Abstract no. 377   A CTS2 compliant solution for semantics management in laboratory reports at regional level

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The clinical data sharing represents a fundamental tool to improve the clinical research, patient care and reduce health costs. The Health Ministries of many developed countries are planning the creation of national health information exchange (HIE) systems by defining the functionalities to support the sharing of the knowledge of their content. To realize distributed system architectures able to satisfy this requirement, the management of semantics is a critical and essential aspect that must be considered. For this reason, a research is now underway to set up an infrastructure able to aggregate information coming from health information systems, and it will be experimented to support regional HIE in Veneto Region. In this paper the first steps of this research and the current implementation state are presented.

The first period focused on the semantics management in laboratory reports. As indicated by the Italian Health Ministry, laboratory reports must be structured adopting the HL7 Clinical Document Architecture Release 2 (CDA R2) standard and LOINC vocabulary. For this reason, LOINC was used as reference code system. To manage the semantics of the information involved in the contextual workflow, the design and the implementation of a terminology service was considered and the Common Terminology Service Release 2 (CTS2) standard, product of Healthcare Service Specification Project[3], was adopted. In this phase, the authors selected 6 CTS2 terminology resources (codeSystems, codeSystemVersions, EntityDescripctions, Map, MapVersion and MapEntry) and, for all these, decided to start from the implementation of read, query, maintenance and temporal functionalities. The SOAP (Simple Object Access Protocol) was chosen as implementation profile and Microsoft Windows Azure was adopted as cloud platform to host both database and web services.

The proposed solution is formed by the regional HIE, 22 Laboratory Information Systems (LISs) of the local departments of the Veneto region, the terminology service, called Health Terminology Service (HTS), and an application to manage the content of the terminology database. The core of the architecture is the HTS that provides access to the terminology database through interfaces compliant to the CTS2 standard. At the present, the HTS is formed by a Microsoft SQL Azure database (the terminology database), and eighteen Windows Communication Foundation (WCF) services, which represent the CTS2 interface, hosted on Microsoft Azure. The first client application that was connected to the HTS was the web application used to maintain the content of the HTS terminology database. It is continuously evolving to satisfy both the needs of medical staff and the requirements that the Veneto region is designing to create the regional HIE and to manage the semantics of its content.

This paper presents the current implementation state of the infrastructure proposed to manage semantics in laboratory reports at regional level. In the next months, the technical specification will be defined for the integration of HTS with 4 out of 22 LISs and with the regional HIE. After a validation period in which the solution will be tested, an analysis will be performed to evaluate its impacts.

Abstract no. 385   A 'one health' antibacterial prescription surveillance approach developed through the use of health informatics

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Introduction   Evidence of antimicrobial resistance transmission between humans, livestock and companion animals highlights that a truly 'one health' approach is needed to preserve antimicrobial efficacy. Antibacterial use is considered as the key driver for the development of antibiotic resistance bacteria. It is therefore essential to understand how widely antibacterials are being used across both human and animal health. However, tools for integrating data sources contributed to by both human and veterinary healthcare have not been developed yet, nor has the extent to which small companion animals contribute