

Briefing Note for the Editorial Advisory Group March 2021

Removal of product role concepts from the substance hierarchy

Purpose

This briefing note provides a summary of recommendations made by the Modelling Advisory Group (MAG) for modelling and classification of conditions caused by substance vs. products, scope, use case, and benefit. Specific examples are provided to illustrate impact on classification.

Background

The consultation paper on modeling conditions caused by substance or product was developed with advice from the Modeling and Editorial Advisory Groups¹. Five options for hierarchical relationships and possible concept models in SNOMED CT are briefly explained and demonstrated. The intended meaning of the conditions caused by products are explicitly expressed in descriptions and models.

1. Condition caused by the modeled substance(s) of a product
2. Condition related to a product most likely caused by the modeled ingredient(s)
3. Condition caused by any substance in a product
4. Condition caused by a product without regard to substances in it
5. Condition caused by a product or substance are the same

The concept model for conditions caused by products is further complicated by multiple ingredients that potentially have the disjunctive meaning of the causes of conditions. The choice of different types of representation of products, e.g. MP (Medicinal Product), MP only, CD (Clinical Drug), branded medicinal product, will also produce different classification results. The requirement also needs to consider the EHR information model and decision support systems to utilise the SNOMED CT concept model for medicinal products and substances.

¹The consultation is completed and the paper can be found at:
https://docs.google.com/document/d/1qphuHLBcQxmB8FsysZA_-F91_-guJfT8LKimbYaFVuU/edit?usp=sharing

Following consultation with the community of practice and discussion at the Modeling AG, the recommendation is that content should be routinely modeled as conditions caused by substances in SNOMED CT. Conditions caused by products may only be added when a specific use case is provided with explicit representation of the intended meaning by descriptions and concept model. The benefit and impact need to be clearly specified to avoid duplication and confusion in the clinical use of terminology.

Issues

As briefly explained in the consultation paper, the medicinal product model includes the roles that a product can play in addition to active ingredients. Some concepts in the substance hierarchy are actually product roles, e.g. antidepressant, non-steroidal anti-inflammatory agent. They need to be inactivated and replaced by the concepts in the product hierarchy. Going forward, the conditions caused by these concepts need to be remodeled.

Scope

The scope is to address the issue that product roles are incorrectly represented as substances. The inactivation of these substance concepts will require remodeling findings/disorders by medicinal products. Example of the hierarchies known to be affected by the proposed changes:

- 41999007 |Allergy to substance (finding)|
- 282100009 |Adverse reaction caused by substance (disorder)|
- 55680006 |Drug overdose (disorder)|
- 441952005 |Poisoning caused by chemical substance (disorder)|
- 7895008 |Poisoning caused by drug AND/OR medicinal substance (disorder)|
- 420881009 |Allergic disorder caused by substance (disorder)|
- 40275004 |Contact dermatitis (disorder)|

Please note, the majority of the content remains unchanged and only those with an attribute-value that represent a product role will be remodeled.

Benefit

- Removing concepts that do not belong from the substance hierarchy, thereby improving the quality and organization of the substance hierarchy
- Properly representing the roles in the product hierarchy
- Disambiguating the meaning between conditions caused by specific substance vs. conditions caused by one of the substances contained in a product

Impact

- Conditions defined by substance vs. Conditions defined by product role

Before: Causative agent = 372783007 |Antiparkinsonian agent (substance)|

Parents

- >
☰
Adverse reaction caused by drug (disorder)

☰

Adverse reaction caused by antiparkinsonism drug (disorder)

SCTID: 430136001

430136001 | Adverse reaction caused by antiparkinsonism drug (disorder) |

en Adverse reaction to antiparkinsonism drug

en Adverse reaction caused by antiparkinsonism drug (disorder)

en Adverse reaction caused by antiparkinsonism drug

☆
↗

Causative agent → Antiparkinsonian agent

Children (14)

- > ● Adverse reaction to carbidopa and/or levodopa (disorder)
- ☰ Amantadine adverse reaction (disorder)
- ☰ Apomorphine adverse reaction (disorder)
- ☰ Benzhexol adverse reaction (disorder)
- ☰ Benztropine adverse reaction (disorder)
- ☰ Biperiden adverse reaction (disorder)
- ☰ Bromocriptine adverse reaction (disorder)
- ☰ Cabergoline adverse reaction (disorder)
- ☰ Lysuride adverse reaction (disorder)
- ☰ Methixene adverse reaction (disorder)
- > ☰ Orphenadrine adverse reaction (disorder)
- ☰ Pergolide adverse reaction (disorder)
- ☰ Procyclidine adverse reaction (disorder)
- ☰ Selegiline adverse reaction (disorder)

After: 372783007 |Antiparkinsonian agent (substance)| → 58050004 |Medicinal product acting as antiparkinson agent (product)|

- It removes the unconfirmed assumption that all these substances have an antiparkinson therapeutic role.

Parents

▶ ● Adverse reaction (disorder)

☰ **Adverse reaction caused by antiparkinsonism drug (disorder)** ☆ 🗑️

SCTID: 430136001

430136001 | Adverse reaction caused by antiparkinsonism drug (disorder) |

en Adverse reaction to antiparkinsonism drug

en Adverse reaction caused by antiparkinsonism drug (disorder)

en Adverse reaction caused by antiparkinsonism drug

Causative agent → Medicinal product acting as antiparkinson agent

Children (0)

No children

- Concepts modelled with a medicinal product that has a matching “Plays role attribute value” will be subsumed under the role grouper concept:

Parents

▶ ● Adverse reaction (disorder)

☰ **Adverse reaction caused by antiparkinsonism drug (disorder)** ☆ 🗑️

SCTID: 430136001

430136001 | Adverse reaction caused by antiparkinsonism drug (disorder) |

en Adverse reaction to antiparkinsonism drug

en Adverse reaction caused by antiparkinsonism drug (disorder)

en Adverse reaction caused by antiparkinsonism drug

Causative agent → Medicinal product acting as antiparkinson agent

Children (1)

— ● Adverse reaction caused by amantadine-containing product (disorder)

- Conditions defined by Role and structure or disposition grouper

Before

Parents

- > Overdose of antidepressant drug (disorder)
- > Tricyclic antidepressant poisoning (disorder)

Overdose of tricyclic antidepressant (disorder)

SCTID: 297200009

297200009 | Overdose of tricyclic antidepressant (disorder) |

en Overdose of tricyclic antidepressant (disorder)
en Overdose of tricyclic antidepressant

Causative agent → Tricyclic antidepressant

Children (16)

- > Accidental overdose of tricyclic antidepressant (disorder)
- > Amitriptyline overdose (disorder)
- > Amoxapine overdose (disorder)
- > Butriptyline overdose (disorder)
- > Clomipramine overdose (disorder)
- > Desipramine overdose (disorder)
- > Dothiepin overdose (disorder)
- > Doxepin overdose (disorder)
- > Imipramine overdose (disorder)
- > Intentional overdose of tricyclic antidepressant (disorder)
- > Iprindole overdose (disorder)
- > Lofepramine overdose (disorder)
- > Nortriptyline overdose (disorder)
- > Protriptyline overdose (disorder)
- > Trimipramine overdose (disorder)

After

Parents

- > Overdose (disorder)

Overdose of tricyclic antidepressant (disorder)

SCTID: 297200009

297200009 | Overdose of tricyclic antidepressant (disorder) |

en Overdose of tricyclic antidepressant (disorder)
en Overdose of tricyclic antidepressant

Causative agent → Medicinal product containing tricyclic compound and acting as antidepressant agent

Children (3)

- Accidental overdose of tricyclic antidepressant (disorder)
- Intentional overdose of tricyclic antidepressant (disorder)

Requested feedback from EAG

- Address questions and/or concerns
- Enquire about ways to reach out to implementers and users
- Enquire about timeline recommendation
- Enquire about the need for other documentation e.g. implementation guidelines

Next Steps

- Create a briefing note suited for distribution to the wider community i.e Member Forum, Advisory Groups, Project Groups and Clinical Reference Groups
- The priority and timing will be dependent on the scope; frequent release schedule will have to be considered.
- Communicate scope of changes and timelines to the wider community including users and implementers

Parents

- > ☰ Allergy to drug (finding)
- > ☰ Allergy to sulfonamide (finding)

☰

Allergy to sulfonamide antibiotic (finding)

SCTID: 429239002

429239002 | Allergy to sulfonamide antibiotic (finding) |

en Allergy to sulfonamide antibiotic

en Allergy to sulfonamide antibiotic (finding)

en Allergy to sulphonamide antibiotic

☆
☰

Has realization → Allergic process
 Causative agent → Substance with sulfonamide structure and antibacterial mechanism of action

Children (12)

- ☰ Allergy to calcium sulfaloxate (finding)
- ☰ Allergy to mafenide (finding)
- ☰ Allergy to phthalylsulfathiazole (finding)
- ☰ Allergy to sulfacarbamide (finding)
- ☰ Allergy to sulfacetamide (finding)
- ☰ Allergy to sulfadiazine (finding)
- ☰ Allergy to sulfadimethoxine (finding)
- ☰ Allergy to sulfadimidine (finding)
- ☰ Allergy to sulfafurazole (finding)
- ☰ Allergy to sulfaguanidine (finding)
- ☰ Allergy to sulfalene (finding)
- ☰ Allergy to sulfasalazine (finding)

Parents

▶ Allergic disposition (finding)

Allergy to sulfonamide antibiotic (finding)

SCTID: 429239002

429239002 | Allergy to sulfonamide antibiotic (finding) |

- en* Allergy to sulfonamide antibiotic
- en* Allergy to sulfonamide antibiotic (finding)
- en* Allergy to sulphonamide antibiotic

Has realization → Allergic process
Causative agent → Medicinal product containing sulfonamide and acting as antibacterial agent

Children (0)

No children