

4.1.1. Reasoning with Subsets

Overview

A subset is defined in mathematics as a set whose members are all contained in another set. A SNOMED CT [Subset](#) typically refers to a collection of components that all come from the same edition of SNOMED CT. This is depicted in the diagram below.

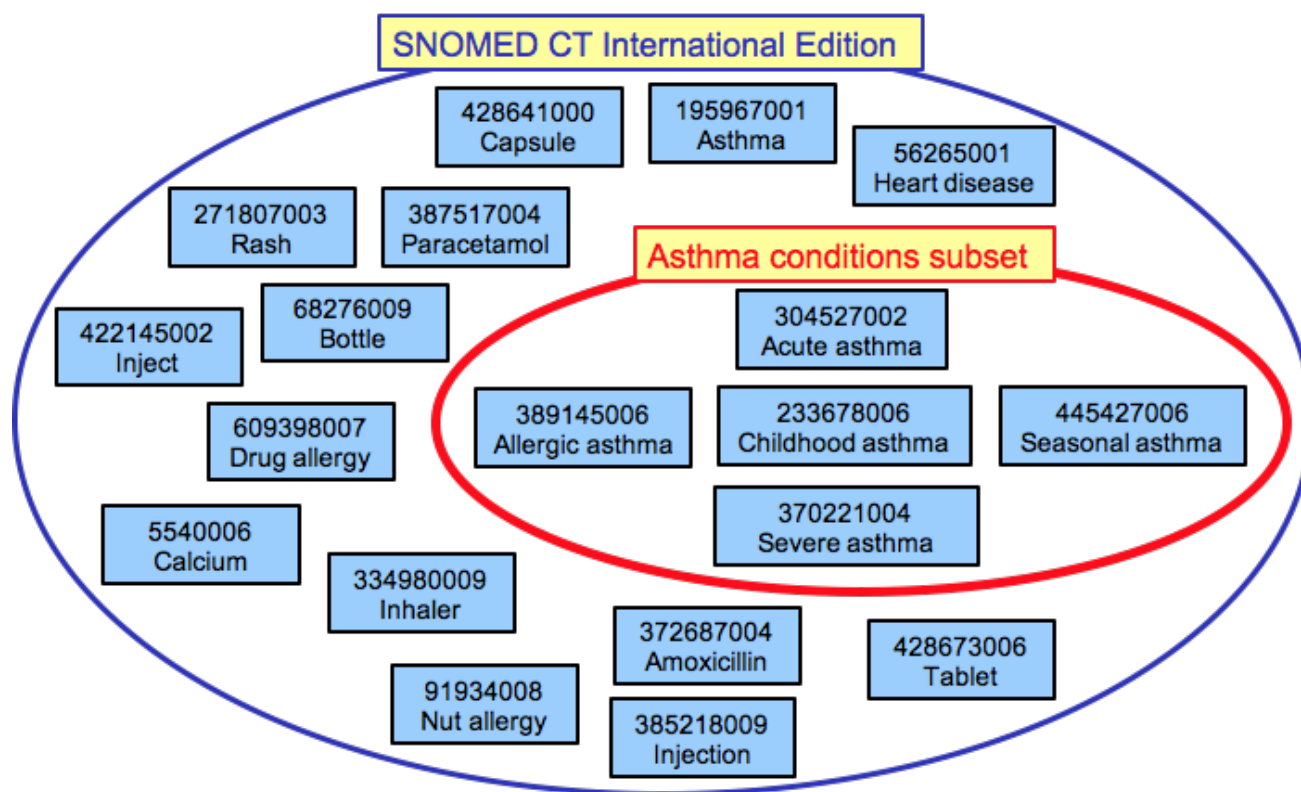


Figure 4.1.1-1: A subset of concepts related to the diagnosis of asthma is selected from the International Edition of SNOMED CT

A SNOMED CT subset may be defined [extensionally](#), by enumerating all of the components in the set or [intensionally](#), by defining a query written using the [Expression Constraint Language - Specification and Guide](#).

Extensionally and intensionally defined subsets can both be represented as SNOMED CT reference sets, which support versioning and traceability. For more information about reference sets, please refer to the [Practical Guide to Reference Sets](#). For additional information on using subsets in queries, please refer to [6.1 Subsets](#) in [Data Analytics with SNOMED CT](#).

Example

This section presents a simple example of a CDS rule defined using a SNOMED CT subset, and explains how this rule could be executed by the CDS inference engine.

CDS Rule

The diagram below shows a simple CDS rule based on the IF-condition-THEN-action pattern. This rule uses a SNOMED CT subset to define the set of diagnoses that should trigger the display of the asthma management guidelines. It can be read as follows - "IF the diagnosis is a member of the Asthma conditions reference set THEN display the asthma management guidelines".



Figure 4.1.1-2: CDS rule which uses fictitious "Asthma conditions ref subset" in its definition

Execution of Rule

When executing this rule, the inference engine checks the given diagnosis for membership in the 239999999106 *Asthma conditions reference set*. The associated SNOMED CT subset is defined extensionally using a simple type reference set, and its members can be queried using a standard SNOMED CT terminology service.

The diagram below illustrates the process followed by the inference engine in executing the CDS condition in the above rule, when the clinician selects a diagnosis of 370220003 *Occasional asthma*. The inference engine checks if this concept is a member of the 239999999106 *Asthma conditions reference set*, and determines that it is not a member. As a result, the condition evaluates to false, and the action is not triggered.

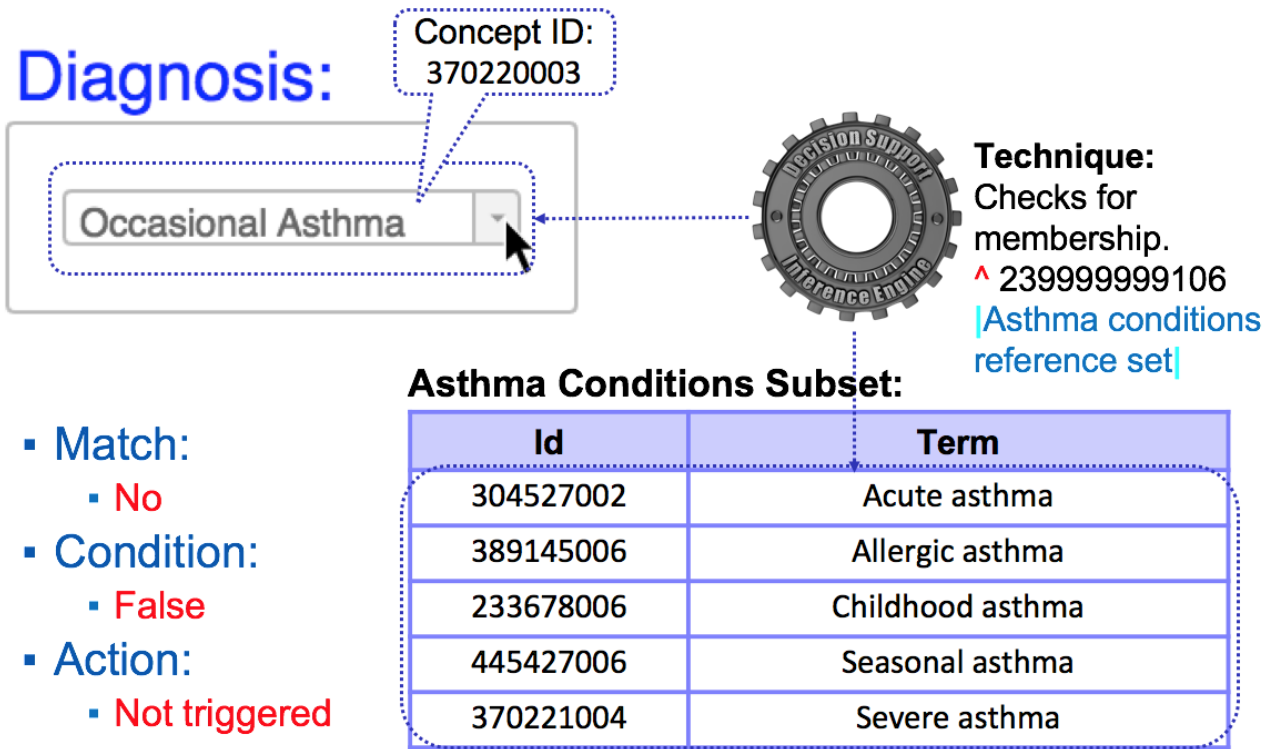


Figure 4.1.1-3: The inference engine compares the diagnosis entered against a predefined Asthma Conditions Subset