



Zhiwen Joseph LO

MBBS, B Med Sci, MMed (Surgery), FRCSEd, FAMS, FACS, FEBVS, PhD

- Senior Consultant, Department of Surgery, WH
- Head of Vascular Surgery Service, WH
- Lead, Wound and Vascular Centre, WH
- Program Director, Vascular and Endovascular Surgery Fellowship, WH
- Clinician-Scientist, NHG Health
- Cl/Asst Professor, YLL School of Medicine, NUS
- Adj Associate Researcher, ASTAR SRIS
- Adj Senior Research Fellow, Curtin University

Clinical and Research Interests:

- Diabetic Limb Salvage and Wound Care
- Artificial Intelligence in Healthcare
- Chronic venous insufficiency and iliac vein pathology
- Open and endovascular renal dialysis access

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Biography

Dr Joseph Lo is Head of the Vascular Surgery Service and Lead at Wound and Vascular Centre, Woodlands Hospital (Singapore). His clinical and research work focuses on diabetic limb salvage, wound care, artificial intelligence in healthcare, health economics, iliac venous disease and renal vascular access. In 2024, he completed his PhD evaluating the health economics of multidisciplinary care for diabetic limb salvage. He leads NHG Health's Diabetic Foot in Primary and Tertiary (DEFINITE) Care program and the Wounds iCare Collaborative (WiCC) Clinical and Research Workgroup. He is also appointed Clinical Assistant Professor at YLL School of Medicine (National University of Singapore), Adjunct Associate Research at ASTAR Skin Research Institute of Singapore and Adjunct Senior Research Fellow at Curtin University (Australia).

Dr Lo transformed diabetic limb salvage care across NHG through the development of the Diabetic Foot in Primary and Tertiary (DEFINITE) Care programme, an integrated multidisciplinary ecosystem linking NHG Polyclinics, acute hospitals and community services. Since 2020, more than 7,200 patients with diabetic foot ulcers benefitted from coordinated LEAPP pathways, diabetic foot surveillance and rapid-access multidisciplinary care, resulting in a 9.0% improvement in major amputation-free survival, 36% reduction in inpatient admissions, 45% reduction in emergency department visits and 5.5-day reduction in

cumulative hospital length of stay. Beyond clinical transformation, he advanced translational innovation through AI-enabled wound imaging, automated wound measurement and digital wound surveillance systems validated using Asian datasets, strengthening NHG's capabilities in digital health and value-based care. He also established the Woodlands Hospital Wound & Vascular Centre and mentored clinician-scientists and multidisciplinary teams, positioning NHG internationally as a leader in diabetic limb salvage, chronic wound innovation and population health transformation.

Till date, Dr Lo has received over SGD 12 million in research funding and has authored more than 90 peer-reviewed publications. He reviews for 28 international journals and serves on the editorial board of 8 international journals. He was awarded the Society for Vascular Surgery International Scholars Program (2020), NMRC Research Training Fellowship (2021), the Singapore National Healthcare Innovation and Productivity Medal in Care Redesign (2022), NHG Innovation Award Gold (2024), NMRC HPHSR Clinician Scientist Award (2025) and NHG-LKC Academy of Clinician Scientists & Innovators (ACSI) Young Investigator Award (2026). He is a board member of the Chapter of General Surgeons, College of Surgeons (Singapore), and a past Honorary Secretary of the Society for Vascular and Endovascular Surgeons of Singapore.

Since 2015, Dr Lo have mentored more than 70 medical students and over 50 junior doctors, resulting in more than 70 international conference presentations and over 80 research publications. His mentorship spans multiple disciplines, including serving as mentor for Sister Julia Zhu in her NHG-LKC Clinician-Scientist Fellowship and PhD on behavioural interventions for DFU care, guiding Dr Shum Cheuk Fan in his NMRC Clinical Innovator Award project applying AI to renal mass imaging, supervising Ms Liang Shanying's NUS MPH study on health engagement in DFU patients, and supporting Mr Nur Eidil Shahyn Norhisam's progression through the MOHH Healthcare Merit Award. Dr Lo is currently the mentor and PhD co-supervisor to Ms Esther Thng for her Curtin University PhD on the DEFIN3E community care model. Through these roles, he has helped build a strong pipeline of clinician-scientists, nurse researchers, allied health professionals, and innovators in wound care, diabetic foot, and health-services research. His educational contributions have been recognised through 14 teaching awards, including multiple NUS Dean's Awards for Teaching Excellence and the NHG Teaching Award for Senior Doctors.

Selected Publications

- **ZJ Lo**, X Lim, D Eng, et al. Clinical and economic burden of wound care in the tropics: a 5-year institutional population health review. *Int Wound J*. 2020; 17:790-803
- **ZJ Lo**, NK Surendra, A Saxena, J Car. Clinical and economic burden of diabetic foot ulcers: A 5-year longitudinal multi-ethnic cohort study from the tropics. *Int Wound J*. 2021; doi:10.1111/iwj.13540
- **ZJ Lo**, E Tan, S Chandrasekar, D Ooi, et al. Diabetic Diabetic Foot in Primary and Tertiary (DEFINITE) Care: a Health Services Innovation in Coordination of Diabetic Foot Ulcer (DFU) Care within a Healthcare Cluster – 18-month Results from an Observational Population Health Cohort Study. *Int Wound J*. 2022. Doi:10.1111/iwj.14016
- **ZJ Lo**, MHW Mak, S Liang, YM Chan, CC Goh, T Lai, A Tan, P Thng, J Rodriguez, T Weyde, S Smit. Development of an explainable artificial intelligence model for Asian vascular wound images. *Int Wound J*. 2023; doi:10.1111/iwj.14565
- L Ge, Y Sun, E Tan, H Liew, J Hoe, J Lin, J Molina, G Ang, X Zhu, KQ Low, T Yap, NASB Azmi, E Yong, T Chew, HY Koo, C Law, DYS Chan, C Shi, J Choo, WH Hoi, S Chandrasekar, JA Lim, J Siow, SB Kaspon, S Tavintharan, D Chew, J Abisheganaden, **ZJ Lo**. Outcome evaluation and cost-effectiveness analysis for an integrated multidisciplinary diabetic limb salvage program: a combined observational and simulation study. *BMJ Open Diabetes Research & Care*. 2025; 13:e004688
- WZ Leo, L Ge, S Chandrasekar, E Tan, YB Loh, X Zhu, H Liew, E Yong, T Chew, J Hoe, C Law, J Lin, JA Lim, P Lingam, J Molina, G Ang, Y Sun, **ZJ Lo**. Diabetic Foot in Primary and Tertiary (DEFINITE) Care: An Efficacious, Synergistic and Cost-Effective Multidisciplinary Team Model for Diabetic Foot Care in Singapore. *Seminars in Vascular Surgery*. 2025 Mar 38(1):20-31

Notable Research/Innovation Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
A*STAR Biomedical Research Council funding with NTU LKCMedicine and Institute of Medical Biology for “Biochemical and Microbial Analysis of the Wound Environment” (H17/01/a0/0Z9)	2018
A*STAR-Skin Research Institute of Singapore for “Wound Care Innovations in Tropics National Wound Registry” (H17/01/a/0/0Y9)	2019
A*STAR-Skin Research Institute of Singapore for “Lower Extremity Amputation Prevention Program (LEAPP) Collaboration” (H17/01/a/0/0PP9)	2019
NHG Population Health Grant (PHG20/S/X/1/1) with KTPH, NHGP for “Diabetic Foot in Primary and Tertiary (DEFINITE) Care”	2020
Skin Innovation Grant with eKare funding and Skin Research Institute of Singapore (SIG2002) funding for “Pilot study on efficacy of patient-owned wound surveillance system for diabetic foot ulcer care (ePOWS Study)”	2020
National Research Medical Council (NMRC) Research Training Fellowship (RTF) for “Evaluating and Decreasing the Socio-Economical Burden of Wound Care in Singapore through Health Systems Innovations and Health Literacy” (FLWSHP19nov-0015)	2021
Woodlands Health Small Projects Utilising Teams (SPROUTS) grant for “Patient Reported Experience Measures (PREMs) in patients with Diabetic Foot Ulcers”	2022
CMTi Medtech Grant for “Developing a Smartphone-based Automated Diabetic Foot Screening Solution (Project eDFS)” (CMTi-23-01-01)	2023
NHG Enhanced Population Health Fund for “Diabetic Foot in Primary and Tertiary (DEFINITE) Upstream” (EPHF-C/2023/POC/M/6)	2023
NHG Enhanced Population Health Fund for “Diabetic Foot in Primary and Tertiary (DEFINITE) Extend” (EPHF-C/2024/POV/M/9)	2024
National Research Medical Council (NMRC) HPHSR Clinician Scientist Award for “DEFIN3E (Diabetic Foot in Engaging, Educating, Empowering) Community Care” (HCSAINV24jul-0009)	2025
A*STAR RIE2025 Manufacturing, Trade and Connectivity (MTC) Programmatic Fund for “CompleteHeal: Clinical Innovations for End-to-End Wound Healing Management” (R25N9IR181)	2026

Translating Research/Innovation Into Healthcare

2018:

- A*STAR prototypes 3D printer for wounds. *Channel News Asia*. Published 8 September 2018. <https://www.channelnewsasia.com/news/videos/a-star-prototypes-3d-printer-for-wounds-video-10695938>

2020:

- Five-year review of Singapore primary care system demonstrates rising impact of chronic wounds. *iWounds News*. Published 20 March 2020. <https://iwoundsnews.com/five-year-review-singapore-rising-impact-chronic-wounds/>

2021:

- Rate of amputation drastically reduced for more than 2,700 patients with diabetes who participated in the foot care programme (DEFINITE Care Program). *Lianhe Zaobao*. Published 1 October 2021. <https://www.zaobao.com.sg/news/singapore/story20211002-1199251>
- NHG launches new program to reduce diabetes-related amputations (DEFINITE Care Program). *8world*. Published 1 October 2021. <https://www.8world.com/singapore/nhg-diabetes-foot-care-1605371>
- NHG programme for diabetic foot disease reduces major amputations by 40 per cent (DEFINITE Care Program). *The Straits Times*. Published 7 October 2021. <https://www.straitstimes.com/singapore/health/nhg-programme-for-diabetic-foot-disease-reduces-major-amputations-by-40-per-cent>
- 40 per cent reduction in amputation cases for patients with diabetes (DEFINITE Care Program). *Berita Harian*. Published 7 October 2021. <https://www.beritaharian.sg/setempat/kes-amputasi-bagi-pesakit-kencing-manis-kurang-40>
- Putting a “DEFINITE” Foot Forward. 2020/2021 NHG Corporate Yearbook : Population Health. <https://corp.nhg.com.sg/Documents/CYB%202021%20Digital/population-health.html>

2022:

- Graduate Students News: SG Healthcare AI Datathon 2021 Award https://ebook.ntu.edu.sg/lkcmedicine-strides_jan2022.html
- Charing Cross Symposium Daily News 18 April 2022: Researchers develop predictive model for risk of amputation in diabetic foot patients
- Singapore Wound Registry – A Collaboration Between Skin Research Institute of Singapore, SingHealth, National University Health System and National Healthcare Group <https://www.research.nhg.com.sg/wps/wcm/connect/df6a0113-27a5-4e14-8b6d-c9c34dc9ff9c/eCatalyst+Issue+45+Newsletter.pdf?MOD=AJPERES&CVID=o3IP3mE&CVID=o3IP3mE&CVID=o3IP3mE&CVID=o3IP3mE>

2023:

- Diabetic Foot Online: Embracing Home Digital Surveillance: A Step Forward in DFU Care?
<https://diabeticfootonline.com/2023/10/15/embracing-home-digital-surveillance-a-step-forward-in-diabetic-foot-ulcer-care/>
- Closer Look at DFU Treatment Adherence using WHO criteria
<https://diabeticfootonline.com/2024/02/07/a-closer-look-at-diabetic-foot-ulcer-treatment-adherence-using-who-criteria-ijlew-actagainstamputation-diabeticfoot/>

2024:

- Lianhe Zaobao - Woodlands Health's Multi-Disciplinary Team Reduces DM-Related Amputations
<https://www.zaobao.com.sg/news/singapore/story20241116-5311276>

2025:

- Healthcare Business Review - Emerging Trends and Opportunities for Wound Care in Asia: of Team-Based Approach, Wound Care Centres, Digital Health and Translational Innovations
<https://radiology.healthcarebusinessreview.com/cxinsight/emerging-trends-and-opportunities-for-wound-care-in-asia-of-teambased-approach-wound-care-centres-digital-health-and-translational-innovations-nwid-1050.html>
- Woodlands Health's Opening of Wound and Vascular Centre
 - <https://www.straitstimes.com/singapore/opening-of-woodlands-health-has-eased-load-on-ktph-sets-standard-for-future-hospitals-ong-ye-kung>
 - <https://www.zaobao.com.sg/realtime/singapore/story20250802-7262020>
 - <https://www.8world.com/singapore/woodlands-health-campus-first-anniversary-new-wound-and-vascular-centre-2865386>
 - <https://www.beritaharian.sg/singapura/ye-kung-pembukaan-woodlands-health-kurangkan-sesak-di-ktph>
 - <https://www.tamilmurasu.com.sg/singapore/woodlands-health-reduced-burden-khoo-teck-puat-hospital>
 - <https://www.channelnewsasia.com/watch/new-centre-treating-diabetic-foot-ulcers-opens-woodlands-health-campus-5273766>
 - <https://berita.mediacorp.sg/singapura/pusat-baharu-woodlands-health-himpun-pakar-tawar-rawatan-segera-ulser-kaki-akibat-kencing-manis-960466>
 - <https://healthcareasiamagazine.com/healthcare/news/woodlands-health-opens-wound-and-vascular-centre-in-singapore>
- DVT Prevention During Travels
 - <https://www.zaobao.com.sg/lifestyle/health/story20251125-7845430>

2026

- Diabetic Foot Online
 - Podiatrists Save Lives: 69% Mortality Reduction in Landmark Singapore Study
<https://diabeticfootonline.com/2026/02/26/podiatrists-save-lives-69-mortality-reduction-in-landmark-singapore-study-actagainstamputation-toeandflow-alpslimb/>
- American Limb Preservation Society Newsletter Interview
 - <https://limbpreservationsociety.org/news/69-mortality-reduction-in-landmark-singapore-study-a-qa-with-the-authors-on-the-impact-of-podiatric-care/>
- Op-Ed on “Diabetic Foot Strikes Silently — Don’t Ignore Small Wounds, Prevent Amputation”
 - <https://www.zaobao.com.sg/lifestyle/health/story20260324-8710674>

Achievements:

- 2010 to 2014: President of Resident's Council for National Healthcare Group – Alexandra Health Private Limited (NHG-AHPL) Residency Program
- 2011: Best Teacher Award for Medical Officers at Khoo Teck Puat Hospital (Singapore) for National University of Singapore (NUS) Year 3 Medical Students
- 2012: Finalist for Young Investigator Award @ Singapore Health and Biomedical Congress (Singapore)
- 2014: 3rd Prize – Surgeon-in-Training Achievement in Research (STAR) @ Singapore Health and Biomedical Congress (Singapore)
- 2014: NHG-AHPL Residency Clinical Tutor Award
- 2014: Tan Tock Seng Hospital Top 10 Teachers Award for 2013/2014
- 2015: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2014/2015
- 2016: Nominated for Singapore Patient Advocate Award (Individual) 2016
- 2016: 1st Prize for Best Research Presentation @ 1st Congress of Diabetic Limb Salvage in Asia (Seoul, South Korea)
- 2016: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2015/2016
- 2016: Tan Tock Seng Hospital Best Teacher Award (Junior Category) 2015/2016
- 2017: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2016/2017
- 2018: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2017/2018
- 2018: NUS Medicine Special Recognition Award for 2017/2018
- 2019: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2018/2019
- 2019: NUS Medicine Special Recognition Award for 2018/2019
- 2019: Awarded NHG-LKC Clinician-Scientist Fellowship
- 2020: Awarded Society of Vascular Surgery International Scholars Program
- 2021: Awarded National Research Medical Council (NMRC) Research Training Fellowship (RTF)
- 2021: SG Healthcare AI Datathon 2nd runner-up (in collaboration with AITIS)
- 2021: Singapore Armed Forces National Service Excellence Award
- 2022: Wiley Top Cited Article 2020-2021 in International Wound Journal – Clinical and economic burden of wound care in the tropics: a 5-year institutional population health review
- 2022: Wiley Top Downloaded Article 2021 in International Wound Journal – Clinical and economic burden of diabetic foot ulcers: A 5-year longitudinal multi-ethnic cohort study from the tropics
- 2022: Diabetic Foot Conference (DFCon) 2022 Best Paper Award (Los Angeles, USA)
- 2022: NUS-YLL School of Medicine Dean's Award for Teaching Excellence 2021/2022
- 2022: NHG Quality Improvement Award (Innovation in Healthcare) Merit Award
- 2022: Singapore National Healthcare Innovation and Productivity Medal (Care Redesign)
- 2023: Wiley Top Cited Article 2021-2022 in International Wound Journal – Clinical and economic burden of wound care in the tropics: a 5-year institutional population health review
- 2023: National Healthcare Group Teaching Award for Senior Doctors
- 2023 : National Awards (Singapore): COVID-19 Resilience Medal
- 2024 : NHG Innovation Award (Gold)
- 2025 : Awarded National Research Medical Council (NMRC) HPHSR Clinician Scientist Award
- 2025 : Woodlands Health (You are Awesome) Service Award
- 2025 : National Healthcare Group Teaching Award for Senior Doctors
- 2025 : NHG-LKC Academy of Clinician Scientists & Innovators (ACSI) Young Investigator Award