

# Modelling of cross-classified count data

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## **Abstract**

This work is motivated by analysis of hospital admission data where patients are cross-classified by residential areas and general practices. Patient outcomes tend to be correlated within geographical areas and general practices. In addition, the patient outcomes may be spatially correlated. Our modelling will incorporate cross random effects of geographical areas and general practices into a Poisson model, and also consider a geographic spatial component. We will discuss parameter estimation and extending the model to continuous data based on the Tweedie distribution. This is joint work with Tariqul Hasan and Renjun Ma of UNB.