Learn more about Subsets

What are Subsets?

A subset is a set of members all of which are members of another set (from *set theory* in mathematics), but generally, in clinical terminologies, it is a set of concepts or terms taken from a larger set of terms or concepts.

The purpose of using subsets is to facilitate the adoption or implementation of health terminologies. Clinical terminologies often contain thousands if not hundreds of thousands of terms. While SNOMED CT content has approximately a million concepts, LOINC contains nearly 97,000 terms. The use of subsets can help narrow down the content in terminology that is relevant for a specific use case. Subsets can contain just a few terms or may contain thousands of terms, depending on the purpose of the subsets.
At the time subsets are published they are created against the most current version of the standard. Canada Health Infoway maintains these subsets in partnership with Provincial, Territorial, and Federal e-Health agencies from across Canada working towards the successful implementation of Digital Health solutions.

Infoway plays an important role in reviewing and hosting subsets on the Terminology Gateway for jurisdictions and organizations to utilize.

In general, the goals of subset creation are twofold:
- Enables clinicians to report procedures and services by making it possible for them to select from a group of content most relevant to other specialties or services.
- Support the exchange of the information between Clinicians and institutions in a consistent manner

Types of Subsets

Subsets can be grouped into categories. The categories listed below are different ways of looking at subsets and are not mutually exclusive:

1. Data capture vs Data retrieval subsets:

   Subsets may be used for data capture (eg, used by a physician at the point of care in an EMR to record a procedure or service provided) or for data retrieval (eg, used by a physician for retrieving information about patients who have received a specific set of procedures or services). In some cases, the content in these types of subsets may differ.

2. Physician specialty vs Electronic health system-specific field subset

   Subsets may be developed for physician specialties or sub-specialties (eg, cardiology or interventional cardiology) or for a more general use case (eg, immunizations, Evaluation and Management). For example, the cardiology physician specialty subset should include all procedures and services a cardiologist may conduct or perform, while an immunizations subset should contain a list of all immunization procedures and will not be limited to one physician specialty; it may be used by a general practitioner or a pediatrician to record immunizations done.

3. Intensional vs Extensional subsets SNOMED CT Example

   Subsets can be developed intensionally or extensionally. The term "extensional subsets" refers to explicitly enumerating each and every code and/or Clinician Descriptor. On the other hand, the term "intensional subsets" refers to specifying the sections/hierarchies and/or subheadings that contain content that is to be included in a subset.

4. Concept/Code Subsets vs Clinician Descriptions Subsets

   Subsets can be developed at the code/term level or at the Clinician Descriptors level.

   Clinician Descriptor's (CDs) purpose is to clearly and specifically describe precisely the procedure or service performed by a physician /doctor or qualified healthcare professional at the point of care. Clinician Descriptors will also reflect the granularity necessary to describe clinically relevant information. As a result, many existing codes will be mapped to more than one CD. These CDs will be easily understandable to the physicians/doctors or other qualified healthcare professionals who have little or no knowledge of coding and are primarily concerned with the clinical representation of the data rather than other aspects of the data e.g. the administrative or claim reimbursement.

   Clinician Descriptors are more specific services or procedures that are included in the catalogues such as the Ontario Schedule of Benefits.

**These subsets types can be created by many methods, but here are a few commonly used:**

1. Manual inclusion, using search and browse methods
2. An existing subset, used as a starting point for further manual inclusion and update
3. Lexical queries, to identify candidate members, followed by manual verification and update
4. Hierarchical queries, to identify descendants of a given concept (e.g. descendants of <73211009 |diabetes mellitus|)
5. Attribute queries, to identify concepts with a specific attribute value (e.g. disorders with a finding site of 80891009 |heart structure|
6. SNOMED CT queries, using the SNOMED CT Expression Constraint or Query languages, which offer additional query functionality.

Subsets Maintenance

pan-Canadian Subset Maintenance

Infoway has many subsets that have been developed over time by Canadians for Canadians. These "fit for use" subsets are intended to be a pan-Canadian "starter set" of content. The subsets are maintained by Infoway, published in the Terminology Gateway. The pan-Canadian Subsets may contain content from international terminologies and content specific to Canada, which is dependent on the international version. The pan-Canadian subsets are reviewed on an annual basis, SNOMED CT Canadian edition subsets updated are aligned to the release of SNOMED CT Canadian edition releases.

Two subsets HealthCareProviderRoleType and QualifiedRoleType use the SC code systems (SCPQUAL, SCPTYPE) (the "SC Code Systems") which was a code system developed by Canada Health Infoway Inc. (Infoway) to address local requirements in Canada. SC was an abbreviation for "Standards Collaborative"
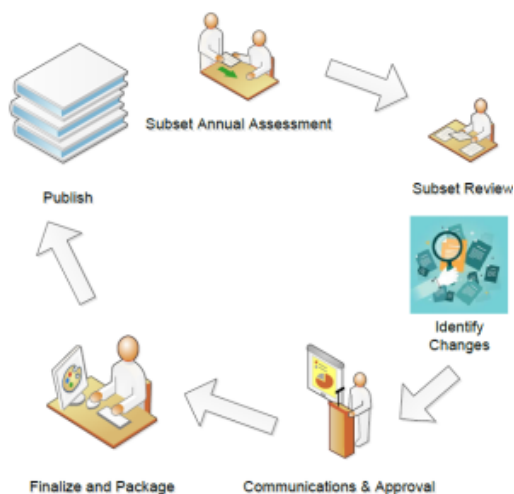
The subset maintenance for pan Canadian subsets is a two-year process

- In the first year, the subset will be inactivated (Depreciated) if not used in the previous year and no objections are received to an announcement is made on the Health Terminologies and HL7 forums. It will still be published on the Terminology Gateway, but not visible unless the 'Inactive' subset status is specifically chosen. If we do not receive a response to the request for a status of a subset after **30** Days, we will mark it for inactivation after 30 days and inactivate it.
- At the end of the first year, if the subset is still no longer in use, it will be marked as retired and no longer available in the Terminology Gateway

Additional Terminology Subsets

Infoway supports organizations and Jurisdictions to publish their Terminology Artefacts on the Terminology Gateway. Once published, jurisdictions are requested to maintain their subsets as part of the Infoway Maintenance Cycle.

These subsets may be leveraged by other organizations and jurisdictions to support interoperability EHR solutions in their organization or jurisdiction.

The subsets developed are vendor-neutral, they support interoperability and decrease the cost of creating and maintaining a new subset.

The subset maintenance for Additional Terminology Content is also a two-year process

- Jurisdictions and organizations are accountable for the quality and maintenance of subsets or other artifacts shared on the Terminology Gateway
- Each year, the Infoway SME will contact the subset owner named for the subset listed on the Terminology Gateway
- The contact will be asked to review their respective subset and asked if this is all good. If it is still good, then the reviewed date is updated. If there are changes then the Subset owner will make the changes to the subset and submit them. If we do not receive a response to our request for a status of a subset, we will mark it for inactivation after **30** days

Where to find the Subset Template

Download the subset Template from Informs or from here

How to create New subsets

1. Download the subset Template from InfoRMS Subset RFC project
2. Complete the Subset Definition template. Refer to the "How to Complete" tab for guidance or contact standards@infoway-inforoute.ca for assistance
3. All Field in Red are mandatory and must be completed
4. Refer to the Naming Convention for pan-Canadian Subsets Sets and Valuesets to create a name for the subset definition
5. Request the Subset ID which is an OID, but if you are the owner of the Subset, you may provide your own unique identifier
6. Ensure that the Subset name and ID is not used in used by checking the OID's for subsets
7. If the subsets is owned by you (Additional Terminology Content) then a logo can be added which must be a .png or .gif which should be attached to the Subset request
8. Select the Codesystem(s) (SNOMED CT Canadian edition, LOINC, UCUM, HL7) You may have more than one to cover a clinical domain in some cases and if you need further guidance, contact standards@infoway-inforoute.ca
9. Submit in InfoRMS for Review

How to Change a subsets

1. Download the subset from the Terminology Gateway in Excel format
2. Update the fields in the downloaded file with the new information on the Subset Definition Tab
3. An update can be done to achieve the following: Add a new code, modify a term or a code and inactivate a term or a code
4. If Changes are made to the display names, the terminology Gateway will provide you with a Change **Log,** which should reflect all changes applied to the subset
5. It may be required to validate the status of all other codes and terms in the subset before re-publishing if the terminology has been updated since the last release
   a. If the changes were only on the Concept Tab, change the «Subset version» to reflect the date of publication
   b. If the terminology versions have changed, update the «Terminology version» field
   c. If the change is to the Subset name or Subset ID (OIDS), which is always unique to each subset, contact the HL7 OIDS resource at standards@infoway-inforoute.ca , to confirm the OID s unique. If the OID is unique then it can be assigned by the Subset RFC SME
6. In InfoRMS, select the "Update Subset" as the issue type and complete the mandatory fields identified with an asterisk "*"
7. Attach the completed Subset RFC template
8. Once the subset is updated and finalized, it will be copied into the be loaded to the UAT environment of the Terminology Gateway for QA

How to Retire a subsets

1. Download the subset from the Terminology Gateway in Excel format
2. Create a new Subset RFC by selecting the «Create» button
3. Fill in the UI information and attach the Batch template
4. Complete the mandatory fields for the Requestor in InfoRMS
5. Add a comment on the Subset RFC, the subset will be deprecated in one (1) year from now.
6. When the one year is reached, add a comment on the RFC this subset is now Deprecated
7. Use the InfoScribe page to identify the Inactivated subsets that will be deprecated the following year
8. After one year ask IMT will remove the subset from the database

Quality Assurance (QA)

QA check covers the subset's metadata information and the terminology values, which include the correctness of concepts selected and the appropriate representation of the components as per the subset's template. It also covers basics data

1. For pan Canadian Subset which is found in the Terminology Gateway under the Subsets section. The QA is done by the Subset SME only and the standards team. It does not involve any external stakeholder.
2. Additional Terminology Content Subsets in the Terminology Gateway require the Subset owner to validate the contents, in the UAT environment of the Terminology Gateway.
   a. Subset owners will need to be provided access to UAT for QA purposes.
   b. The Subset owner will check the subset loaded in the Terminology Gateway UAT environment (see Staging ribbon in yellow in bottom right) correctly and represents the request. Any errors must be logged in the InfoRMS Ticket and commented. A corrected template must be attached to the InfoRMS ticker and loaded in QA UAT.
   c. Once QA is complete in the UAT. sign off in InfoRMS is required before it will be promoted to the Production environment.
   d. The subset owner will check the subset has been correctly loaded in TG Prod and sign off in the InfoRMS (Release form)

Naming Convention for pan-Canadian Subsets and ValueSets

Please refer to the Naming Convention for pan-Canadian Subsets and Valuesets.pdf document for detailed rules for consistent naming of pan-Canadian Subsets and value sets