Thursday 25 July 2024

09:00-12:30 Mini Symposium 1 (Room 1)

Beyond conventional RCTs: Exploring design options and modeling in drug development

Organizers: Marcia Rueckbeil, Els Goetghebeur, Mouna Akacha in collaboration with the ISCB Sub-Committee "Statistics in Regulatory Affairs" (SiRA)

Co-chairs: Marcia Rückbeil and Tim Friede

Advanced trial designs and analysis methods to improve confirmatory trials in rare diseases

Martin Posch and Franz König (Medical University of Viena, Austria):

Clinical trials for rare diseases face unique challenges due to the limited number of participants, often resulting in underpowered studies and treatment effect estimates with high uncertainty. The adoption of innovative trial designs – such as platform trials, hybrid trials that incorporate external control data, and adaptive trials – can enhance trial efficiency, particularly if they are combined with modelling approaches. An example is platform trials, where model-based analyses allow for the incorporation of non-concurrent controls while maintaining robustness under time trends. Other approaches to improve the precision of treatment effect estimates include the integration of multiple endpoints into a single outcome measure for increased statistical power, the utilisation of longitudinal data, and appropriate accounting for prognostic or predictive baseline covariates in the analyses.

However, the use of modelling in the analysis and design of clinical trials can affect their robustness, primarily due to the additional assumptions inherent in the models. This is of particular concern in a confirmatory setting. Therefore understanding the underlying explicit and implicit assumptions and assessing the consequences of their violation is essential.