Kalisvar Marimuthu

Senior Consultant, Department of Infectious Diseases, NCID/TTSH
Director, National Infection Control and Healthcare Epidemiology (NICHE), Communicable Diseases Agency (CDA), Singapore
Adjunct Assistant Professor of Medicine, YLL, NUS

Research Interests:

- Transmission dynamics of multidrug-resistant organisms and emerging pathogens
- Applied genomics in infection prevention and control (IPC) and outbreak investigations
- Cohort studies of multidrug-resistant organisms (MDRO)
- IPC implementation research

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Biography

Dr Kalisvar Marimuthu completed his advanced specialty training in Internal Medicine and Infectious Diseases in Singapore in 2010 and 2013, respectively. He subsequently trained in infection prevention and control as a Senior Research Fellow in the Infection Prevention and Control Unit at Geneva University Hospitals.

Dr Marimuthu is currently a Senior Consultant in Infectious Diseases at Tan Tock Seng Hospital (TTSH) and the National Centre for Infectious Diseases (NCID). He is also the Director of the National Infection Control and Healthcare Epidemiology (NICHE) Division at the Communicable Diseases Agency (CDA), and Chair of the National Infection Prevention and Control Committee (NIPC) of Singapore. In addition, he co-chairs the World Health Organization (WHO) Guideline Development Group (GDG) for the Infection Prevention and Control of Epidemic- and Pandemic-prone Acute Respiratory Infections (IPC-ARI-GDG).

Dr Marimuthu's research focuses on pandemic preparedness, transmission dynamics of infectious pathogens, healthcare-associated infections, and the application of genomics in infection prevention and control.

Selected Publications

- Marimuthu, K., Venkatachalam, I., Koh, V., Harbarth, S., Perencevich, E., Cherng, B. P. Z., ... & Ng, O. T. (2022). Whole genome sequencing reveals hidden transmission of carbapenemase-producing Enterobacterales. Nature communications, 13(1), 3052. https://www.nature.com/articles/s41467-022-30637-5

- Yap, K., Linn, K. Z., Lim, A. Y., Huan, X., Hang, N. B. H., Sun, L., ... & Marimuthu, K. (2025). Impact of COVID-19 pandemic on the implementation of transmission-based precautions. Journal of Hospital Infection. https://www.sciencedirect.com/science/article/abs/pii/S0195670125000829

- Marimuthu, K., Wong, J. C. C., Lim, P. L., Octavia, S., Huan, X., Ng, Y. K., ... & Ng, L. C. (2023). Viable mpox virus in the environment of a patient room. International Journal of Infectious Diseases, 131, 40-45. https://www.sciencedirect.com/science/article/pii/S1201971223000929

- Cai Y, Venkatachalam I, Tee NW, Tan TY, Kurup A, Wong SY, Low CY, Wang Y, Lee W, Liew YX, Ang B, Lye DC, Chow A, Ling ML, Oh HM, Cuvin CA, Ooi ST, Pada SK, Lim CH, Tan JWC, Chew KL, Nguyen VH, Fisher DA, Goossens H, Kwa AL, Tambyah PA, Hsu LY, Marimuthu K. Prevalence of Healthcare-Associated Infections and Antimicrobial Use Among Adult Inpatients in Singapore Acute-Care Hospitals: Results From the First National Point Prevalence Survey. Clin Infect Dis. 2017 May 15;64(suppl_2):S61-S67. doi: 10.1093/cid/cix103. https://academic.oup.com/cid/article/64/suppl_2/S61/3782673?login=false

- Marimuthu K, Venkatachalam I, Khong WX, Koh TH, Cherng BPZ, Van La M, De PP, Krishnan PU, Tan TY, Choon RFK, Pada SK, Lam CW, Ooi ST, Deepak RN, Smitasin N, Tan EL, Lee JJ, Kurup A, Young B, Sim NTW, Thoon KC, Fisher D, Ling ML, Peng BAS, Teo YY, Hsu LY, Lin RTP, Ong RT, Teo J, Ng OT; Carbapenemase-Producing Enterobacteriaceae in Singapore (CaPES) Study Group. Clinical and Molecular Epidemiology of Carbapenem-Resistant Enterobacteriaceae Among Adult Inpatients in Singapore. Clin Infect Dis. 2017 May 15;64(suppl_2):S68-S75. doi: 10.1093/cid/cix113 https://academic.oup.com/cid/article/64/suppl_2/S68/3782676?login=false

- Stewardson AJ, Marimuthu K, Sengupta S, Allignol A, El-Bouseary M, Carvalho MJ, Hassan B, Delgado-Ramirez MA, Arora A, Bagga R, Owusu-Ofori AK, Ovosi JO, Aliyu S, Saad H, Kanj SS, Khanal B, Bhattarai B, Saha SK, Uddin J, Barman P, Sharma L, El-Banna T, Zahra R, Saleemi MA, Kaur A, Iregbu K, Uwaezuoke NS, Abi Hanna P, Feghali R, Correa AL, Munera MI, Le TAT, Tran TTN, Phukan C, Phukan C, Valderrama-Beltrán SL, Alvarez-Moreno C, Walsh TR, Harbarth S. Effect of carbapenem resistance on outcomes of bloodstream infection caused by Enterobacteriaceae in low-income and middle-income countries (PANORAMA): a multinational prospective cohort study.

Lancet Infect Dis. 2019 Jun;19(6):601-610. doi: 10.1016/S1473-3099(18)30792-8. Epub 2019 Apr 29.
https://www.thelancet.com/journals/laninf/article/PIIS1473-3099(18)30792-8/abstract

- 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

- Ong SWX, Tan YK, Chia PY, Lee TH, Ng OT, Wong MSY, Marimuthu K. Air, Surface Environmental, and Personal Protective Equipment Contamination by Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) From a Symptomatic Patient. JAMA. 2020 Apr 28;323(16):1610-1612. . doi: 10.1001/jama.2020.3227. PMID: 32129805; PMCID: PMC7057172.
https://jamanetwork.com/journals/jama/fullarticle/10.1001/jama.2020.3227

- Chng KR, Li C, Bertrand D, Ng AHQ, Kwah JS, Low HM, Tong C, Natrajan M, Zhang MH, Xu L, Ko KKK, Ho EXP, Av-Shalom TV, Te o JWP, Khor CC; MetaSUB Consortium; Chen SL, Mason CE, Ng OT, Marimuthu K, Ang B, Nagarajan N. Cartography of opportunistic pathogens and antibiotic resistance genes in a tertiary hospital environment. Nat Med. 2020 Jun;26(6):941-951. doi: 10.1038/s41591-020-0894-4. Epub 2020 Jun 8. PMID: 32514171; PMCID: PMC7303012.
https://www.nature.com/articles/s41591-020-0894-4

Notable Research/Innovation Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
NMRC Clinician Scientist-Individual Research Grant (CS-IRG) Leveraging artificial intelligence and whole genome sequencing to unravel transmission dynamics of carbapenemase-producing Enterobacterales in Singapore hospitals (CaPES-AI)	2025
Programme for Research in Epidemic Preparedness and Response (PREPARE): Commissioned Study Preparedness program for air and environmental sampling for future outbreak from emerging or novel pathogens	2023
The World Health Organization fund for COVID-19 research fund. Assessing the impact of the COVID-19 pandemic on nosocomial transmission of Carbapenem-resistant organisms (CRO) using integrated whole genome sequencing (WGS), clinical epidemiology, and environmental surveillance	2020

NHG-NCID COVID 19 Centre Grant Assessing the impact of the COVID-19 pandemic on nosocomial transmission of Carbapenem-resistant organisms (CRO) using integrated whole genome sequencing (WGS), clinical epidemiology, and environmental surveillance	2020

Translating Research/Innovation Into Healthcare

2023:

- [Behind The Mask: Our Healthcare Story] Masking up as a best practice. Published on 15May 2023. https://www.channelnewsasia.com/brandstudio/behindthemask#tile-1-5

2022:

- NCID's support for nursing homes transit to Care@NH. Published in June. *No url

- Hidden reservoirs contribute to plasmid-mediated transmission with Dr Kalisvar Marimuthu. Published on 27 Jul 2022. https://podcasts.apple.com/sg/podcast/hidden-reservoirs-contribute-to-plasmid-mediated-transmission/id1560741724?i=1000571298098

2021:

- MCI COVID-19 Vaccination Campaign. Published from 11 Feb to 27 Feb 2021. https://mediacorp-sg.sharefile.com/d/s458915b9819d45569f7e3cc8374d52f0

- Singapore's COVID-19 vaccines. Published on 17 Feb 2021. https://www.mewatch.sg/watch/Ethiroli-S17-E45-199618

- Everyone over the age of 16 in Singapore should be vaccinated against COVID-19. Published on 17 Feb 2021. http://article.isentia.asia/stream/nelmisreportview.aspx?file=20210217-r-968RE-NEWS-190900-Everyone+over+the+ag.mp3&cc=SG&headline=Everyone+over+the+age+of+16+in+Singapore+is+required+to+be+vaccinated+against+COVID-19

- Expert Explainer Series on Vaccination by MCI for gov.sg (Tamil). Published on 08 Mar 2021.
  Video 1:https://www.youtube.com/watch?v=7rx8SZ1sjw8
  Video 2: https://www.youtube.com/watch?v=hhge0UX1gSI

- COVID-19 Vaccination. Published from 14 to 30 Apr 2021. https://mediacorp-sg.sharefile.com/d/s3049431d46b143b0b1b18872d6608205

https://mediacorp-sg.sharefile.com/d/s49599997382940fe83dc27ef16cd231d

- Happy Kopitiam FB Live (Tamil session). Published on 25 Apr 2020. https://www.facebook.com/OurHappyKopitiam/videos/792511725024932/

Health Impact (CY2022 publications)

1. 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 Switzerland** on the analysis of the Efficacy of the vaccines.

    b) 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

2. 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. 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):
https://plu.mx/plum/a/policy_citation?doi=10.11622/smedj.2020114