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SEMINAR

"A Bayesian SEIR Approach to Modeling Epidemics"

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Thursday, 28th May 2009 – h. 16.30
Room 44 – Via Sarfatti 25 - 20136 Milano

Abstract:

A recent U.S. public policy debate regarding smallpox vaccination was largely focused on comparing mass versus trace vaccination strategies; namely, whether to vaccinate the entire population or only those who have been in contact with infected individuals. In this talk, we present a Bayesian susceptible-exposed-infected-recovered (SEIR) model and apply it to analyze a set of eight smallpox epidemics in Southwest Native American communities during 1780--1781. The outcome of the model is the posterior distribution of epidemic parameters, after taking into account the population and geographical heterogeneity. We then present a comparison of the two main vaccination strategies based on the posterior predictive distribution of the fatalities under each. Joint work with G. Dwyer and B. Elderd.