WELSH INFORMATION STANDARDS BOARD

DSC Notice:	DSCN 2018 / 06
Date of Issue:	8th August 2018

Welsh Health Circular / Official Letter: (2015) 053	**Subject:** SNOMED CT Maturity Matrix
Sponsor: Chris Newbrook, Head of Information Standards & Governance, Digital Health & Care, Welsh Government	
Implementation Date: 1st September 2018 All relevant systems in development or procurement SHOULD use this reference Standard from the implementation date.	

DATA STANDARD CHANGE NOTICE

A Data Standard Change Notice (DSCN) is an information mandate for a new or revised information standard.

This DSCN was approved by the Welsh Information Standards Board (WISB) at its meeting on 25th July 2018

WISB Reference: ISRN 2018/015

Summary:
Introduction of the SNOMED CT Maturity Matrix, which specifies levels of incorporation of SNOMED CT into a clinical electronic system.

Applies to:
The Matrix is designed to be used in all development projects or procurements intending to use SNOMED CT both at national and health board levels.

Please address enquiries about this Data Standard Change Notice to the Data Standards Team in NHS Wales Informatics Service

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The Welsh Information Standards Board is responsible for appraising information standards. Submission documents and WISB Outcomes relating to the approval of this standard can be found at:

http://howis.wales.nhs.uk/sites3/page.cfm?orgid=742&pid=24632

DATA STANDARD CHANGE NOTICE

Introduction

SNOMED CT is the national clinical terminology standard for use in clinical systems in Wales introduced as Ministerial policy via Welsh Health Circular (2015) 053. The 'Informed Health and Care' strategy for Wales was published later in 2015. It sets the digital direction for the NHS and social care in Wales for the next five years and comprises four 'delivery' work streams:

1. Information for You
2. Supporting Professionals
3. Improvement and Innovation
4. A Planned Future

The third work stream, Improvement and Innovation, has responsibility for SNOMED CT implementation.

Reference is also made to SNOMED CT introduction in the Ministerial Statement of Intent on Better Use of Health and Care Data for Safe, Efficient and Effective Services (http://gov.wales/about/cabinet/cabinetstatements/2017/statementofintent/?lang=en).

The Systematized Nomenclature of Medicine - Clinical Terms (SNOMED CT) is an international clinical terminology, which supports the recording of clinical information in a way that enables data management, exchange and analysis to underpin patient care. It allows health and care professionals to use a common 'language' for data recording and contributes to integrated care records by safeguarding the meaning of collected and shared clinical information.

The utilisation of SNOMED CT is core to the exploitation of the content of individual care records to identify and monitor patient and population outcomes, to facilitate the development of informed service delivery plans and to establish a basis for other, more patient-focused, clinically meaningful performance measures. This is due to SNOMED CT being a clinician tool, which enables granular clinical detail to be captured across the clinical record. In this respect it contrasts with classification coding (ICD10 and OPCS4) which is a 'grouping' process designed to categorise limited aspects of patient healthcare for statistical analyses including international morbidity comparisons.

Welsh Health Circular 2015 (053) stated that SNOMED CT should be implemented in all IT systems for which there was a business justification and that the NHS Wales Informatics Service (NWIS) should lead the implementation programme.

The National Programme has developed a Maturity Matrix, which identifies levels of system sophistication in relation to SNOMED CT incorporation. These levels range from no use of SNOMED CT through to a level where all the advanced features of SNOMED CT are being exploited by the system.

The Matrix is also intended to act as an educational tool for developers and procurers, setting out, through use of examples, what each level of maturity means and thus what can be gained from developing or procuring systems with higher levels of maturity.

Details of the SNOMED CT Maturity Matrix including examples of the application of each level of maturity can be found in the Information Specification.

Scope

This DSCN describes levels of SNOMED CT implementation in electronic systems. In order to derive full benefit from its use in electronic health record systems, consideration will also need to be given to:
- information models on which such systems are based and how effectively they underpin the clinical process
- structure of such systems in respect of both standardised data capture and wide-ranging analysis to support individual patient care, disease management, research, management and other uses
- messaging standards to enable sharing of SNOMED CT-populated exchanges between clinical systems in order to achieve semantic interoperability

Actions

All NHS Wales organisations should:

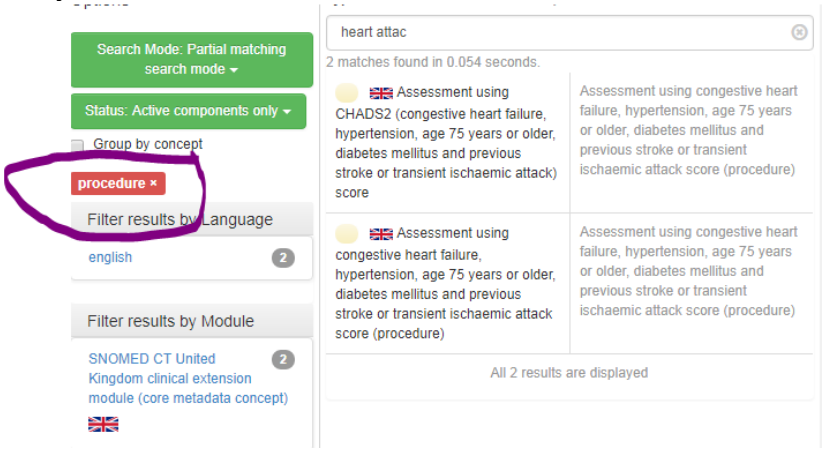
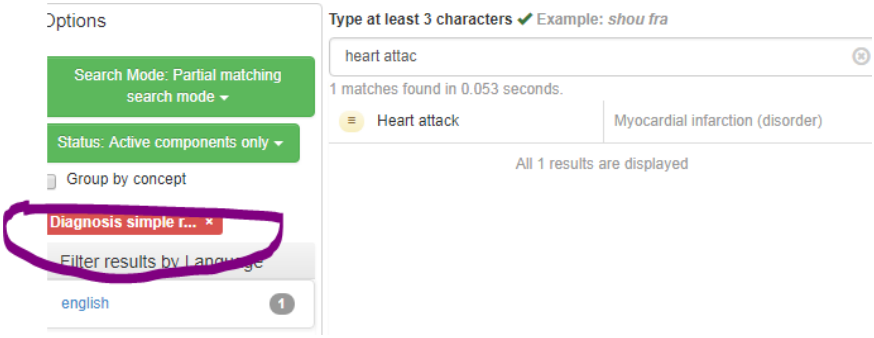
- In procurement of clinical systems, use the Matrix to either:
  - ask the supplier to state their system's level of maturity based on the Matrix in order that systems can be compared in relation to their level of use of SNOMED CT; or
  - specify the maturity level to which the system should be developed.
- In internal NHS Wales development of clinical systems, include a statement in the Requirements Specification(s) as to what level of maturity is required. This includes using the Matrix as a reference to describe overall system maturity, as well as individual data item maturity where helpful.

Information Specification

NHS Wales – SNOMED Maturity Levels for Health Care systems		
Level	**Definition**	**Example(s)**
1	No use of SNOMED CT.	1. A clinical cardiology system that records diagnosis as free text. 2. A clinical system that uses its own codes for recording a patient's current medical conditions e.g. 1 = Heart Attack, 2 = Asthma, 3 = Stroke, 4a = Diabetes type1, 4b = Diabetes type2,
2	Uses SNOMED externally to generate lists that are then used for creating its internal coding schemes.	A clinical system that has structured data entry at the user interface of certain clinically relevant data items uses SNOMED to generate lists that are either hard-coded into the system user interface drop-downs or used to create reference data tables in the system. These 'lists' are usually created by doing a manual search and curation of SNOMED content – typically using a SNOMED browser or published spreadsheets of SNOMED content. The system holds these descriptions but does not hold any SNOMED codes. This example uses descriptions copied from SNOMED: 1 = Myocardial infarction, 2 = Asthmatic, 3 = Ischemic stroke, 4a = Diabetes mellitus type 1, 4b = Diabetes mellitus type 2,

NHS Wales – SNOMED Maturity Levels for Health Care systems		
Level	**Definition**	**Example(s)**
3	Imports SNOMED concepts and/or descriptions into its reference database as a flat list.	Uses SNOMED reference data alongside other coding schemes in its own internal reference database. A system has its own set of internal reference tables. In some cases, these can be populated directly from the SNOMED release files or can be generated manually from using a SNOMED browser. The system holds both the SNOMED code and its description. This example uses descriptions and codes copied from SNOMED: 1 = 22298006 = Myocardial infarction 2 = 195967001 = Asthmatic, 3 = 422504002 = Ischemic stroke, 4a = 46635009 = Diabetes mellitus type 1, 4b = 44054006 = Diabetes mellitus type 2,

NHS Wales – SNOMED Maturity Levels for Health Care systems		
Level	**Definition**	**Example(s)**
4	Imports SNOMED Concepts and Descriptions and Relationships into its internal reference database.	Systems utilise these SNOMED structures to allow users to navigate, select, store and report on clinical data *without* hierarchy context. It stores SNOMED codes and descriptions. Does not use subsets/refsets or cross maps. This example shows how synonyms or more detail could be used: 22298006 = Myocardial infarction Synonyms: Myocardial infarction Infarction of heart Cardiac infarction Heart attack Myocardial infarction (disorder) MI - Myocardial infarction Myocardial infarct More detail (children): Acute myocardial infarction (disorder) First myocardial infarction (disorder) Microinfarct of heart (disorder) Mixed myocardial ischemia and infarction (disorder) Myocardial infarction in recovery phase (disorder) Myocardial infarction with complication (disorder) Non-Q wave myocardial infarction (disorder) Old myocardial infarction (disorder) Postoperative myocardial infarction (disorder) Silent myocardial infarction (disorder) Subsequent myocardial infarction (disorder) True posterior myocardial infarction (disorder) Different hierarchy (finding): ECG: myocardial infarction Electrocardiogram finding of infarction Electrocardiographic myocardial infarction (finding) Electrocardiographic myocardial infarction EKG: myocardial infarction

NHS Wales – SNOMED Maturity Levels for Health Care systems		
Level	**Definition**	**Example(s)**
5	Imports SNOMED Concepts, Descriptions, Relationships, Subsets, and X maps.	The application record architecture has been validated against the SNOMED model to use hierarchy context. Systems use the SNOMED model to search, validate, select, record and report on clinical information using SNOMED terms. Imports SNOMED and maps to its own internal reference structures. Systems utilise these SNOMED structures to allow users to navigate, select, store and report on clinical data without hierarchy context. It stores SNOMED codes and descriptions. Can use subsets/refsets or cross maps. This example shows how refsets or hierarchy could be used: Hierarchy constrained:  Refset constrained: 

NHS Wales – SNOMED Maturity Levels for Health Care systems		
Level	**Definition**	**Example(s)**
6	Imports and relies on SNOMED Concepts, Descriptions, Relationships, Subsets, and X maps.	The application record architecture has been validated against the SNOMED model. It uses the SNOMED model to search, validate, select and record clinical information using SNOMED terms. It uses SNOMED as its base/master reference terminology. It uses SNOMED concepts wherever appropriate as its reference data lists. It can handle and relies on SNOMED mapping to multiple different terminologies/coding schemes. It cannot handle / does not use post coordinated expressions.
7	Imports and relies on SNOMED Concepts, Descriptions, Relationships, Subsets, X maps and uses Post Coordination.	The application record architecture has been validated against the SNOMED model. It uses the SNOMED model to search, validate, select and record clinical information using SNOMED terms. It uses SNOMED as its base/master reference terminology. It uses SNOMED concepts wherever appropriate as its reference data lists. It can handle and relies on SNOMED mapping to multiple different terminologies/coding schemes. It can produce, store and interpret post coordinated expressions. Example of a post coordinated expression: === 57809008 |Myocardial disease (disorder)| + 414545008 |Ischemic heart disease (disorder)| + 251061000 |Myocardial necrosis (finding)| + 609410002 |Necrosis of anatomical site (disorder)| : { 116676008 |Associated morphology (attribute)| = 55641003 |Infarct (morphologic abnormality)|, 363698007 |Finding site (attribute)| = 74281007 |Myocardium structure (body structure)| }