

## PRESS RELEASE

### **Medical students demonstrate efficacy of COVID-19 vaccines in multiple immunocompromised patient groups**

***Led by faculty mentors, they performed a meta-analysis that was published in a prestigious medical journal***

*Singapore, 30 March 2022* — Transmission of SARS-CoV-2 has led to the ongoing global COVID-19 pandemic. By February 2022, more than 400 million have had confirmed COVID-19 and more than five million have died worldwide. Trials and ongoing studies have sought to evaluate the efficacy and safety of vaccines developed to protect the global population from the worst of COVID-19's symptoms and complications. High vaccine efficacy against symptomatic laboratory confirmed infections were reported, with protection rates of over 90% after two doses of most vaccines available.

The protection afforded by vaccines is particularly crucial in vulnerable populations of patients such as those with a compromised immune system with a higher risk of severe COVID-19 infection and mortality. A group of medical students from NUS Yong Loo Lin School of Medicine have now completed a systematic review and meta-analysis of the efficacy of COVID-19 vaccines in multiple immunocompromised patient groups.

Through the review of 82 observational studies, the students compared the efficacy of COVID-19 vaccines between immunocompromised and immunocompetent people. They demonstrated that immunocompromised patients produced significantly lesser antibodies after COVID-19 vaccination as compared to their immunocompetent counterparts. Seroconversion, the process of making significant levels of antibodies after infection or vaccination which allows the body to protect itself, was especially poor in organ transplant recipients, with only a third achieving seroconversion after two doses.

A third (booster) dose was able to elicit a significant antibody response in most patients with cancers and autoimmune diseases, but was of variable effectiveness in organ transplant recipients. Among the immunocompromised groups studied, antibody levels were also lower than in immunocompetent controls.

Most studies included in this meta-analysis employed mRNA vaccines (Moderna, mRNA-1273 and Pfizer-BioNTech, BNT162b2) and no conclusive differences in response were found compared to inactivated or viral vector vaccines. As the base of evidence grows, the effect of regimens such as the enhanced primary series employed in Singapore and booster doses of COVID-19 vaccines may be studied. As more evidence on various types of vaccines emerge, it would be possible to study if vaccination with a specific type of vaccine confers greater protection.

The students' paper was published by *The BMJ*, one of the foremost peer-reviewed medical journals available. This recognition from veteran researchers in their field was a significant achievement for the students.

The team of medical students behind the publication, third-year student Wong Shi Yin, fourth-year student Ainsley Ryan Lee and fifth-year students Teo Chong Boon and Benjamin Tan expressed their gratitude for the support from their team of mentors led by Dr. Raghav Sundar and Dr. Soon Yu Yang. "We would like to thank Dr. Sundar and Dr. Soon for their dedication guiding us through this journey. They have been empowering mentors, allowing us to grow as researchers and making this possible."

"The medical students involved in this project performed a commendable feat, completing this detailed research study over-and-beyond their regular responsibilities and studies as students," said Dr Raghav Sundar. "We are grateful to NUS Medicine who also supported their growth and aspirations with the necessary resources throughout this journey."

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## **About the National University of Singapore (NUS)**

The National University of Singapore (NUS) is Singapore's flagship university, which offers a global approach to education, research and entrepreneurship, with a focus on Asian perspectives and expertise. We have 17 faculties across three campuses in Singapore, with more than 40,000 students from 100 countries enriching our vibrant and diverse campus community. We have also established our NUS Overseas Colleges programme in more than 15 cities around the world.

Our multidisciplinary and real-world approach to education, research and entrepreneurship enables us to work closely with industry, governments and academia to address crucial and complex issues relevant to Asia and the world. Researchers in our faculties, 30 university-level research institutes, research centres of excellence and corporate labs focus on themes that include energy; environmental and urban sustainability; treatment and prevention of diseases; active ageing; advanced materials; risk management and resilience of financial systems; Asian studies; and Smart Nation capabilities such as artificial intelligence, data science, operations research and cybersecurity.

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## **About the NUS Yong Loo Lin School of Medicine (NUS Medicine)**

The NUS Yong Loo Lin School of Medicine is Singapore's first and largest medical school. Our enduring mission centres on nurturing highly competent, values-driven and inspired healthcare professionals to transform the practice of medicine and improve health around the world.

Through a dynamic and future-oriented five-year curriculum that is inter-disciplinary and inter-professional in nature, our students undergo a holistic learning experience that exposes them to multiple facets of healthcare and prepares them to become visionary leaders and compassionate doctors and nurses of tomorrow. Since the School's founding in 1905, more than 12,000 graduates have passed through our doors.

In our pursuit of health for all, our strategic research programmes focus on innovative, cutting-edge biomedical research with collaborators around the world to deliver high impact solutions to benefit human lives.

The School is the oldest institution of higher learning in the National University of Singapore and a founding institutional member of the National University Health System. It is one of the leading medical schools in Asia and ranks among the best in the world (Times Higher Education World University Rankings 2022 by subject and the Quacquarelli Symonds (QS) World University Rankings by subject 2021).

For more information about NUS Medicine, please visit <http://nusmedicine.nus.edu.sg>