

Title: Bayesian spatiotemporal analysis of two related diseases.  
Sylvia Richardson, Juan Jose Abellan, Nicky Best

Department of Epidemiology and Public Health and Small Area Health Statistics  
Unit, Imperial College, London, UK

Abstract: Recent advances in disease mapping have focussed firstly on including the time dimension, thus giving rise to spatiotemporal analysis of the variation of disease risk and, secondly, on carrying out joint analysis of two diseases that share common environmental risk factors and are, therefore, related. Here we try to combine both issues, and present a joint analysis of the spatiotemporal variation of the risks of two related diseases processes, for example male and female lung cancer incidence in two regions of England. To do so, we use a Bayesian hierarchical model that splits the risk of disease in three spatiotemporal components: a shared component and one specific component for each disease.