nehta

Structured Content Specification

PCEHR Dispense Record
Version 1.0

9 May 2013

Approved for External Release

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Document Information

Document owner

Document Owner
The National Clinical Terminology and Information Service

Change history

Version	Date	Comments
1.0	30 Nov 2012	Initial short-form release.
1.0	9 May 2013	First full-form release.

Related documents

Name	Version/Release Date
Participation Data Specification	Version 3.2, Issued 20 July 2011
Therapeutic Goods Act 1989 - Section 3	Issued 1989

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Table of Contents

1 Introduction

This document is a Structured Content Specification (SCS) for the PCEHR Dispense Record. It specifies the information structure of NEHTA-compliant records about therapeutic good dispense events.

Appendix C: *Specification Guide for Use* provides definitional details on data type constraints applied to data elements defined in the SCS. It also provides important information on how 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 the PCEHR Dispense Record.

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 PCEHR Dispense Records.

It is also a key input to the PCEHR Dispense Record CDA Implementation Guide [NEHT2012n], which describes how to implement NEHTA-compliant PCEHR Dispense 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 a PCEHR Dispense 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.

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2 PCEHR Dispense Record Structured Document

2.1 Purpose

To support the display of basic details of a dispense record in the PCEHR system.

2.2 PCEHR DISPENSE RECORD

Identification

Label	PCEHR DISPENSE RECORD
Metadata Type	Structured Document
Identifier	SD-16765
OID	1.2.36.1.2001.1001.101.100.16765

Definition

Definition	The record of a dispense event tailored for the PCEHR system.
Definition Source	NEHTA
Synonymous Names	

Data Hierarchy

	PCEHR DISPENSE RECORD		
CONTEXT			
		SUBJECT OF CARE	1..1
		DOCUMENT AUTHOR	1..1
		DateTime Authored	1..1
		~~DateTime Health Event Started~~	~~0..0~~
		~~DateTime Health Event Ended~~	~~0..0~~
		Dispensing Organisation (HEALTHCARE FACILITY)	1..1
		PCEHR Dispense Record Instance Identifier	1..1
		~~LINK~~	~~0..0~~
		~~Detailed Clinical Model Identifier~~	~~0..0~~
		DISPENSER	1..1
		Identifier of Original Dispense Record (Source Record Identifier)	1..1

CONTENT					
		Dispense Item (MEDICATION ACTION)			1..1
			Therapeutic Good Identification		1..1
			Therapeutic Good Strength (Additional Therapeutic Good Detail)		0..1
			Therapeutic Good Generic Name (Additional Therapeutic Good Detail)		0..1
			Additional Dispensed Item Description (Additional Therapeutic Good Detail)		0..1
			Label Instruction (Medication Action Instructions)		0..1
			Formula		0..1
			Ingredients and Form (CHEMICAL DESCRIPTION OF MEDICATION)		0..1
				~~ACTIVE INGREDIENT~~	~~0..0~~
				Form	1..1
				~~INACTIVE INGREDIENT~~	~~0..0~~
			~~Reason (Reason for Action)~~		~~0..0~~
			Quantity Dispensed (AMOUNT OF MEDICATION)		0..1
				~~Quantity~~	~~0..0~~
				~~Dose Unit~~	~~0..0~~
				Quantity Description	1..1
			Comment (Medication Action Comment)		0..1
			~~Sequence Number~~		~~0..0~~
			~~Administration (MEDICATION ADMINISTRATION)~~		~~0..0~~
			Brand Substitution Occurred		0..1
			~~Batchid (Batch Identifier)~~		~~0..0~~
			~~Date of Expiry (Expiry Date)~~		~~0..0~~
			~~DISPENSED TO~~		~~0..0~~

			Number of this Dispense		0..1
			Maximum Number of Repeats		0..1
			~~Claim Category~~		~~0..0~~
			~~Administrative Item Code~~		~~0..0~~
			PBS Manufacturer Code (Administrative Manufacturer Code)		0..1
			Unique Pharmacy Prescription Number (Administrative System Identifier)		0..1
			~~INFORMATION PROVIDER~~		~~0..0~~
			~~SUBJECT~~		~~0..0~~
			DateTime of Dispense Event (Medication Action DateTime)		1..1
			Dispense Item Identifier (Medication Action Instance Identifier)		1..1
			Prescription Item Link (LINK)		0..1
				Link Nature	1..1
				Link Role	1..1
				Prescription Item Identifier (Link Target)	1..1
			~~Detailed Clinical Model Identifier~~		~~0..0~~

2.3 SUBJECT OF CARE

Identification

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

Definition

Definition	The person the therapeutic good is for. The intended recipient of the dispensed item.
Definition Source	NEHTA
Synonymous Names	Patient
Notes	The Subject of Care's Medicare card number is recorded in ENTITLEMENT, not in Entity Identifier.

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix C: *Specification Guide for Use*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier 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**. • DATE OF DEATH DETAIL is **PROHIBITED**. • Source of Death Notification is **PROHIBITED**. • Mother's Original Family Name is **PROHIBITED**.

	• Country of Birth is **PROHIBITED**. • State/Territory of Birth is **PROHIBITED**. • Qualifications is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Subject of Care”. • Role **SHALL** have an implementation-specific value equivalent to “Patient”. • The value of one Entity Identifier **SHALL** be an Australian IHI. • AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.4 DOCUMENT AUTHOR

Identification

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

Definition

Definition	The healthcare provider who wrote the original dispense record.
Definition Source	NEHTA
Synonymous Names	Author
Notes	It is intended that Role will have an implementation-specific value equivalent to “Pharmacist” or a similar occupation.

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix C: *Specification Guide for Use*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • Relationship to Subject of Care is **PROHIBITED**. • EMPLOYMENT DETAIL is **PROHIBITED**. • DEMOGRAPHIC DATA is **PROHIBITED**. • ENTITLEMENT is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Document Author”. • Role **SHOULD** have a value chosen from 1220.0 - ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, 2006 - METeOR 350899 [ABS2006]. However, if a suitable value in this set cannot be

	found, then any code set that is both registered with HL7 and is publicly available **MAY** be used. • The value of one Entity Identifier **SHALL** be an Australian HPI-I. • AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.5 DateTime Authored

Identification

Label	DateTime Authored
Metadata Type	Data Element
Identifier	DE-20105
OID	1.2.36.1.2001.1001.101.103.20105

Definition

Definition	The date or date and time when the original dispense record was written.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	Please see DateTime in Appendix C, *Specification Guide for Use* for examples and usage information on specifying a date and/or time.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.6 HEALTHCARE FACILITY

Identification

Label	Dispensing Organisation
Metadata Type	Data Group
Identifier	DG-10296
OID	1.2.36.1.2001.1001.101.102.10296

Definition

Definition	The organisation that the dispenser is working for when they dispense the item.
Definition Source	NEHTA
Synonymous Names	
Notes	It is intended that Role will have an implementation-specific value equivalent to “Pharmacy” or similar.

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix C: *Specification Guide for Use*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • Qualifications is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Facility”. • The value of one Entity Identifier **SHOULD** be an Australian HPI-O. • One ADDRESS **SHALL** have an Address Purpose value of “Business”. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as an ORGANISATION.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.7 PCEHR Dispense Record Instance Identifier

Identification

Label	PCEHR Dispense Record Instance Identifier
Metadata Type	Data Element
Identifier	DE-16785
OID	1.2.36.1.2001.1001.101.103.16785

Definition

Definition	A globally unique identifier for each instance of a PCEHR Dispense Record.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.8 DISPENSER

Identification

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

Definition

Definition	The healthcare provider who made the therapeutic good available.
Definition Source	NEHTA
Synonymous Names	
Notes	It is intended that Role will have an implementation-specific value equivalent to “Pharmacist” or a similar occupation.

Usage

Conditions of Use	This is a reuse of the *PARTICIPATION* `data group`, which is described in Participation Data Specification [NEHT2011v]. The following constraints are additional to those specified in Participation Data Specification [NEHT2011v]. Constraints are explained in Appendix C: *Specification Guide for Use*. Additional obligation and occurrence constraints: • Participation Period is **PROHIBITED**. • LOCATION OF PARTICIPATION is **PROHIBITED**. • Entity Identifier is **ESSENTIAL**. • Relationship to Subject of Care is **PROHIBITED**. • EMPLOYMENT DETAIL is **PROHIBITED**. • DEMOGRAPHIC DATA is **PROHIBITED**. • ENTITLEMENT is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Performer”. • Role **SHOULD** have a value chosen from 1220.0 - ANZSCO - Australian and New Zealand Standard Classification of Occupations, First Edition, 2006 - METeOR 350899 [ABS2006]. However, if a suitable value in this set cannot be

	found, then any code set that is both registered with HL7 and is publicly available **MAY** be used. • The value of one Entity Identifier **SHALL** be an Australian HPI-I. • AUSTRALIAN OR INTERNATIONAL ADDRESS **SHALL** be instantiated as an AUSTRALIAN ADDRESS. • PERSON OR ORGANISATION OR DEVICE **SHALL** be instantiated as a PERSON.
Conditions of Use Source	NEHTA

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	PCEHR DISPENSE RECORD	1..1

2.9 Source Record Identifier

Identification

Label	Identifier of Original Dispense Record
Metadata Type	Data Element
Identifier	DE-16782
OID	1.2.36.1.2001.1001.101.103.16782

Definition

Definition	The identifier assigned by the source of the original dispense record to that original dispense record.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

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3 Dispense Item Detailed Clinical Model

This chapter describes a reuse of version 4.0 of the Medication Action Detailed Clinical Model.

3.1 Purpose

The recording of activities undertaken with regard to a medicine, vaccine or other therapeutic good, and linking to the instruction if appropriate.

3.2 Use

For recording the planning, issuing of a prescription, dispensing, administration, cessation, suspension, completion of a medicine, vaccine or other therapeutic good. This will usually be in response to a medication order but may be administered immediately without an order at times, thus requiring recording of the administration alone (e.g. in an emergency situation). Such a record may be made to indicate the administration of a dose, dispensing of a certain quantity or as a record of ceasing a medication. The state of the medication instruction is altered by the action taken as indicated in the pathway definition.

There is a date and time at which this action took place (as there is for all actions) and use of this DCM indicates that some action has actually occurred.

3.3 Misuse

Use when recording an instruction or order (use *Medication Instruction* DCM).

3.4 MEDICATION ACTION

Identification

Label	Dispense Item
Metadata Type	Data Group
Identifier	DG-16210
OID	1.2.36.1.2001.1001.101.102.16210

Definition

Definition	Details of the dispensing and supply of a therapeutic good, including its use by a subject of care and related information.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR DISPENSE RECORD	1..1

Children

Data Type	Name	Occurrences
	Therapeutic Good Identification	1..1
	Therapeutic Good Strength (Additional Therapeutic Good Detail)	0..1
	Therapeutic Good Generic Name (Additional Therapeutic Good Detail)	0..1
	Additional Dispensed Item Description (Additional Therapeutic Good Detail)	0..1
	Label Instruction (Medication Action Instructions)	0..1
	Formula	0..1
	Ingredients and Form (CHEMICAL DESCRIPTION OF MEDICATION)	0..1
	~~Reason (Reason for Action)~~	~~0..0~~

Data Type	Name	Occurrences
	Quantity Dispensed (AMOUNT OF MEDICATION)	0..1
	Comment (Medication Action Comment)	0..1
	~~Sequence Number~~	~~0..0~~
	~~Administration (MEDICATION ADMINISTRATION)~~	~~0..0~~
	Brand Substitution Occurred	0..1
	~~Batchid (Batch Identifier)~~	~~0..0~~
	~~Date of Expiry (Expiry Date)~~	~~0..0~~
	~~DISPENSED TO~~	~~0..0~~
	Number of this Dispense	0..1
	Maximum Number of Repeats	0..1
	~~Claim Category~~	~~0..0~~
	~~Administrative Item Code~~	~~0..0~~
	PBS Manufacturer Code (Administrative Manufacturer Code)	0..1
	Unique Pharmacy Prescription Number (Administrative System Identifier)	0..1
	~~INFORMATION PROVIDER~~	~~0..0~~
	~~SUBJECT~~	~~0..0~~
	DateTime of Dispense Event (Medication Action DateTime)	1..1
	Dispense Item Identifier (Medication Action Instance Identifier)	1..1
	Prescription Item Link (LINK)	0..1
	~~Detailed Clinical Model Identifier~~	~~0..0~~

3.5 Therapeutic Good Identification

Identification

Label	Therapeutic Good Identification
Metadata Type	Data Element
Identifier	DE-10194
OID	1.2.36.1.2001.1001.101.103.10194

Definition

Definition	The medicine, vaccine or other therapeutic good that was the focus of the action.
Definition Source	Therapeutic Goods Administration
Synonymous Names	Item Name
Context	This includes medications and medical devices. It includes drugs, appliances, dressings and reagents.
Context Source	NEHTA
Notes	Identifies a therapeutic good, which is broadly defined as a good which is represented in any way to be, or is likely to be taken to be, for therapeutic use (unless specifically excluded or included under Section 7 of the Therapeutic Goods Act 1989). Therapeutic use means use in or in connection with: • preventing, diagnosing, curing or alleviating a disease, ailment, defect or injury; or • influencing, inhibiting or modifying a physiological process; or • testing the susceptibility of persons to a disease or ailment; or • influencing, controlling or preventing conception; or • testing for pregnancy; or • replacement or modification of parts of the anatomy. From [TGA1989a]. The formal definition of a therapeutic good (from the Therapeutic Goods Act 1989) can be found at: [TGA1989a]. If *Therapeutic Good Identification* contains a PBS Item Code, use the *PBS Manufacturer Code* `data element` to record the Manufacturer Code.
Data Type	CodeableText
Value Domain	Medicines Terminology

Usage

Conditions of Use	Where the therapeutic good can be identified by an AMT (Australian Medicines Terminology) concept, this **SHALL** be the AMT ConceptID and Preferred Term. For details see Medicines Terminology. When an AMT value is not available, a value from another registered code set **MAY** be used. The code set **SHALL** be publicly available. A registered code set is one that has been registered through the HL7 code set registration procedure with an appropriate object identifier (OID). For items without an AMT code (including some extemporaneous preparations), a text description is suitable. For a medication this **SHALL** include the name of the medication (brand name or generic name equivalent), strength and dose form, where appropriate.
Conditions of Use Source	NEHTA
Examples	Some examples of AMT ConceptID and their AMT Preferred Term are: 1. 23641011000036102 |*paracetamol 500 mg + codeine phosphate 30 mg tablet*| 2. 28329011000036108 |*paracetamol 500 mg + codeine phosphate 30 mg tablet, 20*| 3. 13362011000036106 |*Panadeine Forte tablet: uncoated, 20 tablets*| 4. 6647011000036101 |*Panadeine Forte (paracetamol 500 mg + codeine phosphate 30 mg) tablet: uncoated, 1 tablet*| 5. 20138011000036107 |*Panadeine Forte tablet: uncoated, 20 tablets, blister pack*| 6. 51295011000036108 |*bandage compression 10 cm x 3.5 m bandage: high stretch, 1 bandage*| 7. 48667011000036100 |*Eloflex (2480) (bandage compression 10 cm x 3.5 m) bandage: high stretch, 1 bandage*| 8. 926706011000036104 |*Engerix-B Paediatric 10 microgram/0.5 mL injection: suspension, 1 x 0.5 mL syringe*|
Misuse	Detailing the formula of a compounded (extemporaneous) medication.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	1..1

3.6 Medicines Terminology

Identification

Label	Medicines Terminology
Metadata Type	Value Domain
Identifier	VD-16115
OID	1.2.36.1.2001.1001.101.104.16115

Definition

Definition	A set of values used to refer to medicines and other therapeutic goods.
Definition Source	NEHTA
Notes	An explanation of AMT concepts can be found in Australian Medicines Terminology Editorial Rules (v2 model) [NEHT2011bs]. Prescribing and dispensing use different sets of values.

Value Domain

Source	Australian Medicines Terminology
Permissible Values	The permissible values are the members of the following seven AMT reference sets: • 929360061000036106 |*Medicinal product reference set*| • 929360081000036101 |*Medicinal product pack reference set*| • 929360071000036103 |*Medicinal product unit of use reference set*| • 929360021000036102 |*Trade product reference set*| • 929360041000036105 |*Trade product pack reference set*| • 929360031000036100 |*Trade product unit of use reference set*| • 929360051000036108 |*Containered trade product pack reference set*| Different reference sets are allowed in the differing contexts of prescribing, dispensing and administering, as listed below. Prescribing: • 929360081000036101 |*Medicinal product pack reference set*| • 929360071000036103 |*Medicinal product unit of use reference set*| • 929360041000036105 |*Trade product pack reference set*| • 929360031000036100 |*Trade product unit of use reference set*| • 929360051000036108 |*Containered trade product pack reference set*|

Dispensing:

- 929360041000036105 |*Trade product pack reference set*|
- 929360031000036100 |*Trade product unit of use reference set*|
- 929360051000036108 |*Containered trade product pack reference set*|

Administering:

- 929360031000036100 |*Trade product unit of use reference set*|

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Therapeutic Good Identification	1..1

3.7 Additional Therapeutic Good Detail

Identification

Label	Therapeutic Good Strength
Metadata Type	Data Element
Identifier	DE-16769
OID	1.2.36.1.2001.1001.101.103.16769

Definition

Definition	Information concerning the strength of the Therapeutic Good.
Definition Source	NEHTA
Synonymous Names	
Data Type	

Usage

Conditions of Use	This **SHALL NOT** contradict the value of the *Therapeutic Good Identification* `data element`.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.8 Additional Therapeutic Good Detail

Identification

Label	Therapeutic Good Generic Name
Metadata Type	Data Element
Identifier	DE-16769
OID	1.2.36.1.2001.1001.101.103.16769

Definition

Definition	The generic name of the Therapeutic Good.
Definition Source	NEHTA
Synonymous Names	
Data Type	

Usage

Conditions of Use	This **SHALL NOT** contradict the value of the *Therapeutic Good Identification* `data element`.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.9 Additional Therapeutic Good Detail

Identification

Label	Additional Dispensed Item Description
Metadata Type	Data Element
Identifier	DE-16769
OID	1.2.36.1.2001.1001.101.103.16769

Definition

Definition	Extra information about the therapeutic good.
Definition Source	NEHTA
Synonymous Names	
Data Type	

Usage

Conditions of Use	This **SHALL NOT** contradict the value of the *Therapeutic Good Identification* `data element`.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.10 Medication Action Instructions

Identification

Label	Label Instruction
Metadata Type	Data Element
Identifier	DE-16109
OID	1.2.36.1.2001.1001.101.103.16109

Definition

Definition	Any instructions given to the subject of care or carer at the time of the dispense event.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.11 Formula

Identification

Label	Formula
Metadata Type	Data Element
Identifier	DE-16272
OID	1.2.36.1.2001.1001.101.103.16272

Definition

Definition	The recipe for compounding a medicine.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1. Salicylic Acid 2% in White Soft Paraffin to 100g: Salicylic Acid 2g White Soft Paraffin to 100g
Misuse	Describing off-the-shelf medications.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.12 CHEMICAL DESCRIPTION OF MEDICATION

Identification

Label	Ingredients and Form
Metadata Type	Data Group
Identifier	DG-16408
OID	1.2.36.1.2001.1001.101.102.16408

Definition

Definition	Detailed information about the ingredient(s) including form and strength.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

Children

Data Type	Name	Occurrences
	~~ACTIVE INGREDIENT~~	~~0..0~~
	Form	1..1
	~~INACTIVE INGREDIENT~~	~~0..0~~

3.13 Form

Identification

Label	Form
Metadata Type	Data Element
Identifier	DE-10186
OID	1.2.36.1.2001.1001.101.103.10186

Definition

Definition	The formulation or presentation of the overall substance.
Definition Source	NEHTA
Synonymous Names	Manufactured Form Dose Form
Notes	*Form* is used to specify a characteristic of a product as it is manufactured or formulated for dispensing. The form the medication takes when actually administered may vary somewhat from the manufactured form. Tablets may be soluble. Such tablets may or may not be actually dissolved into a solution prior to administration. Similarly with powders and liquids. If it is critical for the care of the patient to differentiate the manufactured form from the administered form, then this should be done via correct labelling and patient instructions. See *Subject of Care Instructions* and *Cautionary Advice*.
Data Type	CodeableText
Value Domain	Medication Form Reference Set

Usage

Examples	1. Tablet 2. Capsule 3. Oral drops 4. Effervescent powder

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Ingredients and Form (CHEMICAL DESCRIPTION OF MEDICATION)	1..1

3.14 Medication Form Reference Set

Identification

Label	Medication Form Reference Set
Metadata Type	Value Domain
Identifier	VD-16618
OID	1.2.36.1.2001.1001.101.104.16618
External Identifier	SNOMED CT-AU Concept Id: 32570621000036105

Definition

Definition	The set of values for the medication form.
Definition Source	NEHTA

Value Domain

Source	SNOMED CT-AU

Relationships

Parents

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

3.15 AMOUNT OF MEDICATION

Identification

Label	Quantity Dispensed
Metadata Type	Data Group
Identifier	DG-16423
OID	1.2.36.1.2001.1001.101.102.16423

Definition

Definition	The quantity of medicine, vaccine or other therapeutic good that was dispensed.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

Children

Data Type	Name	Occurrences
	~~Quantity~~	~~0..0~~
	~~Dose Unit~~	~~0..0~~
	Quantity Description	1..1

3.16 Quantity Description

Identification

Label	Quantity Description
Metadata Type	Data Element
Identifier	DE-16525
OID	1.2.36.1.2001.1001.101.103.16525

Definition

Definition	Free text description of the amount which may consist of the quantity and dose unit.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Quantity Dispensed (AMOUNT OF MEDICATION)	1..1

3.17 Medication Action Comment

Identification

Label	Comment
Metadata Type	Data Element
Identifier	DE-16044
OID	1.2.36.1.2001.1001.101.103.16044

Definition

Definition	Any additional information that may be needed to ensure the continuity of supply, proper use, or appropriate medication management.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.18 Brand Substitution Occurred

Identification

Label	Brand Substitution Occurred
Metadata Type	Data Element
Identifier	DE-16064
OID	1.2.36.1.2001.1001.101.103.16064

Definition

Definition	A different brand of the same medicine, vaccine or other therapeutic good was substituted for the one nominated in the order.
Definition Source	NEHTA
Synonymous Names	
Data Type	Boolean

Usage

Examples	
Misuse	Using this data element for therapeutic substitution. Using this data element for medical appliances.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.19 Number of this Dispense

Identification

Label	Number of this Dispense
Metadata Type	Data Element
Identifier	DE-16106
OID	1.2.36.1.2001.1001.101.103.16106

Definition

Definition	A numeric value that represents the dispense number or sequence number that has been reached for a therapeutic good prescribed with repeats. This count includes the first dispense. It has the value “1” when there are no repeats.
Definition Source	NEHTA
Synonymous Names	
Notes	Each prescribed item logically possesses a pre-determined number of times it may be dispensed; the number is “1” (for the original prescription) + the maximum number of repeats. This data element (Number of this Dispense) indicates which dispensing of the item is being attempted by the dispense act that this dispense record documents. Its value is one more than the number of times the prescribed item has successfully been dispensed prior to this dispensing. Its value increments by one each time a dispense act is successfully completed. The value of this term is one more than the commonly used term “number this repeat”.
Data Type	Integer

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.20 Maximum Number of Repeats

Identification

Label	Maximum Number of Repeats
Metadata Type	Data Element
Identifier	DE-10169
OID	1.2.36.1.2001.1001.101.103.10169

Definition

Definition	The number of times the supply of the prescribed item may be repeated under the terms of the prescription.
Definition Source	NEHTA
Synonymous Names	
Notes	Note that the initial supply under the prescription is not counted as a repeat. PBS and RPBS items specify a maximum number of permitted repeats within the Schedules. This number must not be exceeded on a prescription without the appropriate authorisation. When a prescription for a PBS medicine asks for repeat supplies, the pharmacist shall prepare a Repeat Authorisation Form to be attached to the “Pharmacist/Subject of Care” copy. An exception to this is when the prescription is marked “Regulation 24”, where all repeats are supplied at once with the original prescription. A similar exception is permitted for RPBS prescriptions endorsed with “hardship conditions apply”. The Repeat Authorisation is to be detailed in a separate Structured Document Template.
Data Type	Integer

Usage

Examples	
Default Value	0

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.21 Administrative Manufacturer Code

Identification

Label	PBS Manufacturer Code
Metadata Type	Data Element
Identifier	DE-16648
OID	1.2.36.1.2001.1001.101.103.16648

Definition

Definition	Administrative code of the manufacturer of the pharmaceutical item supplied.
Definition Source	NEHTA
Synonymous Names	
Notes	If *Therapeutic Good Identification* contains an AMT code, this will be empty. If *Therapeutic Good Identification* contains a PBS Item Code, this may contain a PBS Manufacturer Code.
Data Type	CodeableText
Value Domain	Administrative Manufacturer Code Values

Usage

Conditions of Use	This **SHALL NOT** have a value if the value of Therapeutic Good Identification encodes the manufacturer.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.22 Administrative Manufacturer Code Values

Identification

Label	Australian PBS Manufacturer Code
Metadata Type	Value Domain
Identifier	VD-16647
External Identifier	1.2.36.1.2001.1005.23
OID	1.2.36.1.2001.1001.101.104.16647

Definition

Definition	The set of values derived from the PBS manufacturer code.
Definition Source	NEHTA

Value Domain

Source	Department of Health and Ageing, PBS manufacturer code.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PBS Manufacturer Code (Administrative Manufacturer Code)	1..1

3.23 Administrative System Identifier

Identification

Label	Unique Pharmacy Prescription Number
Metadata Type	Data Element
Identifier	DE-16786
OID	1.2.36.1.2001.1001.101.103.16786

Definition

Definition	A sequential number assigned by a pharmacy to identify for Medicare dispense events by that pharmacy.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Conditions of Use	The value **SHOULD** be unique. The value **MAY** be not unique.
Conditions of Use Source	NEHTA
Examples	1. Australian Pharmacy Approval Number 2. Australian Unique Pharmacy Prescription Number

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

3.24 Medication Action DateTime

Identification

Label	DateTime of Dispense Event
Metadata Type	Data Element
Identifier	DE-16591
OID	1.2.36.1.2001.1001.101.103.16591

Definition

Definition	The point in time at which the *Medication Action* is completed.
Definition Source	NEHTA
Synonymous Names	
Data Type	DateTime

Usage

Examples	Please see DateTime in Appendix C, *Specification Guide for Use* for examples and usage information on specifying a date and/or time.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	1..1

3.25 Medication Action Instance Identifier

Identification

Label	Dispense Item Identifier
Metadata Type	Data Element
Identifier	DE-16637
OID	1.2.36.1.2001.1001.101.103.16637

Definition

Definition	A globally unique identifier for each instance of *Medication Action* action.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	1..1

3.26 LINK

Identification

Label	Prescription Item Link
Metadata Type	Data Group
Identifier	DG-16692
OID	1.2.36.1.2001.1001.101.102.16692

Definition

Definition	A link to the Prescription Item that authorised the dispensing of the therapeutic good which this Dispense Event describes.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Dispense Item (MEDICATION ACTION)	0..1

Children

Data Type	Name	Occurrences
	Link Nature	1..1
	Link Role	1..1
	Prescription Item Identifier (Link Target)	1..1

3.27 Link Nature

Identification

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

Definition

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

Usage

Conditions of Use	This **SHALL** be LINK-B0 (“is confirmed by or authorised by”).
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Prescription Item Link (LINK)	1..1

3.28 Link Nature Values

Identification

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

Definition

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

Value Domain

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

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

Relationships

Parents

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

3.29 Link Role

Identification

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

Definition

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

Usage

Conditions of Use	This **SHALL** be LINK-B3 (“permits (sanctions, authorises)”).
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Prescription Item Link (LINK)	1..1

3.30 Link Role Values

Identification

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

Definition

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

Value Domain

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

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

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

Usage

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

Relationships

Parents

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

3.31 Link Target

Identification

Label	Prescription Item Identifier
Metadata Type	Data Element
Identifier	DE-16700
OID	1.2.36.1.2001.1001.101.103.16700

Definition

Definition	The *Prescription Item Identifier* of the Prescription Item which authorised the dispensing of the therapeutic good which this Dispense Event describes.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

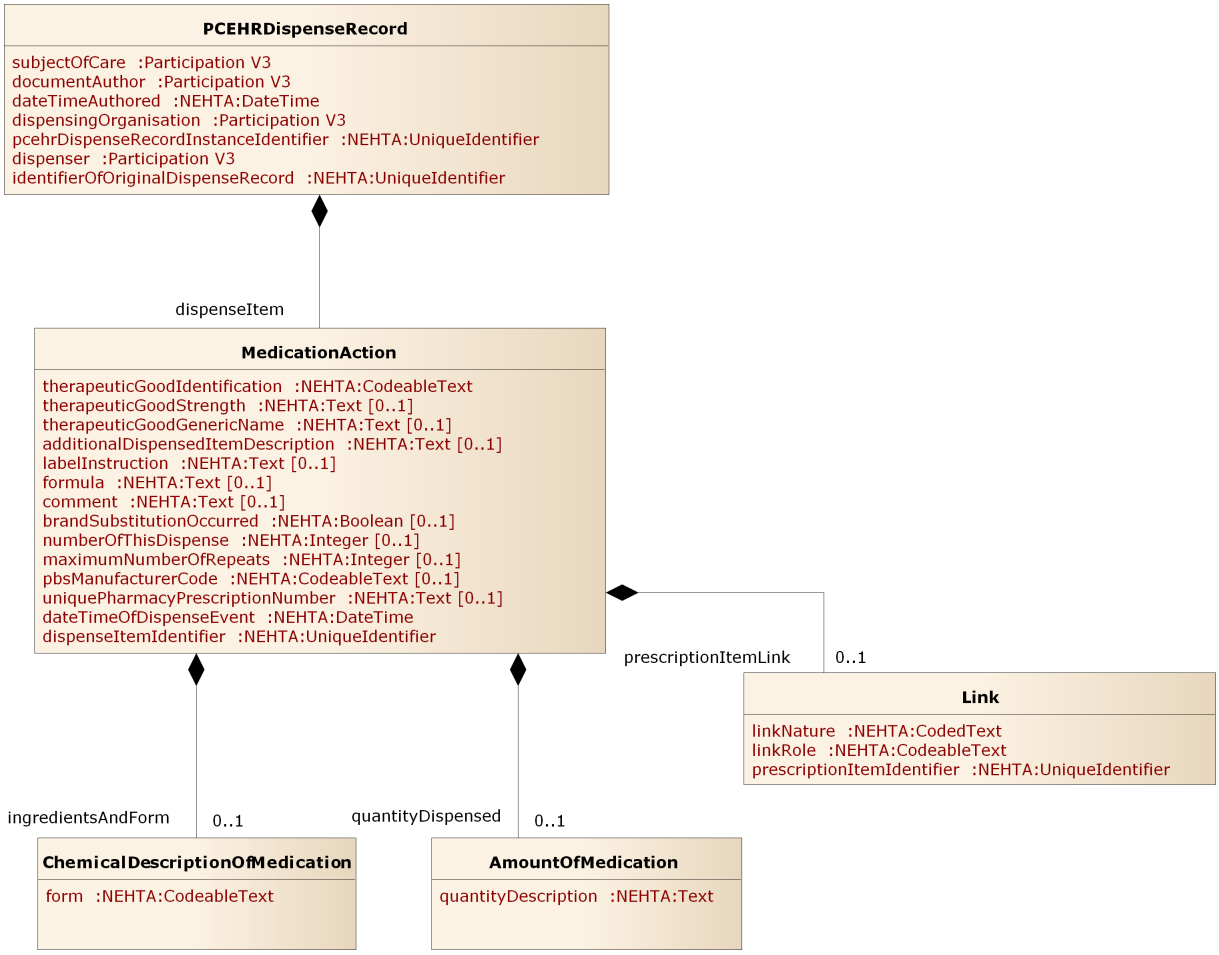
Relationships

Parents

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

4 UML Class Diagrams

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.



UML class diagram of the Physical Measurements data hierarchy (top level sections).

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Appendix A. Mapping from Requirements

Mapping from data items presumed to be available in source systems to SCS data items

Data Item	SCS Data Element	Comment
Subject of Care	Subject of Care	
	Document Author	This data element is essential in all SCSs.
	DateTime Authored	This data element is essential in all SCSs.
Dispenser	Dispenser	
Dispensing Organisation	Dispensing Organisation (Healthcare Facility)	
Dispense Record Identifier	PCEHR Dispense Record Instance Identifier	
	Identifier of Original Dispense Record (Source Record Identifier)	The original dispense record is distinct from this PCEHR Dispense Record, so the identifiers must be distinct.
Dispense Item	Dispense Item (Medication Action)	
Dispense Item Identifier	Dispense Item.Dispense Item Identifier (Medication Action Instance Identifier)	
DateTime of Dispense Event	Dispense Item.DateTime of Dispense Event (Medication Action DateTime)	
Prescription Item Identifier	Dispense Item.Prescription Item Link.Prescription Item Identifier (Link Target)	
Therapeutic Good Identification	Dispense Item.Therapeutic Good Identification	
Extemporaneous Description	Dispense Item.Formula	
Quantity Dispensed	Dispense Item.Quantity Dispensed.Quantity Description	
Brand Substitution Occurred	Dispense Item.Brand Substitution Occurred	

Data Item	SCS Data Element	Comment
Maximum Number of Repeats	Dispense Item.Maximum Number of Repeats	
Number of this Dispense	Dispense Item.Number of this Dispense	
Label Instruction	Dispense Item.Label Instruction (Medication Action Instructions)	
Comment	Dispense Item.Comment (Medication Action Comment)	
Medication Form	Dispense Item.Ingredients and Form.Form	
Item Strength	Dispense Item.Therapeutic Good Strength (Additional Therapeutic Good Detail)	
Item Generic Name	Dispense Item.Therapeutic Good Generic Name (Additional Therapeutic Good Detail)	
PBS Item Code	Dispense Item.Therapeutic Good Identification	
PBS Manufacturer Code	Dispense Item.PBS Manufacturer Code (Administrative Manufacturer Code)	
Additional Dispensed Item Description	Dispense Item.Additional Dispensed Item Description (Additional Therapeutic Good Detail)	
UPPN	Dispense Item.Unique Pharmacy Prescription Number (Administrative System Identifier)	

Appendix B. Known Issues

Reference	Description
Links to external resources	If a link (usually in the references section) spans across several lines, certain combinations of PDF reader and web browser have problems opening it.
No requirements	There are no written requirements for this document. However, it was constructed using the Detailed Clinical Model for Medication Action (which is used for many PCEHR structured document specifications).
Medication Action DCM v4.0	Version 4.0 of Medication Action Detailed Clinical Model has not yet been published.
Unique Pharmacy Prescription Number	This is only meaningful when used together with the Pharmacy Approval Number assigned by Medicare Australia. The Pharmacy Approval Number is recorded in the Entitlement Number data element of the Dispensing Organisation. Any extract of the Dispense Item must include that information from the document context to be meaningful.

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Appendix C. Specification Guide for Use

C.1 Overview

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

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

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

C.2 The Structured Content Specification Metamodel

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

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

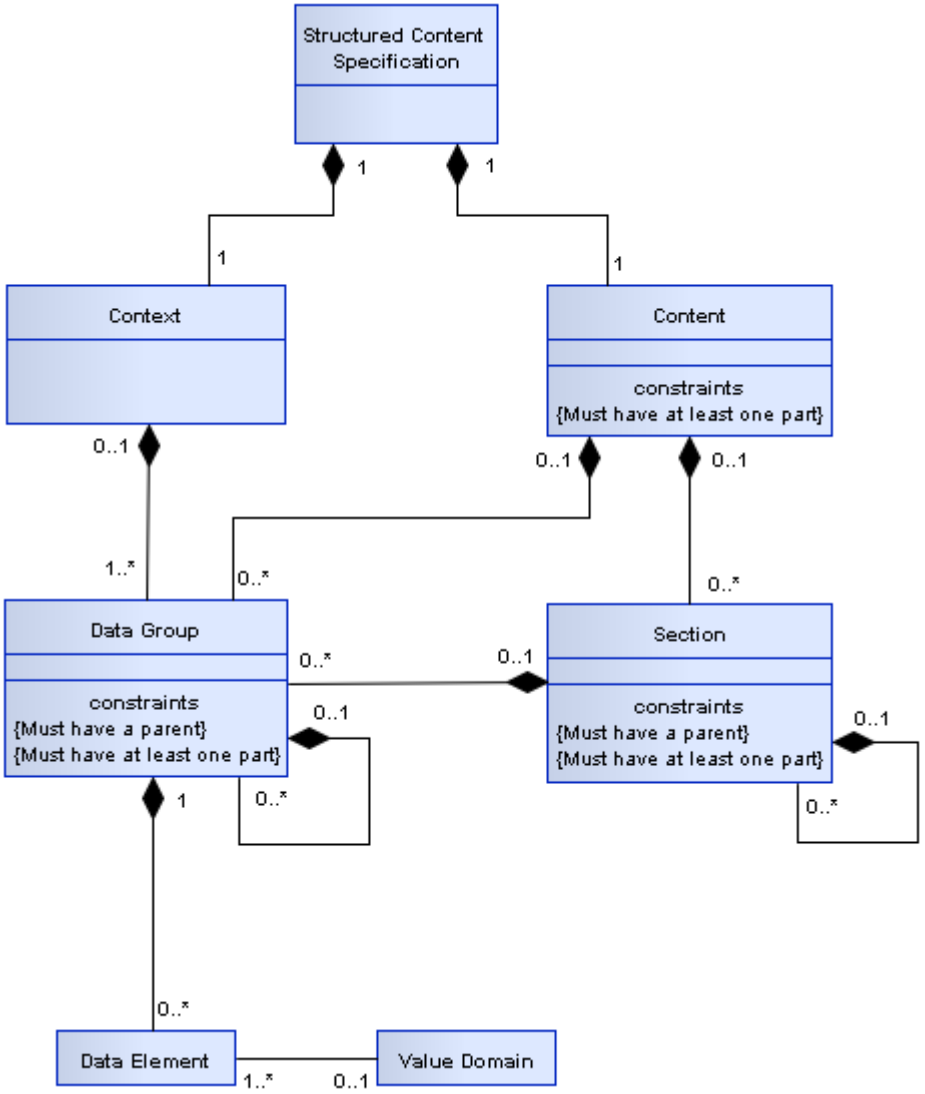

Figure 1: SCS Metamodel

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

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

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

- Section
- Data Group
- Data Element
- Value Domain

These components are described in more detail below.

Context

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

Content

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

Section

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

Data Group

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

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

Participation

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

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

[NEHT2011v] defines the full Participation specification.

Choice

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

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

Data Element

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

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

Value Domain

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

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

Value domains constrain by either specifying a lower 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>Individual Pathology Test Result Name</td><td>CodeableText</td><td>A LOINC subset which references concepts such as ‘Cholesterol [Moles/volume] in Serum or Plasma’ (ID: 14647-2).</td></tr>
</table>

Table 1: Value Domain Examples

C.3 Icon Legend

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

Metadata Types Legend

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

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; a flexible data type to support various ways of holding text, both free text and coded text. Commonly used to support compliance for early adopters of the Structured Content Specifications. 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
 Real (ISO 21090: REAL)	A computational approximation to the standard mathematical concept of real numbers. These are often called floating-point numbers. **Usage/Examples** • 1.075 • -325.1 • 3.14157
 Text (ISO 21090: ST)	Character strings (with optional language). Unless otherwise constrained by an implementation, can be any combination of alpha, numeric or symbols from the Unicode character set. Sometimes referred to as free text. **Usage/Examples** “The patient is a 37 year old man who was referred for cardiac evaluation after complaining of occasional palpitations, racing heart beats and occasional dizziness.”
 TimeInterval (ISO 21090:TS)	An interval in time, with (optionally) a start date/time and (optionally) an end date/time and/or a duration/width. **Usage/Examples** • 01/01/2008 – 31/12/2008 • 1:30 a.m. – 6:00 p.m., duration/width = 16.5 hours

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

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

C.4 Information Model Specification Parts Legends

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

Data Hierarchy

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

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

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

Chapter Name

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

Identification Section Legend

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

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

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 is required or recommended. For example, Medication Instruction (data group) has a scope which includes all prescribable therapeutic goods, both medicines and non-medicines. This attribute is not relevant to data elements or value domains. (Source NEHTA.)
Scope Source	The authoritative source for the Scope statement.
Context	The environment in which the data component is meaningful, i.e. the circumstance, purpose and perspective under which this data component is defined or used. For example, Street Name has a context of Address. (Source NEHTA.)
Assumptions	Suppositions and notions used in defining the data component. (Source NEHTA.)

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

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. Note that if no components in either table have any conditions, then the condition column will be omitted for that table.

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

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

Table 10: Children Legend

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

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

Table 11: Parent Legend

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