Data Quality Guidance: Transitioning from Read to SNOMED CT

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Version 5

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# 1. Introduction

***This is an updated version of the previous document to add information to illustrate why it is imperative to review all existing templates, searches and business triggers (referred to as artefacts) and create SNOMED CT versions once the system has transitioned to SNOMED CT – see Section 9****.*

Technology and IT systems have evolved significantly since Read codes were first designed and used in GP systems (circa 1985!). The transition from Read codes to SNOMED CT is to provide systems with a modern terminology that can meet today’s requirements. There are known issues with the Read codes which cannot be resolved: these include incorrect content and no room in the correct code place for new content. Read codes also cannot be expanded to meet the requirements across **all** healthcare and they are UK only. SNOMED CT addresses all these issues.

Significant consultation with the Joint GP IT Committee (the BMA and RCGP) and the various clinical bodies (e.g. AoMRC, AHPs, RCN, RCP) has resulted in agreement that it is now critical to transition from the Read codes to SNOMED CT.

To support General Practice in that transition, mapping tables from Read to SNOMED CT are provided nationally. While in many cases the term text will be almost identical in SNOMED CT as in Read, there may be some differences. This document provides some insight into the differences in the Clinical Terms that are available in SNOMED CT.

The document is provided in sections:

* section 3 provides a summary of the major differences that will be encountered;
* section 6 details known current coding issues;
* section 9 highlights why Read based artefacts must be updated to SNOMED CT versions: these three are recommended as essential reading.

The other sections provide an overview of SNOMED CT and further explanation of the summary details in Section 3.

# 2. Overview

**Note**. Both Read v2 and CTV3 (also known as Read v3) are known as Read codes. This document refers to Read codes throughout to mean both Read v2 and CTV3. Both Read v2 and CTV3 are now deprecated and no longer maintained.

## Purpose of this document

This document is to support those impacted by the transition from Read codes to SNOMED CT as the method for data entry into electronic health records. It highlights how particular codes have been mapped so that users of General Practice (GP) systems are aware and understand how to deal with such changes. The document also illustrates how differences may occur between Read coded searches and those written in SNOMED CT; remembering that SNOMED CT is far more extensive than Read codes.

## Audience

This document is aimed at users in general practice who enter data using Read Codes into electronic record systems as well as those who design and/or develop system artefacts.

This includes general practitioners, nurses and clinical coding staff as well as those involved in training and those who produce business rules, decisions support tools or analyse Read coded data.

In particular, those with responsibility for data quality should read this document.

## Scope

This document addresses the clinical content of the Read codes; it does not address medications.

This document is NOT a guide to coding in Read or more generally to good record-keeping, however it does provide some hints and tips for good SNOMED CT coding in areas that have been more ambiguous in Read.

[The Good Practice Guidelines for GP electronic patient records](https://www.gov.uk/government/publications/the-good-practice-guidelines-for-gp-electronic-patient-records-version-4-2011) provides overarching principles for data entry.

## Feedback

The author welcomes feedback on the content of this document, including any items perceived to be missing. Please provide comments by email to snomedprimarycare@nhs.net with the subject ‘SNOMED Implementation query’.

# 3. Summary

This section provides an overview of mapping principles and known issues identified during the transition project; subsequent sections provide additional detail.

Codes (concepts) or terms (descriptions on a concept) that are ‘inactive’ are no longer available to select for data entry. Some Read codes map to inactive SNOMED CT codes hence the code may be in a patient record; the Query table assists in identifying such codes in a search, where possible. The [Fact Sheet](https://hscic.kahootz.com/gf2.ti/f/762498/46448997.3/PDF/-/SNOMED_CT_Inactives_Fact_sheet_v2.0.pdf) on inactive codes provides further details.

It is generally known that some Read code content is actually considered ‘wrong’; it follows that some of the terms currently available in Read are not available in SNOMED CT.

It is known that searches written in Read, if converted to SNOMED CT, may produce different results. Searches written in Read cannot map to include SNOMED CT codes that were never in Read and will increasingly be in patient records.

We are aware that in some practices, some Read codes (deemed to be infrequently used) are used locally to mean something different to the published term text. How such codes map to SNOMED can impact this approach. It should be noted that as SNOMED CT coded data will pass seamlessly through GP2GP, codes should only be used to convey what is represented by their term text.

* Read codes are 5 characters in length; SNOMED CT codes are between 6 and 18 digits long – it is not expected anyone will remember the codes.
* Indication of what type of term it is can often be inferred from the actual code in Read v2, this is not true in SNOMED CT – the codes are meaningless.
* Further clarification of the meaning of a concept in SNOMED CT is provided by the hierarchy it is in and by viewing its parent and child concepts.
* Read v2 codes can only have one parent code; this is often clinically not the case and has led to duplicates in Read. Concepts in SNOMED CT can have multiple parents. A concept should therefore only be in SNOMED once.
* The hierarchies in Read v2 can only be to 5 levels deep; in SNOMED CT there is no limit.
* Incorrect codes and terms cannot be deleted in Read v2; in SNOMED CT outdated concepts and changes in clinical understanding can be managed.
* Terms ending in NEC/NOS (Not Elsewhere Classified, Not Otherwise Specified) are not available in SNOMED CT; the term description minus the NEC/NOS is generally available. For example: Otitis media not Otitis media NOS.
* The abbreviated terms in Read are not used in SNOMED CT, however all known browsers/code pickers will search on the beginnings of words so an abbreviated form can still be used in searching. For example:. Cerv.smear:severe dysk.?inv.ca in SNOMED CT is Severe dyskaryosis on cervical smear cannot exclude invasive carcinoma.
* Duplicate terms in Read have been resolved to a single concept in SNOMED CT. For example: Tuberculous meningitis and Meningitis – tuberculous are both mapped to tuberculous meningitisin SNOMED CT.
* Word order may differ – SNOMED CT has defined editorial principles to encourage consistency of expression of descriptions. For example: Naso-lacrimal duct probing is Probing of nasolacrimal duct in SNOMED CT. **Note.** all known browsers will search correctly independently of word order of the search terms.
* Spelling errors have in the main been corrected.
* Outdated terms (i.e. text descriptions on a code) may have been inactivated, for example Insulin dependent diabetes mellitus, but the concept still exists.
* Outdated concepts may have been inactivated.
* Codes beginning [X] are not in SNOMED CT, they are mapped to the same description without the [X].
* Codes beginning [SO] are not in SNOMED CT, they are mapped to the same description without the [SO].
* Codes beginning [M] are not in SNOMED CT, they are mapped to the same description without the [M].
* Synonyms in SNOMED CT are true synonyms – i.e. they are a different way of expressing the same conceptual thought. As this is NOT true in Read, some terms of the same Read code may map to different SNOMED concepts.
* Codes for NOT this condition, for example Not Constipated sit elsewhere in the hierarchy in SNOMED CT and are NOT children of (in this example) Constipated.
* Codes that are not interoperable e.g. *Referred to clinic A* have generally been inactivated.
* Codes that are ambiguous, for example contain AND/OR have generally been inactivated.
* Some codes in Read could have an associated value or not, as Read did not have the same mechanism as SNOMED to be clear on the meaning of a code. For example, an outcome assessment could be the procedure to carry the assessment out or the result. SNOMED has different codes for the scale, the procedure and the result. Suppliers have been provided with alternate codes for this small list of codes with multiple meanings and use information in the record to decide how to map. This list of alternate codes is provided in the Data Migration pack on TRUD.

While the above summary provides the main known differences, it is recommended that, as a minimum, you also read the section on known Coding Issues.

## Hints and Tips

This section provides some hints and tips to help users find the terms they wish to select in SNOMED CT:

* In general, terms are represented in the singular rather than the plural. Always search for the singular version of a description.
* A hyphen is a punctuation mark used to join words and to separate syllables. There should be no spaces either before or after the hyphen e.g. intra-articular.
* Names that are derived from a proper name e.g. Down Syndrome, should avoid apostrophes wherever possible, although a synonym with the apostrophe may also be available.
* When searching for terms, do not enter non-significant words such as “of”, “the” etc. unless you know the exact term from say a guidance document.
* Term searches in systems have evolved and can use the words entered in any order, so don’t worry about getting the significant words in the right order when searching for a term.
* Term searches in systems do not usually need full words to be entered. Entering only the beginning (e.g. first 4 characters) of two or three words from your required description is usually enough to get back a relatively small list of possible matches. You don’t need to know or type in full the exact wording for the clinical concept you need. Entering more letters and words will typically reduce the number of search results returned. If it’s a term you use frequently, you start to recognise how many letters are required to get a good search result.
* If possible, look at the parents and children that your term choice has in the SNOMED CT hierarchy. It should be obvious from these if you’ve actually identified a concept whose meaning is completely different from what you intended.
* Check you have selected the correct type of term i.e. a procedure, diagnosis etc. The document on SNOMED [hierarchies](https://hscic.kahootz.com/gf2.ti/f/762498/30206597/PDF/-/SNOMED_CT_Hierarchy_Fact_Sheet.pdf) provides detail on the semantic tags an FSN will have for different types of content. The following provides a quick overview of the commonly used clinical hierarchies:
	+ By default all procedures and clinical findings (includes disorders) are about the patient and are current/have just been performed
	+ Interventions are procedures or regime/therapies
	+ Findings are statements about the patient/service user eg. overweight
	+ Disorders are diagnoses
	+ Observables have associated values eg. body weight
	+ Situations are used for concepts that do not have the default context, so for example family history, procedure declined, does not have a condition

# 4. The Transition to SNOMED CT

## Mapping Read coded data to SNOMED CT

All historical data in systems will retain the Read code already in patient records, but will also have an equivalent SNOMED CT code to allow for searches written in SNOMED CT to work correctly over historical data. This is known as mapping; all system suppliers are required to use national mapping tables produced by NHS Digital Terminology Service to allocate an appropriate SNOMED CT code to each Read term already in patient records. This ensures we have a consistent approach across the different GP systems for deriving the resultant SNOMED CT code for every Read code.

A “map” in this context means a link between the **term** in Read and an equivalent **description** in SNOMED CT. The mapping tables have been produced through a combination of automatic mapping technologies, backed up by manual checking. In many cases the term text the user sees in SNOMED CT will be **identical** to the term text you see now in Read.

These mapping tables are available free from the NHS Digital **T**echnology **R**eference data **U**pdate **D**istribution site (known as [TRUD](https://isd.hscic.gov.uk/trud3/user/guest/group/2/pack/8)). The pack containing the mapping tables is ‘NHS Data Migration’; the tables are simple ‘tab’ delimited files.

The mapping tables have been produced by clinical and terminology experts in collaboration with the Joint GP IT Committee (JGPITC). An expert reference group (ERG) formed from the JGPITC has re-examined both the methodology as well as a significant number of the actual maps. Documentation on the maps is provided in the set of files obtained when you download the mapping tables from TRUD.

## SNOMED CT content

### Editorial ‘rules’

Creation of new content in SNOMED CT is governed by documented Editorial Principles; these are maintained at an international level and extended by the UK where necessary for UK specific content. SNOMED clinical terms are designed to be unambiguous, expressed in a consistent and predictable way, and terms are developed with the knowledge that content is being shared across different professions and different care settings, so needs to be interpreted correctly in all settings.

For this reason, some Read terms added in the past would not be added to SNOMED CT.

### Context

Every procedure or finding term in SNOMED CT has a “soft-default” context, which means that, unless stated otherwise, the concept carries an implicit basic understanding:

For a clinical finding this is that:

* it is occurring to the subject of the record (the patient, not their relative)
* it is actually occurring (vs. being absent or not found)
* it is occurring ‘now’ (not in the future)

For a Procedure this means that:

* the procedure was completed (not scheduled, or abandoned)
* it was performed on the subject of the record (the patient, not their relative)
* it was done on the date (ideally) of the record entry (not in the future)

In SNOMED CT there is a hierarchy of concepts whose description contains a specific and different context e.g. “father smokes” or “maternal history of breast cancer” or “arthroscopy planned”. The hierarchy is “Situation with explicit context”.

### Reducing Ambiguity

SNOMED CT is based on Clinical Concepts; one of the fundamental principles of SNOMED CT is to reduce ambiguity in the meaning of these clinical concepts by the way it provides descriptions of a concept. Each concept has a number of text “Descriptions” that describe the concept; conceptually they all mean the same but some may be more precise than others. Each concept will have at least one unambiguous description and is known as the Fully Specified Name (FSN). Each clinical concept has an ID which is a 6 to 18 digit number; all the descriptions of the same concept have the same concept id.

Sometimes the precise meaning of a concept cannot always be determined by reading just one of its descriptions. For example, the term “dressing” applies equally to the actual covering that you place on a wound, the act of applying one, or the ability to put on your own clothes. Selecting the correct underlying meaning is clearly important for other clinicians who read the descriptions in the record although they can often deduce this from say free text; **however** it is critical for computers executing code-driven analysis, reporting or decision support to have the correct term. Users may need to check the FSN or the hierarchy before selecting the term to enter.

Descriptions in SNOMED CT are known as Synonyms and aid in finding the correct **concept** to enter into a record. Some synonyms are ambiguous such as “dressing” but others more clearly express the clinical concept. Crucially, each concept will always have exactly one ‘fully specified name’ (FSN) which should be unambiguous. The FSN will contain a ‘semantic tag’ in parenthesis, which identifies the location of the concept in the SNOMED CT hierarchy. For the synonyms of “dressing”, one has the FSN “Medical dressing (physical object)” and identifies the concept corresponding to the dressing itself, another synonym is for the concept with a FSN “Application of dressing (procedure)”. So if selecting dressing it is important to select the one which belongs to the correct concept. System browsers (code pickers) provide such information.

Different systems will help users choose the correct description in different ways; some may show the hierarchy while some show the FSN on say hovering over the Synonym. The true meaning of a concept is often made obvious by looking at its parent and child concepts. This is akin to checking that the Read code being selected is in the correct Chapter.

You should ensure you know how to use your particular system to check a description *really* means what you intend it to mean.

# 5. Differences in term text between Read and SNOMED CT

This section highlights how some common types of terms have been mapped where the text in SNOMED CT differs from that in the Read codes. The differences are generally to remove some of the anomalies in Read which are inappropriate for patient records and have arisen from their historical beginnings. **Note**. NHS Digital provide an [on-line look-up](https://hscic.kahootz.com/connect.ti/t_c_home/view?objectId=300115) to enable users to enter existing Read codes to obtain the equivalent SNOMED CT code provided via the national mapping tables.

## Terms ending in NOS / NEC

Read terms ending in **NOS** (not otherwise specified), **NEC** (not elsewhere classified), **NOC** (not otherwise classified) or **HFQ** (however further qualified) and those beginning **Other specified** originated from the classifications (ICD and OPCS). The meanings intended by these pre- and postfixes are very specific: the meaning is also unique to one particular version of the classifications. ICD and OPCS are typically static for a number of years. These codes therefore serve as generic ‘catch alls’ for conditions that lack a dedicated code in the specific version of the classification. If a dedicated code for the condition is added to a *later* version of the same classification, then the meaning of these catch-all terms changes.

SNOMED CT changes every 6 months, and is used for recording details at the point of care. As such these codes have no place in a patient record.

When Read was first designed it took content from the classifications and so these *catch-all* terms also exist in Read; they have been used to code significant volumes of real patient data. The mapping tables therefore provide a map for such codes into SNOMED CT, with most mapping to a SNOMED synonym with the same text but without the NOS or NEC etc or, in the case of some typically very general codes, to text which is different but still reflects the same or very similar meaning

Examples:

F52z. 00 Otitis media NOS maps to 65363002 Otitis media

Q4z.. 15 Stillbirth NEC maps to 237364002 Stillbirth

77216 00 Perineal resection of rectum HFQ maps to 87677003 Resection of rectum

721By 00 Other specified other operation on eyelid maps to 40654000 Operation on eyelid

Nyu97 00 [X]Synovial hypertrophy, not elsewhere classified maps to 240206002 Synovial hypertrophy

71244 00 Biopsy of lesion of adrenal gland NEC maps to 172033008 Biopsy of lesion of adrenal gland

7NB5y 00 [SO]Other specified other veins of pelvis NEC maps to 13152008 Structure of pelvic vein

7A5z. 00 Other artery operations NOS maps to 118805000 Procedure on artery

7P16y 00 Other specified other diagnostic tests on skin maps to 53309004 Skin test

## Abbreviations

Because of the term length restrictions inherent to READ v2, some of its terms were abbreviated. By contrast, the aim to avoid ambiguity in SNOMED CT means that such Descriptions do not exist in SNOMED CT. The requirement on all system suppliers is to accommodate these longer descriptions in their system design. These abbreviated terms are mapped to an unabbreviated equivalent:

Examples:

2691. 00 O/E-vaginal speculum exam. NAD maps to 163413007 On examination - vaginal speculum examination - no abnormality detected

24F8. 00 O/E - L.dorsalis pedis present maps to 163120009 On examination - left dorsalis pedis pulse present

429.. 00 Mean corpusc. Hb. conc. (MCHC) maps to 1022481000000109 MCHC - Mean corpuscular haemoglobin concentration

1241. 00 FH: \* - gastrointestinal tract maps to 429006005 Family history of malignant neoplasm of gastrointestinal tract

4K25. 00 Cerv.smear:severe dysk.?inv.ca maps to 168406009 Severe dyskaryosis on cervical smear cannot exclude invasive carcinoma

2AE3. 00 O/E-mict.refl.abn-ret+overflow maps to 163885003 O/E- micturition reflex abnormal retention and overflow

12N1. 00 FH: Brother alive + well maps to 160445003 FH: Brother alive and well

Most common clinical abbreviations *do* exist in SNOMED CT, and can be used to search for terms. They generally are a synonym and the full expansion of the abbreviation will normally also appear after the abbreviation, within the same Description. For example, you won’t find a synonym saying just “COPD”, but you will see: **COPD - Chronic obstructive pulmonary disease.** This is because some abbreviations are used in different specialties with different meanings; for example PID may mean **pelvic inflammatory disease** OR **prolapsed intervertebral disc**. RTA can be **renal tubular acidosis** OR **road traffic accident.** SNOMED’s more conservative treatment of abbreviations ensures that if data is electronically shared with another system then the correct meaning is not lost or misinterpreted.

## Duplicate Terms

There are a number of terms that are in Read twice; sometimes by mistake (we now have sophisticated software to check for duplicates at the authoring stage) or because it could be categorised in more than one way and so was placed in all possible appropriate locations. This means two Read codes may correctly map to the same SNOMED CT Concept, but consequently the SNOMED Description *may* have slightly different wording to the original Read terms.

For example:

A130. Tuberculous meningitis F004. Meningitis – tuberculous

Are both mapped to the single SNOMED CT term **tuberculous meningitis.**

8764. Nebuliser therapy 74592 Nebuliser therapy

Are both mapped to the single SNOMED CT term **nebuliser therapy.**

65A.. Measles vaccination 65A1. Measles vaccination

Are both mapped to the single SNOMED CT term **measles vaccination**

F583. 00 Tinnitus 1C2.. 00 Tinnitus symptoms F583z 00 Tinnitus NOS

Are all mapped to the single SNOMED CT term **101130017 Tinnitus**

H17.. 00 Allergic rhinitis H17.. 12 Allergic rhinosinusitis H171. 00 Allergic rhinitis due to other allergens H172. 00 Allergic rhinitis due to unspecified allergen H17z. 00 Allergic rhinitis NOS Hyu21 00 [X]Other allergic rhinitis

Are all mapped to the single SNOMED CT term **102311013 Allergic rhinitis**

## Word Order

As described earlier, SNOMED CT has clear editorial principles which make it clear how to form the text descriptions. This means that descriptions in SNOMED CT are often more consistently constructed than was the case early on in the Read codes. As a result the word order of a term may have changed slightly and/or the use of additional symbols such as hyphens.

Examples

533.. 00 Soft tissue X-ray neck maps to 168719007 Neck soft tissue X-ray

3712. 00 Naso-lacrimal duct probing maps to 90246009 Probing of nasolacrimal duct

## Plural nouns

SNOMED CT editorial rules on term construction discourage the use of plural nouns, whereas Read editorial rules did not. This difference may be reflected in the mapping:

01... 00 Top managers maps to 265911003 Top manager

19F.. 12 Loose stools maps to 398032003 Loose stool

1B8.. 00 Eye symptoms maps to 308923001 Eye symptom

## Spelling errors

Read v2 had no mechanism to enable errors to be corrected while still retaining the original text entered by the clinician; SNOMED CT has the ability to do this. As part of the mapping, and with clinical oversight, terms have been mapped to the now corrected descriptions in SNOMED CT.

Examples

028.. 00 Personel/industrial relations maps to 265919001 Personnel/industrial relations

## Outdated Terms

As clinical understanding develops and culture evolves, terms can become outdated. SNOMED CT enables new descriptions to be added to a concept while still retaining the more outdated descriptions. This enables clinical staff to select the term they wish to record, but the system to correctly recognise they conceptually mean the same thing. Over time and with appropriate clinical guidance we may then retire the outdated term (so that it is no longer added to new patient records) yet still retain the original term as selected in historical records.

For example:

Diabetes mellitus is now described by whether it is type 1 or type 2 rather than the older convention of describing as Insulin or Non-Insulin dependent. Data entry should use terms with type 1 or type 2 for diabetes mellitus in Read v2.

C10E. | Type 1 diabetes mellitus (Version 2) X40J4 | Type I diabetes mellitus (CTV3)

C10F. | Type 2 diabetes mellitus (Version 2) X40J5 | Type II diabetes mellitus (CTV3)

**Rather than**

C108. | Insulin dependent diabetes mellitus (Version 2)

C109. | Non-insulin dependent diabetes mellitus (Version 2)

The mapping tables address these, for example:

C10E. 12 Insulin dependent diabetes mellitus maps to 46635009 Type 1 diabetes mellitus

Another example is:

C03.. 11 Cretinism which maps to 190268003 Congenital hypothyroidism

## Terms beginning [X]

[X] indicates READ terms for clinical concepts with a very different taxonomic classification in ICD-10 by comparison with ICD-9. The phenomenon is restricted to codes relating to psychiatric diagnoses, and to morbidity due to external causes (accidents, poisoning etc).

READ represents these differences using two parallel taxonomies containing many codes with otherwise superficially similar meaning, and often identical terms.

The [X] identifies the ICD10 variant. For example:

E103. Paranoid schizophrenia
Eu200 [X]Paranoid schizophrenia

T302. Pedal cycle accident involving collision between pedal cycle and another pedal cycle
U011. [X]Pedal cyclist injured in collision with other pedal cycle

Both the ICD9 and ICD10 variants map to an equivalent term in SNOMED CT but with the [X] omitted from the description. Very few *terms* prefixed with [X] are still available in SNOMED CT, and those that do still remain are in the process of being retired from SNOMED CT and should not be used. The mapping tables map these correctly.

For example:

A548. 00 [X] Herpes labialis maps to 1475003 Herpes labialis

Eu32. 00 [X]Depressive episode maps to 35489007 Depressive disorder

Eu41z 11 [X]Anxiety NOS maps to 197480006 Anxiety disorder

Eu01. 00 [X]Vascular dementia maps to 56267009 VAD - Vascular dementia

## Terms beginning [SO]

It is questionable as to whether these terms are needed in General Practice (see next section). These are a list of anatomical sites from the OPCS system for coding related to surgical procedures. A general procedure code from OPCS can be annotated with an anatomical site code to allow more precision about what structure was operated upon. Recording *only* a [SO] site code without an accompanying main procedure code is therefore meaningless …although we know some GP records mistakenly contain instances of this, for example 7N89. [SO] Lymph node instead of 2C3.. 00 O/E – lymphadenopathy or possibly 7H62. Excision or biopsy of lymph node; and 7N310 [SO]Appendix instead of Appendicectomy.

These [SO] terms map to the equivalent anatomical term in SNOMED CT but with the [SO] omitted. Within SNOMED CT these terms are within the SNOMED CT hierarchy ‘body structure’ so their meaning is clear without the [SO] as part of the description text.

7N890 00 [SO]Cervical lymph node maps to 81105003 Cervical lymph node structure

7N89. 00 [SO]Lymph node maps to 59441001 Structure of lymph node

7N8.. 00 [SO]Soft tissue maps to 87784001 Soft tissues

7NAD1 00 [SO]Acromioclavicular joint maps to 85856004 Acromioclavicular joint structure

## Terms beginning [M]

The [M] prefix in a Read term indicates that it originates via ICD but ultimately as a morphology term from ICD-O. Within ICD-O cancer diagnoses should be recorded as a pair of codes: a morphology code stating the histopathological tumour type, and a site code stating the anatomical location of the primary. SNOMED CT closely mirrors content in ICD-O and offers specific and extensive separate hierarchies for morphologies and body structures; but (unlike READ) does not use the [M] prefix to indicate the morphology elements. Read’s [M] terms are therefore generally available in SNOMED using the same text but excluding the [M] prefix, though note that most of the SNOMED codes involved are therefore not reportable as disorders – they’re histopathological morphologies, not considered a diagnosis in themselves until linked to a specific anatomical site.

In SNOMED CT these concepts can be found under the concept of **neoplasm** and are in the body structure hierarchy within **morphologic abnormality.**

**Note** that this is also the case in Read codes and cancers should not be recorded only with a [M] code. Exceptions in SNOMED typically include [M] terms that *already* also imply a particular body site:

BB13. 00 [M]Carcinoma, metastatic, NOS maps to 79282002 Carcinoma, metastatic (morphologic abnormality)

BBEJ. 00 [M]Intradermal naevus maps to 112681002 Intradermal naevus (morphologic abnormality)

BBg1. 11 [M]Lymphoma NOS maps to 21964009 Malignant lymphoma (morphologic abnormality)

But:

BBK00 11 [M]Fibroid uterus maps to 95315005 Fibroid uterus (disorder)

## Terms beginning FH and H/O

Read v2 provides about 1,500 codes corresponding to the presence (or occasionally the absence) of a prior personal or family history of diseases and procedures.

These codes include:

6 codes under 1154. No significant family history
305 codes under 12… FH: Family history (including 31 under 122.. No relevant family history)
508 codes under 14... Past medical history
90 codes under 15... Gynaecological history
72 codes under 1T... History of substance misuse
175 codes under ZV1.. [V]Potential health hazards related to personal history (PH) and family history (FH) of which 67 family history and 108 personal history

Coverage is however limited, being mostly restricted to common diseases where prior personal or family history is also both common and clinically important. There are no READ codes to represent a personal or family history of many less common diseases or those that are common but where any heritable component is not widely recognised.

These 1,500 codes are mapped as appropriate to corresponding SNOMED codes below 243796009 Situation with explicit context (situation) or, more specifically, below one of:

416471007|Family history of clinical finding (situation)|
417662000 History of clinical finding in subject (situation)
297249002 Family history of procedure (situation)
416940007 Past history of procedure (situation)
160266009 No family history of clinical finding (situation)
443508001 No history of clinical finding in subject (situation)

**Note**. Once all systems have migrated to SNOMED CT it is likely that the approach for recording family history will change to make better use of SNOMED CT thus enable greater diversity of what can be recorded as a history.

## Terms beginning O/E or C/O

Read v2 provides over two thousand codes with terms beginning ‘O/E’, meaning ‘On examination’. All but 11 appear in READ under 2.... Examination / Signs. They relate to positive or negative findings and signs that can be objectively demonstrated by means of a physical examination e.g. 212B. O/E looks ill; 24A1. O/E - no cardiac thrill.

Similarly, a much smaller number of codes (40) exist under 1.... History / symptoms with terms beginning or containing ‘C/O’, meaning ‘Complains of’. These correspond to symptoms that have been reported subjectively by the patient (e.g. 16C5. C/O - low back pain).

Where a clinical phenomenon can be *either* observed as a sign *or* reported as a symptom, Read v2 may offer two separate codes e.g. 2I14. O/E - a rash and 1D14. C/O: a rash.

All Read’s ‘C/O’ codes map to a directly equivalent SNOMED CT term also beginning ‘C/O’. The SNOMED CT maps are all within the taxonomy under 404684003 Clinical finding (finding) except for 1ABJ. Does not complain of erectile dysfunction which (being a *negative* result) maps to a concept in a different SNOMED CT chapter, under 373572006 Clinical finding absent (situation).

*Almost* all ‘O/E’ codes are mapped to a directly equivalent SNOMED CT term also beginning either O/E or ‘On examination‘, and all similarly within the taxonomy under 404684003 Clinical finding (finding) unless corresponding to negative exam findings in which case the SNOMED CT map will be under 373572006 Clinical finding absent (situation).

However, a small number of ‘O/E’ codes (around 20) map to a SNOMED CT code for the presence or absence of the same clinical phenomenon (as appropriate) but without specifying whether this was observed or reported:

|  |  |
| --- | --- |
| 2C32. O/E -cervical lymphadenopathy | 127086001 Cervical lymphadenopathy |
| 2C31. O/E - no lymphadenopathy | 274621000 Lymphadenopathy absent |
| 2FD.. O/E - skin cyst | 285302001 Cyst of skin |
| 222D. O/E - Rash absent | 290000000 Rash absent |
| 2I14. O/E - a rash | 271807003 Eruption |
| 2125. Nil abnormal on examination | 282332003 No abnormality detected - examination result |
| 25Q.. O/E - rectal examination done | 410007005 Rectal examination |
| 2C3.. O/E - lymphadenopathy | 30746006 Lymphadenopathy |
| 2221. O/E - general observation =NAD | 282332003 No abnormality detected - examination result |
| 2FF.. O/E - skin ulcer | 46742003 Skin ulcer |
|  |  |

We are aware that in some cases the O/E codes have been used in Read with a value. In SNOMED CT only observables can be associated with a value; there will be a code within the observables hierarchy that should be used in future e.g. O/E - weight with a value should use the SNOMED CT concept of Body Weight (observable entity).

# 6. Known data quality issues in Read coding choices

As a general rule, when deciding which term to select:

* use the one that is completely true and closest to what you would want to say;
* be consistent across patients;
* ensure that the term refers to the correct concept type e.g. a procedure, a clinical finding, an assessment tool. For example, don’t put in:
	+ salmonella (organism) when you mean salmonella gastroenteritis (disorder)
	+ lymph node (body structure) when you mean lymphadenopathy (disorder)
	+ alcohol (substance) when you mean alcohol abuse (disorder).

The following gives examples of known recording issues; these examples are by no means exhaustive:

## Occupation Terms

Occupation terms (e.g. Read codes with first character 0) state that the patient themselves has a certain occupation. These should be avoided for recording any referral to or by a healthcare professional.

For example: Nurse (meaning the patient is a nurse) is often used instead of Referral to nurse.

03I1. | Optometrist (Both Version 2 and CTV3) means the patient is an Optometrist

03G2. | Retail pharmacist (Both Version 2 and CTV3) means the patient is a Retail Pharmacist.

**The correct terms to use for a referral are:**

8HlC. | Referral to optometrist (Read v2)

XaBTJ | Referral to optometrist (CTV3)

8H7t. | Referral to pharmacist (Both Version 2 and CTV3)

## 7M... | Subsidiary classification of methods of operation

Terms with Read codes starting 7M - ‘Subsidiary classification of methods of operation’ are also derived from OPCS; they are intended to allow Hospital Episode central returns to more precisely record aspects of the surgical technique used to perform an accompanying main procedure code. They should therefore be avoided in general practice unless required for a particular clinical reason such as being judged to be of special relevance to future care.

Examples:

7M34. 00 Local anaesthetic maps to 386761002 Local anaesthetic

7M07z 11 Cryotherapy maps to 257786008 Cryotherapy

7M371 00 Radiotherapy NEC maps to 53438000 Radiation therapy procedure or service

## 7Q... | Drugs

Terms with Read codes starting 7Q - ‘Drugs’ (Read v2) or that sit under XaM5Z | High cost drugs in CTV3 should not be used. They also derive from OPCS, in which a main procedure code may be accompanied by another code to record when the procedure involved using an expensive drug. In a primary care setting, these codes should not be used in isolation:

Examples known to be currently used in Primary care data:

7Q... 00 Drugs maps to 228011000000101 Drugs (which does NOT mean drug abuse)

7Q096 00 Total parenteral nutrition maps to 225372007 Total parenteral nutrition

7Q0J0 00 Cancer hormonal treatment drugs Band 1 maps to 897671000000103 Cancer hormonal treatment drugs Band 1

## Read Code Administration terms

‘Read Code Administration’ terms - Read codes starting characters 1z - exist purely so that system suppliers may monitor their processes by which each new version of the READ code list is deployed to practices (the codes serve to ‘date stamp’ each release version).

For example:

1z... 00 Read Code Administration maps to 716481000000102 Read code administration (record artifact)

1zz.. 00 Read Code Administration maps to 716481000000102 Read code administration (record artifact)

1zz0. 00 Read Code Administration maps to 716481000000102 Read code administration (record artifact)

1zz06 00 Quarter 1 1993 SPLENDID maps to 716481000000102 Read code administration

1zz07 00 Quarter 2 1993 EXPANDED maps to 716481000000102 Read code administration

These terms should not be entered into the patient record. SNOMED CT has a different method of identifying the particular release and so these terms will all map to the same SNOMED CT concept which indicates it is a Read code administration term.

## Mental Disorder terms

The terms under [E0…], [E1…], [E2…], [E3…] are derived from ICD-9 whereas terms under [Eu…] are prefixed by [X], which means that the term has an equivalent code in ICD-10 and should be used in preference. Equivalent terms for those under [EU…] exist in SNOMED CT, however the ‘[X]’ prefix is omitted.

## **‘Grouper Terms’ that don’t mean what you think**

An example of this phenomenon in Read v2 is 19C.. Constipation. Clinicians using this code very likely think they’re recording that the patient was constipated, however it is in effect a ‘heading’ for all codes that state something in relation to constipation – including NOT constipated. The Read v2 code [19C2.] Constipated should be used:

 19... Gastrointestinal symptoms

19C.. Constipation

 19C1. Not constipated

 19C2. Constipated

 19CZ. Constipation NOS

Whilst [19C2. Constipated] *is* also used in general practice, it accounts for only about 1/10th as many new EPR entries as [19C.. Constipation].

From a reporting point of view, therefore, a request to retrieve all patients with [19C..] *or any of its subtypes* will in fact return all patients on record with constipation as well as those noted to not have constipation.

A similar common case of ‘grouper’ code (mis)use concerns the procedure term 7L17. Blood withdrawal. This has a number of more specific children that includes 7L172 Blood withdrawal for testing but also 7L171 Venesection (typically removing a pint or more for therapeutic reasons, and so **not** taking a blood specimen for testing), 7L170 Blood donation and even 7L177 Unsuccessful phlebotomy. The parent term 7L17. Blood withdrawal should therefore be avoided for data entry because, in a reporting context, it would not return only patients who had had a blood sample taken for testing (the meaning most likely intended when it is misused).

Similarly, the Read term 61... Contraception is a grouper term and the more specific codes should be used:

For example (not exhaustive):

 6147. Combined oral contraceptive

 6144. Oral contraceptive repeat

 6148. Progestagen only oral contrac.

 614E. Oral contraceptive advice

614D. Oral contraceptive prescribed

This approach is NOT used in SNOMED CT, and so all children of say constipation are a type of constipation and may be used for data entry.

**Note**. SNOMED CT also contains high level grouper terms, for example ‘Disorder of ear’. These should be avoided in data entry when wishing to describe a more specific condition, as they clearly convey very little specific clinical information.

## Causes of injury and poisoning terms

The terms under chapter T (codes beginning [T….]) were derived from ICD-9 and added to the Read code set in the late 1980s. They were superseded in the early 1990s by terms under [U…] covering substantially the same clinical territory but derived from (and hierarchically organised according to) ICD10. Although the intention was that only the ICD10 derived codes *should* be used when required, codes cannot be retired in Read v2, so elements from both code sets remain widely used by today’s GPs:

 T1... 00 Motor vehicle traffic accidents (MVTA)

 U0... 12 [X]RTA - Road traffic and other transport accidents

TE60. 00 Dog bite

 U124. 11 [X]Bite from dog

 U6000 14 [X] Adverse reaction to flucloxacillin

 TJ002 00 Adverse reaction to flucloxacillin

 TJ00. 00 Adverse reaction to penicillins

 U6000 11 [X] Adverse reaction to penicillins

U6000 1J [X] Adverse reaction to penicillin NOS

In SNOMED CT, such descriptions are only in once and with the [X] omitted. For example **adverse reaction to penicillin** is a concept description within SNOMED CT.

## Chapter Z codes

The 1706 Read terms under chapter Z (codes under [Z….]) are further divided between those with a prefix [V] under ZV... , [V]Factors influencing health status and contact with health services and those with a prefix [Q] under Zw..., [Q] Temporary qualifying terms.

The [Q] prefix were to characterise fractures with a primary fracture code with an additional [Q] code to describe the fracture type. They *should* be avoided in data entry for primary care.

The [V] prefix identifies terms for one of 1090 codes below [ZV... [V]Factors influencing health status and contact with health services] in the Read v2 taxonomy. These in turn correspond to the ICD-10 chapter XXI Factors influencing health status and contact with health services.

This ICD-10 chapter was:

..for occasions when circumstances other than a disease, injury or external cause classifiable to categories A00-Y89 [*ie to a traditional ICD chapter*] are recorded as "diagnoses" or "problems". This can arise in two main ways:

a. When a person who may or may not be sick encounters the health services for some specific purpose, such as to receive limited care or service for a current condition, to donate an organ or tissue, to receive prophylactic vaccination or to discuss a problem which is in itself not a disease or injury.

b. When some circumstance or problem is present which influences the person's health status but is not in itself a current illness or injury. Such factors may be elicited during population surveys, when the person may or may not be currently sick, or be recorded as an additional factor to be borne in mind when the person is receiving care for some illness or injury.

They *should* consequently be avoided in data entry for primary care and their equivalent elsewhere in Read should be used.

 [V] codes commonly used by GPs include:

ZV708 00 [V]Routine child health examination
ZV583 12 [V]Removal of sutures
ZV57C 00 [V]Palliative care
ZV173 00 [V]Family history of ischaemic heart disease
ZV49z 12 [V]Toe problem

For many [V] codes, other Read may exist with similar or identical meaning:

69D4. 00 Pre-school child health exam.
8P... 00 Removal of surgical material and sutures
9b9B. 00 Palliative medicine
12C5. 12 FH: Ischaemic heart disease
2G6.. 00 O/E - toe

[V] Terms map to SNOMED CT codes drawn from multiple taxonomies – procedure, family history, disease, symptom etc – as appropriate, but with the [V] omitted from the description.

For example:

ZV02B 00 [V]Hepatitis B carrier maps to 235871004 Hepatitis B carrier (finding)

ZV175 00 [V]]FH – Asthma maps to 160377001 Family history: Asthma (situation)

## And/Or Terms

Terms that have words **and/or** in for example H141.Tonsil **and/or** adenoid hypertrophy should not be used as they are ambiguous terms and were originally developed simply as groupers to categorise more specific unambiguous terms below them in the hierarchy. While some of these do still exist in SNOMED CT they are slowly being inactivated as the content in SNOMED CT is improved.

## ‘Referral to clinic A’ type terms

At some point in the early 1990s, four parallel sets of clinic administration codes were added to the Read chapter 9 for administrative codes, under the following groupers:

9OS.. Clinic 'A' monitoring admin. 9OT.. Clinic 'B' monitoring admin.

9OU.. Clinic 'C' monitoring admin. 9OV.. Clinic 'D' monitoring admin.

In full, the Clinic A set looks like this (the lists for Clinics B, C and D are similar):

9OS.. Clinic 'A' monitoring admin.

 9OS1. Attends clinic A monitoring

 9OS2. Refuses clinic A monitoring

 9OS3. Clinic A monitoring default

 9OS4. Clinic A monitoring 1st letter

 9OS5. Clinic A monitoring 2nd letter

 9OS6. Clinic A monitoring 3rd letter

 9OS7. Clinic A monitor.verbal invite

 9OS8. Clinic A monitor.phone invite

 9OS9. Clinic A monitoring deleted

 9OSA. Clinic A monitoring check done

 9OSZ. Clinic A monitoring admin.NOS

Collectively, these Clinic A/B/C/D codes are currently being used in the UK only in relatively small but steadily increasing volumes (approx. 250,000 new EPR items annually in 2014-15, but double the volume of 3 years previously).

Use of these terms remained acceptable and clinically safe only whilst data was not being shared across different systems and clinical care settings. However, in a paperless interoperable healthcare environment, these terms are unhelpful at best and dangerous at worst: real EPR data reveals that one practice’s 9OSA. Clinic A monitoring check done is another practice’s 8B3l. Diabetes medication review and yet another’s 662d. Hypertension annual review.

Because of this very obvious ambiguity, SNOMED CT does not offer equivalent terms in the expectation that only unambiguously specific clinic type administrative terms will be used in future. As part of the transition to SNOMED CT the existing Clinic A/B/C/D codes will still be mapped, and so will continue to be available for reporting over historically captured data. But they will be mapped to inactive terms within SNOMED CT and so should not be available for new data entry. This may be something that is addressed through data quality activities.

## Symptoms, signs and ill-defined conditions terms

The Read terms in Chapter R are defined as ‘Symptoms, signs and ill-defined conditions’. Like all codes in Read that begin with a letter, these terms and their hierarchical arrangement are derived from ICD9. The original World Health Organisation primary use case for Chapter R was to allow a reason for consultation (or cause of death) to be recorded by reference to symptomatology alone. This was particularly useful in remote care settings where lack of diagnostic facilities did not permit a pathophysiological diagnosis.

General practices should therefore avoid using these terms as they are often vague and non-specific:

378th R021. 00 [D]Rash and other nonspecific skin eruption

766th R065A 00 [D]Musculoskeletal chest pain

912th R1y2. 00 [D]Raised blood pressure reading

1049th R090. 00 [D]Abdominal pain

1063rd R01z2 00 [D]Musculoskeletal pain

1157th R062. 00 [D]Cough

Additionally, when trying to find the best Read term for a symptom, disease or disorder the other primary disorder chapters are more appropriate and a more comprehensive set of symptoms and signs terms are available in Chapters 1 and 2. Thus, with a few notable exceptions, most of Chapter R serves only to duplicate terms also available (and more appropriately from a reporting point of view) elsewhere in Read.

It has previously been argued that the Chapter R codes have a legitimate place in UK general practice in order to handle patients with recurrent and distressing symptoms, for which an underlying diagnosis cannot be established. The symptom *is* the disorder. So, for example, isolated or sporadically occurring chest or abdominal pain, or currently unexplained recurrent pain but for which investigation is not yet complete, should be coded using the Chapter 1 terms of 182.. Chest pain or 197C. Lower abdominal pain. However, once extensive investigation has failed to find a cause of their symptoms, the same patients might only then be appropriately also coded using the terms R065. [D]Chest pain or R090. [D]Abdominal pain.

Whilst this is an intellectually interesting distinction to make in theory, there is limited evidence of its clinical utility and much evidence that few clinicians care to reliably make it.

## History of neoplastic disease

Read v2 provides 46 codes corresponding to a prior personal or family history of neoplastic disease. However, to fit within READ’s original design limitation of 30 letters per term, many of these ‘Family history of neoplasm of…’ terms were truncated by replacing the ‘neoplasm’ word with an asterisk:

|  |  |
| --- | --- |
| 124.. FH: Neoplasm - \* 1241. FH: \* - gastrointestinal tract 1242. FH: \* - trachea/bronchus/lung 1243. FH: \* - breast 1244. FH: \* - skin 1245. FH: \* - female genital organ 1246. FH: \* - male genital organ 1247. FH: \* - urinary organ 1248. FH: \* - leukaemia 1249. FH: \* - other lymph/haematop. 124A. FH: \* - ears, nose, throat 124B. FH: \* - other intrathorac org 124C. FH: neoplasm of ovary 124D. FH: neoplasm of cervix 124E. FH: neoplasm of uterus 124F. FH: Bowel cancer 124G. FH: Neoplasm of CNS 124G0 FH: neoplasm of brain 124H. Family history of prostate cancer 124J. Family history of malignant melanoma 124K. FH: neoplasm of lung 124K0 FH: Malignant neoplasm of lung 124L. FH: Malignant neoplasm of urinary bladder 124M. FH: Squamous cell carcinoma of skin 124N. FH: Non-Hodgkin lymphoma 124Z. FH: \* - NOS  | 142.. H/O: malignant neoplasm (\*) 1421. H/O: \* gastrointestinal tract 1422. H/O: \* bronchus 1423. H/O: \* trachea/lung 1424. H/O: \* breast 1425. H/O: \* skin 14250 H/O Malignant melanoma 1426. H/O: \* female genital tract 1427. H/O: \* male genital tract 14270 H/O: prostate cancer 1428. H/O: \* urinary system 1429. H/O: \* leukaemia 142A. H/O: \* other lymph/haematopoi. 142B. H/O: \* ears, nose, throat 142C. H/O: \* other intrathoracic org 142D. H/O: malignant neoplasm of vulva 142E. H/O: malignant neoplasm of cervix 142F. H/O: malignant neoplasm of uterine body 142G. H/O: malignant neoplasm of ovary 142Z. H/O: \* NOS |

This truncated term construction is clearly ambiguous: if the resulting terms can be displayed and selected *without* the user ever seeing the parent term where the ‘neoplasm’ meaning is explicit, then these codes may be incorrectly used to record personal and family histories of *non-*neoplastic conditions.

In mapping these truncated ‘\*’ terms to SNOMED CT, their officially intended ‘*history of neoplasia*’ meaning is always assumed: they all map to codes in SNOMED CT below either 266883004 Family history of neoplasm (situation) or 266987004 History of malignant neoplasm (situation). The SNOMED terms, however, no longer contain the asterisk – the neoplastic disease aspect is always fully explicit.

# 7. Considerations for Queries

This section highlights the main differences to be considered in relation to writing queries, whether it be for reports, business rules or data extraction.

## Present and not present

Within Read v2 some codes exist that serve only to gather together codes related to the same clinical area so that they’re easier to find when using the hierarchy to pick a code for data entry. Therefore, they often gather together codes to record both when a given phenomenon is ‘present’ and when it is ‘not present’. This is NOT the case in SNOMED CT; codes where the symptom or condition is absent do exist in SNOMED but in a completely separate hierarchy .

The 19C.. Constipation example in the earlier ‘*Grouper terms that don’t mean what you think*’ section illustrates the point and specific reporting problem further.

Further examples include the terms 198.. | Nausea; 199.. | Vomiting; 19F.. | Diarrhoea symptoms. They have all been used extremely frequently, but all meaning (strictly) ‘*the patient may or may not have nausea/vomiting/ diarrhoea*’ and so probably not what the recording clinician intended.

In mapping such ‘present/absent’ type content to SNOMED, however, the ‘present’ and ‘not present’ flavours will be mapped to their appropriate concept in SNOMED CT using the description text, but they’ll end up in very different hierarchical places in SNOMED CT. This means reporting in SNOMED CT can be done by searching for all patients with the term Constipation or any of its children, and you will no longer also get patients who definitely do not have constipation.

## Terms that *should* be children but are not

Some terms currently published in Read v2 *should* be classified under some existing level 5 term … but they cannot be because of the Read v2 hierarchy limit. Instead they have had to be represented used the fixed 5 character codes that Read v2 provides.

For example:

C10E. Type 1 diabetes mellitus

C10E1 Type 1 diabetes mellitus with ophthalmic complications

C10EF Type 1 diabetes mellitus with diabetic cataract

C10E7 Type 1 diabetes mellitus with retinopathy

C10EP Type 1 diabetes mellitus with exudative maculopathy

The last three terms *should* all be children of the C10E1: *Type 1 diabetes mellitus with ophthalmic complications*. SNOMED CT does not have this restriction.

Another example is:

71304 Subcutaneous mastectomy

71307 Subcutaneous mastectomy for gynaecomastia

The second term *should* be a hierarchical child of the first term.

As well as not having more than 5 levels to the hierarchy, the Read v2 structure also imposes a maximum number of 62 children per concept. Where a term *should* have more than this number of children, the excess of children must instead be placed under some form of overflow term(s). For example, the many RAST allergy test terms in Read ended up spread across one primary grouper and 43Q.. RAST test plus four successive overflow groups 43Y.. Other RAST test, 43i.. Additional RAST test, 43l.. Further RAST tests and 43t.. Supplementary RAST tests.

This constraint does not exist in SNOMED CT and concepts are in the correct place within the hierarchy.

## Duplicate Terms

Read v2 contains many duplicates; i.e. the same term repeated but in different places in the Read code set with a different code and different parents and children. This has *usually* occurred because the term could be categorised in more than one way, but the Read v2 structure does not facilitate this.

By contrast, both CTV3 and SNOMED CT provides for a single concept to be categorised in a number of ways thus having more than one parent. This means concepts need exist only once in these terminologies. This means that a number of Read v2 codes may map to a single SNOMED CT concept.

For example:

|  |  |
| --- | --- |
| 1C13. 00 Deafness maps to 275879008 O/E - deaf F59.. 11 Deafnessmaps to 275879008 O/E - deaf | 66U.. 11 Hormone replacement therapy maps to 266717002 Hormone replacement therapy 8B64. 00 Hormone replacement therapymaps to 266717002 Hormone replacement therapy |
| 9877. 11 Injection givenmaps to 275659002 Injection given 85D.. 00 Injection givenmaps to 275659002 Injection given | N245. 13 Foot pain maps to 47933007 Foot pain1M11. 00 Foot pain maps to 47933007 Foot pain |

## Synonyms that are not synonyms

In Read v2 some terms are represented as synonyms even though they do not actually mean the same thing.

For example, the code 13JQ. Exempt from military service has the following as its synonyms:

[11] Conscientious objector

[12] Non combatant

[13] Refuses to bear arms

[14] Medically unfit for service

N245. Pain in limb has these:

[11] Ankle pain

[12] Arm pain

[13] Foot pain

[14] Hand pain

[15] Heel pain

[16] Leg pain

[17] Shoulder pain

[18] Thigh pain

[19] Pain in buttock

..and H330. Extrinsic (atopic) asthma has these:

[11] Allergic asthma

[12] Childhood asthma

[13] Hay fever with asthma

[14] Pollen asthma

This approach was adopted partly because of the even more restricted hierarchies in the original 4 character version of Read and partly because it made certain population trends analyses easier to perform. Unfortunately, it makes other sorts of analyses (especially those for individual patient decision support) much harder.

This is not the case in SNOMED CT; here synonyms of the same concept strive to be truly only different ways of describing the same underlying clinical content. In mapping from Read to SNOMED CT therefore, terms have been mapped on their particular individual Read descriptions and thus different synonyms of the same Read code may map to completely different SNOMED CT concepts.

# 8. Dealing with SNOMED CT inactive content

SNOMED CT has the ability to inactivate concepts and descriptions. There are many reasons why SNOMED CT content is inactivated including it being duplicated, erroneous, ambiguous, or outdated. Further details can be found in the [Inactive Codes Fact Sheet](https://hscic.kahootz.com/gf2.ti/f/762498/46448997.3/PDF/-/SNOMED_CT_Inactives_Fact_sheet_v2.0.pdf).

In mapping from Read to SNOMED CT, a small proportion of the Read terms map to SNOMED CT descriptions or concepts that are inactive, these are generally where their exact meaning is unclear. Inactive concepts will not be available for future data entry. A general rule of thumb for where content has been inactivated in SNOMED CT, is to identify a suitable alternative active concept or description; this usually can be found by searching for ‘what you want to say’. Some illustrations of inactive codes are provided below.

## Finding Inactive Concepts

NHS Digital provide an [on-line look-up](https://hscic.kahootz.com/connect.ti/t_c_home/view?objectId=300115) to enable users to enter existing Read codes to obtain the equivalent SNOMED CT code provided via the national mapping tables. This can be used to show all Read codes that are mapped to inactive SNOMED CT concepts by searching for *inactive* in the SNOMED CT Concept Status.

The following are some examples of Read v2 terms that map to inactive SNOMED CT concepts along with possible alternative active concepts that could be chosen for data entry:

H06.. 00 Acute bronchitis/bronchiolitis maps to 195712009 Acute bronchitis and/or bronchiolitis

However, because this contains and/or it is not clear what the meaning of this concept is. In SNOMED CT concepts aim to be as unambiguous as possible, the concept is therefore not available for future data entry.

 Alternative active concepts : 5505005 Acute bronchiolitis

10509002 Acute bronchitis

42U3. 00 Serum folate borderline maps to 165651004 Serum folate borderline

In this example, borderline could be high or low, again in SNOMED CT the concepts aim to be clear and unambiguous so this concept is no longer active.

Alternative active concepts : 442313006 Serum folate borderline low

442213008 Serum folate borderline high

Other examples have already been discussed in this document under the section ‘Referral to clinic A’ type terms.

To further help system users deal with inactive concepts, the following excel spreadsheet has been created and provides is a suggestive list of possible alternative SNOMED CT concepts that could be used by a user instead of the Read v2 codes that map to inactive content.

* Please be mindful that this spreadsheet is NOT a mapping solution and it has NOT been clinically assured; the list has been created from the NHS Digital mapping tables as of April 2018 (comparison with September 2017 is included); mapping tables may be updated in the future so further changes may occur. Users should always use the most applicable concepts when SNOMED CT becomes live in systems and may find other suitable active alternatives than the ones provided in this list.



## Inactive Descriptions

Mapping between Read and SNOMED CT has been done on a Read term to SNOMED CT description basis. There may be some instances where the Read term maps to a SNOMED CT description that is inactive. If the **inactive** SNOMED CT description is attached to an **inactive** concept then a completely new concept would have to be chosen for data entry as mentioned above. If the **inactive** SNOMED CT description is attached to an **active** concept then an alternative active description (synonym) on that concept can be chosen for future data entry.

The following example illustrates this point

Read v2 term 25C7. 00 O/E –abd, pain – L.lumbar

maps to

SNOMED CT Description 254358010 O/E –abd, pain – L.lumbar which is inactive.

However the description is attached to the Concept 163219009 which is active.

This concept also has the following active description 2667729015 On Examination – abdominal pain – left lumbar. So this alternative description would most likely be chosen for future data entry.

# 9. The need to re-create artefacts

**Note**. For those who create templates, triggers and searches we strongly recommend you also read the document: [Designing Searches](https://hscic.kahootz.com/gf2.ti/f/762498/29730789/PDF/-/Designing_Searches.pdf).

## Why it is important

Once your GP system transitions to SNOMED CT, it is imperative that you review your artefacts written in Read and reproduce these in SNOMED CT. While all systems will still run your Read based artefacts, there is an increasing clinical safety risk that these will not produce the correct results. The following highlights some reasons why it is increasingly an issue if practice-based artefacts do not reflect the full content available in SNOMED CT:

* Any content in CTV3 codes that did not map to Read v2 and resulted in text degrades will now pass seamlessly between systems as SNOMED CT codes. There is a high chance that these are not picked up by Read v2 based artefacts.
* Read v2 was deprecated in April 2016; CTV3 was deprecated in April 2018. SNOMED CT has been regularly maintained and a new release published every 6 months. The differences between what was available in Read codes and what is available in SNOMED CT has therefore increased. Any clinical documentation received from outside general practice may therefore contain terms that can be captured in SNOMED CT. This would not be accounted for in any Read based artefact.
* Because of the duplicates and abbreviations in Read codes, as well as the way the Read chapters are organised, we have discovered that a number of existing Read-based searches had missed Read codes and so were not previously producing the expected results.
* Some Read terms did not represent the same clinical idea as others for the same Read code and so map to a different SNOMED CT concept. We are aware of some searches where these non-synonymous synonyms are preferable to be excluded from the new search; this has not previously been possible.
* Some systems have already extended the SNOMED codes available for data entry significantly beyond what was in Read; this may have been instigated from local requests, by mapping previous local codes to SNOMED codes, to meet new national guidelines, to meet local or national reporting requirements (e.g. QOF or CCG specifications). Existing Read based searches will not pick these up.
* Some Read codes will map to inactive SNOMED concepts, for example ‘referred to clinic A’, or terms that have in the description ‘AND/OR’. It is important for good data quality reasons that any artefacts that use such codes are updated to correctly reflect active content available in SNOMED CT.

In our research as part of the transition to Read we have seen examples where very quickly, a Read-based artifact becomes out of date and is not highlighting new content entered into records in SNOMED CT. Remembering data can be received via GP2GP it is important artifacts are written to reflect SNOMED CT. As SNOMED CT is organised differently to both CTV3 and Read v2 it is highly unlikely an existing Read version will produce the desired information.

We have also witnessed templates that are incorrectly recording data into the patient record; both the template and the data are required to correctly translate what was recorded. If data is transferred out of the system, the template will be unavailable and incorrect data will flow. For example, ‘Under the care of’ has the word dietician in the template as the data recorded. If this is received by another system this will simply say dietician – it isn’t clear if they are under the care of or have been referred to the dietician (which we have also seen mis-coded in templates), but the actual text recorded indicates the patient is a dietician. SNOMED CT is richer than Read codes and it is highly likely that the correct term text is available to correctly reflect what was intended by the template.

## Housekeeping

It has become clear within the project that a substantial number of organisations do not review artefacts when there has been a new release of Read. In SNOMED CT concepts can become inactive as well as new concepts added. It is good practice to regularly review things like searches, templates and business triggers. It should also be noted that if a concept is made inactive it is placed elsewhere in the SNOMED CT hierarchy; if this code and all its children is in a search this may then not retrieve the expected results.