

INFORMATICS

National portal of cancer epidemiology in the Slovak Republic

Ondrusova M^{1,2,3}, Ondrus D^{1,4}, Dusek L³, Muzik J³

National Cancer Registry of the Slovak Republic, National Health Information Centre, Bratislava, Slovakia.
martina.ondrusova@nczisk.sk

Abstract: The directive of the Ministry of Health, called „The obligatory report on malignant tumors“, specify the conditions of collecting and processing data about the patients with tumors. This material is presented in the Bulletin of the Ministry of Health 2000, part 10–12, Act No. 576/2004 of the Statute Book, and amended by the Amendment No. 662/2007 of the Statute Book. National Cancer Registry of the Slovak Republic, National Health Information Centre, would like to answer many requests for an easy and comprehensible access to the national data on cancer epidemiology. The working group created a new analytic web-page, called „National portal on cancer epidemiology“. All data are valid, adapted for publications and quotation and the access to the web-page is free for the wide professional public (Ref. 5). Full Text (Free, PDF) www.bmj.sk.
 Key words: cancer: epidemiology, availability, information system, web-page, www.nor-sk.org

The Slovak Oncological Society initiated the formation of a freely accessible information system, which would make the standard outputs of the National Cancer Registry of the Slovak Republic available to public in an appropriate form.

National Cancer Registry of the Slovak Republic at the National Health Information Centre (NHIC) of the Slovak Republic (hereinafter referred to as the NCR SR) is a specialized and methodical centre for the registration and processing reports on cancer incidence. In a close cooperation with the main expert in oncology from the Slovak Ministry of Health, as well as with regional experts in medical oncology, the NCR SR ensures and guarantees the completeness and high quality of data on cancer epidemiology in the Slovak Republic. All records are maintained in the international form, and stored in the NCR SR database. The data form the background for the statistical processing and analyses of onco-epidemiological situation in the Slovak Republic, on the both European and global level – in the cooperation with international organizations (e.g. IARC WHO, ENCR).

The task of the NCR SR is to keep permanently long-term records of cancer patients from the Slovak Republic, to complete data about the patient and his disease, while respecting internationally accepted classification systems (ICD, ICD-O, TNM) and comply with the Act on Data Privacy. Conditions and methods of collecting and processing data of cancer patients (diagnoses

C00-D48 according to ICD-10) are stimulated by the Act No. 576/2004 of the Statute Book, on health care, on services related to health care provision, and on amendment of some acts, as amended by the Act No. 662/2007 of the Statute Book (1), and by the directives of the Slovak Ministry of Health, the “Obligatory Reporting of Malignant Tumors in the Slovak Republic”, published in the Bulletin of the Slovak Ministry of Health, Chapter 10–12 (2).

Thanks to a high reliability and quality, the data processed and published by the NCR SR have been included in all international periodical publications, overviews and databases of the World Health Organization (WHO) and form a constituent part of international projects focused on cancer epidemiology.

The main objective of the project “National Portal of Cancer Epidemiology in the Slovak Republic” (hereinafter referred to as “the NCR SR web portal”) is to develop an information system to support scientific analyses from cancer data which are registered in the NCR SR. The system has been prepared to aggregate, analyse and present epidemiological, clinical and demographic data from the NCR SR, which have been so far regularly published in special monographs or in scientific reports.

The NCR SR web portal processes mainly epidemiological data on patients registered in the NCR SR. Anonymous and validated data from 1978 till present are available in the registry, which is a unique representative database, at least at the European level (the database currently contains nearly 500.000 records from the period 1978–2003). The epidemiological trends were processed with relevant demographic data about the population of interest. These data have been provided by the Slovak Statistical Office for the purposes of this project.

The project has been initiated by the effort to make these valuable data available to a broad spectrum of interested persons. The project is based on the presumption that general information about cancer epidemiology and related population risks should be freely available to all citizens of the Slovak Republic.

¹National Cancer Registry of the Slovak Republic, National Health Information Centre, Bratislava, Slovakia, ²Department of Cancer Epidemiology, Cancer Research Institute, Bratislava, Slovakia, ³Institute of Biostatistics and Analyses, Masaryk University, Brno, Czech Republic, and ⁴1st Department of Oncology, Comenius University Medical School and St. Elisabeth Cancer Institute, Bratislava, Slovakia

Address for correspondence: M. Ondrusova, RND, PhD, National Cancer Registry of the Slovak Republic, National Health Information Centre, Lazaretska 26, SK-811 09 Bratislava, Slovakia

In this way, the user gets a direct and unique access to complex information from available resources, which can be further used to subsequent analyses and interpretations.

The NCR SR web portal has been developed in a close cooperation with the Slovak Oncological Society and the Slovak Society of Pathologists. Among others, the Head of the Scientific Council of the Slovak Ministry of Health, the main expert in oncology from the Slovak Ministry of Health, and the Head of the Slovak Oncological Society have been involved in the preparation of the portal. The technological solution of the web portal has been provided by a team of authors from the Institute of Biostatistics and Analyses, Masaryk University.

The launch of the NCR SR web portal has provided a free access to all standard data on cancer epidemiology registered in the NCR SR, thus ensuring that both professional and general public in the Slovak Republic and abroad can get relevant information about cancer incidence and diagnosis.

Here is an overview of information service at the NCR SR web portal:

1. News: regularly updated information on recent developments in population risk assessment and cancer epidemiology.
2. Interactive analyses: freely available software tools, allowing a direct examination of trends in cancer epidemiology.
3. Reporting: commented outputs and presentations, prepared by leading experts in the field.

The information service of the NCR SR web portal will be further improved, taking into consideration also the users' comments. At present, an opposition procedure is under way, in cooperation with experts in oncology and pathology. The data can be analysed according to basic demographic characteristics and diagnostic information, as well as sorted by region or by time. The system is ready for automatic updates of epidemiological data at least once a year, as soon as the data are validated within the NCR SR. Future objectives involve the extension of the information service over the population risk assessment, in relation to available data on environmental conditions in the Slovak Republic. The presented version of the NCR SR web portal makes available standard epidemiological data from the NCR SR, which can be used only in conformity with the Copyright Act. Any reproduction, copying, editing, publication or further distribution is strictly forbidden without the appropriate citation of the source (3). All services of the portal are freely available (4).

Technical solution of the web portal

The web portal is running on two computers: a database server with aggregated data from the NCR SR and other data sources (OS Linux with database control system MySQL v.4.0), and a web server with user interface (OS Linux supporting the PHP scripting modules), thus guaranteeing the physical separation of the database server from the internet. The technical solution involves a secured backup of processed data and scripts, ensuring a quick recovery of necessary data after a possible system breakdown.

Technical requirements to use the web portal include a computer connected to internet and a web browser supporting HTML 4.01 and JavaScript (5).

What are the main benefits of the NCR SR web portal?

The NCR SR web portal spares your time

The web portal NCR SR makes available standard data from the NCR SR database in an aggregated form, providing end results of analyses and graphical outputs.

The NCR SR web portal is fully automated

The software enables to perform automatic analyses even to users without mathematical background, as the communication tools offer a simple selection of analyzed items.

The NCR SR web portal is a comprehensible and graphically-oriented tool.

The web portal contains an independent graphic module with more than 30 types of graphic outputs.

The NCR SR web portal is a full-fledged information source

The system provides to its users all data inputs needed to a comprehensive analysis of population risks related to cancer formation, i.e. aggregated epidemiological data, as well as demographic population data.

The following analytical tools are available:

Incidence and mortality – Time trends in cancer incidence and mortality in the Slovak Republic.

Time trends – Changes in cancer incidence trends and mortality over time (growth index and year-on-year changes).

Age of patients – Age structure of living and deceased cancer patients.

Regional overviews – Comparison of cancer incidence and mortality in regions of the Slovak Republic.

Comparative analyses – Time trends in epidemiological parameters in regions of the Slovak Republic compared to reference standards.

Clinical stages – Time trends in distribution of clinical stages.

Comparison with foreign countries – Comparison of cancer epidemiology in the Slovak Republic and worldwide (source: IARC – GLOBOCAN 2002).

Summary presentation – Comprehensive presentations of basic analyses for individual diagnoses.

The NCR SR web portal has been developed with the financial support of the Slovak Oncological Society and sponsorship from pharmaceutical companies (see <http://www.nor-sk.org>).

The authors of the project believe in a widespread use of these freely available data as provided by the NCR SR web portal.

References

1. Act No. 576/2004 of the Statute Book on health care, services related with health care provision in wording of the Act No. 662/2007 of the Statute Book.
2. Mandatory reporting of malignant tumours in the Slovak Republic, published in Bulletin of the Ministry of Health of the Slovak Republic 2000, part 10–12.
3. Copyright Act No. 618/2003 of the Statute Book.
4. Ondrusova M, Plesko I, Safaei-Diba Ch, Obsitnikova A, Stefanakova D, Ondrus D. Comprehensive analysis of incidence and mortality of malignant tumours in the Slovak Republic [online]. Bratislava, National Cancer Registry of the Slovak Republic, NHIC, 2007 (on-line), [thtp://www.nor-sk.org](http://www.nor-sk.org), ISBN 978-80-89292-05-9.
5. Dusek L, Muzik J, Kubasek M, Koptikova J, Snajdrova L, Ondrusova M. National portal of epidemiology of malignant tumours in the Slovak Republic (on-line). Brno, Czech Republic, Masaryk University 2007. <http://www.nor-sk.org>, ISBN 978-80-89292-05-9

Received February 5, 2008.
Accepted May 15, 2008.