nehta

Imaging Examination Result
Detailed Clinical Model Specification
Version 3.0

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Approved for external use

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National E-Health Transition Authority

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Document Information

Key Information

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Product Version History

Product version	Date	Release comments
1.0	30 Jun 2007	Initial NEHTA release.
2.0	25 Aug 2011	New version created in accordance with the archetype from NEHTA Clinical Knowledge Manager[1].
2.1	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.
3.0	18 Dec 2015	Updated to support Diagnostic Imaging Report Structured Content Specification in the PCEHR R5.

Related Documents

Name	Version/Release Date
Participation Data Specification	Version 3.2, Issued 20 July 2011

Included Detailed Clinical Models

This specification contains the following Detailed Clinical Models:

- Imaging Examination Result, version 3.0

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

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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 *help@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.

While 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 *The Value Of Health Care Information Exchange And Interoperability [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) 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 *help@nehta.gov.au*.

2 Imaging Examination Result Detailed Clinical Model

This chapter describes version 3.0 of the *Imaging Examination Result* Detailed Clinical Model (DCM).

2.1 Purpose

To record the findings and interpretation of an imaging examination or series of examinations.

2.2 Use

Use to record all results related to the diagnostic imaging aspects of any imaging examinations performed.

Use to record the imaging examination components (only) of a more complex procedure, including those that may have been undertaken under imaging guidance.

More complex procedures (such as echocardiograms or bone density scans) may be represented using templates or specialised DCMs where additional report content is appropriate.

The content of instances of this DCM will normally be reported back to the requesting clinician as one component within the context of an overall report.

2.3 Misuse

Not to be used to record non-imaging examination findings or activities. For example, when imaging is performed as part of a procedure, the information related to the procedure shall be recorded using the *Procedure* DCM for the operative findings. This DCM will only be used to record the findings from the imaging.

Not to be used to record details about any parallel procedure undertaken. Use a specific procedure-related DCM, for example *Procedure* DCM.

Not to be used to record details about medications administered during the imaging test. Use a specific medication-related DCM, for example *Medication Action* DCM.

2.4 UML Class Diagram

The following figure represents the data hierarchy using 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 label names are represented as association role names. Association role names are only displayed if they differ from the associated class name. When a data element has a choice of data types, the data type of the attribute that represents it is an abstract interface class generalised from the individual data types. The diagram shows the data hierarchy excluding the details of participation. The default multiplicity is 1..1.

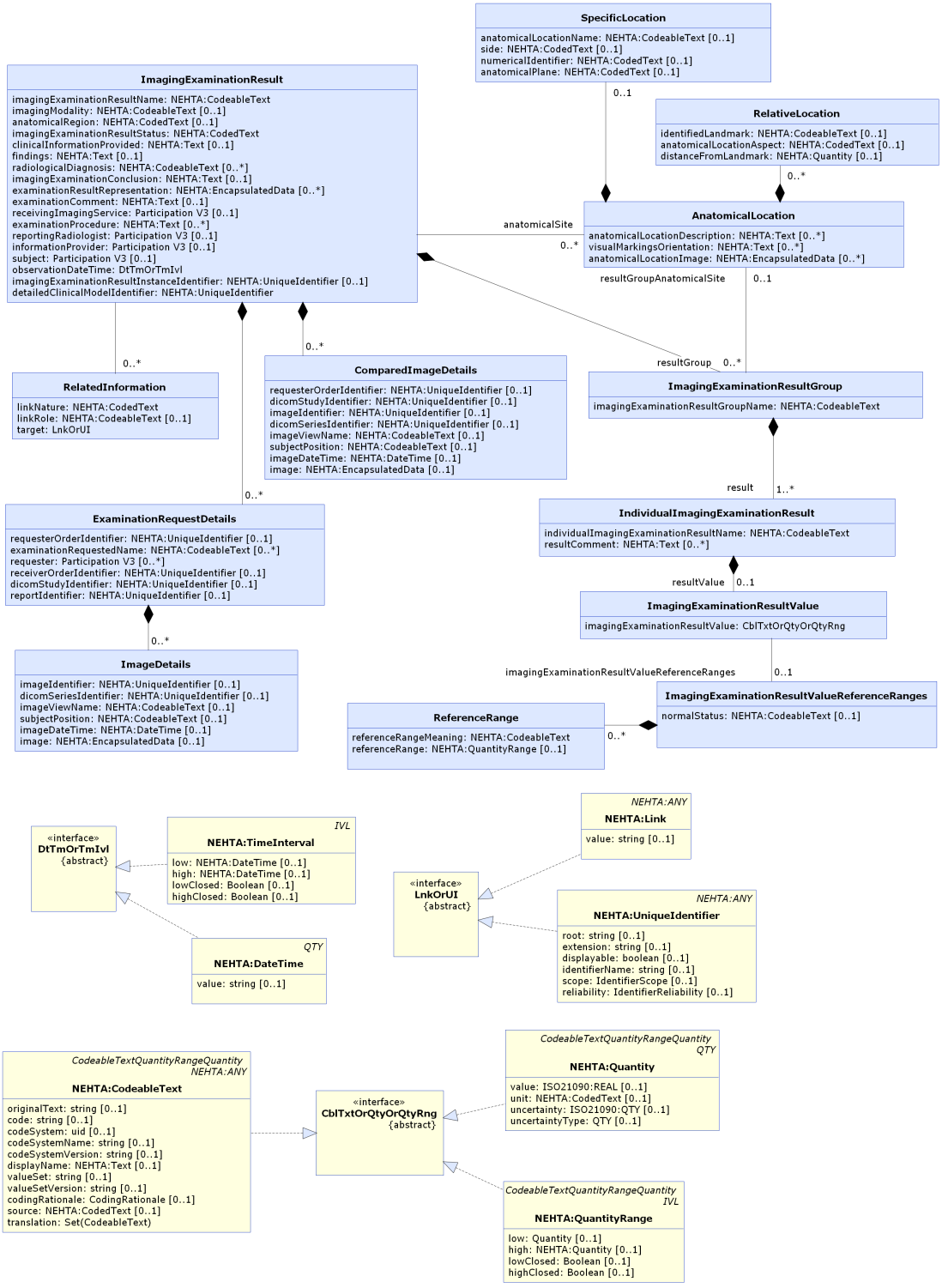


Figure 2.1. Imaging Examination Result data hierarchy

2.5 IMAGING EXAMINATION RESULT

Identification

Label	IMAGING EXAMINATION RESULT
Metadata Type	Data Group
Identifier	DG-16145
OID	1.2.36.1.2001.1001.101.102.16145

Definition

Definition	Findings and interpretation of an imaging examination, or series of examinations.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

Note

Items below whose text is lighter (mid-blue and mid-grey) are technical identifiers whose purpose is to facilitate interoperability, sharing of data and secondary use. Typically, such identifiers will be generated internally by systems and not displayed to users since they rarely have clinical significance.

IMAGING EXAMINATION RESULT					
	Examination Result Name (Imaging Examination Result Name)				1..1
	Modality (Imaging Modality)				0..1
	Anatomical Site (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..*
		Anatomical Region				0..1
		Overall Result Status (Imaging Examination Result Status)				1..1
		Clinical Information Provided				0..1
		Findings				0..1
		Result Group (IMAGING EXAMINATION RESULT GROUP)				0..*
			Imaging Examination Result Group Name			1..1
			Result (INDIVIDUAL IMAGING EXAMINATION RESULT)			1..*
				Individual Imaging Examination Result Name		1..1
				Result Value (IMAGING EXAMINATION RESULT VALUE)		0..1
					Result Value (Imaging Examination Result Value)	1..1
					Imaging Examination Result Value Reference Ranges (IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES)	0..1
					Normal Status	0..1
					REFERENCE RANGE	0..*
						Reference Range Meaning	1..1
						Reference Range	0..1
				Result Comment			0..*
			Result Group Anatomical Site (ANATOMICAL LOCATION)				0..1
				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..*
		Radiological Diagnosis				0..*
		Conclusion (Imaging Examination Conclusion)				0..1
		Examination Result Representation				0..*
		Examination Comment				0..1
		RECEIVING IMAGING SERVICE				0..1
		EXAMINATION REQUEST DETAILS				0..*
			Requester Order Identifier			0..1
			Examination Requested Name			0..*
			REQUESTER			0..*
			Receiver Order Identifier			0..1
			DICOM Study Identifier			0..1
			Report Identifier			0..1
			IMAGE DETAILS			0..*
				Image Identifier		0..1
				DICOM Series Identifier		0..1

				View (Image View Name)	0..1
				Position (Subject Position)	0..1
				Image DateTime	0..1
				Image	0..1
		Examination Procedure			0..*
		COMPARED IMAGE DETAILS			0..*
			Requester Order Identifier		0..1
			DICOM Study Identifier		0..1
			Image Identifier		0..1
			DICOM Series Identifier		0..1
			View (Image View Name)		0..1
			Position (Subject Position)		0..1
			Image DateTime		0..1
			Image		0..1
		REPORTING RADIOLOGIST			0..1
		INFORMATION PROVIDER			0..1
		SUBJECT			0..1
		Observation DateTime			1..1
		Imaging Examination Result Instance Identifier			0..1
		RELATED INFORMATION			0..*
			Link Nature		1..1
			Link Role		0..1
			Target		1..1
		Detailed Clinical Model Identifier			1..1

2.6 Imaging Examination Result Name

Identification

Label	Examination Result Name
Metadata Type	Data Element
Identifier	DE-16498
OID	1.2.36.1.2001.1001.101.103.16498

Definition

Definition	Identification of the imaging examination or procedure performed, typically including modality and anatomical location (including laterality).
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[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	1) CT chest and abdomen 2) Ultrasound plantar fascia

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	1..1

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

2.7 Imaging Modality

Identification

Label	Modality
Metadata Type	Data Element
Identifier	DE-16500
OID	1.2.36.1.2001.1001.101.103.16500

Definition

Definition	The imaging method used to perform the examination.
Definition Source	NEHTA
Synonymous Names	
Context	For identification or description of the diagnostic imaging modalities that are: • available for request; or • used in reporting.
Context Source	NEHTA
Notes	The imaging method, including the electro-magnetic energy type, applied to produce diagnostic quality images of body structures or internal organs performed during a diagnostic imaging procedure. If the modality is specified by a code in *Examination Result Name*, then this field is not required.
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	1) X-ray 2) CT scan 3) MRI 4) PET scan

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

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.8 ANATOMICAL LOCATION

Identification

Label	Anatomical Site
Metadata Type	Data Group
Identifier	DG-16150
OID	1.2.36.1.2001.1001.101.102.16150

Definition

Definition	Details about the anatomical locations to which this examination result refers.
Definition Source	NEHTA
Synonymous Names	
Notes	Do not include anatomical locations described in *IMAGING EXAMINATION RESULT GROUP*.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	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..*

2.9 Anatomical Region

Identification

Label	Anatomical Region
Metadata Type	Data Element
Identifier	DE-17009
OID	1.2.36.1.2001.1001.101.103.17009

Definition

Definition	Region of body (e.g. head, lower limb) that includes the anatomical locations of interest (e.g. jaw, foot).
Definition Source	NEHTA
Synonymous Names	
Context	This is not clinical information. It is to aggregate for indexing or reporting purposes the information contained in *Anatomical Location*.
Context Source	NEHTA
Notes	This `data element` is intended to record the region to which one or more anatomical locations belong.
Data Type	CodedText
Value Domain	Anatomical Region Values

Usage

Conditions of Use	The value of this `data element` **SHALL** subsume all of the anatomical locations identified in the `data group` *Anatomical Location*.
Conditions of Use Source	NEHTA
Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodedText.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.10 Anatomical Region Values

Identification

Label	Anatomical Region Values
Metadata Type	Value Domain
Identifier	VD-17008
OID	1.2.36.1.2001.1001.101.104.17008

Definition

Definition	Set of values for anatomical region of body.
Definition Source	NEHTA
Notes	The list of anatomical regions was suggested by the Australian Government Department of Health after consultation with the Royal Australian and New Zealand College of Radiologists.

Value Domain

Source	NEHTA
Permissible Values	1 Head 2 Neck 3 Chest 4 Cardiac 5 Breast 6 Abdomen 7 Pelvis 8 Upper limb 9 Lower limb 10 Cervical spine 11 Thoracic spine 12 Lumbar spine 13 Whole body

Relationships

Parents

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

2.11 Imaging Examination Result Status

Identification

Label	Overall Result Status
Metadata Type	Data Element
Identifier	DE-16502
OID	1.2.36.1.2001.1001.101.103.16502

Definition

Definition	The status of the examination result as a whole.
Definition Source	NEHTA
Synonymous Names	
Data Type	CodedText
Value Domain	Imaging Examination Result Status Values

Usage

Examples	1) Registered 2) Interim 3) Final

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	1..1

2.12 Imaging Examination Result Status Values

Identification

Label	Imaging Examination Result Status Values
Metadata Type	Value Domain
Identifier	VD-16501
OID	1.2.36.1.2001.1001.101.104.16501

Definition

Definition	Set of values for the imaging examination result status.
Definition Source	NEHTA
Notes	The *HL7 Table 0085 - Observation result status codes interpretation* is intended to be used at the result or record level, while the *HL7 Table 0123 - Result status* is intended to be used for the overall report status. Having to source values from two HL7 tables and determine which one to apply in a situation is a potential cause of confusion. Consequently NEHTA provides a value set that is applicable across report level and individual result level status values. The single value set has been assessed to be adequate for the PCEHR based use cases. This approach reduces the chances of confusion and errors in status values use.

Value Domain

Source	NCTIS Imaging Examination Result Status Values	
Permissible Values	1, Registered	No result yet available.
	2, Interim	This is an initial or interim result: data may be missing or verification has not been performed.
	3, Final	The result is complete and verified by the responsible radiologist.
	4, Amended	The result has been modified subsequent to being Final, and is complete and verified by the radiologist.
	5, Cancelled/Aborted	The result is not available because the examination was not started or completed.
	Values sourced by NEHTA from *HL7 table 0085 - Observation result status codes interpretation*, *HL7 table 0123 - Result status* and other sources.	

Usage

Conditions of Use	In situations where *NCTIS Imaging Examination Status Values* is not available, *HL7 v2.x Table 0123 (Result status)* [OID:2.16.840.1.113883.12.123] **MAY** be used.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Overall Result Status (Imaging Examination Result Status)	1..1

2.13 Clinical Information Provided

Identification

Label	Clinical Information Provided
Metadata Type	Data Element
Identifier	DE-16397
OID	1.2.36.1.2001.1001.101.103.16397

Definition

Definition	Description of clinical information available at the time of interpretation of results, or a link to the original clinical information provided in the examination request.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for Text.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.14 Findings

Identification

Label	Findings
Metadata Type	Data Element
Identifier	DE-16503
OID	1.2.36.1.2001.1001.101.103.16503

Definition

Definition	Clinical assessment and opinion based on one or more observations and examinations.
Definition Source	NEHTA
Synonymous Names	Results Observational Findings Results/Observation
Data Type	Text

Usage

Examples	1) Extensive diverticular disease of the sigmoid colon is demonstrated throughout its length. 2) The gallbladder shows a diffuse thickening with fatty infiltration of the gallbladder wall. 3) The heart size is within normal limits.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.15 IMAGING EXAMINATION RESULT GROUP

Identification

Label	Result Group
Metadata Type	Data Group
Identifier	DG-16504
OID	1.2.36.1.2001.1001.101.102.16504

Definition

Definition	A group of structured results.
Definition Source	NEHTA
Synonymous Names	
Notes	Results may be grouped by anatomical location or by some other name or code to describe what binds all the results together.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

Children

Data Type	Name	Occurrences
	Imaging Examination Result Group Name	1..1
	Result (INDIVIDUAL IMAGING EXAMINATION RESULT)	1..*
	Result Group Anatomical Site (ANATOMICAL LOCATION)	0..1

2.16 Imaging Examination Result Group Name

Identification

Label	Imaging Examination Result Group Name
Metadata Type	Data Element
Identifier	DE-16567
OID	1.2.36.1.2001.1001.101.103.16567

Definition

Definition	The name of a group of structured results.
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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Group (IMAGING EXAMINATION RESULT GROUP)	1..1

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

2.17 INDIVIDUAL IMAGING EXAMINATION RESULT

Identification

Label	Result
Metadata Type	Data Group
Identifier	DG-16505
OID	1.2.36.1.2001.1001.101.102.16505

Definition

Definition	Specific detailed result of an imaging examination, including both the value of the result item and additional information that may be useful for clinical interpretation.
Definition Source	NEHTA
Synonymous Names	
Notes	Results include whatever specific data items imaging services report as part of the clinical service; it may include measurements. These are often referred to as structured findings.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Group (IMAGING EXAMINATION RESULT GROUP)	1..*

Children

Data Type	Name	Occurrences
	Individual Imaging Examination Result Name	1..1
	Result Value (IMAGING EXAMINATION RESULT VALUE)	0..1
	Result Comment	0..*

2.18 Individual Imaging Examination Result Name

Identification

Label	Individual Imaging Examination Result Name
Metadata Type	Data Element
Identifier	DE-16568
OID	1.2.36.1.2001.1001.101.103.16568

Definition

Definition	The name of a specific detailed result.
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[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) Cardiac ejection fraction 2) Bone density

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result (INDIVIDUAL IMAGING EXAMINATION RESULT)	1..1

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

2.19 IMAGING EXAMINATION RESULT VALUE

Identification

Label	Result Value
Metadata Type	Data Group
Identifier	DG-11023
OID	1.2.36.1.2001.1001.101.102.11023

Definition

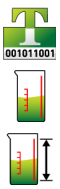
Definition	Value of the result, with reference range information.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result (INDIVIDUAL IMAGING EXAMINATION RESULT)	0..1

Children

Data Type	Name	Occurrences
	Result Value (Imaging Examination Result Value)	1..1
	Imaging Examination Result Value Reference Ranges (IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES)	0..1

2.20 Imaging Examination Result Value

Identification

Label	Result Value
Metadata Type	Data Element
Identifier	DE-11023
OID	1.2.36.1.2001.1001.101.103.11023

Definition

Definition	The actual value of the result.
Definition Source	NEHTA
Synonymous Names	
Notes	Most result values will be numerical measurements, but others may be coded concepts or free text.
Data Type	CodeableText QuantityRange Quantity
Value Domain	Result Value Values

Usage

Examples	1) Within the lumbar spine (L2-L4), the bone mineral density = 1.121g/cm2. This value corresponds to a Z score of 0.5 and a T score of -0.6.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Value (IMAGING EXAMINATION RESULT VALUE)	1..1

2.21 Result Value Values

Identification

Label	Result Value Values
Metadata Type	Value Domain
Identifier	VD-11023
OID	1.2.36.1.2001.1001.101.104.11023

Definition

Definition	The set of values for *Imaging Examination Result Value*.
Definition Source	NEHTA
Notes	Which code set is appropriate depends upon the information to be coded.

Value Domain

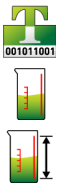
Source	NEHTA

Usage

Conditions of Use	Any code set used **SHALL** be a registered code set, i.e. registered through the HL7 code set registration procedure with an appropriate object identifier (OID), and **SHALL** be publicly available.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Value (Imaging Examination Result Value)	1..1

2.22 IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES

Identification

Label	Imaging Examination Result Value Reference Ranges
Metadata Type	Data Group
Identifier	DG-16325
OID	1.2.36.1.2001.1001.101.102.16325

Definition

Definition	One or more reference ranges applicable to the *Imaging Examination Result Value*.
Definition Source	NEHTA
Synonymous Names	
Notes	A reference range is particular to the patient and context, e.g. sex, age, and any other factor that affects ranges. May be used to represent normal, therapeutic, dangerous, critical and other such clinical ranges.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Value (IMAGING EXAMINATION RESULT VALUE)	0..1

Children

Data Type	Name	Occurrences
001011001	Normal Status	0..1
	REFERENCE RANGE	0..*

2.23 Normal Status

Identification

Label	Normal Status
Metadata Type	Data Element
Identifier	DE-11028
OID	1.2.36.1.2001.1001.101.103.11028

Definition

Definition	An indication of the degree of diagnostically significant abnormality of the value, based on available clinical information (including but not limited to the reference range).
Definition Source	NEHTA
Synonymous Names	
Notes	The term “normal” is **not** statistical normality, but rather what would normally be considered healthy for the individual concerned. As such, this `data element` represents the health risk for the individual, which is indicated by the observation or measurement and the nature and criticality of that health risk.
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[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) Below normal 2) Above normal 3) Critically low 4) Critically high

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

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Imaging Examination Result Value Reference Ranges (IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES)	0..1

2.24 REFERENCE RANGE

Identification

Label	REFERENCE RANGE
Metadata Type	Data Group
Identifier	DG-11024
OID	1.2.36.1.2001.1001.101.102.11024

Definition

Definition	A named range to be associated with any quantity datum.
Definition Source	NEHTA
Synonymous Names	
Notes	The obligations on this data group imply that if this data group occurs only once, the *Reference Range* `data element` is optional, otherwise it is essential.

Usage

Conditions of Use	If this data group occurs only once, its contents **SHALL** span the observed value. If this data group occurs more than once, its contents **SHOULD** include all of the ranges in a single set. If this data group occurs more than once, the *Reference Range* `data element` is **ESSENTIAL**. All reference ranges **SHALL** come from the one set of reference ranges.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Imaging Examination Result Value Reference Ranges (IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES)	0..*

Children

Data Type	Name	Occurrences
	Reference Range Meaning	1..1
	Reference Range	0..1

2.25 Reference Range Meaning

Identification

Label	Reference Range Meaning
Metadata Type	Data Element
Identifier	DE-16574
OID	1.2.36.1.2001.1001.101.103.16574

Definition

Definition	Term whose value indicates the meaning of this range.
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[6] 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) Normal 2) Critical 3) Therapeutic

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	REFERENCE RANGE	1..1

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

2.26 Reference Range

Identification

Label	Reference Range
Metadata Type	Data Element
Identifier	DE-11024
OID	1.2.36.1.2001.1001.101.103.11024

Definition

Definition	The data range for the associated *Reference Range Meaning* `data element`.
Definition Source	NEHTA
Synonymous Names	
Data Type	QuantityRange

Usage

Examples	1) 15 - 58 g/L 2) < 15 mmol/L 3) 2.5 - 3.5 kg 4) 23 - 45 cm

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	REFERENCE RANGE	0..1

2.27 Result Comment

Identification

Label	Result Comment
Metadata Type	Data Element
Identifier	DE-16466
OID	1.2.36.1.2001.1001.101.103.16466

Definition

Definition	May include statements about significant, unexpected or unreliable values, or information about the source of the value where this may be relevant to the interpretation of the result.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for Text.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result (INDIVIDUAL IMAGING EXAMINATION RESULT)	0..*

2.28 ANATOMICAL LOCATION

Identification

Label	Result Group Anatomical Site
Metadata Type	Data Group
Identifier	DG-16150
OID	1.2.36.1.2001.1001.101.102.16150

Definition

Definition	Details about the individual anatomical location to which these result group examination results refer, where finer-grained representation of *Anatomical Location* is required.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Result Group (IMAGING EXAMINATION RESULT GROUP)	0..1

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..*

2.29 Radiological Diagnosis

Identification

Label	Radiological Diagnosis
Metadata Type	Data Element
Identifier	DE-16507
OID	1.2.36.1.2001.1001.101.103.16507

Definition

Definition	Single word, phrase or brief description representing the conclusion.
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[7] 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

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

2.30 Imaging Examination Conclusion

Identification

Label	Conclusion
Metadata Type	Data Element
Identifier	DE-16508
OID	1.2.36.1.2001.1001.101.103.16508

Definition

Definition	Concise and clinically contextualised narrative interpretation of the imaging examination findings.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1) Lesion in the pancreas is suspicious of pancreatic carcinoma. Pancreatic lesion is likely the cause of the thrombosis and ascites.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.31 Examination Result Representation

Identification

Label	Examination Result Representation
Metadata Type	Data Element
Identifier	DE-16509
OID	1.2.36.1.2001.1001.101.103.16509

Definition

Definition	Rich text representation of the entire result as issued by the diagnostic service.
Definition Source	NEHTA
Synonymous Names	
Data Type	EncapsulatedData

Usage

Conditions of Use	Multiple formats are allowed but they **SHALL** be semantically equivalent.
Conditions of Use Source	NEHTA
Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for EncapsulatedData.

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	IMAGING EXAMINATION RESULT	0..*

2.32 Examination Comment

Identification

Label	Examination Comment
Metadata Type	Data Element
Identifier	DE-16510
OID	1.2.36.1.2001.1001.101.103.16510

Definition

Definition	Additional narrative about the examination that is not captured in other fields.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1) Recommendations for future examinations. 2) A comment on appropriateness of the examination or on quality of images, if separate to findings. 3) A note that the film was given to the patient.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.33 RECEIVING IMAGING SERVICE

Identification

Label	RECEIVING IMAGING SERVICE
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	Imaging service that received the examination request.
Definition Source	NEHTA
Synonymous Names	
Notes	The receiving imaging service may either perform the examination or refer it to another imaging service.

Usage

Conditions of Use	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*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • ADDRESS is **ESSENTIAL**. • ELECTRONIC COMMUNICATION DETAIL is **ESSENTIAL**. • ENTITLEMENT is **PROHIBITED**. • Qualifications is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Receiving Imaging Service”. • Role **SHALL** have an implementation-specific null flavour. • The value of one Entity Identifier **SHALL** be an Australian HPI-O. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as an ORGANISATION.

Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.34 EXAMINATION REQUEST DETAILS

Identification

Label	EXAMINATION REQUEST DETAILS
Metadata Type	Data Group
Identifier	DG-16511
OID	1.2.36.1.2001.1001.101.102.16511

Definition

Definition	Details concerning a single requested examination.
Definition Source	NEHTA
Synonymous Names	
Notes	Usually there is one examination request for each result; however in some circumstances multiple examination requests may be represented using a single *Imaging Examination Result*.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

Children

Data Type	Name	Occurrences
	Requester Order Identifier	0..1
	Examination Requested Name	0..*
	REQUESTER	0..*
	Receiver Order Identifier	0..1
	DICOM Study Identifier	0..1
	Report Identifier	0..1
	IMAGE DETAILS	0..*

2.35 Requester Order Identifier

Identification

Label	Requester Order Identifier
Metadata Type	Data Element
Identifier	DE-11006
OID	1.2.36.1.2001.1001.101.103.11006

Definition

Definition	The local identifier assigned to the order by the order requester.
Definition Source	NEHTA
Synonymous Names	Request Order Number Order Number Request Number (Requester)
Notes	Assigning an identifier to a request by the clinical information system enables the progress of the request to be tracked and enables requests to be linked to results. It also provides a reference to assist with enquiries and it is equivalent to the HL7 Placer Order Identifier.
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..1

2.36 Examination Requested Name

Identification

Label	Examination Requested Name
Metadata Type	Data Element
Identifier	DE-16512
OID	1.2.36.1.2001.1001.101.103.16512

Definition

Definition	Identification of the imaging examination which was requested.
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[8] 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 `data element` should not be used if its value is equal to the value of the *Imaging Examination Result Name* `data element`.
Conditions of Use Source	NEHTA
Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..*

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

2.37 REQUESTER

Identification

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

Definition

Definition	Details pertinent to the clinician or organisation requesting the imaging examination.
Definition Source	NEHTA
Synonymous Names	
Notes	This can be a person or an organisation. Types of requesters include: • the clinician; and • a healthcare provider or organisation.

Usage

Conditions of Use	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 "Requester". • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON or ORGANISATION.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..*

2.38 Receiver Order Identifier

Identification

Label	Receiver Order Identifier
Metadata Type	Data Element
Identifier	DE-11007
OID	1.2.36.1.2001.1001.101.103.11007

Definition

Definition	The local identifier assigned to the examination order by the order filler, usually by the radiology information system (RIS).
Definition Source	NEHTA
Synonymous Names	Filler Order Identifier Filler Order Number
Context	Assigning an identifier to a request by the radiology information system enables the progress of the request to be tracked and enables requests to be linked to results. It also provides a reference to assist with enquiries and it is usually equivalent to the HL7 Filler Order Number.
Context Source	NEHTA
Assumptions	The radiology information system has functionality to assign an identifier to each request upon receipt.
Assumptions Source	NEHTA
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..1

2.39 DICOM Study Identifier

Identification

Label	DICOM Study Identifier
Metadata Type	Data Element
Identifier	DE-16513
OID	1.2.36.1.2001.1001.101.103.16513

Definition

Definition	Unique identifier of this study allocated by the imaging service.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..1

2.40 Report Identifier

Identification

Label	Report Identifier
Metadata Type	Data Element
Identifier	DE-16514
OID	1.2.36.1.2001.1001.101.103.16514

Definition

Definition	The local identifier given to the imaging examination report.
Definition Source	NEHTA
Synonymous Names	Diagnostic Imaging Report Identifier
Assumptions	The value of *Report Identifier* is intended for machine or computer consumption. It does not need to be used or consumed by the human user, e.g. reporting provider or the recipient of a test report.
Assumptions Source	NEHTA
Notes	This is a unique identifier of a diagnostic imaging procedure (or study) report. A local identifier can be made globally unique by giving it a context. The context may be identified by a globally unique identifier of the system which produces the local identifier.
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..1

2.41 IMAGE DETAILS

Identification

Label	IMAGE DETAILS
Metadata Type	Data Group
Identifier	DG-16515
OID	1.2.36.1.2001.1001.101.102.16515

Definition

Definition	Images referenced or provided to assist clinical understanding of the examination.
Definition Source	NEHTA
Synonymous Names	
Notes	If the attached image is in DICOM (Digital Imaging and Communications in Medicine) format, all fields below the image should be populated so that the values are available to software that does not process DICOM images.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	EXAMINATION REQUEST DETAILS	0..*

Children

Data Type	Name	Occurrences
	Image Identifier	0..1
	DICOM Series Identifier	0..1
	View (Image View Name)	0..1
	Position (Subject Position)	0..1
	Image DateTime	0..1
	Image	0..1

2.42 Image Identifier

Identification

Label	Image Identifier
Metadata Type	Data Element
Identifier	DE-16516
OID	1.2.36.1.2001.1001.101.103.16516

Definition

Definition	Unique identifier of this image allocated by the imaging service.
Definition Source	NEHTA
Synonymous Names	Diagnostic Image Identifier
Context	The *Image Identifier* value uniquely identifies an image object (DICOM or non-DICOM image). This allows software to easily determine if an image is already present, rather than having to compare a large number of (DICOM/image) tags.
Context Source	NEHTA
Assumptions	It is assumed that the diagnostic imaging information system or Picture Archive and Communicating System (PACS) generates a unique identifier for each diagnostic image produced from the test procedure performed.
Assumptions Source	NEHTA
Notes	This is often the DICOM image instance UID. To ensure global uniqueness, the *Image Identifier* value may have to be used or associated with the unique "Organisation identifier" value.
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGE DETAILS	0..1

2.43 DICOM Series Identifier

Identification

Label	DICOM Series Identifier
Metadata Type	Data Element
Identifier	DE-16517
OID	1.2.36.1.2001.1001.101.103.16517

Definition

Definition	Unique identifier of this series allocated by the imaging service.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGE DETAILS	0..1

2.44 Image View Name

Identification

Label	View
Metadata Type	Data Element
Identifier	DE-16198
OID	1.2.36.1.2001.1001.101.103.16198

Definition

Definition	The name of the imaging view.
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[9] 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) Lateral 2) Antero-posterior (AP)

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGE DETAILS	0..1

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

2.45 Subject Position

Identification

Label	Position
Metadata Type	Data Element
Identifier	DE-16519
OID	1.2.36.1.2001.1001.101.103.16519

Definition

Definition	Description of the subject of care's position when the imaging examination was performed.
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[10] 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGE DETAILS	0..1

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

2.46 Image DateTime

Identification

Label	Image DateTime
Metadata Type	Data Element
Identifier	DE-16520
OID	1.2.36.1.2001.1001.101.103.16520

Definition

Definition	Date, and optionally time, the imaging examination was performed.
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)
	IMAGE DETAILS	0..1

2.47 Image

Identification

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

Definition

Definition	An attached or referenced image of a current view.
Definition Source	NEHTA
Synonymous Names	
Data Type	EncapsulatedData

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for EncapsulatedData.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGE DETAILS	0..1

2.48 Examination Procedure

Identification

Label	Examination Procedure
Metadata Type	Data Element
Identifier	DE-16633
OID	1.2.36.1.2001.1001.101.105.16633

Definition

Definition	Additional structured details of imaging examination methodology followed.
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	1) Gastrografin swallow

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

2.49 COMPARED IMAGE DETAILS

Identification

Label	COMPARED IMAGE DETAILS
Metadata Type	Data Group
Identifier	DG-16522
OID	1.2.36.1.2001.1001.101.102.16522

Definition

Definition	Details of previous images used for comparison.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

Children

Data Type	Name	Occurrences
	Requester Order Identifier	0..1
	DICOM Study Identifier	0..1
	Image Identifier	0..1
	DICOM Series Identifier	0..1
	View (Image View Name)	0..1
	Position (Subject Position)	0..1
	Image DateTime	0..1
	Image	0..1

2.50 REPORTING RADIOLOGIST

Identification

Label	REPORTING RADIOLOGIST
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	Radiologist who is responsible for the report.
Definition Source	NEHTA
Synonymous Names	
Notes	The author of the content of the report. The date the imaging examination result is generated is contained in the *Participation Period* of the *Reporting Radiologist*.

Usage

Conditions of Use	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*. Additional obligation and occurrence constraints: • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • ADDRESS is **ESSENTIAL**. • ELECTRONIC COMMUNICATION DETAIL is **ESSENTIAL**. • Relationship to Subject of Care is **PROHIBITED**. • EMPLOYMENT DETAIL is **ESSENTIAL**. • EMPLOYER ORGANISATION is **ESSENTIAL**. • EMPLOYER ORGANISATION.Entity Identifier is **ESSENTIAL**. • DEMOGRAPHIC DATA is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Reporting Radiologist”. • Role **SHOULD** have a value chosen from *1220.0 - ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, Revision 1 [ABS2009]*.

	However, if a suitable value in this set cannot be found, then any code set that is both registered with HL7 and is publicly available **MAY** be used. • The value of one Entity Identifier **SHOULD** be an Australian HPI-I. • The value of one EMPLOYER ORGANISATION.Entity Identifier **SHOULD** be an Australian HPI-O. • AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS. • 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)
	IMAGING EXAMINATION RESULT	0..1

2.51 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 imaging examination 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)
	IMAGING EXAMINATION RESULT	0..1

2.52 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 imaging test 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 **SHALL NOT** be used unless the subject of the information is not the *Subject of Care* 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 “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)
	IMAGING EXAMINATION RESULT	0..1

2.53 Observation DateTime

Identification

Label	Observation DateTime
Metadata Type	Data Element
Identifier	DE-15561
OID	1.2.36.1.2001.1001.101.103.15561

Definition

Definition	Date, and optionally time, when an observation is clinically significant to the condition of the subject of the observation.
Definition Source	NEHTA
Synonymous Names	Clinically Significant DateTime Effective DateTime
Context	For an *Imaging Examination Result* the value is the date, and optionally time, of the imaging examination. For a series of images this is the date, and optionally time, when the last image was taken.
Context Source	NEHTA
Notes	Associated with every observation of a subject are two different times that often, but not always, coincide, and are consequently often conflated: the time that the activity of observing occurred (the time the subject **was** observed, the *measuring time*), and the time that the subject was the way it looked (the time the subject was **as** observed, the *state time*.) Generally, there is no delay between a person being in a state, and an observation of the person being in that state. For example, if a pulse of 72 bpm is recorded at 13:45 on 12 February 2015, one can assume that the heart rate was 72 bpm at that time. (Pulse is a surrogate for heart rate.) In such cases the *measuring time* and the *state time* are the same. Sometimes, when there is a delay between the time the person is in a state and the time when they are measured, the delay is important. For example, if a sample is taken from a person and its testing is completed over a period of days, the test results will provide information about the state of the person at the time the sample was taken, not the time the test was completed. The clinically significant time in all clinical observations is the time that the person was as observed, the *state time*. In observations involving specimens, the time that the specimen was taken is the closest practicable proxy for the *state time*. The meaning of *Observation DateTime* is always the time that the person was **as** observed. This approach follows that of openEHR.
Data Type	DateTime TimeInterval

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)
	IMAGING EXAMINATION RESULT	1..1

2.54 Imaging Examination Result Instance Identifier

Identification

Label	Imaging Examination Result Instance Identifier
Metadata Type	Data Element
Identifier	DE-16715
OID	1.2.36.1.2001.1001.101.103.16715

Definition

Definition	A globally unique identifier for each instance of an *Imaging Examination Result* observation.
Definition Source	NEHTA
Synonymous Names	
Notes	This `data element` is intended for machine or system use only and hence need not be displayed on documents.
Data Type	UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..1

2.55 RELATED INFORMATION

Identification

Label	RELATED INFORMATION
Metadata Type	Data Group
Identifier	DG-16692
OID	1.2.36.1.2001.1001.101.102.16692

Definition

Definition	Information held elsewhere that is relevant to this instance of a data component.
Definition Source	NEHTA
Synonymous Names	
Notes	Items of related information include, but are not limited to, documents, parts of documents, images and web pages. “Elsewhere” includes elsewhere in the same document. 1:1 and 1:N relationships between instances of DCMs can be expressed by using one, or more than one, respectively, links. Chains of links can be used to see problem threads or other logical groupings of items. Links are only to be used between instances of DCMs or documents, i.e. between objects representing complete domain concepts. This is because relationships between sub-elements of whole concepts are not necessarily meaningful and may be confusing. When the item of related information is a complete document (including images) or a web page (or part thereof) an appropriate specialisation of the *Related Information* `data group` should be used. The document or other data component instance containing the *Related Information* `data group` is called the *source*. The related information is called the *target*.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	0..*

Children

Data Type	Name	Occurrences
	Link Nature	1..1

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

2.56 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 detailed clinical model (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 that 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)
	RELATED INFORMATION	1..1

2.57 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
External Identifier	LINK_NATURE

Definition

Definition	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

2.58 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 that 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)
	RELATED INFORMATION	0..1

2.59 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
External Identifier	LINK_ROLE

Definition

Definition	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 the value of the *Link Nature* `data element`. 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 subcategory of a corresponding term in *Link Nature Values*, where that correspondence is indicated by the first letter after the code string “LINK-”. For example 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

2.60 Target

Identification

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

Definition

Definition	The “linked to” or identified information.
Definition Source	NEHTA
Synonymous Names	
Data Type	Link UniqueIdentifier

Usage

Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for Link, and UniqueIdentifier.

Relationships

Parents

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

2.61 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 *Imaging Examination Result* concept represented by this Detailed Clinical Model.
Definition Source	NEHTA
Synonymous Names	
Notes	This `data element` is intended for machine or system use only and hence need not be displayed on documents.
Data Type	UniqueIdentifier

Usage

Conditions of Use	The value of this item is fixed and **SHALL** be the default value.
Conditions of Use Source	NEHTA
Examples	Please see Appendix B, *Specification Guide for Use* for examples and usage information for UniqueIdentifier.
Default Value	1.2.36.1.2001.1001.101.102.16145

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	1..1

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3 Anatomical Location Data Group

This chapter describes version 1.0 of the *Anatomical Location* Data Group.

3.1 Purpose

To record details about anatomical location.

3.2 Misuse

Not for specifying unilateral/bilateral occurrences - this is related to an evaluation which perhaps includes multiple locations.

3.3 ANATOMICAL LOCATION

Identification

Label	Anatomical Site
Metadata Type	Data Group
Identifier	DG-16150
OID	1.2.36.1.2001.1001.101.102.16150

Definition

Definition	Details about an anatomical location.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	IMAGING EXAMINATION RESULT	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..*

3.4 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 Site (ANATOMICAL LOCATION)	0..1
	Result Group Anatomical Site (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

3.5 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

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

3.6 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

3.7 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

3.8 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

3.9 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'.

Relationships

Parents

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

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

3.10 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

3.11 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 Site (ANATOMICAL LOCATION)	0..*
	Result Group Anatomical Site (ANATOMICAL LOCATION)	0..*

Children

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

3.12 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for CodeableText.

Relationships

Parents

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

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

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

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

Relationships

Parents

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

3.14 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for Quantity.

Relationships

Parents

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

3.15 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for Text.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Anatomical Site (ANATOMICAL LOCATION)	0..*
	Result Group Anatomical Site (ANATOMICAL LOCATION)	0..*

3.16 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 Site (ANATOMICAL LOCATION)	0..*
	Result Group Anatomical Site (ANATOMICAL LOCATION)	0..*

3.17 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	Please see Appendix B, *Specification Guide for Use* for examples and usage information for EncapsulatedData.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Anatomical Site (ANATOMICAL LOCATION)	0..*
	Result Group Anatomical Site (ANATOMICAL LOCATION)	0..*

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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
Links to external resources	If a link (usually in references section) spans several lines, certain PDF readers have problems opening it.
Data Hierarchy	This Detailed Clinical Models (DCM) has not yet been fully mapped to HL7 CDA. Mapping to CDA may reveal inconsistencies, in the data hierarchy requiring normative change.
Continuous Improvement	In the DCM defined in this document only those data components that are currently used in NEHTA Structure Content Specifications (SCS) have been reviewed and revised for this publication. A more extensive review will be undertaken in the future.
UML Class Diagrams	The representation of data component names and labels with stereotypes and names is not good UML practice. It will be changed when a diagramming tool that supports an appropriate representation is adopted by NEHTA.
Image Identifier Data Element	The example and reference in the context of this data element requires review.
Undefined Value Domains	The following data elements lack a defined value domain: *Imaging Examination Result Name*, *Imaging Modality*, *Imaging Examination Result Group Name*, *Individual Imaging Examination Result Name*, *Normal Status*, *Reference Range Meaning*, *Radiological Diagnosis*, *Image View Name*, *Numerical Identifier*, *Anatomical Plane*, *Identified Landmark*, *Anatomical Location Aspect*, *Examination Requested Name* and *Subject Position*. 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 components lack a defined data structure: *Examination Procedure*. A free text data element is currently used as an interim solution.
Imaging View	Currently there is no way to record imaging view.

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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 the compliance, conformance, and declaration process. 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 describes a template of a Structured Document. It 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 metamodel for sructured content specifications (see Figure 1) is used to specify the overall structure of a structured content specification. The structure is a tree, so every item in the tree, other than the root node, has a parent node. For an SCS, the root node is a Structured Document. For a DCM, the root node is a Data Group.

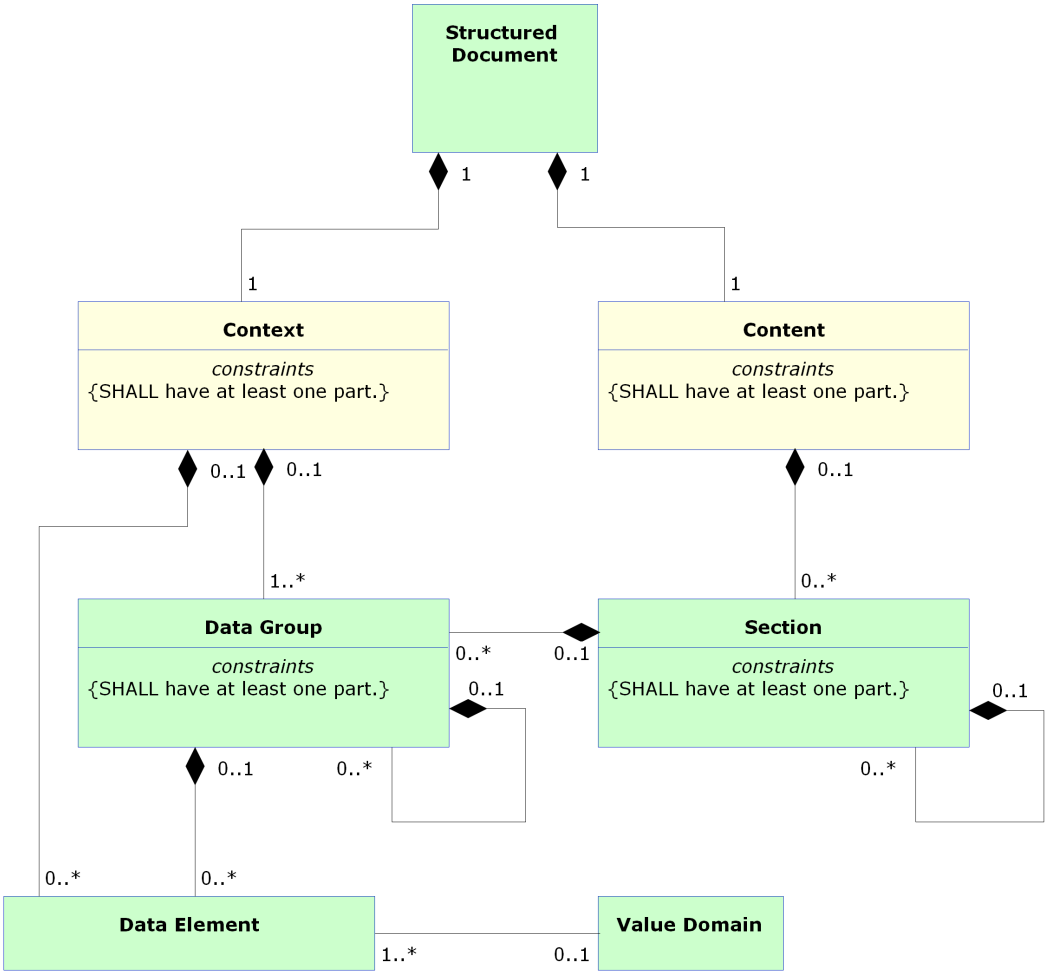

Figure 1: SCS Metamodel

There are two main items 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 in Figure 1, and consists of the following data components:

- Section
- Data Group
- Data Element
- Value Domain

These data components are described in more detail below.

Structured Document

A structured document is a collection of health information about a subject of care that is relevant to the ongoing care of that person. They are composed of one or more data groups and data elements that are organised into

sections. Examples of structured documents are *Discharge Summary*, *Shared Health Summary*, and *Advance Care Directive Custodian Record*.

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. A section organises information in a manner suitable for the primary purpose for which it is collected and provides 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, 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 NEHTA's *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.

NEHTA's *Participation Data Specification [NEHT2011v]* defines the full Participation specification.

Choice

Choice represents a selection, to be made at run-time, of a single member from a set of data groups, where the set is 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.

While 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 items, therefore the same value domain can be referred to by different data elements in different contexts. Value domains are often specified with reference to a *reference set*. A reference set is a constrained list of SNOMED CT-AU concepts that are appropriate to a particular context or use. Since 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 either by specifying a lower or upper bound (or both) on the range of permissible values or 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 or 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>Standards Australia AS 4846 (2006) – Health Care Provider Identification [SA2006a] and Standards Australia AS 5017 (2006) – Health Care Client Identification [SA2006b] derive their values from METeOR 287316 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 in NEHTA's DCMs and SCSs.

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 *Data Types in NEHTA Specifications: A Profile of the ISO 21090 Specification [NEHT2010c]*.

Table 3: Data Types Legend

Icon	Data type	Explanation
	Any (ISO 21090: ANY)	Use of this icon indicates that 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. This is an abstract data type that is the basis for all data types and **SHOULD NOT** be used in an actual implementation.
	Boolean (ISO 21090: BL)	A data type, sometimes called the logical data type, having one of the 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; supports various ways of holding text, both free text and coded text.

Often 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 useful when it is not possible to define an entire value domain for a complex concept (e.g. *Diagnosis*) and when there are 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

- The Australian Institute of Health and Welfare (AIHW) defines a data element concept *Episode of admitted patient care-separation mode* (the status at separation of a subject of care and the place to which they are released). An early adopter could 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 data elements 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

Standards Australia AS 5017 (2006) – Health Care Client Identification [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)

A single date, optionally with a time of day.

Has the ability to indicate a level of precision, but not whether the date or time is estimated. Cannot represent a time alone.

String representations of known dates **SHALL** conform to the format within the **ISO 21090-2011** standard without the use of extensions, i.e. YYYY[MM[DD[HH[MM[SS[.U[U[U[U]]]]]]]]][+|-ZZzz].

Usage/Examples

- Partial dates: 2008, 20081001.
- To indicate 1:20 pm on May the 31st, 1999 for a time zone which is 10 hours ahead of Coordinated Universal Time (UTC): 19990531132000+1000.

 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
 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. **Usage/Examples** • 1 • -50 • 125
 Link (ISO 21090: TEL)	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)	A magnitude value with a unit of measurement. This is used for recording many real world measurements and observations. As the default unit of measure is 1, even counts of items can be recorded with *Quantity*. **Usage/Examples** • 100 centimetres • 25.5 grams

 QuantityRange (ISO 21090: IVL)	A range of *Quantity* values. It may be identified using a combination of an optional minimum *Quantity* and an optional maximum *Quantity* (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 identified by not including a minimum or a maximum *Quantity* value. **Usage/Examples** • -20 to 100 Celsius • 30-50 mg • >10 kg
 QuantityRatio (ISO 21090: RTO)	A relative magnitude of two *Quantity* values. Usually recorded as numerator and denominator. **Usage/Examples** • 25 mg / 500 ml • 200 mmol per litre
 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)	A character string (with optional language) containing any combination of alpha, numeric, or symbols from the Unicode character set. Also 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:IVL)	An interval in time. It is identified using a combination of an optional start *DateTime*, an optional end *DateTime*, and an optional *Duration*. **Usage/Examples** • 20080101+1000 - 20081231+1000 • 200801010130+1000 - 200801011800+1000 • 200801010130+1000, duration=16.5 hours

UniqueIdentifier (ISO 21090: II)	A unique value used 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) – Health Care Provider Identification [SA2006a]* and *AS 5017 (2006) – Health Care Client Identification [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** Australian health identifiers (e.g. IHI, HPI-I and HPI-O) and patient hospital medical record numbers are examples of identifiers that may be carried by data elements of 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 *Key words for use in RFCs to Indicate Requirement Levels [RFC2119]*. NEHTA specifications use the terms **SHALL** in place of “MUST” and **SHALL NOT** in place of “MUST NOT”. The key word definitions in RFC 2119, adjusted to remove the key words not used in NEHTA specifications, are presented in the following table.

Table 4: Keywords Legend

Keyword	Definition
SHALL	This word means that the statement is an absolute requirement of the specification.
SHOULD	This word means that there may exist valid reasons in particular circumstances to ignore a particular data component, but the full implications must be understood and carefully weighed before choosing a different course.

MAY	This word means that a data component is truly optional. One implementer may choose to include the data component because a particular implementation requires it, or because the implementer determines that it enhances the implementation, while another implementer may omit the same data 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 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

In DCMs and SCSs obligations on a data component specify whether or not it **SHALL** be populated in the logical record architecture of a message. NEHTA intends that all data components that are not **PROHIBITED** will be implemented.

Obligations in statements about values specify whether or not certain values are permitted.

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 item of information and **SHALL** be populated. **Usage/Examples:** The Participant data 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 item of information and **MAY** be populated. **Usage/Examples:** Such data components will be implemented, only inclusion and population are optional. 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	On a data component this indicates that the data component is considered a forbidden item of information and **SHALL NOT** be included. In a statement about values this indicates that the use of the specified values is considered forbidden and they **SHALL NOT** be used. **Usage/Examples:** Within a Participation data group depicting a Subject of Care, the Participation Healthcare Role **SHALL NOT** be populated.

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 included.

Obligations follow the usual scope rules: where **ESSENTIAL** child data components are contained within **OPTIONAL** parent data components, the child data components **SHALL NOT** be included when the parent is not included.

B.4 Abnormal and Absent Values

Occasionally a data element will have an abnormal value (i.e. the value cannot be described using the expected set of values) or an absent value (i.e. no value is provided).

The commonly used implementation specifications ISO 21090 and HL7 CDA R2 use *nullFlavor* to manage absent and abnormal values.

The following table provides a classification of nullFlavor values as absent or abnormal.

Table 6: Classification of ISO 21090 nullFlavor values as Absent or Abnormal

Level	Code	Term	Absent	Abnormal
1	NI	No information	Absent	
2	INV	Invalid		Abnormal
3	OTH	Other		Abnormal
4	PINF	Positive infinity		Abnormal
4	NINF	Negative infinity		Abnormal
3	UNC	Unencoded		Abnormal
3	DER	Derived		Abnormal
2	UNK	Unknown	Absent	
3	ASKU	Asked but unknown	Absent	
4	NAV	Temporarily unavailable	Absent	
3	NASK	Not asked	Absent	
3	QS	Sufficient quantity		Abnormal
3	TRC	Trace		Abnormal
2	MSK	Masked	Absent	
2	NA	Not applicable	Absent	

B.5 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 DCMs and SCSs, and identifies when each part is applicable.

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 7: Identification Section Legend

Label	A suggested display name for the data component.
Metadata Type	The type of the data component, e.g. section, data group or data element.
Identifier	A NEHTA-assigned internal identifier of the data component. Note that if one data component is used twice (e.g. *Therapeutic Good Identification* is used in both *Medication Instruction* and *Medication Action*), both uses of the data component will have the same identifier. A data component identifier identifies a data component, not a **use** of a data component.
OID	An object identifier equivalent to the data component identifier.
External Identifier	An identifier of the concept represented by the data component that is assigned by an organisation other than NEHTA.

Definition Section Legend

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

Table 8: Definition Section Legend

Definition	The meaning, description or explanation of the data component. 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. Implementers may prefer to use synonymous names to refer to the data component in specific contexts.
Scope	Situations in which the data component may be used, including the Scope circumstances where specified data are required or recommended. For example, Medication Instruction (data group) has a scope that includes all prescribable therapeutic goods, both medicines and non-medicines.

	This item is not relevant to data elements or value domains.
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. This item is applicable only to data elements.
Assumptions	Suppositions and notions used in defining the data component.
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.
Notes Source	The authoritative source for the Notes statement.
Data Type	The data type (or data types) of the data element, e.g. DateTime or Text. The valid data types are specified in the Data Types Legend. This item is applicable only to data elements.
Value Domain	The name of the Value Domain used to define the range of values of the data element, or a statement describing what values to use in the absence of a defined value domain for the related data element. The statement is: 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. This item is applicable only to data elements with data type CodedText or CodeableText.

Data Hierarchy

The top-level data components (a Structured Document in an SCS or Data Groups in a DCM) contain a data hierarchy. Each row contains information about a single data component. The entries are nested to represent inclusion of one data 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 of the data 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.

If a row is shaded grey, this indicates that the data component **SHOULD NOT** be used. This will be because analysis of requirements either did not find reasons to use it or found reasons to not use it.

If the text in a row is in a ~~strike through~~ font and the multiplicity is 0..0, this indicates that the data component **SHALL NOT** be used. This will be because analysis of requirements found reasons to prohibit the use of it.

In some documents the right-hand side of the data hierarchy contains 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 data components **SHALL** be implemented.

Sample SCS Data Hierarchy

Note

Items below whose text is lighter (mid-blue and mid-grey) are technical identifiers whose purpose is to facilitate interoperability, sharing of data and secondary use. Typically, such identifiers will be generated internally by systems and not displayed to users since they rarely have clinical significance.

Items below with a grey background are data components that are included in the relevant detailed clinical model specification, but whose use is discouraged in this particular scenario.

	SPECIALIST LETTER			
CONTEXT				
		SUBJECT OF CARE		1..1
		DOCUMENT AUTHOR		1..1
		ENCOUNTER		1..1
			DateTime Subject of Care Seen (DateTime Health Event Started)	1..1
			DateTime Health Event Ended	0..0
			HEALTHCARE FACILITY	0..0
		Document Instance Identifier		0..1
		RELATED INFORMATION		0..0
		Document Type		1..1
CONTENT				
		RESPONSE DETAILS		1..1
			Diagnosis (PROBLEM/DIAGNOSIS)	0..*
			Diagnosis Name (Problem/Diagnosis Identification)	1..1
			Clinical Description	0..0
	and more			

Value Domain Section Legend

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

Table 9: 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	A specification of the permissible values in the value domain. This may be a list of codes. (Each code is typically presented as a triple with code values, text equivalent, and description; e.g. 1, Registered, No result yet available.) This may be a conformance statement (e.g. "The permissible values are the members of the following seven AMT reference sets: ...").

Usage Section Legend

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

Table 10: Usage Section Legend

Examples	Sample values for the data element, with or without notes about sample values. 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, indicative examples are provided. Implementation guides may contain specific examples of how data elements may be populated and how they relate to each other. This item is applicable only to data elements.
Conditions of Use	Prerequisites, provisos or restrictions for use of the data component.
Conditions of Use Source	The authoritative source for the Conditions of Use statement.
Misuse	Incorrect, inappropriate or wrong uses of the data component.
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 data component.
Absent and Abnormal Values	A statement of limitations on the use of abnormal values and absent values. Unless otherwise specified, all data elements are permitted to have abnormal or absent values. Some abnormal values are only relevant to data elements of certain data types (e.g. positive infinity is relevant to numbers but not Booleans). Representative examples of conditions of use statements involving value annotations: • Absent values are **PROHIBITED**. • Abnormal values are **PROHIBITED**. • Abnormal and absent values are **PROHIBITED**. This item is applicable only to data elements.

Relationships Section Legend

The Relationships section specifies the cardinality between parent and child data components.

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

Table 11: Parent Legend

Data Type	Name	Occurrences (child within parent)
The icon illustrating the metadata type or data type.	Parent Data Component Name	The minimum and maximum number of instances of the data component described on this page that **SHALL** occur.

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

Table 12: Children Legend

Data Type	Name	Occurrences
The icon illustrating the metadata type or data type.	Child Data Component Name	The minimum and maximum number of instances of the data component described on this page that **SHALL** occur.

Appendix C. Change History

A summary of changes from one document version to the next. Changes to the change history are excluded.

C.1 Changes Since Version 2.1 - 22 December 2011

The presentation format has changed between version 2.1 and version 3.0. Changes that result from the change in presentation format are not listed below.

Preliminary Pages

A number of editorial errors have been corrected in Disclaimer and Document Control.

Document Information section has been changed to include the latest release details.

Acknowledgements chapter has been updated to replace generic acknowledgements to Standards Australia, Members of the Australian DataTypes Project, Australian Institute of Health and Welfare and Ocean Informatics with the funding acknowledgement for the Council of Australian Governments, and acknowledgements for LOINC, SNOMED CT and HL7 International.

1 Introduction

In 1.1 Purpose and Scope, corrected email address to help@nehta.gov.au.

In 1.4 Terminology, corrected email address to help@nehta.gov.au.

Chapter 2 Imaging Examination Result Detailed Clinical Model

The version of the DCM has changed from 2.1 to 3.0.

In many chapters a note has been added to the Examples row.

In 2.1 Purpose, 2.2 Use and 2.3 Misuse, a number of editorial errors has been corrected.

2.24 UML Class Diagram, the diagram and explanatory text have been updated.

In 2.5 IMAGING EXAMINATION RESULT:

- Definition has been reworded; and
- Synonymous Names has been deleted.

in 2.5 Data Hierarchy, the following data components have been added, deleted or substituted:

- data group *IMAGING EXAMINATION RESULT > Result Group > Result*, the data element *Result Value Normal Status (Imaging Examination Result Value Normal Status) has been deleted;*
- data group *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value Reference Range Details*, the data element *Result Value Reference Range (Imaging Examination Result Value Reference Range) has been deleted;*
- data group *IMAGING EXAMINATION RESULT*, the data element *Anatomical Region* has been added;

- data group *IMAGING EXAMINATION RESULT > Result Group > Result*, the data group *Result Value (Imaging Examination Result Value)* has been added;
- data group *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value > Imaging Examination Result Value Reference Ranges*, the data group *REFERENCE RANGE* has been added;
- data group *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value > Imaging Examination Result Value Reference Ranges > REFERENCE RANGE*, the data element *Reference Range* has been added;
- data group *IMAGING EXAMINATION RESULT*, the data group *REPORTING RADIOLOGIST* has been added;
- data group *IMAGING EXAMINATION RESULT*, the data element *Imaging Examination Result DateTime* and *Imaging Examination Result Duration* has been replaced with the new data element *Observation DateTime*;
- data group *PATHOLOGY TEST RESULT*, data group *LINK* has been replaced with the data group *RELATED INFORMATION*; and
- data group *PATHOLOGY TEST RESULT > RELATED INFORMATION*, the data element *Link Target* has been renamed to *Target*.

In 2.5 Data Hierarchy,the following data elements have had their labels changed:

- *IMAGING EXAMINATION RESULT > Result Group > Imaging Examination Result Group Name*;
- *IMAGING EXAMINATION RESULT > Result Group > Result > Individual Imaging Examination Result Name*;
- *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value > Imaging Examination Result Value Reference Ranges*; and
- *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value > Imaging Examination Result Value Reference Ranges > REFERENCE RANGE > Reference Range Meaning*.

In 2.5 Data Hierarchy, the following data components have had their cardinality changed:

- *IMAGING EXAMINATION RESULT > Result Group > Result > Result Value > Result Value*; and
- *IMAGING EXAMINATION RESULT > RECEIVING IMAGING SERVICE*.

In 2.5 Data Hierarchy, the following data components have had their data type changed:

- *IMAGING EXAMINATION RESULT > EXAMINATION REQUEST DETAILS > Examination Requested Name*; and
- *IMAGING EXAMINATION RESULT > EXAMINATION REQUEST DETAILS > IMAGE DETAILS > Position*.

In 2.6 Imaging Examination Result Name, Examples has been added.

2.9 Anatomical Region has been added.

2.10 Anatomical Region Values has been added.

In 2.11 Imaging Examination Result Status:

- Value Domain has been added; and
- Examples has been reworded.

2.12 Imaging Examination Result Status Values has been added.

In 2.14 Findings:

- Definition has been reworded;
- Synonymous Names has been added; and

- Examples has been added.

In 2.16 Imaging Examination Result Group Name, the label has been removed to match the name.

In 2.17 Individual Imaging Examination Result, the definition has been reworded.

In 2.18 Individual Imaging Examination Result Name, the label has been removed to match the name.

2.19 IMAGING EXAMINATION RESULT VALUE has been added.

In 2.20 Imaging Examination Result Value:

- Value Domain has been added; and
- Examples has been reworded.

2.21 Result Value Values has been added.

2.22 IMAGING EXAMINATION RESULT VALUE REFERENCE RANGES has been added.

2.17 Imaging Examination Result Value Normal Status has been deleted.

2.18 Imaging Examination Result Value Normal Status Values has been deleted.

2.23 Normal Status has been added.

2.24 REFERENCE RANGE has been added.

In 2.25 Reference Range Meaning:

- data component has been renamed;
- label has been removed to match the name;
- Examples has been reworded; and
- Default Value has been removed.

2.26 Reference Range has been added.

2.21 Imaging Examination Result Value Reference Range has been removed.

In 2.30 Imaging Examination Conclusion, Examples has been added.

In 2.33 RECEIVING IMAGING SERVICE:

- Definition has been reworded;
- Notes has been reworded; and
- Conditions of Use has been updated.

In 2.34 EXAMINATION REQUEST DETAILS:

- Definition has been reworded; and
- Notes has been reworded.

In 2.36 Examination Requested Name:

- Definition has been reworded;
- Data Type has been updated; and
- Conditions of Use and Conditions of Use Source have been added.

In 2.37 REQUESTER, Notes has been reworded.

In 2.38 Receiver Order Identifier:

- Synonymous Names has been updated;
- Context has been reworded; and
- Assumptions has been reworded.

In 2.40 Report Identifier:

- Synonymous Names has been updated;
- Context has been deleted;
- Assumptions has been reworded; and
- Notes has been added.

In 2.41 IMAGE DETAILS, Definition has been reworded.

In 2.42 Image Identifier:

- Definition has been reworded;
- Notes has been reworded;
- Synonymous Names has been updated;
- Context has been reworded; and
- Assumptions has been reworded.

In 2.45 Subject Position:

- Definition has been reworded; and
- Data Type has been updated.

In 2.46 Image DateTime, Definition has been reworded.

In 2.48 Examination Procedure, Examples has been added.

2.50 REPORTING RADIOLOGIST has been added.

2.53 Observation DateTime has been added.

2.47 Imaging Examination Result DateTime has been deleted.

2.48 Imaging Examination Result Duration has been deleted.

2.54 Imaging Examination Result Instance Identifier, Notes has been added.

2.55 Related Information has a new Name, Label, Definition and Notes. The Identifier is the same as the meaning has not changed.

In 2.56 Link Nature, Definition has been updated.

In 2.57 Link Nature Values:

- External Identifier has been added; and
- Definition has been reworded.

In 2.58 Link Role, Notes has been reworded.

In 2.59 Link Role Values:

- External Identifier has been added;
- Definition has been reworded; and
- Context has been reworded.

In 2.60 Target:

- Label Link Target has been updated to match the name; and
- Definition has been reworded.

In 2.61 Detailed Clinical Model Identifier:

- Definition has been reworded;
- Notes has been added;
- Default Value Conditions of Use has been moved to Conditions of Use.

Appendix A Known Issues

Removed the entry for Normal Status data components.

Removed the entry for Reference Range Details data component.

Updated entry for Undefined Value Domains.

Added an entry for Imaging View.

Added generic entries for Links to external resources, Continous Improvement and UML Class Diagrams.

Appendix B. Specification Guide for Use

This chapter has been updated through an editorial review. Changes are not listed here.

Reference List

Added entry for ABS2009.

Added entry for openEHR Information Model.

Updated accessed dates throughout the Reference List.

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