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Enhancing Cancer registration methods in Greece: The new monitoring system, spatio-temporal analysis and its perspectives.

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Background:

Who we are?

➢ The Cancer Registry of Crete (CRC) is the official regional registry of Crete aiming to report data on cancer mortality and morbidity and suggest **preventive and management measures** by **monitoring** the disease dynamics ***[http://crc.uoc.gr/]***.

Where do we operate?

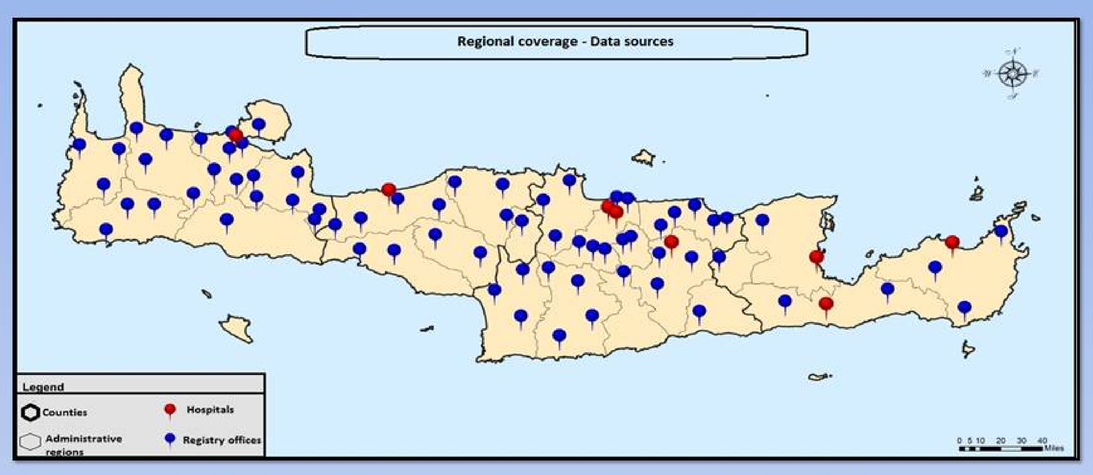
➢ It operated in the University of Crete since **1992**, as a joint initiative of the Department of **Clinical Oncology** of School of Medicine ***[http://www.pagni.gr:8081/pog]*** and the Clinic of Social and Family Medicine **(CSFM)** ***[http://www.fammed.uoc.gr]***, under the support of the **Region of Crete**, it opened a prospective new framework for the development of **a new digital cancer monitoring system (CMS).**

Aim of this study: to illustrate the CMS structure, its methods and perspectives.

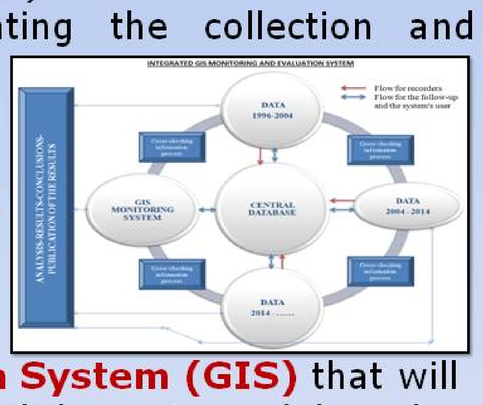
Main objectives: to present the CMS' mechanisms of supporting privacy and confidentiality of the data, data mining, pooling, standardization techniques and the spatio-temporal models applications.

Methods:

❑ Data are collected by **specially trained staff** form the death registries and hospitals of Crete, by distance, while the server is placed at the CSFM *(map, below)*.



❑ **Database management system (DBMS)** technology in the back-end and a graphical user interface (GUI) written in Visual Basic (programming language) were used to construct a CMS suitable for accommodating the collection and management of **"big data".**



✓ International standards of **disease coding (ICD10-O)** and **data privacy**

✓ The **CMS** is connected with a **Geographic Information System (GIS)** that will apply spatio-temporal analysis and dynamic models and export instant reports and maps.

✓ A pilot study was performed to test: **functionality, validity, reliability and accuracy**

Results – (I):

➢ Several **dysfunctions** were identified through the pilot and were managed directly, providing the final version of the CMS *(see Figure below; where the red **"N"** denotes additional features and enhancements)*:

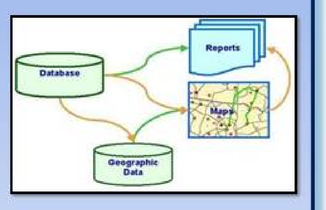
✓ **Drop-down menus** were used in the recording platform in order to increase usability. The use of several controls and privacy rules has decreased data entry errors.

Results – (II):

➢ **Export** data and files compatible for statistical softwares and environments

➢**Connection with the GIS system** offered a wide range of applications:

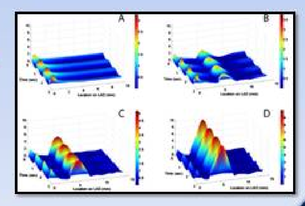
✓instant reports

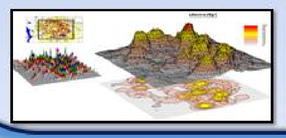


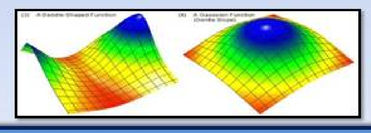
✓ identification of high risk areas or population groups,

✓ correlation with risk factors

✓and estimation of future risk







Conclusions:

❖ **Development of the CRC** is considered to be of major challenge for Crete as well as Greece; since it is the sole official cancer registry in the country that operated and publishes data, systematically.

❖ Within the coming years and with the required funding and capacity, the new CMS will become the main tool for population studies in the region that **will combine population structure and spatio-temporal dynamics**.