NHS Digital

User Guide

SCCI0034: SNOMED CT

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Contents

NOTE: From 1 February 2023, Delen - the information sharing and collaboration platform for Terminology and Classifications products, has migrated from https:///hscic.kahootz.com to https://nhsengland.kahootz.com. URLs in this document have been corrected to ensure continuity of access. No other changes have been made.

Introduction

This document is to support users who have responsibility to ensure adherence to the standard SCCI0034: SNOMED CT within their organisation. It assumes a general understanding of SNOMED CT; introductory materials on SNOMED CT can be found on the NHS Digital website.

The SNOMED CT standard was first published in 2011; since that date a significant number of systems have now incorporated SNOMED CT as their clinical terminology. Significantly, general practice systems can now interoperate using SNOMED CT and the majority of the GP estate can use SNOMED CT for their day to day recording. This update to the standard is therefore primarily to the guidance and to ensure it answers questions raised by those implementing the standard.

The standard itself remains unchanged, document updates:

1. Reflect that the implementation date of April 2020 is now historical and re-affirms that providers must now be able to comply to information standards that use SNOMED CT
2. Clarify the minimum data elements that need to be captured in SNOMED CT but that other new/updated information standards may extend this. When this happens, stated implementation dates will be provided in the requirements of those standards.
3. Clarify that the standard applies not just to providers, but those who express requirements to providers in terms of data entry and data extraction.
4. Inform of minor changes to the governance of SNOMED CT within the UK.

Why has this document been updated?

The requirement to enable all health and care systems to use SNOMED CT by 1st April 2020, as specified in SCCI0034, has not changed. The ability to flow patient data electronically and safely between health and care systems remains a high priority. Since December 2019, this objective has been achieved in General Practice. However, the requirement to enable SNOMED CT content in Secondary, Dentistry and Optometry care systems by 1st April 2020 is still be fully achieved; although we appreciate many providers have SNOMED CT enabled EPR systems in place.

Recognising this is the case, the NHS Digital Terminologies Delivery Service has gained approval from the Data Coordination Board, supported by NHSX, to provide an uplift to the key and supporting documentation to enable further progress of SNOMED CT implementation across health and care systems.

The information in this document has been refreshed to ensure links to current guidance and information is correct; clarifications have been made based on feedback from those systems that have adopted SNOMED CT; additional advice, where necessary, has been provided on the support available to help implementation.

It is expected that all secondary, optometry and dentistry service providers will have detailed plans in place with an associated implementation schedule for SNOMED CT **by December 31st 2020.** These will be required by NHSX/NHS England and NHS Improvement as part of provider planning activity.

Purpose of this document

This document contains extracts from the more comprehensive ‘Implementing the SCCI0034 Standard: SNOMED CT’. This document provides an overview to assist those tasked with

meeting the standard in their organisation; those who are unfamiliar with SNOMED CT may find this a useful starting guide to implementation.

Scope

The standard is for the UK Edition of SNOMED CT.

For convenience the document refers to the electronic health record (EHR), but SNOMED CT provides content for care in its widest sense including social care requirements.

SNOMED CT is a requirement for those systems used at the point of care of an individual; it may be used in other use cases, for example payment, but is not mandated.

The UK Drug Extension is derived from the dictionary of medicines and devices (dm+d). The UK Drug Extension contains additional content such as relationships to the Clinical Extension, additional concepts such as Trade Family names, but omits some attributes such as price. The UK Drug Extension is part of the UK Edition of SNOMED CT and thus included within this document. dm+d is a separate standard SCCI0052 with its own implementation guidance; anyone requiring specific details in relation to medicines and devices should also consult the dm+d guidance.

The standard applies to all providers of health and care, including social care, as well as those who express requirements to providers in terms of data entry and data extraction (for example if specific interventions are contractually required, these should use SNOMED CT). The exchange of information electronically with clinical content represented in SNOMED CT is critical to ensure such data can reliably be processed by both the sending and receiving systems.

SNOMED CT use within social care is in development and future communications around expectations and timescales will be provided in due course. However, providers should be alerting their suppliers to the requirement; if an electronic system is implemented where health and care related data is captured in a structured manner (as opposed to in free text) then that must use SNOMED CT and not invent an alternative bespoke set of codes. However, this fundamental standard does not currently mandate a timetable for its use in social care. Some systems that are required to interchange structured data across the health and social care estate are known to already be utilising SNOMED CT. Social care providers can seek support and advice through the NHS Digital Terminology Service (by emailing information.standards@nhs.net) should they want to adopt SNOMED CT.

Overview of SNOMED CT

SNOMED CT is the fundamental standard for healthcare terminology. SNOMED CT provides the vocabulary for recording structured data in electronic records that relate to the health and care of an individual; it provides the clinical terms clinicians need to record to communicate key information to other clinicians. As such its use in systems is wide ranging and thus account of the standard will be needed in **all** systems that are used in the direct management of the health and care of individuals.

SNOMED CT enables standard meaningful clinical phrases to be recorded and understood by the user, as well as enabling sophisticated interpretation by the computer. It provides features that enable decision support functionality, powerful analytics and a high level of expressivity of information about the health and care of an individual; reporting and data extraction solutions need to be able to take account of SNOMED CT encoded data. The use

of SNOMED CT will also enable data exchange in a safe and managed way between different systems in the health and care environment.

SNOMED CT is provided as a set of data files: to implement the standard requires these data files to be incorporated into the electronic system such as the Electronic Patient Record system:

- if the system is provided by a vendor then SNOMED CT needs to be specified as a requirement of the solution;
- if the system is in-house, the internal development team needs to utilise SNOMED CT in the solution.

This may either be the full set of SNOMED CT or a subset of SNOMED CT.

Further Information

Further information on SNOMED CT is available on the NHS Digital website.

Implementing the standard

Implementation of the standard must be undertaken as part of undertaking *paperless at the point of care*. The national requirement for structured records that support the health and care of an individual and allow data to be transferred between systems **must** be implemented using SNOMED CT for clinical content. As such the standard is required in a wide range of applications, not restricted to but including:

- Electronic patient record system
- Electronic health records
- Electronic care plans
- Specialist systems such as Cancer MDT systems
- Decision support tools
- Clinical Knowledge Resources
- Clinical Guidance
- Care Pathways
- Messages between care solutions.

To achieve implementation, health and care providers **must** specify in the solutions they procure or develop in-house the requirement for the clinical vocabulary within that system to be provided by SNOMED CT. Development of a local dictionary is wasteful of resource but also requires new staff to learn alternative terms and structure to those used elsewhere or quoted in national guidelines; in addition this prevents electronic records being communicated outside the enterprise without some process of mapping which inevitably introduces clinical risk. The requirement for interoperability is part of national policy.

As well as requiring SNOMED CT in all systems within the organisation that relate to the health and care of an individual, it also requires that reporting and analysis tools can utilise features provided by SNOMED CT so that benefits over and above straight lexical matching can be undertaken for data extraction and reporting.

In overview, adoption of SNOMED CT means:

- The end user can enter clinically relevant data using terms from within SNOMED CT;
- Clinically relevant data can be communicated outside the organisation with identified data items coded using SNOMED CT codes; data coded in SNOMED CT can be accepted by the system without additional manual intervention;
- Query specifications written using SNOMED CT can be processed (retrieved and displayed) to enable support for decision support, knowledge linkage, analysis, data extraction and reporting;
- National requirements for consistency of data capture can be specified in SNOMED CT whether this be via a data collection or in national policy / guidelines

This does not preclude different user interfaces, such as graphical front-ends or natural language processing, which may be used to enable users to identify the SNOMED CT terms required to associate with a particular entry. However, one motivation for a national vocabulary is to facilitate the enhancement of systems with decision support, so the timeliness of capturing SNOMED CT at the point of care in order to influence and enhance such care is critical.

The data items that are to be recorded using SNOMED CT, where these are applicable to record within the system, include but are not restricted to:

- Symptoms

- Diagnosis
- Procedures/interventions
- Assessment Scales
- Family History
- Medications
- Allergies
- Observations such as Blood pressure, weight, height
- Documentation Type and documentation care setting
- Laterality
- Body Site

This will evolve as more information standards are approved and indicate the requirement to utilise SNOMED CT. At the time of writing the following information standards are known to (or in development to) require content captured using SNOMED CT:

- Mental Health Services Data Set
- Improving Access to Psychological Therapies
- Cancer Outcomes and Services Data Set
- Community Services Data Set
- Palliative Care Co-ordination: Core Content
- Emergency Care Data Set
- eDischarge
- A&E clinical letters
- Accessible Information
- Electronic Yellow Card
- Electronic Notification of Infectious Disease
- HIV and AIDS Reporting System (HARS)
- Assisted Reproductive Technology (HFEA).

Steps to Implementation

This section walks you through a series of questions to consider in relation to adopting the standard across your organisation. As SNOMED CT provides the clinical vocabulary to be used across all systems that relate to the direct management of care, the standard will need to be adopted in **every** such system used by clinical users. Each system must comply with the standard.

Planning Adoption of the standard

Which systems will be impacted within your organisation? If you have multiple systems how will you plan the adoption of the standard? It is unlikely that you will change all the systems at once, so how will you prioritise – being aware of which data collections and standards require SNOMED CT and by when can help in this prioritisation.

Adoption of SNOMED CT is part of the achievement of 'Paperless 2020'; as part of your current plans to achieve electronic health and care records you need to ensure that all solutions implemented utilise SNOMED CT.

A number of providers have implemented a single EPR across the whole organisation, while others have implemented a portal to the various specialised systems. Whichever approach has been taken, all systems that relate to capturing data on the health and care of the individual need to use SNOMED CT as their clinical dictionary.

Which national information standards do you as an organisation need to comply to? Which national data collections that currently have a requirement for SNOMED CT do you need to submit? Are there any standards that are in development that will require SNOMED CT that will impact you?

Obtaining this list will help your organisation prioritise what needs to be done.

Are these systems provided externally or through in-house development?

If external:

- Can your current supplier provide a SNOMED CT solution?
- Can you obtain a SNOMED CT solution under the current contract?
- SNOMED CT has been a mandated standard since 2011; from April 2020 this is a contracted NHS requirement; we would expect all major suppliers to be able to offer a solution that meets the requirements for this standard. If your supplier requires advice, including technical support, ask them to contact snomed.implementation@nhs.net.

If internal:

- Ensure the internal development team has this in the development roadmap within the required timeframes. They may wish to look for open source initiatives, or approach a 3rd party supplier to provide a terminology module (often referred to as a terminology server) or develop their own functionality.

What senior management briefing / training needs to be undertaken to ensure there is an understanding of the requirements, impact and benefits that can be gained? As part of implementation, how can data be made available to clinicians in a useful way?

Implementation of the standard should be undertaken as part of the 'Paperless' initiative. Experience has shown it is useful to discuss what can be achieved by implementing SNOMED CT; some think SNOMED CT is just another set of codes for national reporting and are unaware of the local benefits its use can bring. It is critical the CCIO/CIO are on board. Addressing SNOMED CT at the SMT will ensure appropriate messages are given and that plans are in place for integrated health records, electronic discharge letters etc. Implementations benefit from management of business change, as inevitably the introduction of systems that directly impact clinical processes lead to business change. It is recommended that senior management leading the introduction of the standard have an appropriate briefing to ensure benefits are realised, contact information.standards@nhs.net with the subject 'SNOMED Implementation' if you require further guidance.

Championing SNOMED CT with clinical staff

The main users entering data in SNOMED CT will be clinical staff. It is important that such staff do not see SNOMED CT as *just* another coding scheme that is the domain of the information management and clinical coding teams. We suggest SNOMED is not referred to as coding, but facilitating structured data capture. It is important that the CCIO and other senior clinical colleagues champion its use.

One important consideration is how data can be given back to clinicians; this will ensure the appropriate level of data quality is undertaken. So what reports can be provided to clinical groups and individual clinicians to support their work; experience indicates that effort undertaken to produce some standard reports for clinical teams and individuals can result in significant time savings over a period of time.

A SNOMED lead?

It is useful to understand if the organisation would benefit from obtaining specialist skills in SNOMED CT to support the organisation's adoption of the standard. Some organisations have employed a SNOMED CT lead and others have undertaken training of key clinical and administrative leads, as well as impacted teams such as clinical coders in hospitals. A number of resources to support training are freely available on the NHS Digital website.

Implementation and roll-out of the electronic solution

Configuration

What level of configuration in relation to SNOMED does the system allow, for example are structured data items optional (for example diagnosis). Where data entry is optional this is often omitted and the information just put in free text. This then results in other functions such as auto-populate of the draft Discharge letter not working. Experience shows that when mandatory, with support to find the required terms if needed, data entry is faster than continual entering into free text.

Some systems allow the hierarchies available for data entry into a particular field to be configured; again done appropriately can speed up data entry.

Can the system be configured to use subsets?

Depending on the solution selected, it may be possible to configure the system to use subsets of SNOMED CT for particular users, particular specialist areas and/or particular data entry forms. Some systems refer to these as favourite lists. Note that some national data sets already have specified subsets for particular data items; these are detailed in the NHS Data Model and Dictionary. Some subsets may restrict what data is to be sent nationally, but do not necessarily imply you should restrict data entry in your system to just that subset.

The UK Edition provides as part of the release a number of specialty subsets, most have been developed in liaison with a professional body. As these are developed to be nationally relevant, it is highly likely that these will need tailoring for your organisation. If no national subsets are available, there may be benefits in developing these in-house. Speak to your supplier who may have a standard set of subsets that can be used as a starting point and can be refined for your organisation. This aspect needs to be planned within the preparation for system configuration.

How will you provide training to end users?

Some training on SNOMED CT needs to be provided to all end users; experience has shown that if no training or understanding of SNOMED CT is provided, this hampers end users in their use of the system. The on-line presentations provided by the NHS Digital Terminology Service (An introduction, and Finding content) have been reported as being sufficient end-user training. You can contact NHS Digital for downloadable copies of these that can be hosted on-site either on the web or as part of a Learning Management System.

Specialist teams such as the clinical coders in hospitals, summarisers in GP practices, data quality facilitators and information analysts/those writing reports, will inevitably need more training in SNOMED CT. This is available from a number of external training companies but the presentations provided by NHS Digital also give a good grounding. The eLearning courses from SNOMED International also cover the knowledge requirements; but probably go beyond what is needed.

Implementing a new release of SNOMED CT

The content of SNOMED CT is continually updated with a new release being provided every 6 months. To keep systems up-to-date it is recommended that a new release is implemented within 2 months of the release date, but that systems should not be more than one release out of date. As part of the requirements of the system, organisations should ensure that updating the release of SNOMED CT in the system is addressed.

Does your solution provider update the release of SNOMED CT in the system or is it something that must be undertaken within the organisation?

In many managed solutions the update to the terminology is undertaken as part of the service provision; where a solution is implemented on the organisation’s own infrastructure, it may be that the update has to be undertaken in-house. If the update needs to be undertaken in-house, ensure that tools are provided to assist.

If in-house, the first time this is undertaken will take longer than subsequent updates. Organisations should use a team of IT and clinical staff, as a number of decisions will need clinical oversight. Feedback from a large hospital trust suggests that the first time this is

undertaken will take between 1 and 3 weeks of time including planning and testing. Subsequent updates are reported to take 2-4 days.

If by the supplier, there will still be a need locally to review reports and templates that may need to be updated following the new release. This is because concepts can be added but also 'removed' (known as made inactive) – see next section.

What type of changes in a release can happen that I need to take account of?

The following components may change in the following ways:

- Concepts: new concepts added, concepts made inactive.
- Terms (descriptions): new terms added, terms made inactive, terms changed (minor typing mistakes may have been corrected).
- Relationships: new relationships, relationships made inactive, additional inferred relationships from classifying the terminology.
- Subsets: new subsets, new members to a subset, members made inactive within a subset, a subset being 'removed' (made inactive)

These may impact your pick-lists and reports; tools provided with the solution should enable you to identify changes and address these. The following sections give more detail.

If a component has been made inactive, can that still be used?

Components are made inactive for a number of reasons, but generally this is an indication that they should no longer be used. It is accepted for reporting that it might still be necessary to use inactive components but they should not be available for future data entry. Part of the process of managing an update is to decide what to do about inactive content – when content is made inactive, replacement terms are generally suggested. It is recommended that the clinical lead(s) review terms that have been inactivated and either accepts the replacement that has been suggested or otherwise defines their own replacement for the inactivated term.

How can the technical team inspect what changes have occurred between this and the next release?

The release files for the UK Edition of SNOMED CT contain a release file type: Delta which provides all the components that have changed between this release and the previous. For example the delta concepts file provides just the concepts where changes have occurred; the delta relationships file is changes to SNOMED CT relationships etc.

Where in the system might these changes impact?

Changes could impact aspects of the system that directly use the terminology. The following lists the main things to consider:

- Decision support rules (e.g. drug alerts)
- Subsets used to support data entry
- Data Entry Forms e.g. pick-lists
- Favourites lists
- Standard pick-lists lists such as theatre procedures with resource allocations
- Future Orders / booked procedures in patient records

- Reports / data extractions
- Formularies / shortcodes / abbreviations
- Business protocols / mail merge documents
- Content in systems that derive their data such as data warehouse
- Encoder software for allocating the classification codes (ICD-10 and OPCS-4)

What do we do about inactive content in patient records?

Inactive content can be left as is in patient records in which case systems must still be able to retrieve this **OR** (with appropriate audits) content can be over-written with what is clinically agreed as the most appropriate current term. Different approaches have been implemented in different organisations. The supplier must provide appropriately for inactive content; either tools to manage or tools to retrieve. Consult your supplier as to how the system deals with inactive content and what your organisation needs to do. Advice can be sought from NHS Digital by emailing information.standards@nhs.net with a subject line of 'SNOMED Implementation'.

What might a typical update process involve?

a) Upload the new release to the test environment.
b) Using system tools identify inactive terms/concepts in use within the system: this could be any of the items listed in the section that illustrates how a system might be impacted.
c) Identify the replacement term(s) and obtain clinical sign off: when terms/concepts are made inactive then possible replacement terms/concepts are usually indicated. These can be provided to representatives of the end user community allowing them to decide or confirm which terms the system is to use.
d) Using the relationships in SNOMED CT identify possible new terms that might be in scope for existing subsets or to communicate to end users as available for data entry.
e) Consult the IHTSDO and UKTC release notes for areas within the terminology that have changed, and inform specialty leads.
f) If temporary codes are available within the system and have been requested for authoring, match these with the authored terms and update the temporary codes with the appropriate SNOMED CT term throughout the system.
g) Identify inactive terms in future orders/tasks that will need replacing.
h) Test the changes proposed in data entry (both forms and live data entry).
i) Test the changes to reports and data extractions.
j) Test the changes to business rules such as drug alerts.
k) After all tests have been passed, communicate the changes to end users in a timely manner with notice of planned live update.
l) Promote the updates to the live system.
m) Inform end users of the change as they may wish to browse the terminology in relation to their specialty for new terms that have been added.

Note. Your system may also incorporate third party products (for example for decision support, encoder software) which may also require updating.

Terminology and Classifications

The NHS has a long history of using the classifications ICD-10[1] and OPCS-4[2] to enable it to monitor the health of the UK population as well as undertaking business processes such as payment. The classifications have evolved to what they are today from as early as the 17th Century. They were primarily designed to meet requirements when patient records were paper based and a sophisticated approach has been developed to get accurate categorisation of episodes of in-patient and day case care. Classifications and SNOMED CT are different; readers should not see them as interchangeable!

Terminology was designed for use by clinical staff in electronic healthcare systems; all 'transactional' electronic systems (non-healthcare examples are booking flights, ordering groceries) use standard vocabularies to facilitate accurate data entry and subsequent processing. The terms provided in SNOMED CT are established through evidence of use in clinical settings; terminology provides the vocabulary a clinician wishes to use for recording information related to the specific health and care of a patient within the electronic patient record.

Classifications in use in the NHS are used to categorise a completed episode of care according to pre-determined classification codes; the classifications support indirect care related activities such as epidemiology, payment and population monitoring.

Terminology and Classifications are therefore designed for very different purposes and thus are structured differently; they are complementary and both will be in use for some time to support the needs of the healthcare eco-system.

It is inevitable there are some similarities between the two as they are both designed to relate to clinically relevant content. However there are fundamental differences, some of which are highlighted below:

- Every code within the classification sits in one chapter and one chapter only; this ensures that an episode of care will only be counted once when reporting. However, in SNOMED CT, a single concept can have multiple hierarchical relationships (parents); this ensures that when searching for patients according to specific criteria all instances are found.
- In the classifications, because these represent areas of interest to monitor populations, the category can incorporate data that is elsewhere within the record, for example there may be a different classification code for a particular disorder depending on the age of the patient. In SNOMED CT the term for the disorder would be the same for all ages and the age would be displayed elsewhere in the record (usually calculated from the data of birth).
- A statistical classification must be confined to a limited number of mutually exclusive categories and each category is structured to ensure all instances have been included, for example, to report on all types of skin cancer. This results in codes with descriptions such as NOS (Not Otherwise Specified) and NEC (Not Elsewhere Classified) which have a specific meaning within the classifications; however these are not used in SNOMED CT as their meaning is not clear. The clinician would be clear on what they believe is the diagnosis and the interventions they have undertaken.

[1] International Statistical Classification of Diseases and Related Health Problems 10th Revision: http://www.who.int/classifications/icd/en/

[2] OPCS Classification of Interventions and Procedures https://nhsengland.kahootz.com/t_c_home/view?objectID=14270896

- Terminologies like SNOMED CT are dynamic and updated frequently (every 6 months and codes can be issued out of cycle for specific needs such as a pandemic) to cope with the changing needs of clinical care as they provide the dictionary for data entry. SNOMED CT has a history mechanism to allow full transparency of any changes. Whereas the classifications need to remain stable over time to enable consistent trend reporting. In order to strike a balance with the need to update clinical knowledge, updates to the classifications are planned to be every three years (though this may vary if there is a particular requirement).

Some use cases are therefore best suited to classifications and others to terminology; one needs to examine what is required and then decide which is the most appropriate to use (or possibly both). Cross-maps can also be used to aid the efficient allocation of classification codes to an episode of care, for example using data captured in SNOMED CT in the discharge letter. Currently there is no intention to change using classifications as part of the hospital payment mechanism (because of the methodology used) although terminology is being considered to refine payment where there is significant cost variation within one HRG. In primary care, elements of payment are already made based on terminology and since April 2018 these have utilised SNOMED CT.

Mapping from terminology to classifications

As outlined, terminology is designed to capture the detailed clinical information that relate to the health and direct care of the patient; this is generally captured at the point of care in order to enhance the information available to the clinician with features such as decision support. In in-patient and day care hospital cases classifications are allocated at the end of an episode of care, based on information abstracted from the medical record. Mapping tables from SNOMED CT to the classifications ICD-10 and OPCS-4 are provided nationally and these can assist deriving the classification codes based on the terminology. These mappings are semi-automated thus allowing consideration of additional information from within the EHR that may need to be considered before the final assignment of classification codes.

These maps are known as cross-maps and are provided as a map refset within the UK Clinical Edition. A number of suppliers provide products that use these maps to help improve the efficiencies of clinical coding; either within their own product or as an additional module that can be integrated into the business processes. Documentation on the structure and use of the cross-maps is provided as part of the release download pack.

ICD-11

ICD-11 has been designed for use in electronic health information systems which contain content captured using terminology. Following a collaborative agreement between the WHO and the IHTSDO (now known as SNOMED International), work has been ongoing to ensure harmonisation between ICD-11 and SNOMED CT.

Within the UK we are keeping abreast of the ICD-11 developments. As part of the WHO-FIC[3] collaborating centre network we are co-ordinating the UK involvement in the field trials of ICD-11; this is a key activity to test the fitness for purpose within the UK of this new classification. Further information can be found on the NHS Classifications web pages.

[3] World Health Organisation-Family of International Classifications: https://www.who.int/classifications/network/en/