

“Taking advantage of the possibilities offered by Artificial Intelligence is essential for public health to stop managing the disease and move towards generating health.”

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The inductive use of data and not just the traditional deductive use is moving medicine towards a personalized and population model.

At a glance

Country: Spain
Industry: Healthcare
Founded: 1787
Employees: 5,000
Website: www.idissc.org

Challenge

The incorporation of many different types of data is revolutionizing the healthcare sector. The ability to apply semantic and analytic technologies to this heterogeneous mass of data, as well as traditional healthcare data, to discover hidden correlations, identify care patterns and support clinical decision-making is paving the way for a new generation of improved healthcare services.

Solution

Fujitsu has developed HIKARI, a healthcare API to improve clinical decision-making and the accurate assessment of risks for individual patients.

Benefit

- The solution has halved the time for the preliminary assessment of patient records, increasing the time available for consultations
- HIKARI identifies care patterns, establishes demographic profiles, provides exploratory analysis of datasets and delivers information via a rich and interactive visual environment
- Faster and improved clinical decision-making with highly accurate risk assessment

At a glance

The San Carlos Clinical Hospital (HCSC) has sought to improve care, teaching and research since it was founded in 1787. During over two centuries of history, the hospital has changed and adapted to meet the demands of the residents of Madrid and the high standard of its facilities and staff have made it a national and international leader. The HCSC Innovation Unit of The Institute of Sanitary Research of the San Carlos Clinical Hospital (IdISSC) is responsible for promoting, supporting and disseminating healthcare innovation and supporting the process of transforming ideas into products and services that represent value for patients, staff and the system as a whole.

Products and services

- Fujitsu Health API
 - Knowledge Acquisition Service
 - MH Patient Diagnosis Service
 - MH Risk Assessment Service



Challenge

Digital transformation has seen the advent of Big Data and the analysis of data from all sectors, including healthcare, to help organizations make better decisions. The potential of Big Data in healthcare lies in taking advantage of all the information that can be gleaned from data to improve the quality of the sector and, most importantly, improve the care provided to patients and the public.

Traditional healthcare institutions have extensive paper archives built up over many years, representing a body of data that is often difficult to systematize, locate and interpret. The implementation of the electronic clinical history represents significant progress, facilitating analysis by providing information in an accessible and legible format with centralized access.

However, in a "post-digitization" era, the information generated on a daily basis remains underused. "We have access to a vast quantity of data but it's hard to extract meaningful information that helps us improve the quality of the care we provide," explains Dr. Julio Mayol Martínez, Medical Director and Director of Innovation at the San Carlos Clinical Hospital.

Solution

At the end of 2014, Fujitsu approached HCSC to show some of the tools its innovation and data usage teams had been working on. "It was designed as an open format, with the chance to ask questions and analyze whether Fujitsu tools could help answer them," explains Dr. Germán Seara from the Innovation Unit. "We realized Fujitsu's proposal was different from other commercial companies. Fujitsu saw us as a partner in a collaborative relationship based on co-creation and innovation."

HIKARI (light in Japanese) is an artificial intelligence solution developed jointly by Fujitsu Laboratories Europe (FLE), Fujitsu Spain and the Innovation Unit at The Institute of Sanitary Research of the HCSC Madrid. This human-centric solution allows doctors to access integrated, grouped and anonymous data obtained from clinical and non-clinical sources. It is a new advanced clinical research information system that brings together an advanced suite of micro-services that allow doctors to extract knowledge and carry out analyses using multiple data sources related to patient health. The platform is the fruit of in-depth research into the application of data analytics in the healthcare sector. It implements Fujitsu Laboratories' cutting-edge data analysis and anonymity technologies, adapted to the specific needs of the Spanish healthcare sector. In the meantime, Fujitsu has developed the Human Centric AI Zinrai framework the result of more than 30 years of AI-related research and development.

Benefit

After a year working together, at the start of 2016, the joint project was ready to begin field testing. Six months later, the results already deduced that the time taken by doctors to carry out preliminary assessments of patient records would be halved, freeing up more time for consultations.

"The first phase of the project was much more descriptive. Using proofs of concept, we devised a set of questions we wanted to answer from a clinical/medical perspective, thus defining the information on which we would focus, seeking to understand patient behavior in their care journey," explains Dr. Seara. "The information obtained from proofs of concept and the convergence of the information from different databases and different formats, such as accident and emergency, inpatient care and consultations allowed us to begin to group responses together and visualize them. HIKARI identifies care patterns, establishes demographic profiles, provides exploratory analysis of datasets and delivers information via a rich and interactive visual environment. In just seconds, HIKARI gives us an instant and complete picture, something which used to take hours. To access and order this information has completely revolutionized the clinical decision-making process.

"The ability to separate patients into categories depending on the type of diagnosis or more general psychiatric risks allows us to attribute mental health and general pathologies to these categories and risks. This is essential for allowing doctors to understand all the health risks associated with a patient and prescribe the most appropriate treatment," adds Dr. Seara. "In the testing phase, we saw positive results of over 85 percent in identifying the risk of suicide and alcohol or drug abuse.

"Establishing predictive analysis models for the next step will allow us to let patients and the public play a much more active role in their own health. An informed patient must be able to make decisions on what they want to do with their life. Medical practitioners will act as consultants who provide patients with advice, but it's their life. Taking advantage of the potential of artificial intelligence is a fundamental part of ensuring the development of public healthcare beyond managing illness, moving towards a participative, predictive, preventive, personalized and population model of health," explains Dr. Seara.

"The philosophy and practice Fujitsu has brought to this project is what everyone who is interested in innovation looks for. A company that is sensitive to the suggestions of its partners. Fujitsu listens to you and understands your needs and philosophy," remarks Dr. Seara.

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