Causal Inference in Epidemiology
Pavia
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Part I (9:15- 11:15) Counterfactuals

Definition and measures of association

Counterfactuals

Definition and measures of causal effects

Identification of causal effects in randomized experiments – counterfactual definition of exchangeability

Identification of causal effects in observational studies – counterfactual definition of conditional (on covariates) exchangeability

Part II (11:15-13:15) Directed Acyclic Graphs (Richiardi)

Encoding of assumptions in DAGs

d-separation

DAG representation of confounding and selection bias

A graphical explanation to why standard associational models fail to estimate effects in longitudinal studies with time-varying covariates

Part III: 14-15 -16:15 Causal Models (Bellocco)

The need for statistical (associational) models (high dimensional / sparse data. This is a recapitulation – the students should already be familiar with this)

Marginal Structural Modeling of effects in longitudinal studies with time-varying covariates

Inverse probability weighting estimation of parameters in MSMs.

Part IV: 16:15-17 Conclusions