

Rejoignez



> Offre de stage

Informations sur le poste

Titre du stage: “Innovation in indirect treatment comparison (ITC) methodology development and implementation”

Département : Global biometrics

Période du début de stage : avril 2024 (6 mois)

Missions

Project overview

Health policy and reimbursement decisions require unbiased causal estimates of the relative effectiveness of all relevant treatments or interventions for a given patient population. The gold standard of evidence on relative effectiveness is randomized controlled trials in the population of interest. However, it is rare that all relevant treatments have been compared head-to-head in a single randomized controlled trial; instead, the evidence base is often comprised of several studies, each comparing a subset of the treatments of interest.

The standard methods for indirect comparisons and network meta-analysis (NMA), proposed by Bucher et al. and then Dias et al., are based on aggregate data, assuming that the distribution of effect-modifying variables does not differ between studies. A very common scenario arising in HTA submissions is that where the company has individual patient data (IPD) on its own trial, but not on the competitor’s trial. Recent advances in methodology, including matching-adjusted indirect comparison (MAIC) and simulated treatment comparison (STC), aim to address these limitations. These methods rely on the assumption of conditional constancy of relative effects which is a weaker assumption than required for NMA. However, these methods are limited to the simple two-study scenario and are not generalizable to larger treatment networks. Meta-regression methods have also been proposed as alternatives, but these methods typically assume common regression coefficients at both the individual and the aggregate level, which can introduce aggregation bias when the model is non-linear. To address these challenges, the multilevel network meta-regression (ML-NMR) model has been proposed. This model extends the types of outcomes and likelihoods to accommodate continuous covariates, offering a more flexible and accurate approach.

These existing and emerging methodologies possess advantages and drawbacks and are applicable in specific scenarios. Consequently, there is an unmet need for a systematic review and comprehensive comparison of these methodologies. The results of this research will offer invaluable recommendations for method selection in future submissions and research studies.

Missions

- Revue bibliographique
- Etude de la validité et de la performance de ces méthodes via simulation
- Application et comparaison des méthodes identifiées sur des données réelles

- Développement d'une application R Shiny des MAIC (Matching Adjusted Indirect Comparison)
- Le stage sera co-encadré par un statisticien en France et un statisticien basé aux États-Unis

Qualifications et expériences requises

Formation	• Stage de fin d'études d'école de statistique (ENSAI, ISUP, etc.) ou d'université (master 2 Biostatistiques ou similaire).
Compétences	• Compétences avancées en statistiques et langage R. • Intérêt pour les sciences de la vie. • Force de proposition, vous disposez de facilités de communication écrite et orale en anglais/français, êtes organisé(e) et savez gérer les priorités.

