

# The good doctor

*In 1910, Dr Wu Lien-teh travelled to Harbin to tackle an outbreak of plague. His pioneering approach, which included face coverings and quarantine, saw the disease contained within three months. Today, Wu's medical legacy lives on through both his work and his descendants.*

BY LING WOO LIU

“As the visitors entered the town, they could sense an air of tenseness and foreboding among the inhabitants,” my great-grandfather, Dr Wu Lien-teh, wrote of his experience arriving in Harbin in December 1910. “Everywhere there were guarded talks and whispers of fever, blood-spitting and sudden deaths, of corpses abandoned by roadsides and open fields, and of unwelcome deaths.”

Wu, then just 31, led the fight against a deadly pneumonic plague outbreak in Manchuria, northern China. Facing an airborne disease that killed nearly 100 per cent of the more than 60,000 people it infected within a few days, Wu – who was born in British Malaya and educated at Cambridge – was given broad authority over local doctors, police, the military and civil officials. As a result, he was able to end the outbreak within three months of his arrival in the affected area. The following month, Wu chaired the International Plague Conference in China, a landmark event attended by leading disease experts from 11 nations. In 1935, he was nominated for the Nobel Prize in Medicine.

Today, as the world contends with the Covid-19 pandemic, countries are again paying careful attention to the public-health measures Wu introduced, including the widely adopted gauze face covering – the precursor to today’s N95 mask – and his strict containment and quarantine policies. But beyond public-health practices, Wu also bestowed a professional family tree of sorts – medical descendants spanning four continents, among them leading experts in pathology, virology, radiology and emergency medicine, who are now pleading for enhanced mask policies worldwide, and heightened medical and scientific cooperation across borders. The fate of the world, they believe, depends upon it.

Here are six of their stories.

Illustration: Mario Rivera





**Dr James T.S. Lee, general practitioner and acupuncturist  
Belfast, United Kingdom**

*Dr Wu Lien-teh was Lee's great-uncle*

I admire Dr Wu for what he did in China more than 100 years ago. It is no wonder that in China, especially in Beijing and Harbin, people still worship him. If he had been Caucasian, he would be standing tall next to Alexander Fleming, Edward Jenner and Louis Pasteur in the history books.

At 84 years old, I am one of the earlier generations of physicians related to Dr Wu. My paternal grandmother was his youngest sister, whom he loved. It is possible that he also loved her because he enjoyed her Nyonya curry. In return, my grandmother worshipped him, and used to remind me in Cantonese that, "In the heavens, the most important element is lightning; on Earth, the most important element is Great Uncle." I saw the great man regularly until 1954, when I left (what is now) Malaysia for the UK to further my studies.

I went into general practice and developed an interest in traditional Chinese medicine, which I studied in Taiwan. I have practised acupuncture for 38 years now. Up until the pandemic lockdown, I had been working 5½ days a week.

In the UK, there is much confusion about Covid-19. Too many people are telling everyone what to do. There are too much politics, racism and other distractions. Dr Wu's public-health principles, rooted in Western medicine, remain important today. I am grateful to be able to educate my patients about these principles.



Dr Wu Lien-teh

**Dr William Yong, professor of pathology and laboratory medicine,  
chief of neuropathology, University of California, Los Angeles  
United States**

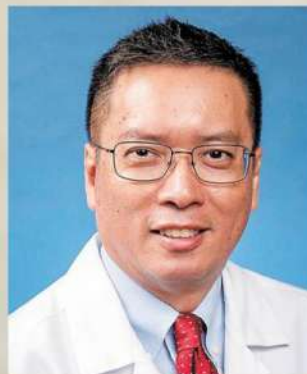
*Dr Wu was Yong's second-great-uncle*

My father, Dr Henry Yong, was a physician who often spoke proudly of Dr Wu and his contributions to halting the Manchurian plague. I grew up believing that it would be a privilege to continue this heritage of healers in our family. Dr Wu's fortitude in the face of an invisible enemy has been a source of strength during the two epidemics I have encountered: Aids and Covid-19. If Dr Wu accomplished so much in a far less resourced time, surely I could play my part albeit as a minor foot soldier.

In the mid-1980s, when the Aids epidemic was at full bore and there was fear and misinformation regarding the disease, I was a graduate student studying the most common Aids virus, now called Human Immunodeficiency Virus-1. I had to culture and harvest millions of virus particles for my experiments. One had to grit one's teeth a bit and believe in the protective equipment and safety procedures to carry on. I went on to attend medical school and became a neuropathologist.

At the University of California, Los Angeles, my main focus is on brain tumours and biobanking. Many clinical and research activities were curtailed to make room for Covid-19-related care. My other modest contribution has been to conduct research autopsies on Aids patients who also died with Covid-19. Work is ongoing to study the brain and other nervous system changes.

While all of us are facing the challenge of our lifetimes, I am deeply encouraged by the innovation, commitment, determination, energy and courage of the many who are working to defeat Covid-19. It strikes me that fear and misinformation are allies of every epidemic. Calm, science-based leadership and research like that of and by Dr Wu will defeat this pandemic.



Improvised ambulances used during the 1910 pneumonic plague outbreak in Harbin. The one on the right was for the sick, the one on the left for those who had contact with them. Picture: Wellcome Collection





**Dr Yvonne Ho, radiologist and nuclear medicine specialist, and board director of the Royal Australian and New Zealand College of Radiologists Melbourne, Australia**

*Dr Wu was Ho's second-great-uncle*

My mother was an avid storyteller who ensured that her children knew our family history well, so I have known about Dr Wu my entire life, and I am honoured to be his fourth-generation descendant. Inspired by Dr Wu, I knew that I could help fight viral outbreaks in my lifetime.

Nearly 20 years ago, I served as the head of nuclear medicine at a tertiary hospital in Singapore, at the crossroads of Asia, during the Sars outbreak. During that epidemic, there was a science- and medicine-led, nationwide coordinated response, with Singapore's Ministry of Health at its helm, with a satisfactory mask supply throughout the pandemic and adequate protective attire of all staff members prior to access to any patient-care area. There was also the concept of staff teams to prevent cross-infection, as well as dedicated transport paths of suspected patients between the imaging department and the rest of the hospital.

Wide dissemination and logical, science-based explanations

were given to staff when policies were changed from time to time as the ministry's perception of risk changed. In addition, the Singapore government educated its nation in public health and called upon their community spirit to help others. Via public-health education, momentum could be gathered to support the whole country's fight against the pandemic.

In Australia, the pandemic landscape looks different: a lack of masks, the hovering of politics over a pandemic. But, despite decreased centralised, coordinated effort, individuals are contributing time and effort to help. This spring, I created a countrywide registry of all ventilators in our veterinary sector to facilitate their seamless loan to hospital intensive care units, as backup equipment during a potential surge. I also facilitated donations of personal protective equipment by the Tzu Chi Foundation (a Taiwan-based NGO) to residential aged-care facilities throughout Melbourne.

Covid-19 is a medical condition of which our understanding remains incomplete. Physicians, including those during Dr Wu's time, are accustomed to learning from one another and building our shared knowledge. The wise would advocate for even greater medical collaboration among our international fraternity, as well as unbiased factual communication, away from politics, to enable the survival of our human race.



**Dr Shan Woo Liu, emergency physician, Massachusetts General Hospital, and associate professor of emergency medicine, Harvard Medical School Boston, USA**

*Dr Wu was Liu's great-grandfather*

I grew up watching science shows with my father and hearing about how my great-grandfather and grandfather were public-health doctors. When I was 16, I travelled to Paraguay, where I served as an immunisation volunteer in a rural village. This cemented my calling to help others through medicine and public health.

In Boston, the numbers of Covid-19 patients have continued to decline. During the surge, I would regularly see young people being intubated, and I heard of young, healthy doctors – not dissimilar to me – contracting the virus, being sent to the intensive care unit, on cardiac bypass. It was overwhelmingly scary. To think that Dr Wu faced a virus with a nearly 100 per cent mortality, yet still managed to contain it in just three months amazes me. Each time I suit up for another shift and resuscitate Covid-19 patients, I think of my great-grandfather, and am able to control my fears, help others and remember, "This is my calling."

While the pneumonic plague was a far deadlier disease, Covid-19 has changed the entire planet and killed far more people. We could learn a tremendous amount from other countries, particularly those in Asia that implemented policies that can be traced back to what Dr Wu did to control the plague a century ago. Here in the US, I fear that ignoring such tactics during the early months of this outbreak has cost us tens of thousands of lives. It has been said that globally, we are all here today because of the work Dr Wu did to control the pandemic a century ago. We may all be here tomorrow for similar reasons.





**Dr Lam Sai Kit, clinical virologist and research consultant at the University of Malaya and senior fellow, Academy of Sciences Malaysia**  
**Petaling Jaya, Malaysia**

*Dr Wu was Lam's first cousin once removed*

Like Dr Wu, I have also had a small taste of dealing with deadly plagues, having faced the emerging Nipah encephalitis among Malaysian pig farmers in 1998-1999. Both the pneumonic plague and Nipah encephalitis are zoonotic (animal-to-human) infections, caused by the tarbagan marmot and the flying fox, respectively. In the 1990s, Malaysia was not equipped to handle such a highly pathogenic virus, but at least we had a fairly well-equipped lab, unlike Dr Wu, who had to do autopsies in the homes of the deceased, worked in a lab with no running water, and grew the deadly bacteria at lab temperature, keeping it warm with a big wooden stove.

The Covid-19 outbreak is a good time to recall the hardships that Dr Wu must have endured, and to appreciate his contributions to medical science. Besides taking care of severely ill patients, he had to single-handedly assume the role of epidemiologist, bacteriologist, pathologist and public-health officer. He understood very well the risks he was taking in trying to contain the outbreak, but this did not deter him from the task at hand. The legacy left behind by Dr Wu lives on in our fight against Covid-19.

Dr Wu managed to bring the plague epidemic to a close in three months. As for Covid-19, the end is nowhere in sight and we are still struggling to fight the pandemic. This virus hunter is humbled by the work of his uncle, Dr Wu, whom he met in Ipoh in the 50s.



A photo shows how to wear a gauze mask during the plague outbreak. Picture: Wellcome Collection



Delegates at the International Plague Conference, in Mukden (Shenyang), in April 1911. Dr Wu is rear, centre left.



Stretcher bearers prepare to move the dead during the early 20th century plague outbreak in Manchuria. Picture: Getty Images



**Dr Daphne Teh Ai Lin, ophthalmologist, Hospital Tengku Ampuan Rahimah Setia Alam, Malaysia**

*Dr Wu was Teh's third-great-uncle*

In this modern-day pandemic, ophthalmologists and ENT (ear, nose and throat) doctors were found to have higher rates of infection compared with other specialities, due to close contact with patients during consultation. We geared up with protective equipment and installed self-made protective screens. New protocols were created to improve waiting time and reduce crowding, social-distancing methods were enforced, and technology was used to send prescriptions and referral letters to patients virtually.

I wish it did not take a pandemic to make the world pause and re-examine its priorities. I wish we did not have to lose so many lives to sheer ignorance and conspiracy theories in this day and age, when information is at our fingertips. I wish politics did not influence the decision-making of leaders who affect the lives of so many. I wish people realised that the fate of mankind lies in their hands and each and every person can save the world by doing their part in stopping the spread of this disease.

As I learn about my great-grand-uncle, I find myself wondering if I have contributed my best self to my profession and my community. His great legacy drives me to persevere in the face of adversity, even if it means being away from my three small children, to aim higher and dream bigger. Because he has shown us all how one person can make a difference. ■