

## **Towards Cloud-Based Integrated Socio-Sanitary Care e-Services in Croatia**

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### **Keywords**

Integrated e-care, Cloud-based services, Care pathways, Integrated care plans, Mental health, ICT

### **Abstract**

*Providing health and social care services across Europe is becoming increasingly complex and costly. An aging population, a multitude of public, private and informal actors, together with a myriad of ehealth systems and technologies create numerous hurdles to offering efficient and cost-effective care. In order to tackle these issues, collaboration on multiple levels is needed between actors from healthcare and social care services - from private doctors to public hospitals and from home carers to emergency centers for the elderly. This, so-called Integrated e-care has to be structured efficiently, so the actors are aware of their specific roles in the value chain, and, most significantly, enables them to effectively share information between them. Serving content from the cloud allows access anywhere at any time. In order to validate the implementation of the model and its impact as well as its market replication potential in other countries, all pilots will run for more than a year, followed by evaluation of the results. Croatia has been running the pilot site in Psychiatric hospital "Lopača", in cooperation of the City of Rijeka and Croatian Health Insurance Fund. The Croatian pilot gathers stakeholders from various levels of medical services (primary, secondary, tertiary) and social services (national, regional, local) and serves as baseline for creating circle of care for patient/care user is a link between doctors – community nurses – social workers. The pilot currently involves 12 health care providers and 150 patients, with good perspectives to replicate this model to other target groups (various diseases and various social needs).*

### **Objectives**

Croatia's health care system is based on the principles of social health insurance. Provision and funding of services are largely public (95%), although private providers and insurers also operate in the market. The health care system is dominated by a single public health insurance fund - Croatian Health Insurance Fund (CHIF). Public healthcare in Croatia is provided through health centers, emergency care centers, home care centers, and pharmacies. There is at least one health center for every municipality which provides

primary healthcare. These centers ensure that emergency care, diagnostic services, and even maternal care is readily available to the population. Secondary healthcare can be obtained from any of the country's 64 hospitals. With better facilities and inpatient procedures, these hospitals offer services for obstetrics and gynecology, internal medicine, surgery, and inpatient pediatric care. Croatia also has sanatoria (spas) that are considered part of the country's natural healthcare combining natural elements with physiotherapy and massage. Tertiary healthcare on the other hand is provided by university clinics, clinical hospitals, and clinical hospital centers. Aside from providing healthcare on a more advanced level, they also specialize in medical research. Tertiary health care facilities, comprising clinical hospitals, clinical hospital centers and national institutes of health, remained state-owned. Secondary health care facilities (general and special hospitals) and county institutes of public health became county-owned. In order to establish the basis for improving accessibility of health and social services, Croatia has been running the pilot site in Psychiatric hospital "Lopača", in cooperation of the City of Rijeka and CHIF.

## **Methods**

In order to validate the implementation of the model and its impact as well as its market replication potential in other countries, all pilots will run for more than a year, followed by evaluation of the results. The pilots target to impact more than 125.000 users and is directly engaged with 1550 active users. The data collection is firstly done mainly on secondary sources from multiple studies done by reliable and reputable sources on the national and European levels. The "Lopača" pilot consists on health and social services coordination and aims to make improvement of health and quality of life of the people suffering from mental health problems or other mental health disorders, to enhance communication between all stakeholders, to recognize the processes within the value chains in order to increase the efficiency and quality of services, to improve level of mental care service (in the area of Rijeka), to improve accessibility of health and social services and to inform the public, by using ICT, of programs and services for mental health protection. The hospital treatment is performed within socio-dynamic therapy where emphasis is put on the extended treatment of chronic mental patients and their rehabilitation, which is conducted through organized occupational therapy and group and socio therapy. The hospital provides systemic therapy in geropsychiatric patients, and psychotherapy with family members of patients, and it also provides help in the events of crisis. The findings will be completed with the feedback of health professionals that have contributed the pilot.

## **Results**

In order to allow social services, medical organizations, patients, and private care givers to interact with each other through any device capable of running a web browser, a multi-channel, patient centered, integrated socio-sanitary care platform has been deployed. Main target groups were people over 60 years of age (the proportion of this population on the pilot site area increased in last 10 years from 22% to 27%),

suffering from mental health problems or other mental health disorders, and homeland war veterans suffering from posttraumatic stress disorder (PTSD). To enable a practical top level management, patients are segmented and associated with standardized care plans, also called care pathways, which are then adapted to customizable integrated care plans (ICPs) to cater for each patient's individual needs. Doctors are the only ones which can include a patient into an ICP. Nurses or social workers cannot start this process. Doctors are in charge of performing those care actions assigned to them as the result of patient's being classified into an ICP level with a specific set of care actions. Regarding the disease (mental) the patient in the pilot hasn't got active role but act as an end user of platform's solutions. The pilot indirectly involves the following institutions: Clinical Teaching Hospital Rijeka, Primary health care (general practitioners), Domiciliary Care Service "Kantrida" Home for the Elderly and the Disabled, Community Nurses Service and County Centre for Social Care.

## **Conclusion**

This work is supported by the INCA project: "Inclusive Introduction of Integrative Care", which is co-funded by the European Commission Competitiveness and Innovation Programme (CIP) within the ICT Policy Support Programme (ICT PSP), under the Grant agreement no. 621006. The project beneficiaries from Croatia are City of Rijeka (with its Department of Health and Social Welfare) and Croatian Health Insurance Fund (CHIF). The City Department carries out activities related to community's care for citizens who due to unfavorable personal and social reasons and circumstances are not in a position to independently meet their basic living needs. The City Department also implements activities regarding the improvement of accessibility and quality of health care in the city area and provides for citizens a higher standard of health care from the one which is secured by the state. The City of Rijeka has made bridging the digital divide one of its priorities and there is a plan to systematically address the needs of groups that are at risk of exclusion from the Information Society. Primary targets of ongoing efforts are disabled and elderly people, but also many other groups on Social Welfare programs. CHIF is a single public health insurance fund in Croatia, which is financially out of State Treasury. To ensure quality of access to all citizens, the national health care network is operated by care providers contracted by CHIF. The network determines allocation of public financial resources between the 20 counties according to morbidity, mortality, demographic characteristics, etc.

## **References**

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