

CALYSAP: CONCEPTUAL MODEL-BASED INFORMATION SYSTEM FOR EFFICIENT AND SECURE DATA MANAGEMENT OF NUCLEAR MEDICINE AND RADIOPHARMACY UNITS

DESCRIPTION OF THE TECHNOLOGY

Nuclear Medicine (NM) is a medical speciality that uses radioactive molecules (radiopharmaceuticals) for diagnostic and therapeutic purposes. Radiopharmacy (RF) is the healthcare speciality responsible for the acquisition, custody, preparation, control and dispensing of radiopharmaceuticals (Rphals), through their appropriate selection and management. Rphals are special medicines due to their radioactive nature and the need to be prepared before administration. All NM Services (NMS) and Radiopharmacy Units (RPHU) need to adapt to current legislation regarding quality criteria in NM and guarantees of quality, safety and efficacy in the preparation of Radiopharmaceuticals. To do this, it is necessary to have intelligent Information Systems (IS) that guarantee the traceability of processes and

the management of care activity, and that adapt to advances in imaging techniques and clinical information.

Researchers from the Universitat Politècnica de València and the Hospital Universitario Doctor Peset (FISABIO) have developed Calysap, a software that constitutes a double innovation: from the clinical point of view, it is a unique tool that improves the quality of information and traceability of the entire MN and RF process, with the consequent improvement of safety and quality in patient care; and from the point of view of technological innovation, it applies conceptual modelling and explainable artificial intelligence (EAI) techniques for its design, development and maintenance.

MARKET APPLICATION SECTORS

Calysap is of interest to Nuclear Medicine Services and Radiopharmacy Units in hospitals and other healthcare centres. It is also of great interest to clinical application development companies and to manufacturers and distributors of Nuclear Medicine and Radiopharmacy equipment.

TECHNICAL ADVANTAGES AND BUSINESS BENEFITS

Technical advantages: The *Calysap* IS is a development that fills a commercial gap, as there is no application available on the market that includes both the clinical process of the patient undergoing an imaging scan or treatment and the radiopharmaceutical process with all the guarantees of quality and safety for the patient. Therefore, features such as completeness, quality, traceability and improved patient safety are clear clinical advantages provided by this software solution. In addition, it substantially improves the quality of the records and facilitates their exploitation.

The application of conceptual modelling techniques provides the major advantage of allowing adaptation and/or extension to future technical and scientific advances.

The implementation of *Calysap* in an NMS improves efficiency in both clinical and administrative management and facilitates access to multicentre data management for the Administration.

CURRENT STATE OF DEVELOPMENT

The initial *Calysap* software is currently being used in the NMS, however, improvements are being developed to achieve a final version which includes the latest technologies. This latest version is in Proof of Concept (prototype) mode on which testing/validation tasks are being initiated.

INTELLECTUAL PROPERTY RIGHTS

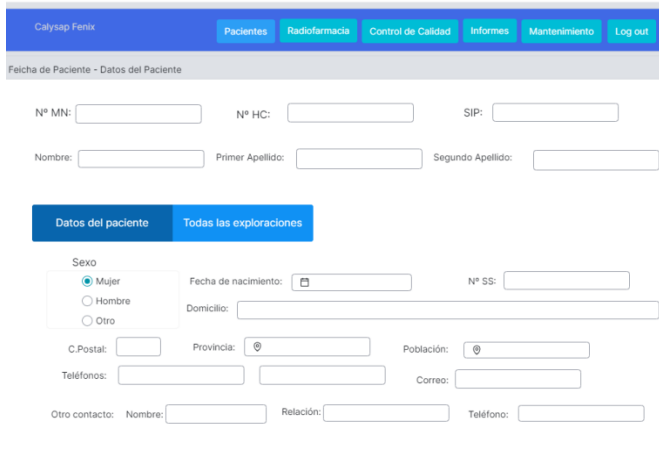
The software has been registered as intellectual property on 4th February 2021.

COLLABORATION SOUGHT

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Software development companies interested in licensing the software for distribution to other healthcare systems are needed.

RELATED IMAGES



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Fecha de Paciente - Datos del Paciente

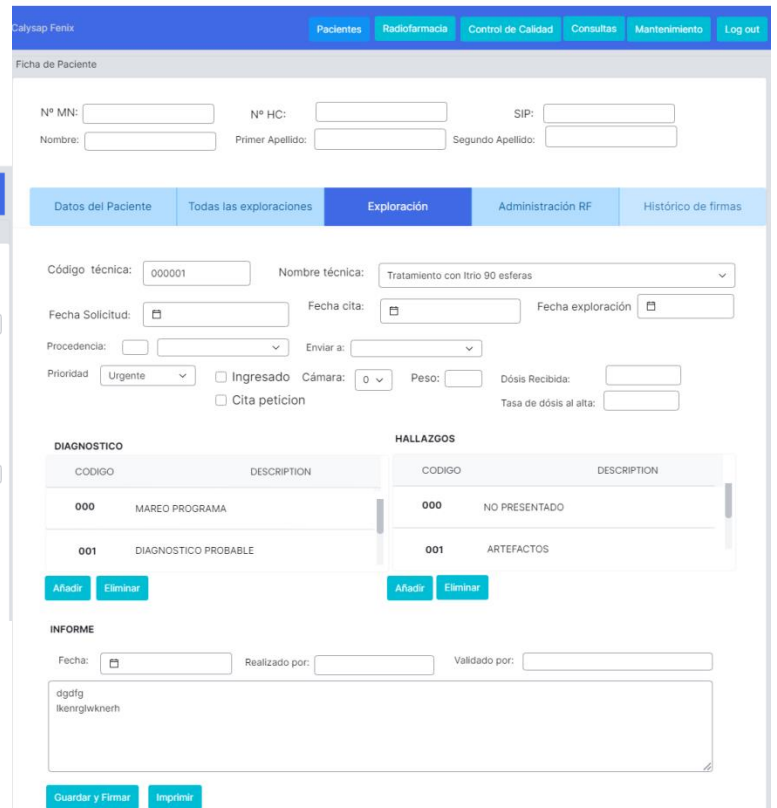
Nº MN: Nº HC: SIP:
 Nombre: Primer Apellido: Segundo Apellido:

Datos del paciente Todas las exploraciones

Sexo: Mujer Hombre Otro
 Fecha de nacimiento: Nº SS:
 Domicilio:

C.Postal: Provincia: Población:
 Teléfonos: Correo:
 Otro contacto: Nombre: Relación: Teléfono:

Figure 1: Patient data



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Fecha de Paciente

Nº MN: Nº HC: SIP:
 Nombre: Primer Apellido: Segundo Apellido:

Datos del Paciente Todas las exploraciones **Exploración** Administración RF Histórico de firmas

Código técnica: Nombre técnica:

Fecha Solicitud: Fecha cita: Fecha exploración:

Procedencia: Enviar a:

Prioridad: Ingresado Cámara: Peso: Dosis Recibida:
 Cita petición Tasa de dosis al alta:

DIAGNOSTICO		HALLAZGOS	
CODIGO	DESCRIPTION	CODIGO	DESCRIPTION
000	MAREO PROGRAMA	000	NO PRESENTADO
001	DIAGNOSTICO PROBABLE	001	ARTEFACTOS

INFORME
 Fecha: Realizado por: Validado por:
 dgdfg
 lkenrglwknerh

Figure 2: Window for managing scan data

CONTACT

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