

In this seminar, Holger will present the topic of his PhD thesis. The dissertation starts out from the notion that overall efforts to improve health care outcomes should embrace evidence-based optimizations of medical treatments at a patient level. The evidence supporting such individual optimization of care needs to be gathered mainly in routine clinical practice, to cover patients in various subpopulations and courses of disease under alternative treatments and treatment modifications.

Decision sequence models may be one type of statistical framework useful for organizing and analyzing data gathered in clinical care. In the first place, these models represent chains of medical observations and decisions as occurring in health-care practice, and thus enable prognoses conditioned on observed patient characteristics and treatment histories. However, decision sequence models also allow a transparent incorporation of substance-matter assumptions about relationships between chances or risks that relate to variable clinical contexts, which paves the way for predictions under alternative interventional strategies, treatment comparisons and optimizations. During the seminar, some of these concepts are presented, and statistical challenges of using decision sequence models as clinical support tools will be discussed.