nehta

Advance Care Directive Custodian Record

Structured Content Specification

Version 1.0 — 9 Dec 2011

Final

National E-Health Transition Authority Ltd

Level 25
56 Pitt Street
Sydney NSW 2000
Australia
www.nehta.gov.au

Disclaimer

NEHTA makes the information and other material ("Information") in this document available in good faith but without any representation or warranty as to its accuracy or completeness. NEHTA cannot accept any responsibility for the consequences of any use of the Information. As the Information is of a general nature only, it is up to any person using or relying on the Information to ensure that it is accurate, complete and suitable for the circumstances of its use.

Document Control

This document is maintained in electronic form. The current revision of this document is located on the NEHTA Web site and is uncontrolled in printed form. It is the responsibility of the user to verify that this copy is of the latest revision.

Security

The content of this document is confidential. The information contained herein must only be used for the purpose for which it is supplied and must not be disclosed other than explicitly agreed in writing with NEHTA.

Document Information

Document owner

Document Owner
The National Clinical Terminology and Information Service

Change history

Version	Date	Comments
1.0	9 Dec 2011	Initial release.

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

Acknowledgements

NEHTA would like to thank the following organisations and individuals for their contribution to these data specifications:

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

Table of Contents

1 Introduction

This document is a Structured Content Specification (SCS) for an Advance Care Directive Custodian Record. It specifies the information structure of NEHTA-compliant Advance Care Directive Custodian Record in order to support the transfer of information about custodians of advance care directives.

Appendix B: *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 to read and use the SCS best. 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 clinicalinformation@nehta.gov.au.

1.1 Document Purpose

This document describes the Structured Content Specification for an Advance Care Directive Custodian Record from a clinical communication perspective.

The content within this document provides reviewers (software development teams, architects, designers, clinicians and informatics researchers) with the necessary information (or references to information held outside this document) to evaluate and assess the clinical suitability of NEHTA-endorsed specifications for the electronic transfer of Advance Care Directive Custodian Records.

It is also a key input to the NEHTA Advance Care Directive Custodian Record CDA Implementation Guide [NEHT2011bg], which describes how to implement NEHTA-compliant Advance Care Directive Custodian Records 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 and also 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 to be captured in an Advance Care Directive Custodian Record exchange and the constraints that should be applied. Its scope is aligned to the document Concept of Operations: Relating to the introduction of a Personally Controlled Electronic Health Record System [DHA2011b].

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

1.4 Known Issues

This is a preliminary draft for trial implementation.

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

2 Advance Care Directive Custodian Record Structured Document

2.1 Purpose

To record information about the custodians of an individual's Advance Care Directive recommended for use within Australia.

2.2 Use

Use to record information about the custodians of an individual's Advance Care Directive.

2.3 ADVANCE CARE DIRECTIVE CUSTODIAN RECORD

Identification

Label	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD
Metadata Type	Structured Document
Identifier	SD-16696
OID	1.2.36.1.2001.1001.101.100.16696

Definition

Definition	Document used to record information about the custodians of an individual's Advance Care Directive.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD				
CONTEXT					
		Individual (SUBJECT OF CARE)			1..1
		ACD Custodian Record Author (DOCUMENT AUTHOR)			1..1
		DateTime Attested (DateTime Authored)			1..1
		~~DateTime Health Event Started~~			~~0..0~~
		~~DateTime Health Event Ended~~			~~0..0~~
		~~HEALTHCARE FACILITY~~			~~0..0~~
CONTENT					
		ACD CUSTODIAN ENTRIES			1..1
			ACD CUSTODIAN ENTRY		1..*
				ACD Custodian (SUBJECT)	1..1
				~~INFORMATION PROVIDER~~	~~0..0~~

				~~Acd Custodian Entry Identifier~~	~~0..0~~
				~~LINK~~	~~0..0~~
				~~Detailed Clinical Model Identifier~~	~~0..0~~

2.4 SUBJECT OF CARE

Identification

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

Definition

Definition	Identifies the person for whom the advance care directive is being held.
Definition Source	NEHTA
Synonymous Names	

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B: *Specification Guide for Use*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • ADDRESS is **ESSENTIAL**. • Relationship to Subject of Care is **PROHIBITED**. • EMPLOYMENT DETAIL is **PROHIBITED**. • DEMOGRAPHIC DATA is **ESSENTIAL**. • Sex is **ESSENTIAL**. • DATE OF BIRTH DETAIL is **ESSENTIAL**. • Source of Death Notification is **PROHIBITED**. • Indigenous Status is **ESSENTIAL**. • Qualifications is **PROHIBITED**. Other additional constraints:

	• Participation Type **SHALL** have an implementation-specific value of equivalent to “Subject of Care”. • The value of one Entity Identifier **SHALL** be an Australian IHI. • Role **SHALL** have an implementation-specific value of “Patient”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences	Condition
	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD	1..1	

2.5 DOCUMENT AUTHOR

Identification

Label	ACD Custodian Record Author
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	The person who who has authored the ACD Custodian record regarding a given individual's ACD.
Definition Source	NEHTA
Synonymous Names	Author

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B: *Specification Guide for Use*. Additional obligation and occurrence constraints: • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • DEMOGRAPHIC DATA is **PROHIBITED**. • ENTITLEMENT is **PROHIBITED**. • Qualifications is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value of equivalent to “Document Author”. • Role **SHOULD** have a value chosen from 1220.0 – ANZSCO – Australia and New Zealand Standard Classification of Occupations, First Edition, 2006 – METeOR 350899. 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 Entity Identifier **SHALL** be an Australian IHI or HPI-I.

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

Relationships

Parents

Data Type	Name	Occurrences	Condition
	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD	1..1	

2.6 DateTime Authored

Identification

Label	DateTime Attested
Metadata Type	Data Element
Identifier	DE-20405
OID	1.2.36.1.2001.1001.101.103.20405

Definition

Definition	The date or date and time of recording of the ACD custodian record.
Definition Source	NEHTA
Synonymous Names	DateTime ACD Created DateTime Created DateTime Issued
Data Type	DateTime

Usage

Examples	1. 31/03/2004. 2. 03/2004. 3. 2004. 4. 31/03/2004 13:10.

Relationships

Parents

Data Type	Name	Occurrences	Condition
	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD	1..1	

2.7 ACD CUSTODIAN ENTRIES

Identification

Label	ACD CUSTODIAN ENTRIES
Metadata Type	Section
Identifier	S-16694
OID	1.2.36.1.2001.1001.101.101.16694

Definition

Definition	Details pertaining to the custodians of the individual's ACD.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences	Condition
	ADVANCE CARE DIRECTIVE CUSTODIAN RECORD	1..1	

Children

Data Type	Name	Occurrences	Condition
	ACD CUSTODIAN ENTRY	1..*	

3 Acd Custodian Entry Data Group

3.1 Purpose

To record details about the custodian of the individual's ACD.

3.2 ACD CUSTODIAN ENTRY

Identification

Label	ACD CUSTODIAN ENTRY
Metadata Type	Data Group
Identifier	DG-16690
OID	1.2.36.1.2001.1001.101.102.16690

Definition

Definition	Details pertaining to the custodian of the individual's ACD.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences	Condition
	ACD CUSTODIAN ENTRIES	1..*	

Children

Data Type	Name	Occurrences	Condition
	ACD Custodian (SUBJECT)	1..1	
	~~INFORMATION PROVIDER~~	~~0..0~~	-
	~~Acd Custodian Entry Identifier~~	~~0..0~~	-
	~~LINK~~	~~0..0~~	-
	~~Detailed Clinical Model Identifier~~	~~0..0~~	-

3.3 SUBJECT

Identification

Label	ACD Custodian
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	Person or organisation legally responsible for an individual's ACD.
Definition Source	NEHTA
Synonymous Names	The subject of the ACD.

Usage

Conditions of Use	This is a reuse of the PARTICIPATION data group, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix B: *Specification Guide for Use*. Additional obligation and occurrence constraints: • LOCATION OF PARTICIPATION is **PROHIBITED**. • ADDRESS is **ESSENTIAL**. • ELECTRONIC COMMUNICATION DETAIL is **ESSENTIAL**. • DEMOGRAPHIC DATA is **PROHIBITED**. • ENTITLEMENT is **PROHIBITED**. • Qualifications is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value of equivalent to “ACD Custodian”. • Role **SHOULD** have a value chosen from 1220.0 – ANZSCO – Australia and New Zealand Standard Classification of Occupations, First Edition, 2006 – METeOR 350899. 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. • PERSON OR ORGANISATION OR DEVICE **SHALL NOT** be instantiated as a DEVICE.

Conditions of Use Source	NEHTA

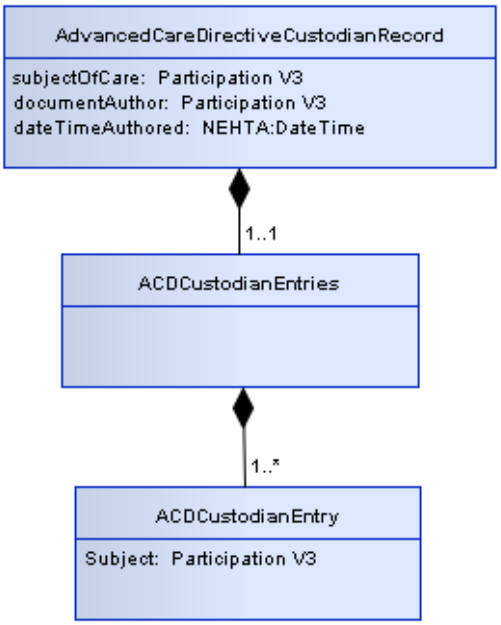
Relationships

Parents

Data Type	Name	Occurrences	Condition
	ACD CUSTODIAN ENTRY	1..1	

4 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

[DHA2011b] Australian Department of Health and AgeingNational E-Health Transition Authority Ltd, 9 September 2011, *Concept of Operations: Relating to the introduction of a Personally Controlled Electronic Health Record System*, Version 1.0. http://www.yourhealth.gov.au/internet/yourhealth/publishing.nsf/Content/PCEHRS-Intro-toc/$File/Concept%20of%20Operations%20-%20Final.pdf

[HL7CDAR2] Health Level Seven, Inc., January 2010, *HL7 Clinical Document Architecture*, Release 2, accessed 18 November 2010. http://www.hl7.org/implement/standards/cda.cfm

[NEHT2005a] National E-Health Transition Authority, 25 May 2005, *NEHTA Acronyms, Abbreviations & Glossary of Terms*, Version 1.2, accessed 09 November 2009. http://www.nehta.gov.au/component/docman/doc_download/8-clinical-information-glossary-v12

[NEHT2009r] National E-Health Transition Authority, 30 June 2009, *Australian Medicines Terminology Editorial Rules*, Version 3.0, accessed 9 June 2010. http://www.nehta.gov.au/component/docman/doc_download/742-australian-medicines-terminology-editorial-rules-v30

[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. http://www.nehta.gov.au/component/docman/doc_download/1121-data-types-in-nehta-specifications-v10

[NEHT2011bf] National E-Health Transition Authority, To be published, *Information Requirements - Information regarding the Custodian of an Advance Care Directive*, Version 0.0.4.

[NEHT2011bg] National E-Health Transition Authority, To be published, *Advance Care Directive Custodian Record CDA Implementation Guide*, Version 1.0.

[NEHT2011n] National E-Health Transition Authority, May 2011, *Shared Health Summary CDA Implementation Guide*, Version 1.0.

[NEHT2011v] National E-Health Transition Authority, 20 July 2011, *Participation Data Specification*, Version 3.2, accessed 22 July 2011. http://www.nehta.gov.au/component/docman/doc_download/1341-participation-data-specification-v32

[RFC1521] Network Working Group, 1993, *RFC1521 - MIME (Multipurpose Internet Mail Extensions) Part One*, accessed 7 June 2010. http://www.faqs.org/rfcs/rfc1521.html

[RFC2119] Network Working Group, 1997, *RFC2119 - Key words for use in RFCs to Indicate Requirement Levels*, accessed 13 April 2010. http://www.faqs.org/rfcs/rfc2119.html

[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

[TGA1989a] Commonwealth of Australia, 1989, *THERAPEUTIC GOODS ACT 1989 - SECT 3*.

http://www.austlii.edu.au/au/legis/cth/consol_act/tga1989191/s3.html#therapeutic_goods

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
Document Status	As a NEHTA Managed Specification, the contents of this document are the result of extensive clinical collaboration and editorial review, and the specification is considered to be ‘Final’. Nonetheless, as software implementations and standards review of this specification progress, normative updates may be required.
'ACD Custodian Record Author' Data Element	Information requirements for this data element require inclusion of 'Authorised Representative Expiry Date', which is not explicitly supported by Participation v3.2. However, the potential exists to use 'Participation Period' data element to satisfy this requirement, providing it is deemed permissible to allow future dates in this data element. Therefore, we have mapped the 'Authorised Representative Expiry Date' to the 'Participation Period' data element, but this mapping may be changed 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 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 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.

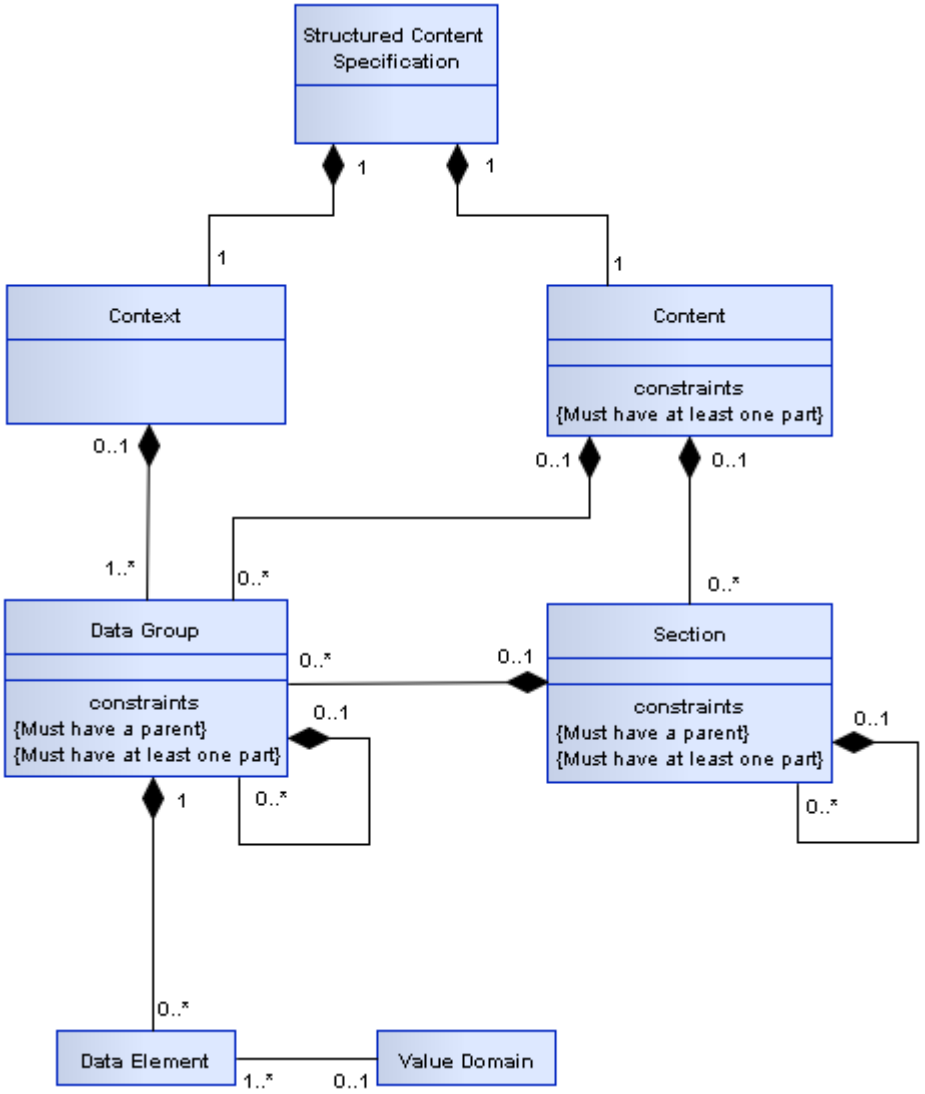


Figure 1: SCS Metamodel

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

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.

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

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

Table 5: Obligations Legend

Where Essential child data components are contained within Optional parent data components, the child data components only need to be populated when the parent is populated.

B.4 Information Model Specification Parts Legends

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

Data Hierarchy

The top-level component contains a data hierarchy. Each row contains information about a single data component. The entries are nested to represent inclusion of one component in another. Each entry contains 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

Appendix C. Mappings from Requirements

This appendix lists data elements from the information requirements document and matches them to their associated data elements in this Structured Content Specification augmented with NEHTA Participation Data Specification [NEHT2011v]. Information requirement specifications supporting the Advance Care Directive can be made available on request via the NEHTA Service Desk at NehtaSupport@nehta.gov.au.

Requirement Section	Data Item	SCS Data Element
Individual	Component	SUBJECT OF CARE
	Person Name	SUBJECT OF CARE.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.PERSON NAME
	Person Identifier	SUBJECT OF CARE.PARTICIPANT.Entity Identifier
	Date of Birth	SUBJECT OF CARE.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.DEMOGRAPHIC DATA.DATE OF BIRTH DETAIL.Date of Birth
	Date of Birth Estimated?	SUBJECT OF CARE.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.DEMOGRAPHIC DATA.DATE OF BIRTH DETAIL.DATE OF BIRTH ACCURACY INDICATOR
	Sex	SUBJECT OF CARE.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.DEMOGRAPHIC DATA.Sex
	Address	SUBJECT OF CARE.PARTICIPANT.Address
	Communication Details	SUBJECT OF CARE.PARTICIPANT.ELECTRONIC COMMUNICATION DETAIL
	Indigenous Status	SUBJECT OF CARE.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.DEMOGRAPHIC DATA.Indigenous Status
ACD Custodian Record Author	Component	DOCUMENT AUTHOR
	Person Name	DOCUMENT AUTHOR.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.PERSON NAME
	Person Identifier	DOCUMENT AUTHOR.PARTICIPANT.Entity Identifier
	Address	DOCUMENT AUTHOR.PARTICIPANT.ADDRESS
	Communication Details	DOCUMENT AUTHOR.PARTICIPANT.ELECTRONIC COMMUNICATION DETAIL
	Authorised Representative Expiry Date	DOCUMENT AUTHOR.Participation Period.high[1]
ACD Custodian	Component	ACD CUSTODIAN
	Person Name	ACD CUSTODIAN.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.PERSON NAME
	Organisation Name	ACD CUSTODIAN.PARTICIPANT.PERSON OR ORGANISATION OR DEVICE.PERSON.EMPLOYMENT DETAIL.EMPLOYER ORGANISATION.PERSON OR ORGANISATION OR DEVICE.ORGANISATION.Organisation Name

Requirement Section	Data Item	SCS Data Element
	Custodian Relationship	ACD CUSTODIAN.ROLE
	Address	ACD CUSTODIAN.PARTICIPANT.ADDRESS
	Communication Details	ACD CUSTODIAN.PARTICIPANT.ELECTRONIC COMMUNICATION DETAIL
Document Control	Component	*This is described in the CDA Implementation Guide*

[1]'high' is derived from the TimeInterval data type. See Section 9.2 of NEHTA Data Types in NEHTA Specifications: A Profile of the ISO 21090 Specification [NEHT2010c] for more details.

Index