

EG3246 Spatial Science and Health

Data Analysis & Summary

2009 Edition

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Introduction

Statistics are often used to summarise, explore, categorise and analyse complex information. Epidemiology is a branch of medicine that seeks to use statistics as a means to describe spatial and temporal changes in disease -and try to explain these changes.

As well as familiar statistical terms and ideas (means, min, max, standard deviation, relationships such as correlation and regression models etc) there are a number of medical statistics that are used to specifically characterise the co-factors responsible for disease as well as its overall aetiology. Such statistics include relative and absolute risk, prevalence, birth and death rates etc and are useful for studying health issues and allocating health resources.

The WHO European Health For All Database (<http://www.euro.who.int/hfadb>) provides detailed health and demographic statistics for European countries. This data spans a number of years.

Practical Objectives

- During this practical you will use a variety of data sources, in particular the *European Health for All Database*, to compile a profile of a **DISEASE OF YOUR CHOICE**
- Choosing a disease from the list available you must generate (for the Assignment) a brief "epidemiological report" (~850 words) for **EUROPE** -assessing the available information and creating your own analysis
- During your investigations you will examine all available case statistics (distributed by WHO and other relevant organisations) and relevant scientific literature (journal

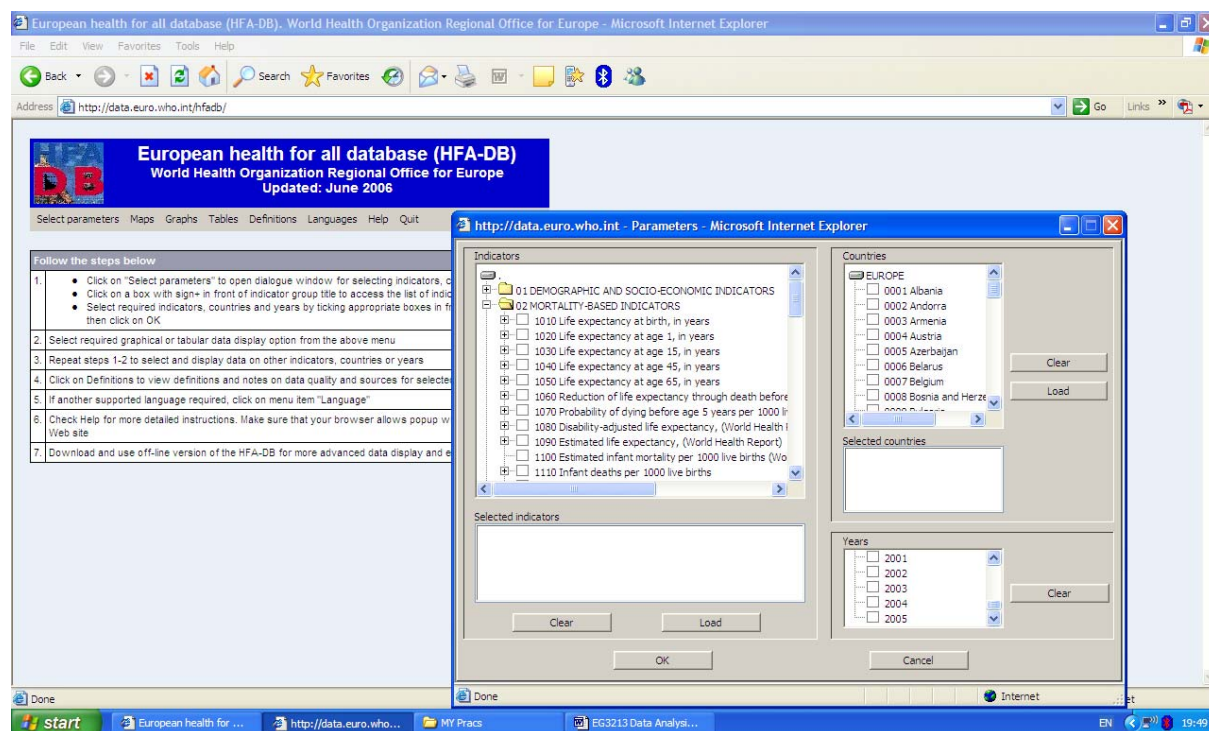
articles) to help synthesise your own results and ideas into a scientific argument.

- Your analysis should include attempts to calculate your own set of health statistics (e.g. prevalence, relative risk, birth rate, death rate etc) and **YOU SHOULD ATTEMPT TO EXPLAIN WHAT CO-FACTORS MAY BE RESPONSIBLE FOR THE EPIDEMIOLOGICAL CHARACTERISTICS OF YOUR CHOSEN DISEASE BASED ON EXTERNAL SCIENTIFIC PAPERS AND REPORTS.**

Data Sources

Most of the key data are provided for you at the WHO European Health For All Website:

<http://www.euro.who.int/hfadb> (Select ON-LINE version)



Some Key Methods

Looking at your unit Reader document (and previous lecture notes) you should see how key epidemiological variables can be calculated. You should compile data from the WHO website and examine the statistics in a suitable software package such as Excel or SPSS.

Additional Tasks

Your "Epidemiological Report" must be well structured and informative. For your chosen disease you may include sections such as:

- Introduction (background to the disease and its aetiology)
- Summary statistics and description of the distribution of the disease throughout Europe
- An assessment of the temporal variability of the disease (looking at previous years)
- Some indication of main co-factors associated with the disease (cause → effect)
- Any supporting materials, maps, current ideas etc

Some Literature & Organisational Resources

In addition to the documentation and data provided at <http://www.euro.who.int/hfad> (and using GOOGLE searches on the Internet) you can link your practical writing and analysis with relevant peer reviewed scientific journal articles. Some starter examples are provided for you to get you looking (accessed via Sciencedirect):

Ronan A. Lyons and Sinead Brophy (2005). **The epidemiology of childhood mortality in the European Union.** *Current Paediatrics, Volume 15, Issue 2, Pages 151-162*

P. A. Vermeire, k. F. Rabe, j. B. Soriano and w. C. Maier (2002). **Asthma control and differences in management practices across seven European countries.** *Respiratory Medicine, Volume 96, Issue 3, Pages 142-149*

EURODIAB ACE Study Group. (2000) **Variation and trends in incidence of childhood diabetes in Europe.** *The Lancet, Volume 355, Issue 9207, Pages 873-876*

Also worth looking at:

University of Glasgow -Medical Statistics on the Internet:

<http://www.lib.gla.ac.uk/Depts/MOPS/Stats/medstats.shtml>

HEALTHMAPPER: http://www.who.int/health_mapping/tools/healthmapper/en/

HEALTHMAP: <http://www.healthmap.org/en>

MALARIA ATLAS PROJECT: <http://www.map.ox.ac.uk/>

GLOBAL HEALTH ATLAS: <http://www.who.int/globalatlas/>

INT. J. of HEALTH GEOGRAPHIES: <http://www.ij-healthgeographics.com/home/>

WHO DATA & STATISTICS: <http://www.who.int/research/en/>