nehta

Detailed Clinical Model Specification

Problem/Diagnosis
Version 3.1

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Approved for External Release

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Document Information

Document owner

Document Owner
The National Clinical Terminology and Information Service

Change history

Version	Date	Comments
1.0	29 Jun 2007	Initial public release
1.1	29 Feb 2008	• Minor typographical corrections and wording changes in Introduction; • Figure 1 in Introduction updated to show more comprehensive information; and • There are no significant alterations that affect the data structure or use of this document.
2.0	10 Sep 2009	Updated to incorporate changes made in the version 2.0 of the Discharge Summary Specification.
3.0	23 Aug 2011	New version created in accordance with the archetype from *NEHTA Clinical Knowledge Manager*[1].
3.1	22 Dec 2011	This version of the specification is published to support the Structured Content Specifications published (at the end of 2011) that use the versions of the DCMs included in this specification. Changes to the DCMs, included in this specification, are primarily to support the Consolidated View in the PCEHR.

Related documents

Name	Version/Release Date
NEHTA Acronyms, Abbreviations & Glossary of Terms	Version 1.2, Issued 25 May 2005
Participation Data Specification	Version 3.2, Issued 20 July 2011

Included Detailed Clinical Models

This specification contains the following Detailed Clinical Models:

1. Exclusion Statement - Problems and Diagnoses, version 1.2
2. Problem/Diagnosis, version 5.1

[1] http://dcm.nehta.org.au/ckm

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Acknowledgements

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- Standards Australia;
- Members of the Australian DataTypes Project;
- Australian Institute of Health and Welfare; and
- Ocean Informatics.

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Table of Contents

1 Introduction

1.1 Purpose and Scope

This detailed clinical model (DCM) specification forms part of a suite of data specifications that the National E-Health Transition Authority (NEHTA) is developing for the Australian health informatics community. The suite comprises specifications for a range of health topics (represented as data groups), which are considered to be the most critical to support the work programme given to NEHTA and to realise the benefits derived from Level 4 (semantic) interoperability[1] in the Australian healthcare setting.

NEHTA values your questions and comments about this document. Please direct your questions or feedback to *clinicalinformation@nehta.gov.au*.

1.2 Intended Audience

This document is intended to be read by jurisdictional information and communication technology (ICT) managers, clinicians involved in clinical information system specifications, software architects and developers, and implementers of clinical information systems in various healthcare settings.

It is reasonably technical in nature and expects the audience to be familiar with the language of health data specification and have some familiarity with health information standards and specifications. Definitions and examples are provided to clarify relevant terminology usage and intent.

1.3 Background

There are several e-health priority areas to be addressed by NEHTA specifications. One area of priority is identification of the data to be communicated and its structure. NEHTA is addressing this through data specifications, which detail the data elements (logically grouped) and their associated value domains.

Data specifications need to be independent of messaging formats. They are concerned with providing an information framework in which to achieve semantic interoperability.

Data specifications have been developed:

- Based on jurisdiction and clinician identified priorities;
- Specifically to suit the Australian model for a shared electronic health record (EHR);
- To define collections of related information, e.g. event summaries, data groups, data elements;
- To allow for expansion and extension as electronic systems mature;
- So they are human readable (with information enhanced by the hierarchical structure);
- Incorporating clinical examples of use to enhance utility and adoption; and
- To provide a set of clinical terminologies, specific to the requirements of the Australian healthcare system.

Whilst the Personally Controlled Electronic Health Record (PCEHR) System is referred to in these documents, the implementation of the PCEHR System is not dealt with here.

[1] Level 4 interoperability is described in [WALJ2005a].

1.4 Terminology

NEHTA, through the National Clinical Terminology and Information Service (NCTIS), is defining a national approach to clinical terminology. Consistent and accurate articulation and interpretation of clinical terms is critical to the process of safe exchange.

The Systematized Nomenclature of Medicine - Clinical Terms® (SNOMED CT® [2]) has been recommended by NEHTA and endorsed by the Australian, state and territory governments as the preferred clinical terminology for Australia, and is now freely available for e-health software developers to use in their Australian products under International Health Terminology Standards Development Organisation (IHTSDO) licensing arrangements.

While NEHTA's achievement of a national standard clinical terminology is based on SNOMED CT as the foundational resource, local variations and customisation of terms relevant to the Australian healthcare sector will be incorporated. SNOMED CT Australian Release (SNOMED CT-AU) is the Australian extension to SNOMED CT; the integrated national release of SNOMED CT for implementation in Australian deployed clinical IT systems. NEHTA is also developing the Australian Medicines Terminology (AMT) as the designated clinical terminology for medicines available in Australia. The AMT will provide a consistent approach to the identification and naming of medicines, to support medicines management and activity across the Australian healthcare domain. The AMT will be integrated with SNOMED CT-AU in the near future.

Reference sets listed as value domains within this document have been developed taking into account data element and data group definitions, as well as how they align and complement the SNOMED CT concept model. For further information regarding terminology and the development of reference sets please visit *http://www.nehta.gov.au/our-work/clinical-terminology* and direct your questions or feedback to *terminologies@nehta.gov.au*.

[2] SNOMED CT® is a registered trademark of the International Health Terminology Standards Development Organisation.

2 Problem/Diagnosis Detailed Clinical Model

This chapter describes version 5.1 of the Problem/Diagnosis Detailed Clinical Model.

2.1 Purpose

To record details about a problem or diagnosis by a clinician.

2.2 Use

Use to record detailed information about problems or diagnoses recognised by a clinician. There are many uses including: recording a diagnosis during an encounter; populating a problem list or a summary statement, such as a discharge summary.

Use to record all problems or diagnoses, including those with context-specific qualifiers such as past/present, primary/secondary, active/inactive etc. These qualifiers can be documented separately and included in the *Status* `data group`, because their use varies in different settings.

2.3 Misuse

Not to be used to record differential diagnoses - use the *Differential Diagnosis* DCM (to be published).

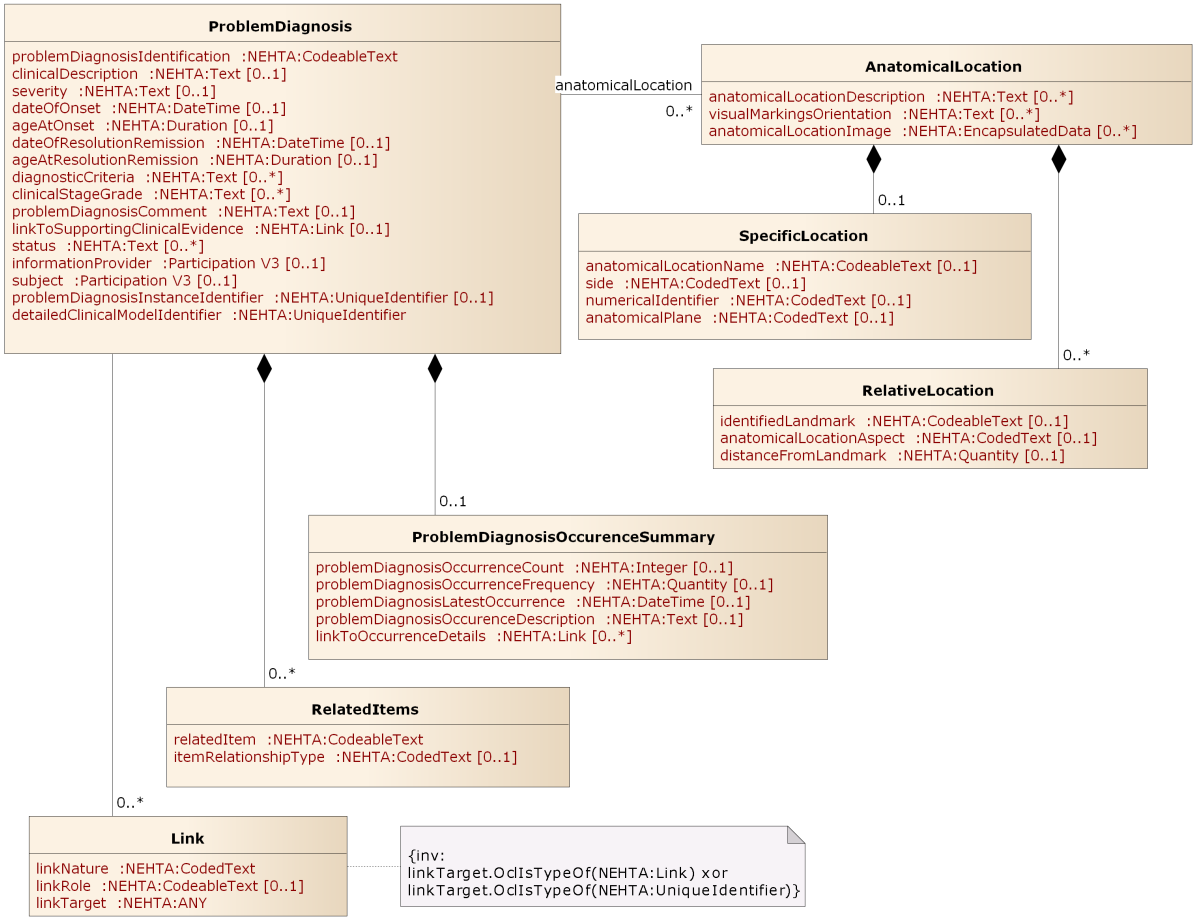
Not to be used to record reason for encounter - use the *Reason for Encounter* DCM.

Not to be used to record presenting complaint - which is information captured early in the encounter, usually prior to full assessment and will be represented using a separate DCM.

Not to be used to record procedures - use the *Procedure* DCM.

Not to be used to record symptoms or signs - these should be recorded as part of a patient story or history. A problem such as chest pain may masquerade as a symptom, however in this context we are recording it as a problem the person has.

2.4 UML Class Diagram



The figure represents the data hierarchy of the Detailed Clinical Model as a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their names are represented as association role names. Association role names are only displayed if they differ from the associated class name. The diagram shows the data hierarchy excluding the details of participation. The default multiplicity is 1..1.

2.5 PROBLEM/DIAGNOSIS

Identification

Label	PROBLEM/DIAGNOSIS
Metadata Type	Data Group
Identifier	DG-15530
OID	1.2.36.1.2001.1001.101.102.15530

Definition

Definition	Any healthcare condition which may impact on the physical, mental, or social well-being of an individual, that may require diagnostic, therapeutic or educational action, and which has been determined by a clinician. A diagnosis is based on scientific evaluation of physical signs, symptoms, history, laboratory test results, and procedures.
Definition Source	NEHTA
Synonymous Names	
Notes	An account of relevant identified health related problems as reported by a healthcare provider. This can include a disease, condition, injury, poisoning, sign, symptom, abnormal finding, complaint, or other factor influencing health status as assessed by a healthcare provider.

Data Hierarchy

PROBLEM/DIAGNOSIS					
	Problem/Diagnosis (Problem/Diagnosis Identification)				1..1
	Clinical Description				0..1
	Severity				0..1
	Date of Onset				0..1
	Age at Onset				0..1
	ANATOMICAL LOCATION				0..*
		SPECIFIC LOCATION			0..1
			Name of Location (Anatomical Location Name)		0..1
			Side		0..1

				Numerical Identifier	0..1
				Anatomical Plane	0..1
			RELATIVE LOCATION		0..*
				Identified Landmark	0..1
				Aspect (Anatomical Location Aspect)	0..1
				Distance From Landmark	0..1
			Description (Anatomical Location Description)		0..*
			Visual Markings/Orientation		0..*
			Image (Anatomical Location Image)		0..*
		Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)			0..1
			Number (Problem/Diagnosis Occurrence Count)		0..1
			Frequency (Problem/Diagnosis Occurrence Frequency)		0..1
			Latest Occurrence (Problem/Diagnosis Latest Occurrence)		0..1
			Description (Problem/Diagnosis Occurrence Description)		0..1
			Link to Occurrence Details		0..*
		RELATED ITEMS			0..*
			Related Item		1..1
			Relationship Type (Item Relationship Type)		0..1
		Date of Resolution/Remission			0..1
		Age at Resolution/Remission			0..1
		Diagnostic Criteria			0..*
		Clinical Stage/Grade			0..*
		Comment (Problem/Diagnosis Comment)			0..1
		Link to Supporting Clinical Evidence			0..1

		Status		0..*
		INFORMATION PROVIDER		0..1
		SUBJECT		0..1
		Problem/Diagnosis Instance Identifier		0..1
		LINK		0..*
			Link Nature	1..1
			Link Role	0..1
			Link Target	1..1
		Detailed Clinical Model Identifier		1..1

2.6 Problem/Diagnosis Identification

Identification

Label	Problem/Diagnosis
Metadata Type	Data Element
Identifier	DE-15514
OID	1.2.36.1.2001.1001.101.103.15514

Definition

Definition	Identification of the problem or diagnosis.
Definition Source	NEHTA
Synonymous Names	
Notes	This item denotes the name of the condition used by the healthcare provider, after assessment, to describe the health problem or diagnosis experienced by the subject of care.
Data Type	CodeableText
Value Domain	Problem/Diagnosis Reference Set

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	1..1

2.7 Problem/Diagnosis Reference Set

Identification

Label	Problem/Diagnosis Reference Set
Metadata Type	Value Domain
Identifier	VD-16617
OID	1.2.36.1.2001.1001.101.104.16617
External Identifier	SNOMED CT-AU Concept Id: 32570581000036105

Definition

Definition	The *Problem/Diagnosis reference set* provides terminology to support the recording of a subject of care problem or diagnosis for medical records within Australia.
Definition Source	NEHTA

Value Domain

Source	SNOMED CT-AU

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Problem/Diagnosis (Problem/Diagnosis Identification)	1..1

2.8 Clinical Description

Identification

Label	Clinical Description
Metadata Type	Data Element
Identifier	DE-15597
OID	1.2.36.1.2001.1001.101.103.15597

Definition

Definition	Narrative description or comments about clinical aspects of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Notes	Used to provide additional narrative information in relation to a problem/diagnosis.
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.9 Severity

Identification

Label	Severity
Metadata Type	Data Element
Identifier	DE-15531
OID	1.2.36.1.2001.1001.101.103.15531

Definition

Definition	A subjective assessment of the severity of the problem/diagnosis as evaluated by the clinician.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.10 Date of Onset

Identification

Label	Date of Onset
Metadata Type	Data Element
Identifier	DE-15507
OID	1.2.36.1.2001.1001.101.103.15507

Definition

Definition	Estimated or actual date the problem/diagnosis began, in the opinion of the clinician.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	Please see DateTime in Appendix B, *Specification Guide for Use* for examples and usage information on specifying a date or time (or both).

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.11 Age at Onset

Identification

Label	Age at Onset
Metadata Type	Data Element
Identifier	DE-16535
OID	1.2.36.1.2001.1001.101.103.16535

Definition

Definition	The estimated or actual age of the individual when the clinician assesses that the problem/diagnosis began.
Definition Source	NEHTA
Synonymous Names	
Notes	May be important in situations where approximations of age based on calculations are not accurate enough, e.g. in infants under one year. It may also be important for assessing clinical implications such as prognosis of condition, e.g. early-onset Alzheimer's, multiple sclerosis, certain cancers, etc.
Data Type	Duration

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.12 ANATOMICAL LOCATION

Identification

Label	ANATOMICAL LOCATION
Metadata Type	Data Group
Identifier	DG-16150
OID	1.2.36.1.2001.1001.101.102.16150

Definition

Definition	Slot to contain detailed and structured anatomical location details.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..*

Children

Data Type	Name	Occurrences
	SPECIFIC LOCATION	0..1
	RELATIVE LOCATION	0..*
	Description (Anatomical Location Description)	0..*
	Visual Markings/Orientation	0..*
	Image (Anatomical Location Image)	0..*

2.13 SPECIFIC LOCATION

Identification

Label	SPECIFIC LOCATION
Metadata Type	Data Group
Identifier	DG-16151
OID	1.2.36.1.2001.1001.101.102.16151

Definition

Definition	Specific and identified anatomical location.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	ANATOMICAL LOCATION	0..1

Children

Data Type	Name	Occurrences
	Name of Location (Anatomical Location Name)	0..1
	Side	0..1
	Numerical Identifier	0..1
	Anatomical Plane	0..1

2.14 Anatomical Location Name

Identification

Label	Name of Location
Metadata Type	Data Element
Identifier	DE-16153
OID	1.2.36.1.2001.1001.101.103.16153

Definition

Definition	The name of the anatomical location.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodeableText
Value Domain	Body Structure Foundation Reference Set

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	SPECIFIC LOCATION	0..1

2.15 Body Structure Foundation Reference Set

Identification

Label	Body Structure Foundation Reference Set
Metadata Type	Value Domain
Identifier	VD-16152
OID	1.2.36.1.2001.1001.101.104.16152
External Identifier	SNOMED CT-AU Concept Id: 32570061000036105

Definition

Definition	The set of values for named anatomical locations.
Definition Source	NEHTA

Value Domain

Source	SNOMED CT-AU

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Name of Location (Anatomical Location Name)	1..1

2.16 Side

Identification

Label	Side
Metadata Type	Data Element
Identifier	DE-16336
OID	1.2.36.1.2001.1001.101.103.16336

Definition

Definition	The laterality of the anatomical location.
Definition Source	NEHTA
Synonymous Names	Laterality
Data Type	CodedText
Value Domain	Laterality Reference Set

Usage

Examples	1. Right 2. Left 3. Bilateral

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	SPECIFIC LOCATION	0..1

2.17 Laterality Reference Set

Identification

Label	Laterality Reference Set
Metadata Type	Value Domain
Identifier	VD-16312
OID	1.2.36.1.2001.1001.101.104.16312
External Identifier	SNOMED CT-AU Concept Id: 32570611000036103

Definition

Definition	The set of values for identifying the laterality of an anatomical location.
Definition Source	NEHTA

Value Domain

Source	SNOMED CT-AU

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Side	1..1

2.18 Numerical Identifier

Identification

Label	Numerical Identifier
Metadata Type	Data Element
Identifier	DE-16338
OID	1.2.36.1.2001.1001.101.103.16338

Definition

Definition	An ordinal number that identifies the specific anatomical site from multiple sites.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodedText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[1] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Conditions of Use	This **SHALL** be an ordinal number between first and eighteenth.
Conditions of Use Source	NEHTA
Examples	1. First, as in 'first rib'. 2. Second, as in 'second toe'. 3. Third, as in 'third lumbar vertebra'.

[1] http://www.hl7.org/oid/index.cfm

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	SPECIFIC LOCATION	0..1

2.19 Anatomical Plane

Identification

Label	Anatomical Plane
Metadata Type	Data Element
Identifier	DE-16340
OID	1.2.36.1.2001.1001.101.103.16340

Definition

Definition	Line describing the position of a vertical anatomical plane in the body.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodedText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[2] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	1. Midline 2. Midclavicular 3. Midaxillary 4. Midscapular

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	SPECIFIC LOCATION	0..1

[2] http://www.hl7.org/oid/index.cfm

2.20 RELATIVE LOCATION

Identification

Label	RELATIVE LOCATION
Metadata Type	Data Group
Identifier	DG-16341
OID	1.2.36.1.2001.1001.101.102.16341

Definition

Definition	Qualifier(s) to identify a non-specific location.
Definition Source	NEHTA
Synonymous Names	
Notes	An example is: 5cm (distance) inferior (aspect) to the tibial tuberosity (landmark). There may be more than one relative location required to provide a cross reference.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	ANATOMICAL LOCATION	0..*

Children

Data Type	Name	Occurrences
	Identified Landmark	0..1
	Aspect (Anatomical Location Aspect)	0..1
	Distance From Landmark	0..1

2.21 Identified Landmark

Identification

Label	Identified Landmark
Metadata Type	Data Element
Identifier	DE-16343
OID	1.2.36.1.2001.1001.101.103.16343

Definition

Definition	Identified anatomical landmark from which to specify the relative anatomical location.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodeableText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[3] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	RELATIVE LOCATION	0..1

[3] http://www.hl7.org/oid/index.cfm

2.22 Anatomical Location Aspect

Identification

Label	Aspect
Metadata Type	Data Element
Identifier	DE-16345
OID	1.2.36.1.2001.1001.101.103.16345

Definition

Definition	Qualifier to identify which direction the anatomical location is in relation to the identified landmark.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodedText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[4] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	1. Medial to: Relative location medial to the landmark. 2. Lateral to: Relative location lateral to the landmark. 3. Superior to: Relative location superior to the landmark. 4. Inferior to: Relative location inferior to the landmark. 5. Anterior to: Relative location anterior to the landmark. 6. Posterior to: Relative location posterior to the landmark. 7. Below: Relative location below the landmark. 8. Above: Relative location above the landmark. 9. Inferolateral to: Relative location inferior and lateral to the landmark. 10. Superolateral to: Relative location superior and lateral to the landmark. 11. Inferomedial to: Relative location inferior and medial to the landmark.

[4] http://www.hl7.org/oid/index.cfm

12 Superomedial to: Relative location superior and medial to the landmark.

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	RELATIVE LOCATION	0..1

2.23 Distance From Landmark

Identification

Label	Distance From Landmark
Metadata Type	Data Element
Identifier	DE-16346
OID	1.2.36.1.2001.1001.101.103.16346

Definition

Definition	Distance of location from the identified landmark.
Definition Source	NEHTA
Synonymous Names	
Data Type	Quantity

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	RELATIVE LOCATION	0..1

2.24 Anatomical Location Description

Identification

Label	Description
Metadata Type	Data Element
Identifier	DE-16319
OID	1.2.36.1.2001.1001.101.103.16319

Definition

Definition	Description of the anatomical location.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	ANATOMICAL LOCATION	0..*

2.25 Visual Markings/Orientation

Identification

Label	Visual Markings/Orientation
Metadata Type	Data Element
Identifier	DE-16407
OID	1.2.36.1.2001.1001.101.103.16407

Definition

Definition	Description of any visual markings used to orientate the viewer.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1. External reference points 2. Special sutures 3. Ink markings

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	ANATOMICAL LOCATION	0..*

2.26 Anatomical Location Image

Identification

Label	Image
Metadata Type	Data Element
Identifier	DE-16199
OID	1.2.36.1.2001.1001.101.103.16199

Definition

Definition	An image or images used to identify a location.
Definition Source	NEHTA
Synonymous Names	
Context	This element is intended to be an image, e.g. a photo of the anatomical site such as a wound on the leg.
Context Source	NEHTA
Data Type	EncapsulatedData

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	ANATOMICAL LOCATION	0..*

2.27 PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY

Identification

Label	Occurrence Summary
Metadata Type	Data Group
Identifier	DG-16554
OID	1.2.36.1.2001.1001.101.102.16554

Definition

Definition	Summary information about occurrences or exacerbations.
Definition Source	NEHTA
Synonymous Names	
Notes	Detailed information about each occurrence or exacerbation is likely to be held in other parts of the health record.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

Children

Data Type	Name	Occurrences
	Number (Problem/Diagnosis Occurrence Count)	0..1
	Frequency (Problem/Diagnosis Occurrence Frequency)	0..1
	Latest Occurrence (Problem/Diagnosis Latest Occurrence)	0..1
	Description (Problem/Diagnosis Occurrence Description)	0..1
	Link to Occurrence Details	0..*

2.28 Problem/Diagnosis Occurrence Count

Identification

Label	Number
Metadata Type	Data Element
Identifier	DE-16555
OID	1.2.36.1.2001.1001.101.103.16555

Definition

Definition	Cumulative number of occurrences or exacerbations of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Data Type	Integer

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)	0..1

2.29 Problem/Diagnosis Occurrence Frequency

Identification

Label	Frequency
Metadata Type	Data Element
Identifier	DE-16556
OID	1.2.36.1.2001.1001.101.103.16556

Definition

Definition	The frequency or estimated frequency of occurrences or exacerbations of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Data Type	Quantity

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)	0..1

2.30 Problem/Diagnosis Latest Occurrence

Identification

Label	Latest Occurrence
Metadata Type	Data Element
Identifier	DE-16557
OID	1.2.36.1.2001.1001.101.103.16557

Definition

Definition	The date of the last occurrence or exacerbation of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Conditions of Use	Record only date, time **SHALL NOT** be recorded.
Conditions of Use Source	NEHTA
Examples	Please see DateTime in Appendix B, *Specification Guide for Use* for examples and usage information on specifying a date.

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)	0..1

2.31 Problem/Diagnosis Occurrence Description

Identification

Label	Description
Metadata Type	Data Element
Identifier	DE-16558
OID	1.2.36.1.2001.1001.101.103.16558

Definition

Definition	A narrative description, including outcomes and other key details, about occurrences or exacerbations of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)	0..1

2.32 Link to Occurrence Details

Identification

Label	Link to Occurrence Details
Metadata Type	Data Element
Identifier	DE-10124
OID	1.2.36.1.2001.1001.101.103.10124

Definition

Definition	Link to further information about past occurrences or exacerbations of the problem/diagnosis that exist elsewhere in the health record.
Definition Source	NEHTA
Synonymous Names	
Data Type	Link

Usage

Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Occurrence Summary (PROBLEM/DIAGNOSIS OCCURRENCE SUMMARY)	0..*

2.33 RELATED ITEMS

Identification

Label	RELATED ITEMS
Metadata Type	Data Group
Identifier	DG-16541
OID	1.2.36.1.2001.1001.101.102.16541

Definition

Definition	Further problems, diagnoses, procedures or events that are related in some way to this problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..*

Children

Data Type	Name	Occurrences
	Related Item	1..1
	Relationship Type (Item Relationship Type)	0..1

2.34 Related Item

Identification

Label	Related Item
Metadata Type	Data Element
Identifier	DE-15562
OID	1.2.36.1.2001.1001.101.103.15562

Definition

Definition	Identification of a related problem, diagnosis, procedure, or event as text, coded text or link within the health record.
Definition Source	NEHTA
Synonymous Names	
Notes	This item identifies the relevant health problem experienced by the subject of care, as assessed by the healthcare provider. This element provides a link to one or more established problem(s) or diagnoses.
Data Type	CodeableText
Value Domain	Related Item Values

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	RELATED ITEMS	1..1

2.35 Related Item Values

Identification

Label	Related Item Values
Metadata Type	Value Domain
Identifier	VD-15562
OID	1.2.36.1.2001.1001.101.104.15562

Definition

Definition	The set of values for related items.
Definition Source	NEHTA
Notes	An explanation of AMT concepts can be found in Australian Medicines Terminology Editorial Rules (v2 model) [NEHT2011bs].

Value Domain

Source	NEHTA
Permissible Values	The permissible values are the members of the following reference sets: SNOMED CT-AU: • 32570071000036102 |*Clinical finding foundation reference set*| • 32570141000036105 |*Procedure foundation reference set*| • 32570091000036103 |*Event foundation reference set*| • 32570111000036109 |*Organism foundation reference set*| • 32570211000036100 |*Substance foundation reference set*| • 32570131000036100 |*Physical object foundation reference set*| • 32570121000036102 |*Physical force foundation reference set*| AMT: • 929360061000036106 |*Medicinal product reference set*| • 929360081000036101 |*Medicinal product pack reference set*| • 929360071000036103 |*Medicinal product unit of use reference set*| • 929360021000036102 |*Trade product reference set*| • 929360041000036105 |*Trade product pack reference set*| • 929360031000036100 |*Trade product unit of use reference set*| • 929360051000036108 |*Containered trade product pack reference set*|

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Related Item	1..1

2.36 Item Relationship Type

Identification

Label	Relationship Type
Metadata Type	Data Element
Identifier	DE-16560
OID	1.2.36.1.2001.1001.101.103.16560

Definition

Definition	The type of relationship that this problem/diagnosis has to the related item.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodedText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[5] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	1. Caused by: This concept identifies the direct cause or causative agent of a problem/diagnosis. The concept includes the idea of complications, causative agent and due to. Note: Where no causality or sequence of events is known, this relationship type should be left blank. 2. Following: This value identifies the sequence of events between the related items, but does not assert causality. This can be used for sequelae or late effects. Note: Where no causality or sequence of events is known, this relationship type should be left blank.

[5] http://www.hl7.org/oid/index.cfm

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	RELATED ITEMS	0..1

2.37 Date of Resolution/Remission

Identification

Label	Date of Resolution/Remission
Metadata Type	Data Element
Identifier	DE-15510
OID	1.2.36.1.2001.1001.101.103.15510

Definition

Definition	The date or estimated date that the problem/diagnosis resolved or went into remission, as indicated or identified by the clinician.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Conditions of Use	Record only date, time **SHALL NOT** be recorded.
Conditions of Use Source	NEHTA
Examples	Please see DateTime in Appendix B, *Specification Guide for Use* for examples and usage information on specifying a date.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.38 Age at Resolution/Remission

Identification

Label	Age at Resolution/Remission
Metadata Type	Data Element
Identifier	DE-16544
OID	1.2.36.1.2001.1001.101.103.16544

Definition

Definition	The age of the person at the time of resolution or remission of the problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Notes	May be important in situations where approximations of age based on calculations are not accurate enough, e.g. in infants under one year.
Data Type	Duration

Usage

Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.39 Diagnostic Criteria

Identification

Label	Diagnostic Criteria
Metadata Type	Data Element
Identifier	DE-16623
OID	1.2.36.1.2001.1001.101.105.16623

Definition

Definition	The criteria on which the problem/diagnosis is based.
Definition Source	NEHTA
Synonymous Names	
Notes	This free text data element is currently a placeholder for further structured data that is as yet undefined. See Appendix A, *Known Issues* for further information.
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..*

2.40 Clinical Stage/Grade

Identification

Label	Clinical Stage/Grade
Metadata Type	Data Element
Identifier	DE-16624
OID	1.2.36.1.2001.1001.101.105.16624

Definition

Definition	Clinical stage or grade of a problem/diagnosis.
Definition Source	NEHTA
Synonymous Names	
Notes	This free text data element is currently a placeholder for further structured data that is as yet undefined. See Appendix A, *Known Issues* for further information.
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..*

2.41 Problem/Diagnosis Comment

Identification

Label	Comment
Metadata Type	Data Element
Identifier	DE-16545
OID	1.2.36.1.2001.1001.101.103.16545

Definition

Definition	Additional narrative about the problem or diagnosis not captured in other fields.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.42 Link to Supporting Clinical Evidence

Identification

Label	Link to Supporting Clinical Evidence
Metadata Type	Data Element
Identifier	DE-16546
OID	1.2.36.1.2001.1001.101.103.16546

Definition

Definition	Links to other relevant information, including pathology reports.
Definition Source	NEHTA
Synonymous Names	
Data Type	Link

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.43 Status

Identification

Label	Status
Metadata Type	Data Element
Identifier	DE-16625
OID	1.2.36.1.2001.1001.101.105.16625

Definition

Definition	Descriptor for context- or use-case specific label or workflow-related aspect of the diagnostic process which may not be safe to exchange between systems or use in a shared environment.
Definition Source	NEHTA
Synonymous Names	
Notes	This free text data element is currently a placeholder for further structured data that is as yet undefined. See Appendix A, *Known Issues* for further information.
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..*

2.44 INFORMATION PROVIDER

Identification

Label	INFORMATION PROVIDER
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	Details pertinent to the identification of the source of the problem/diagnosis information.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, the composer/author of the enclosing Structured Document is assumed.
Scope Source	NEHTA
Notes	This does not have to be a person and, in particular, does not have to be a healthcare provider. Types of sources include: • the subject of care; • a subject of care agent, e.g. parent, guardian; • the clinician; and • a device or software.

Usage

Conditions of Use	This **SHALL NOT** be used unless the provider of the information is not the *Composer/Author* of the enclosing Structured Document. This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B, *Specification Guide for Use*. • Participation Type **SHALL** have an implementation-specific value equivalent to “INFORMATION PROVIDER”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON or DEVICE.

Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.45 SUBJECT

Identification

Label	SUBJECT
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	The individual about whom the problem/diagnosis information is being recorded.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, the subject of the enclosing Structured Document is assumed.
Scope Source	NEHTA

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. This **SHALL NOT** be used unless the subject of the information is not the *Subject of Care* of the enclosing Structured Document. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B, *Specification Guide for Use*. • Participation Type **SHALL** have an implementation-specific value equivalent to "Subject". • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.46 Problem/Diagnosis Instance Identifier

Identification

Label	Problem/Diagnosis Instance Identifier
Metadata Type	Data Element
Identifier	DE-16702
OID	1.2.36.1.2001.1001.101.103.16702

Definition

Definition	A globally unique object identifier for each instance of a *Problem/Diagnosis* evaluation.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..1

2.47 LINK

Identification

Label	LINK
Metadata Type	Data Group
Identifier	DG-16692
OID	1.2.36.1.2001.1001.101.102.16692

Definition

Definition	A link to an instance of another Detailed Clinical Model (DCM) or a document containing an instance of another DCM.
Definition Source	NEHTA
Synonymous Names	
Notes	Links may be to structures inside the enclosing document or inside other documents.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	0..*

Children

Data Type	Name	Occurrences
	Link Nature	1..1
	Link Role	0..1
	Link Target	1..1

2.48 Link Nature

Identification

Label	Link Nature
Metadata Type	Data Element
Identifier	DE-16698
OID	1.2.36.1.2001.1001.101.103.16698

Definition

Definition	The general semantic category of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Synonymous Names	
Notes	This is one of two attributes which together communicate the semantics of the relationship between the source and target DCMs or document. This attribute is intended to be a coarse-grained category that can be used to enable interoperability between sender and receiver.
Data Type	CodedText
Value Domain	Link Nature Values

Usage

Examples	1. is related to 2. is confirmed by or authorised by 3. is related to the same problem or health issue

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	LINK	1..1

2.49 Link Nature Values

Identification

Label	Link Nature Values
Metadata Type	Value Domain
Identifier	VD-16698
OID	1.2.36.1.2001.1001.101.104.16698

Definition

Definition	The set of values for the general semantic category of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA

Value Domain

Source	ISO 13606-3:2009	
Permissible Values	The permissible values are those specified in Termlist LINK_NATURE in ISO 13606-3:2009 Health informatics - Electronic health record communication - Part 3: Reference archetypes and term lists [ISO2009a]. They are listed here.	
	LINK-A0, is related to	A generic category for any Link, the details of which will be given by the value of Link Role.
	LINK-B0, is confirmed by or authorised by	The target link contains [an instance of a DCM or document] that acts as the legal or clinical basis for the activity documented in the source [DCM instance], or is a declaration of intent to provide (or not to provide) requested care. This Link is to be used to connect two [DCM instances or DCM and document], as opposed to the inclusion of a corroborating or authorising participant as an identified party within a single [DCM instance or document].
	LINK-C0, is related to the same problem or health issue	The target [instance of a DCM or document] documents health or health care that pertains to the same clinical situation as the source [DCM instance]. One of the two might be defining a problem for which the other is a manifestation, or the relationship might for example be cause and effect, stages in an evolving clinical history, a different interpretation of an observation, a clinical indication or contraindication.
	LINK-D0, is related to the same care plan, act or episode	The source and the target [instances of DCM or documents] are each documenting parts of the same care plan, act or episode. One of the

		two might be defining the same care plan, act or episode, or both might be related milestones.
	LINK-E0, is a related documentation	The target [instance of a DCM or document] is an alternative documentary form of the source [DCM instance], such as re-expression of the same clinical information or additional supplementary explanatory information.

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Link Nature	1..1

2.50 Link Role

Identification

Label	Link Role
Metadata Type	Data Element
Identifier	DE-16699
OID	1.2.36.1.2001.1001.101.103.16699

Definition

Definition	The detailed semantic description of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Synonymous Names	
Notes	This is one of two attributes which together communicate the semantics of the relationship between the source and target DCMs. This attribute provides for a specific description of the actual role played by the target in relation to the source. This attribute may be populated from any suitable terminology, and therefore might support human readership better than interoperable automated processing.
Data Type	CodeableText
Value Domain	Link Role Values

Usage

Examples	1. unspecified link 2. suggests 3. endorses 4. evidence for 5. outcome 6. is documented by 7. excerpts

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	LINK	0..1

2.51 Link Role Values

Identification

Label	Link Role Values
Metadata Type	Value Domain
Identifier	VD-16699
OID	1.2.36.1.2001.1001.101.104.16699

Definition

Definition	The set of values for the detailed semantic description of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Context	These values are used within the context of values from *Link Role*. They provide greater specificity and may be selected more for human readership than for interoperable automated processing.
Context Source	NEHTA

Value Domain

Source	ISO 13606-3:2009
Permissible Values	Values **SHOULD** be from Termlist LINK_ROLE in ISO 13606-3:2009 [ISO2009a]. Values **MAY** be from any suitable terminology. Some values from Termlist LINK_ROLE in ISO 13606-3:2009 Health informatics - Electronic health record communication - Part 3: Reference archetypes and term lists [ISO2009a] are:

LINK-A1, unspecified link	The term is used when no semantic information is available for this Link in the EHR system from which the EXTRACT has been created.
LINK-A2, suggests	The interpretation expressed in the target component is a possible cause or outcome of the findings documented in the source component.
LINK-B1, endorses	The interpretation expressed in the source component provides confirmatory evidence or a confirmatory opinion of the interpretation expressed in the target component.
LINK-C3, evidence for	The observation or interpretation documented in the source component provides confirmatory evidence of the interpretation expressed in the target component.
LINK-D1, outcome	The clinical situation documented in the target component is the direct outcome of the situation documented in the source component.

	LINK-E1, documented by	A clinical situation documented in the source component is more formally documented in the target component.
	LINK-E4, excerpts	The source component is an extract (copy) of part or all of the information contained within the target component.

Usage

Conditions of Use	Each of the link terms in LINK_ROLE from ISO 13606-3:2009 is a sub-category of a corresponding term in *Link Nature Values*, where that correspondence is indicated by the first letter after the code string “LINK-” e.g. the term LINK-A1 is a subcategory of term LINK-A0. If a term in this list is used for the *Link Role* `data element`, the appropriate corresponding value **SHALL** be used from *Link Nature Values*.
Conditions of Use Source	ISO 13606-3:2009

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Link Role	1..1

2.52 Link Target

Identification

Label	Link Target
Metadata Type	Data Element
Identifier	DE-16700
OID	1.2.36.1.2001.1001.101.103.16700

Definition

Definition	The logical “to” object in the link relation, as per the linguistic sense of the *Link Nature* `data element` (and, if present, the *Link Role* `data element`).
Definition Source	NEHTA
Synonymous Names	
Data Type	Link UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	LINK	1..1

2.53 Detailed Clinical Model Identifier

Identification

Label	Detailed Clinical Model Identifier
Metadata Type	Data Element
Identifier	DE-16693
OID	1.2.36.1.2001.1001.101.103.16693

Definition

Definition	The NEHTA OID for the *Problem/Diagnosis* concept represented by this DCM.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	
Default Value	1.2.36.1.2001.1001.101.102.15530
Default Value Conditions of Use	The value of this item is fixed and **SHALL** be the default value.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PROBLEM/DIAGNOSIS	1..1

3 Exclusion Statement - Problems and Diagnoses Detailed Clinical Model

This chapter describes version 1.2 of the Exclusion Statement - Problems and Diagnoses Detailed Clinical Model.

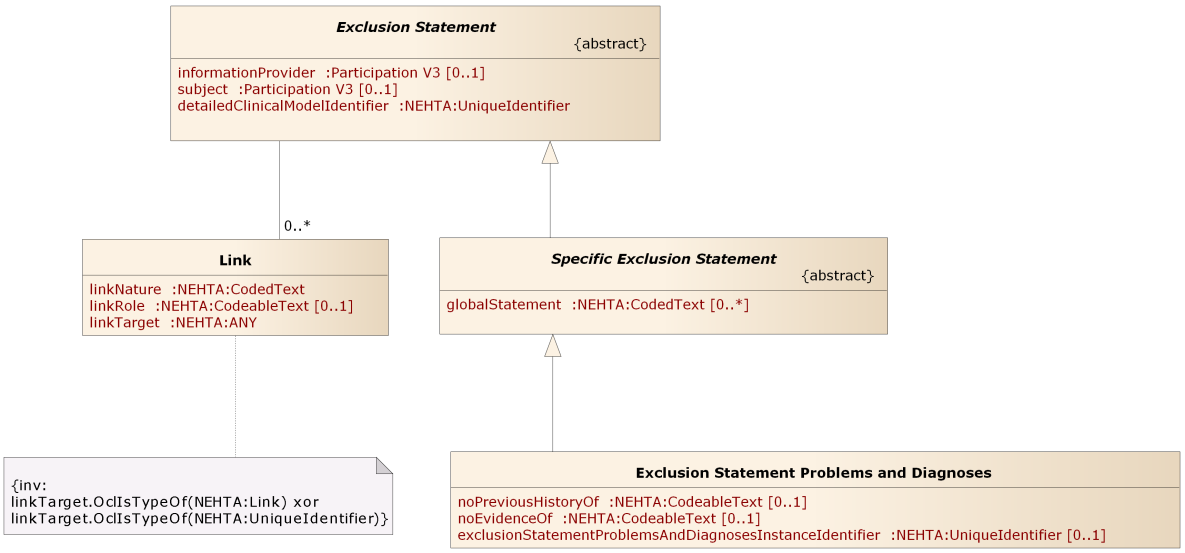
3.1 Purpose

To positively record the absence or exclusion of any problems or diagnoses within the health record.

3.2 Use

Use to record the positive exclusion or absence of problems or diagnoses within the health record. This DCM avoids the need to use terminology to express negation about any problem or diagnoses within the health record. This DCM is only to be used to record 'point in time' information. It is not to be used for a persistent storage of information as the patient should always be questioned about past or existing problems or diagnoses should always be performed prior to initiation of any treatment or management plan.

3.3 UML Class Diagram



The figure represents the data hierarchy of the Detailed Clinical Model as a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their names are represented as association role names. Association role names are only displayed if they differ from the associated class name. The diagram shows the data hierarchy excluding the details of participation. The default multiplicity is 1..1.

3.4 EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES

Identification

Label	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES
Metadata Type	Data Group
Identifier	DG-16138
OID	1.2.36.1.2001.1001.101.102.16138

Definition

Definition	Statements which positively assert that the patient does not have the problem or diagnosis.
Definition Source	openEHR Foundation
Scope	To positively record the absence or exclusion of any problems or diagnoses within the health record.
Scope Source	openEHR Foundation

Usage

Conditions of Use	Use to record the positive exclusion or absence of problems or diagnoses within the health record. This data group avoids the need to use terminology to express negation about any problem or diagnosis within the health record. The positive assertion and persistence of absence of problem or diagnosis is time specific. It is important to note that the patient's condition should be reviewed and required to validate such statement at each encounter.
Conditions of Use Source	openEHR Foundation

Data Hierarchy

	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES		
	001011001	Global Statement	0..*
	001011001	No Previous History of	0..1
	001011001	No Evidence of	0..1
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

		Exclusion Statement - Problems and Diagnoses Instance Identifier		0..1
		LINK		0..*
			Link Nature	1..1
			Link Role	0..1
			Link Target	1..1
		Detailed Clinical Model Identifier		1..1

3.5 Global Statement

Identification

Label	Global Statement
Metadata Type	Data Element
Identifier	DE-16302
OID	1.2.36.1.2001.1001.101.103.16302

Definition

Definition	The statement about the absence or exclusion.
Definition Source	openEHR Foundation
Synonymous Names	
Context	This can be used to capture any information that is needed to be explicitly recorded as being absent or excluded within the record.
Context Source	openEHR Foundation
Data Type	CodedText
Value Domain	Global Statement Values

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..*

3.6 Global Statement Values

Identification

Label	Global Statement Values
Metadata Type	Value Domain
Identifier	VD-16299
OID	1.2.36.1.2001.1001.101.104.16299

Definition

Definition	The set of values for the global statements about the exclusion of problems or diagnoses.
Definition Source	openEHR Foundation

Value Domain

Source	NEHTA	
Permissible Values	*Not asked*	No information about any problem or diagnosis is available because the patient was not asked or not able to be asked.
	None known	No information about any problem or diagnosis is known.
	None supplied	No information about any problem or diagnosis is supplied.
	Please see Appendix A, *Known Issues*	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Global Statement	1..1

3.7 No Previous History of

Identification

Label	No Previous History of
Metadata Type	Data Element
Identifier	DE-16303
OID	1.2.36.1.2001.1001.101.103.16303

Definition

Definition	Positive statement about problems and diagnoses that are explicitly known to have not been identified at the time of recording.
Definition Source	openEHR Foundation
Synonymous Names	
Data Type	CodeableText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[1] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..1

[1] http://www.hl7.org/oid/index.cfm

3.8 No Evidence of

Identification

Label	No Evidence of
Metadata Type	Data Element
Identifier	DE-16304
OID	1.2.36.1.2001.1001.101.103.16304

Definition

Definition	Positive statement about problems and diagnoses that are explicitly known to have no evidence supporting their existence at the time of recording.
Definition Source	openEHR Foundation
Synonymous Names	
Data Type	CodeableText
Value Domain	*Not specified.* In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the *HL7 code set registration procedure*[2] with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..1

[2] http://www.hl7.org/oid/index.cfm

3.9 INFORMATION PROVIDER

Identification

Label	INFORMATION PROVIDER
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	Details pertinent to the identification of the source of the problem/diagnosis information.
Definition Source	NEHTA
Synonymous Names	
Notes	This does not have to be a person and, in particular, does not have to be a healthcare provider. Types of sources include: • the subject of care; • a subject of care agent, e.g. parent, guardian; • the clinician; and • a device or software.

Usage

Conditions of Use	This **SHALL NOT** be used unless the provider of the information is not the *Composer/Author* of the enclosing Structured Document. This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B, *Specification Guide for Use*. • Participation Type **SHALL** have an implementation-specific value equivalent to “Information Provider”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON or as a DEVICE.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..1

3.10 SUBJECT

Identification

Label	SUBJECT
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	The individual about whom the problem/diagnosis information is being recorded.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, the subject of the enclosing Structured Document is assumed.
Scope Source	NEHTA

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. This **SHALL NOT** be used unless the subject of the information is not the *Subject of Care* of the enclosing Structured Document. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B, *Specification Guide for Use*. • Participation Type **SHALL** have an implementation-specific value equivalent to "Subject". • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..1

3.11 Exclusion Statement - Problems and Diagnoses Instance Identifier

Identification

Label	Exclusion Statement - Problems and Diagnoses Instance Identifier
Metadata Type	Data Element
Identifier	DE-16710
OID	1.2.36.1.2001.1001.101.103.16710

Definition

Definition	A globally unique object identifier for each instance of an *Exclusion Statement - Problems and Diagnoses* evaluation.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..1

3.12 LINK

Identification

Label	LINK
Metadata Type	Data Group
Identifier	DG-16692
OID	1.2.36.1.2001.1001.101.102.16692

Definition

Definition	A link to an instance of another Detailed Clinical Model (DCM) or a document containing an instance of another DCM.
Definition Source	NEHTA
Synonymous Names	
Notes	Links may be to structures inside the enclosing document or inside other documents.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	0..*

Children

Data Type	Name	Occurrences
	Link Nature	1..1
	Link Role	0..1
	Link Target	1..1

3.13 Link Nature

Identification

Label	Link Nature
Metadata Type	Data Element
Identifier	DE-16698
OID	1.2.36.1.2001.1001.101.103.16698

Definition

Definition	The general semantic category of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Synonymous Names	
Notes	This is one of two attributes which together communicate the semantics of the relationship between the source and target DCMs or document. This attribute is intended to be a coarse-grained category that can be used to enable interoperability between sender and receiver.
Data Type	CodedText
Value Domain	Link Nature Values

Usage

Examples	1. is related to 2. is confirmed by or authorised by 3. is related to the same problem or health issue

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	LINK	1..1

3.14 Link Nature Values

Identification

Label	Link Nature Values
Metadata Type	Value Domain
Identifier	VD-16698
OID	1.2.36.1.2001.1001.101.104.16698

Definition

Definition	The set of values for the general semantic category of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA

Value Domain

Source	ISO 13606-3:2009	
Permissible Values	The permissible values are those specified in Termlist LINK_NATURE in ISO 13606-3:2009 Health informatics - Electronic health record communication - Part 3: Reference archetypes and term lists [ISO2009a]. They are listed here.	
	LINK-A0, is related to	A generic category for any Link, the details of which will be given by the value of Link Role.
	LINK-B0, is confirmed by or authorised by	The target link contains [an instance of a DCM or document] that acts as the legal or clinical basis for the activity documented in the source [DCM instance], or is a declaration of intent to provide (or not to provide) requested care. This Link is to be used to connect two [DCM instances or DCM and document], as opposed to the inclusion of a corroborating or authorising participant as an identified party within a single [DCM instance or document].
	LINK-C0, is related to the same problem or health issue	The target [instance of a DCM or document] documents health or health care that pertains to the same clinical situation as the source [DCM instance]. One of the two might be defining a problem for which the other is a manifestation, or the relationship might for example be cause and effect, stages in an evolving clinical history, a different interpretation of an observation, a clinical indication or contraindication.
	LINK-D0, is related to the same care plan, act or episode	The source and the target [instances of DCM or documents] are each documenting parts of the same care plan, act or episode. One of the

		two might be defining the same care plan, act or episode, or both might be related milestones.
	LINK-E0, is a related documentation	The target [instance of a DCM or document] is an alternative documentary form of the source [DCM instance], such as re-expression of the same clinical information or additional supplementary explanatory information.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Link Nature	1..1

3.15 Link Role

Identification

Label	Link Role
Metadata Type	Data Element
Identifier	DE-16699
OID	1.2.36.1.2001.1001.101.103.16699

Definition

Definition	The detailed semantic description of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Synonymous Names	
Notes	This is one of two attributes which together communicate the semantics of the relationship between the source and target DCMs. This attribute provides for a specific description of the actual role played by the target in relation to the source. This attribute may be populated from any suitable terminology, and therefore might support human readership better than interoperable automated processing.
Data Type	CodeableText
Value Domain	Link Role Values

Usage

Examples	1. unspecified link 2. suggests 3. endorses 4. evidence for 5. outcome 6. is documented by 7. excerpts

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	LINK	0..1

3.16 Link Role Values

Identification

Label	Link Role Values
Metadata Type	Value Domain
Identifier	VD-16699
OID	1.2.36.1.2001.1001.101.104.16699

Definition

Definition	The set of values for the detailed semantic description of the relationship between this instance of this DCM, i.e. the source, and the target DCM instance or target document.
Definition Source	NEHTA
Context	These values are used within the context of values from *Link Role*. They provide greater specificity and may be selected more for human readership than for interoperable automated processing.
Context Source	NEHTA

Value Domain

Source	ISO 13606-3:2009
Permissible Values	Values **SHOULD** be from Termlist LINK_ROLE in ISO 13606-3:2009 [ISO2009a]. Values **MAY** be from any suitable terminology. Some values from Termlist LINK_ROLE in ISO 13606-3:2009 Health informatics - Electronic health record communication - Part 3: Reference archetypes and term lists [ISO2009a] are:

LINK-A1, unspecified link	The term is used when no semantic information is available for this Link in the EHR system from which the EXTRACT has been created.
LINK-A2, suggests	The interpretation expressed in the target component is a possible cause or outcome of the findings documented in the source component.
LINK-B1, endorses	The interpretation expressed in the source component provides confirmatory evidence or a confirmatory opinion of the interpretation expressed in the target component.
LINK-C3, evidence for	The observation or interpretation documented in the source component provides confirmatory evidence of the interpretation expressed in the target component.
LINK-D1, outcome	The clinical situation documented in the target component is the direct outcome of the situation documented in the source component.

	LINK-E1, documented by	A clinical situation documented in the source component is more formally documented in the target component.
	LINK-E4, excerpts	The source component is an extract (copy) of part or all of the information contained within the target component.

Usage

Conditions of Use	Each of the link terms in LINK_ROLE from ISO 13606-3:2009 is a sub-category of a corresponding term in *Link Nature Values*, where that correspondence is indicated by the first letter after the code string “LINK-” e.g. the term LINK-A1 is a subcategory of term LINK-A0. If a term in this list is used for the *Link Role* `data element`, the appropriate corresponding value **SHALL** be used from *Link Nature Values*.
Conditions of Use Source	ISO 13606-3:2009

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Link Role	1..1

3.17 Link Target

Identification

Label	Link Target
Metadata Type	Data Element
Identifier	DE-16700
OID	1.2.36.1.2001.1001.101.103.16700

Definition

Definition	The logical “to” object in the link relation, as per the linguistic sense of the *Link Nature* `data element` (and, if present, the *Link Role* `data element`).
Definition Source	NEHTA
Synonymous Names	
Data Type	Link UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	LINK	1..1

3.18 Detailed Clinical Model Identifier

Identification

Label	Detailed Clinical Model Identifier
Metadata Type	Data Element
Identifier	DE-16693
OID	1.2.36.1.2001.1001.101.103.16693

Definition

Definition	The NEHTA OID for the *Exclusion Statement - Problems and Diagnoses* concept represented by this DCM.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	
Default Value	1.2.36.1.2001.1001.101.102.16138
Default Value Conditions of Use	The value of this item is fixed and **SHALL** be the default value.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES	1..1

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Appendix A. Known Issues

This appendix lists known issues with this specification at the time of publishing. NEHTA is working on solutions to these issues, and we encourage comments to further assist with the development of these solutions.

Reference	Description
Data Hierarchy	Only the parts of these DCMs required for current Structured Content Specifications have been mapped to HL7 CDA. Mapping the remaining parts to CDA may reveal inconsistencies in the data hierarchies, requiring normative change.
Severity	The data element is a candidate for terminology. In the future its data type is to be changed to *Codeable Text*.
Link to Supporting Clinical Evidence	It has been suggested that cardinality should be 0..*, not 0..1. It is currently under review.
Global Statement Values Data Element	The list of permissible values is a sample set to initiate discussion and collaboration to develop the correct set of values.
Exclusion Statement	The Exclusion Statement DCMs are the subject of ongoing development and review and may well change in the future.
Undefined Value Domains	The following data elements lack a defined value domain: *Numerical Identifier*, *Anatomical Plane*, *Anatomical Location Aspect*, *Item Relationship Type*, *Identified Landmark*, *No Previous History of*, and *No Evidence of*. NEHTA is in the process of developing national code sets for these items. In the meantime, you are free to use your own code set(s), providing any code set used **SHALL** be registered, i.e. registered through the HL7 code set registration procedure with an appropriate object identifier (OID), and **SHALL** be publicly available. Note that when national standard code set(s) do become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated.
Undefined Data Structures	The following data elements lack a defined data structure: *Diagnostic Criteria*, *Clinical Stage/Grade* and *Status*. A free-text data element is currently used as an interim solution.

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Appendix B. Specification Guide for Use

B.1 Overview

Each Detailed Clinical Model (DCM) and Structured Content Specification (SCS) is designed to be a shared basis for data interpretation. It specifies rigorous business and technical definitions of data which systems may need to share. It is intended to be a logical specification of the data to be persisted within or communicated between systems. It is also the foundation for conformance, compliance and accreditation testing of implemented systems. NEHTA's CDA implementation guides are guides to the implementation of HL7 CDA R2 messages based upon these DCMs and SCSs.

Each DCM specifies all of the data components required for any use of a clinical concept, for instance an entry in a medical record such as a procedure or an imaging test. As such, they are maximal data sets. DCMs are building blocks which are trimmed to size for use in the construction of SCSs.

Each SCS specifies the data for a single type of clinical document or information exchange, such as a discharge summary. It is assembled using DCMs that have been constrained to eliminate data components not relevant to the particular context. For example, *Procedure* in a discharge summary uses only some of the data components required by *Procedure* in a specialist report.

B.2 The Structured Content Specification Metamodel

The NEHTA Structured Content Specification Metamodel (see Figure 1) is used to specify the overall structure of a Structured Content Specification.

A DCM can be regarded as a data group with no parent.

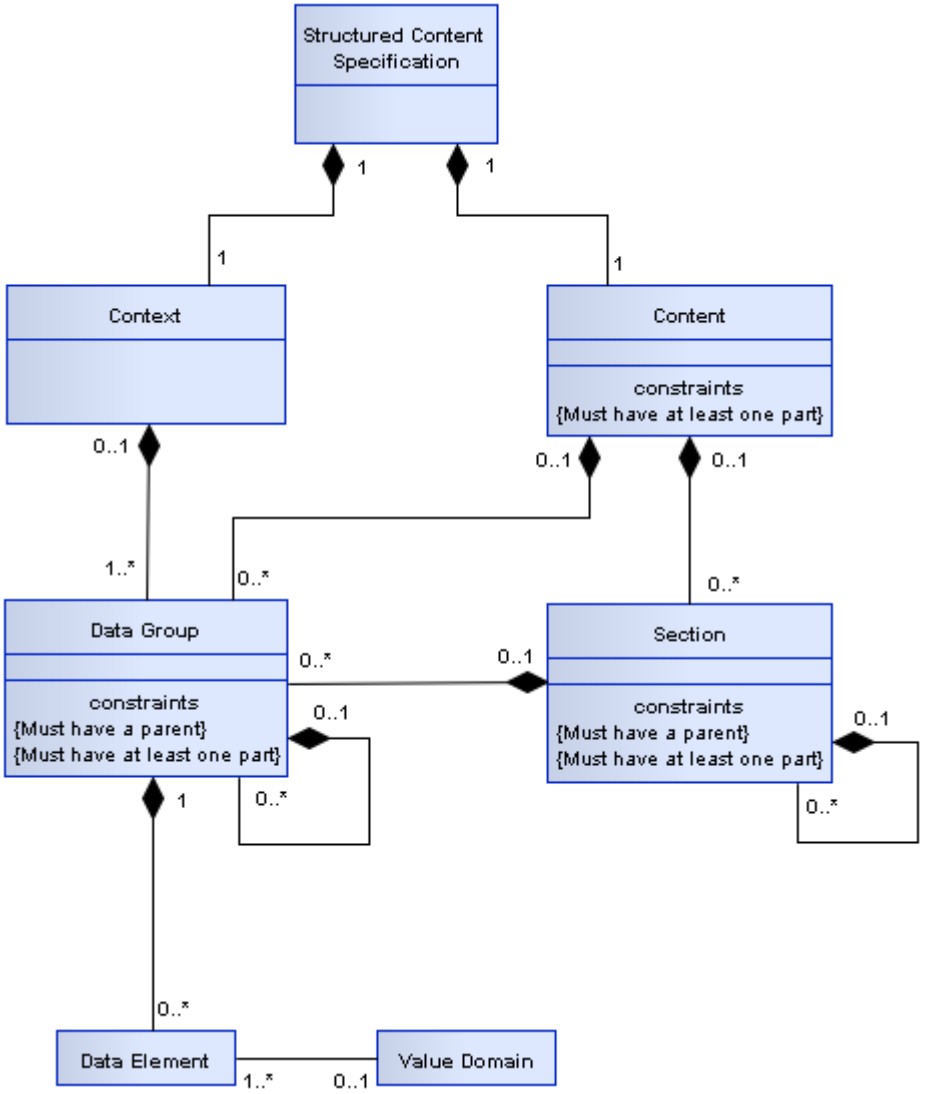

Figure 1: SCS Metamodel

There are two main components used to organise information within an SCS as follows:

Context: This contains information related to the overall context of the document.

Content: This contains information that changes between different SCSs, but is always structured as shown, and consists of the following components:

- Section
- Data Group
- Data Element
- Value Domain

These components are described in more detail below.

Context

The purpose of the context is to identify and classify the document and to provide subjects of care and involved healthcare providers with the information related to the relevant healthcare events.

Content

Content contains a collection of personal information and health information pertinent to a subject of care which is derived from the healthcare event described in the document. The detail is organised into one or more data groups which are optionally grouped into sections.

Section

A section is composed of other sections, data groups, or both. It is an organising container that gives the reader a clue as to the expected content. The primary purpose of a section is to organise information in a manner that is suitable for the primary purpose for which it is collected, and to provide a way to navigate through the data components within the document, thereby enabling more efficient querying. It is recommended that the section support safe reuse for secondary purposes, e.g. clinical coding or inclusion in a summarised form in an electronic health record. A section is context-specific to the document in which it resides.

Data Group

Each data group is used to represent one concept. A data group consists of other data groups or data elements (or both). Some data groups are reused across DCMs.

Every instance of a data group **SHALL** have at least one child data component instantiated.

Participation

Participation is a special case of a data group that is based on a data group template, which is reused throughout the DCMs and SCSs. Participations are an amalgam of the Actors (see below) operating within a defined healthcare domain and the Roles they are playing within that domain.

A Participant has been defined to align with the concepts of the NEHTA interoperability framework [NEHT2007b]. It equates to an *Entity* that is related to the action described in an SCS as an *Actor*. A participant can be a human, an organisation or an IT system.

[NEHT2011v] defines the full Participation specification.

Choice

Choice represents a decision to be made at run-time between a disjunctive mandatory set of data groups defined at design-time, i.e. one and only one member of the set is chosen for each instance of the choice.

For example, at design time a Healthcare Provider provides a service but it is not until run-time that a decision can be made as to whether the provider is a person or an organisation. Hence when a Healthcare Provider Participant is instantiated, it will contain either an instance of the *Person* data group or an instance of the *Organisation* data group.

Data Element

A data element is the smallest named unit of information in the model that can be assigned a value. For example, *DateTime of Observation* and *Observation Note*. Data elements are bound to data types (see Data Types Legend). Some data elements are reused in different data groups.

Whilst all data elements are constrained by their data type, some data elements are further constrained by value domains (see Value Domain below).

Value Domain

A value domain constrains the permissible values for a data element. The values are often a subset of values based on a generic data type.

Value domains are reusable components and therefore, the same value domain can be referred to by different data elements in different contexts. Value domains are often specified as a reference set. A reference set (or a subset) is a constrained list of SNOMED CT-AU, AMT or LOINC concepts that are appropriate to a particular context. It is noted that many of these reference sets have been developed specifically for the context in which they appear. It is recommended that an assessment of fitness for purpose be undertaken before using any of the reference sets in another context.

Value domains constrain by either specifying a lower or upper bound (or both) on the range of permissible values or else by specifying a finite set of prescribed values. Such a set of prescribed values can be specified directly within the definition of the data element, or in a separate but associated specification or else by reference to one or more vocabulary/terminology reference sets. The table below provides some examples of value domains.

Table 1: Value Domain Examples

<table>
<tr><th>Data Element</th><th>Data Type</th><th>Example of Value Domain</th></tr>
<tr><td>Sex</td><td>CodedText</td><td>[SA2006a] and [SA2006b] derive their values from METeOR 270263 which includes values such as:
<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Male</td></tr><tr><td>2</td><td>Female</td></tr><tr><td>3</td><td>Intersex or Indeterminate</td></tr><tr><td>9</td><td>Not Stated/Inadequately Described</td></tr></table></td></tr>
<tr><td>Diagnosis</td><td>CodeableText</td><td>A SNOMED CT-AU reference set which references concepts such as ‘Bronchitis’ (Concept ID: 32398004).</td></tr>
<tr><td>Therapeutic Good Identification</td><td>CodeableText</td><td>An AMT reference set which references concepts such as ‘Ibuprofen Blue (Herron) (ibuprofen 200 mg) tablet: film-coated, 1 tablet’ (Concept ID: 54363011000036107).</td></tr>
<tr><td>Individual Pathology Test Result Name</td><td>CodeableText</td><td>A LOINC subset which references concepts such as ‘Cholesterol [Moles/volume] in Serum or Plasma’ (ID: 14647-2).</td></tr>
</table>

B.3 Icon Legend

These legends describe all icons that are used within the various NEHTA information specifications.

Metadata Types Legend

The following table explains each of the icons used to represent the metadata types within DCMs and SCSs.

Table 2: Metadata Types Legend

Icon	Metadata Types
	Structured Document
	Section
	Data Group
	Participation
	Choice

Data Types Legend

The following table explains each of the icons used to represent the data types bound to each data element in the SCSs. These data types are a profile of the **ISO 21090-2011** data types as specified in [NEHT2010c].

Table 3: Data Types Legend

Icon	Data type	Explanation
	Boolean (ISO 21090: BL)	A primitive data type, sometimes called the logical data type, having one of two values: *true* and *false*. Many systems represent true as *non-zero* (often 1, or -1) and false as *zero*. **Usage/Examples** • An actual value entered by a user might be “yes” or could be chosen by a mouse click on an icon such as ☑.

CodeableText

(ISO 21090: CD)

Coded text *with* exceptions; a flexible data type to support various ways of holding text, both free text and coded text. Commonly used to support compliance for early adopters of the Structured Content Specifications. While it is recommended that the values in this data type come from the bound value domain, it allows other value domains to also be used (with or without translations to the bound value domain) or free text alternatives. This is a recognition that it may not be possible to define an entire value domain for a complex concept (e.g. *Diagnosis*) or that there may be competing code sets in existence. Note that within exchange specifications or message profiles this data type **MAY** be constrained to mandate compliance with the bound value domain.

Usage/Examples

- AIHW Separation Mode specifies the status at separation of a person from an organisation. An early adopter **MAY** have a similar concept (coded or otherwise) that maps to this data element but does not strictly comply with the AIHW values.
- A SNOMED CT-AU coded/complex expression that embodies single or multiple concepts. The SNOMED CT-AU concepts behind these CodeableText components are specified in the Structured Content Specification value domains.

CodedText

(ISO 21090: CD)

Coded text *without* exceptions; text with code mappings. Values in this data type **SHALL** come from the bound value domain, with no exceptions. Often used for reference sets with only a small number of applicable values, e.g. Gender and Document Status.

Usage/Examples

[SA2006b] specifies the following value domain representing a type of address:

Value	Meaning
1	Business
2	Mailing or Postal
3	Temporary Accommodation
4	Residential (permanent)
9	Not Stated/Unknown/Inadequately Described

DateTime

(ISO 21090: TS)

Used for specifying a single date or time (or both). Has the ability to indicate a level of precision, but not whether the date or time is estimated. String representations of known dates **SHALL** conform to the nonextended format within the **ISO 21090-2011** standard, i.e. YYYYMMDDHHMMSS.UUUU[+]-ZZzz.

Usage/Examples

- Partial dates: 2008, 20081001.
- To indicate 1:20 pm on May the 31st, 1999 for a time zone which is 5 hours behind Coordinated Universal Time (UTC): 19990531132000-0500.

 Duration (ISO 21090: PQ.TIME)	The period of time during which something continues. Consists of a value and a unit which represents the time value, e.g. hours, months. Compound durations are not allowed, e.g. 10 days 3 weeks 5 hours. **Usage/Examples** • 3 hours • 6 months • 1 year
 Any (ISO 21090: ANY)	Represents a data element where the data type to be used is conditional on another data component. The values that can be required will vary considerably depending on the context. Note that this is an abstract data type that is the basis for all data types and **SHOULD NOT** be used in an actual implementation.
 EncapsulatedData (ISO 21090: ED)	Data that is primarily intended for human interpretation or for further machine processing outside the scope of this specification. This includes unformatted or formatted written language, multimedia data, or structured information as defined by a different standard (e.g. XML signatures). **Usage/Examples** • JPEG images • HTML documents • [RFC1521] MIME types
 Integer (ISO 21090: INT)	The mathematical data type comprising the exact integral values (according to [NEHT2010c]). **Usage/Examples** • 1 • -50 • 125
 Link (ISO 21090: TEL)	This is a general link, reference or pointer to an object, data or application that exists logically or is stored electronically in a computer system. **Usage/Examples** • URL (Uniform Resource Locator) – the World Wide Web address of a site on the internet, such as the URL for the Google internet search engine – *http://www.google.com*. • An absolute or relative path within a file or directory structure – e.g. in the Windows® operating system, the “link” or absolute path to a particular letter could be *C:\Documents and Settings\GuestUser\MyDocuments\letter.doc*

 Quantity (ISO 21090: PQ)	Used for recording many real world measurements and observations. Includes the magnitude value and the units. **Usage/Examples** • 100 centimetres • 25.5 grams
 QuantityRatio (ISO 21090: RTO)	The relative magnitudes of two *Quantity* values (usually expressed as a quotient). **Usage/Examples** • 25 mg/500 ml • 200 mmol per litre
 QuantityRange (ISO 21090: IVL)	Two *Quantity* values that define the minimum and maximum values, i.e. lower and upper bounds. This is typically used for defining the valid range of values for a particular measurement or observation. Unbounded quantity ranges can be defined by not including a minimum and/or a maximum quantity value. **Usage/Examples** • -20 to 100 Celsius • 30-50 mg • >10 kg
 Real (ISO 21090: REAL)	A computational approximation to the standard mathematical concept of real numbers. These are often called floating-point numbers. **Usage/Examples** • 1.075 • -325.1 • 3.14157
 Text (ISO 21090: ST)	Character strings (with optional language). Unless otherwise constrained by an implementation, can be any combination of alpha, numeric or symbols from the Unicode character set. Sometimes referred to as free text. **Usage/Examples** “The patient is a 37 year old man who was referred for cardiac evaluation after complaining of occasional palpitations, racing heart beats and occasional dizziness.”
 TimeInterval (ISO 21090:TS)	An interval in time, with (optionally) a start date/time and (optionally) an end date/time and/or a duration/width. **Usage/Examples** • 01/01/2008 – 31/12/2008 • 1:30 a.m. – 6:00 p.m., duration/width = 16.5 hours

UniqueIdentifier (ISO 21090: II)	A general unique value to identify a physical or virtual object or concept. In using this data type, the attributes of the UniqueIdentifier data type **SHOULD** be populated from the identifiers as defined in AS 4846 (2006) [SA2006a] and AS 5017 (2006) [SA2006b] as follows: • *root*: a globally unique object identifier that identifies the combination of geographic area, issuer and type. If no such globally unique object identifier exists, it **SHALL** be created. • *extension*: a unique identifier within the scope of the root that is directly equivalent to the identifier designation element. • *identifierName*: a human readable name for the namespace represented by the root that is populated with the issuer or identifier type values, or a concatenation of both, as appropriate. The content of this attribute is not intended for machine processing and **SHOULD NOT** be used for that purpose. • *identifierScope*: the geographic span or coverage that applies to or constrains the identifier. It is directly equivalent to the geographic area element. The content of this attribute is not intended for machine processing and **SHOULD NOT** be used as such. Also, the following constraints apply on the UniqueIdentifier data type: 1. The *root* attribute **SHALL** be used. 2. For an entity identifier, the *root* attribute **SHALL** be an OID that consists of a node in a hierarchically-assigned namespace, formally defined using the ITU-T's ASN.1 standard. 3. For an entity identifier, the *root* attribute **SHALL NOT** be a UUID. 4. The *extension* attribute **SHALL** be used. **Usage/Examples** IHIs, HPI-Is, HPI-Os and patient hospital medical record numbers are examples of identifiers that **MAY** be carried by this data type.

Keywords Legend

Where used in this document and in DCMs and SCSs, the keywords **SHALL, SHOULD, MAY, SHALL NOT** and **SHOULD NOT** are to be interpreted as described in [RFC2119].

The following table defines these keywords.

Table 4: Keywords Legend

Keyword	Interpretation
SHALL	This word, or the term ‘required’, means that the statement is an absolute requirement of the specification.
SHOULD	This word, or the adjective ‘recommended’, means that there **MAY** exist valid reasons in particular circumstances to ignore a particular component, but the full implications **SHALL** be understood and carefully weighed before choosing a different course.

MAY	This word, or the adjective 'optional', means that a component is truly optional. One implementer may choose to include the component because a particular implementation requires it, or because the implementer determines that it enhances the implementation, while another implementer may omit the same component. An implementation that does not include a particular option **SHALL** be prepared to interoperate with another implementation that does include the option, perhaps with reduced functionality. In the same vein, an implementation that does include a particular option **SHALL** be prepared to interoperate with another implementation that does not include the option (except of course, for the feature the option provides).
SHALL NOT	This phrase means that the statement is an absolute prohibition of the specification.
SHOULD NOT	This phrase, or the phrase 'not recommended' means that there **MAY** exist valid reasons in particular circumstances when the particular behaviour is acceptable or even useful, but the full implications **SHOULD** be understood and the case carefully weighed before implementing any behaviour described with this label.

Obligation Legend

Obligation in DCMs or SCSs specifies whether or not a data component **SHALL** be populated in the logical record architecture of a message. NEHTA intends that all data components will be implemented.

Implementation guides specify the rules and formats for implementing and populating data components in specific messaging formats.

The following table defines the obligations.

Table 5: Obligations Legend

Keyword	Interpretation
ESSENTIAL	Indicates that the data component is considered a mandatory component of information and **SHALL** be populated. **Usage/Examples:** The Participant component for a Subject of Care **SHALL** include an Entity Identifier data component in order to hold the IHI.
OPTIONAL	Indicates that the data component is not considered a mandatory component of information and **MAY** be populated. **Usage/Examples:** This is only needed when a DCM incorrectly asserts that a data component is **ESSENTIAL**. It will be used with a note stating that the DCM needs revision.
PROHIBITED	Indicates that the data component is considered a forbidden component of information and **SHALL NOT** be populated. **Usage/Examples:** Within a Participation data group depicting a Subject of Care, the Participation Healthcare Role **SHALL NOT** be completed.

CONDITIONAL	Indicates that a data component is considered **ESSENTIAL** only on satisfaction of a given condition. Individual data components specify the obligation of the data component when the condition is not met. When a condition is met, the data component is considered to be **ESSENTIAL** and **SHALL** be populated. When a condition is not met, the data component may be considered as **PROHIBITED**, or the data component may be considered **OPTIONAL**. **Usage/Examples:** Within a Pathology Result Report, the *Specimen Detail* `data group` is **ESSENTIAL** if the requested test is to be performed on a specimen, otherwise it **SHALL NOT** be populated.

Where **ESSENTIAL** child data components are contained within **OPTIONAL** parent data components, the child data components only need to be populated when the parent is populated.

B.4 Information Model Specification Parts Legends

This section illustrates the format and parts used to define each section, data group and data element within NEHTA's information model specifications and identifies when each part is applicable.

Data Hierarchy

The top-level component contains a data hierarchy. Each row contains information about a single data component. The entries are nested to represent inclusion of one component in another. Each entry contains at least three occupied cells. The left-most cell contains an icon to indicate the entry's data type. The next cell to the right contains the label and description of the component (if the label is different from the name, the name is displayed in brackets after the label). The next cell to the right contains the multiplicity range for the data component.

The right-hand side of the data hierarchy may contain one or more columns under the heading "Core Requirement". Each column contains information for one document exchange scenario. A cell that is empty indicates that the data component on that row is **OPTIONAL** to implement. That is, software that creates documents made in conformance with this specification **MAY** exclude the data component; and software that reads documents made in conformance with this specification **MAY** ignore the data component. All other components **SHALL** be implemented.

In an SCS, a component may be prohibited, that is, it occurs in the referenced DCM but it **SHALL NOT** be included in documents created according to the SCS. This is represented by a multiplicity range of 0..0. The text of the entry is also in a ~~strike through~~ font and it has a grey background.

Chapter Name

Each section, data group, data element, value domain or choice has its own eponymous chapter. The chapter name is used in all data hierarchies.

Identification Section Legend

The following table illustrates the layout of the Identification section and describes the various parts of the section.

Table 6: Identification Section Legend

Label	A suggested display name for the component. (Source NEHTA.)
Metadata Type	The type of the component, e.g. section, data group or data element. (Source NEHTA.)
Identifier	A NEHTA assigned internal identifier of the concept represented by the component. (Source NEHTA.)
OID	An object identifier that uniquely identifies the concept represented by the data component. (Source NEHTA.)
External Identifier	An identifier of the concept represented by the data component that is assigned by an organisation other than NEHTA. (Source NEHTA.)

Definition Section Legend

The following table illustrates the layout of the Definition section and describes the various parts of the section.

Table 7: Definition Section Legend

Definition	The meaning, description or explanation of the data component. (Source NEHTA.) For data groups used in a particular context, the definition **MAY** be a refinement of the generic data group definition.
Definition Source	The authoritative source for the Definition statement.
Synonymous Names	A list of any names the data component **MAY** also be known as. (Source NEHTA.) Implementers **MAY** prefer to use synonymous names to refer to the component in specific contexts.
Scope	Situations in which the data component may be used, i.e. the extent and capacity within which this data component may be used, including the circumstances under which the collection of specified data is required or recommended. For example, Medication Instruction (data group) has a scope which includes all prescribable therapeutic goods, both medicines and non-medicines. This attribute is not relevant to data elements or value domains. (Source NEHTA.)
Scope Source	The authoritative source for the Scope statement.
Context	The environment in which the data component is meaningful, i.e. the circumstance, purpose and perspective under which this data component is defined or used.

	For example, Street Name has a context of Address. (Source NEHTA.)
Assumptions	Suppositions and notions used in defining the data component. (Source NEHTA.)
Assumptions Source	The authoritative source for the Assumptions statement.
Notes	Informative text that further describes the data component, or assists in the understanding of how the data component can be used. (Source NEHTA.)
Notes Source	The authoritative source for the Notes statement.
Data Type	The data type of the data element, e.g. DateTime or Text. (Source NEHTA.) The data type is applicable only to data elements. The valid data types are specified in the Data Types Legend.
Value Domain	The name and identifier of the terminologies, code sets and classifications to define the data element value range, or a statement describing what values to use in the absence of a defined value domain for the related data element. In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the HL7 code set registration procedure with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated. (Source NEHTA.) The Value Domain is applicable only to CodedText and CodeableText data elements.

Value Domain Section Legend

The following table illustrates the layout of the Value Domain section and describes the various parts of the section.

Table 8: Value Domain Section Legend

Source	The name of the terminology or vocabulary from which the value domain's permissible values are sourced, e.g. SNOMED CT-AU, LOINC.
Version Number	Version number of the value domain source.
Permissible Values	List of permissible values in the value domain.

Usage Section Legend

The following table illustrates the layout of the Usage section and describes the various parts of the section.

Table 9: Usage Section Legend

Examples	One or more demonstrations of the data that is catered for by the data element. (Source NEHTA.)

	Where a data element has an associated value domain, examples representative of that domain are used where possible. Where the value domain is yet to be determined, an indicative example is provided. Implementation guides **MAY** contain specific examples for how data elements **SHALL** be populated and how they relate to each other. The Value Domain is applicable only to CodedText and CodeableText data elements.
Conditions of Use	Prerequisites, provisos or restrictions for use of the component. (Source NEHTA.)
Conditions of Use Source	The authoritative source for the Conditions of Use statement.
Misuse	Incorrect, inappropriate or wrong uses of the component. (Source NEHTA.)
Default Value	A common denomination, or at least a usable denomination, from the Value Domain where available or applicable, typically assigned at the creation of an instance of the component. (Source NEHTA.)

Relationships Section Legend

The Relationships section specifies the cardinality and conditionality between parent and child data components. Note that if no components in either table have any conditions, then the condition column will be omitted for that table.

The following table illustrates the layout of the Parent relationships table. Note that the occurrences and conditions in the relationships described by this table are from the parent to the child component, i.e. from the component listed in the table to the component described by the section.

Table 11: Parent Legend

Data Type	Name	Occurrences (child within parent)	Condition
The icon illustrating the metadata type or data type.	Parent Component Name	The minimum and maximum number of instances of the component described on this page that **SHALL** occur.	The conditions that **SHALL** be met to include the data element. Only applicable for elements with a conditional obligation.

The following table illustrates the layout of the Children relationships table.

Table 10: Children Legend

Data Type	Name	Occurrences	Condition
The icon illustrating the metadata type or data type.	Child Component Name	The minimum and maximum number of instances of the component described on this page that **SHALL** occur.	The conditions that **SHALL** be met to include this child data element. Only applicable for elements with a conditional obligation.

Appendix C. Change History

C.1 Changes Introduced in this Version

Preliminary Pages

Added the section “Included Detailed Clinical Models” to provide identification of the version of each DCM included in this specification.
Corrected “Australian Institute of Health & Welfare” to “Australian Institute of Health and Welfare”.

Chapter 1 Introduction

This chapter has been revised through editorial review, a number of editorial and typographical errors have been corrected.
Added footnote to 1.1 Purpose and Scope to provide a reference defining the concept “Level 4 (semantic) interoperability”.

Chapter 2 Problem/Diagnosis Detailed Clinical Model

Added a sentence identifying the version of the DCM.
Corrected the formatting of data component names in text throughout the chapter.
Added standard examples text for all data components of type *DateTime*.
Corrected over capitalisation in 2.2 Use and 2.3 Misuse.
The Problem/Diagnosis UML Class Diagram has been moved to this chapter and updated to reflect changes to the included data components; the explanative text has been slightly reworded.
Primarily to support the Consolidated View in the PCEHR the following data components (sourced from the openEHR Reference Model) have been added: a. Problem/Diagnosis Instance Identifier b. LINK i. Link Nature ii. Link Role iii. Link Target c. Detailed Clinical Model Identifier
The structure of the tables within the relationships sections of each data component has been modified to remove the condition column and change the title of the “Occurrences” column in the Parents table to “Occurrences (child within parent)”.

In the definition of PROBLEM/DIAGNOSIS, corrected: a. “health care” to “healthcare” b. “mental and/or social” to “mental, or social” c. “laboratory tests results” to “laboratory test results”
Changed “early onset Alzheimer” to “early-onset Alzheimer's” in the notes of Age at Onset.
Corrected “patient” to “subject of care” in the definition of Problem/Diagnosis Reference Set.
Corrected the article to “the” in the definition of: a. Anatomical Location Name b. Identified Landmark c. Anatomical Location Description d. Side e. Laterality Reference Set
Corrected the presentation of examples for: a. Side b. Numerical Identifier c. Anatomical Plane d. Visual Markings/Orientation
Corrected “Bilalteral” to “Bilateral” in the examples of Side.
Replaced “Identify the specific anatomical site out of multiple sites” with “An ordinal number that identifies the specific anatomical site from multiple sites” in the definition of Numerical Identifier.
Inserted an “a” and replaced “Qualifiers” with “Qualifier(s)”in the definition of RELATIVE LOCATION.
Corrected “medial” to “lateral” in the examples of Anatomical Location Aspect.
Replaced “Image” with “An image” in the definition of Anatomical Location Image.
Corrected the presentation of Related Item Values.
Corrected “indicated/identified” to “indicated or identified” in the definition of Date of Resolution/Remission.
Corrected “eg” to “e.g.” in the definition of Age at Resolution/Remission.
Removed the examples from Status.
All instances of “have a fixed value of” have been replaced with “have an implementation-specific value equivalent to”.
Amended the note and added scope and scope source to INFORMATION PROVIDER.

Chapter 3 Exclusion Statement - Problems and Diagnoses Detailed Clinical Model

Added a sentence identifying the version of the DCM.

Corrected the formatting of data component names in text throughout the chapter.
Added 3.1 Purpose and 3.2 Use.
The Exclusion Statement - Problems and Diagnoses UML Class Diagram has been moved to this and updated to reflect changes to the included data components; the explanative text has been slightly reworded.
Corrected “diagnosise” to “diagnosis” in the conditions of use of EXCLUSION STATEMENT - PROBLEMS AND DIAGNOSES.
Primarily to support the Consolidated View in the PCEHR, the following data components (sourced from the openEHR Reference Model) have been added: a. Exclusion Statement - Problems and Diagnoses Instance Identifier b. LINK i. Link Nature ii. Link Role iii. Link Target c. Detailed Clinical Model Identifier
The structure of the tables within the relationships sections of each data component has been modified to remove the condition column and change the title of the “Occurrences” column in the Parents table to “Occurrences (child within parent)”.
Corrected the list of permissible values for Global Statement Values.
Amended the note of INFORMATION PROVIDER.
All instances of “have a fixed value of” have been replaced with “have an implementation-specific value equivalent to”.

Chapter 4 UML Class Diagram

Chapter 4 removed and the content moved to Chapter 2 and Chapter 3 as appropriate.

Appendix A Known Issues

Removed the Clinical Stage/Guide entry and Status entry which are superseded by the entry for undefined data structures.
Corrected the entry for undefined value domains to include all applicable data components.
Added the entry for undefined data structures to indicate the data components that lack a defined data structure.

Appendix B Guide for Use

This appendix has revised through editorial review, a number of editorial and typographical errors have been corrected.
In 'Value Domain' in B.2 “To Be Advised” replaced with “Individual Pathology Test Result Name”.
Added ‘Obligation Legend’ in B.3.

Reworked ‘Data Hierarchy’ in B.4 to explain 'Core Requirement'.
Reworked ‘Relationships Section Legend’ in B.4 to include further explanative text, and improved tables.

Appendix C Change History

This is a new appendix included to provide detailed information of the changes between the previous version of this specification and the current version of this specification.

Reference List

This chapter has been moved to after the appendices.
Added an entry for reference cited in footnote added to section 1.1.
Added an entry for ISO 13606-3:2009.
Added an entry for the Australian Medicines Terminology Editorial Rules.
Added an entry for NEHTA Interoperability Framework.
Corrected the titles of AS 4846 and AS 5017.

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