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Ontology modelling for the Italian Arthroplasty Registry

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Introduction

The Italian Arthroplasty Registry (RIAP) has to enclose data collected by two different sources for each Italian region. For this reason, the modelling of an ontology in order to formally represent the logic structures entailed by those data and the mapping of them onto a relational database could bring substantial advantages to RIAP: a more structured knowledge, a real integration of all national arthroplasty data and more formal data quality feedbacks for the data collectors.

Materials and Methods

The ontology modelling phase was carried out through the usage of the software "*EDDY*", which enables both a graphical view and a corresponding *OWL* representation of an ontology, while the database was realised through a *Microsoft SQL server*. Finally, the software "*Talend Open Studio*" was used in order to map the data from the sources to the SQL database.

Results

The results coming from the ontology and database modelling can be summarised in a centralised knowledge base for RIAP, integrating data coming from multiple sources for each regional participant, a common source of structured knowledge about the arthroplasty domain and an ontology-based database to improve RIAP capability of performing survival analyses over implantable devices.

Discussion

The introduction of semantic technologies supporting a medical registry could help RIAP to perform its analyses in a more efficient way and to switch to the next a generation arthroplasty registry, thanks to the presence of an ontology which could be also easily generalized to be a contribution to the entire implantable devices community.

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