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PRESS RELEASE

28 July 2022 | FOR IMMEDIATE RELEASE

LONG TERM LOSS OF SMELL AND TASTE FOR 27 MILLION COVID PATIENTS WORLDWIDE

Singapore, 28 July 2022 – In a study published by the BMJ (British Medical Journal), one of the world's leading medical journals, a team of Singapore and international researchers from United Kingdom and United States of America, found that about 5% of the global population may develop long term issues with their sense of smell or taste after coming down with COVID-19.

The loss of taste and smell are common reported symptoms in COVID-19 patients, with up to 50% of patients globally experiencing them, but little is known about their clinical course or how many patients develop persistent dysfunction.

There are more than 550 million confirmed COVID-19 cases to date (as of July 2022). Of which, about 15 million and 12 million patients may experience long term smell and taste dysfunction respectively, according to the study.

The loss of smell and taste can have an impact on quality of life and general health and this could contribute to the rising burden of long COVID, a long-term side effect from their infection.

The international collaborative research team is led by Associate Professor Toh Song Tar, Head, Department of Otorhinolaryngology–Head & Neck Surgery, Singapore General Hospital (SGH) and Benjamin Tan Kye Jyn, House Officer, National University Hospital, and also comprises current and newly graduated medical students from the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine). They are Han Ruobing, House Officer, KK Women's and Children's Hospital, Joseph Zhao, House Officer, Khoo Teck Puat Hospital, Nicole Tan Kye Wen, Year 4 Medical Student, NUS Medicine, Emrick Quah Sen Hui, House Officer, Ng Teng Fong General Hospital and Claire Tan Jing-Wen, Year 5 Medical Student, NUS Medicine. Ear, Nose and Throat specialists from Singapore, UK and USA are also part of the research team.

Based on 18 observational studies involving 3,699 patients from 12 countries, the research team utilised a mathematical technique known as cure modelling to estimate self-reported rates of smell and taste recovery and identify key factors associated with the duration and likelihood of recovery. They found that 5.6% and 4.4% of patients might develop long lasting self-reported smell and taste dysfunction post-covid-19, respectively—about 15 million and 12 million patients worldwide as of July 2022. At 30 days after initial infection, only 74% and 79% of patients had their sense of smell and taste restored respectively.

Women were less likely to recover their sense of smell and taste, and patients with greater initial severity of dysfunction and those with nasal congestion were less likely to recover their sense of smell.

While most patients are expected to recover their sense of smell or taste within the first three months, a group of patients might develop long lasting dysfunction that requires timely identification, personalised treatment, and long-term follow-up.

These findings are likely to be of substantial relevance to general doctors and otolaryngologists in the counselling of patients with smell and taste disorders post-COVID-19, the team concluded.

“We hope that the results of this study will draw the attention of the medical fraternity worldwide to the long-term issues associated with taste and smell loss. There are studies that point to poorer quality of life, depression and higher mortality in patients with poorer smell function even before this pandemic. Healthcare providers around the world should be cognizant of this given the huge number of affected individuals that need support and help,” said Professor Toh.

"Seeing this research project through from start to finish has been incredibly fulfilling. We are grateful to have worked with an international consortium of leading experts in this field, including those who first discovered the link between COVID and loss of smell and taste. We hope that our findings will encourage patients and provide greater clarity on their recovery. We also hope that governments and healthcare professionals worldwide will start to realise the magnitude of this problem, as the global healthcare system is not yet equipped to manage this aspect of long COVID," added Dr Benjamin Tan, the first author of the paper, who recently graduated from NUS Medicine.

The paper can be accessed here: <https://www.bmj.com/content/378/bmj-2021-069503>

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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 16 colleges, faculties and schools 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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The Yong Loo Lin School of Medicine, National University of Singapore (NUS 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 Asia's leading medical schools 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 2022).

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About Singapore General Hospital

Singapore General Hospital, a member of Singapore Health Services, is the public sector's flagship hospital. Established in 1821, SGH is Singapore's largest acute tertiary hospital with 1,700 beds and national referral centre offering a comprehensive range of more than 40 clinical specialties on its campus. Every year, about 1 million Singaporeans benefit from medical care delivered by its 800 specialists. As an academic healthcare institution and the bedrock of medical education, SGH plays a key role in nurturing doctors, nurses and allied health professionals, and is committed to innovative translational and clinical research in her continual strive to provide the best care and outcomes to her patients. www.sgh.com.sg