Ziriguidum in Nursing data: Cofen`s Data Treatment Methodology

Marcelo Felipe Moreira Persegona, Gelson Luiz de Albuquerque, João Carlos Felix Souza, Neyson Pinheiro Freire, Matheus Moreira Cruz, Gedalias Hugo de Oliveira Valentim, Gustavo Rocha Aquino González

Federal Nursing Council, Brasil
Email: marcelo.persegona@gmail.com

Abstract

The Federal Nursing Council is the largest category class in Brazil, with 1,535,568 inscriptions of active professionals in the Cofen – Regional Nursing Councils System, which represent 1,429,951 nursing professionals logged in the data base in 2012.

Cofen's Ziriguidum methodology for data treatment employed free software to assemble the infrastructure of a nursing data warehouse. The software employed were PogreSQL version 9.1, Pentaho BI Suite version CE 4.5.0, and I3Geo version 4.6.

Free software made feasible the implementation of a sophisticated TIC infrastructure for conducting Business Intelligence (BI) analysis, which previously owned platforms concluded were not feasible due to high cost for acquisition of software and necessary licenses.

The great amount of data and its distribution through the 27 Regional Councils of Nursing makes the database integration an arduous job, see figure 1. For such reason, employing specialist software integrated with advanced data treatment methodologies are very useful to obtain innovating answers and visions of data that allow finding data relationship and hidden knowledge in the mass of data of the several database existent in the Cofen Corens System and the several governmental offices. Without adequate treatment of the data mass, the only result is "info-intoxication".
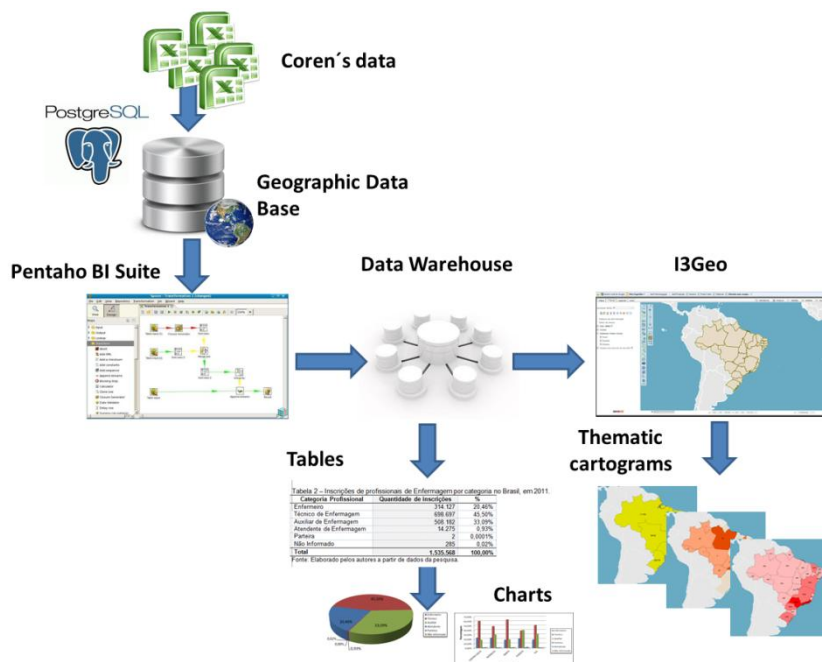
Figure 1 – Ziriguidum methodology for Cofen's data treatment.
Source: Developed by the authors.

In some situations, tabled data of systems (reports and webs) aren't sufficient as to represent situations in the real world in a complete visual form. That's when the representation of data in

the thematic cartographic shape helps in the representation of great volumes of data and allows perception of knowledge and information usually hidden in these masses of data.

Among the several difficulties and challenges in the implantation of Nursing DW is the processing of spatial view, as for the geographic attribute is usually a very large data set to be processed. On such account view performance tests were realized in order to find a structure that presented the necessary speed in its processing and, at the same time, allowed itself to be employed in obtaining thematic cartograms on I3Geo. The solution was to create a view of the data of interest in the DW and, afterwards, relate this view with the geographical table, as to aggregate the corresponding geographical attribute with the spatial dimension in which the thematic cartogram is wanted. In the example presented in this article, we managed to reduce processing time from 20 minutes to less than 1.5 second.

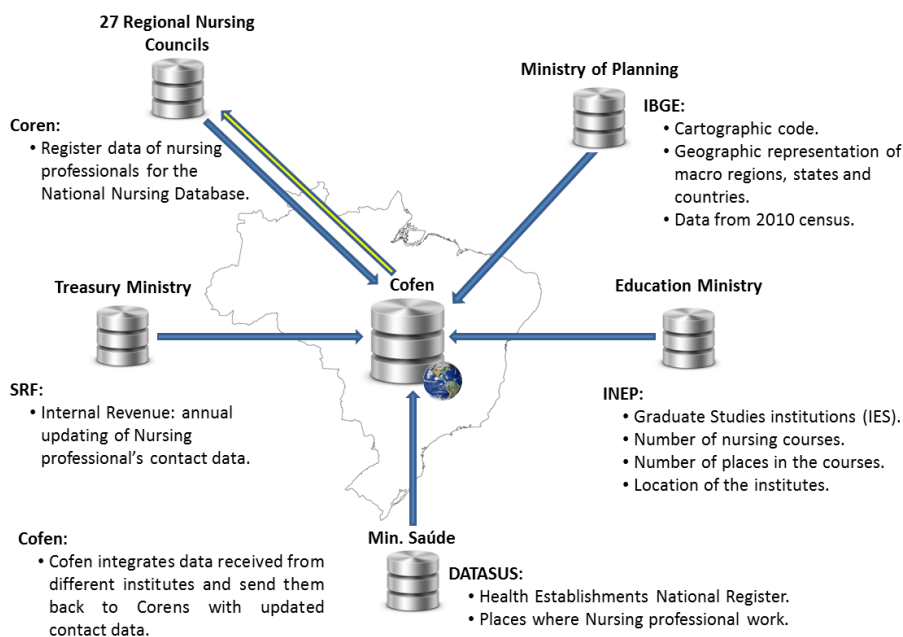Figure 2 represents data sources employed in the creation of Nursing DW.

Figure 2 – Data integration scheme for national data basis.
Source: Developed by the authors.

Besides that, the use of a Geographical Information System (SIG) allows better understanding of the behavior of cities, regions and countries through visual representation of tabulated data and perception of tendencies which in textual format would not be perceived on account of the great volume of data to be analyzed.

The next step for future is to apply statistical techniques and Data Mining computational methods in order to find and to improve knowledge in Nursing Sciences and to contribute to Health policies agencies.