Leo Yee Sin

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Research Interests:

- Arbovirus, Dengue, zika, chikungunya
- Emerging Infections
- Global Health
- Communicable Diseases and General Infectious Diseases
- Outbreak Diseases Management

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Google Scholar: https://scholar.google.com/citations?user=HRGejBAAAAAJ&hl=en&oi=ao
Research Gate: https://www.researchgate.net/profile/Yee-Leo

Biography

Professor Leo Yee Sin currently holds multiple portfolios including as Senior Advisor, National Centre for Infectious Diseases, Professor (faculty) at Saw Swee Hock School of Public Health, NUS and Lee Kong Chien School of Medicine, NTU.

Professor Leo holds dual specialist accreditations as an adult infectious disease and public health physician. She is the inaugural Executive Director of Singapore's National Centre for Infectious Diseases (NCID) from 2017 to 2023. During her tenure, she established NCID as an innovative institution integrating clinical care, public health, research, training, and community outreach. She led teams through multiple outbreaks in Singapore, notably from Nipah virus in 1999 and 3 pandemics including SARS-2003, pH1N1 in 2009 and COVID-19 in 2020-2022.

She published over 400 peer-reviewed scientific papers and received numerous national awards. She was recognised as the BBC 100 women in the year 2020 and was conferred the title of Knight of the French Order of the Legion of Honour in 2022. A recognized authority in her field, she chairs and serves as member in numerous committees and advisory boards including multiple World Health Organization workgroups.

Selected Publications

- Ng OT, Marimuthu K, Chia PY, Koh V, Chiew CJ, De Wang L, Young BE, Chan M, Vasoo S, Ling LM, Lye DC, Kam KQ, Thoon KC, Kurupatham L, Said Z, Goh E, Low C, Lim SK, Raj P, Oh O, Koh VTJ, Poh C, Mak TM, Cui L, Cook AR, Lin RTP, Leo YS, Lee VJM. SARS-CoV-2 Infection among Travelers Returning from Wuhan, China. N Engl J Med. 2020 Apr 9;382(15):1476-1478. doi: 10.1056/NEJMc2003100. Epub 2020 Mar 12. PMID: 32163698; PMCID: PMC7121487. https://www.nejm.org/doi/full/10.1056/NEJMc2003100

- Young BE, Fong SW, Chan YH …. Leo YS, Wang LF, Renia L, Lee VJ, Smith GJD, Lye DC, Ng LFP. Effects of a major deletion in the SARS-CoV-2 genome on the severity of infection and the inflammatory response: an observational cohort study. *Lancet*. 2020; 396(10251):603-611. doi: 10.1016/S0140-6736(20)31757-8. PMID: 32822564. https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31757-8/fulltext

- Tan CW, Chia WN, Young BE, Zhu F, Lim BL, Sia WR, Thein TL, Chen MI, Leo YS, Lye DC, Wang LF. Pan-Sarbecovirus Neutralizing Antibodies in BNT162b2-Immunized SARS-CoV-1 Survivors. N Engl J Med. 2021 Oct 7;385(15):1401-1406. doi: 10.1056/NEJMoa2108453. Epub 2021 Aug 18. PMID: 34407341; PMCID: PMC8422514. https://www.nejm.org/doi/full/10.1056/NEJMoa2108453

- Rochwerg B, Agarwal A, Zeng L, Leo YS …. Guyatt G. Remdesivir for severe covid-19: a clinical practice guideline. *BMJ*. 2020; 370:m2924. doi: 10.1136/bmj.m2924. PMID: 32732352. https://www.bmj.com/content/371/bmj.m4542

- Li A, Coffey LL, Mohr EL, Raper J, Chahroudi A, Ausderau KK, Aliota MT, Friedrich TC, Mitzey AM, Koenig MR, Golos TG, Jaeger HK, Roberts VHJ, Lo JO, Smith JL, Hirsch AJ, Streblow DN, Newman CM, O'Connor DH, Lackritz EM, Van Rompay KKA, Adams Waldorf KM; Zika Expert Workgroup. Role of non-human primate models in accelerating research and developing countermeasures against Zika virus infection. Lancet Microbe. 2025 Feb 20:101030. doi: 10.1016/j.lanmic.2024.101030. Epub ahead of print. PMID: 40024258. https://www.thelancet.com/journals/lanmic/article/PIIS2666-5247(24)00298-2/fulltext

- World Health Organization. 2024. Clinical practice guidelines for influenza. Available at: https://iris.who.int/bitstream/handle/10665/378872/9789240097759-eng.pdf. Accessed. 03/06/2025 (Clinical Co-chair)

- Subissi L, Otieno JR, Worp N, Attar Cohen H, Oude Munnink BB, Abu-Raddad LJ,……Yee-Sin Leo….., A Agrawal, M.D Van Kerkhove, et al. An updated framework for SARS-CoV-2 variants reflects the unpredictability of viral evolution. *Nat Med 2024* (*30)*: 2400–2403 https://www.nature.com/articles/s41591-024-02949-0

- Ruis C, Lusamaki E, O'Toole A, Otieno JR, Colquhoun R, Roemer C, et al. A systematic nomenclature for mpox viruses causing outbreaks with sustained human-to-human transmission.. Nat Med. 2025;31(9):2854-2858. doi:10.1038/s41591-025-03820-6 https://www.nature.com/articles/s41591-025-03820-6

- Fong SW, Tan JJL, Sridhar V, Amrun SN, Neo VKX, Wong N, Lee B, Chan YH, Torres-Ruesta A, Loo LH, Loo AXY, Tan SKW, Chee RSL, Chua TK, Rouers A, Carissimo G, Lum FM, Leo YS, Renia L, Kini RM, Ng LFP. Mosquito salivary sialokinin reduces monocyte activation and chikungunya virus-induced inflammation via neurokinin receptors. Nat Commun. 2025 Oct 20;16(1):8644. doi: 10.1038/s41467-025-64468-x. PMID: 41115926; PMCID: PMC12537910. https://www.nature.com/articles/s41467-025-64468-x

- Wee LE, Tan WZ, Chow JY, Lim JT, Chiew C, Chia PY, Ng LC, Amanullah MR, Yap J, Yeo KK, Yee Chan MY, Hausenloy DJ, Leo YS, Lye DC, Tan KB. Cardiovascular complications in acute dengue infection: a population-based cohort study. Lancet Reg Health West Pac. 2025 Oct 16;64:101713. doi: 10.1016/j.lanwpc.2025.101713. PMID: 41146673; PMCID: PMC12554185. https://www.thelancet.com/journals/lanwpc/article/PIIS2666-6065(25)00252-4/fulltext

Notable Research Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
32nd NRF CRP Call (Collaborator) Development of the next-generation live attenuated tetravalent dengue vaccine using a novel orthoflavivirus genome recoding approach	2025

Translating Research Into Healthcare

2023:

- "Leo Yee-Sin: Epidemic network should be established throughout country to prevent large-scale infectious diseases in the future.**梁玉心**：**吸取冠病疫情教**训 **全国**应建立流行病网络 **防治未来大**规模传染病" Published on 08 May 2023. https://www.zaobao.com.sg/realtime/singapore/story20230507-1391852 https://www.zaobao.com.sg/news/singapore/story20230508-1391933

- Moving from front line to command post in war on diseases. Published on 04 Jun 2023. https://www.straitstimes.com/singapore/leo-yee-sin-shifting-from-front-lines-to-the-war-room-in-fight-against-future-disease-outbreaks

2022:

- Leo Yee-Sin: Omicron variant 'not as harmless as we thought', features three new characteristics following mutation. Published on 05 Jan 2022. https://www.zaobao.com.sg/news/singapore/story20220105-1229827?fbclid=IwAR19yE7m9J2r5woUkLsWlVpEB4zwsP988zMORduv2tEyXOZpcGWsmzW65O0

- "Covid Warriors: The Singapore Way – interviews 《战役勇士 -- 新加披之道》 专访视频". Published on 28 Jan 2022. https://fb.watch/aPxL1AXn3r/

- 7 women to join S'pore Women's Hall of Fame. Published on 09 Mar 2022. சிங்கப்பூரின் புகழ்பெற்ற மாதர் | Tamil Murasu

- Tan Chorh Chuan and Leo Yee Sin conferred France's highest level of honorary order. Published on 27 Apr 2022. https://www.zaobao.com.sg/news/singapore/story20220427-1266769

2021:

- 40 NCID staff first in Singapore to receive COVID-19 vaccine. 国家传染病中心主任梁玉心教授带头 40医护人员率先接种疫苗. Published on 31 Dec 2020. *No url.

Health Impact (CY2022 publications)

1. Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine breakthrough infections: a multicentre cohort study

   a) Paper was cited as part of the scientific opinion analysis by European Food Safety Authority (ESFA) tasked by European Centre for Disease Prevention and Control (An agency of the European Union). EFSA was asked to review the scientific literature related to animal species susceptible to SARS-CoV-2 infection that play a role in its epidemiology. An assessment of the current epidemiological situation and of the risk for human and animal health posed by SARS-CoV-2 infection in animal species of concern was also conducted, which should serve to recommend options for reviewing the monitoring strategies for SARS-CoV-2 infection in animal species of concern.

   b) Paper was cited as a working paper under Finnish Institute for Health and Welfare (THL, Finnish: Terveyden ja hyvinvoinnin laitos as part of an analysis to study the maintenance of vaccine protection against corona infection and severe coronavirus disease as well as the

protection of people in risk groups aged over 70 and aged 16-69 against corona infection after the second vaccine dose and against the coronavirus disease requiring outpatient treatment in Finland THL is the biggest expert organisation under the ministry and its most important source of consultation regarding scientific knowledge.

c) Paper was cited by the French Society of Hospital Hygiene (SF2H) on the protection of patients and professionals in the context of COVID-19 where the members of the Scientific Council of the SF2H proposed a set of useful measures for the protection of patients and professionals in health and medico-social establishments. These measures must be adapted to the particulars of the establishments and to the local situation of the epidemic. (Note: source is from Google Scholar)

The SF2H society is composed of professionals working in the field of hygiene promotion in health care, to promote safety and quality of care, epidemiology, prevention and the fight against healthcare associated infections including nosocomial infections; safety and health awareness, evaluation, accreditation and risk management in the field of healthcare associated infections.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1016/j.cmi.2021.11.010

2. An early warning system for emerging SARS-CoV-2 variants

a) Paper was cited as a good practice statement by **World Health Organisation (WHO).** This Good Practice Statement summarizes current evidence on variant-containing vaccines and provides guidance on their use in the context of the continued availability of ancestral virus-only (monovalent) COVID-19 vaccines.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1038%2Fs41591-022-01836-w

3. Clinical and virological features of SARS-CoV-2 variants of concern: a retrospective cohort study comparing B.1.1.7 (Alpha), B.1.315 (Beta), and B.1.617.2 (Delta)

a) Paper was cited by **World Health Organisation (WHO**) as part of COVID-19 Weekly Epidemiological Update to the public on COVID-19. WHO has based on the papers published to focus on SARS-CoV-2 Variants of Interest and Variants of Concern. Recommendation to prevent the spread of COVID-19 pertaining to the new VOCs were then provided based on that. WHO, in collaboration with national authorities, institutions and researchers, routinely assesses if variants of SARS-CoV-2 alter transmission or disease characteristics, or impact vaccine, therapeutics, diagnostics or public health and social measures (PHSM) applied by national authorities to control disease spread. Systems have been established to detect signals of potential Variants of Concern (VOCs) or Variants of Interest (VOIs) and assess these based on the risk posed to global public health. As these risks evolve, WHO updates the list of global VOIs and VOCs (Table 2) to support setting priorities for surveillance and research, and ultimately guide response strategies.

b) Paper was cited in the COVID-19 Science Brief of **CDC**. COVID-19 Science Briefs provide a summary of the scientific evidence used to inform specific CDC guidance and recommendations. The Science Briefs reflect the scientific evidence, and CDC's understanding of it, on a specific topic at the time of the Brief's publication. 1) All COVID-19 vaccines currently approved or authorized in the United States 2) Available evidence suggests the currently approved or authorized COVID-19 vaccines are highly effective against hospitalization and death for a variety of strains 3)Limited available data suggest lower vaccine effectiveness against COVID-19 illness and hospitalization among immunocompromised people 4) The risk for SARS-CoV-2 infection in fully vaccinated people cannot be completely eliminated as long as there is continued community transmission of the virus.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1093/cid/ciab721

4. Analysis of COVID-19 Incidence and Severity Among Adults Vaccinated With 2-Dose mRNA COVID-19 or Inactivated SARS-CoV-2 Vaccines With and Without Boosters in Singapore

a) Paper was cited by the **The Federal Office of Public Health (Bundesamt für Gesundheit)** as part of Annex 4 submitted to **Government of Switerland** on the analysis of the Efficacy of the vaccines.

The Federal Office of Public Health (FOPH) is the Swiss federal government's centre for public health and a part of the Swiss Federal Department of Home Affairs.In addition to developing national health policy, it also represents the interests of its country within international health organizations such as the OECD or the World Health Organization.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1001/jamanetworkopen.2022.28900

5. Transmission modes of severe acute respiratory syndrome coronavirus 2 and implications on infection control: a review

a) The paper was cited by Sax Institute as part of the evidence snapshot and was commissioned by the Australian Commission on Safety and Quality in Health Care as part of the information to better protect healthcare workers during the SARS-CoV-2 virus.

Sax Institute:
The Sax Institute is an independent, not-for-profit organisation that improves health and wellbeing by driving better use of evidence in policies, programs and services. A Evidence Specialist team working collaboratively to embed research into the fabric of policy, program and service delivery decisions. The team develop, test and deliver best-practice approaches to working at the interface of research and health decision-making.

Policy citation link (Plum X Metrix):
Plum X Metrix Link: https://plu.mx/plum/a/policy_citation?doi=10.11622/smedj.2020114