SNOMED CT January 2022 International Edition - SNOMED International Release notes

Release Date	**20220131**
Release Status	PRODUCTION
Document Version	**1.0**

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1. Introduction

1.1. Background

SNOMED CT terminology provides a common language that enables a consistent way of indexing, storing, retrieving, and aggregating clinical data across specialties and sites of care.

SNOMED International maintains the SNOMED CT technical design, the content architecture, the SNOMED CT content (includes the concepts table, the descriptions table, the relationships table, a history table, and ICD mappings), and related technical documentation.

1.2. Purpose

This document provides a summarized description of the content changes included in the January 2022 release of SNOMED Clinical Terms® (SCT) International Release.

It also includes technical notes detailing the known content or technical issues where the root cause is understood, the fix has been discussed and agreed to, but has yet to be implemented.

The SNOMED International Release Notes are available alongside the January 2022 International release.

1.3. Scope

This document is written for the purpose described above and is not intended to provide details of the technical specifications for SNOMED CT or encompass every change made during the release.

1.4. Audience

The audience includes National Release Centers, WHO-FIC release centers, vendors of electronic health records, terminology developers and managers who wish to have an understanding of changes that have been incorporated into the January 2022 International release.

2. Content Development Activity

2.1. Summary

Continuous quality improvement and enhancement of existing content is an ongoing process undertaken by SNOMED International in preparation for every release. The January 2022 International Release has seen a continuation of the work driven by contributions from: Kaiser Permanente i.e. Convergent Medical Terminology (CMT), Global Medical Device Nomenclature Agency (GMDNA), Orphanet and other domain specific collaborations as well as requests received via the Content Request System (CRS).

Additionally quality improvement activities are advanced via project driven initiatives summarized below. Additional work items impacting every release are updates to the SNOMED CT derived maps such as ICD-10 and ICD-O; details are included in these release notes.

Information about editorial decisions may be found in the SNOMED CT Editorial Guide; mapping guidance for ICD-10 can be found at this link https://confluence.ihtsdotools.org/display/DOCICD10

3. Technical notes

3.1. Known Issues

Known Issues are content or technical issues where the root cause is understood, and the resolution has been discussed and agreed but has yet to be implemented. This can be due to a number of reasons, from lack of capacity within the current editing cycle, to the risk of impact to the stability of SNOMED CT if the fix were to be deployed at that stage in the Product lifecycle.

For the current SNOMED CT International edition, the following Known Issues were identified, and agreed to be resolved in future editing cycles:

key	summary	description

⚠ Jira project doesn't exist or you don't have permission to view it.

View these issues in Jira

Approvals

Final Version	Date	Approver
1.0		Kelly Kuru
1.0	20220131	Rory Davidson
1.0	20220131	Monica Harry

Draft Amendment History

Version	Dat
0.1	2021 05
0.2	2021 07
1.0	2022 31

2.2. COVID-19

Content relating to COVID-19 can be viewed here SNOMED CT COVID-19 Related Content

For the January 2022 International release, descriptions have been updated for all concepts containing “Severe acute respiratory syndrome coronavirus 2” to remove capitalization from "Severe” (except when it is found at the beginning of the description in accordance with editorial guidance).

In addition, “Severe acute respiratory syndrome coronavirus 2” is recorded as entire term case insensitive. Our authoritative resource, International Committee on Taxonomy of Viruses (ICTV), does not have an entry for viruses below species level and the majority of references, including scientific literature, do not capitalize ”severe".

Any concepts in scope for the SNOMED CT to ICD-10 mapping have been mapped and adhere to the World Health Organization current guidelines.

2.3. Quality Initiative

The Quality Initiative (QI) project is the implementation of the Quality Strategy. After a successful pilot project for the July 2018 release the next stage has been implemented for subsequent releases including January 2022.

Quality improvement tasks were deployed to improve internal structural consistency and ensure compliance with editorial policy related to the stated modeling of content. Additionally, correction or addition of defining relationships was carried out to accurately reflect current clinical knowledge and ensure the semantic reliability of descriptions associated with a concept.

Total count of changes for the QI project for the January 2022 release:

- Stated: A total of 8368 concepts had changes made to the Stated relationships.
- Inferred: A total of 15487 concepts affected by Inferred changes.

These figures reflect changes made in both the clinical finding and procedure hierarchies.

Information about the project can be found here Quality Initiative - Progress (*Please note, you may have to register for Confluence user account in order to access this link).*

2.4. Body structure

3.2. Resolved Issues

Resolved issues are Known Issues which were not fixed as part of the previous release lifecycle, but which have now been resolved in the latest release. They can also be issues found during the Alpha and Beta testing of the current release, which were resolved before the final deployment of the associated Member release. Finally they can be issues which were reported or found during the testing phase, but which have been closed without any action taken.

The Resolved Issues for the current Snomed CT International edition can be found here:

key	summary	description	resolved

⚠ Jira project doesn't exist or you don't have permission to view it.

View these issues in Jira

3.3. Technical updates

3.3.1. RF2 package format

For future reference, the RF2 package convention dictates that it contains all relevant files, regardless of whether or not there is content to be included in each particular release. Therefore, the package contains a mixture of files which contain both header rows and content data, and also files that are intentionally left blank (including only a header

Progress of the Anatomy Model and Plan for Further Demonstration Release

There are approximately 35,000 anatomy concepts to be modeled by different types of 'part of' relationships. The new model will enable the automatic generation of hierarchies to further improve content quality and consistency. The integumentary system (about 2000 concepts) has been modeled. The modeling of the musculoskeletal system (about 10,000 concepts) is currently in progress.

The concept model requires tooling enhancements to support nested expressions and the option of inferred relationships for transitive and reflexive attributes. We will inform the community of the schedule for the demo release when the tooling and content are ready. The demo release will help us to gather feedback to evaluate potential impact and options for future release

2.4.1. Update Fully Specified Name to Include 'Structure/Structure of'

A bulk update to FSNs for over 7,000 structure concepts has been carried out to add the word 'Structure' to the descriptions and align with editorial guidance.

The FSN should include the word 'Structure' though this can be omitted in synonyms.

2.4.2. SEP and Laterality Anatomy Reference Sets

New concepts have been added to complete the refset for structure and entire concepts.

Updated and validated release file for the lateralizable body structure reference set.

Updated and validated release files for the SEP refsets.

The updates of SEP refsets and laterality refset are enhanced by new validation rules and automations as part of the authoring process.

record). The reason that these files are not removed from the package is to draw a clear distinction between files that:

- have been deprecated (and therefore removed from the package completely), due to the content no longer being relevant to RF2 in this or future releases, and
- happen to contain no data in this particular release (and are therefore included in the package but left blank, with only a header record), but are still relevant to RF2, and could therefore potentially contain data in future releases.

This allows users to easily distinguish between files that have purposefully been removed or not, as otherwise if files in option 2 above were left out of the package it could be interpreted as an error, rather than an intentional lack of content in that release.

3.3.2. Configuration file in the RF2 package, containing Release Metadata

A new file has been included since the July 2020 International Edition, containing metadata about the Release package itself. This has been created in conjunction with feedback from the community, and as such initially contains the following fields:

- effectiveTime
- languageRefset(s)
- humanReadableLanguageRefset(s)
- licenceStatement

The file is in .JSON format, to ensure that it is both machine-readable and human-readable,

2.4.3. Anatomy Content Improvements

Revision in the area of intervertebral symphysis of spine resolved pre-existing issues by adding new concepts and updating hierarchical relationships.

Review and resolution of existing content issues related to the revision of muscle structures and lateral half structures.

New content added for zones of long digital extensor tendon.

385383008 |Ear, nose and throat structure (body structure)| was changed to the appropriate “and/or” naming structure to align with editorial guidance. A new concept |Structure of internal nose and/or pharynx and/or larynx (body structure)| was created as a subtype of 58675001 |Upper respiratory tract structure (body structure)|. The new concept includes two existing concepts as subtypes: 312535008 |Pharynx and/or larynx structures (body structure)| and 53342003 |Internal nose structure (body structure)|. 1162926001 |Entire internal nose and pharynx and larynx (body structure)| was created as well. These concepts were used to update the model for related finding and procedure concepts.

2.5. Clinical Finding

Notice: 'Co-occurrent and due to' pattern:

During the implementation of the new Description Logic features, a conflict was uncovered between the modeling of 'Co-occurrent and due to' and General Concept Inclusions (GCIs). This has resulted in the need to reconsider the modeling of "Co-occurrent and due to' and update the Editorial Guide for this area.

The Editorial Guide and all concepts that are currently modeled as 'Co-occurrent and due to' will be updated over future release cycles.

2.5.1. Pressure Injury

A new hierarchy, 1163215007 |Pressure injury (disorder)|has been created in SNOMED CT based on the recommendations of the National Pressure Injury Advisory Panel (NPIAP) and adopted for the 2019 international clinical practice guidelines on the prevention and treatment of pressure ulcers/injuries. The NPIAP nomenclature favors the use of pressure injury over pressure ulcer due to confusion around the use of ulcer for two of the pressure ulcer stages which actually occur in intact skin. The following changes have been made in SNOMED CT:

New morphologies with text definitions have been created representing the various pressure injury stages:

and is named "**release_package_information.json**".

The metadata will be extended and refined going forward, in order to ensure that it contains the most useful information possible. If you have any ideas about any other useful information to include, please send them to info@snomed.org, along with a business case explaining how the information would benefit stakeholders. Please be aware that this use case will then be assessed by SNOMED International, and the new metadata will only be included in the configuration file if the business case is strong enough.

3.3.3. Advanced Notice of upcoming changes to the International Edition Release Schedule

ADVANCED NOTICE

As you may already know SNOMED International are transitioning to a monthly delivery schedule for the International Edition of SNOMED CT. The move towards more frequent releases of SNOMED CT will realise several benefits, including:

- ***The potential to be able to get content changes into the terminology in a shorter time frame.***
- ***The fostering of***

- 37782003 |Damage (morphologic abnormality)|
- 1163214006 |Pressure injury (morphologic abnormality)|
- 1163216008 |Pressure injury stage I (morphologic abnormality)|
- 1163218009 |Pressure injury stage II (morphologic abnormality)|
- 1163221006 |Pressure injury stage III (morphologic abnormality)|
- 1163223009 |Pressure injury stage IV (morphologic abnormality)|
- 1163225002 |Deep tissue pressure injury (morphologic abnormality)|

1163215007 |Pressure injury (disorder)|and its descendants representing the pressure injury stages are defined with the morphologies above similar to how burn injuries have been modeled in SNOMED CT.

- Pressure injury morphology stages II-IV have been assigned an additional parent of 56208002 |Ulcer (morphologic abnormality) |
- Pressure injury morphology stage I has been assigned an additional parent of 70819003 |Erythema (morphologic abnormality) |.
- Pressure injury disorder concepts representing stages II-IV have a synonym of Pressure ulcer stage x.

The following concepts have been inactivated and replaced with corresponding Pressure injury concepts:

- 421076008 |Pressure ulcer stage 1 (disorder)|
- 420324007 |Pressure ulcer stage 2 (disorder)|
- 421927004 |Pressure ulcer stage 3 (disorder)|
- 420597008 |Pressure ulcer stage 4 (disorder)|
- 421594008 |Nonstageable pressure ulcer (disorder)|
- 165260000 |Deep pressure ulcer (disorder)|

723071003 |Pressure injury of deep tissue (disorder)|has previously been created but has been remodeled according to the above heuristics.

399912005 |Pressure ulcer (disorder)|has been inactivated and the remaining 33 descendants that do not mention a specific stage have been renamed using Pressure injury instead of pressure ulcer with the value of associated morphology changed from 420226006 |Pressure ulcer (morphologic abnormality) |to 1163214006 |Pressure injury (morphologic abnormality) |. This results in these concepts being relocated under 1163215007 |Pressure injury (disorder)|.

Summary: The NPIAP classification best supports the of disambiguation of pressure ulcer from intact skin lesions. The new SNOMED CT pressure injury disorder hierarchy follows the NPIAP terminology most closely but accommodates legacy classifications by including an ulcer morphology in the model as well as additional descriptions of pressure ulcer for pressure injury stages II-VI.

2.5.2. Inactivation and Replacement of Neoplastic Morphology Concepts Based on the ICD-O-3 Classification

better interoperability, as a result of entities being able to consume release content that is more aligned with other organizations.

- ***The prevention of circular dependencies that occur in longer projects, due to the move towards smaller, more manageable authoring projects.***
- ***More automated validation services, as a result of the inherent removal of the Alpha /Beta stages in the Release cycle.***

Whilst most users will continue unaffected (as they can simply continue to download the releases every 6 months as always), this transition will necessarily involve a few changes to process/packages:

- ***Delta files have been removed from the release package - a Delta Generation service will be provided for those who need it. The Delta Generation***

Certain subtypes existed in the the 400177003 |Neoplasm and/or hamartoma (morphologic abnormality)| sub-hierarchy that were based on the WHO ICD-O version 3 morphology residual classification codes for 'Not Otherwise Specified' (NOS), or 'no ICD-O subtype', 'no subtype' and 'no International Classification of Diseases for Oncology subtype', for example, 83217000 |Medulloblastoma, no International Classification of Diseases for Oncology subtype (morphologic abnormality)|. These concepts are not acceptable in SNOMED CT as per Editorial Guidance, and are not ontologically meaningful outside of the closed word view of the ICD-O-3 classification context. Other subtypes of 400177003 |Neoplasm and/or hamartoma (morphologic abnormality)| had the appendage '-category' and were acting as groupers (originating from ICD-O-3.1) in the neoplastic morphologic abnormality hierarchy. The use of these groupers was problematic and causing inconsistency (especially when used for defining disorders) and duplication within the neoplastic morphology hierarchy itself, for example, 399919001 |Carcinoma in situ - category (morphologic abnormality)|.

These concepts have now all been inactivated in SNOMED CT including a review of their synonyms, and either replaced with a new concept if required, or pointed to an existing suitable replacement concept. The 72 '- category' concepts were used to define approximately 1280 concepts in the 55342001 |Neoplastic disease (disorder)| hierarchy, and the 75 'no ICD-O subtype' etc. were used to define approximately 470 concepts in the 55342001 |Neoplastic disease (disorder)| hierarchy. Impacted concepts in these and other hierarchies have been reviewed and remodeled. The issue of primary and secondary/metastatic in this sub-hierarchy will be addressed in a future release.

2.5.3. Revision of Overlapping Malignant Neoplasm Concepts Containing 'overlapping lesion'

The majority of these descriptions are of the pattern e.g.188157005 |Malignant neoplasm, overlapping lesion of breast (disorder)| and originate from ICD-9 and ICD-10.
Remodel for 78 overlapping malignant neoplasm concepts:

Updating of fully specified name and preferred term for concepts in the 363346000 |Malignant neoplastic disease (disorder)| subhierarchy where the FSN and PT descriptions contain 'overlapping lesion.'

The FSN and PT have been changed to 'overlapping sites' without inactivation of the concepts or altering the meaning or model.
Example: Malignant neoplasm, overlapping lesion of breast (disorder) has been updated to Malignant neoplasm of overlapping sites of breast (disorder).
Addition of a new synonym containing 'overlapping sites' where the 'overlapping lesion' wording is an existing synonym.
Where an existing overlapping malignant neoplasm concept was available this has been used as a proximal primitive parent to Sufficiently Define the concept.

- ***Tool allows users to create their own Delta between two fixed release dates - you can find it here, so please feel free to trial this and send us any feedback:***
  - ***https://github.com/IHTSDO/delta-generator-tool/releases***
- ***There is no longer any need to separate the Map files from the International Edition - the ICD-0/ICD-10 Maps will continue to be published in each Monthly International Edition release package (in line with that month's content) for the foreseeable future, unless we experience issues with the new process in Production, and they need to be removed at a later date.***

2.5.4. New model for Rheumatoid Arthritis Disorder Concepts

Following discussion and expert input SNOMED CT content for 69896004 |Rheumatoid arthritis (disorder)| (106 subtypes) has been updated and aligned with the following new published guidance Rheumatoid arthritis (*Please note, you may have to register for Confluence user account in order to access this link).*

The first monthly Release of the SNOMED CT International Edition is currently planned for the 28th February 2022.

NOTE: SNOMED International worked closely with Members over the past couple of years to better understand the impact of the proposed model, and have incorporated feedback into the new processes. This was designed to prevent any adverse impact to users, however if you have any further questions or concerns please contact us on support@snomed.org.

2.5.5. Changes for Enteritis

The inconsistency in descriptions and modeling of 'enteritis' content have been addressed. The finding site is explicitly included in the descriptions for 'enteritis' concepts, e.g. enteritis of intestine, enteritis of small intestine to avoid potential different interpretations and modeling.

2.5.6. Changes for 150062003 |Osteotomy (procedure) Subtypes

The concepts under 150062003 |Osteotomy (procedure)| have been remodeled to reflect that an Osteotomy is an incision, excision or division of bone. There had been a pair of methods 299713009 |Osteotomy - action (qualifier value)| and 439315000 |Wedge osteotomy - action (qualifier value)| under 129287005 |Incision - action (qualifier value)| that did not represent the breadth of meaning of osteotomy. All osteotomy concepts have been remodeled using the appropriate METHOD relationship value and according to the proximal primitive parent modeling construct according to a defined template. 299713009 |Osteotomy - action (qualifier value)| and 439315000 |Wedge osteotomy - action (qualifier value)| have been inactivated. Due to the equivalence between Osteotomy and Incision of bone, concepts with the FSN including "Incision of bone" have been inactivated as duplicate to "Osteotomy of bone" and the Incision descriptions added to the Osteotomy concepts.

3.3.4. Early visibility of impending changes in the upcoming 2022 Monthly International Edition releases

Please see the following page for details of all upcoming changes planned for 2022:

- https://confluence.ihtsdotools.org/display/RMT/2022+Early+Visibility+Release+Notifications

2.5.7. Inactivation of 362977000 |Sequela (disorder)| and Remodeling of Subtypes

As discussed and approved by the SNOMED Editorial Advisory Group, the grouper concept 362977000 |Sequela (disorder)| has been inactivated and the subtypes remodeled in the general pattern of; 645 72001 |Disease (disorder)| AFTER (64572001 |Disease (disorder)| or 71388002 |Procedure (procedure)|).

Concepts with FSNs containing the terms “sequela, sequelae or “late effects” will not have their FSNs changed. Aside from changes due to the remodeling pattern, the current inferred IS A relationships will be retained. The primary change will be elimination of their placement in a separate Sequela hierarchy. Additional sequela grouper concepts (e.g. 363296001 |Sequelae of disorders classified by disorder-system (disorder)|) have been initially remodeled, but are being evaluated for inactivation.

2.5.8. Hereditary Disease

New concepts added for mode of inheritance::
1162975000 |Maternally inherited mitochondrial deoxyribonucleic acid disease (disorder)|
1162976004 |X-linked recessive hereditary disease (disorder)|
1162984000 |X-linked dominant hereditary disease (disorder)|

2.5.9. Remodel 271558008|Infectious mononucleosis (disorder)| and Subtypes

The causative agent has been removed from 271558008 Infectious mononucleosis (disorder) to act as a grouping concept for subtypes caused by other infectious organism such as Toxoplasm, Cytomegalovirus etc. New specific subtypes which include causative agent have been added:

3.3.5. Document links

All links provide information that is correct and current at the time of this Release. Updated versions may be available at a later date, but if so these will need to be requested from the relevant SNOMED International teams.

NOTE: To access any of the links in the pdf document, please visit the Release Notes online here:

- https://confluence.ihtsdotools.org/display/RMT/SNOMED+CT+January+2022+International+Edition+-+SNOMED+International+Release+notes

- 1187002002 |Infectious mononucleosis caused by Adenovirus (disorder)|
- 1186997009 |Infectious mononucleosis caused by human herpesvirus 4 (disorder)|
- 1186998004 |Infectious mononucleosis caused by human herpesvirus 6 (disorder)|
- 1187000005 |Infectious mononucleosis caused by human immunodeficiency virus (disorder)|
- 1187001009 |Infectious mononucleosis caused by human immunodeficiency virus type I (disorder)|
- 1186999007 |Infectious mononucleosis caused by Toxoplasma (disorder)|
- 16196000 |Infectious mononucleosis caused by Cytomegalovirus (disorder)|

2.5.10. Remove Occurrence Congenital from 39912006|Hereditary spastic paraplegia (disorder)| and Subtypes

39912006|Hereditary spastic paraplegia (disorder)| is a progressive hereditary disease that can occur at later life stages, as a result of occurrence congenital appearing on this concept all subtypes were inheriting the attribute even if the disease has occurrence in adulthood.

39912006|Hereditary spastic paraplegia (disorder)| was remodeled to remove occurrence congenital and all descendants checked and remodeled where required.

2.5.11. Remodel 420721002 |Acquired immunodeficiency syndrome-associated disorder (disorder) and Descendants

420721002 |Acquired immunodeficiency syndrome-associated disorder (disorder)| has been made primitive and its 73 subtypes have been remodeled. The |Associated with (attribute)| is eliminated and descriptions updated accordingly. Role groups were added to support concept definition. The AIDS acronym has been annotated in expanded form as per Editorial Guidance.

2.5.12. Fear of X (finding)

Concepts of the type Fear of X (finding) have had the relationship to the stated primitive parent 386808001 |Phobia (finding)| inactivated. Almost all of these concepts were already descendants of 247845000 |Specific fear (finding)|. This was requested by the Mental and Behavioural Health CRG as Fear of X is not synonymous with Phobia of X with the latter being an irrational fear.

Additional work will be done to improve this area of content further for the July 2022 release.

For further information please see Mental and Behavioural Health Clinical Reference Group (*Please note, you may have to register for Confluence user account in order to access this link).*

2.5.13. Organic mental disorder (disorder)

111479008 |Organic mental disorder (disorder)| was added as a primitive parent to mental disorders caused by drugs/substances. Work in this area will continue into the next release.

2.5.14. Inactivation of Content Referring to 'Mental Handicap'

Following review by the Mental and Behavioural Health CRG and Content Managers AG content referring to mental handicap has been inactivated. This is an outdated term and has been replaced by intellectual disability.

2.5.15. Review of Tooth/Teeth Content

Changes have been made to approximately 120 concepts. Any concept which contained a mix of plural and singular descriptions has been changed so that the concept only represents a singular “tooth” or plural “teeth”. Where appropriate, new concepts have been

created. An example concept which has been changed is 36202009 |Fracture of tooth (disorder)| which had an incorrect plural description of “Broken teeth”.

Modeling has been reviewed to ensure that a plural FSN (teeth) has a plural finding site and a singular FSN (tooth) has a singular finding site. Changes to the modeling of concepts has been made where necessary. An example concept that has been changed is 53963006 |Excessive attrition of teeth (disorder)| which was previously modeled with a singular finding site.

2.5.16. Review of 2556008 |Periodontal disease (disorder)| and Descendants

A review of the 2556008 |Periodontal disease (disorder)| sub-hierarchy was completed for content tracker IHTSDO-720 and included approximately 130 concepts. Changes have been made following input from the Dentistry CRG and included:

- The inactivation of approximately 20 concepts due to being outdated or duplicate content.
- 14 concepts had their fully specified name reviewed by the Dentistry CRG. Changes were made to ensure that descriptions followed agreed naming patterns and that relationships between conditions were accurately represented. This involved inactivation and replacement of 12 concepts. An example concept which was inactivated is 709466003 |Periodontitis co-occurrent with Cohen syndrome (disorder)| which was replaced by 1184620004 |Periodontitis exacerbated by Cohen syndrome (disorder)|.
- The addition of subtypes under 699785004 |Periodontitis as manifestation of systemic disease (disorder)| and 707606004 |Non-plaque induced gingival disease (disorder)| in line with the American Academy of Periodontology and European Federation of Periodontology 2017 Classification of Periodontal and Periimplant Diseases and Conditions.
- All concept definitions and descriptions in the 2556008 |Periodontal disease (disorder)| sub-hierarchy were reviewed. These were remodeled and updated, where appropriate.

2.5.17. New Descriptions for Concepts in the 61960001 |Lordosis deformity of spine (disorder)| Sub-hierarchy

Descendants of 61960001 |Lordosis deformity of spine (disorder)| have had their FSN and descriptions replaced to remove possible ambiguity.

For example, 313471000119104 |Lumbar lordosis (disorder)| has been changed to 313471000119104 |Lordosis deformity of lumbar spine (disorder)|. Where the meaning of a concept was unclear, it was inactivated and replaced.

There were approximately 4 inactivations in this sub-hierarchy. Non-synonymous descriptions were also inactivated and targeted to appropriate concepts.

2.5.18. Superficial Foreign Body

Content representing superficial foreign bodies has been reviewed. Where duplicates were identified these have been inactivated, for example Superficial foreign body in toe (disorder)| was inactivated as a duplicate of |Foreign body in skin of toe (disorder).
Descriptions have been updated for example |Foreign body of skin of neck (disorder)| changed to |Foreign body in skin of neck (disorder).
The relationship |Due to|=|Traumatic event| was added where required.

2.5.19. Review Descendants of 365549006 |Finding of history relating to military service (finding)

A review of descendants of 365549006 |Finding of history relating to military service (finding)| has been undertaken with many subtypes moved to the Situation with Explicit Context hierarchy. Work in this area will be finalized for the next release. This work has been undertaken for Content Tracker IHTSDO-767.

2.5.20. Inactivation of 410795001 |Juvenile rheumatoid arthritis (disorder)| and Remodeling of Descendants of 410502007 |Juvenile idiopathic arthritis (disorder)

410795001 |Juvenile rheumatoid arthritis (disorder)| has been inactivated with reason outdated and a replacement target of 410502007 |Juvenile idiopathic arthritis (disorder)|. The subtypes of 410502007 |Juvenile idiopathic arthritis (disorder)| have been substantially remodeled with expert input and definitions added where appropriate.

2.5.21. Review of Content with Associated Morphology - 112638000 |Displacement (morphologic abnormality)

116 intermediate primitive concepts which have an associated morphology of 112638000 |Displacement (morphologic abnormality) were reviewed for correct modeling and where possible were sufficiently defined.

2.5.22. Pain finding at anatomical site (finding)

Subtypes were given stated finding sites and the proximal primitive parent when possible.

2.5.23. Hair finding (finding)

Appropriate attribute-value pairs were added to hair findings when possible.

2.5.24. Endemic disease (finding)

Endemic diseases were added as subtypes of 86820007 |Endemic disease (finding)|.

2.5.25. Disorder X without Disorder Y

The vast majority of existing X without Y concepts originated from ICD-9 with the specific meaning of "X disorder without mention of Y disorder". As the phraseology indicates a lack of data about disorder Y as opposed to a specific exclusion, this type of concept has not been included in ICD-10, nor proposed for ICD-11, except in the case of "Traumatic brain injury without open intracranial wound".

Addition of new X without Y concepts may only be made under the following conditions:

1. The request for new content must be accompanied by a rationale as to the difference between "X disorder without Y disorder" and "X disorder."
2. Approval for addition is given by the Head of Terminology.

For the most part, existing X without Y concepts will be inactivated as AMBIGUOUS with a historical MAY BE relationship to "X disorder". Exceptions to inactivation will be made on a case-by-case basis.

2.5.26. SDoH - Social Determinants of Health Finding

18 new concepts to support the area of Social Determinants of Health were added. Areas where these concepts were added include:

- Risks to health due to substandard housing e.g. 1162550007 |Adverse health risk due to absence of sink in residence (finding)|
- Types and extent of support e.g. 1186608005 |Inadequate family support (finding)|

Notice: Inactivation reason of LIMITED/WAS_A is not allowed for any new content inactivations after the July 2018 release. The WAS_A association refset has not been updated thereafter.

At the Editorial Advisory Group meeting in April 2019, agreement was reached to discontinue the maintenance of WAS_A relationships when inactivating concepts that have a historical association to an inactive concept. When changes are made to a historical relationship for a concept that was previously inactivated using WAS_A, effort will be made to assign a new historical relationship that facilitates traceability of the concept (e.g. DUPLICATE or AMBIGUOUS) as opposed to NON-CONFORMANCE TO EDITORIAL POLICY.

Existing WAS_A relationships will be inactivated in a future release once a plan for batch reassignment of historical relationships has been developed. Until then, SNOMED International will not continue to use or maintain WAS_A relationships.

2.6. Procedure

2.6.1. Bilateral Procedure Naming Update

Current bilateral procedure content has been updated to align with new naming conventions as documented in the Editorial Guide Bilateral Procedure Naming Conventions

2.6.2. Improved Modeling of Doppler Procedures

The modeling of Doppler procedures has been updated with inactivation of the attribute-value pair 424226004 |Using device (attribute)| = 43770009 |Doppler device (physical object)|. Existing and new Doppler actions are now used for the 260686004 |Method (attribute)| value which makes this consistent with other imaging procedures where the modality is expressed as the method action.

This enables additional content to be sufficiently defined and the different Doppler modalities can be expressed e.g. 1172737007 |Doppler ultrasound - action (qualifier value)|, 1172738002 |Doppler ultrasound imaging - action (qualifier value)|, 312236008 |Duplex ultrasound (qualifier value)|.

2.6.3. Administration (procedure)

416118004 |Administration (procedure)| was inactivated.

2.6.4. Construction of stoma (procedure)

The model has been reviewed for descendants of 75506009 |Construction of stoma (procedure) with the main changes being to define the intermediate primitives and ensure the procedure site is indirect rather than direct which was formerly used to model this area of content.

2.6.5. Remodel Descendants of 182929008 |Administration of prophylactic drug or medicament (procedure)

Descendants of 182929008 |Administration of prophylactic drug or medicament (procedure)| have been remodeled to group the Has intent attribute and update descriptions; a template has been created.

2.6.6. Planned Changes to Implantation and Insertion Procedures

Works ongoing for content tracker IHTSDO-175

2.7. Situation With Explicit Context

2.7.1. Revision of 'Procedure X Declined' Content

131 Situation hierarchy concepts of the pattern "Procedure X declined (situation)" have been remodeled with DECLINED for both the FSN and the Preferred Term.

2.8. Substance

Release plans, Substance hierarchy

For further details on the planned changes in this area, please refer to Substance Project

Please note, you may have to register for Confluence user account in order to access this project and the relevant links above.

2.8.1. Concepts Referencing Substance Structural Groupers of Form "X and X derivative" or "Y and Y compound"

Around 500 concepts in multiple hierarchies with FSNs that included either "X and X derivative" or "Y and Y compound" had descriptions updated to "X and/or X derivative" and "Y and/or Y compound," respectively.

2.8.2. Review and Update modeling for 87568004 |Hormone (substance)| and Descendants

Changes include inactivation of ambiguous groupers such as 419570005 |Hormone, synthetic hormone substitute or hormone antagonist (substance)| and 278421003 |Hormones and their metabolites and precursors (substance)| and 304360003 |Peptide hormones and their metabolites and precursors (substance)|.

2.9. Pharmaceutical/Biological Product

Drug model project

For further details on the planned changes in this area, please refer to the Drugs Project

Please note, you may have to register for Confluence user account in order to access this project and the relevant link.

2.9.1. Semi-solid Dose Form Strength Normalization

Clinical drug concepts with semi-solid dose Pharmaceutical dose forms (e.g. cream, gel, or ointment) in the International Release have strength denominators normalized to /1 gram (for w/w) or /1 milliliter (for w/v or v/v).

The Editorial Guide and content have been updated accordingly.

2.9.2. Lyophilized Powder Dose Form

Clinical drug concepts in the International Release should not be modeled using "lyophilized powder" Pharmaceutical dose forms. Pharmaceutical dose forms representing "lyophilized powder" will still be created in the International Release and will be available for use in a National extension. Editorial guide and existing content updated accordingly.

2.9.3. Products Containing Pancreatic Enzymes

Clinical drug concepts in the International Release containing pancreatic enzymes will be modeled based on the discrete enzymes; because of variability between real clinical drugs, synonyms representing a total amount in a particular product will not be included in the International Release. The editorial guide and existing content will be reviewed and updated accordingly in a future release.

2.10. Qualifier Value

2.10.1. Planned Inactivation of 260299005 |Number (qualifier value)| and Descendants

Following the deployment of the concrete domain functionality in SNOMED CT, concepts in the 260299005 |Number (qualifier value)| hierarchy are no longer necessary and plans have been made for their inactivation. To provide adequate time for any national extension or implementation affected by this change, concepts in the 260299005 |Number (qualifier value)| hierarchy will be inactivated in the January 2023 International Release.

Concepts will be inactivated with reason “Non-conformance to editorial policy” and no historical relationship or replacement concept will be provided.

Exceptions:

118586006 |Ratio (property) (qualifier value)| and descendants have been relocated to 118598001 |Property (qualifier value)| hierarchy.

272070003 |Ordinal number (qualifier value)| and descendants have been relocated to 362981000 |Qualifier value (qualifier value)| hierarchy.

A briefing note will also be distributed to selected Advisory and Project Groups.

Please contact info@snomed.org with any inquiries.

2.11. Physical Object

Physical Object

For further details on the planned changes in this area, please refer to Devices Project

Please note, you may have to register for Confluence user account in order to access this project and the relevant links above.

2.11.1. Compression Hosiery Class

Concepts referring to compression hosiery of a specific class (e.g. class I) have been updated to include a text definition that indicates the concept "serves as the parent of concepts representing an actual manufactured item whose description includes the explicit compression range associated with the class rating for that item."

2.12. Social concept

2.12.1. Person

Based on stakeholder requirements to capture the status of the donor, 2 new (person) concepts have been added as subtypes of 105457003 |Cadaver donor (person)|:

- 1187235001 |Donor after circulatory death (person)|
- 1187236000 |Donor after neurological death (person)|

2.13. Environment

2.13.1. Personal/Physical environment

Some subtypes of 285128009 |Personal environment (environment)| and 224777007 |Physical environment (environment)| such as 224783005 |Dirty environment (environment)| were determined to be findings about an environment. This content has been inactivated in the Environment hierarchy and add to the Clinical Finding hierarchy.

2.14. Convergent Medical Terminology (CMT)

CMT content additions:

- Injury Clinical finding concepts 360
- Mixed batch Clinical finding concept 1
- New anatomy and other concept changes to support addition of CMT content 105

2.15. Collaboration/Harmonization Agreements

2.15.1. Orphanet

Working in collaboration with Orphanet (**http://www.orpha.net/consor/cgi-bin/index.php**), creation of new concepts for the original set of prioritized rare diseases has been completed. All of the concepts added for the Orphanet project have been mapped to ICD-10.

The Production release of the SNOMED CT to Orphanet Simple Map was published in October 2021.

199 new concepts for rare diseases with a map to Orphanet entries have been added for the January 2022 International release, these new concepts will be included in the October 2022 SNOMED CT to Orphanet Simple Map release.

2.15.2. ICD-11 Update

A total of 503 new concepts were added for the January 2022 release.

2.15.3. Nutrition

Addition of ~200 nutrition concepts. Most new content is in the observable entity hierarchy (nutrition behaviors, social determinants, ability concepts), some in clinical findings (potable water access, nutrition activities of daily living findings) and a portion are regime /therapy concepts (infant feeding management).

Further information about the work of the Nutrition Care Process Clinical Project group is available here (*Please note, you may have to register for Confluence user account in order to access this link).*

2.15.4. Global Medical Device Nomenclature Agency (GMDNA)

- New concepts 28
- Concepts modified 100
- Obsolete 49

2.15.5. Cancer Synoptic Reporting

Over 200 concepts representing cancer synoptic reporting content were added or updated in the areas of surgical margins, tumor focality, neoplasm depth, invasion and neoplasm weight. This content primarily encompasses observable entity concepts and also includes a few supporting concepts from other hierarchies (e.g., properties, techniques).

Cancer synoptic reports are used by many member countries to record pathology examination of cancer specimens including the College of American Pathologists (US and Canada), Royal College of Pathology (UK), Royal College of Pathology Australasia (Australia, New Zealand), PALGA (The Netherlands), Swedish Society of Pathology, and others.

For more information about this project, please see Cancer Synoptic Reporting Clinical Project Group (*Please note, you may have to register for Confluence user account in order to access this link).*

2.16. Internal Quality Improvement

2.16.1. Replacement of the Stated Relationship files with the OWL Axiom refset files

A set of documentation has been developed to support the Logic Profile Enhancements. (*Please note, you may have to register for Confluence user account in order to access the links below.)*

- SNOMED DL Profile Enhancements
- SNOMED CT Logic Profile Specification
- SNOMED CT OWL Guide (OWL Refsets specification)
- Snomed OWL Toolkit -https://github.com/IHTSDO/snomed-owl-toolkit
- Classifying SNOMED CT using the Snomed OWL Toolkit - https://youtu.be/-91egY9mJqA
- Creating an OWL file containing SNOMED CT - https://youtu.be/sfFbMMioA_4

For any questions, please contact SNOMED International at support@snomed.org with “OWL Axiom refset files implementation question” in the subject line.

2.16.2. Machine Readable Concept Model (MRCM) Changes

MRCM for new attribute 1003735000 |Process acts on (attribute)

Further details can be found here MRCM changes in the January 2022 release (*Please note, you may have to register for Confluence user account in order to access this project and the relevant links above).*

2.16.3. Concrete Domains and Numeric Representation

The July 2021 International Edition was the first release after the transition to Concrete Domains.

- The RF2 package is impacted as follows:
    - existing drug concept strength and count relationships inactivated +
    - existing strength and count attribute types inactivated, replaced with new ones using the same FSNs.
    - Inferred Relationship file changes:
- Stated OWL Axiom file changes:
    - existing drug concept axioms updated to use concrete values +
    - existing strength and count attribute types inactivated, replaced with new ones using the same FSNs.
- Additional Features in International Release
    - new separate concrete value relationship file expresses these same attributes using numeric values
    - new attributes used, although they will have the same FSNs as the current attributes
    - MRCM includes new rows to indicate that the new attribute types are expected to take a concrete domain - specifically numbers - as target values.

Please contact SNOMED International with questions at support@snomed.org with “Concrete Domains transition question” in the subject line.

2.17. SNOMED CT derived products

2.17.1. ICD-10 map

The SNOMED CT to the International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (© World Health Organization 1994) 2016 Version map (SNOMED CT to ICD-10 Map) is included in the SNOMED CT International release as a Baseline. The SNOMED CT to ICD-10 Map was created to support the epidemiological, statistical and administrative reporting needs of SNOMED International member countries and WHO Collaborating Centers.

The SNOMED CT to ICD-10 Map is released in Release Format 2 (RF2) only. It is located in the file der2_iissccRefset_ExtendedMapFull_INT_20200731.txt, which is in the Map folder under Refset, in each of the three RF2 Release Type folders.

The SNOMED CT to ICD-10 Map is released as Refset 447562003 |ICD-10 complex map reference set (foundation metadata concept)|.

2.17.1.1. Content development activity summary

The map is a directed set of relationships from SNOMED CT source concepts to ICD-10 target classification codes. The SNOMED CT source domains for the MAP are limited to subtypes of 404684003 |clinical finding|, 272379006 |event| and 243796009 |situation with explicit context|. The target classification codes are ICD-10 2016 release.

2.17.1.2. Mapped content for January 2022

The map provided for the January 2022 release has been updated, and now represents a complete map from SNOMED CT International release to ICD-10 2016 version.

- 1620 newly authored concepts have been added and mapped.
- The SNOMED to ICD-O (morphology) map has had a total of 102 concepts added as a result of the ICD-O 3.2 review or added due to CRS requests.

We would welcome feedback on any issues that users of the map may detect when using the map. Issues should be submitted via mapping@snomed.org

2.17.2. Technical Guide Exemplars

The Technical Guide Exemplars document has now been moved from the International Edition release package to a Confluence page. This page can be found as part of the ICD-10 Mapping Technical Guide (see Appendix B), which is hosted here: http://snomed.org/icd10map

2.17.3. SNOMED CT to OWL conversion and classification

The repository containing the toolkit enabling simple SNOMED CT to OWL conversion and classification can be found here, including documentation on its use: **https://github.com/IHTSDO/snomed-owl-toolkit**

Please contact SNOMED International at support @snomed.org if you would like to provide any feedback on ways to extend and improve the new toolkit.