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DEVELOPMENT OF THE NEW NATIONAL CANCER REGISTRY

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ABSTRACT

The Hungarian National Cancer Registry operates since 1998 in its current form, it's goal is to collect statistics about neoplastic diseases in Hungary. During the last decade, information technology went through enormous changes, and a lot of new ways emerged to be used in healing and prevention, that could have not been imagined by the creators of the original system.

INTRODUCTION

The ORG project - which was funded by the GVOP programme the National Institute of Oncology, MTA SZTAKI and Arvato Systems - renewed the cancer registry to be compliant with the requirements of today's IT systems. In the new, web technologies based environment, reporting to the central became much easier since it became almost fully automatic, and due to automatic error detection and correction the quality and authenticity of the statistical, personal and medical data has also improved.

The researchers of the National Institute of Oncology, who will mostly use the statistics of this new system, are also aided by a researcher module that makes the creation of statistics from the database quick and easy. The new system also allows them to collate economical, environmental, or other medical data with cancer diseases, and as a result find correlations between them. With this easy to use solution, the new National Cancer Registry contributes to an easier study of the reasons for the formation of cancer, thus in the long run we hope it will play an important role in the prevention.

ACHIEVEMENTS

The aim of the ORG project was to create an IT solution that enables unified data management using a distributed and standards-based architecture. In different areas of science, and nearly in all walks of life, the collecting, processing, secure and long term storing of large amounts of data is a problem. We achieved to make a system where the data can be sorted and grouped in various ways to be used by researchers and political, financial or other professional decision-makers. In this project, we created a specific distributed data warehouse, but the technical solution is general enough to be used in any other medical or completely different areas as well (like surveys, social or other scientific studies) for collecting and comparing data.

QUALITY ASSURANCE

Quality of data was a key issue in a database with such an importance. For improving quality of the data, our project developed a method with total data quality control that performs consistency checking, monitoring, error reporting and automatic correction from production to the final use, in the full life cycle of the data. This is implemented with so-called consistency criteria in an easily-extendible way that can be customised for each institute.

The consistency criteria are small functions with some background knowledge of some given area, that may range from simple ones such as checking whether the patients social security number is valid to very complex ones such as checking the probability of each new type of cancer for a patient in the light of his/her previous medical records. If an inconsistency emerges, the system sends the medical report back to the originating hospital, and the attending physician may decide whether the data provided was correct or needs some correction.

To protect such delicate data as medical records, all communication between the central server and the users of the system, and between the hospital servers and the central server goes through encrypted channels. By using XML-based standard formats for communication, the long-term storage and compatibility with possible future systems is also achieved.

LINKS

ORG Projekt Home Page: http://dsd.sztaki.hu/projects/org/en/
MTA SZTAKI Department of Distributed Systems: http://dsd.sztaki.hu
arvato systems Hungary: http://www.arvato-systems.hu/
National Institute Of Oncology: http://www.oncol.hu/