nehta

Miscellaneous Detailed Clinical Models

Detailed Clinical Model Specification

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Document Information

Document owner

Document Owner
The National Clinical Terminology and Information Service

Change history

Version	Date	Comments
1.0	23 Aug 2011	Initial public release. The document is created in accordance with the archetype from *NEHTA Clinical Knowledge Manager*[1].

Related documents

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

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

Acknowledgements

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

Table of Contents

1 Introduction

1.1 Purpose and Scope

This data group specification forms part of a suite of data specifications that NEHTA is developing for the Australian Health Informatics Community. The suite comprises specifications for a range of health topics (represented as “data groups”), which are generally agreed to be of high priority to standardise in order to achieve the benefits brought about by Level 4 (semantic) interoperability in the Australian health care setting.

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

1.2 Intended Audience

This document is intended to be read by jurisdictional ICT managers, clinicians involved in Clinical Information System specifications, software architects and developers, and implementers of Clinical Information Systems in various health care settings.

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

1.3 Background

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

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

Data specifications have been developed:

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

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

1.4 Terminology

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

The Systematised Nomenclature of Medicine - Clinical Terms® (SNOMED CT® [1]) has been recommended by NEHTA and endorsed by the Australian, State and Territory governments as the preferred clinical terminology for Australia, and is now freely available for e-health software developers to use in their Australian products under IHTSDO (International Health Terminology Standards Development Organisation) licensing arrangements.

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

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

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

2 Clinical Synopsis Data Group

2.1 Purpose

The clinical synopsis contains summary information or comments about the clinical management of the patient, and the prognosis of diagnoses/ problems identified during the healthcare encounter. It may also include health-related information pertinent to the patient, and a clinical interpretation of relevant investigations and observations performed on the patient (including pathology and diagnostic imaging).

2.2 Use

Used by the healthcare provide to describe additional information such as interpretation and the subject of care's understanding of the health care event that are not captured by other structured or unstructured information components pertinent to that health care event.

2.3 Misuse

Used in place of other individual data items.

2.4 CLINICAL SYNOPSIS

Identification

Label	CLINICAL SYNOPSIS
Metadata Type	Data Group
Identifier	DG-15513
OID	1.2.36.1.2001.1001.101.102.15513

Definition

Definition	The clinical synopsis contains summary information or comments about the clinical management of the patient, and the prognosis of diagnoses/ problems identified during the healthcare encounter. It may also include health-related information pertinent to the patient, and a clinical interpretation of relevant investigations and observations performed on the patient (including pathology and diagnostic imaging).
Definition Source	NEHTA
Synonymous Names	Clinical Comment Clinical Note Clinical Summary Clinical Management Summary
Scope	Narrative information is captured or entered here by a healthcare provider from the focus of a healthcare provider, carer, subject of care and/or others unrelated to the subject of care.
Scope Source	NEHTA

Usage

Conditions of Use	Used by the healthcare provider to describe additional information such as interpretation and the subject of care's understanding of the health care event that are not captured by other structured or unstructured information components pertinent to that health care event.
Conditions of Use Source	NEHTA
Misuse	Used in place of other individual data items.

Data Hierarchy

	CLINICAL SYNOPSIS		
		Clinical Synopsis Description	1..1
		DateTime Recorded	0..1

		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

2.5 Clinical Synopsis Description

Identification

Label	Clinical Synopsis Description
Metadata Type	Data Element
Identifier	DE-15582
OID	1.2.36.1.2001.1001.101.103.15582

Definition

Definition	The clinical synopsis, written in free text.
Definition Source	NEHTA
Synonymous Names	Clinical Summary Description
Notes	The description may include a summary of the issues/problems, management strategies, outcomes/progress and possible prognosis.
Data Type	Text

Usage

Examples	1. Admitted for elective bronchoscopy for assessment of left lingular and bibasal pneumonia. No focal endobronchial pathology identified. No evidence of malignancy and no pathogens isolated on bronchial brushings and washings. 2. 3/52 ago involved in a rear end motor vehicle accident, mid-velocity impact-complaining of neck pain, dizziness, nausea and difficulties concentrating. Disturbed sleep. No spinal cord signs.

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	CLINICAL SYNOPSIS	1..1	

2.6 DateTime Recorded

Identification

Label	DateTime Recorded
Metadata Type	Data Element
Identifier	DE-15511
OID	1.2.36.1.2001.1001.101.103.15511

Definition

Definition	The date or date and time when the clinical synopsis recording was made.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	1. 2004-03-31 2. 2004-03 3. 2004

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	CLINICAL SYNOPSIS	0..1	

2.7 INFORMATION PROVIDER

Identification

Label	INFORMATION PROVIDER
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296
External Identifier	AS4846-2006

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	CLINICAL SYNOPSIS	0..1	

2.8 SUBJECT

Identification

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

Definition

Definition	The individual about who the clinical synopsis was written.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, subject of the enclosing Structured Document is assumed.
Scope Source	NEHTA

Usage

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

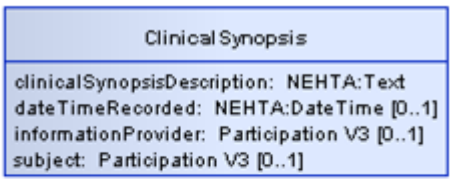
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	CLINICAL SYNOPSIS	0..1	

3 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



4 Recommendation Data Group

4.1 Purpose

To capture a recommendation, such as from a referee or specialist to a recipient health care provider regarding the managment of the patient.

4.2 Use

Often used in a letter from a specialist to the referring health care provider.

4.3 RECOMMENDATION

Identification

Label	RECOMMENDATION
Metadata Type	Data Group
Identifier	DG-20116
OID	1.2.36.1.2001.1001.101.102.20116

Definition

Definition	Recommendation by a clinician to a recipient health care provider regarding the managment of the patient.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	RECOMMENDATION		
		Addressee (RECOMMENDATION ADDRESSEE)	0..*
		Time Frame (Recommendation Time Frame)	0..1
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1
		Recommendation Narrative	1..1
		DateTime Recommendation Expires	0..1

4.4 RECOMMENDATION ADDRESSEE

Identification

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

Definition

Definition	The person who the recommendation is aimed at and/or who should follow up on the action.
Definition Source	NEHTA
Synonymous Names	
Notes	This is a person and the types of sources include: • the clinician; and • a healthcare provider

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in *Appendix B*. • Participation Type **SHALL** have a fixed value of “Recommendation Addressee”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	0..*	

4.5 Recommendation Time Frame

Identification

Label	Time Frame
Metadata Type	Data Element
Identifier	DE-16586
OID	1.2.36.1.2001.1001.101.103.16586

Definition

Definition	The time or time period for which the recommendation applies.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime Duration

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	0..1	

4.6 INFORMATION PROVIDER

Identification

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

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	0..1	

4.7 SUBJECT

Identification

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

Definition

Definition	The individual upon whom the procedure is (to be) performed.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, subject of the enclosing Structured Document is assumed.
Scope Source	*NEHTA*

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	0..1	

4.8 Recommendation Narrative

Identification

Label	Recommendation Narrative
Metadata Type	Data Element
Identifier	DE-16587
OID	1.2.36.1.2001.1001.101.103.16587

Definition

Definition	A textual narrative describing what the Recommendation instruction is about.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	1..1	

4.9 DateTime Recommendation Expires

Identification

Label	DateTime Recommendation Expires
Metadata Type	Data Element
Identifier	DE-16588
OID	1.2.36.1.2001.1001.101.103.16588

Definition

Definition	The date and, optionally, time after which the Recommendation instruction is no longer effective or in force.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	

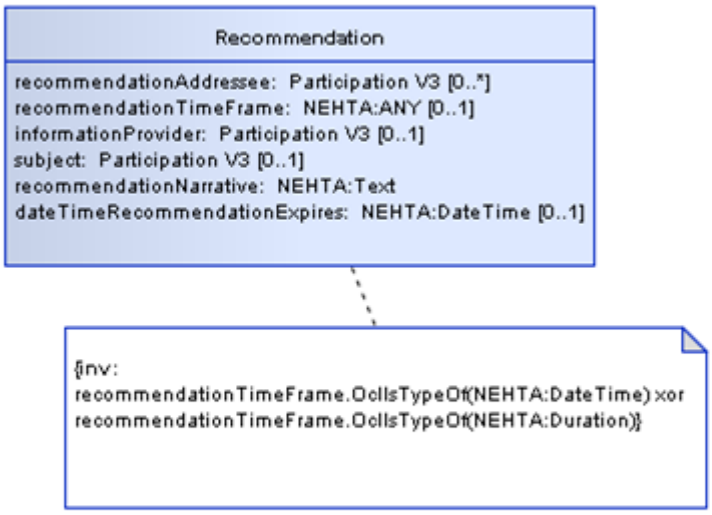
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECOMMENDATION	0..1	

5 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



6 Exclusion Statement Data Group

6.1 Purpose

To positively record the absence or exclusion of any clinical findings or evaluations within the health record.

6.2 Use

Use to record the positive exclusion or absence of clinical findings or evaluations within the health record. This detailed clinical model (DCM) avoids the need to use terminology to express negation about any item within the health record. Specialisations of this DCM will capture specific and more detailed information about common exclusions, such as problems or diagnoses. This DCM has been deliberately kept simple and open in order to capture simple statements about anything that may be usefully recorded as absent or excluded within the health record.

6.3 Misuse

Do not use to record the exclusion or absence of adverse reactions, problems, diagnoses or interventions - use specific specialisations of this DCM.

6.4 EXCLUSION STATEMENT

Identification

Label	EXCLUSION STATEMENT
Metadata Type	Data Group
Identifier	DG-16134
OID	1.2.36.1.2001.1001.101.102.16134

Definition

Definition	Statements that need to be positively asserted about the absence or exclusion of data values.
Definition Source	openEHR Foundation
Synonymous Names	

Data Hierarchy

	EXCLUSION STATEMENT		
	T	General Statement	0..*
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

6.5 General Statement

Identification

Label	General Statement
Metadata Type	Data Element
Identifier	DE-16135
OID	1.2.36.1.2001.1001.101.103.16135

Definition

Definition	A general statement about the absence or exclusion of data values.
Definition Source	openEHR Foundation
Synonymous Names	
Context	Any information that is needed to be explicitly recorded as being absent or excluded within the record.
Context Source	openEHR Foundation
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	EXCLUSION STATEMENT	0..*	

6.6 INFORMATION PROVIDER

Identification

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

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	EXCLUSION STATEMENT	0..1	

6.7 SUBJECT

Identification

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

Definition

Definition	The individual upon whom the procedure is (to be) performed.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, subject of the enclosing Structured Document is assumed.
Scope Source	NEHTA

Usage

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

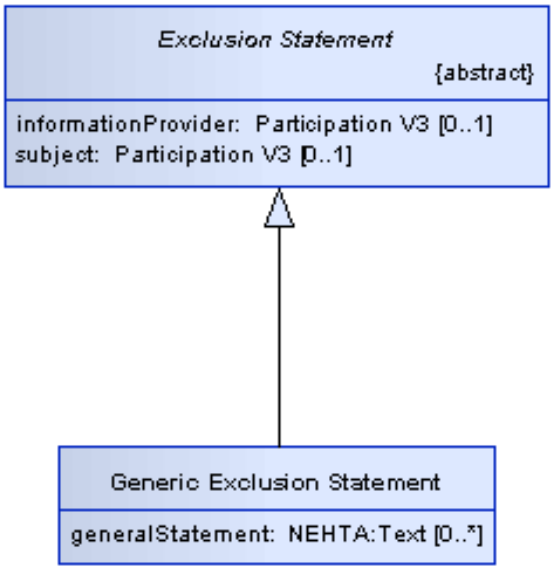
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	EXCLUSION STATEMENT	0..1	

7 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



8 Record Review Data Group

8.1 Purpose

To record that a healthcare provider has reviewed a specified part of a health record.

8.2 Use

Use to record that a healthcare provider has reviewed a specified part of a health record, including that it was reviewed and left unaltered or that it was reviewed and updated.

8.3 RECORD REVIEW

Identification

Label	RECORD REVIEW
Metadata Type	Data Group
Identifier	DG-16576
OID	1.2.36.1.2001.1001.101.102.16576

Definition

Definition	Clinician review of a specified part of the health record.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	RECORD REVIEW		
		Reason (Record Review Reason)	0..1
		Description (Record Review Description)	0..1
		DateTime (Record Review DateTime)	0..1
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

8.4 Record Review Reason

Identification

Label	Reason
Metadata Type	Data Element
Identifier	DE-16577
OID	1.2.36.1.2001.1001.101.103.16577

Definition

Definition	Grounds for conducting the review.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECORD REVIEW	0..1	

8.5 Record Review Description

Identification

Label	Description
Metadata Type	Data Element
Identifier	DE-16578
OID	1.2.36.1.2001.1001.101.103.16578

Definition

Definition	Description of the review itself.
Definition Source	NEHTA
Synonymous Names	
Notes	This **MAY** include its type, nature or process.
Data Type	Text

Usage

Conditions of Use	This **SHALL NOT** include review findings.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECORD REVIEW	0..1	

8.6 Record Review DateTime

Identification

Label	DateTime
Metadata Type	Data Element
Identifier	DE-16579
OID	1.2.36.1.2001.1001.101.103.16579

Definition

Definition	Date and, optionally, time when the review was completed.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECORD REVIEW	0..1	

8.7 INFORMATION PROVIDER

Identification

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

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECORD REVIEW	0..1	

8.8 SUBJECT

Identification

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

Definition

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

Usage

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

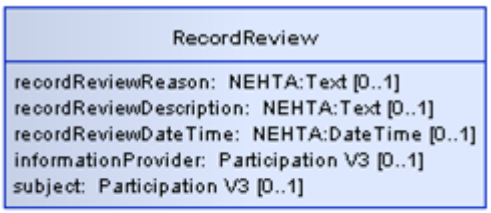
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	RECORD REVIEW	0..1	

9 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



10 Referral Detail Data Group

10.1 Purpose

Specific information about the clinical referral.

10.2 REFERRAL DETAIL

Identification

Label	REFERRAL DETAIL
Metadata Type	Data Group
Identifier	DG-16347
OID	1.2.36.1.2001.1001.101.102.16347

Definition

Definition	Specific information about the clinical referral.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	REFERRAL DETAIL		
		Referral DateTime	1..1
		Referral Reason	1..1
		Referral Validity Duration	1..1
		USUAL GP	0..1
		REFEREE	1..1
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

10.3 Referral DateTime

Identification

Label	Referral DateTime
Metadata Type	Data Element
Identifier	DE-16620
OID	1.2.36.1.2001.1001.101.103.16620

Definition

Definition	The date/time when the Referral document was sent.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	1..1	

10.4 Referral Reason

Identification

Label	Referral Reason
Metadata Type	Data Element
Identifier	DE-20118
OID	1.2.36.1.2001.1001.101.103.20118

Definition

Definition	The reasons for the referral. The narrative of the presenting problems, clinical presentation, etc.
Definition Source	NEHTA
Synonymous Names	
Context	It **SHALL** be used to communicate/describe to the referee information about the problems/issues experienced by the subject of care as identified by the referral initiator that constitute the reason(s) why the patient was referred.
Context Source	NEHTA
Data Type	Text

Usage

Examples	1. To rule out ischaemic heart disease. 2. To rule out organic brain lesions.

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	1..1	

10.5 Referral Validity Duration

Identification

Label	Referral Validity Duration
Metadata Type	Data Element
Identifier	DE-16622
OID	1.2.36.1.2001.1001.101.103.16622

Definition

Definition	The length of time the referral is valid from the date of the first patient/specialist encounter.
Definition Source	NEHTA
Synonymous Names	
Notes	It captures the valid duration of the referral which may be constrained by, e.g. Medicare funding policy.
Data Type	Duration

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	1..1	

10.6 USUAL GP

Identification

Label	USUAL GP
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	The medical practitioner nominated by the subject of care as his or her “usual general practitioner (GP)”.
Definition Source	NEHTA
Synonymous Names	
Notes	This is a person and the types of sources include: • the clinician; and • a healthcare provider

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in *Appendix B*. • Participation Type **SHALL** have a fixed value of “Usual GP”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	0..1	

10.7 REFEREE

Identification

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

Definition

Definition	The specialist to whom the subject of care is being referred.
Definition Source	NEHTA
Synonymous Names	
Notes	Types of sources include: • the clinician; and • a healthcare provider

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in *Appendix B*. • Participation Type **SHALL** have a fixed value of “Referee”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	1..1	

10.8 INFORMATION PROVIDER

Identification

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

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	0..1	

10.9 SUBJECT

Identification

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

Definition

Definition	The individual upon whom the procedure is (to be) performed.
Definition Source	NEHTA
Synonymous Names	
Scope	Generally only used when the recorder needs to make it explicit. Otherwise, subject of the enclosing Structured Document is assumed.
Scope Source	NEHTA

Usage

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

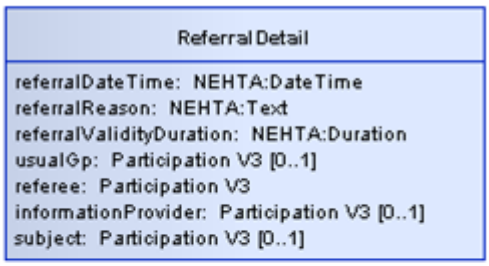
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	REFERRAL DETAIL	0..1	

11 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



12 Medical History Item Data Group

12.1 Purpose

Allows recording of an entry in a medical history when it cannot be determined whether the entry is a Procedure or is a Problem/Diagnosis.

12.2 MEDICAL HISTORY ITEM

Identification

Label	MEDICAL HISTORY ITEM
Metadata Type	Data Group
Identifier	DG-16627
OID	1.2.36.1.2001.1001.101.102.16627

Definition

Definition	A medical history entry which cannot be categorised into one of the categories such as Procedure and Problem/Diagnosis.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	MEDICAL HISTORY ITEM		
		Medical History Item Description	1..1
		Medical History Item Timeinterval	0..1
		Medical History Item Comment	0..1
		INFORMATION PROVIDER	0..1
		SUBJECT	0..1

12.3 Medical History Item Description

Identification

Label	Medical History Item Description
Metadata Type	Data Element
Identifier	DE-16628
OID	1.2.36.1.2001.1001.101.103.16628

Definition

Definition	A description of the problem, diagnosis, intervention or other medical history item.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1. Hypercholesterolaemia. 2. Left Total Knee Replacement. 3. RLL pneumonia.

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	MEDICAL HISTORY ITEM	1..1	

12.4 Medical History Item Timeinterval

Identification

Label	Medical History Item Timeinterval
Metadata Type	Data Element
Identifier	DE-16629
OID	1.2.36.1.2001.1001.101.103.16629

Definition

Definition	The date range during which the item applied or occurred.
Definition Source	NEHTA
Synonymous Names	
Data Type	TimeInterval

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	MEDICAL HISTORY ITEM	0..1	

12.5 Medical History Item Comment

Identification

Label	Medical History Item Comment
Metadata Type	Data Element
Identifier	DE-16630
OID	1.2.36.1.2001.1001.101.103.16630

Definition

Definition	Free text comments providing additional information relevant to the item in question.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	MEDICAL HISTORY ITEM	0..1	

12.6 INFORMATION PROVIDER

Identification

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

Definition

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

Usage

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

Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	MEDICAL HISTORY ITEM	0..1	

12.7 SUBJECT

Identification

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

Definition

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

Usage

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

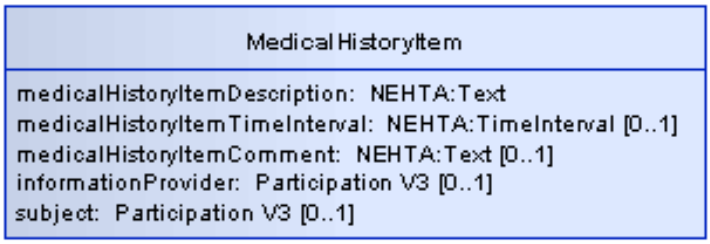
Relationships

Parents

Data Type	Name	Occur-rences	Condi-tion
	MEDICAL HISTORY ITEM	0..1	

13 UML Diagram

The following figure presents the data hierarchy using a UML 2.0 class diagram. The diagram displays data groups and data elements, together with their names, data types and multiplicities. Data elements are displayed as attributes. Data groups are displayed as classes, their 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.



Reference List

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[NEHT2010c] National E-Health Transition Authority, September 2010, *Data Types in NEHTA Specifications: A Profile of the ISO 21090 Specification*, Version 1.0, accessed 13 September 2010.
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[RFC1521] Network Working Group, 1993, *RFC1521 - MIME (Multipurpose Internet Mail Extensions) Part One*, accessed 7 June 2010.
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[RFC2119] Network Working Group, 1997, *RFC2119 - Key words for use in RFCs to Indicate Requirement Levels*, accessed 13 April 2010.
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[SA2006a] Standards Australia, 2006, *AS 4846 (2006) – Healthcare Provider Identification*, accessed 12 November 2009.
http://infostore.saiglobal.com/store/Details.aspx?ProductID=318554

[SA2006b] Standards Australia, 2006, *AS 5017 (2006) – Healthcare Client Identification*, accessed 12 November 2009.
http://infostore.saiglobal.com/store/Details.aspx?ProductID=320426

Appendix A. Known Issues

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

Reference	Description
Data Hierarchy	This detailed clinical model has not yet been fully mapped to HL7 CDA. Mapping to CDA may reveal inconsistencies in the data hierarchy requiring normative change.
Exclusion Statement	The Exclusion Statement detailed clinical model is the subject of on-going development and review and may well change in the future.

Appendix B. Specification Guide for Use

B.1 Overview

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

Each DCM specifies all of the data components required for any use of a clinical concept, for instance an entry in a medical record such as a procedure or an imaging test. As such they are maximal data sets. DCMs are building blocks which are trimmed to size for use in construction 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 which have been constrained to eliminate data components not relevant to the particular context. For example, procedure in a discharge summary uses only some of the data components required by procedure in a specialist report.

B.2 The Structured Content Specification Metamodel

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

A DCM can be considered as a Data Group with no parent.

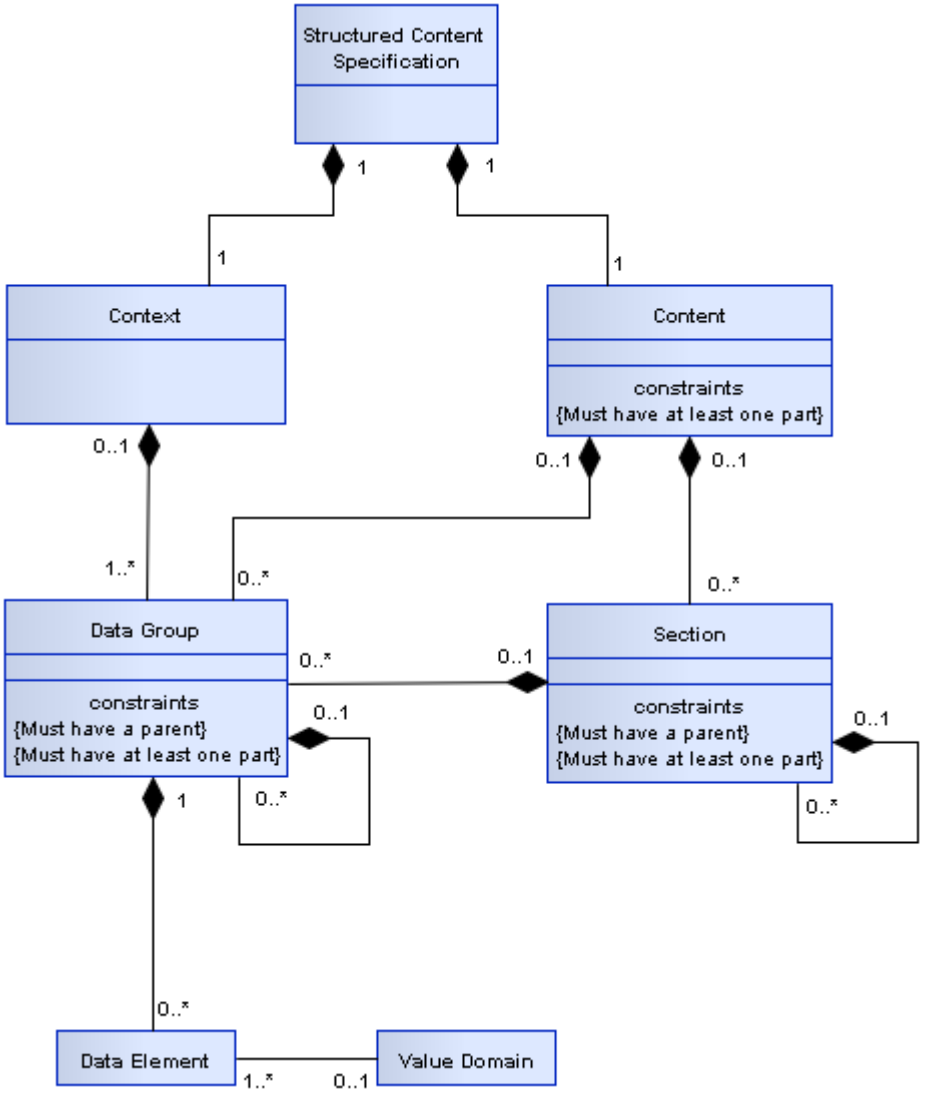

Figure 1: SCS Metamodel

There are two main components used to organise information within a Structured Content Specification (SCS) as follows:

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

Content: This contains information, which 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

The Content contains a collection of health information pertinent to a subject of care which is derived from the healthcare event described in the document. The detail **MAY** be organised into one or more sections, each of which contains one or more data groups and/or possible data elements.

Section

The contents of the structured document Content **MAY** be subdivided into one or more sections. A section is an organising container that gives a reader a clue as to the expected content. The primary purpose of a section is to organise information in the manner that is suitable for the primary purpose for which it is collected, and that provides a way to navigate through the data components within the document, thereby enabling more efficient querying. It **SHOULD** also support safe re-use 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 and/or data elements. Some data groups are reused across detailed clinical models.

Participation

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

A Participant has been defined to align with the concepts of the NEHTA interoperability framework. 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 **SHALL** be chosen.

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 **SHALL** be done with the choice of either the *Person* data group or the *Organisation* data group.

Data Element

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

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

Value Domain

A value domain constrains the permissible values for a data element. The values **MAY** be 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 **SHOULD**be noted that many of these reference sets have been developed specifically for the context in which they appear. An assessment of fitness for purpose **SHOULD** therefore be undertaken before using any of the reference sets in another context.

Value domains constrain by either specifying a lower and/or upper bound 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>
<tr><th>Data Element</th><th>Data Type</th><th>Example of Value Domain</th></tr>
<tr><td>Sex</td><td>CodedText</td><td>[SA2006a] and [SA2006b] derive their values from METeOR 270263 which includes values such as:
<table><tr><th>Value</th><th>Meaning</th></tr><tr><td>1</td><td>Male</td></tr><tr><td>2</td><td>Female</td></tr><tr><td>3</td><td>Intersex or Indeterminate</td></tr><tr><td>9</td><td>Not Stated/Inadequately Described</td></tr></table></td></tr>
<tr><td>Diagnosis</td><td>CodeableText</td><td>A SNOMED CT-AU reference set which references concepts such as 'Bronchitis' (Concept ID: 32398004)</td></tr>
<tr><td>Therapeutic Good Identification</td><td>CodeableText</td><td>An AMT reference set which references concepts such as 'Ibuprofen Blue (Herron) (ibuprofen 200 mg) tablet: film-coated, 1 tablet' (Concept ID: 54363011000036107)</td></tr>
<tr><td>To Be Advised</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>

Table 1: Value Domain Examples

B.3 Icon Legend

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

Metadata Types Legend

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

Icon	Metadata Types
	Structured Document
	Section
	Data Group
	Participation
	Choice

Table 2: Metadata Types Legend

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].

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

CodeableText

(ISO 21090: CD)

Coded text *with* exceptions; 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. Whilst it is recommended that the values in this data type come from the bound value domain, it allows other value domains to also be used (with or without translations to the bound value domain) or free text alternatives. This is a recognition that it **MAY** not be possible to define an entire value domain for a complex concept (e.g. *Diagnosis*) or that there **MAY** be competing code sets in existence. Note that within exchange specifications and/or message profiles this data type **MAY** be constrained to mandate compliance with the bound value domain.

Usage/Examples

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

CodedText

(ISO 21090: CD)

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

Usage/Examples

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

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

DateTime

(ISO 21090: TS)

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

Usage/Examples

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

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

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

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

Table 3: Data Types Legend

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

Keyword	Interpretation
SHALL	This word, or the terms ‘required’ or ‘must’, means that the definition 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 which does not include a particular option **SHALL** be prepared to interoperate with another implementation which does include the option, perhaps with reduced functionality. In the same vein, an implementation which does include a particular option **SHALL** be prepared to interoperate with another implementation which does not include the option (except of course, for the feature the option provides).
SHALL NOT	This phrase, or the phrase 'must not' means that the definition 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.

Table 4: Keywords Legend

B.4 Information Model Specification Parts Legends

This section illustrates the format and parts used to define each Section, Data Group and Data Element within NEHTA's information model specifications and identifies when each part is applicable.

Data Hierarchy

The top-level component contains a data hierarchy. Each row contains information about a single data component. The entries are nested to represent inclusion of one component in another. Each entry contains three occupied cells. One contains an icon to indicate its data type. One 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). One contains the multiplicity range for the data component.

In a 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.

Label	A suggested display name for the component. (Source NEHTA.)

Metadata Type	The metadata 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 which is assigned by an organisation other than NEHTA. (Source NEHTA.)

Table 6: Identification Section Legend

Definition Section Legend

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

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

	The Data type is applicable only to data elements. The valid data types are specified in the Data Types Legend.
Value Domain	The name and identifier of the terminologies, code sets and classifications to define the data element value range, or a statement describing what values to use in the absence of a defined value domain for the related data element. In the absence of national standard code sets, the code sets used **SHALL** be registered code sets, i.e. registered through the HL7 code set registration procedure with an appropriate object identifier (OID), and **SHALL** be publicly available. When national standard code sets become available, they **SHALL** be used and the non-standard code sets **SHALL** be deprecated. (Source NEHTA.) The Value Domain is applicable only to CodedText and CodeableText data elements.

Table 7: Definition Section Legend

Value Domain Section Legend

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

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.

Table 8: Value Domain Section Legend

Usage Section Legend

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

Examples	One or more demonstrations of the data that is catered for by the data element. (Source NEHTA.) Where a data element has an associated value domain examples representative of that domain are used where possible. Where the value domain is yet to be determined an indicative example is provided. Implementation guides **MAY** contain specific examples for how data elements **SHALL** be populated and how they relate to each other. The Value Domain is applicable only to CodedText and CodeableText data elements.
Conditions of Use	Prerequisites, provisos and/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 and/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 and/or applicable, typically assigned at the creation of an instance of the component. (Source NEHTA.)

Table 9: Usage Section Legend

Relationships Section Legend

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

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

Data Type	Name	Occurrences	Condition
Icon illustrating the Metadata type or Data type	Component Name	The maximum and minimum number of instances of this child component that **SHALL** occur.	The conditions that **SHALL** be met to include this child data element. Only applicable for elements with a Conditional obligation.

Table 10: Children Legend

The following table illustrates the layout of the Parent relationships table. Note that the relationships described by this table are from the parent to the child component.

Data Type	Name	Occurrences	Condition
Icon illustrating the Metadata or Data type	Component Name	The maximum and minimum 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.

Table 11: Parent Legend

Index