SNOMED CT Spanish Extension of Medicines

Rangil, Jorge; López de Cuéllar, María Jesús; Fernández, Rosalía; Lapuente, Luis; Delgado, Ana; Romero, Arturo.

Abstract

The SNOMED CT National Release Center of Spain (NRC Spain) has among its objectives to provide licensees in Spain, beyond the resources published by SNOMED International, a comprehensive set of quality-tested content of its own production.

One of the main contents of interest to the National System of Health (NSH) is information on medicines, as an added resource to facilitate semantic interoperability.

For the generation and persistence of a SNOMED CT National Extension for Spain, we have had the collaboration of other areas and institutions, such as the regulatory agency “Agencia Española de Medicamentos y Productos Sanitarios (AEMPS)” and the NSH e-Prescription Area of the Ministry of Health, collaborating as authors of the contents on medicines and officinal preparations and formulas.

Information substrate

The dictionaries named “Nomenclator for Prescription” and “Nomenclator for Management” nomenclatures are the main sources of information used for the extraction and automated processing of primary information:

- A medicines database intended to provide core prescription information to the health care information services.
- Contains all medicinal products that have been authorized and marketed, both financed and not financed.
- Data for medicinal product identification.
- Technical information for each individual product.
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Information Process

The extracts are processed for generating the Extension. Its content is downloaded monthly from the AEMPS website, and includes all drugs identified with a national code (identifying brand names) with associated attributes, all encoded in SNOMED CT:

<table>
<thead>
<tr>
<th>VTM</th>
<th>Virtual Therapeutic Moiety</th>
<th>Active ingredient(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>darunavir + cobicistat</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VMP</th>
<th>Virtual Medicinal Product</th>
<th>Active ingredient(s) + strength + simplified pharmaceutical form</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>darunavir + cobicistat 800 mg / 150 mg comprimido (Tablet)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>VMPP</th>
<th>Virtual Medicinal Product Pack</th>
<th>Active ingredient(s) + strength + simplified pharmaceutical form + package size and type of container</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>darunavir + cobicistat 800 mg / 150 mg 30 comprimidos</td>
</tr>
</tbody>
</table>

The NRC of Spain has developed an application that allows automated generation of the Extension from these contents. Quality assurance modules allow occasional detection of anomalies of content.
The NRC releases the **SNOMED CT Medicines National Extension for Spain** on a monthly basis. The release includes both manufactured products and officinal preparations, available to all SNOMED CT licensees in Spain.

### SNOMED CT releases components and resources

- **13,598 concepts**
  - 3,715 International Edition
  - 9,883 AEMPS (namespace 1000140)
- **30,838 descriptions**
- **15,260 relationships**
- **Refsets**
  - VMT (2,176 members)
  - VMP (6,039 members)
  - VMPP (8,885 members)
  - National code to VMPP Mapping (28,277 members)
  - Officinal preparations (79 members)
  - Officinal preparations with format (104 members)

### Additional derived content is generated and released, including:

- Web viewers for all refsets included in the Extension
- Clinical Safety Ontology of Medicines
- Cross-border-ready content as bilingual valuesets (Spanish & English) used in the preparation of the EU Patient Summary document instances
- Generation and publication of IRBD (reference implementation in database format) of SNOMED CT, a resource released every six months with the content of the international and national editions of SNOMED CT
Conclusions

Interoperable concept coding of medicinal products is a key element to allow interoperability among the different regions and countries and to deploy cross-system prescription data exchange services without relying on the brand name of medicines.

The use of published resources is growing in the field of health information systems in Spain, which allows the appearance of different initiatives and projects that allow progress in semantic interoperability and patient safety.