# OUTBREAK INVESTIGATION AND SPATIAL ANALYSIS OF SURVEILLANCE DATA: CLUSTER DATA ANALYSIS

## Preliminary Programme / Draft_2

## Serbia,

## 20 -24 Mai 2013

## 1. Course presentation

Outbreak investigation is one of the most important activities of the intervention epidemiology in public health. This course will focus on the practical aspects of data analysis in outbreak investigations and a big part of the course will be spent behind the computer screen. The main purpose of this course is to give participants the basic tools to manage and analyse data from outbreak investigation in the field, especially descriptive analysis, analytical epidemiology and study designs, results communication and operational issues in outbreak investigations.

Geographical Information Systems and Cluster analysis are tools that allow the study of spatial distribution of disease and outbreak investigation. This part of the course will focus on the practical aspects of spatial data in outbreak investigations.

## 2. Objectives

- Perform the successive steps related to outbreak management
- Perform descriptive analysis
- Select the best study design for the analytical study
- Interpret the results of the various analysis
- Learn the role of the laboratory in outbreak investigation
- Identify the key communications messages for different target audiences
- Describe and analyze the spatial distribution of surveillance data
- Improve computer skills using Geographical Information Systems (GIS) and Google Earth
- Perform statistical analysis of cluster data

- Interpret and discuss the results obtained

## 3. Methodology

The course is built around case studies.

During the three days devoted to outbreak investigation, we will address all steps involved in, from creation of a data entry file to the stratified analysis, even though the practical exercise will focus only on data analysis (descriptive and analytical) as we have only three days. Epi-Info will be the main software used during the three days and we will use MS-Excel for the epidemic curve. There will be also some presentations.

The last two days will target the spatial analysis of infectious diseases. The training focuses on practical frameworks and research methods derived from epidemiology. GvSIG and SatScan will be the main software used during these days.

## 4. Programme

Monday

8.30-9.00: **registration**

9.00-10.00: **Opening**

10.00-10.30 Introduction to the course

10.30-11.00 **Coffee break**

11.00-12.00 Introduction to outbreak investigation (Presentation)

12.00-13.00 Introduction to the case study and to the database (short presentation)

13.00-14.00 Lunch

14.00-14.30 Practical exercise in relation to the case study

14.30-15.30 practical computer session 1: Introduction to EpiInfo software (presentation) and practical exercise on create a questionnaire, data entry and validation

15.30-16.00 Coffee break

16.00-17.00 Practical session 1 (continuation)

Tuesday

9.00-9.30 Descriptive analysis and epidemiological curves (presentation)

9.30-10.30 Practical computer sessions 2: Descriptive analysis on EpiInfo& epidemic curve using Excel

10.30-11.00 **Coffee break**

11.00-13.00 Practical session 2 (continuation)

13.00-14.00 **Lunch**

14.00-14.30 Study designs for statistical analysis and its indications (presentation)

14.30-15.30 Practical computer session 3: Decide on analytical study design and carry out bivariate analysis

15.30-16.00 **Coffee break**

16.00 17.00 Practical session 3 (continuation)

Wednesday

9.00-9.30 Biases and alternative study designs (presentation)

9.30-10.30 Practical computer session 4: Multivariate analysis

10.30-11.00 **Coffee break**

11.00-13.00 Practical session 4 (continuation)

13.00-14.00 **Lunch**

14.00-14.30 Role of the laboratory in outbreak investigation (presentation)

14.30-15.30 Preparation of the results communication

15.30-16.00 **Coffee break**

1600-17.00 Group reporting: Communication on outbreak

Thursday

9.00 – 9:30 Introduction to Spatial analysis

9:30 – 10:30 Spatial data

10.30 – 11.00 **Coffee Break**

11.00 –13.00 Geographic Information System (GIS)

13.00 –14.00 **Lunch**

14.00 –15.00 Generating spatial databases: Geographical coordinates and data tabulation

15.00 –15.30 **Break**

15.30 –17.00 Exercise

Friday

9.00 – 10.30 Space-time clusters

10.30 – 11.00 **Coffee Break**

11.30 –13.00 Exercise

13.00 –14.00 **Lunch**

14.00 –15.30 Presentation of results

15.30 –16.00 **Break**

16.00 –17.00 Evaluation of the training