curiosity.

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From wooden hut to top 20 in the world

In 120 years, NUS Medicine has grown from providing basic medical care to becoming a research-intensive medical school focused on cutting-edge medicine.

Seven local medical students are the first to obtain Licentiate in Medicine and Surgery. The "Magnificent 7" become assistant medical officers or assistant surgeons, earning a lowly \$250 a month.



Pioneering class with a Licentiate in Medicine and Surgery standing behind teachers

1821 Singapore's first general hospital is an unsanitary small wooden building near the junction of Bras Basah and Stamford roads, offering basic treatments.

The Straits Settlements and Federated Malay States Government Medical School, Sepoy Lines

1905

A new school of medicine to train locals opens at Sepoy Lines (the current site of the Singapore General Hospital) with 23 students. Merchants led by Mr Tan Jiak Kim (right) and Mr Seah Liang Seah raise \$87,000 in 1905 and another \$120,000 in 1912.



King Edward VII Medical School in 1913

1911

Ms Eugenie Nunes becomes the first woman graduand, but she returns to Pakistan on graduating.

1912

Physiology is the first professorial chair to be set up.

1932

A medical students' hostel is set up to accommodate students from Malaya.

Asians, considered inferior by the colonial government, are finally allowed to take positions in the Straits Settlements Medical Service.

Mid-1930s

Dr Gopal Haridas is the first local graduate to receive further training in England and admitted as a member of the Royal College of Physicians. Dr Michael Thiruchelvam is the first local graduate to obtain higher qualification in surgery.



King Edward VII College of Medicine

1957

The Academy of Medicine is founded, paving the way for formal postgraduate training and continuing education.

1950

The newly formed University of Malaya confers the first Bachelor of Medicine and Bachelor of Surgery (MBBS) on 17 graduates at the Bukit Timah campus.

1946

The King Edward VII College of Medicine reopens on June 17, following the war. About 200 pre-war students return to complete their studies.

1942

Tan Tock Seng Hospital is bombed on Feb 13, killing medical student Young Tatt Sin. Another 10 medical students are killed the following day at his funeral. The medical school closes.

1941-1945

During World War II, more than 200 medical students join the Medical Auxiliary Service and are deployed to hospitals and first aid posts, often working 18 hours a day.

1936

A huge bungalow in Grange Road, called Holne Chase, is converted into a hostel for 30 female students.



White Coat Ceremony in 2024

1962

Singapore establishes the University of Singapore, with Professor Kangaratnam Shanmugaratnam as the medical school's dean.

1980

The university officially becomes the National University of Singapore, in Kent Ridge, after a merger with Nanyang University.

1983

The Faculty of Medicine relocates from Sepoy Lines to Kent Ridge.

1985

The University Hospital (precursor to the National University Hospital) is set up as a government-owned hospital run as a self-governing entity. This is the model for all public hospitals today.

1994

- The National Medical Research Council is set up to oversee, coordinate and approve funds for medical research.
- The White Coat Ceremony is introduced to induct medical students into the fraternity. Faculty members help incoming students don their first white coats, a symbol of physicians.

2002

The government-imposed quota of no more than a third of medical students be women is lifted, resulting in an immediate jump in female students to 43 per cent of intake in 2003.

2005

- Duke-NUS Medical School is set up.
- So is the Alice Lee Centre for Nursing Studies, with a \$30 million gift from the Lee Foundation
- The Faculty of Medicine is renamed the Yong Loo Lin School of Medicine on the school's centenary with a \$100 million gift from the Yong Loo Lin Trust.



Dr Yong Loo Lin

2008

The National University Health System (NUHS, below) is established to integrate and improve education, research and the provision of healthcare.

2011

A \$30 million donation from NUS alumnus Professor Saw Swee Hock (below) leads to the setting up of the Saw Swee Hock School of Public Health.



2012

The 15-storey Centre for Translational Medicine is officially opened. The Silent Mentors programme is initiated, with students taught to treat donated cadavers with utmost respect.

2014

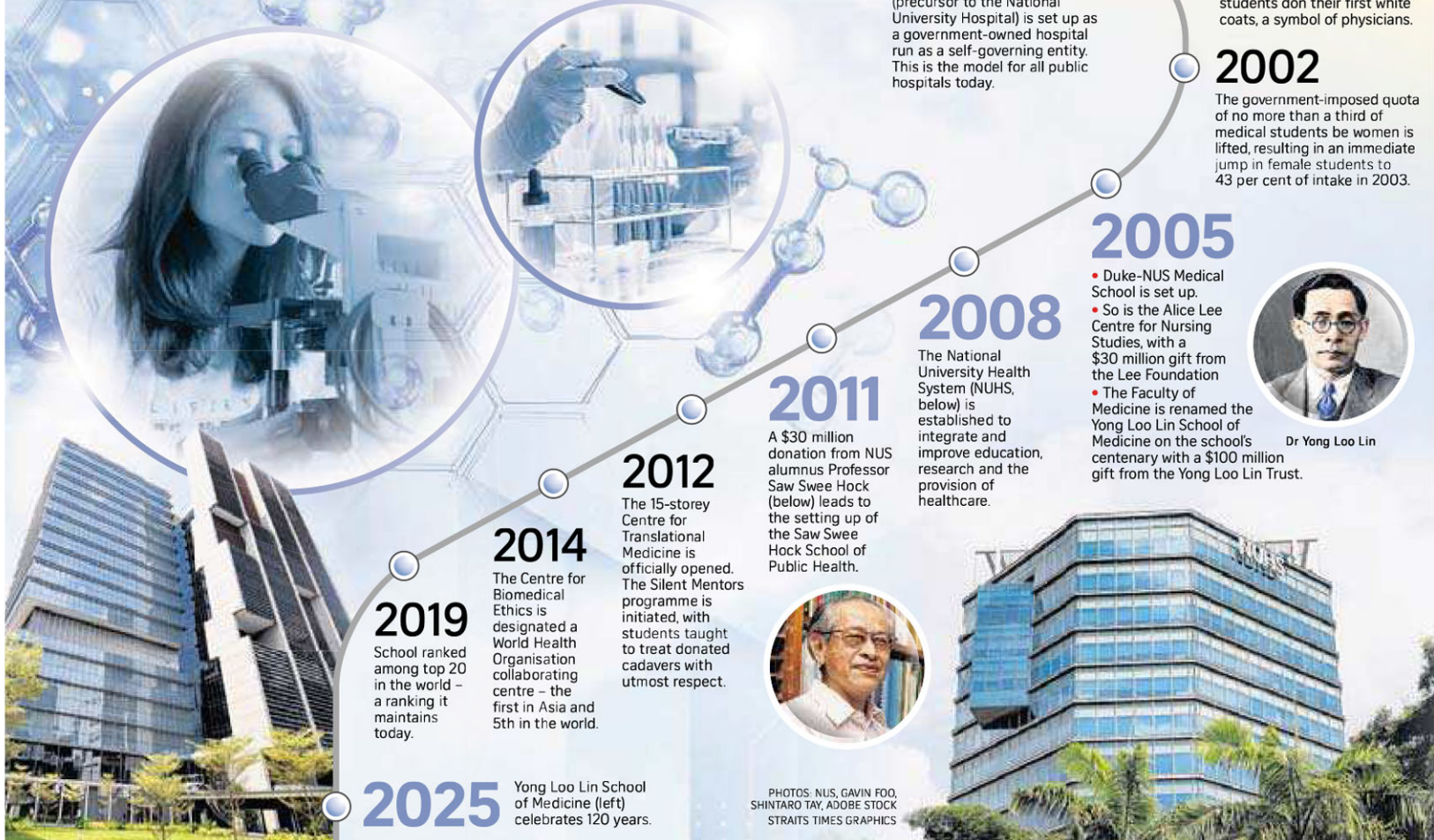
The Centre for Biomedical Ethics is designated a World Health Organisation collaborating centre – the first in Asia and 5th in the world.

2019

School ranked among top 20 in the world – a ranking it maintains today.

2025

Yong Loo Lin School of Medicine (left) celebrates 120 years.



PHOTOS: NUS, GAVIN FOO, SHINTARO TAY, ADOBE STOCK STRAITS TIMES GRAPHICS