A/Prof Yeo graduated in 1997 from the National University of Singapore where he obtained his Bachelor of Medicine and Surgery. He subsequently trained in the United States of America and obtained his American Board of Internal Medicine Certifications in Internal Medicine, Cardiovascular Medicine and Interventional cardiology. Currently, A/Prof Yeo is a senior consultant interventional cardiologist at the National Heart Centre Singapore (NHCS). He is also Chief Executive Officer (CEO), NHCS and Academic Chair for the SingHealth Duke-NUS Cardiovascular Medicine ACP. A/Prof Yeo also serves as the SingHealth Group Deputy Chief Medical Informatics Officer (Research).

A/Prof Yeo is a Council member of the Singapore Cardiac Society. He is also a Fellow of the American Heart Association, the European Society of Cardiology (FESC), American College of Cardiology (FACC), the Asian Pacific Society of Cardiology (FAPSC), the Asian Pacific Society of Interventional Cardiology, and the Society of Cardiovascular Angiography and Interventions (FSCAI). He is the Chair of the Scientific Advisory Board for the Asian Pacific Society of Cardiology. He has published widely in international peer-reviewed journals and is a peer-reviewer for Circulation, the American Journal of Cardiology, Heart, Journal of the American College of Cardiology: Cardiovascular Intervention, Korean Circulation Journal, Structural Heart, AsiaIntervention, ASEAN Heart Journal, Annals of the Academy of Medicine and Singapore Medical Journal. He is a member of the Editorial Board of the Korea Circulation Journal and AsiaIntervention. He has been appointed by the Asian Pacific Society of Cardiology to be its Founding Editor-in-Chief of the Journal of the APSC. He is the Past-Chair of the Chapter of Cardiologists, Academy of Medicine Singapore, and the Chair of the Scientific Advisory Board for the Asian Pacific Society of Cardiology. He is a board member for the College of Physicians, Academy of Medicine Singapore.

A/Prof Yeo is particularly interested in the use of percutaneous or catheter-based techniques to treat the mitral valve and the tricuspid valve. He has presented multiple talks in regional and international conferences on the Asian experience with the MitraClip device and has established the MARS registry (MitraClip Asia-Pacific Registry). In his other major research interest, A/Prof Yeo is interested in long-term cardiovascular outcomes in Health Services Research and the use of data science to develop insights into the diagnosis and management of heart disease. He has published multiple papers comparing outcomes in large studies including those from large registries in the USA. He is the PI of the SingCLOUD registry, which is a national registry of all patients with coronary artery disease and heart failure. The SingCLOUD registry will include all restructured hospitals and polyclinics; it will follow clinical, cost and quality-of-care outcomes in these patients for 1-3 years in Singapore. Dr Yeo is also the PI for SingHEART which is a prospective observational study or normal volunteers in Singapore. SingHEART combines whole genome sequencing with deep phenotyping (cardiac MRI, CT calcium score, ambulatory BP and ECG, fitness tracker, and blood tests) and long-term clinical follow-up for 20 years.