TITLE: Introduction to Spatial Epidemiology & GIS

FEE: $50 including lunch and nutrition breaks

POTENTIAL CE HOURS: 7

TARGET AUDIENCE: Public health practitioners needing to develop surveillance and assessment support and activity in their health department using the principles of spatial epidemiology & GIS. Demographers and criminologists needing to develop surveillance for crime activities or other spatial events over geographic space.

CONTENT / PURPOSE: The purpose of this one day workshop is to provide an introduction to the geographical analysis of disease incidence and mortality, and indicate how to use that information in disease mapping and cluster detection.

The course is designed to provide two complimentary sessions. The first half day will focus on basic concepts within spatial epidemiology: relative risk, confounders, ecological bias, control diseases, expected rates, standardization and SMRs. In addition it will introduce a GIS (geographical information system) for public health disease surveillance, and health status, risk factor assessment: 1) exploratory methods, 2) cluster detection analysis, 3) ecological modeling and putative hazard analysis.

The second half day is designed to introduce participants the use of SatScan for cluster detections and disease mapping. In addition, Baysian methods for disease mapping will be demonstrated using WinBugs and examples from Lawson, Browne, and Rodeiro. (2003) *Disease Mapping using WinBUGS and MlwiN.* Wiley, London

At the end of this course, participants will be able to:

1. Understand the basic concepts of spatial epidemiology,
2. Impart understanding of how and when to use GIS-based software for analysis,
3. Use SatScan for geographical disease surveillance and disease cluster evaluation.
4. Describe Bayesian methods for disease mapping
5. Summarize how spatial statistical methods are applied to cancer incidence, mortality, treatment, staging and survival data.