# SNOMED CT Managed Service - US Edition SNOMED CT to ICD-10-CM Release Notes - March 2021

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# 1 Introduction

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. The SNOMED CT US Edition is a combination of the full SNOMED CT International Edition and the US Extension of SNOMED CT. The US Edition eliminates the need for implementers to manually combine the US Extension and International releases. The SNOMED CT to ICD-10-CM map reference set is to support semi-automated generation of ICD-10-CM codes from clinical data encoded in SNOMED CT for reimbursement and statistical purposes.

The International Health Terminology Standards Development Organisation (IHTSDO®), trading as 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. SNOMED CT US Edition is developed and maintained by the United States National Library of Medicine and is available to authorized Unified Medical Language System (UMLS) Metathesaurus Licensees. This material includes SNOMED CT which is used by permission of the IHTSDO. All rights reserved.

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## 1.1 Background

This document provides a summarized description of the content changes for the NLM maintained SNOMED CT to ICD-10-CM mapping reference set found in the March 2021 release of the SNOMED CT® US Edition. These release notes also include technical notes detailing the known issues which have been identified. These are content or technical issues where the root cause is understood, and the fix has been discussed and agreed, but has yet to be implemented.

This document is available as a web resource as well as alongside the March 2021 US Edition release (https://www.nlm.nih.gov/healthit/snomedct/us_edition.html).

The mapping methodology follows closely that of the SNOMED CT to ICD-10 Crossmap Project, a collaborative project between SNOMED International and the World Health Organization. Dual independent mapping by trained terminology specialists is employed to assure quality and reduce variability. Identical maps created independently are accepted as final, while discordant maps are reviewed by a third expert. Regular team meetings are held to discuss problematic and ambiguous cases.

## 1.2 Scope

This document covers the characteristics of this release of the map, including concept counts and file format. For details about how the map is created please refer to the technical specifications for SNOMED CT to ICD-10-CM map (SNOMED CT Managed Service - US Edition Mapping SNOMED CT to ICD-10-CM Technical Specifications - March 2021). The Map corresponds to the March 2021 release of the US Edition of SNOMED CT (https://www.nlm.nih.gov/healthit/snomedct/us_edition.html) and the 2021 version of ICD-10-CM.

## 1.3 Purpose of the Map

- To provide a semi-automated coding of ICD-10-CM statistical classification data from a clinical record which is clinically encoded in SNOMED CT
- For development of ICD-10-CM classification codes from SNOMED CT encoded records for use in registries and diagnosis groupers
- Please note - this Map is NOT a completely automated ICD-10-CM coding from a SNOMED CT source.

## 1.4 Audience

All parties who wish to understand the Map and/or to employ it for semi-automatic translation between SNOMED CT and ICD-10-CM should read this document. This may include vendors of electronic health records, terminology developers and managers.

# 2 Cross map content overview

## 2.1 Summary

## 2.1.1 Release

This March 2021 SNOMED CT US Edition (20210301) publication of the the SNOMED CT to ICD-10-CM map marks the sixth release with the mapping tooling and map release production provided by SNOMED International Managed Service. Quality assurance of the release was completed by both NLM and SNOMED International.

## 2.1.2 COVID-19 Content

The new SNOMED CT COVID-19 related concepts published in **January 2021 International Edition** have been included in this release. For example: 1119306006 | Multisystem inflammatory syndrome in adults (disorder) is mapped to ICD-10-CM code *M35.81* Multisystem inflammatory syndrome. 897036007 | Occupational exposure to Severe acute respiratory syndrome coronavirus 2 (event) is mapped to ICD-10-CM code *Z20. 822* Contact with and (suspected) exposure to COVID-19.

## 2.2  Scope of publication

The MAP is a directed set of relationships from SNOMED CT source concepts to ICD-10-CM  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|.

## 2.2.1 Latest SNOMED CT to ICD-10-CM refset statistics

| | |
|---|---|
| Total number of SNOMED CT source concepts | 125,706 |
| Source concepts could not be assigned a map target due to issues of ambiguity or target scope | 10,249 |

This map release includes a total of 215,417 map records, with a maximum of 28 map records per map group.

## 2.3  What is a refset?

A Reference Set (refset) is a set of references to SNOMED CT components which may associate additional properties with members of the set. It may also indicate associations between members of the set or between members of the set and content of another nomenclature, classification or knowledge structure. The uses of Reference sets include identification of subsets of SNOMED CT content, representation of alternative hierarchical structures and cross maps to classifications. References Sets are a part of SNOMED CT Release Format 2 that provides a general purpose extensibility mechanism. Refsets are a SNOMED International standard artifact that complies with the technical specifications documented in the document *SNOMED CT Release Format 2.0 Reference Set Specifications,* accessible on line as part of the Technical Implementation Guide.

This publication of the MAP employs a Descriptor refset, an Extended Map refset and a Module Dependency refset as documented in that publication.

## 2.4 RF2 refsets in this publication

The SNOMED CT to ICD-10-CM map is released in RF2 format within the SNOMED CT US Edition (https://www.nlm.nih.gov/healthit/snomedct/us_edition.html). The map is also available in a human readable format (tls_Icd10cmHumanReadableMap_US1000124_20210301.tsv) alongside the US Edition of SNOMED CT as a bundled download - SNOMED_CT_to_ICD-10-CM_Resources_20190901.zip.

The SNOMED CT to ICD-10-CM map is released as Refsetid 6011000124106 | ICD-10-CM extended map reference set (foundation metadata concept)|.

The SNOMED CT to ICD-10-CM map refset data are contained in three separate files:

- Extended Map: contains the core of the Map data. There are one or more map records for each source concept mapped, including the ICD-10-CM target codes. Found in the Map folder under Refset in the Full, Snapshot, and Delta Release Type folders: der2_iisssccRefset_ExtendedMap[Full-Snapshot-Delta]_US1000124_20210301.txt.
- Refset Descriptor: contains metadata from the SNOMED CT metadata hierarchy (children of 900000000000454005 |foundation metadata concept|) which describes the attributes of the publication refsets and their information content
- Module Dependency: designates the versions of other SNOMED CT modules upon which this publication of the MAP depends

## 2.5 Additional Resources

Additional resources have been provided to support the use of the Map.

**Please note -** March 2019 marked the last time the documentation folder was included in the SNOMED CT US Edition release.  Instead the Release Notes are now available as a PDF download alongside the US Edition Release Notes on the NLM downloads page as well as an online resource.

# 2.5.1 Browsable Spreadsheet

To support browsing and understandability of the MAP, a tab delimited UTF-8 dataset which can be imported into spreadsheet software such as Microsoft Excel® is included with the release.  This can be loaded with the text import features of Excel and most spreadsheets. The spreadsheet data format mimics the exemplar appendices of the technical documentation and is a "readable" version of the Map that can be understood by a non-technical individual. This file is not in RF2 format and can be found in the Documentation directory on the US Edition downloads page.

# 2.5.2 Technical Documentation

Technical documentation which summarizes the rationale, procedures, technical artifacts and project overview is included with the publication as the pdf file: SNOMED CT Managed Service - US Edition Mapping SNOMED CT to ICD-10-CM Technical Specifications - March 2021. Accompanying the technical documentation is a collection of sample maps available as Appendix_icd_10_cm_exemplar_20200901.xlsx.

# 2.5.3 iMagic Mapper

The I-MAGIC (Interactive Map-Assisted Generation of ICD Codes - https://imagic.nlm.nih.gov/imagic/code/map) Algorithm utilizes the SNOMED CT to ICD-10-CM Map in a real-time, interactive manner to generate ICD-10-CM codes. This demo tool simulates the Problem List of an EHR to

illustrate how the healthcare provider can capture clinical problems in SNOMED CT and then derive ICD-10-CM codes for reimbursement and other purposes.

# 3 Technical Notes

## 3.1 Summary

This section of the document provides a summary of known technical issues and current changes. Please see the Technical Specifications Documentation for additional information.

## 3.2 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 map editing cycle, to the risk of impact to the stability of the Map if the fix were to be deployed at that stage in the Product lifecycle.

For the SNOMED CT to ICD-10-CM map, there is no Known Issues identified.

## 3.3 Technical Updates

No ICD-10-CM technical updates in this release.

# 4 Quality assurance and maintenance

Mapping procedures as outlined in the technical documentation consist of dual independent mapping of all source concepts with map records sent to publication only after consensus of the independent mappers is reached. The Map will be periodically updated with new versions of SNOMED CT and ICD-10-CM. Future expansion of coverage of SNOMED CT concepts will depend on user feedback and availability of resources.

# 5 Feedback and suggestions

We welcome questions, comments or suggestions to improve the quality, accuracy and usability of the SNOMED CT US Edition. Please send feedback to NLM Customer Support https://support.nlm.nih.gov.

# 6 Appendix: File format specifications

## 6.1 Refset Descriptor refset (der2_cciRefSet_DescriptorSnapshot_INT_20210301)

(der2 designates a data file of format RF2; cci denotes a Concept-Concept-Integer refset; INT identifies the international version; 20210301 is the year, month and date of publication)

| Field | Data type | Purpose |
|---|---|---|
| id | UUID | A 128 bit unsigned integer, uniquely identifying the map category record |
| effectiveTime | Time | Specifies the inclusive date at which this change becomes effective. |
| active | Boolean | Specifies whether the member's state was active (=1) or inactive (=0) from the nominal release date specified by the effectiveTime field. |
| moduleId | SctId | Identifies the member version's module. Set to a child of 900000000000443000|Module| within the metadata hierarchy. |
| refSetId | SctId | Indicates that this is part of a "reference set descriptor"; concept Id  900000000000456007 | Reference set descriptor reference set (foundation metadata concept)| |

| | | |
|---|---|---|
| referenc edComp onentId | Sc tId | The SCT identification of the refset which is described; a metadata descendant of  9000000000000455006 |Reference Set| |
| attribute Descripti on | Sc tId | Set to a descendant of 900000000000457003  |Reference set attribute| in the metadata hierarchy, that describes the additional attribute extending the reference set. |
| attribute Type | Sc tId | A descendant of 900000000000459000 |Attribute type| in the metadata hierarchy, that describes the type of the additional attribute extending the reference set. |
| attribute Order | Int eg er | An unsigned integer, providing an ordering for the additional attributes extending the reference set. A zero value here is used for the row that describes the referenced component within the reference set. One additional active row exists for each attribute extending the reference set. |

## 6.2 Module Dependency refset (der2_ssRefSet_ModuleDependencySnapshot_INT_20210301)

| Field | Data type | Purpose |
|---|---|---|
| id | UUID | A 128 bit unsigned integer, uniquely identifying the map category record |
| effectiveTime | Time | Specifies the inclusive date at which this change becomes effective. |
| active | Boole an | Specifies whether the member's state was active (=1) or inactive (=0) from the nominal release date specified by the effectiveTime field. |
| moduleId | SctId | Identifies the member version's module. Set to a child of 900000000000443000|Module| within the metadata hierarchy. |
| refSetId | SctId | Set to one of the children of the 447250001 |Complex map type| concept in the metadata hierarchy. |
| referencedCom ponentId | SctId | A reference to the module on which this module depends, a descendant of 900000000000443000|Module| in the metadata hierarchy. |
| sourceEffective Time | String | The effective time of the source module. This allows a specific module version to be selected as having a dependency. The effectiveTime must match exactly. |
| targetEffectiveT ime | String | The effective time of the target module. This allows a specific module version to be selected as being the subject of a dependency. The effectiveTime must match exactly. |

## 6.3 Extended Map refset (der2_iissscRefset_ExtendedMapSnapshot INT_20210301)

| Field | D at a ty pe | Purpose |
|---|---|---|
| id | U UID | A 128 bit unsigned integer, uniquely identifying the map record |
| effectiv eTime | Ti me | Specifies the inclusive date at which this change becomes effective. |
| active | B o ol e an | Specifies whether the member's state was active (=1) or inactive (=0) from the nominal release date specified by the effectiveTime field. |
| moduleId | S ctId | Identifies the member version's module. Set to a child of 900000000000443000|Module| within the metadata hierarchy. |
| refSetId | S ctId | Set to one of the children of the |Complex map type| concept in the metadata hierarchy. |

| referencedComponentId | SctId | The SNOMED CT source concept ID that is the subject of the map record. |
|---|---|---|
| mapGroup | Integer | An integer identifying a grouping of complex map records which will designate one map target at the time of map rule evaluation. Source concepts that require two map targets for classification will have two sets of map groups. |
| mapPriority | Integer | Within a map group, the mapPriority specifies the order in which complex map records should be evaluated to determine the correct map target. |
| mapRule | String | A machine-readable rule, (evaluating to either 'true' or 'false' at run-time) that indicates whether this map record should be selected within its map group |
| mapAdvice | String | Human-readable advice that may be employed by the software vendor to give an end-user advice on selection of the appropriate target code. This includes a) a summary statement of the map rule logic, b) a statement of any limitations of the map record and c) additional classification guidance for the coding professional. |
| mapTarget | String | The target ICD-10 classification code of the map record. |
| correlationId | SctId | A child of |Map correlation value| in the metadata hierarchy, identifying the correlation between the SNOMED CT concept and the target code. |
| mapCategoryId | SctId | Identifies the SNOMED CT concept in the metadata hierarchy which is the MapCategory for the associated map record. This is a subtype of 447634004 |ICD-10 Map Category value|. |

## 6.4 Map browser spreadsheet (tls_ICD10HumanReadableMap_INT_20210301)

The browser spreadsheet dataset is the same as the Extended Map Refset with the descriptive names for the SNOMED CT concept, ICD-10-CM code and mapCategoryId added for readability.

| Field | Data type | Purpose |
|---|---|---|
| id | UUID | A 128 bit unsigned integer, uniquely identifying the map category record |
| effectiveTime | Time | Specifies the inclusive date at which this change becomes effective. |
| active | Boolean | Specifies whether the member's state was active (=1) or inactive (=0) from the nominal release date specified by the effectiveTime field. |
| moduleId | SctId | Identifies the member version's module. Set to a child of 900000000000443000|Module| within the metadata hierarchy. |
| refSetId | SctId | Set to one of the children of the |Complex map type| concept in the metadata hierarchy. |
| referencedComponentId | SctId | The SNOMED CT identifier of the source concept that is being mapped in this record |
| sctName | String | The fully specified name of the SNOMED CT source concept being mapped |
| mapGroup | Integer | A collation identifier which specifies one or more map records which are to be evaluated in sequence for determination of at most one ICD-10 target codes for this map |
| mapPriority | integer | The sequence number for evaluation of this map record within the map group |
| mapRule | string | The map rule for this map record |
| mapAdvice | string | The map advice for this map record |
| mapTarget | string | Target ICD-10 classification code for this map record |
| icdName | string | WHO term assigned to the target ICD-10 code for this record |
| correlationId | SctId | A child of |Map correlation value| in the metadata hierarchy, identifying the correlation between the SNOMED CT concept and the target code. |
| | SctId | |

| mapCategoryValueId | | The metadata identifier for the map category assigned to this map record, a child of 447634004 |ICD-10 map category value| |
|---|---|---|
| mapCategoryValue | string | Primary term for the map category metadata assigned to this map record |

## Approvals

| Final Version | Date | Approver | Comments |
|---|---|---|---|
| 1.0 | | Terance Shird | |
| 1.0 | | Rory Davidson | |
| 1.0 | | Kin Wah | |
| 1.0 | | Patrick McLaughlin | Approved |

## Draft Amendment History

| Version | Date | Editor | Comments |
|---|---|---|---|
| 1.0 | 2012 07 03 | Kin Wah Fung | Final release notes of Phase 1 map |
| 2.0 | 2013 06 01 | Kin Wah Fung | Release notes of updated map |
| 3.0 | 2013 12 20 | Kin Wah Fung | Release notes of updated map |
| 4.0 | 2014 09 01 | Kin Wah Fung | Release notes of updated map |
| 4.1 | 2015 02 25 | Susan Roy, Kin Wah Fung | Release notes for 2015 March US Edition |
| 5.0 | 2015 06 30 | Kin Wah Fung | Release notes for 20150901 version of the map |
| 5.1 | 2015 09 01 | Kin Wah Fung, Susan Roy | Release notes for 2015 September US Edition |
| 6.0 | 2016 06 24 | Kin Wah Fung | Release notes for 201603 version of the map |
| 6.1 | 2016 10 06 | Kin Wah Fung | Release notes for 201609 version of the map |
| 7.0 | 2017 02 | Kin Wah Fung  Susan Roy | Release notes for 201702 version of the map |
| 7.1 | 2017 03 | Kin Wah Fung | Release notes for 201703 version of the map |
| 8.0 | 2017 09 | Kin Wah Fung | Release notes for 201709 version of the map |
| 9.0 | 2018 03 01 | Susan Roy, Kin Wah Fung | Release notes for 20180301 version of the map |
| 10.0 | 2018 08 07 | Susan Roy, Kin Wah Fung | Release notes for 20180901 version of the map |
| 11.0 | 2019 07 28 | Julia Xu | Release notes for 20190901 version of the map |
| 12.0 | 2020 02 14 | Julia Xu | Release notes for 20200301 version of the map |
| 13.0 | 2020 08 14 | Julia Xu | Release notes for 20200901 version of the map |
| 14.0 | 2021 02 14 | Julia Xu | Release notes for 20210301 version of the map |