nehta

# Diagnostic Imaging Report Structured Content Specification Version 1.0

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Approved for external use

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# Document Information

## Key information

| | |
|---|---|
| **Owner** | Head of Delivery |
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## Product version history

| Product version | Date | Release comments |
|---|---|---|
| 1.0 | 31 Dec 2014 | Initial release. |

## Related documents

| Name | Version/Release Date |
|---|---|
| *Personally controlled electronic health record system: Glossary of Terms* | Issued 2014 |
| *Imaging Examination Result Detailed Clinical Model Specification* | Version 3.0, To be published |
| *eHealth Diagnostic Imaging Report Information Requirements* | Version 1.1, Issued 31 December 2014 |
| *Participation Data Specification* | Version 3.2, Issued 20 July 2011 |

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# Acknowledgements

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# Table of Contents

# 1 Introduction

This document is a Structured Content Specification (SCS) for the Diagnostic Imaging Report documents that are added to a person's Personally Controlled Electronic Health Record (PCEHR).

Appendix C, *Specification Guide for Use* provides definitional details on data type constraints applied to data elements defined in the SCS. It also provides important information on how best to read and use the SCS. Therefore, it is an essential compendium for better understanding of the SCS.

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

## 1.1 Document Purpose

This document describes the structured content of Diagnostic Imaging Report documents that are added to the PCEHR system.

The content within this document provides reviewers with the necessary information (or references to information held outside this document) to evaluate and assess the clinical suitability of the specification.

It is also a key input to the *NEHTA Diagnostic Imaging Report CDA Implementation Guide [NEHT2013aa]*, which describes how to implement NEHTA-compliant Diagnostic Imaging Report documents using the *HL7 Clinical Document Architecture [HL7CDAR2]*.

## 1.2 Intended Audience

This document is aimed at software development teams, architects, designers, clinicians and informatics researchers who are responsible for the delivery of clinical applications, infrastructure components and messaging interfaces. It is also intended for those who wish to evaluate the clinical suitability of NEHTA-endorsed specifications.

## 1.3 Document Scope

This document specifies the essential clinical data groups and elements and the constraints on them that should be applied when creating a Diagnostic Imaging Report document for inclusion in the PCEHR system.

Other uses of diagnostic imaging reports (such as for exchange between diagnostic imaging services and hospitals or between general practitioners and specialists) have not been considered for this design.

This is not a guide to implementing any specific messaging standard.

This document is not to be used as a guide to presentation (or rendering) of the data. It contains no information as to how the data described by it should be displayed and no such information should be inferred.

## 1.4 Known Issues

Known issues with this document are described in Appendix A, *Known Issues*.

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# 2 Diagnostic Imaging Report Structured Document

## 2.1 Purpose

To specify the logical structure and allowable content of the information to be exchanged to communicate the results of a diagnostic imaging examination, and in a format suitable for sharing within the PCEHR system.

## 2.2 Use

A diagnostic imaging report is sent by a diagnostic imaging service to notify an authorised clinician of the results of a diagnostic imaging examination. The report contains information about the diagnostic imaging examination and the interpretation of imaging findings.

This specification supports:

- Reporting from a diagnostic imaging service to a clinician authorised to receive it. Such a clinician may be the clinician who requested the diagnostic imaging service on behalf of the subject of care, or it may be a nominated clinician by the requesting clinician; and
- Inclusion of the report in a person's PCEHR by the reporting diagnostic imaging service; and
- Inclusion of the report in a person's PCEHR by an authorised clinician.

## 2.3 Misuse

Using for report types other than diagnostic imaging.

# 2.4 DIAGNOSTIC IMAGING REPORT

## Identification

| | |
|---|---|
| **Label** | DIAGNOSTIC IMAGING REPORT |
| **Metadata Type** | Structured Document |
| **Identifier** | SD-16957 |
| **OID** | 1.2.36.1.2001.1001.101.100.16957 |

## Definition

| | |
|---|---|
| **Definition** | An account of one or more diagnostic imaging examinations with associated results or findings. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Assumptions** | *Diagnostic Imaging Reports* are generated in response to a request for diagnostic imaging services. |
| **Assumptions Source** | NEHTA |

# 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. It is typically expected that such identifiers will be generated internally by systems and not displayed to users since they usually have no clinical significance.

Items below whose background is grey and whose text is struck through are data components that are included in the relevant Detailed Clinical Model Specification, but whose use is prohibited in this particular scenario.

| | | | |
|---|---|---|---|
| | | DIAGNOSTIC IMAGING REPORT | |
| CONTEXT | | | |
| | | SUBJECT OF CARE | 1..1 |
| | | DOCUMENT AUTHOR | 1..1 |
| | | ~~ENCOUNTER~~ | ~~0..0~~ |
| | | Document Instance Identifier | 1..1 |
| | | ~~RELATED INFORMATION~~ | ~~0..0~~ |
| | | Document Type | 1..1 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | REPORTING RADIOLOGIST | | | | | 1..1 |
| | | ORDER DETAILS | | | | | 1..1 |
| | | | REQUESTER | | | | 1..1 |
| | | | Requester Order Identifier (Order Identifier) | | | | 0..1 |
| | | | Accession Number (Order Identifier) | | | | 1..1 |
| | | | ~~Order Name~~ | | | | ~~0..0~~ |
| CONTENT | | | | | | | |
| | | DIAGNOSTIC IMAGING | | | | | 1..1 |
| | | | IMAGING EXAMINATION RESULT | | | | 1..* |
| | | | | Examination Result Name (Imaging Examination Result Name) | | | 1..1 |
| | | | | Modality (Imaging Modality) | | | 1..1 |
| | | | | Anatomical Site (ANATOMICAL LOCATION) | | | 1..* |
| | | | | | SPECIFIC LOCATION | | 0..1 |
| | | | | | | Name of Location (Anatomical Location Name) | 1..1 |
| | | | | | | Side | 0..1 |
| | | | | | | ~~Numerical Identifier~~ | ~~0..0~~ |
| | | | | | | ~~Anatomical Plane~~ | ~~0..0~~ |
| | | | | | ~~RELATIVE LOCATION~~ | | ~~0..0~~ |
| | | | | | Description (Anatomical Location Description) | | 0..1 |
| | | | | | ~~Visual Markings/Orientation~~ | | ~~0..0~~ |
| | | | | | ~~Image (Anatomical Location Image)~~ | | ~~0..0~~ |
| | | | | Anatomical Region | | | 0..1 |
| | | | | Overall Result Status (Imaging Examination Result Status) | | | 1..1 |
| | | | | ~~Clinical Information Provided~~ | | | ~~0..0~~ |
| | | | | ~~Findings~~ | | | ~~0..0~~ |
| | | | | ~~Result Group (IMAGING EXAMINATION RESULT GROUP)~~ | | | ~~0..0~~ |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | ~~Radiological Diagnosis~~ | | ~~0..0~~ |
| | | | | ~~Conclusion (Imaging Examination Conclusion)~~ | | ~~0..0~~ |
| | | | | ~~Examination Result Representation~~ | | ~~0..0~~ |
| | | | | ~~Examination Comment~~ | | ~~0..0~~ |
| | | | | ~~RECEIVING IMAGING SERVICE~~ | | ~~0..0~~ |
| | | | | Examination Details (EXAMINATION REQUEST DETAILS) | | 1..1 |
| | | | | | ~~Requester Order Identifier~~ | ~~0..0~~ |
| | | | | | ~~Examination Requested Name~~ | ~~0..0~~ |
| | | | | | ~~REQUESTER~~ | ~~0..0~~ |
| | | | | | ~~Receiver Order Identifier~~ | ~~0..0~~ |
| | | | | | ~~DICOM Study Identifier~~ | ~~0..0~~ |
| | | | | | ~~Report Identifier~~ | ~~0..0~~ |
| | | | | | IMAGE DETAILS | 1..1 |
| | | | | | ~~Image Identifier~~ | ~~0..0~~ |
| | | | | | ~~DICOM Series Identifier~~ | ~~0..0~~ |
| | | | | | ~~View (Image View Name)~~ | ~~0..0~~ |
| | | | | | ~~Position (Subject Position)~~ | ~~0..0~~ |
| | | | | | Image DateTime | 1..1 |
| | | | | | ~~Image~~ | ~~0..0~~ |
| | | | | Examination Procedure | | 1..1 |
| | | | | ~~COMPARED IMAGE DETAILS~~ | | ~~0..0~~ |
| | | | | ~~REPORTING RADIOLOGIST~~ | | ~~0..0~~ |
| | | | | ~~INFORMATION PROVIDER~~ | | ~~0..0~~ |
| | | | | ~~SUBJECT~~ | | ~~0..0~~ |
| | | | | Observation DateTime | | 1..1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Imaging Examination Result Instance Identifier | | 1..1 |
| | | | | Related Images (RELATED INFORMATION) | | 0..1 |
| | | | | | Link Nature | 1..1 |
| | | | | | ~~Link Role~~ | ~~0..0~~ |
| | | | | | Image Location (Target) | 1..1 |
| | | | | Detailed Clinical Model Identifier | | 1..1 |
| | | | Diagnostic Imaging Section Instance Identifier (Diagnostic Imaging Instance Identifier) | | | 1..1 |
| | | | RELATED DOCUMENT | | | 1..1 |
| | | | | Link Nature | | 1..1 |
| | | | | Link Role | | 1..1 |
| | | | | Examination Result Representation (Document Target) | | 1..1 |
| | | | | DOCUMENT DETAILS | | 1..1 |
| | | | | | ~~DateTime Health Event Ended~~ | ~~0..0~~ |
| | | | | | Document Type | 1..1 |
| | | | | | ~~DOCUMENT AUTHOR~~ | ~~0..0~~ |
| | | | | | ~~DOCUMENT CUSTODIAN~~ | ~~0..0~~ |
| | | | | | Report Description (Document Title) | 1..1 |
| | | | | | ~~ADDITIONAL DOCUMENT DETAIL~~ | ~~0..0~~ |
| | | | | | ~~Document Summary~~ | ~~0..0~~ |
| | | | | | Report DateTime (Effective Period) | 1..1 |
| | | | | | ~~Document Identifier~~ | ~~0..0~~ |
| | | | | | Report Status (Document Status) | 1..1 |
| | | | Section Type | | | 1..1 |

# 2.5 SUBJECT OF CARE

## Identification

| | |
|---|---|
| **Label** | SUBJECT OF CARE |
| **Metadata Type** | Data Group |
| **Identifier** | DG-10296 |
| **OID** | 1.2.36.1.2001.1001.101.102.10296 |

## Definition

| | |
|---|---|
| **Definition** | Person who receives healthcare services. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | Patient<br>Individual |
| **Scope** | The person who is the focus of this document. |
| **Scope Source** | NEHTA |

## Usage

| | |
|---|---|
| **Conditions of Use** | This is a reuse of the *PARTICIPATION* `data group`, which is described in *Participation Data Specification [NEHT2011v]*.<br><br>The following constraints are additional to those specified in *Participation Data Specification [NEHT2011v]*. Constraints are explained in Appendix C, *Specification Guide for Use*.<br><br>Additional obligation and occurrence constraints:<br><br>• Participation Period is **PROHIBITED**.<br>• LOCATION OF PARTICIPATION is **PROHIBITED**.<br>• Entity Identifier is **ESSENTIAL**.<br>• ADDRESS is **ESSENTIAL**.<br>• Relationship to Subject of Care is **PROHIBITED**.<br>• EMPLOYMENT DETAIL is **PROHIBITED**.<br>• DEMOGRAPHIC DATA is **ESSENTIAL**.<br>• Sex is **ESSENTIAL**.<br>• DATE OF BIRTH DETAIL is **ESSENTIAL**.<br>• Indigenous Status is **ESSENTIAL**.<br>• Qualifications is **PROHIBITED**.<br><br>Other additional constraints:<br><br>• Participation Type **SHALL** have an implementation-specific value equivalent to “Subject of Care”. |

| | |
|---|---|
| | • Role **SHALL** have an implementation-specific value equivalent to “Patient”.<br>• The value of one Entity Identifier **SHALL** be an Australian IHI.<br>• 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) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

# 2.6 DOCUMENT AUTHOR

## Identification

| | |
|---|---|
| **Label** | DOCUMENT AUTHOR |
| **Metadata Type** | Data Group |
| **Identifier** | DG-10296 |
| **OID** | 1.2.36.1.2001.1001.101.102.10296 |

## Definition

| | |
|---|---|
| **Definition** | Composer of the document. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | Author |
| **Notes** | The date, and optionally time, the document is authored is contained in the *Participation Period* of the *Author*. |

## Usage

| | |
|---|---|
| **Conditions of Use** | This is a reuse of the *PARTICIPATION* `data group`, which is described in *Participation Data Specification [NEHT2011v]*.<br><br>The following constraints are additional to those specified in *Participation Data Specification [NEHT2011v]*. Constraints are explained in Appendix C, *Specification Guide for Use*.<br><br>Additional obligation and occurrence constraints:<br><br>• Participation Period is **ESSENTIAL**.<br><br>• LOCATION OF PARTICIPATION is **PROHIBITED**.<br><br>• Entity Identifier is **ESSENTIAL**.<br><br>• Relationship to Subject of Care is **PROHIBITED**.<br><br>• EMPLOYMENT DETAIL is **ESSENTIAL**.<br><br>• EMPLOYER ORGANISATION is **ESSENTIAL**.<br><br>• EMPLOYER ORGANISATION.Entity Identifier is **ESSENTIAL**.<br><br>• DEMOGRAPHIC DATA is **PROHIBITED**.<br><br>Other additional constraints:<br><br>• Participation Type **SHALL** have an implementation-specific value equivalent to “Document Author”.<br><br>• 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.<br><br>• The value of one Entity Identifier **SHALL** be an Australian HPI-I. |

| | |
|---|---|
| | • Address Purpose **SHALL** have the value “B” (Business).<br>• Electronic Communication Usage Code **SHALL** have the value “B” (Business).<br>• The value of one EMPLOYER ORGANISATION.Entity Identifier **SHALL** be an Australian HPI-O.<br>• AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS.<br>• 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) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

# 2.7 Document Instance Identifier

## Identification

| | |
|---|---|
| **Label** | Document Instance Identifier |
| **Metadata Type** | Data Element |
| **Identifier** | DE-20101 |
| **OID** | 1.2.36.1.2001.1001.101.103.20101 |

## Definition

| | |
|---|---|
| **Definition** | A globally unique identifier for each instance of a *Diagnostic Imaging Report* document. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Context** | A document can have multiple instances as it passes through its life cycle of creation, revisions before it is first sent, and revised versions after it is first sent. The value of this `data element` enables systems to identify all instances of a document uniquely, thus enabling efficient storage, query and audit trail of information about a subject of care. |
| **Context Source** | NEHTA |
| **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 C, *Specification Guide for Use* for examples and usage information for UniqueIdentifier. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

# 2.8 Document Type

## Identification

| | |
|---|---|
| **Label** | Document Type |
| **Metadata Type** | Data Element |
| **Identifier** | DE-10335 |
| **OID** | 1.2.36.1.2001.1001.101.103.10335 |

## Definition

| | |
|---|---|
| **Definition** | Type of document. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | A document's type is identified by a unique identifier, not by a name. |
| **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 C, *Specification Guide for Use* for examples and usage information for UniqueIdentifier. |
| **Default Value** | 1.2.36.1.2001.1001.101.100.16957 |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

# 2.9 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 responsible for the report. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | The person that approves the release of the diagnostic imaging report.<br><br>The date, and optionally time, the diagnostic imaging examination result is approved 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]*.<br><br>The following constraints are additional to those specified in *Participation Data Specification [NEHT2011v]*. Constraints are explained in Appendix C, *Specification Guide for Use*.<br><br>Additional obligation and occurrence constraints:<br><br>• LOCATION OF PARTICIPATION is **PROHIBITED**.<br><br>• Entity Identifier is **ESSENTIAL**.<br><br>• Relationship to Subject of Care is **PROHIBITED**.<br><br>• EMPLOYMENT DETAIL is **ESSENTIAL**.<br><br>• EMPLOYER ORGANISATION is **ESSENTIAL**.<br><br>• EMPLOYER ORGANISATION.Entity Identifier is **ESSENTIAL**.<br><br>• DEMOGRAPHIC DATA is **PROHIBITED**.<br><br>Other additional constraints:<br><br>• Participation Type **SHALL** have an implementation-specific value equivalent to “Reporting Radiologist”.<br><br>• 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.<br><br>• The value of one Entity Identifier **SHALL** be an Australian HPI-I. |

| | |
|---|---|
| | • AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS.<br>• Address Purpose **SHALL** have the value “B” (Business).<br>• Electronic Communication Usage Code **SHALL** have the value “B” (Business).<br>• PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.<br>• The value of one EMPLOYER ORGANISATION.Entity Identifier **SHALL** be an Australian HPI-O. |
| **Conditions of Use Source** | NEHTA |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

# 2.10 ORDER DETAILS

## Identification

| | |
|---|---|
| **Label** | ORDER DETAILS |
| **Metadata Type** | Data Group |
| **Identifier** | DG-16997 |
| **OID** | 1.2.36.1.2001.1001.101.102.16997 |

## Definition

| | |
|---|---|
| **Definition** | Details of order that caused the creation of the document. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

### Children

| Data Type | Name | Occurrences |
|---|---|---|
|  | REQUESTER | 1..1 |
|  | Requester Order Identifier (Order Identifier) | 0..1 |
|  | Accession Number (Order Identifier) | 1..1 |
|  | ~~Order Name~~ | ~~0..0~~ |

# 2.11 REQUESTER

## Identification

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

## Definition

| | |
|---|---|
| **Definition** | Party that asks for or orders the provision of service. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | The date, and optionally time, the request is made is contained in the *Participation Period* of the *Requester*. |

## 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 C, *Specification Guide for Use*.

Additional obligation and occurrence constraints:

- Participation Period is **ESSENTIAL**.
- LOCATION OF PARTICIPATION is **PROHIBITED**.
- Relationship to Subject of Care is **PROHIBITED**.
- EMPLOYMENT DETAIL is **ESSENTIAL**.
- EMPLOYER ORGANISATION is **ESSENTIAL**.
- DEMOGRAPHIC DATA is **PROHIBITED**.

Other additional constraints:

- Participation Type **SHALL** have an implementation-specific value equivalent to “Service Requester”.
- 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.
- AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS.

| | |
|---|---|
| | • Address Purpose **SHALL** have the value “B” (Business).<br>• Electronic Communication Usage Code **SHALL** have the value “B” (Business).<br>• PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.<br>• The value of one EMPLOYER ORGANISATION.Entity Identifier **SHOULD** be an Australian HPI-O. |
| **Conditions of Use Source** | NEHTA |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | ORDER DETAILS | 1..1 |

# 2.12 Order Identifier

## Identification

| | |
|---|---|
| **Label** | Requester Order Identifier |
| **Metadata Type** | Data Element |
| **Identifier** | DE-17007 |
| **OID** | 1.2.36.1.2001.1001.101.103.17007 |

## Definition

| | |
|---|---|
| **Definition** | The local identifier assigned to the order by the order requester. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | Placer Number |
| **Data Type** | UniqueIdentifier |

## Usage

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

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | ORDER DETAILS | 0..1 |

# 2.13 Order Identifier

## Identification

| | |
|---|---|
| **Label** | Accession Number |
| **Metadata Type** | Data Element |
| **Identifier** | DE-17007 |
| **OID** | 1.2.36.1.2001.1001.101.103.17007 |

## Definition

| | |
|---|---|
| **Definition** | An accession number assigned by the order receiver. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | An accession number is the radiology procedure “order number” or “request number”. Typically it is generated by the Radiology Information System and is included in the DICOM image header. It enables the request, images and report to be linked. |
| **Data Type** | UniqueIdentifier |

## Usage

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

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | ORDER DETAILS | 1..1 |

# 2.14 DIAGNOSTIC IMAGING

## Identification

| | |
|---|---|
| **Label** | DIAGNOSTIC IMAGING |
| **Metadata Type** | Section |
| **Identifier** | S-16945 |
| **OID** | 1.2.36.1.2001.1001.101.101.16945 |

## Definition

| | |
|---|---|
| **Definition** | Group of diagnostic imaging examination results concerning a subject of care and supporting information. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING REPORT | 1..1 |

### Children

| Data Type | Name | Occurrences |
|---|---|---|
|  | IMAGING EXAMINATION RESULT | 1..* |
|  | Diagnostic Imaging Section Instance Identifier (Diagnostic Imaging Instance Identifier) | 1..1 |
|  | RELATED DOCUMENT | 1..1 |
|  | Section Type | 1..1 |

# 2.15 Diagnostic Imaging Instance Identifier

## Identification

| | |
|---|---|
| **Label** | Diagnostic Imaging Section Instance Identifier |
| **Metadata Type** | Data Element |
| **Identifier** | DE-16958 |
| **OID** | 1.2.36.1.2001.1001.101.103.16958 |

## Definition

| | |
|---|---|
| **Definition** | A globally unique identifier for each instance of a *Diagnostic Imaging* section. |
| **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 C, *Specification Guide for Use* for examples and usage information for UniqueIdentifier. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING | 1..1 |

# 2.16 RELATED DOCUMENT

## Identification

| | |
|---|---|
| **Label** | RELATED DOCUMENT |
| **Metadata Type** | Data Group |
| **Identifier** | DG-16971 |
| **OID** | 1.2.36.1.2001.1001.101.102.16971 |

## Definition

| | |
|---|---|
| **Definition** | Information about a document of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Scope** | This provides a link to the target document of interest. |
| **Scope Source** | NEHTA |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING | 1..1 |

### Children

| Data Type | Name | Occurrences |
|---|---|---|
|  | Link Nature | 1..1 |
|  | Link Role | 1..1 |
|  | Examination Result Representation (Document Target) | 1..1 |
|  | DOCUMENT DETAILS | 1..1 |

# 2.17 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 which together communicate the semantics of the relationship between the source and target DCMs or document. This attribute is intended to be a coarse-grained category that can be used to enable interoperability between sender and receiver. |
| **Data Type** | CodedText |
| **Value Domain** | Link Nature Values |

## Usage

| | |
|---|---|
| **Conditions of Use** | The value **SHALL** be LINK-E0 (“is a related documentation”). |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for CodedText. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | RELATED DOCUMENT | 1..1 |

# 2.18 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], 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 other 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 |

# 2.19 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. This attribute provides for a specific description of the actual role played by the target in relation to the source. |
| **Data Type** | CodeableText |
| **Value Domain** | Link Role Values |

## Usage

| | |
|---|---|
| **Conditions of Use** | The value **SHALL** be LINK-E4 (“excerpts”). |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for CodeableText. |

# Relationships

**Parents**

| Data Type | Name | **Occurrences** (child within parent) |
|---|---|---|
|  | RELATED DOCUMENT | 1..1 |

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

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

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

# Usage

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

# Relationships

### Parents

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

# 2.21 Document Target

## Identification

| | |
|---|---|
| **Label** | Examination Result Representation |
| **Metadata Type** | Data Element |
| **Identifier** | DE-16972 |
| **OID** | 1.2.36.1.2001.1001.101.103.16972 |

## Definition

| | |
|---|---|
| **Definition** | The logical “to” object in the link relation. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | Rich text representation of the entire report as issued by the diagnostic service.<br><br>The PCEHR system requires all *Diagnostic Imaging Report*s to use only PDF format files in *Document Target*. |
| **Data Type** | EncapsulatedData |

## Usage

| | |
|---|---|
| **Conditions of Use** | The attached document **SHALL** be one of the following formats:<br>• GIF (image/gif)<br>• JPEG (image/jpg, image/jpeg)<br>• PDF (application/pdf)<br>• PNG (image/png)<br>• TIFF (image/tif, image/tiff) |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for EncapsulatedData. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | RELATED DOCUMENT | 1..1 |

# 2.22 DOCUMENT DETAILS

## Identification

| | |
|---|---|
| **Label** | DOCUMENT DETAILS |
| **Metadata Type** | Data Group |
| **Identifier** | DG-16720 |
| **OID** | 1.2.36.1.2001.1001.101.102.16720 |

## Definition

| | |
|---|---|
| **Definition** | Information about a document of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Scope** | Includes, among other things, document metadata (for example title and document type), information about the origination of the document (for example author name and date of creation), life cycle (for example document status). |
| **Scope Source** | NEHTA |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | RELATED DOCUMENT | 1..1 |

### Children

| Data Type | Name | Occurrences |
|---|---|---|
|  | ~~DateTime Health Event Ended~~ | ~~0..0~~ |
|  | Document Type | 1..1 |
|  | ~~DOCUMENT AUTHOR~~ | ~~0..0~~ |
|  | ~~DOCUMENT CUSTODIAN~~ | ~~0..0~~ |
|  | Report Description (Document Title) | 1..1 |
|  | ~~ADDITIONAL DOCUMENT DETAIL~~ | ~~0..0~~ |
|  | ~~Document Summary~~ | ~~0..0~~ |

| Data Type | Name | Occurrences |
|---|---|---|
|  | Report DateTime (Effective Period) | 1..1 |
|  | ~~Document Identifier~~ | ~~0..0~~ |
|  | Report Status (Document Status) | 1..1 |

# 2.23 Document Type

## Identification

| | |
|---|---|
| **Label** | Document Type |
| **Metadata Type** | Data Element |
| **Identifier** | DE-10335 |
| **OID** | 1.2.36.1.2001.1001.101.103.10335 |

## Definition

| | |
|---|---|
| **Definition** | Type of the document of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | Each clinical document contains as a coded value an identification of its *Document Type*. This `data element` contains the coded value of *Document Type* of the document of interest. |
| **Data Type** | CodedText |
| **Value Domain** | Document Type Values |

## Usage

| | |
|---|---|
| **Conditions of Use** | The value **SHALL** be the LOINC code 18748-4 (“Diagnostic imaging study”). |
| **Conditions of Use Source** | NEHTA |
| **Examples** | |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DOCUMENT DETAILS | 1..1 |

# 2.24 Document Type Values

## Identification

| | |
|---|---|
| **Label** | Document Type Values |
| **Metadata Type** | Value Domain |
| **Identifier** | VD-10336 |
| **OID** | 1.2.36.1.2001.1001.101.104.10336 |

## Definition

| | |
|---|---|
| **Definition** | Set of values for *Document Type*. |
| **Definition Source** | NEHTA |

## Value Domain

| | |
|---|---|
| **Source** | NCTIS Document Type Values |
| **Permissible Values** | The permissible values are:<br>• LOINC clinical document codes<br>• NEHTA OIDs with the prefix 1.2.36.1.2001.1001.101.100 |

## Usage

| | |
|---|---|
| **Conditions of Use** | The value of *Document Type* **SHOULD** be a LOINC code. Where an appropriate LOINC code is not available, the value **SHALL** be a NEHTA OID. |
| **Conditions of Use Source** | NEHTA |

# Relationships

**Parents**

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | Document Type | 1..1 |

# 2.25 Document Title

## Identification

| | |
|---|---|
| **Label** | Report Description |
| **Metadata Type** | Data Element |
| **Identifier** | DE-16966 |
| **OID** | 1.2.36.1.2001.1001.101.103.16966 |

## Definition

| | |
|---|---|
| **Definition** | Title of the document of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Data Type** | Text |

## Usage

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

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DOCUMENT DETAILS | 1..1 |

# 2.26 Effective Period

## Identification

| | |
|---|---|
| **Label** | Report DateTime |
| **Metadata Type** | Data Element |
| **Identifier** | DE-16981 |
| **OID** | 1.2.36.1.2001.1001.101.103.16981 |

## Definition

| | |
|---|---|
| **Definition** | The period of time during which the document of interest is deemed to have clinical utility. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | The date the report is written is the low date of the time interval. |
| **Data Type** | TimeInterval |

## Usage

| | |
|---|---|
| **Conditions of Use** | The *Report DateTime* **SHALL** be recorded as the low date of the interval. |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for TimeInterval. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DOCUMENT DETAILS | 1..1 |

# 2.27 Document Status

## Identification

| | |
|---|---|
| **Label** | Report Status |
| **Metadata Type** | Data Element |
| **Identifier** | DE-20104 |
| **OID** | 1.2.36.1.2001.1001.101.103.20104 |

## Definition

| | |
|---|---|
| **Definition** | Status of the document of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Data Type** | CodeableText |
| **Value Domain** | Document Status Values |

## Usage

| | |
|---|---|
| **Conditions of Use** | The receiving system **SHALL NOT** amend the value of the *Document Status* of a received document. |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for CodeableText. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DOCUMENT DETAILS | 1..1 |

# 2.28 Document Status Values

## Identification

| | |
|---|---|
| **Label** | Document Status Values |
| **Metadata Type** | Value Domain |
| **Identifier** | VD-20104 |
| **OID** | 1.2.36.1.2001.1001.101.104.20104 |
| **External Identifier** | 2.16.840.1.113883.12.123 |

## Definition

| | |
|---|---|
| **Definition** | Set of values for the status of the document. |
| **Definition Source** | NEHTA |
| **Notes** | In other NEHTA-compliant documents, such as *Discharge Summary* v2.1, values of this `data element` are encoded using *NCTIS Document Status Values*, rather than *HL7 v2.x Table 0123 (Result status)*. |

## Value Domain

| | |
|---|---|
| **Source** | HL7 v2.x Table 0123 (Result status) |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | Report Status (Document Status) | 1..1 |

# 2.29 Section Type

## Identification

| | |
|---|---|
| **Label** | Section Type |
| **Metadata Type** | Data Element |
| **Identifier** | DE-16693 |
| **OID** | 1.2.36.1.2001.1001.101.103.16693 |

## Definition

| | |
|---|---|
| **Definition** | NEHTA OID for type of Section. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | A section's type is identified by a unique identifier, not by a name. |
| **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 C, *Specification Guide for Use* for examples and usage information for UniqueIdentifier. |
| **Default Value** | 1.2.36.1.2001.1001.101.101.16945 |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | DIAGNOSTIC IMAGING | 1..1 |

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# 3 Imaging Examination Result Detailed Clinical Model

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

See *Imaging Examination Result Detailed Clinical Model Specification [NEHT2014aa]* for more information.

## 3.1 Purpose

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

## 3.2 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.

## 3.3 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.

# 3.4 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** | |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
| | DIAGNOSTIC IMAGING | 1..* |

### Children

| Data Type | Name | Occurrences |
|---|---|---|
| | Examination Result Name (Imaging Examination Result Name) | 1..1 |
| | Modality (Imaging Modality) | 1..1 |
| | Anatomical Site (ANATOMICAL LOCATION) | 1..* |
| | Anatomical Region | 0..1 |
| | Overall Result Status (Imaging Examination Result Status) | 1..1 |
| | ~~Clinical Information Provided~~ | ~~0..0~~ |
| | ~~Findings~~ | ~~0..0~~ |
| | ~~Result Group (IMAGING EXAMINATION RESULT GROUP)~~ | ~~0..0~~ |
| | ~~Radiological Diagnosis~~ | ~~0..0~~ |

| Data Type | Name | Occurrences |
|---|---|---|
|  | ~~Conclusion (Imaging Examination Conclusion)~~ | ~~0..0~~ |
|  | ~~Examination Result Representation~~ | ~~0..0~~ |
|  | ~~Examination Comment~~ | ~~0..0~~ |
|  | ~~RECEIVING IMAGING SERVICE~~ | ~~0..0~~ |
|  | Examination Details (EXAMINATION REQUEST DETAILS) | 1..1 |
|  | Examination Procedure | 1..1 |
|  | ~~COMPARED IMAGE DETAILS~~ | ~~0..0~~ |
|  | ~~REPORTING RADIOLOGIST~~ | ~~0..0~~ |
|  | ~~INFORMATION PROVIDER~~ | ~~0..0~~ |
|  | ~~SUBJECT~~ | ~~0..0~~ |
|  | Observation DateTime | 1..1 |
|  | Imaging Examination Result Instance Identifier | 1..1 |
|  | Related Images (RELATED INFORMATION) | 0..1 |
|  | Detailed Clinical Model Identifier | 1..1 |

# 3.5 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.*<br><br>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.<br><br>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<br><br>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

# 3.6 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:<br>• available for request; or<br>• 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. |
| **Data Type** | CodeableText |
| **Value Domain** | *Not specified.*<br>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.<br>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<br>2) CT scan<br>3) MRI<br>4) PET scan |

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

# Relationships

### Parents

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

# 3.7 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** | |

## Usage

| | |
|---|---|
| **Conditions of Use** | Each instance of this data group **SHALL** contain exactly one *SPECIFIC LOCATION* or exactly one *Description (Anatomical Location Description)*.<br><br>This data group **SHALL NOT** contain both an instance of *SPECIFIC LOCATION* and an instance of *Description (Anatomical Location Description)*. |
| **Conditions of Use Source** | NEHTA |

# Relationships

### Parents

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

### Children

| Data Type | Name | Occurrences |
|---|---|---|
| | SPECIFIC LOCATION | 0..1 |
| | ~~RELATIVE LOCATION~~ | ~~0..0~~ |
| T | Description (Anatomical Location Description) | 0..1 |
| T | ~~Visual Markings/Orientation~~ | ~~0..0~~ |

| Data Type | Name | Occurrences |
|---|---|---|
|  | ~~Image (Anatomical Location Image)~~ | ~~0..0~~ |

# 3.8 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 |

### Children

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

# 3.9 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 C, *Specification Guide for Use* for examples and usage information for CodeableText. |

# Relationships

### Parents

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

# 3.10 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 |

# 3.11 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

| | |
|---|---|
| **Conditions of Use** | There **SHALL** be at most one value of *Side* for each *Imaging Examination Result*. |
| **Conditions of Use Source** | NEHTA |
| **Examples** | 1) Right<br>2) Left<br>3) Bilateral |

# Relationships

### Parents

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

# 3.12 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 |

# 3.13 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 C, *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..1 |

# 3.14 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 C, *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 |

# 3.15 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<br>2 Neck<br>3 Chest<br>4 Cardiac<br>5 Breast<br>6 Abdomen<br>7 Pelvis<br>8 Upper limb<br>9 Lower limb<br>10 Cervical spine<br>11 Thoracic spine<br>12 Lumbar spine<br>13 Whole body |

# Relationships

### Parents

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

# 3.16 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<br>2) Interim<br>3) Final |

# Relationships

### Parents

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

# 3.17 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 |
| **External Identifier** | 2.16.840.1.113883.12.123 |

## Definition

| | |
|---|---|
| **Definition** | Set of values for the imaging examination result status. |
| **Definition Source** | NEHTA |
| **Notes** | In other PCEHR documents, including *Event Summary* v1.1 and *Discharge Summary* v3.3, values of this `data element` are encoded using *NCTIS Imaging Examination Result Status Values*, rather than *HL7 v2.x Table 0123 (Result status)*. |

## Value Domain

| | |
|---|---|
| **Source** | HL7 v2.x Table 0123 (Result status) |

# Relationships

### Parents

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

# 3.18 EXAMINATION REQUEST DETAILS

## Identification

| | |
|---|---|
| **Label** | Examination 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** | |

# Relationships

### Parents

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

### Children

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

# 3.19 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 referred to, or provided, to assist clinical understanding of the examination. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
| | Examination Details (EXAMINATION REQUEST DETAILS) | 1..1 |

### Children

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

# 3.20 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 C, *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 | 1..1 |

# 3.21 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 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 | 1..1 |

# 3.22 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** | |
| **Context** | For a *Diagnostic Imaging Report* the value is the date, and optionally time, of the imaging examination.<br><br>For a series of images this is the date, and optionally time, when the last image was taken. |
| **Context Source** | NEHTA |
| **Notes** | **Clinical Semantics of Event Time.** (Section 8.2.3.3 of *EHR Information Model [OEHR2008a]*)<br><br>In most cases, the times recorded in [an *Observation DateTime* `data element`] can be thought of as “the times when the observed phenomena were true”. For example, if a pulse of 88bpm is recorded for 12/feb/2005 12:44:00, this is the time at which the heart rate (for which pulse is a surrogate) existed. In such cases, the *sample* time, and the *measuring* time are one and the same.<br><br>However in cases where the time of sampling is different from that of measurement, the semantics are more subtle. There are two cases. The first is where a sample is taken (e.g. a tissue sample in a needle biopsy), and is tested later on, but from the point of view of the test, the time delay makes no difference. This might be because the sample was immediately preserved (e.g. freezing, placed in a sterile ... transport container), or because even if it decays in some way, it makes no difference to the test (e.g. bacteria may die, but this makes no difference to [an] analysis, as long as the biological matter is not physically destroyed).<br><br>The second situation is when the sample does decay in some way, and the delay is relevant. Most such cases are in pathology tests, where presence of live biological organisms (e.g. anaerobic bacteria) is being measured. The sample time (or ‘collection’ time) must be recorded. Depending on when the test is done, the results may be interpreted differently.<br><br>The key question is: what is the meaning of the [ `data element`] in these situations? It is tempting to say that [its value is] (as in other cases) just the [time] of the actual act of observation, e.g. microscopy, chromatography etc. However, there are two problems with this. Firstly, and most importantly, all physical samples must be understood as being *indirect surrogates for some aspect of the patient state at the time of sampling*, which cannot be observed by direct, instantaneous means in the way a pulse can be taken. This means that no matter when the laboratory work is done, the time to which the result applies is the *sample* time. It is up to the laboratory to take into account time delays and |

| | |
|---|---|
| | effects of decay of samples in order to provide a test result which correctly indicates the state of the patient at the time of sampling. The common sense of this is clear when one considers the extreme case where the patient is in a coma or dead (possibly for reasons completely unrelated to the problem being tested for) by the time laboratory testing actually occurs; however, the test result indicates the situation at the point in time when the sample was taken, i.e. when the patient was alive. The second reason is that some kinds of testing are themselves lengthy. For example fungal specimens require 4-6 weeks to confirm a negative result; checks will be made on a daily or weekly basis to find positive growth. However, the result data reported by the laboratory (and therefore the structure of the Observation) is not related to the timing of the laboratory testing; it is reported as being the result for the time of collection of the specimen from the patient.<br><br>The meaning therefore of the [ `data element`] is always the time of sampling. Where delays between sample and measurement times exist and are significant, they are [modelled explicitly]. |
| **Data Type** | DateTime |

# Usage

| | |
|---|---|
| **Examples** | Please see DateTime in Appendix C, *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 |

# 3.23 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 C, *Specification Guide for Use* for examples and usage information for UniqueIdentifier. |

# Relationships

### Parents

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

# 3.24 RELATED INFORMATION

## Identification

| | |
|---|---|
| **Label** | Related Images |
| **Metadata Type** | Data Group |
| **Identifier** | DG-16692 |
| **OID** | 1.2.36.1.2001.1001.101.102.16692 |

## Definition

| | |
|---|---|
| **Definition** | A link to, or identifier of, information of interest. |
| **Definition Source** | NEHTA |
| **Synonymous Names** | |
| **Notes** | Items of related information include, but are not limited to, documents, images and web pages. |

# Relationships

### Parents

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

### Children

| Data Type | Name | Occurrences |
|---|---|---|
|  | Link Nature | 1..1 |
|  | ~~Link Role~~ | ~~0..0~~ |
|  | Image Location (Target) | 1..1 |

# 3.25 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 which together communicate the semantics of the relationship between the source and target DCMs or document. This attribute is intended to be a coarse-grained category that can be used to enable interoperability between sender and receiver. |
| **Data Type** | CodedText |
| **Value Domain** | Link Nature Values |

## Usage

| | |
|---|---|
| **Conditions of Use** | The value **SHALL** be LINK-A0 (“is related to”). |
| **Conditions of Use Source** | NEHTA |
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for CodedText. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | Related Images (RELATED INFORMATION) | 1..1 |

# 3.26 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], 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 other two might be defining the same care plan, act or episode, or both might be related milestones. |

| | | |
|---|---|---|
| | LINK-E0, is a related documentation | The target [instance of a DCM or document] is an alternative documentary form of the source [DCM instance], such as re-expression of the same clinical information or additional supplementary explanatory information. |

# Relationships

### Parents

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

# 3.27 Target

## Identification

| | |
|---|---|
| **Label** | Image Location |
| **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 |

## Usage

| | |
|---|---|
| **Examples** | Please see Appendix C, *Specification Guide for Use* for examples and usage information for Link. |

# Relationships

### Parents

| Data Type | Name | Occurrences (child within parent) |
|---|---|---|
|  | Related Images (RELATED INFORMATION) | 1..1 |

# 3.28 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 C, *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 |

# 4 UML Class Diagrams

The following figure represents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups, sections, structured documents and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes; data groups, sections and structured documents 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. The diagram shows the data hierarchy excluding the details of participation. The default multiplicity is 1..1.

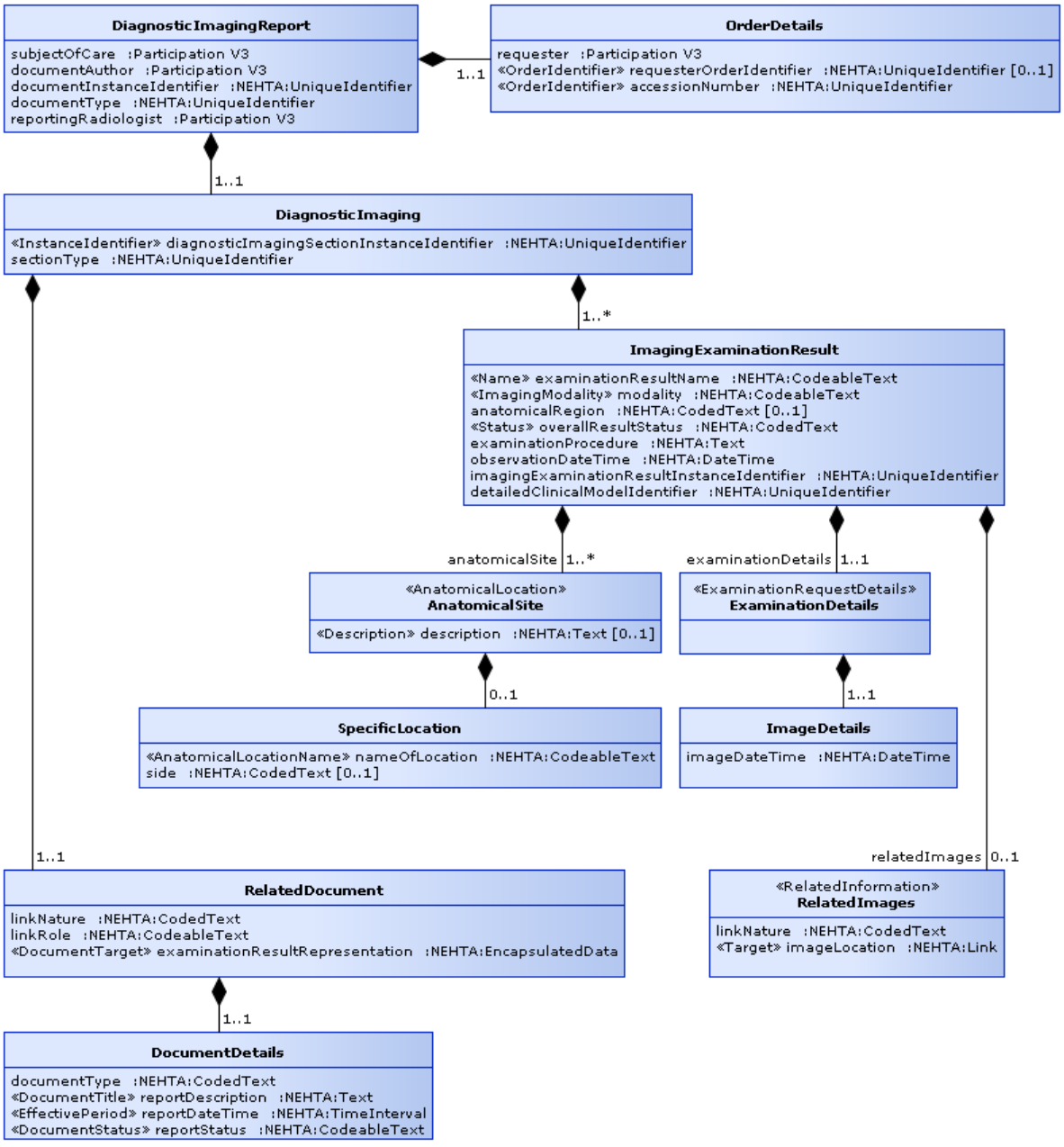


**Figure 4.1. Diagnostic Imaging Report data hierarchy**

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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 development of these solutions.

| Reference | Description |
|---|---|
| Links to external resources | If a link (usually in references section) spans across several lines, certain combinations of PDF reader and web browser have problems opening it. |
| Undefined Data Structures | The following data components lack a defined data structure: *Examination Procedure*.<br><br>A free-text `data element` is currently used as an interim solution. |
| Undefined Value Domains | The following `data elements` lack a defined value domain: *Imaging Examination Result Name* and *Imaging Modality*.<br><br>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. |
| Workplace address | The requirements specify that clinician addresses shall be workplace addresses. This SCS prohibits giving an address purpose of “Postal”. |
| 2.27 Document Status | The `data element` *Document Status* is being used to hold *Report Status*. The concepts are not the same, but this is the best option until the *Imaging Examination Result* DCM is restructured, it needs to be normalised. |
| 2.28 Document Status Values | The data set for values of *Document Status* is not the standard NEHTA one. The Australian Government Department of Health chose values from HL7 table 0123 (Result status). HL7 table 0123 is specified here for *Document Status Values*. |
| 3.11 Body Structure Foundation Reference Set | The specified data set is wider than required. A more appropriate set is *Anatomical site reference set* (6021000036108). |
| 3.16 Anatomical Region Values | The appropriate governance for this code set has not yet been determined. Its relationship to SNOMED CT-AU has also not yet been determined. |
| 3.17 Imaging Examination Result Status | The Australian Government Department of Health chose values from HL7 table 0123 (Result status) for values of *Result Status*. Other PCEHR documents (including *e-Discharge Summary*, *e-Referral*, *Specialist Letter* and *Event Summary*) use a different NEHTA-endorsed data set for values of *Result Status*. |
| 3.28 Target | Image Location (Target) does not well implement the requirement *URI of image set location (022561)*. It is just a related URI. The semantics is only in the label of the data components. Maybe it is better to implement this as part of the narrative without being part of the structured data. Our model of related information does not yet cover this use effectively. |

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# Appendix B. Mappings from Requirements

This appendix lists data elements from *NEHTA eHealth Diagnostic Imaging Report Information Requirements [NEHT2013ar]* and matches them to their associated `data elements` in this Structured Content Specification (SCS) augmented with *NEHTA Participation Data Specification [NEHT2011v]*.

Data components are identified by their label, e.g. *Test Specimen Detail*, rather than by their name, e.g. *Specimen*.

The mappings table below includes links to the SCS `data elements` that are described in this document.

Some cells in the mapping table are empty. This is used to indicate that the cell has the same value as the cell immediately above it.

| Requirement Section | Data Item | Req No. | SCS Data Element |
|---|---|---|---|
| Subject of Care | N/A | N/A | Subject of Care [SOC] |
| | N/A | N/A | [SOC] > Participant > Person or Organisation or Device > Person [SOC > P > POD > P] |
| Individual (Core) | N/A | N/A | N/A |
| | Individual Healthcare Identifier (mandatory) | 022082 | [SOC] > Participant > Entity Identifier |
| | Individual's Title (optional) | 022081 | [SOC > P > POD > P] > Person Name > Name Title |
| | Individual's Given Name (optional) | 023056 | [SOC > P > POD > P] > Person Name > Given Name |
| | Individual's Family Name (mandatory) | 023058 | [SOC > P > POD > P] > Person Name > Family Name |
| | Individual's Name Suffix (optional) | 023059 | [SOC > P > POD > P] > Person Name > Name Suffix |
| | Individual's Sex (mandatory) | 024032 | [SOC > P > POD > P] > Demographic Data > Sex |
| | Individual's Date of Birth (mandatory) | 023060 | [SOC > P > POD > P] > Demographic Data > Date of Birth Detail > Date of Birth |
| | Date of Birth accuracy indicator (optional) | 024026 | [SOC > P > POD > P] > Demographic Data > Date of Birth Detail > Date of Birth Accuracy Indicator |
| Individual (extension) | N/A | N/A | N/A |
| | Individual's Address (mandatory) | 024041 | [SOC] > Participant > Address |
| | Individual's Electronic Communication Details (optional) | 024042 | [SOC] > Participant > Electronic Communication Detail |

| Requirement Section | Data Item | Req No. | SCS Data Element |
|---|---|---|---|
| | Indigenous Status (mandatory) | 024033 | [SOC > P > POD > P] > Demographic Data > Indigenous Status |
| Healthcare Provider - Examination Requester | N/A | N/A | Order Details > Requester [OD > R] |
| | N/A | N/A | Order Details [OD] |
| | N/A | N/A | [OD > R] > Participant > Person or Organisation or Device > Person [OD > R > P > POD > P] |
| | Healthcare Provider Organisation Name (mandatory) | 023070 | [OD > R > P > POD > P] > Employment Detail > Employer Organisation > Person or Organisation or Device > Organisation > Organisation Name |
| non-PCEHR participating Healthcare Provider (core) | N/A | N/A | N/A |
| | Healthcare Provider Identifier-Individual (optional) | 024601 | [OD > R] > Participant > Entity Identifier |
| | Healthcare Provider Identifier-Organisation (optional) | 024602 | [OD > R > P > POD > P] > Employment Detail > Employer Organisation > Entity Identifier |
| | Healthcare Provider's Title (optional) | 023061 | [OD > R > P > POD > P] > Person Name > Name Title |
| | Healthcare Provider Given Name (optional) | 023062 | [OD > R > P > POD > P] > Person Name > Given Name |
| | Healthcare Provider Family Name (mandatory) | 023064 | [OD > R > P > POD > P] > Person Name > Family Name |
| | Healthcare Provider Name Suffix (optional) | 023065 | [OD > R > P > POD > P] > Person Name > Name Suffix |
| Healthcare Provider - Reporting Radiologist | N/A | N/A | Reporting Radiologist [RR] |
| | N/A | N/A | [RR] > Participant > Person or Organisation or Device > Person [RR > P > POD > P] |
| PCEHR participating Healthcare Provider (core) | N/A | N/A | N/A |

| Requirement Section | Data Item | Req No. | SCS Data Element |
|---|---|---|---|
| | Healthcare Provider Identifier-Individual (mandatory) | 023066 | [RR] > Participant > Entity Identifier |
| | Healthcare Provider Identifier-Organisation (mandatory) | 023071 | [RR > P > POD > P] > Employment Detail > Employer Organisation > Entity Identifier |
| | Healthcare Provider's Title (optional) | 023061 | [RR > P > POD > P] > Person Name > Name Title |
| | Healthcare Provider Given Name (optional) | 023062 | [RR > P > POD > P] > Person Name > Given Name |
| | Healthcare Provider Family Name (mandatory) | 023064 | [RR > P > POD > P] > Person Name > Family Name |
| | Healthcare Provider Name Suffix (optional) | 023065 | [RR > P > POD > P] > Person Name > Name Suffix |
| CDA Document Author | N/A | N/A | Document Author [DA] |
| | N/A | N/A | [DA] > Participant > Person or Organisation or Device > Person [DA > P > POD > P] |
| | Healthcare Provider Organisation Name (mandatory) | 023070 | [DA > P > POD > P] > Employment Detail > Employer Organisation > Person or Organisation or Device > Organisation > Organisation Name |
| | Healthcare Provider Professional Role (mandatory) | 024040 | [DA] > Role |
| PCEHR participating Healthcare Provider (core) | N/A | N/A | N/A |
| | Healthcare Provider Identifier-Individual (mandatory) | 023066 | [DA] > Participant > Entity Identifier |
| | Healthcare Provider Identifier-Organisation (mandatory) | 023071 | [DA > P > POD > P] > Employment Detail > Employer Organisation > Entity Identifier |
| | Healthcare Provider's Title (optional) | 023061 | [DA > P > POD > P] > Person Name > Name Title |

| Requirement Section | Data Item | Req No. | SCS Data Element |
|---|---|---|---|
| | Healthcare Provider Given Name (optional) | 023062 | [DA > P > POD > P] > Person Name > Given Name |
| | Healthcare Provider Family Name (mandatory) | 023064 | [DA > P > POD > P] > Person Name > Family Name |
| | Healthcare Provider Name Suffix (optional) | 023065 | [DA > P > POD > P] > Person Name > Name Suffix |
| Healthcare Provider (extension) | N/A | N/A | N/A |
| | Healthcare Provider Individual's Workplace Address (optional) | 024035 | [DA] > Participant > Address |
| | Healthcare Provider Individual's Workplace Communication Details (optional) | 024036 | [DA] > Participant > Electronic Communication Detail |
| Document control (core) | N/A | N/A | N/A |
| | Document Version Number (mandatory) | 023068 | *This is managed in the implementation level (e.g. CDA).* |
| | Document Instance Identifier (mandatory) | 023067 | Document Instance Identifier |
| | Template identifier (mandatory) | 023069 | *This is managed in the implementation level (e.g. CDA).* |
| | Date and time of document creation (mandatory) | 024025 | *This is managed in the implementation level (e.g. CDA).* |
| | Document type (mandatory) | 024027 | Document Type |
| Domain Specific - Diagnostic Imaging | N/A | N/A | Diagnostic Imaging [DI] |
| | N/A | N/A | [DI] > Imaging Examination Result [DI > IER] |
| | Request Date and Time (mandatory) | 022886 | [OD > R] > Participation Period |
| | Request Identifier (optional) | 022884 | [OD] > Requester Order Identifier (Order Identifier) |
| | Accession Number (mandatory) | 022557 | [OD] > Accession Number (Order Identifier) |

| Requirement Section | Data Item | Req No. | SCS Data Element |
|---|---|---|---|
| | Report Completion Date and Time (mandatory) | 023100 | [DI] > Related Document > Document Details > Report DateTime (Effective Period) |
| | Report status (mandatory) | 023107 | [DI] > Related Document > Document Details > Report Status (Document Status) |
| | Report Description (mandatory) | 024047 | [DI] > Related Document > Document Details > Report Description (Document Title) |
| | Single PDF Attachment (mandatory) | 022556 | [DI] > Related Document > Examination Result Representation (Document Target)<br><br>*The PCEHR requirement for the attachment to be in PDF format is covered by the PCEHR conformance profile.* |
| | Modality (mandatory) | 022562 | [DI > IER] > Modality (Imaging Modality) |
| | Examination Procedure (mandatory) | 022558 | [DI > IER] > Examination Procedure |
| | Anatomical Location (optional) | 022563 | *When the name of the location and the laterality are available as separate data values use* Name of Location *and* Side*.*<br><br>[DI > IER] > Anatomical Site > Specific Location > Name of Location (Anatomical Location Name)<br><br>*When only descriptions of the locations are available, use* Description*.*<br><br>[DI > IER] > Anatomical Site > Description (Anatomical Location Description) |
| | Anatomical Region (optional) | 022745 | [DI > IER] > Examination Details > Image Details > Anatomical Region |
| | Region distinction (mandatory) | 022868 | *Anatomical Site and Anatomical Region are distinct data components.* |
| | Imaging Date and Time (mandatory) | 022560 | [DI > IER] > Examination Details > Image Details > Image DateTime |
| | Region Laterality (optional) | 022869 | *This is derived from Side.* |
| | Anatomical Site Laterality (optional) | 022559 | [DI > IER] > Anatomical Site > Specific Location > Side |
| | URI of image set location (optional) | 022561 | [DI > IER] > Related Images > Image Location (Target) |

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# Appendix C. Specification Guide for Use

## C.1 Overview

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

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

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

## C.2 The Structured Content Specification Metamodel

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

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

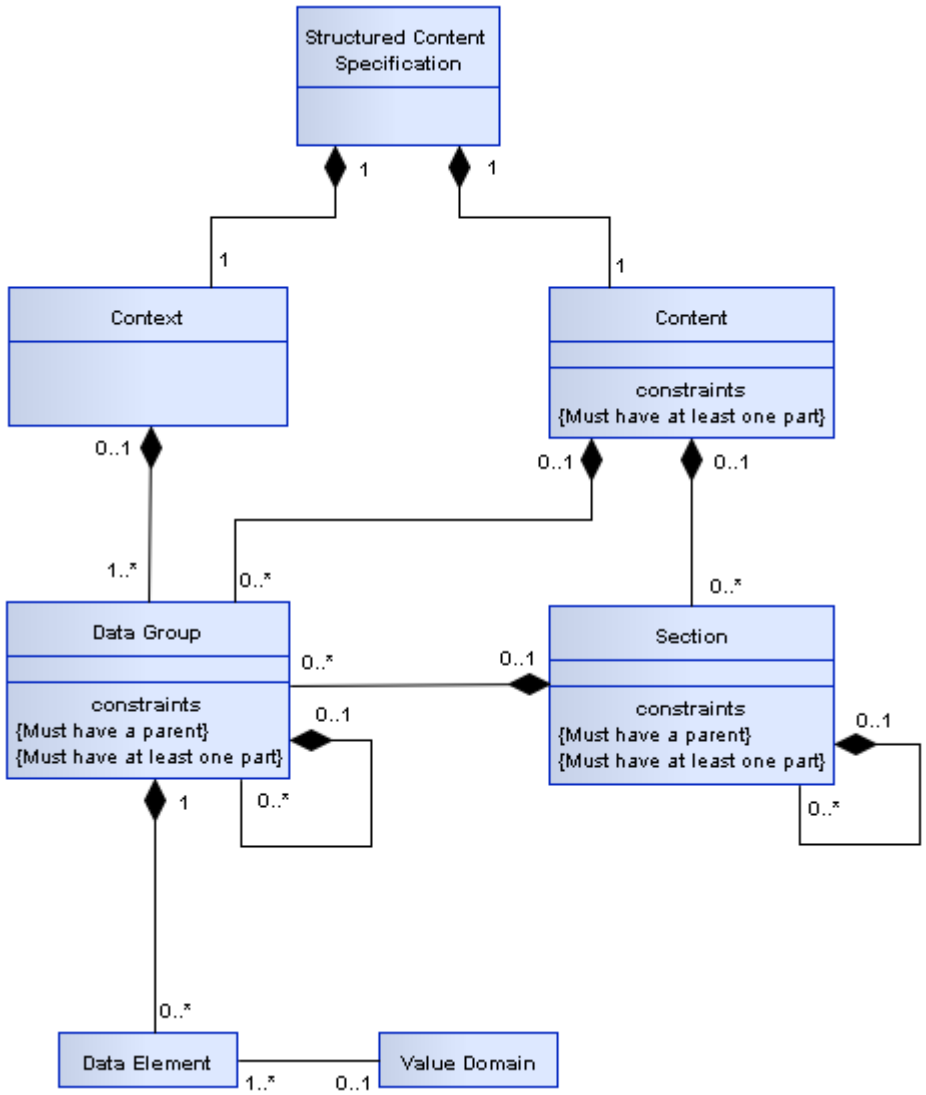


**Figure 1: SCS Metamodel**

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

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

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

- Section
- Data Group
- Data Element
- Value Domain

These components are described in more detail below.

# Context

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

# Content

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

# Section

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

# Data Group

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

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

## Participation

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

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

[NEHT2011v] defines the full Participation specification.

# Choice

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

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

# Data Element

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

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

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

**Table 1: Value Domain Examples**

<table>
<tr><th>Data Element</th><th>Data Type</th><th>Example of Value Domain</th></tr>
<tr><td>Sex</td><td>CodedText</td><td>[SA2006a] and [SA2006b] derive their values from METeOR 287316 which includes values such as:<br><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>

# C.3 Icon Legend

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

# Metadata Types Legend

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

**Table 2: Metadata Types Legend**

| Icon | Metadata Types |
|---|---|
|  | Structured Document |

| | |
|---|---|
|  | Section |
|  | Data Group |
|  | Participation |
|  | Choice |

# Data Types Legend

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

**Table 3: Data Types Legend**

| Icon | Data type | Explanation |
|---|---|---|
|  | Boolean<br><br>(ISO 21090: BL) | A primitive data type, sometimes called the logical data type, having one of two values: *true* and *false*. Many systems represent true as *non-zero* (often 1, or -1) and false as *zero*.<br><br>**Usage/Examples**<br><br>• An actual value entered by a user might be “yes” or could be chosen by a mouse click on an icon such as ☑. |
|  | CodeableText<br><br>(ISO 21090: CD) | Coded text *with* exceptions; a flexible data type to support various ways of holding text, both free text and coded text. Commonly used to support compliance for early adopters of the Structured Content Specifications. While it is recommended that the values in this data type come from the bound value domain, it allows other value domains to also be used (with or without translations to the bound value domain) or free text alternatives. This is in recognition that it may not be possible to define an entire value domain for a complex concept (e.g. *Diagnosis*) or that there may be competing code sets in existence. Note that within exchange specifications or message profiles this data type **MAY** be constrained to mandate compliance with the bound value domain.<br><br>**Usage/Examples**<br><br>• AIHW Separation Mode specifies the status at separation of a person from an organisation. An early adopter **MAY** have a similar concept (coded or otherwise) that maps to this data element but does not strictly comply with the AIHW values.<br><br>• A SNOMED CT-AU coded/complex expression that embodies single or multiple concepts. The SNOMED CT-AU concepts behind these CodeableText components are specified in the Structured Content Specification value domains. |

CodedText

(ISO 21090: CD)

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

**Usage/Examples**

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

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

DateTime

(ISO 21090: TS)

Used for specifying a single date or time (or both). Has the ability to indicate a level of precision, but not whether the date or time is estimated. String representations of known dates **SHALL** conform to the nonextended format within the **ISO 21090-2011** standard, i.e. 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 5 hours behind Coordinated Universal Time (UTC): 19990531132000-0500.

Duration

(ISO 21090: PQ.TIME)

The period of time during which something continues. Consists of a value and a unit which represents the time value, e.g. hours, months. Compound durations are not allowed, e.g. 10 days 3 weeks 5 hours.

**Usage/Examples**

- 3 hours
- 6 months
- 1 year

Any

(ISO 21090: ANY)

Represents a data element where the data type to be used is conditional on another data component. The values that can be required will vary considerably depending on the context. Note that this is an abstract data type that is the basis for all data types and **SHOULD NOT** be used in an actual implementation.

EncapsulatedData

(ISO 21090: ED)

Data that is primarily intended for human interpretation or for further machine processing outside the scope of this specification. This includes unformatted or formatted written language, multimedia data, or structured information as defined by a different standard (e.g. XML signatures).

**Usage/Examples**

- JPEG images
- HTML documents
- [RFC1521] MIME types

| | |
|---|---|
|  Integer<br><br>(ISO 21090: INT) | The mathematical data type comprising the exact integral values (according to [NEHT2010c]).<br><br>**Usage/Examples**<br><br>• 1<br><br>• -50<br><br>• 125 |
|  Link<br><br>(ISO 21090: TEL) | This is a general link, reference or pointer to an object, data or application that exists logically or is stored electronically in a computer system.<br><br>**Usage/Examples**<br><br>• 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*.<br><br>• 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<br><br>(ISO 21090: PQ) | Used for recording many real world measurements and observations. Includes the magnitude value and the units.<br><br>**Usage/Examples**<br><br>• 100 centimetres<br><br>• 25.5 grams |
|  QuantityRatio<br><br>(ISO 21090: RTO) | The relative magnitudes of two *Quantity* values (usually expressed as a quotient).<br><br>**Usage/Examples**<br><br>• 25 mg/500 ml<br><br>• 200 mmol per litre |
|  QuantityRange<br><br>(ISO 21090: IVL) | Two *Quantity* values that define the minimum and maximum values, i.e. lower and upper bounds. This is typically used for defining the valid range of values for a particular measurement or observation. Unbounded quantity ranges can be defined by not including a minimum and/or a maximum quantity value.<br><br>**Usage/Examples**<br><br>• -20 to 100 Celsius<br><br>• 30-50 mg<br><br>• >10 kg |

| | |
|---|---|
|  Real<br><br>(ISO 21090: REAL) | A computational approximation to the standard mathematical concept of real numbers. These are often called floating-point numbers.<br><br>**Usage/Examples**<br><br>• 1.075<br><br>• -325.1<br><br>• 3.14157 |
|  Text<br><br>(ISO 21090: ST) | Character strings (with optional language). Unless otherwise constrained by an implementation, can be any combination of alpha, numeric or symbols from the Unicode character set. This is sometimes referred to as free text.<br><br>**Usage/Examples**<br><br>“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<br><br>(ISO 21090:TS) | An interval in time, with (optionally) a start date/time and (optionally) an end date/time and/or a duration/width.<br><br>**Usage/Examples**<br><br>• 01/01/2008 – 31/12/2008<br><br>• 1:30 a.m. – 6:00 p.m., duration/width = 16.5 hours |

| | | |
|---|---|---|
|  | UniqueIdentifier<br><br>(ISO 21090: II) | A general unique value to identify a physical or virtual object or concept.<br><br>In using this data type, the attributes of the UniqueIdentifier data type **SHOULD** be populated from the identifiers as defined in AS 4846 (2006) [SA2006a] and AS 5017 (2006) [SA2006b] as follows:<br><br>• *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.<br><br>• *extension*: a unique identifier within the scope of the root that is directly equivalent to the identifier designation element.<br><br>• *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.<br><br>• *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.<br><br>Also, the following constraints apply on the UniqueIdentifier data type:<br><br>1) The *root* attribute **SHALL** be used.<br><br>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.<br><br>3) For an entity identifier, the *root* attribute **SHALL NOT** be a UUID.<br><br>4) The *extension* attribute **SHALL** be used.<br><br>**Usage/Examples**<br><br>IHIs, HPI-Is, HPI-Os and patient hospital medical record numbers are examples of identifiers that **MAY** be carried by this data type. |

# Keywords Legend

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

The following table defines these keywords.

**Table 4: Keywords Legend**

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

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

# Obligation Legend

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

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

The following table defines the obligations.

**Table 5: Obligations Legend**

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

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

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

# C.4 Information Model Specification Parts Legends

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

## Data Hierarchy

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

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

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

## Chapter Name

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

## Identification Section Legend

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

# Table 6: Identification Section Legend

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

# Definition Section Legend

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

# Table 7: Definition Section Legend

| | |
|---|---|
| **Definition** | The meaning, description or explanation of the data component. (Source NEHTA.)<br><br>For data groups used in a particular context, the definition **MAY** be a refinement of the generic data group definition. |
| **Definition Source** | The authoritative source for the Definition statement. |
| **Synonymous Names** | A list of any names the data component **MAY** also be known as. (Source NEHTA.)<br><br>Implementers **MAY** prefer to use synonymous names to refer to the component in specific contexts. |
| **Scope** | Situations in which the data component may be used, i.e. the extent and capacity within which this data component may be used, including the circumstances under which the collection of specified data is required or recommended.<br><br>For example, Medication Instruction (data group) has a scope which includes all prescribable therapeutic goods, both medicines and non-medicines.<br><br>This attribute is not relevant to data elements or value domains. (Source NEHTA.) |
| **Scope Source** | The authoritative source for the Scope statement. |
| **Context** | The environment in which the data component is meaningful, i.e. the circumstance, purpose and perspective under which this data component is defined or used.<br><br>For example, Street Name has a context of Address. (Source NEHTA.) |
| **Assumptions** | Suppositions and notions used in defining the data component. (Source NEHTA.) |
| **Assumptions Source** | The authoritative source for the Assumptions statement. |
| **Notes** | Informative text that further describes the data component, or assists in the understanding of how the data component can be used. (Source NEHTA.) |
| **Notes Source** | The authoritative source for the Notes statement. |
| **Data Type** | The data type of the data element, e.g. DateTime or Text. (Source NEHTA.)<br><br>The data type is applicable only to data elements.<br><br>The valid data types are specified in the Data Types Legend. |

| | |
|---|---|
| **Value Domain** | The name and identifier of the terminologies, code sets and classifications to define the data element value range, or a statement describing what values to use in the absence of a defined value domain for the related data element.<br><br>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.<br><br>When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated. (Source NEHTA.)<br><br>The Value Domain is applicable only to CodedText and CodeableText data elements. |

# Value Domain Section Legend

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

# Table 8: Value Domain Section Legend

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

# Usage Section Legend

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

# Table 9: Usage Section Legend

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

# Relationships Section Legend

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

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

**Table 10: Parent Legend**

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

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

**Table 11: Children Legend**

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

# Reference List

[ABS2009] Australian Bureau of Statistics, 25 June 2009, *1220.0 - ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, Revision 1*, accessed 28 August 2013.
http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/-E8A05691E35F4376CA257B9500138A52?opendocument

[DH2014a] Australian Department of Health, 2014, *Personally controlled electronic health record system: Glossary of Terms*, accessed 19 August 2014.
http://www.ehealth.gov.au/internet/ehealth/publishing.nsf/Content/glossary

[HL7CDAR2] Health Level Seven, Inc., January 2010, *HL7 Clinical Document Architecture*, Release 2, accessed 17 July 2014.
http://www.hl7.org/implement/standards/product_brief.cfm?product_id=7

[ISO2009a] International Organization for Standardization, 14 Jan 2009, *ISO 13606-3:2009 Health informatics - Electronic health record communication - Part 3: Reference archetypes and term lists*, Edition 1 (Monolingual), accessed 20 June 2012.
https://infostore.saiglobal.com/store/Details.aspx?ProductID=1092099

[NEHT2007b] National E-Health Transition Authority, 17 August 2007, *Interoperability Framework*, Version 2.0, accessed 17 July 2014.
http://www.nehta.gov.au/implementation-resources/ehealth-foundations/EP-1144-2007/-NEHTA-1146-2007

[NEHT2010c] National E-Health Transition Authority, September 2010, *Data Types in NEHTA Specifications: A Profile of the ISO 21090 Specification*, Version 1.0, accessed 20 July 2014.
https://www.nehta.gov.au/implementation-resources/clinical-documents/EP-1135-2010/-NEHTA-1136-2010

[NEHT2011v] National E-Health Transition Authority, 20 July 2011, *Participation Data Specification*, Version 3.2, accessed 20 Jul 2014.
https://www.nehta.gov.au/implementation-resources/clinical-documents/EP-1224-2011/-NEHTA-0794-2011

[NEHT2013aa] National E-Health Transition Authority, 31 December 2014, *Diagnostic Imaging Report CDA Implementation Guide*, Version 1.0.
https://www.nehta.gov.au/implementation-resources/clinical-documents/EP-1883-2014/-NEHTA-1528-2014

[NEHT2013ar] National E-Health Transition Authority, 31 December 2014, *eHealth Diagnostic Imaging Report Information Requirements*, Version 1.1.
https://www.nehta.gov.au/implementation-resources/clinical-documents/EP-1883-2014/-NEHTA-1886-2014

[NEHT2014aa] National E-Health Transition Authority, To be published, *Imaging Examination Result Detailed Clinical Model Specification*, Version 3.0.

[OEHR2008a] openEHR Foundation, 16 August 2008, *EHR Information Model*, Release 1.0.2, accessed 30 November 2013.
http://www.openehr.org/releases/1.0.2/architecture/rm/ehr_im.pdf

[RFC1521] Network Working Group, 1993, *RFC1521 - MIME (Multipurpose Internet Mail Extensions) Part One*, accessed 17 July 2014.
http://www.faqs.org/rfcs/rfc1521.html

[RFC2119] Network Working Group, 1997, *RFC2119 - Key words for use in RFCs to Indicate Requirement Levels*, accessed 17 July 2014.
http://www.faqs.org/rfcs/rfc2119.html

[SA2006a] Standards Australia, 2006, *AS 4846 (2006) – Health Care Provider Identification*, accessed 17 July 2014.

http://infostore.saiglobal.com/store/Details.aspx?ProductID=318554

[SA2006b] Standards Australia, 2006, *AS 5017 (2006) – Health Care Client Identification*, accessed 17 July 2014.
http://infostore.saiglobal.com/store/Details.aspx?ProductID=320426

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