
Responsible AI for Health Technology Assessment in LMIC Health Systems

Faculty:

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Project Description:

Artificial intelligence (AI) is rapidly entering health systems and changing how evidence is identified, synthesised, analysed and used. Health technology assessment (HTA) supports decisions about the value, financing and appropriate use of health technologies, making it an important area in which to examine how AI may support evidence-informed decision-making. However, the implications of AI for HTA systems remain insufficiently understood, particularly in low- and middle-income countries (LMICs), where institutional capacity, data availability and evidence-generation infrastructure vary considerably. There is an urgent need to understand when, where and how AI can meaningfully support HTA while ensuring that its use remains scientifically rigorous, accountable, context-sensitive and sustainable.

This PhD project aims to develop and validate responsible AI-enabled methods and workflows for HTA in LMIC health systems. Potential research may examine multidimensional health-system and institutional readiness for AI-supported HTA across different LMIC settings; develop and evaluate human-supervised AI methods, workflows and tools for HTA functions such as topic selection, evidence synthesis and assessment; evaluate AI-assisted approaches through real-world HTA projects, pilots or case studies; and translate findings into practical guidance and reusable digital tools. Candidates will be encouraged to shape their own research questions within this broader framework and to critically examine both the potential and limitations of AI-enabled HTA.

The research may combine qualitative, quantitative and mixed-methods approaches, including stakeholder interviews and qualitative analysis, Delphi and expert-consensus methods, longitudinal and real-world data analysis, health economic or simulation modelling, and the development and validation of AI-enabled HTA tools. The project will be undertaken at the Saw Swee Hock School of Public Health, NUS, in close collaboration with Thailand Health Intervention and Technology Assessment Program and international HTA organisations, academic institutions, policymakers and technical partners across Asia, Africa and Latin America. The student will receive interdisciplinary training in HTA and health economics, AI and data science, mixed-methods health-systems research, real-world evidence and research translation, with opportunities to contribute to international collaborations, workshops and academic conferences.

Applicants (BSc/MSc/MPH or equivalent) from health economics, public health, epidemiology, health services research, economics, biostatistics, data science, computer science or related disciplines are

expected to have strong analytical and research skills, some experience with quantitative analysis and statistical programming (preferably R or Python), and strong written and spoken English. Prior experience in HTA, health economics, machine learning or generative AI, economic or simulation modelling, qualitative research, real-world data analysis or LMIC health systems would be advantageous but is not essential.

Interested candidates can send enquiries to Dr Wenjia Chen (email: wenjiach@nus.edu.sg).