ISPM	Institute of Social and Preventive Medicine
BIHAM	Berner Institut für Hausarztmedizin
CTU	Clinical Trials Unit

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Dr Nikos Demiris studied mathematics and statistics in Greece and obtained his PhD from the University of Nottingham (2004), working on Bayesian Inference for Epidemic models. He was then a researcher at the MRC Biostatistics Unit, in Cambridge, UK, before moving to an academic position in Biostatistics in Athens, Greece. In the current academic year he works as a senior statistician based at the Medical School at the University of Cambridge. His research interests include the methodology and applications of models for the analysis of infectious disease data

« Some statistical issues in the analysis of infectious disease data»

This presentation is concerned with two distinct but related aspects of the statistical analysis of infectious disease data. In the first part we discuss stochastic regression models appropriate for spatio-temporal count data with an excess number of zeros. These models incorporate features such as serial correlation and time-varying covariates through an Ornstein–Uhlenbeck process formulation. The effects of different distance kernels and of distinct priors are investigated. Predictive model selection via the use of different scoring rules is also explored.

The second part illustrates the application of recently developed statistical methods for epidemic models. We describe the application of Hamiltonian Monte Carlo and Variational Inference using the freely available software Stan. The results suggest that both inference methods are feasible and show a trade-off between statistical efficiency versus computational speed. The latter appears particularly relevant for real-time applications.

A common theme throughout the presentation relates to the use of stochasticity as a tool to mitigate model mis-specification.

Join the seminar on Thursday, 27 June 2019 at 4:00 pm in room 324!

Thursday Seminar