Prof. Martin Siegel

Title of the Talk: Vague information and wild assumptions

Brief Bio: Martin Siegel is a Junior Professor for Empirical Health Economics at the Technische Universität Berlin. In his work, he aims to identify the causes of health inequalities, develop strategies to avoid avoidable inequalities and contribute to shaping an equitable and efficient healthcare system for everyone. For this, he uses and refines statistical methods for health economics evaluations and epidemiology, allowing him to explicitly describe diversity and heterogeneity. His research interests include Inequality in health and health care, equity in health services research, economic evaluations of complex interventions, resilience of health care systems, and econometric methods to model heterogeneity explicitly.

Abstract for the Talk:

Limited information on expected effects and small sample sizes are common challenges in health economic evaluations. The talk will first introduce the basic notion of health economic evaluations and evidence-based medicine. It will then proceed to numerical approaches to overcome data limitations and imprecise information in two types of health economic evaluations. First, bootstrapping is introduced and the potential benefits when comparing cost-effectiveness-ratios and cost-utility-ratios of different interventions are described. A particular strength of this approach is that it can be applied without making assumptions about the joint distribution of observed costs and effects, and therefore allows deriving more reliable cost-effectiveness-acceptability curves to determine the probability of cost-effectiveness given a certain willingness-to-pay. The second part of the talk addresses probabilistic sensitivity analyses in model-based evaluations, which can be used when only imprecise estimates for costs and effects are available before a pre-tested intervention is rolled out. Parameters are varied randomly on the basis of existing evidence, and the result is a range of plausible predictions for each of the modeled scenarios. Again, the results can be used to inform decisions as to whether policymakers should adapt new strategies in public health, such as new screening, prevention or treatment measures for common infectious and non-infectious diseases.