Merging statistics and geospatial information, 2013 projects - Bulgaria

Statistics Explained

This article forms part of Eurostat 's statistical report on *Merging statistics and geospatial information: 2019 edition* .

Final report 8 January 2016

Problem

There are considerable differences between different regions within Bulgaria as regards the availability of health care services. The national statistical office therefore sought to establish a spatial component within its production process for health statistics in order to help the Ministry of Health ensure that each region could be in a position to provide sufficient access to a broad range of medical facilities.

Objectives

The aim of the project was to improve the statistical production process through the integration of spatial information on core health care statistics and register-based data maintained by national statistical bodies in Bulgaria, providing more extensive statistical data for analysing the health of the population and the accessibility to health care services at a various territorial levels.

Method

The project focused on the localisation of health care statistics by using geographical location descriptions from administrative sources to analyse regional differences in health care services and capacity. In a first step, an iterative process was used to select a range of indicators relevant for an analysis of regional health care patterns. The indicators selected covered the following domains:

- demographic change (total population, population by age group, natural increase);
- health care services (establishments, available beds, physicians);
- health outcomes (births, deaths and causes of death).

The next step was to collect data from administrative registers, including those for in-patient and out-patient establishments/hospices, in particular collecting identifiers such as the name of each establishment, its address, municipality and district. Information was also collected from the cadastral register, such as the functional use of buildings and coordinate references.

Each health care establishment was subsequently geo-referenced to the address of the service location (other than for a small number of out-patient establishments that were instead referenced to their postal registration). The address information was used to link register data with spatial data from the National Geodetic, Cartography and Cadastre Agency (NGCCA). In those cases where the cadastral information was scarce, street view was used to accurately position the location of health care services. Information was subsequently aggregated from local

administrative unit (LAU2) geometries to health region geometries.

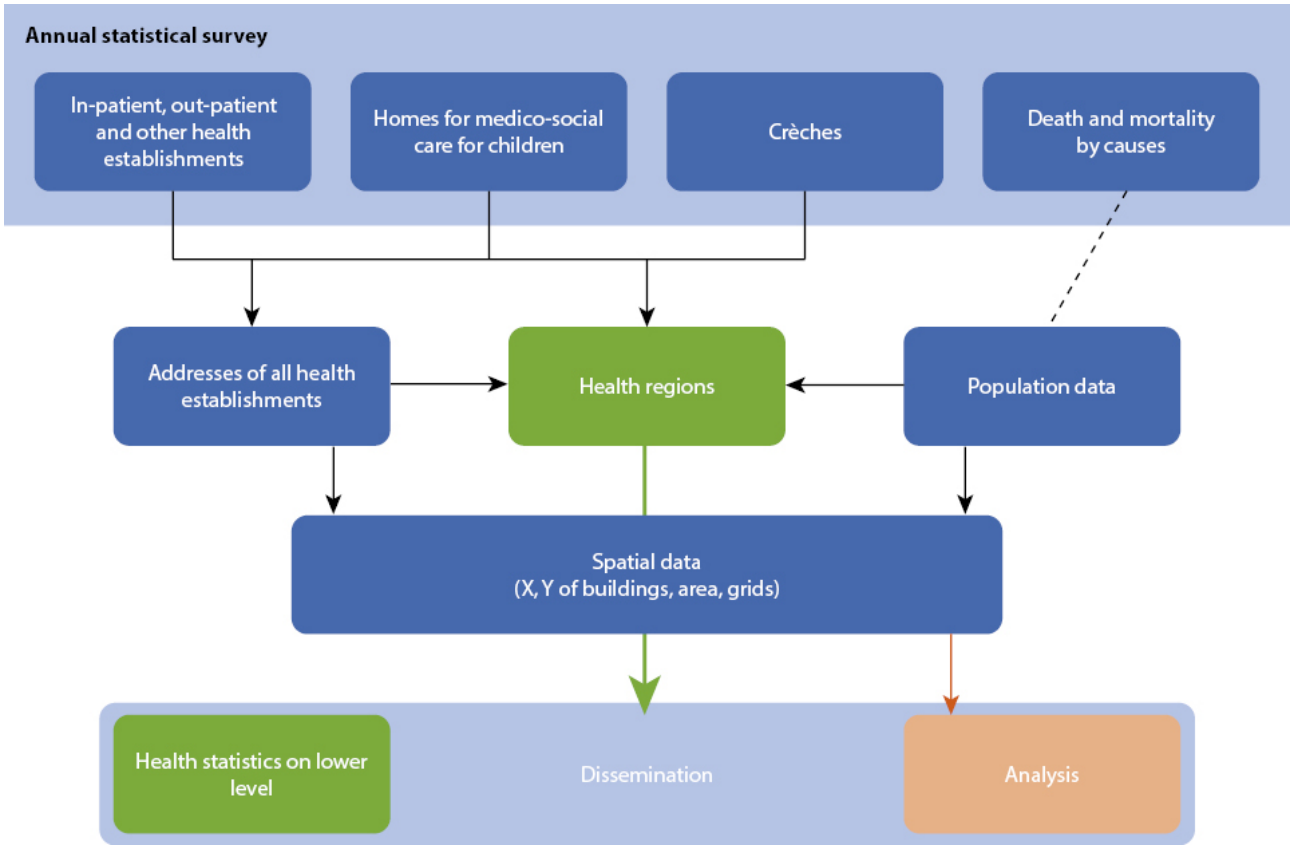

Figure 1: Organisation of the project

One of the main challenges was to harmonise the address information from health care and cadastral registers, although experience gained from previous exercises for the census proved invaluable. Furthermore, future updates were expected to be less of a burden given there is only a relatively small number of changes in the stock of health care establishments from one year to the next.

Results

The results from this project have led to a new set of geo-referenced health and population data with information on health care establishments linked to data from statistical surveys. These results facilitate a more detailed analysis of accessibility issues in relation to health care services which provides the Ministry
of Health with an opportunity to assess ways of improving public health planning at local, regional and national levels.

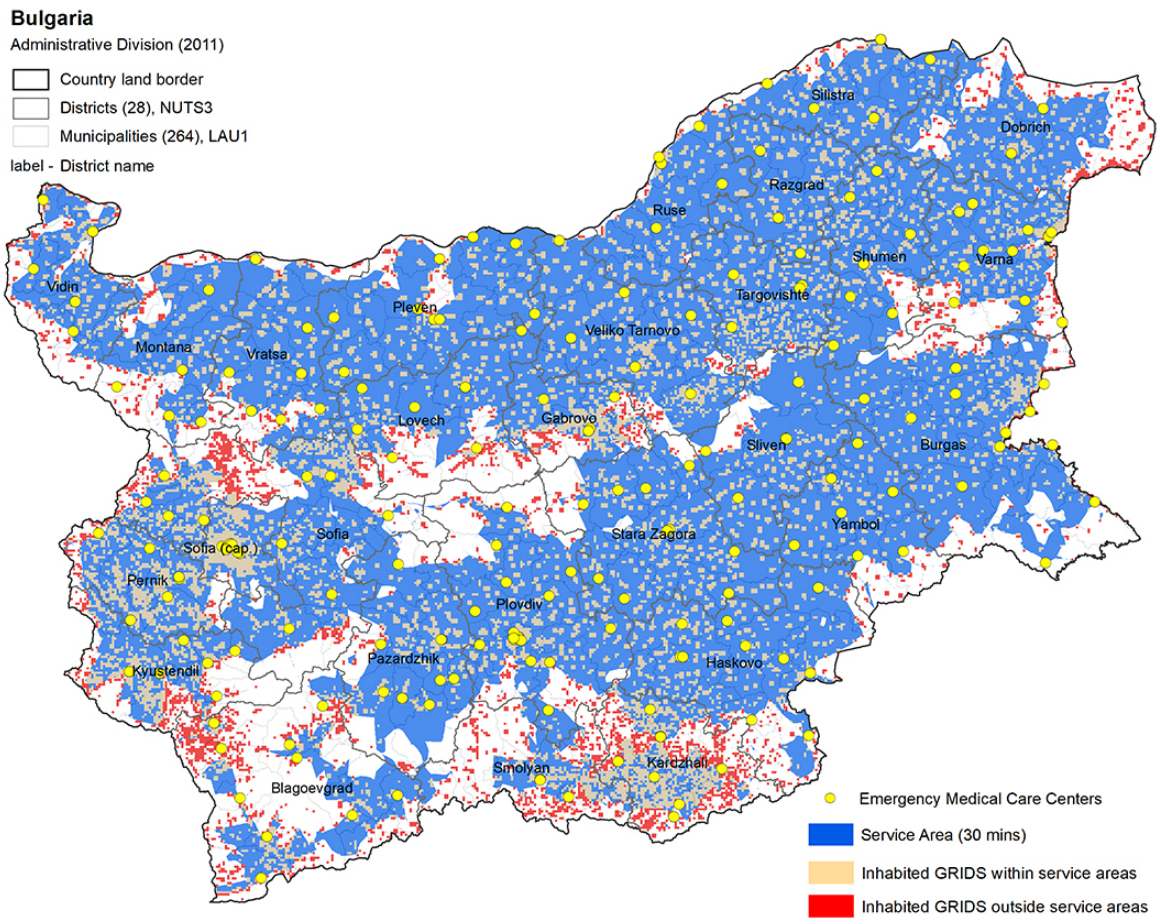

Figure 2: Service areas within 30 minutes driving time of an emergency medical care centre

In the future it is possible that the work carried out during this project could be extended to cover spatial analyses of the distribution of patients having used health care services, or analyses of emergency (112) calls, with the goal of improving the spatial distribution of emergency teams to ensure a rapid response for patients.

Furthermore, it is possible that the experience gained during this project may be put to use when implementing similar projects for other statistical domains, outside of the area of health statistics.

Methodology

- Final report

External links

- National statistical institute