

Opendataclinica as a platform for the exchange of open data from clinical studies



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BIOBANKING FOR
GLOBAL CHALLENGES

INTRODUCTION

In biomedical research, it is essential to integrate, standardize and harmonize the information that each research centre collects for its particular objectives. Around the world, new discoveries have been realized over old, open and available data. The lack of specialized programs makes it difficult or nearly impossible to exchange data in order to generate new knowledge.

Promoting biomedical research requires solutions that generate an open exchange of data and integration with biobanks, in order to link patient information in all aspects, in tracking disease or in clinical trials (including virtual). Opendataclinica has its reason to be, as a tool that facilitates research and the creation of knowledge. Opendataclinica is based on a web platform, with emphasis on the management and analysis of information from simple demographic data to complex statistical analysis of results.

AIM

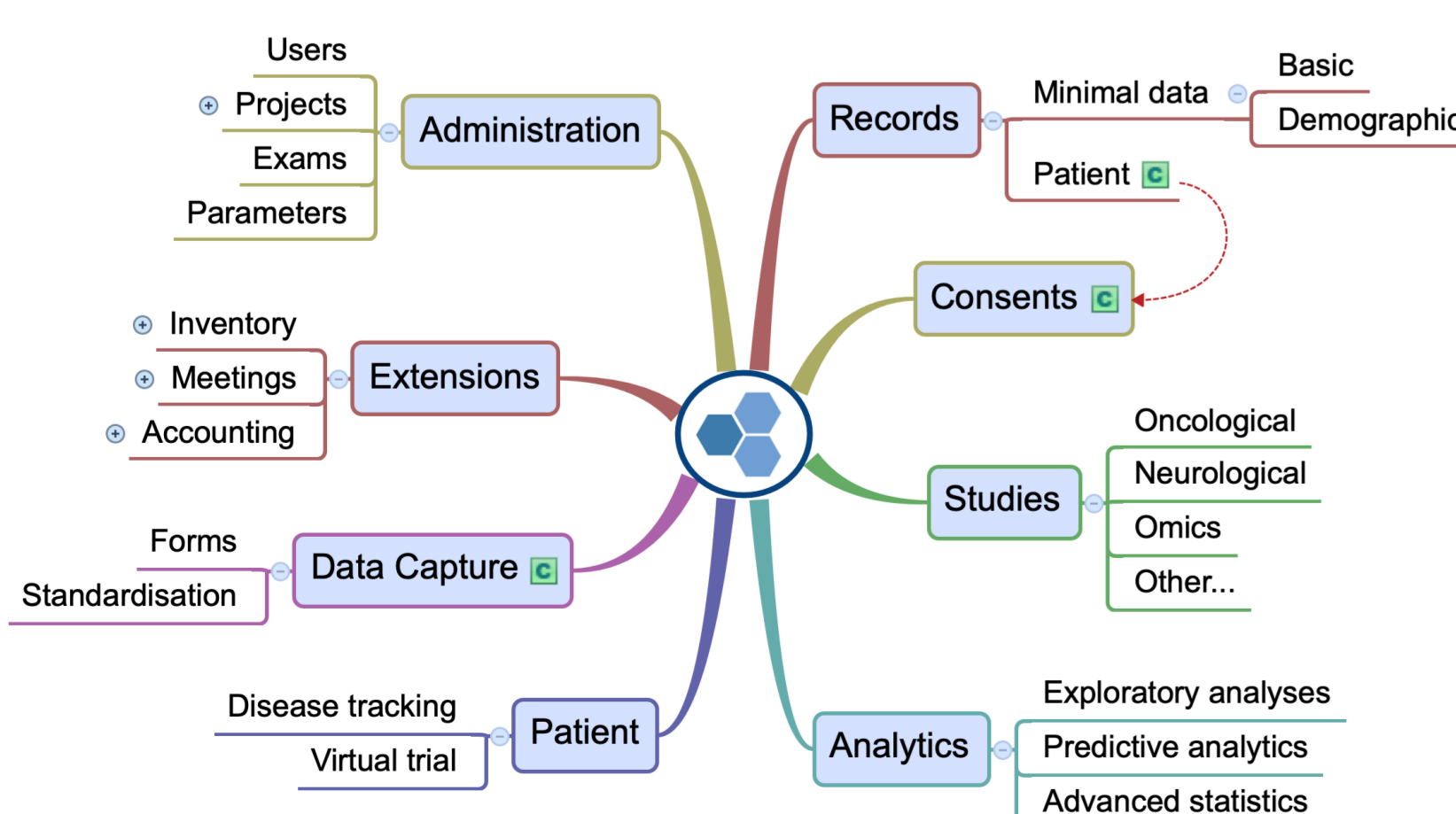
To promote biomedical research through the use of open data, and offer researchers a versatile and secure platform for the storage of all types of data and documents required in clinical and observational studies.

Develop a system for integrating patient studies and linking their results to promote both research and health improvement.

METHOD

Due to the heterogeneity of the information included, a hybrid model of data was defined in PostgreSQL and the use of JSONB format as a storage model to allow high flexibility in the types of information involved.

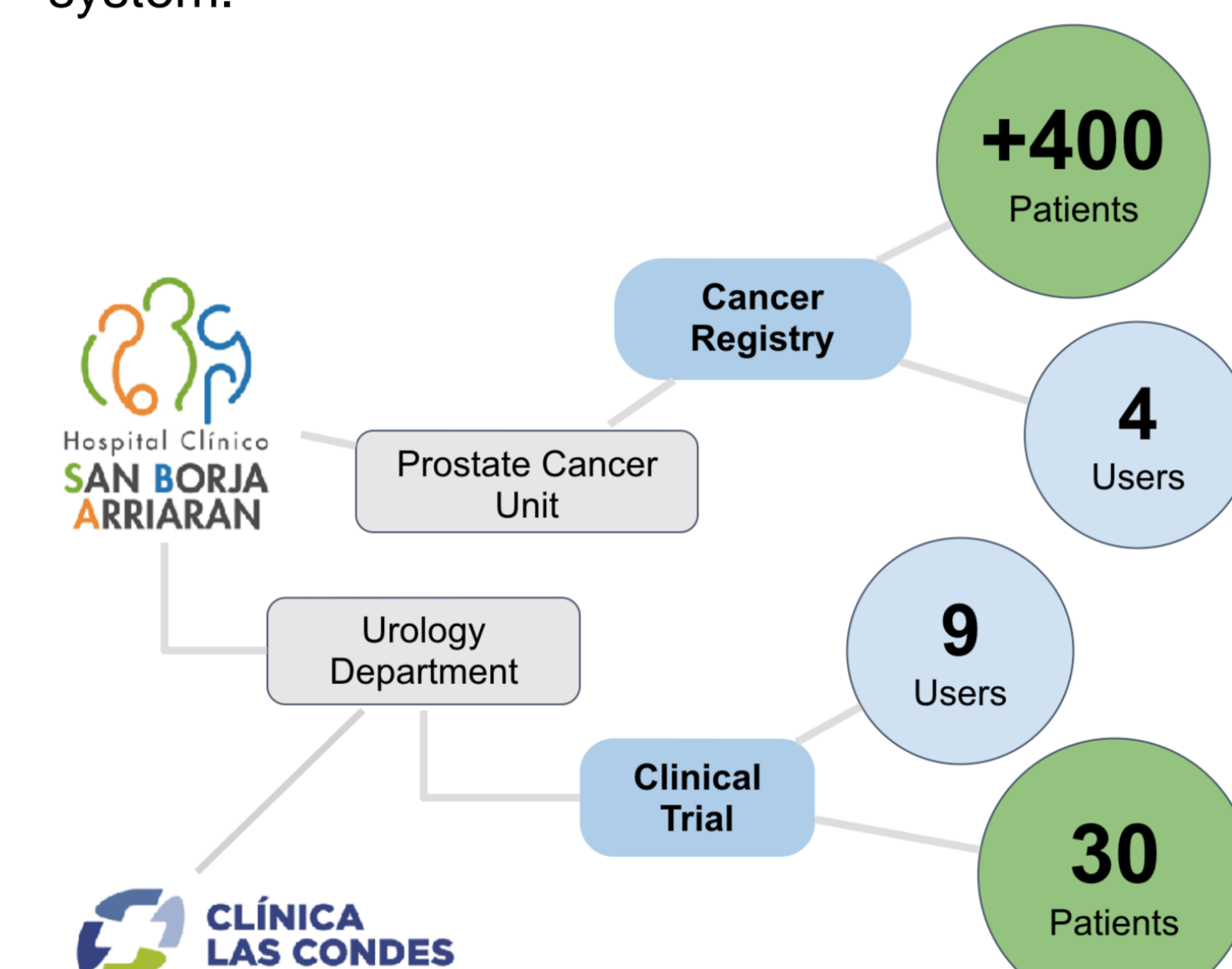
With the above, a series of flexible and customizable form was modelled to ensure the entry of any type of information. We collected the first cohort of patients diagnosed with recurrent urinary tract infections from the Hospital Clínico San Borja Arriarán and Clínica Las Condes.



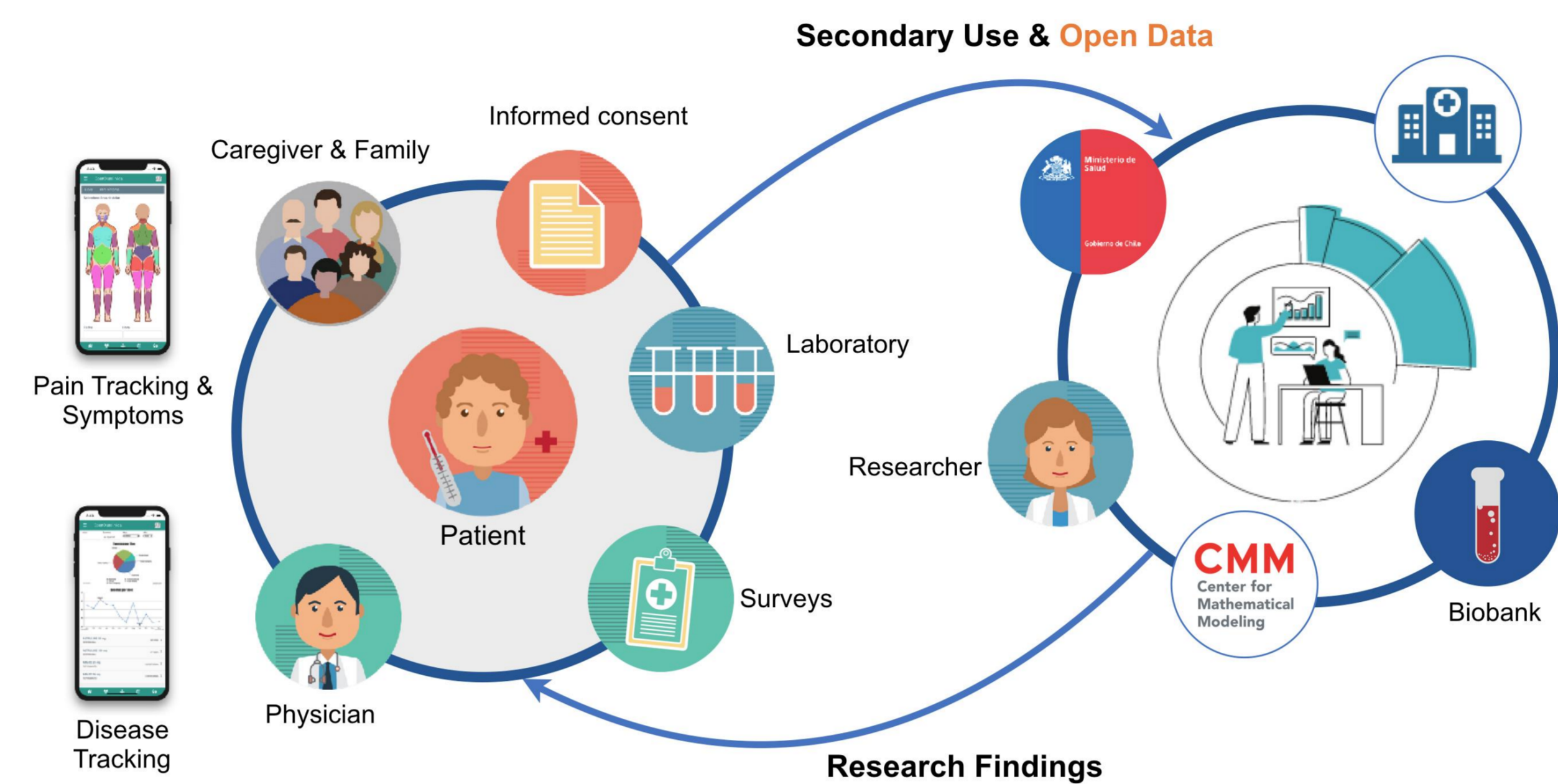
RESULTS

Based on web technology, a computer program called Opendataclinica was developed, which gathers and organizes information from research projects using flexible forms and databases. It attaches informed consent and any other additional documents, and makes it possible to track valuable information. It can also help patients monitor their diseases and register their participation in virtual trials.

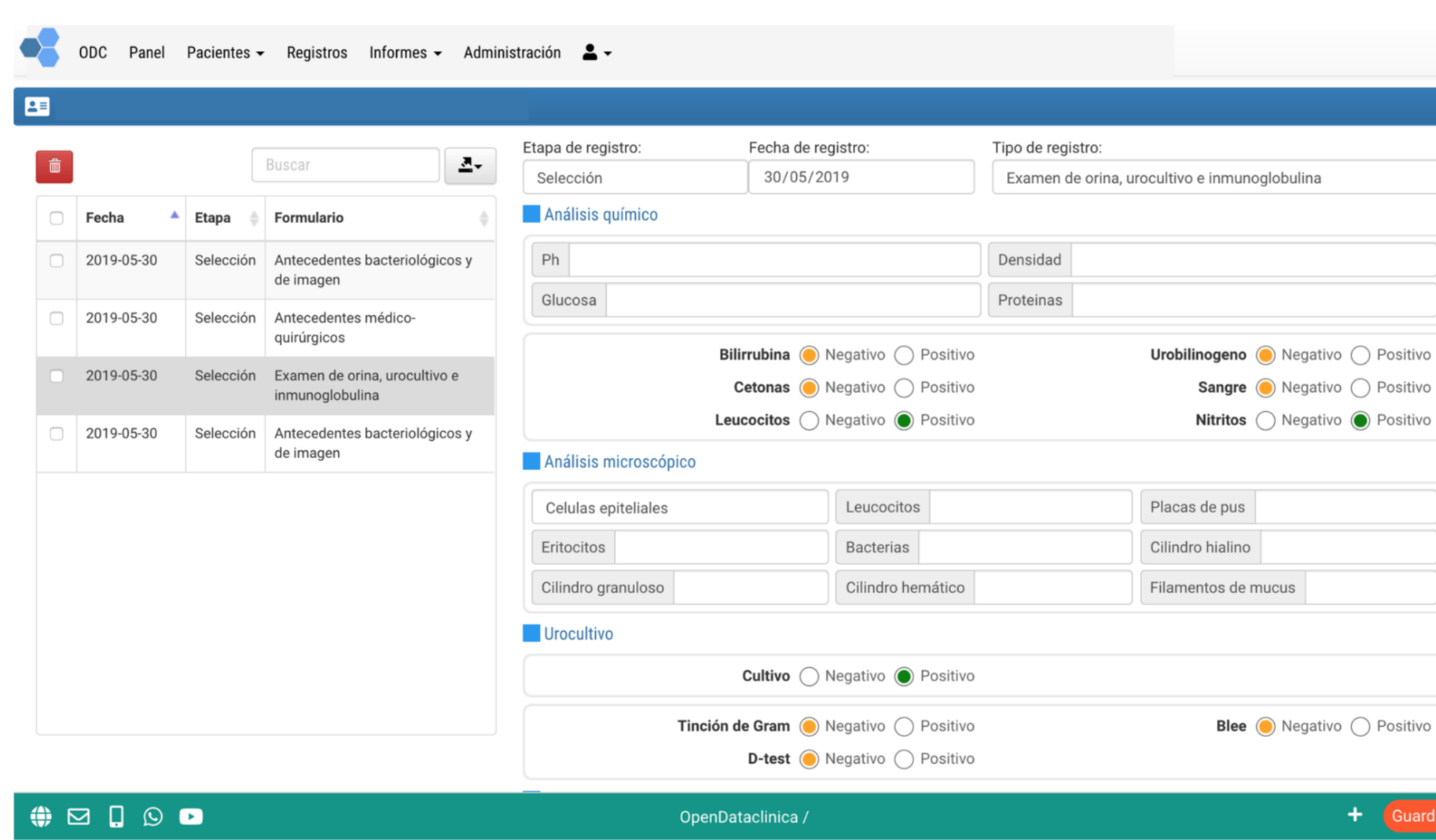
The Prostate Cancer Unit of the Urology Department at San Borja Arriaran Clinical Hospital uses Opendataclinica as a cancer data recording system.



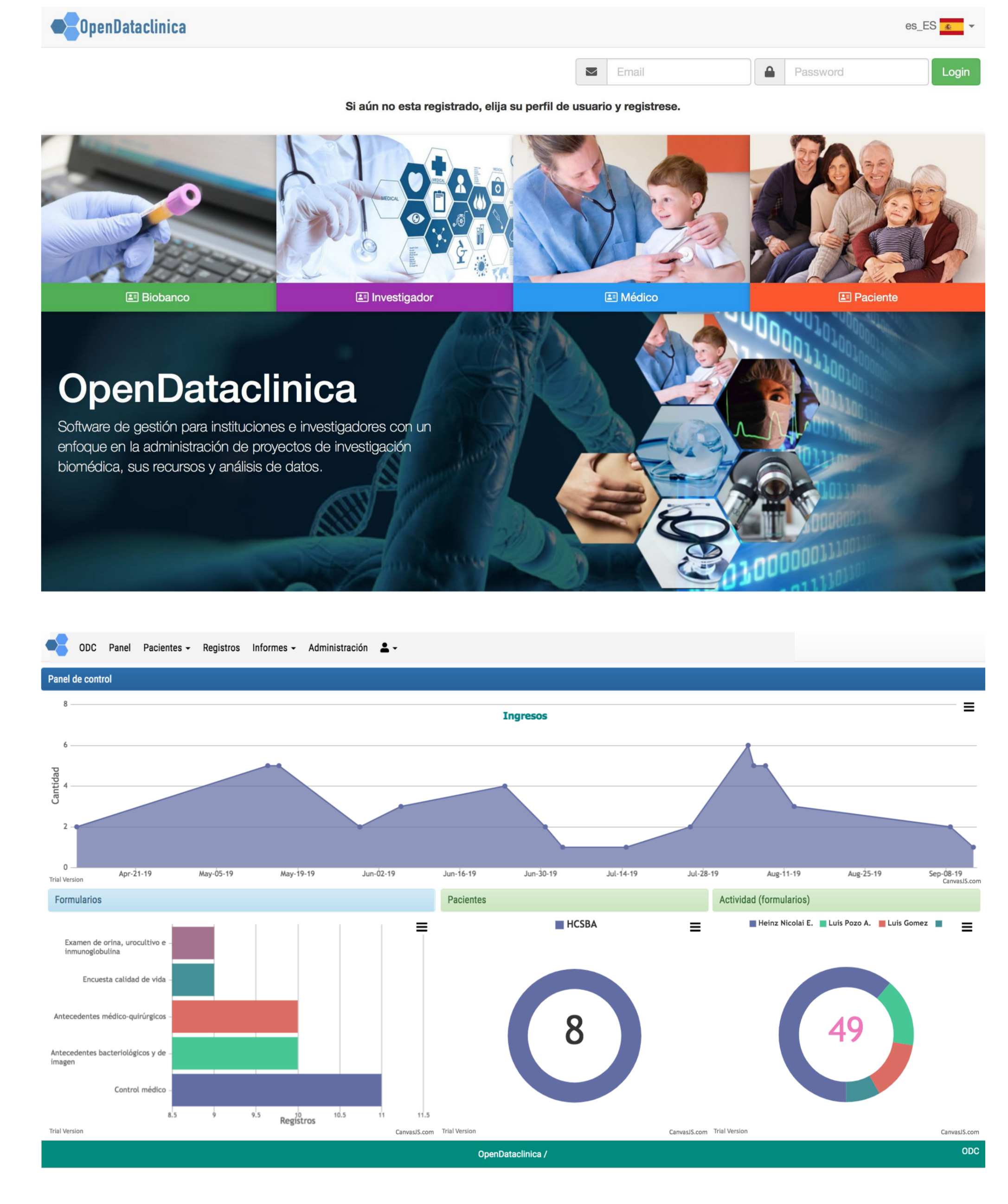
Opendataclinica has been tested both in clinical trials and in the cancer registry system.



Opendataclinica's function is that of service software (SAAS). Entities, users and research projects (or diagnostic groups) are defined independently from each other.



Forms and surveys of any kind can be aggregated to capture the information needed for the research.



CONCLUSIONS

Opendataclinica is implemented as a web-based solution to manage the most relevant aspects of biomedical research and clinical trials. Security and privacy of the data are granted.

The choice of the selected data structure, specifically JSONB (in a NoSQL model), proved to be effective in the storage of information of the different domains in biomedical research, which is characterized by being heterogeneous. It allowed a greater simplicity in the adequacy of the records to the need of the investigator.

Outlook

The next planned features are:

- Incorporation of a greater number of pathologies.
- Include biobanks in the chain of custody of data associated with biological samples.
- Analysis framework with Shiny and R software.
- Machine learning routines on demand.
- Become a comprehensive repository of biomedical research results.

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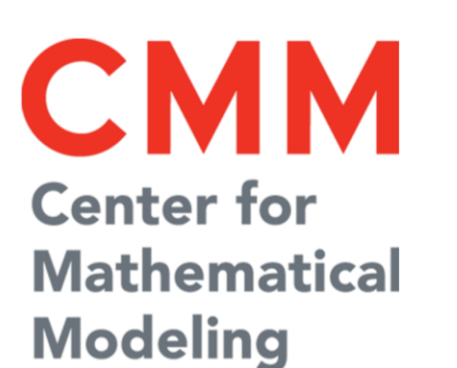
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ACKNOWLEDGEMENTS

To the medical and teaching staff of the Department of Urology and the Department of Child Neuropsychiatry at the San Borja Arriaran Clinical Hospital.



We are especially grateful to the Center for Mathematical Modelling of the University of Chile for the partnership in R&D on medical data and the use of the services of the National Laboratory for High Performance Computing.



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