

**Title:** Development of the Heal Italia reference architecture for the integration and processing of health data enabling precision medicine approaches

**Tutor:** Prof Marco Viceconti - <https://www.unibo.it/sitoweb/marco.viceconti/en>

**Funding source:**

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Scientific Supervisor Prof. Marco Viceconti.

**Research Project**

Heal Italia is a national research project funded by the NextGenerationEU Recovery Plan. The general aim of the project is to apply precision medicine approaches by developing risk-based stratification algorithms. A specific objective is the development of a reference architecture and the piloting of an IT infrastructure enabling the processing of large volumes of health data, in compliance with the Italian privacy legislation, and the development of computational and data-driven models for clinical research applications. The starting point will be the AlmaHealthDB project, an ongoing implementation project that is deploying a secure IT infrastructure linking together the University and the three Research Hospitals (IRCCS) in Bologna.

**Activity plan**

The selected post-doc will mainly work on:

- the extraction of clinical data from hospital primary systems and the development of standardised procedures and tools of data anonymisation and pseudo-anonymisation;
- the development of the data model integrating molecular, imaging, and clinical data supporting the standards adopted by the National Health Service;
- the development of an analysis stack for algorithm development and statistical analysis.

Place of work: all activities will take place at the institutional sites of the department DIN, or at the Istituto Ortopedico Rizzoli (Bologna).

**Short description**

The candidate is expected to contribute to the development of a reference model to extract clinical data from hospital primary systems, aggregate and store them securely, and enable the mass processing of these data. The AlmaHealthDB implementation will be used to pilot the reference architecture and approach within the Heal Italia project.

The ideal candidate would have these qualifications:

- Master's Degree in Computer Science, Information Processing Systems, or equivalent.
- Good written and spoken English.
- Experience in medical informatics
- Experience with system integration.

The candidate will have the opportunity to work in a multidisciplinary team coordinated by Prof. Marco Viceconti, and in collaboration with a large national consortium.