



PROOF OF CONCEPT FOR OBTAINING EHR-DERIVED DATA FOR ARMD RESEARCH

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INTRODUCTION:

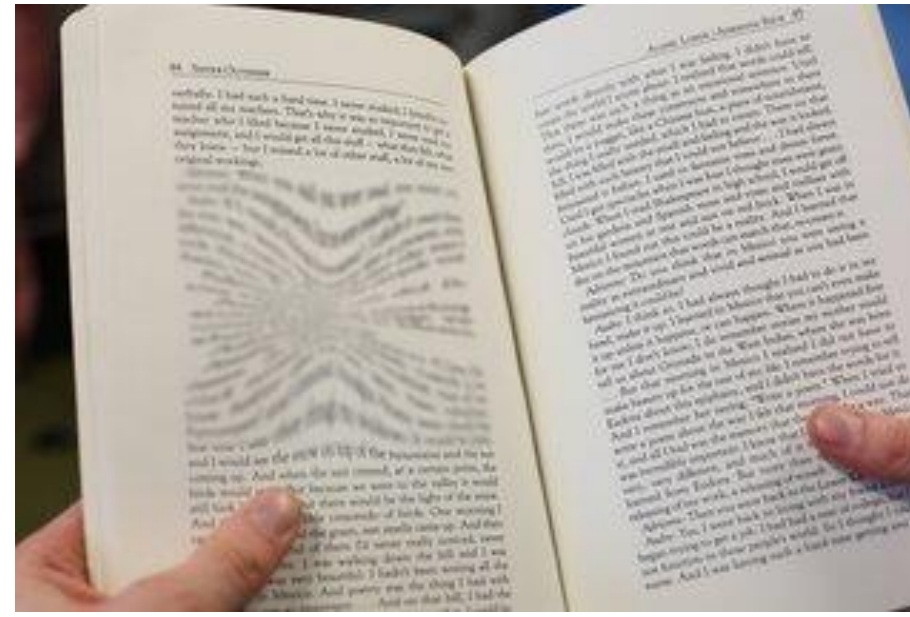
Age-Related Macular Degeneration is the leading cause of vision loss in people over the age of 60. It is essential to investigate the causes and consequences of ARMD in patients' lives.

Obtaining data for research often requires additional, parallel efforts to the data entry during healthcare.

The methodology applied in this project is based on previous work carried out at H12O, specifically the INFOBANCO project, whose objective is the construction of a platform for the management and reuse of EHR data.

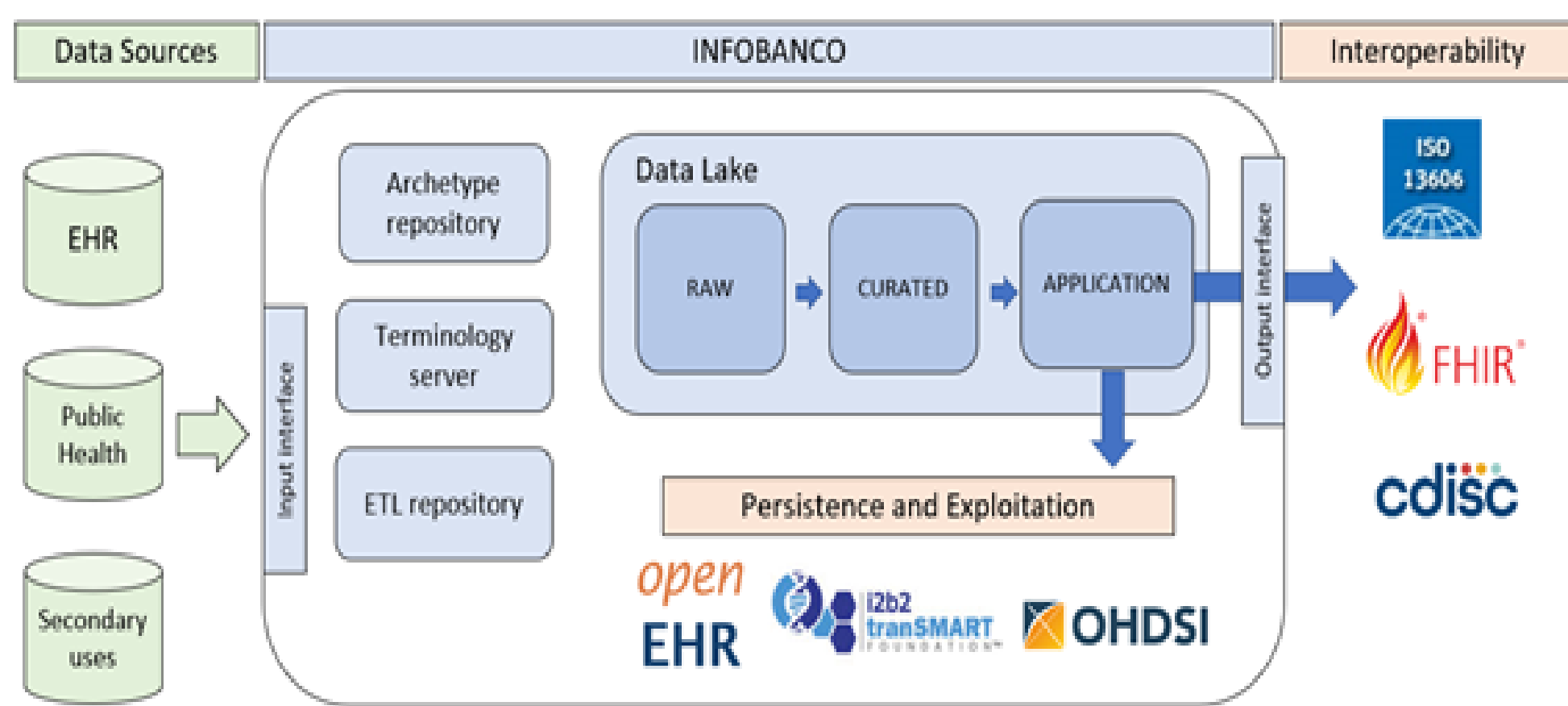
MAIN OBJECTIVE

- ❖ To implement an automated process to obtain data for ARMD research from the EHR of H12O.



SECONDARY OBJECTIVES

- ❖ To design and formalize the ARMD information model in the EHR.
- ❖ To select and apply appropriate modeling standards and terminologies.
- ❖ To define the extraction, transformation and loading process (ETL) to obtain the ICHOM ARMD model.
- ❖ To implement and validate the process by generating a data extract according to the ICHOM ARMD model.



INFOBANCO project architecture diagram

- Technical interoperability
- Syntactic interoperability
- Semantic interoperability
- Organizational interoperability

- Focused on the communication protocols and necessary infrastructure
- Related to data format and codification
- Related to the information Exchange with a proper meaning conservation
- Organizational capacity to efficient data communication and transfer

METHODS

1. State-of-the-art analysis of health information standards, data models for ARMD, and programming and database languages used for clinical data collection and processing.
2. Design of a standardized information model for ARMD research assistance.
3. Implementation of a set of ISO 13606 archetype models, specifying their links to standard terminologies.
4. Analysis of the ICHOM model for ARMD and definition of the design of the ETL process to obtain the model from the EHR.
5. Implementation of the ETL process.
6. Analysis and validation of the dataset automatically obtained from the EHR according to the constraints from the ICHOM model for ARMD.

RESULTS

A multipurpose information model implemented into H12O HER.

The ETL process required to obtain the ICHOM data model from the EHR, using SQL and R.

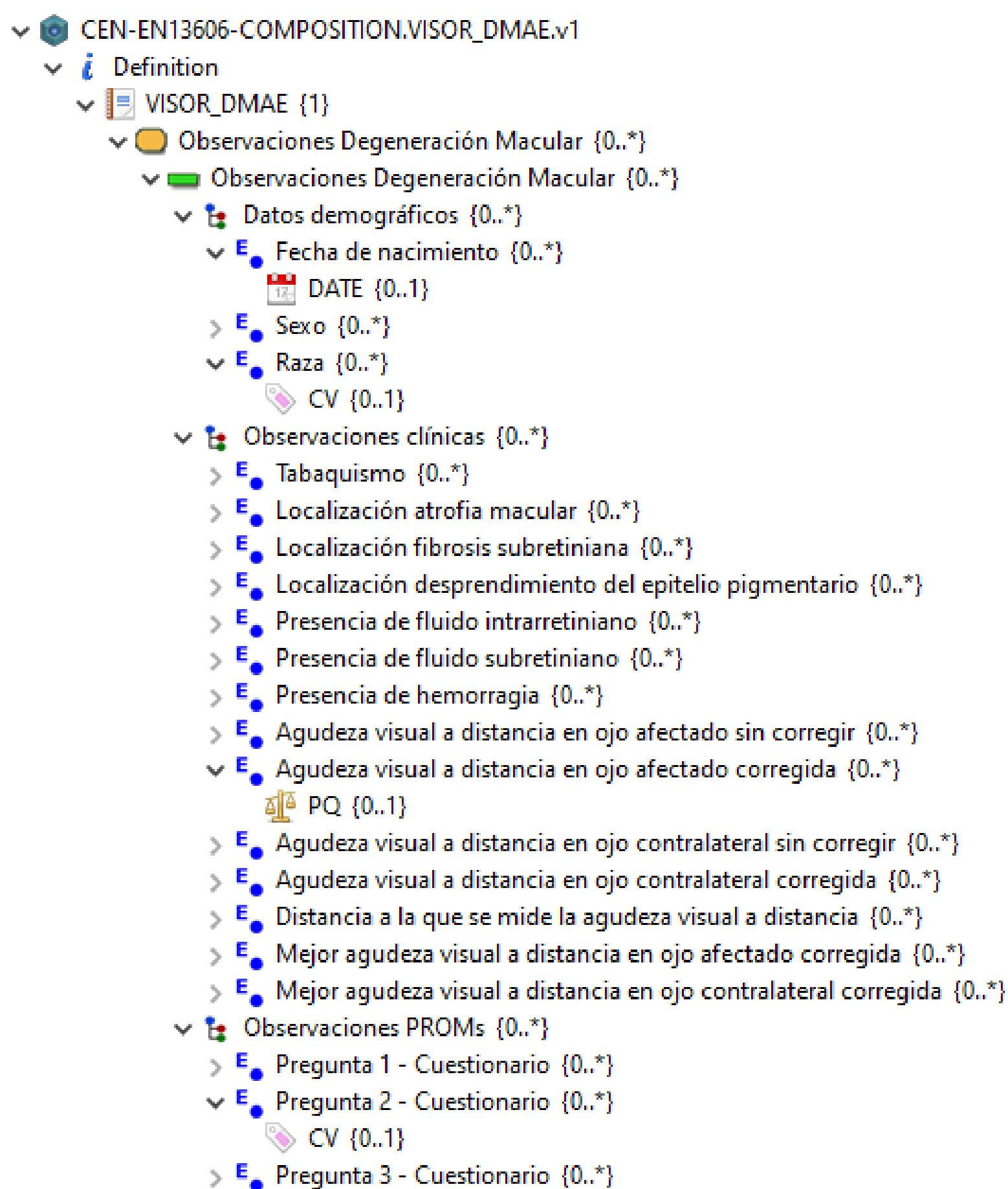
A dataset for ARMD research in accordance with the model proposed by ICHOM.

CONCLUSIONS

There is a necessity to improve the efficiency of data collection in clinical settings for research, based on a multipurpose and use-case agnostic design that allows its reuse in research.

It is essential to design and formalize the EHR information models through standards and terminologies. The creation of a standardized clinical archetype set means that it can be easily shared and understood by other organizations.

From this archetype-according EHR data, it is possible to design ETL processes to obtain data related to a specific format.



ARMD archetype model