

## SNOMED CT within the NSW Public Health System

**Document Number** IB2008\_043

**Publication date** 22-Aug-2008

**Functional Sub group** Clinical/ Patient Services - Information and data  
Clinical/ Patient Services - Medical Treatment  
Clinical/ Patient Services - Pharmaceutical  
Clinical/ Patient Services - Pathology  
Clinical/ Patient Services - Surgical

**Summary** SNOMED CT, the Systematized Nomenclature of Medicine Clinical Terms, has been adopted as the Australian standard for clinical terminology under the national e-health agenda. Clinical terminologies enable the "computability" of clinical information and deal with the representation of health concepts which describe individual clinical conditions, problems or procedures in various settings and clinical practice types.

Within NSW Health, SNOMED CT is currently being used within the Cerner Millennium Electronic Medical Record (EMR) solution. SNOMED CT will ensure consistent communications throughout the patient's hospital journey and its use as a "common language" will improve the flow of clinical information.

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**Applies to** Area Health Services/Chief Executive Governed Statutory Health Corporation, Board Governed Statutory Health Corporations, Affiliated Health Organisations - Non Declared, Affiliated Health Organisations - Declared, Public Health System Support Division, NSW Dept of Health, Public Health Units, Public Hospitals

**Audience** Clinical, administration, Chief Information Officers and ICT systems staff

**Distributed to** Public Health System, NSW Ambulance Service, NSW Department of Health, Public Health Units, Public Hospitals

**Review date** 22-Aug-2013

**File No.** 08/1788

**Status** Active

Director-General

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## **SNOMED CT within the NSW Public Health System**

SNOMED CT is an acronym for the Systematized Nomenclature of Medicine Clinical Terms. SNOMED CT has been adopted as the Australian standard for clinical terminology under the national e-health agenda.

Clinical terminologies were developed for use in electronic health records and computer assisted decision support and information management systems. The purpose of clinical terminology is to support clinical software. Terminologies enable the “computability” of clinical information.

SNOMED CT is the most comprehensive multilingual clinical reference terminology available in the world. It provides a common language that enables a consistent way of indexing, storing and retrieving clinical data across medical specialities and sites of care. It supports the ability of clinicians, researchers and patients to share comparable clinical data worldwide.

Clinical terminologies are not classification systems. Classifications group together similar diseases and procedures and organise related entries for easy retrieval. Clinical terminologies deal with health concept representation - the representation of concepts which describe individual clinical conditions, problems or procedures in various settings and clinical practice types.

Clinicians and health care providers will be able to enter clinical text, laboratory results, medications or any other clinical data into an information system and this information will be “converted” into SNOMED CT identifiers by the information system. This information can be shared electronically and will be a key part of co-ordinating shared patient care among different institutions, professions and specialities.

### **Frequently asked questions**

#### ***What is the basic structure of SNOMED CT?***

SNOMED CT is a collection of about 400,000 clinical concepts, associated with about 800,000 description terms for these concepts, and related to each other by a hierarchy consisting of about 1,200,000 relationships. SNOMED CT is currently released every 6 months and the content continuously evolves to meet clinical need.

A concept is a clinical meaning identified by a unique numeric identifier (ConceptID) that never changes. ConceptIDs do not contain hierarchical or implicit meaning – they do not reveal any information about the nature of the concept. Each concept has one ‘fully specified name’ that provides a unique and unambiguous description for a concept. Examples of ConceptIDs are: 38907003 *varicella* (disorder); 298934000 *elbow joint red* (finding); 284915007 *uses commode* (finding); 258623008 *vascular catheter* (physical object). In addition to the fully specified name, every concept in SNOMED CT has a number of descriptions. These can represent the terms that are in everyday use. There are often many synonymous descriptions for a single concept.

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*Title: SNOMED CT within the NSW Public Health System*

Every concept in SNOMED CT is placed in a hierarchy by which it is related to other SNOMED CT concepts. Individual medical concepts may be in more than one hierarchy created for different clinical purposes. A relationship is assigned only when that relationship is always known to be true.

The relationships are used to define a concept where it can be expressed in terms of other concepts (e.g. laparoscopic appendicectomy IS A appendicectomy USING A laparoscope). Relationships can also define how a concept may be sensibly further refined or qualified. Relationships are a very powerful mechanism which allows not only grouping of closely related concepts, but also machine logical reasoning about the information in SNOMED CT. It is designed to enable aggregation of medical information for secondary purposes without any loss of the detail required for primary clinical use. Relationships are primarily intended to allow machine processing.

### ***When will NSW Health be implementing SNOMED CT?***

As SNOMED CT should be an integral part of an electronic health care management solution (such as within the Cerner Millennium eMR Solution), there is no need for a separate formal “implementation” of SNOMED CT.

### ***How is SNOMED CT being used within the NSW Health system?***

Within NSW Health, SNOMED CT is currently being used within the Cerner Millennium Electronic Medical Record (EMR) solution. The EMR is the core information technology infrastructure that captures admitted patient information generated by the clinician to document the care process from admission to discharge. It will be linked to information sources that are evidence-based to provide a powerful clinical decision support tool.

Within Cerner FirstNet, SNOMED CT is currently being used for emergency department diagnosis selection. It will also be used within Cerner SurgiNet to record patient problems and diagnoses in an operating theatre environment. Plans are also in existence to use SNOMED CT within the EMR’s Clinical Documentation module .

SNOMED CT will ensure consistent communications throughout the patient’s hospital journey. SNOMED CT’s use as a “common language” will improve the flow of clinical information.

### ***How is SNOMED CT different to the International Classification of Diseases 10<sup>th</sup> Revision Australian Modification (ICD-10-AM)?***

Classification systems such as ICD-10-AM and ICD-9-CM group together similar diseases and procedures and organise related entries for easy retrieval. These systems are typically used for external reporting requirements or other uses where data aggregation is advantageous, such as measuring the quality of care and reporting admitted patient statistics to the Commonwealth government.

Classification systems are considered “output” rather than “input” systems and are not intended or designed for the primary documentation of clinical care.

*Title: SNOMED CT within the NSW Public Health System*

They are inadequate in a terminology role as they lack granularity and fail to define individual concepts and their relationships.

Clinical terminologies such as SNOMED CT are “input” systems and codify the clinical information captured in an electronic health record during the course of patient care.

SNOMED CT will not replace ICD-10-AM in the short term. Anecdotal evidence from the USA has shown that ICD systems are still in place and being used for funding and reimbursement ten years after the introduction of SNOMED CT.

### ***Do mappings exist between SNOMED CT and ICD-10-AM?***

Currently, no. The National Centre for Classification in Health (NCCH) is a member of the Mapping Projects Group of the International Health Terminology Standards Development Organisation (IHTSDO). The purpose of this group is to standardise mapping procedures and definitions worldwide so that there is a common understanding of mapping results and publication of authoritative maps between SNOMED CT and existing publications.

An important aspect of the standard mapping methodology is the definition and application of use cases for mapping so that the purpose of the mapping is clearly understood and interpreted.

It is not recommended for individuals to develop their own mappings between SNOMED CT and ICD-10-AM until worldwide mapping standards have been developed. Non-standard maps will produce data that will not be comparable to other data. This data will not be able to be shared between different clinicians and different healthcare settings, or compared nationally or internationally.

### ***Why is mapping necessary?***

SNOMED CT is very large in size, has complex hierarchies and has considerable granularity and as such is inadequate for serving the secondary purposes for which classification systems are used. The benefits of using SNOMED CT increase immensely if it can be linked to a standard classification system such as ICD-10-AM for the purpose of generating health information necessary for secondary uses such as statistical and epidemiological analyses, reporting requirements, measuring quality of care, monitoring resource utilisation, and possibly processing claims for reimbursement.

### ***Will I need to be trained to use SNOMED CT?***

Basic training in the selection of terms will be provided within the training of the Cerner Millennium eMR Solution. Clinicians are encouraged to do some basic reading on the uses and benefits of SNOMED CT. There are several products on the market that enable interested parties to view the structure and relationships of SNOMED CT. The CliniClue Browser is one such product, and can be obtained free via their website at [www.cliniclue.com](http://www.cliniclue.com) Further information can be obtained from the:

- National e-Health Transition Authority [www.nehta.gov.au](http://www.nehta.gov.au)

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*Title: SNOMED CT within the NSW Public Health System*

- International Health Terminology Standards Development Organization [www.ihtsdo.org](http://www.ihtsdo.org)
- College of American Pathologists [www.cap.org](http://www.cap.org)

## ***Do I need a licence to use SNOMED CT?***

If you are using SNOMED CT entirely in the boundaries of the Cerner Millennium eMR Solution, you do not require a separate licence.

If you are planning to use SNOMED CT in a clinical application outside of the Cerner Millennium eMR solution, you will need to contact the National e-Health Transition Authority (NEHTA) via their website to obtain a licence. [www.nehta.gov.au](http://www.nehta.gov.au) Follow the links on the menu bar to Our Work, Clinical Communications

NEHTA has recently become, on behalf of Australia, a Charter Member of the International Health Terminology Standards Development Organization (IHTSDO); an organization established to own and manage the ongoing development of SNOMED CT. As a Member of the IHTSDO, NeHTA will be responsible for distributing and managing SNOMED CT in Australia, and will develop, maintain and distribute relevant Australian content and extensions of the terminology.

## ***Will SNOMED CT be updated for Australian use?***

NEHTA is currently working toward updating SNOMED CT for use in Australia. The Australian Medicines Terminology and the Australian Pathology Reference List are two such Australian Extensions that have been released to date. NSW has contributed to these. Current work is underway on restricting or removing certain clinical hierarchies in order to streamline the clinical choice available. For example, “legacy” clinical terms left over from ICD-9-CM will be removed as they are no longer applicable.

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