

C. R. Rao ADVANCED INSTITUTE OF MATHEMATICS, STATISTICS AND COMPUTER SCIENCE







One-day International Workshop on

Statistical Analysis of Data on Occurrence of Disease Patterns

Saturday, March 15, 2014, 9:30 AM

Venue: Ramanujan Building, CRRao AIMSCS, UoH Campus, Gachibowli, Hyderabad.

<u>Speaker</u>	<u>Affiliation</u>	<u>Photo</u>
Dr. Kari Auranen	Department of Vaccination and Immune Protection, National Institute for Health and Welfare, Helsinki, Finland (also Professor, University of Helsinki)	
Mr. Markku Nurhonen	Department of Vaccination and Immune Protection, National Institute for Health and Welfare, Helsinki, Finland	
Dr. Sourav Das	Saw Swee Hock School of Public Health, National University of Singapore, Singapore	
Dr. Saumyadipta Pyne	CR Rao AIMSCS, Hyderabad, India (also Adjunct Professor, Public Health Foundation of India)	

The speakers will review some basic features of infectious disease data, related inference problems, and statistical approaches for data analysis. Communicable infectious diseases are characterized by the fact that the risk of outcome (infection) for an individual depends on the infectious state of others in surrounding community. Statistically, this means that observations are not independent. To model the acquisition and clearance of a particular infection within an individual, one needs to identify and ideally measure several 'states' (e.g. susceptible, infected, immune) in a process, requiring a longitudinal and/or process model. The impact of vaccination on the individual's susceptibility to infection or disease is yet another research issue, related to individual- and population-based trials. Concrete examples are taken from the epidemiology of the *Streptococcus pneumoniae* bacterium. An introduction will be given to classical SIR models (susceptible, infected and recovered phases of infectious diseases), occurrence of infections over a region, modeled as a point process – study of spatial point process patterns, parametric models for point processes, and use of SPATSTAT package in modeling Point Processes. Further, the participants will learn how to model the prevalence and force of an infection directly from serological data.

Target participants are Master's level students in Statistics, Life Sciences, Public Health and Infectious Diseases. Basic knowledge of R statistical platform will be assumed. Individual participants may bring their own laptop running R.

Registration is free. Seating is limited, on first-come first served basis. **By pre-registration only.**

For Pre-registration, send email to parthaghosh.rkmv@gmail.com by **deadline: March 7, 2014.**

Organizers: Dr. Saumyadipta Pyne (CRRao AIMSCS) and Dr. Madhuchhanda Bhattacharjee (UoH)

Sponsored by DST CMS, CRRao AIMSCS.