Combining modern causal inference and cost-effectiveness analysis for HTA.

Supervisors

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Summary

Patient-level real-world data (RWD) can be analysed to complement (even substitute, unavailable) randomised controlled trial (RCT) evidence and are increasingly used to inform licensing and reimbursement decisions concerning novel healthcare technologies. Recent advances in causal inference methodology and changes in the regulatory landscape mean that RWD can now be used to answer a broad range of questions of relevance to patients, clinicians and policy makers. Examples include how to

(a) assess the generalisability and transportability of RCT evidence to routine clinical practice;

(b) evaluate dynamic treatment regimens;

(c) estimate individualised treatment effects.

This PhD aims to integrate modern causal inference (e.g. g-computation and targeted maximum likelihood estimation) and economic evaluation methods to enhance their contribution to HTA decision making. The candidate will learn how to analyse RWD and derive relevant parameters to answer questions such as those highlighted in (a) to (c) above and use them to inform cost-effectiveness analysis. The project is embedded within the Economics of Stratified, Personalised and Precision Medicine research programme at CHE and the student will benefit from exposure to relevant ideas and methods used in our portfolio of projects. We also expect opportunities for wider interactions with colleagues working on policy and programme evaluation.