Bryan Tan Yijia

MBBS, MRCS, MMed (Ortho), FRCS, PhD

Consultant, Department Orthopaedic Surgery, Woodlands Health
Clinician-Scientist, LKCMedicine
Assistant Professor, LKCMedicine

Research Interests:

- Musculoskeletal Health
- Health Services Research
- Models of Care and Implementation Science
- Health Economics

Email: bryan_tan@wh.com.sg

Biography

Dr Bryan Tan is currently a Consultant in Orthopaedic Surgery, Woodlands Health, NHG. He has experience practicing both locally and overseas having done several fellowships internationally in the United States and New Zealand. He has served as the Singapore Orthopaedic Trainee Committee (SOTC) President and has represented the Singapore Orthopaedic Association (SOA) as its Junior Ambassador.

He is very active in the research scene and has completed his PhD post specialist training with a focus on health service research, implementation science and health economics in the area of knee osteoarthritis. In 2022, he underwent am overviews research fellowship at the Harvard TH Chan School of Public Health. He has been awarded several National Medical Research Council (NMRC) talent awards including the Research Training Fellowship (RTF) in 2019 and HPHSR Clinician Scientist Award (HCSA) in 2025.

He has more than 40 publications and has presented at multiple international conference. He currently holds several grants with total quantum exceeding S$9 million as PI. He has been recognized for his research achievements through awards such as the Singapore Young Investigator Award, Health Services Research (Gold) in 2019, INEX-OSCAR by the College of Clinician-Scientist in 2022, Public Sector Transformation Exemplary Innovator Award in 2023 and the NHG Young Achiever Award in 2024. He is currently an Assistant Professor at LKCMedicine and Deputy Director at the Rehabilitation Research Institute of Singapore (RRIS) spearheading the Musculoskeletal Pillar.

In addition to his training as an Orthopaedic surgeon and researcher, he has a strong interest in administration, policy making and public health and applies a public health, system lens to musculoskeletal problems. He currently sits on several hospital and national workgroups to deliver new models of care for musculoskeletal health. He is passionate about combining his interests in research,

public health and administration as a surgeon-scientist to develop the niche area in health services research and implementation science using a grounded, evidence based, data-driven approach to guide policy making and transform the care of musculoskeletal patients.

Selected Publications

- **Tan BY**, Pereira MJ, Ng J, Kwek EBK. The ideal implant for Mayo 2A olecranon fractures? An economic evaluation. J Shoulder Elbow Surg. 2020 Nov;29(11):2347-2352. https://doi.org/10.1016/j.jse.2020.05.035 (IF 3.019)

- Ding BTK, Soh T, **Tan BY**, Oh JY, Mohd Fadhil MFB, Rasappan K, Lee KT. Operating in a Pandemic: Lessons and Strategies from an Orthopaedic Unit at the Epicenter of COVID-19 in Singapore. J Bone Joint Surg Am. 2020 Jul 1;102(13):e67.. https://doi.org/10.2106/jbjs.20.00568 (Tier 1, IF 6)

- **Tan BY**, Thach T, Munro YL, Skou ST, Thumboo J, Car J, Car LT. Complex Lifestyle and Psychological Intervention in Knee Osteoarthritis: Scoping Review of Randomized Controlled Trials. Int J Environ Res Public Health 2021 Dec 3;18(23):12757 https://doi.org/10.3390%2Fijerph182312757 (IF 4.614)

- Pereira MJ, Antonio DM, **Tan BY**, Yam MGY, Ramason R, Chua ITJ. Bundled payments for hip fracture surgery are associated with improved access, quality, and healthcare utilization, but higher costs for complex cases: An interrupted time series analysis. Journal of Orthopaedic Trauma: July 15, 2022 - Volume - Issue - 10.1097/BOT.0000000000002459 https://doi.org/10.1097/bot.0000000000002459 (IF 2.884)

- Yang SY, Woon EYS, Griva K, **Tan BY**. A Qualitative Study of Psychosocial Factors in Patients With Knee Osteoarthritis: Insights Learned From an Asian Population. Clinical Orthopaedics and Related Research ():10.1097/CORR.0000000000002526, December 27, 2022. | https://doi.org/10.1097/corr.0000000000002526 (**Tier 1**, IF 4.755)

- Bowden JL, Hunter DJ, Mills K, Allen K, Bennell K, Briggs AM, Dziedzic K, Hinman RS, Kim JS, Martinez N, Quicke J G, **Tan BY**, van der Esch M, Verges J, Eyles J. The OARSI Joint Effort Initiative: Priorities for osteoarthritis management program implementation and research 2024–2028. Osteoarthritis and Cartilage Open https://doi.org/10.1016/j.ocarto.2023.100408 (IF -)

- Pua YH, Yeo SJ, Clark RA, **Tan BY**, Haines T, Bettger JP, Woon EL, Tan HH, Tan JWM, Low J, Chew E, Thumboo J. Cost and outcomes of Hospital-based Usual cAre versus Tele-monitor self-directed Rehabilitation (HUATR) in patients with total knee arthroplasty: A randomized, controlled, non-inferiority trial. Osteoarthritis and Cartilage https://doi.org/10.1016/j.joca.2023.11.017 (**Tier 1**, IF 7)

- **Tan BY**. CORR Insights: What are the underlying mental health constructs associated with level of capability in people with knee and hip osteoarthritis? Clinical Orthopaedics and Related Research 482(4):p 645-647, April 2024. DOI: 10.1097/CORR.0000000000003023 (**Tier 1**, IF 4.755)

- **Tan BY**, Yang SY, Pereira MJ, Tan CY, Lim CJ, Ng JP, Lee KT, Pua YH, Briggs AM, Hunter DJ, Skou ST, Thumboo J, Car J. Collaborative model of care between orthopaedics and allied healthcare professionals (CONNACT) in knee osteoarthritis: Effectiveness-implementation hybrid randomized controlled trial of a community-based, multidisciplinary, stratified intervention. Osteoarthritis Cartilage. 2024 May 6:S1063-4584(24)01177-4. doi: 10.1016/j.joca.2024.04.018. Epub ahead of print. PMID: 38710437. (IF: 7.2)

- **Tan BY**, Goff AJ, Kham VL, Tham SYY, Su DKMZ, Lynda YM, Yang SY, Callahan LF, Bowden JL, Briggs AM, Hunter DJ. Psychosocial factors in knee osteoarthritis: Scoping review of evidence and future opportunities, Osteoarthritis and Cartilage, 2024, ISSN 1063-4584, https://doi.org/10.1016/j.joca.2024.05.015. (**Tier 1**, IF 7)

Ongoing Projects

- The Singapore Knee Osteoarthritis Cohort (**SKETCH**) is a multi-centre cohort study in Singapore supported by the National Medical Research Council (NMRC) Population Research Grant for $1.95M. The aim is to understand the impact of biopsychosocial (BPS) factors in knee osteoarthritis (OA) management. By focusing on both primary and community care settings, SKETCH explores critical psychosocial and clinical predictors to enhance non-surgical treatment pathways and value-based care models for OA, particularly within the Asian context.

- **SuPeR** (SUpport. PrEdict. Recover) **Knee** Singapore project is a collaboration with the University of Newcastle, Australia. The proposal is to develop an AI-driven clinical decision support tool that leverages SKETCH's comprehensive BPS data to improve intervention stratification for patients with KOA. By integrating SKETCH's insights on social, psychological, and lifestyle factors, SuPeR Knee can better identify high-risk patients and provide tailored care recommendations across the entire KOA intervention continuum.

- The **B**uilt **E**nvironment in **F**alls and Arthr**IT**is Study (**BE-FIT**) is a $5 million project funded by the National Research Foundation (NRF) and led by PI Dr. Bryan Tan and Dr. Navrag Singh. Working with collaborators in TTSH, WH, KTPH, SGH, NTU, SEC-ETH, GERI, and other key stakeholders to investigate how built environment (BE) factors interact with biomechanical and psychosocial elements, impacting physical activity, social participation, and functional outcomes in elderly osteoarthritis (OA) and falls patients. Using a multimodal methodology, the project is structured into four work packages: examining individual, contextual, and BE factors; assessing associations between BE and physical, clinical, and psychosocial outcomes; applying geospatial mapping, qualitative research, and wearables for data visualization; and engaging policymakers to collaboratively develop recommendations.

- **V**ision-**I**nte**G**rated **I**nte**L**ligence **A**ssessme**NT** (**VIGILANT)** project seeks to transform health assessments by using computer vision and AI to quickly and non-invasively measure physical biomarkers, like gait and grip strength, to predict frailty. Traditional methods of assessing frailty are resource-intensive and limited in scalability, but our approach aims to provide an accessible and streamlined alternative. This innovation has the potential to improve timely health evaluations, especially for aging populations and those at risk of rapid health decline.

- **Future Health Technologies 2 (FHT-2)** is a large research program in collaboration between Singapore and ETH Zurich and the Singapore ETH Center led by Dr. Bryan Tan. The goal of the program is to implement scalable, cost-effective, technology-driven digital healthcare solutions to enhance functional ability. Areas of research include fall and fracture prediction using sensors, computer vision, and biofidelic finite element (FE) modeling; developing personalized bone organoids as a platform for testing therapeutic strategies; and implementing technology-driven rehabilitation therapies to improve functional outcomes. The project involves partners from various NHG institutions, NUS and Duke-NUS, MOHT, as well as community partners such as active aging centers and elder care facilities.

Notable Research/Innovation Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
National Medical Research Council (NMRC) Research Training Fellowship	2019
NHG-LKCMedicine Clinician-Scientist Fellowship (CSF) Award	2019
Singapore Young Investigator Award, Health Services Research (Gold)	2019
Rehabilitation Research Institute of Singapore (RRIS) RRG Award for "Gait Analysis in Knee Osteoarthritis"	2019
NHG Population Health Grant for "Collaborative model of care between Orthopaedics and Allied Care Professionals Trial (CONNACT PLUS)"	2020
MOH Traditional Chinese Medicine Research Grant for "Heat and Acupuncture Randomised Controlled Trial to Manage Osteoarthritis of the Knee (HarmoKNEE): An Effectiveness-Implementation Hybrid Study"	2021
INEX-OSCAR (Clinical/Population Health Research), College of Clinician-Scientist, Academy of Medicine	2022

Osteoarthritis Research International (OARSI) Word Congress Highest Rated Abstract	2023
Public Sector Transformation (PST), Exemplary Innovator Award	2023
NMRC Population Health Research Grant (PHRG) for "Singapore Knee Osteoarthritis Cohort Study (SKETCH)"	2023
National Research Foundation (NRF) Intra-CREATE Thematic Grant for "Built Environment in Falls and Arthritis Study (BE-FIT)"	2023
The Impact of Biopsychosocial Factors on Disease Progression of Knee Osteoarthritis and Recovery (in collaboration with the University of Newscastle)(SuperKnee)	2024
NHG Recognition Awards 2024, Young Achiever (YA) Award	2024

Translating Research/Innovation Into Healthcare

- **'CONNACT Plus' featured on Straits Times (12 Oct 2023):** https://www.straitstimes.com/singapore/health/healthcare-providers-must-work-with-range-of-partners-to-build-healthier-communities-masagos

- **'CONNACT Plus' featured on Lian He Zao Bao (12 Oct 2023)** https://www.zaobao.com.sg/news/singapore/story20231012-1442178

- **'CONNACT Plus' featured on 8 world (12 Oct 2023):** https://www.8world.com/singapore/osteoarthritis-2265391

- **'CONNACT Plus' featured on LinkedIn (25 Mar 2024):** https://www.linkedin.com/pulse/connact-plus-staying-active-mobile-healthier-gw2uc?trk=public_post_feed-article-content