# Data Collection and Analysis with OpenEpi and Epi Info

# Course Objectives/Outline

## Course Description

Public health information comes from surveys, case-control and cohort studies, surveillance reports, and medical records. Entering, analyzing, and understanding such data is a skill basic to public health work. This course provides free and portable tools and knowledge to create or import and analyze a database, and understand basic summary statistics. Software and a textbook on using OpenEpi and Epi Info from the Centers for Disease Control and Prevention (CDC) will be provided.

## Competencies

See attachment.

## Learning objectives

1. Understand how public health data is formatted for storage and analysis.
2. Be able to install and use Epi Info and OpenEpi, free programs for epidemiologic data management and analysis
3. Understand frequencies and two-by-two tables, odds ratios, and risk ratios for testing associations in epidemiologic data
4. Understand hypothesis generation and how it relates to sample-size calculation and data analysis

## Note to be shown on flyer:

This course will equip those with minimal informatics skills to install free epidemiologic programs for data entry and analysis on a Microsoft Windows computer, import and analyze public health datasets, create a questionnaire for data collection, and enter and analyze data. Please bring your own Windows laptop computer to the class so that you can go home with the working programs installed. A textbook and exercise notes will be supplied gratis.

Please bring a laptop PC (or a Macintosh with a PC emulator such as Parallels or Bootcamp)

## Instructors

Andrew G. Dean, MD, MPH, and Consuelo Beck-Sagué, MD, spent 19+ years at the Centers for Disease Control and Prevention, where Dr. Dean supervised the development of Epi Info. Dr. Beck-Sagué has used the software in more than 20 epidemic investigations and numerous other studies. Dr. Dean is co-developer of OpenEpi, and both have taught courses using these programs in a number of countries.

# Course Schedule

## Session 1 Structured Data and Its Analysis—3 hours

Introduction to types of data and how they are stored and analyzed

Data in Spreadsheets, and in Epi Info and OpenEpi

Analysis of a Miami/Dade Asthma Dataset in Epi Info and OpenEpi

Mapping and Graphing with Epi Info

## Session 2 Acquiring Data—3 hours

Designing a survey

Sample size calculation

Random number generation

Alternatives for data entry

Google Forms or Survey Monkey

Epi Info

Controlling data quality on entry

Importing data from Excel or Google spreadsheets

Merging Data

Discussion of class questions and ideas for using new skills

## Competencies for Public Health Professionals Addressed

This course addresses FIU Public Health Competencies A, B, and C by providing skills to collect, format, store, and analyze public health data, producing and interpreting epidemiologic statistics. **Details on competencies included in the course are presented in red, bold type.+-**

A. ANALYTICAL/ASSESSMENT SKILLS - Understanding the process of data collection, support of

technology transfer, information storage and collection capabilities for access to current health issues

and demographic information and community infrastructure.

• Identify the health status of populations and their determinants of health and disease **(work with variables representing health and disease conditions and with exposure to determinants of disease)**

• Identify sources of data and information on public **health (understand the difference between textual and documentary data and structured data)**

• Recognize the integrity and comparability of data **(by understanding data types and examination of outliers)**

• Describe how data are used to address scientific, political, ethical and public health issues **(using the concepts of statistical and biological significance)**

B. POLICY DEVELOPMENT/PROGRAM PLANNING - Identify, gather and interpret information on the

health of individuals and populations in the process of developing and prioritizing goals and objectives of

programs and services to assign resources and provide answers to the improvement of activities and

their results.

• Gather information relevant to specific issues of public health policy **( collecting and/or analyzing data on health risk exposures and outcomes)**

• Participate in program planning **(by evaluating relevant data and describing its significance).**

• Identify mechanisms to monitor and evaluate programs according to their effectiveness and

quality. **(Aggregating data from questionnaires, forms, and record reviews to produce summary statistics. )**

• Implement strategies for continuous quality improvement

C. COMMUNICATION - Practice and promote the expression of diverse opinions and perceptions;

reading and writing clearly and appropriately to the message and the audience in question; using

technology to transmit and receive information quickly.

• Identify the health literacy of the populations served

• Communicate in writing and orally, both in person and by electronic means, with linguistic and

cultural proficiency

**•** Transmit public health information using varied strategies **(with particular attention to structured data and data types)**

• Participate in the development of presentations with demographic, statistical, programmatic

and scientific data