大阪医学統計学セミナー 第74回
Osaka Biostatistics Seminar

10月6日（金）
14：00〜15：30

「 **Separable Pathway Effects of Semi-Competing Risks via Multi-State Models** 」
Speaker：Yuhao Deng （Peking University）

OSAKA UNIVERSITY

場所：
医学系研究科基礎研究棟L階
医学統計学研究室
オンライン開催

参加ご希望の方は、前日までに下記問い合わせ先にメールにてお申込みください。

Abstract: Semi-competing risks refer to the phenomenon where a primary outcome event (such as mortality) can truncate an intermediate event (such as relapse of a disease), but not vice versa. Under the multi-state model, the primary event is decomposed to a direct outcome event and an indirect outcome event through intermediate events. Within this framework, we show that the total treatment effect on the cumulative incidence of the primary event can be decomposed into three separable pathway effects, corresponding to treatment effects on population-level transition rates between states. We next propose estimators for the counterfactual cumulative incidences of the primary event under hypothetical treatments by generalized Nelson-Aalen estimators with inverse probability weighting, and then derive the consistency and asymptotic normality of these estimators. Finally, we propose hypothesis testing procedures on these separable pathway effects based on logrank statistics. We have conducted extensive simulation studies to demonstrate the validity and superior performance of our new method compared with existing methods. As an illustration of its potential usefulness, the proposed method is applied to compare effects of different allogeneic stem cell transplantation types on overall survival after transplantation.

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