DISEASE MAPPING AND CLUSTER DETECTION IN VETERINARY EPIDEMIOLOGY

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Disease Mapping and Cluster Detection have been widely used in Human Descriptive Epidemiology and many advances appeared in the literature (e.g. Lawson 2004). These approaches have been recently transferred to Veterinary applications (see Graham et al. 2004). Two distinctive features of veterinary data must be taken into account in statistical modelling of spatial or spatio-temporal risk: domestic animal populations are usually interned into farms and, they tend to interact with the natural environment (e.g. they not only can be exposed to environmental biological physico-chemical hazards but, through freely release of feces, they can actively contribute to the process). We discussed some implications of the previous features (Biggeri et al. 2005) with regard to hierarchical bayesian modelling and heterogeneity and clustering random terms (Besag, York, Mollié 1991). In particular the study of spatial interaction, in a broad sense, need to include information on ecological niches. Satellite imagines are important in the study of parasite infection since the agent can share several hosts with different ecologies (Cringoli et al. 2004). Second, animal populations are not easy to sample. We restrict the attention to domestic populations and, then discuss related modelling issues in the study of spatial gradients of disease. Distribution of Parasitic infections in dogs within the city of Naples, 2004, has been modelled taking into account of the two-stage sampling design based on 143 first stage transects followed by quota sampling and a total of 415 evaluated locations.

References


