



Mathematisches Kolloquium

The g-formula for competing risks

Sprecher: Prof. Thomas A. Gerds

Eingeladen von Prof. Jan Beyersmann

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Register-based pharmacoepidemiology is used to monitor developments of health and disease in space and time of a whole nation. In specifically designed studies the interest is often in the average treatment effect that one would have observed had one randomized a group of patients to taking a specific drug. We introduce a g-estimator of the average treatment effect which is based on a cause-specific Cox regression model for the disease and a second cause-specific Cox regression model for the competing risk of dying without the disease. By using von Mises expansions and the functional delta method we characterize the asymptotic distribution of the estimator. The performance of the resulting variance estimate is compared to a bootstrap approach. Both methods are implemented in the R-function riskRegression.