IntegraEpidoso: a web framework to integrate Epidoso data to spread data access for ease data analysis, ease share knowledge, and clusterization

Frederico Molina Cohrs[a], Heitor Gottberg[a], Luiz Roberto Ramos[b], Ivan Torres Pisa[c]

[a] *Public Health Post-graduate Program, Federal University of São Paulo, Brazil*
[b] *Public Health Department, Federal University of São Paulo, Brazil*
[c] *Health Informatics Department, Federal University of São Paulo, Brazil*

Abstract and Objective

Epidoso [1] is a cohort research started in 1991 aimed to understand how people get older, lose some abilities, get sick and die. The first research started with 1500 elders living in São Paulo, in a neighborhood close to and surrounding Hospital São Paulo. One of the biggest difficult to Epidoso was to integrate and distribute data among researchers for analysis and suggestion of new studies. Project Epidoso was finished in 2005 and right after, Project Epidoso II started in 2007, with other 1500 elders. IntegraEpidoso aims to provide a web framework to join Epidoso and Epidoso II data so researchers can find all data in one place, where data are kept safe and available. Some epidemiological calculators will be available. At the end, one clusterization will be done to identify groups of elders with same socioeconomics and epidemiological patterns for better health promotion.

Keywords:

Web framework, Management information system, Epidoso, cluster analysis, Promotion of health.

Introduction

From 1991, a group of physicians from Federal University of São Paulo (UNIFESP) started a cohort study to identify how aging and functional loss occurs in that population. The first group was composed of elders living close and surrounding UNIFESP, with 1500 people. Four interviews were done with this sample from 1991 up to 2005. Data weren't put together until they were moved from an entry data environment to an SPSS file. That SPSS file was then shared among researchers. One difficulty was that researchers didn't return metadata to SPSS file after creating them. So, other researchers couldn't know whole data and metadata that were being studied. In 2007 a new cohort started, called Epidoso II, with other 1500 elders from the same area, and the organization of all data was desirable. The solution was to create a web framework were data could be backed up, kept safe, distributed for selected researchers, and also, as a feed back to population that cooperated to Epidoso, publish some general reports for public access. Also, another reason to join all data was to apply a cluster method to identify groups of elders with common socioeconomics and epidemiological patterns. Groups identified could be used for a better directed promotion of health not only for elders, but also for families to learn how to deal better with them.

Methods

Some SPSS files were identified. They were unified and normalized to a relational database (MySQL). Normalization and tables were modeled on Power Architect. Data were migrated from an SPSS final file to MySQL database using SPSS and phpMyAdmin. The web system is being done using a Pisa's PHP framework developed at UNIFESP. Some epidemiological calculators will also be available to support researches. All access control will be done via programming features and MySQL managerial facilities. After publishing the web framework, a group of users, among them health researchers, people from the community and internet specialists, will evaluate how easy is to browse on the web system, how easy is to generate reports on demand, and export selected data according to each level of access. For clusterization, Two-Step method will be applied to identify a better number of clusters.

Results

IntegraEpidoso will allow more researchers to have instant access to Epidoso and Epidoso II data, keeping those data safe and sharing metadata that were created, as well as new indexes and cut-offs once they are created or suggested. And cluster resulted from the analysis can improve promotion of health for elders with a more directed communication; also family could better understand how to deal with their elders. And health policy makers will be able to work better with actions to improve elders' health, minimize their functional loss.

References

[1] Ramos Luiz Roberto, et al. Profile of the elderly in an metropolitan area of Southeastern Brazil: results of a household survey. Rev. Saúde Pública [serial on the Internet]. 1993 Apr [cited 2009 Aug 10] ; 27(2): 87-94. Available from: http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0034-89101993000200003&lng=en.