



Use of SNOMED CT to improve patient safety in drug prescription

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Audience

Medicines and patient safety community within the Implementation Showcase audience.

Objectives

To describe Spain's advancements related to medicines identification and ontologies to optimize interoperability between Electronic Health Records and drug prescription systems as a means to improve patient safety.

Abstract

Numerous IHTSDO member countries are making efforts to improve interoperability of information about drugs in their respective national or regional systems. This results in increased availability of medicines extensions that model concepts and establish shared knowledge resources. In the case of Spain, efforts are consistent with this trend, and take as reference previously published, highly valuable experiences.

So far, we established correspondences between commercial drugs available and the concepts of SNOMED CT core International and Spanish edition. For a complete coverage of concepts, it has been necessary to create local extensions in a high proportion of cases for both VTM and VMP elements, and systematically create extensions for *all* the VMPP elements. This work has enabled us to have a "Medicaments tree" that model the hierarchical relationship between different types of SNOMED CT concepts for drug identification and national codes used in our country to identify the different commercial presentations. Currently, the tree undergoes versioning on a monthly basis. It is able to incorporate the pharmaceutical forms associated with each VMP, and relate such dosage forms towards compatible routes of administration. Efforts have been made to refine an automated process that assigns collation order for the visual presentation of drugs in clinical prescription applications, in order to facilitate safe and ergonomic *navigation* of catalogues available in all regions.

Based on that work, we linked the elements of the VTM through "contains substance" relations with elements of the substances hierarchy. Similarly, our group associated the various excipients of each commercial presentation with the corresponding substances. These resources have been grouped under the name "Drug Ontology" and systematic distribution has been started, to stimulate use in different prescription applications.

Currently, the team is working on setting up a model for representation of knowledge related to clinical safety, which involves capturing information from data sheets of each drug and systematic representation of output as SNOMED CT relationships. The same method applies also to the qualification of such relations, especially in assigning relevance levels for each data item in order to avoid end-user alert saturation and to enable users to modulate sensitivity according to clinical context. At the same time, additional editing operations link related disorders due to drugs use (recorded allergies, adverse effects) through substances acting as causal agents. All these resources have been grouped into a so-called "Clinical Safety Ontology".

The Ministry of Health of Spain is providing all these resources to a network of terminology servers by which different regions may access information on identification, components and security alert data for all commercial drugs in real time. These efforts, along with the systematic encoding of disorders arising from the use of drugs in the EHR using SNOMED CT are intended to set up a safer prescribing environment. An increase of the chances for secondary analysis of recorded information to strengthen pharmacovigilance measures currently available is also expected. The team from the Ministry of Health of Spain is interested in exploring the possibility of following a shared methodology with other members that may be interested, to provide equivalent resources (trees and ontologies) for drug catalogs within a large set of countries and to share knowledge resources to enhance synergies in different resource production and cooperation designs.

References

1. Factoría de recursos semánticos (Semantic Resources Factory)
<http://www.msps.es/profesionales/hcdsns/areaRecursosSem/factoria.htm>.