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VNIVERSITAT
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NEW DECISION-MAKING TOOLS OF MANAGEMENT OF CHRONIC PATIENTS

INVENTION DESCRIPTION

Nowadays, the use of Information and communications technology (ICT) is very common in many institutions and entities, such as private and public hospitals.

A research group of the Polibienestar Research Institute at the Universitat de València works with decision-making tools of management of elder chronic patients and they have developed several related softwares, specifically LTCMAS and PART.

The first software titled **Long Term Care Multi-Agent Simulator (LTCMAS)** allows one to take decisions and to generate care pathways for chronic patients, using personal and aggregate data, into complex systems of health and social care.

It is a computer system to support decisions related to the care / management of chronic patients. The group of patients to which this invention is directed is people over 65 with chronic diseases.

LTCMAS uses as a starting point the "Sustainable Socio-Health Model (SSHM)", considering variables involved in the evaluation of patients, actors interacting in the system and health and social services and resources available. The new computational model integrates patients interaction with the health and social system, based on patient clinical variables (diseases, previous interactions with the system: emergency, admissions, etc.) and

informal care.

The main problem that LTCMAS solves is the ability to manage the complexity arising from the interaction of health and social systems in the field of chronic care, and the need to make customized decisions without losing sight of the overall system. This problem can't be addressed by professionals or managers without the use of ICT.

The second software, **Poli.chronic- hospital Admission Risk assessment Tool (PART)** allows the detection of patients with high risk of hospitalization.

The software applies the algorithm "Poli.chronic Assessment" to predict future hospitalizations of elder patients with chronic diseases who are at home.

It is designed to facilitate decision-making processes and management of chronic patients to facilitate proactive and preventive actions in primary care.

The basic problem that PART solves is the absence of standardized tools in the Spanish health system, which is able to detect automatically elder chronic patients with high risk of hospitalization.

Researchers at the University of Valencia have developed a new computer support system in decision-making and a mathematical model to assist in the management of chronic patients.

BUSINESS APPLICATION SECTORS

The new software applications are very interesting for use in health and social care systems, public or private health insurance companies and increasingly by private managers. For example, in regards to the latter they have an increasingly important role within the Spanish health system and cover approximately 13% of the population.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

The main **advantages** provided by the **LTCMAS** are:

- The invention would allow simulating real complete social and health systems, applied to the management of chronic patients.
- The results would assist managers to know future scenarios about specific populations by applying changes in certain variables, such as the availability of specific resources or services, or increased life expectancy.



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- Also, the software can simulate predictively the operation of the system on real values, scaling the results to various dimensions (time, geographical)

The main **advantages** provided by the **PART** are:

- More personalized and individualized attention (customization of the intervention).
- Standardized information on patients at risk of hospitalization.
- Establishment of normality and risk ranges.
- Comparison between patients.
- Objectivity of the criterion, beyond the in situ observation of health workers.
- Adaptation to the context in which it operates, such as values or sociodemographic characteristics.
- Efficient distribution of economic and assistance resources. It will reduce the health costs associated to hospital and primary care; given that people over 65 causes more than half of all hospital admissions.
- Encourage the development of proactive-preventive care models.
- Simulations and projections on real models.

DEVELOPMENT STATUS OF TECHNOLOGY

The technology has been validated with clinical data and currently the Polibienestar research group is working on its optimization.

INTELLECTUAL PROPERTY RIGHTS

The technology is protected by Intellectual Property Rights through the following software:

- Long Term Care Multi-Agent Simulator (LTCMAS)
- Poli.chronic- hospital Admission Risk assessment Tool (PART)

COLLABORATION SOUGHT

- License agreement, manufacturing or marketing.
- R & D project to complete the development or apply to other sectors.
- Subcontracting agreement with another company.
- Possible spin-off (looking for partners)



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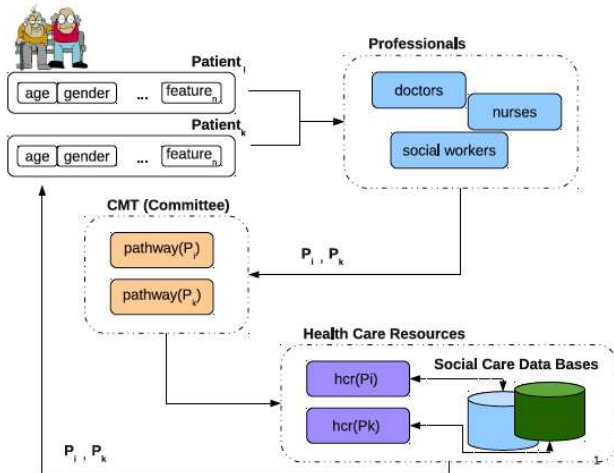
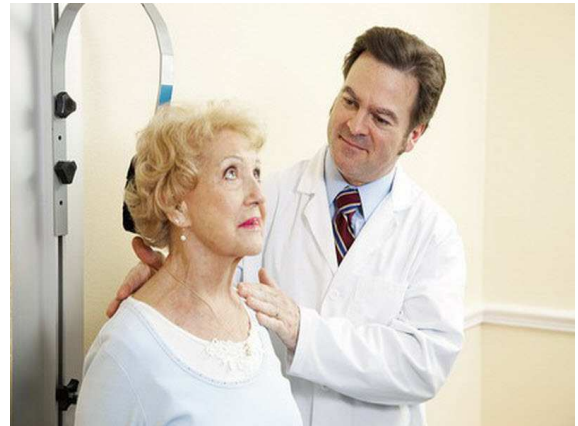


Fig. 1. Overview of LTCMAS.



RELATED IMAGES

Imagen 1: Dispositivo sensor primario para interiores

Imagen 2: Dispositivo sensor con encapsulado IP68 para exteriores

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