

From the Ligurian HIV Network to an European Framework for HIV Surveillance and Control

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Abstract. The Ligurian HIV Network, based on HL7 CDA r2, is an Italian regional infrastructure for HIV surveillance and control. To expand this network to a European level, the alignment with the EHDS and the EEHRxF, which standardize EHR data exchange, becomes essential. EU-funded projects like XpanDH are developing HL7 FHIR IGs to support this framework. Therefore, the extension of the Ligurian HIV Network requires an architectural rethink, with the introduction of the HL7 FHIR format instead of CDA r2, ensuring compliance with European standards.

Keywords. Ligurian HIV Network, HL7, FHIR IG, EHDS, EEHRxF

1. Introduction

In 2011, the Ligurian HIV Network was established both to guide patients through the HIV Continuum Care and to conduct multicenter clinical trials at a regional level [1, 2]. In this context, particularly relevant are laboratory data, compliant to the Health Level Seven (HL7) Italy Clinical Document Architecture release 2 (CDA r2) Implementation Guide (IG) for the Laboratory Report, as indicated by the Italian regulation of the national Electronic Health Record (EHR) [3]. Considering the emerging concept of European Health Data Space (EHDS) [4], which introduces a new regulatory framework for EHR systems, the authors decided to take the opportunity to expand the Ligurian HIV Network into a “European HIV Network”.

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2. Materials and Methods

The Commission Recommendation on a EHRxF [5] established the framework for secure and interoperable EHR data exchange within the European Union (EU). The EU XpanDH project [6] support this, through HL7 FHIR IGs. In 2022, Italy adopted FHIR as the EHR standard, aligning with EU efforts [7]. In addition, HL7 Italy has been actively working on the development of FHIR IGs, aligning its efforts with those at the EU level, mostly due to the strong synergy between HL7 Italy and HL7 Europe. In particular, the European and Italian Laboratory Report IGs [8, 9], developed through collaboration, became Standard for Trial Use (STU) in February and March 2024.

3. Results

The Ligurian HIV Network is being updated to align with EU standards. The transition from CDA r2 to FHIR involves adopting a RESTful ASP.NET Core Web API architecture and using the Italian Laboratory Report IG for resource validation. Moreover, usability is improved with a new User Interface (UI) developed in .NET Blazor Server.

4. Discussion and Conclusions

The Ligurian HIV Network is evolving into a European-level infrastructure by adopting FHIR and the Italian Laboratory Report IG, aligned with European standards. This transition improves interoperability, enabling multicenter clinical trials and seamless data exchange within the EHDS. Future developments may integrate the OMOP standard for further interoperability and data structuring.

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