nehta

Structured Content Specification

PCEHR Prescription Record
Version 1.0

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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 Prescription Record. It specifies the information structure of NEHTA-compliant records about prescriptions.

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 Prescription 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 Prescription Records.

It is also a key input to the PCEHR Prescription Record CDA Implementation Guide [NEHT2012I], which describes how to implement a NEHTA-compliant PCEHR Prescription Record 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 Prescription 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 Prescription Record Structured Document

2.1 Purpose

To record the details of a prescription line item (single medication), in a format suitable for sharing within the PCEHR system.

2.2 Misuse

Using this for prescribing or dispensing. This is a report about a prescription, not a prescription.

2.3 PCEHR PRESCRIPTION RECORD

Identification

Label	PCEHR PRESCRIPTION RECORD
Metadata Type	Structured Document
Identifier	SD-16764
OID	1.2.36.1.2001.1001.101.100.16764

Definition

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

Data Hierarchy

		PCEHR PRESCRIPTION RECORD	
CONTEXT			
		SUBJECT OF CARE	1..1
		PRESCRIBER	1..1
		DateTime Prescription Written	1..1
		~~DateTime Health Event Started~~	~~0..0~~
		~~DateTime Health Event Ended~~	~~0..0~~
		Prescriber Organisation (HEALTHCARE FACILITY)	1..1
		PCEHR Prescription Record Instance Identifier	1..1
		~~LINK~~	~~0..0~~
		~~Detailed Clinical Model Identifier~~	~~0..0~~
		Identifier of Original Prescription (Prescription Identifier)	1..1
CONTENT			
		Prescription Item (MEDICATION INSTRUCTION)	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
			Directions		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~~
			~~Dose Description~~		~~0..0~~
			~~Structured Dose (AMOUNT OF MEDICATION)~~		~~0..0~~
			~~Timing (MEDICATION TIMING)~~		~~0..0~~
			~~Additional Instruction~~		~~0..0~~
			Clinical Indication		0..1
			Administration Details (MEDICATION ADMINISTRATION)		0..1
				Route	1..1
				~~Site (Anatomical Site)~~	~~0..0~~
				~~Delivery Method (Medication Delivery Method)~~	~~0..0~~
				~~Dose Duration~~	~~0..0~~
				~~Intravenous Details (Intravenous Administration Details)~~	~~0..0~~
			Comment (Medication Instruction Comment)		0..1
			DISPENSING		1..1
				Quantity to Dispense (AMOUNT OF MEDICATION)	1..1

					~~Quantity~~	~~0..0~~
					~~Dose Unit~~	~~0..0~~
					Quantity Description	1..1
				Maximum Number of Repeats (Number of Repeats)		0..1
				Minimum Interval Between Repeats		0..1
				Brand Substitution Permitted		0..1
				~~Grounds for Concurrent Supply~~		~~0..0~~
				~~Dispensing Instructions~~		~~0..0~~
			~~Change Type~~			~~0..0~~
			~~Change or Recommendation? (Change Status)~~			~~0..0~~
			~~Change Description~~			~~0..0~~
			~~Change Reason (Change or Recommendation Reason)~~			~~0..0~~
			~~Indication for Authorised Use~~			~~0..0~~
			~~Medication Instruction ID~~			~~0..0~~
			~~Concession Benefit~~			~~0..0~~
			~~DateTime Medication Instruction Written~~			~~0..0~~
			PBS Manufacturer Code (Administrative Manufacturer Code)			0..1
			~~INFORMATION PROVIDER~~			~~0..0~~
			~~SUBJECT~~			~~0..0~~
			~~Medication Instruction Narrative~~			~~0..0~~
			DateTime Prescription Expires (DateTime Medication Instruction Expires)			1..1
			Prescription Item Identifier (Medication Instruction Instance Identifier)			1..1
			~~LINK~~			~~0..0~~

			~~Detailed Clinical Model Identifier~~	~~0..0~~

2.4 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 prescription is for. The intended recipient of the prescribed items.
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 fixed 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 PRESCRIPTION RECORD	1..1

2.5 PRESCRIBER

Identification

Label	PRESCRIBER
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 prescription.
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 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**. • EMPLOYER ORGANISATION is **PROHIBITED**. • Employment Type is **PROHIBITED**. • Occupation is **ESSENTIAL**. • Position in Organisation is **PROHIBITED**. • DEMOGRAPHIC DATA is **PROHIBITED**. Other additional constraints: • Participation Type **SHALL** have an implementation-specific value equivalent to “Prescriber”. • 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 PRESCRIPTION RECORD	1..1

2.6 DateTime Prescription Written

Identification

Label	DateTime Prescription Written
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 that the original prescription 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 PRESCRIPTION RECORD	1..1

2.7 HEALTHCARE FACILITY

Identification

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

Definition

Definition	The organisation which that prescriber is working for when they prescribe the item.
Definition Source	NEHTA
Synonymous Names	
Notes	It is intended that Role will have an implementation-specific value equivalent to “General Practice Clinic”, “Dental Surgery” 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**.
- ENTITLEMENT is **PROHIBITED**.
- 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.
- 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 PRESCRIPTION RECORD	1..1

2.8 PCEHR Prescription Record Instance Identifier

Identification

Label	PCEHR Prescription Record Instance Identifier
Metadata Type	Data Element
Identifier	DE-16784
OID	1.2.36.1.2001.1001.101.103.16784

Definition

Definition	A globally unique identifier for each instance of a PCEHR Prescription Record.
Definition Source	NEHTA
Synonymous Names	
Notes	This identifies the PCEHR Prescription Record instance. It is NOT the identifier of the original prescription.
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

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

2.9 Prescription Identifier

Identification

Label	Identifier of Original Prescription
Metadata Type	Data Element
Identifier	DE-16092
OID	1.2.36.1.2001.1001.101.103.16092

Definition

Definition	The identifier which was assigned to the original prescription by the Electronic Prescribing System (EPS) which was used to create it.
Definition Source	NEHTA
Synonymous Names	
Notes	This is NOT the Document Access Key (DAK) of the original prescription. Document Access Keys are described in Electronic Transfer of Prescription Solution Specification [NEHT2010w].
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

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

3 Prescription Item Detailed Clinical Model

This chapter describes a reuse of version 3.2 of the Medication Instruction Detailed Clinical Model.

3.1 Purpose

Recording intent to use or to continue to use a medicine, vaccine, or other therapeutic good, including instructions on use, dispensing, and administration, where necessary.

3.2 Use

For recording instructions to dispense, administer or use a medicine, vaccine or other therapeutic good. This medication instruction can be used in many circumstances including: a record in a progress note; an item in a medication list, prescription or drug chart (to be dispensed and/or administered); or in a summary document such as discharge summary or a referral for care. The instruction may be complex and involve more than one activity, such as in the case of a Prednisolone reducing dose regimen, or multiple medications as components of the same order. This would include a written order by a physician, dentist, nurse practitioner, or other designated health professional for a medication to be dispensed and administered to a patient.

This instruction will generally apply to things that can be prescribed or are available 'over the counter'.

Use for orders for vaccinations or other therapeutic goods. These may be presented differently in different applications but require the same structure.

Use for the consistent representation of an item in a medication list comprising the medicines that a clinicians collectively expect the individual to be taking.

The information recorded may separate dose, route and timing to achieve a computable and shareable specification but also allows for narrative instructions for orders like "Frusemide 40mg two tablets in the morning and one at lunch" to ensure compatibility with existing systems. To achieve a structured statement for such compound orders, two items are required: "Frusemide 40mg two tablets in the morning" and "Frusemide 40mg one tablet at lunch". The instruction will usually include information about the timing and dose (which may be structured) and in some settings will include the route of administration. The amount of the medicines will usually be given in terms of a number and a dose unit but may be a textural statement to ensure compatibility with existing systems and also coverage of all scenarios.

Use to represent a prescription item for a medicine, vaccine or other therapeutic good within a document such as an electronic prescription or a medication chart.

The content is potentially complex. Where the content is re-usable in other contexts, especially the paired *Medication Action* DCM (for recording dispensing, administration etc.) the content has been specified in reuseable data groups. For example: the *AMOUNT OF MEDICATION* `data group` contains detail about medication dose; *TIMING* `data group` contains detail about structured dose timing; *MEDICATION ADMINISTRATION* `data group` contains structure around administration for both the order and the action; and *CHEMICAL DESCRIPTION OF MEDICATION* `data group` describes the specific ingredients within a medicine. All of these data groups together are required to make up the total maximal dataset for a reuseable medication instruction.

3.3 Misuse

Not to be used to record administration, use or dispensing. (For those use *Medication Action* DCM.)

Not to be used to record ordering of blood products, implants or major devices such as pacemakers and defibrillators, etc.

3.4 MEDICATION INSTRUCTION

Identification

Label	Prescription Item
Metadata Type	Data Group
Identifier	DG-16211
OID	1.2.36.1.2001.1001.101.102.16211

Definition

Definition	Details of a therapeutic good, its use by the intended subject of care, and other related information.
Definition Source	NEHTA
Synonymous Names	Prescribed Item

Usage

Misuse	Recording stock on hand of a therapeutic good.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	PCEHR PRESCRIPTION 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
	Directions	0..1
	Formula	0..1

Data Type	Name	Occurrences
	Ingredients and Form (CHEMICAL DESCRIPTION OF MEDICATION)	0..1
	~~Dose Description~~	~~0..0~~
	~~Structured Dose (AMOUNT OF MEDICATION)~~	~~0..0~~
	~~Timing (MEDICATION TIMING)~~	~~0..0~~
	~~Additional Instruction~~	~~0..0~~
	Clinical Indication	0..1
	Administration Details (MEDICATION ADMINISTRATION)	0..1
	Comment (Medication Instruction Comment)	0..1
	DISPENSING	1..1
	~~Change Type~~	~~0..0~~
	~~Change or Recommendation? (Change Status)~~	~~0..0~~
	~~Change Description~~	~~0..0~~
	~~Change Reason (Change or Recommendation Reason)~~	~~0..0~~
	~~Indication for Authorised Use~~	~~0..0~~
	~~Medication Instruction ID~~	~~0..0~~
	~~Concession Benefit~~	~~0..0~~
	~~DateTime Medication Instruction Written~~	~~0..0~~
	PBS Manufacturer Code (Administrative Manufacturer Code)	0..1
	~~INFORMATION PROVIDER~~	~~0..0~~
	~~SUBJECT~~	~~0..0~~
	~~Medication Instruction Narrative~~	~~0..0~~
	DateTime Prescription Expires (DateTime Medication Instruction Expires)	1..1
	Prescription Item Identifier (Medication Instruction Instance Identifier)	1..1

Data Type	Name	Occurrences
	~~LINK~~	~~0..0~~
	~~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 being ordered, administered to or used by the subject of care.
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)
	Prescription Item (MEDICATION INSTRUCTION)	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)
	Prescription Item (MEDICATION INSTRUCTION)	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)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.9 Directions

Identification

Label	Directions
Metadata Type	Data Element
Identifier	DE-16429
OID	1.2.36.1.2001.1001.101.103.16429

Definition

Definition	A complete narrative description of how much, when and how to use the medicine, vaccine or other therapeutic good.
Definition Source	NEHTA
Synonymous Names	
Notes	It is essential that when the *Directions* `data element` is used together with structured information components such as *Ingredients and Form* and *Structured Dose* in clinical records or prescriptions, the contents of *Direction* not contradict the contents of these structured information components.
Data Type	Text

Usage

Conditions of Use	The contents of this data component **SHALL NOT** contradict the contents of other data components within the entry.
Conditions of Use Source	NEHTA
Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.10 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)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.11 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)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

Children

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

3.12 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

3.13 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

3.14 Clinical Indication

Identification

Label	Clinical Indication
Metadata Type	Data Element
Identifier	DE-10141
OID	1.2.36.1.2001.1001.101.103.10141

Definition

Definition	A reason for ordering the medicine, vaccine or other therapeutic good.
Definition Source	NEHTA
Synonymous Names	Reason for Prescribing
Notes	The clinical justification (e.g. specific therapeutic effect intended) for this subject of care's use of the therapeutic good.
Data Type	Text

Usage

Conditions of Use	For inpatient discharge summaries, this should always be recorded.
Conditions of Use Source	NEHTA
Examples	1. Long-term maintenance treatment of bronchospasm and dyspnoea.

Relationships

Parents

Data Type	Name	**Occurrences** (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.15 MEDICATION ADMINISTRATION

Identification

Label	Administration Details
Metadata Type	Data Group
Identifier	DG-10108
OID	1.2.36.1.2001.1001.101.102.10108

Definition

Definition	Details of the administration of the medicine, vaccine or other therapeutic good.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

Children

Data Type	Name	Occurrences
	Route	1..1
	~~Site (Anatomical Site)~~	~~0..0~~
	~~Delivery Method (Medication Delivery Method)~~	~~0..0~~
	~~Dose Duration~~	~~0..0~~
	~~Intravenous Details (Intravenous Administration Details)~~	~~0..0~~

3.16 Route

Identification

Label	Route
Metadata Type	Data Element
Identifier	DE-10147
OID	1.2.36.1.2001.1001.101.103.10147

Definition

Definition	The route by which the medication is administered.
Definition Source	NEHTA
Synonymous Names	Route of Administration
Notes	It is used to describe the path or channel by which the substance/agent is introduced or gains access into a patient's body. This includes the route for which medication is administered.
Data Type	CodeableText
Value Domain	Route of Administration Reference Set

Usage

Conditions of Use	Use “Unknown” only for retrospective data collection.
Conditions of Use Source	NEHTA
Examples	1. Oral 2. Subcutaneous injection 3. Epidural 4. Rectal 5. Otic

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Administration Details (MEDICATION ADMINISTRATION)	1..1

3.17 Route of Administration Reference Set

Identification

Label	Route of Administration Reference Set
Metadata Type	Value Domain
Identifier	VD-10147
OID	1.2.36.1.2001.1001.101.104.10147
External Identifier	SNOMED CT-AU Concept Id: 32570601000036100

Definition

Definition	A list of all possible routes of administration of medication.
Definition Source	NEHTA
Notes	Set of allowable values to describe the way through which a medication is administered to/by the subject of care.

Value Domain

Source	SNOMED CT-AU

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Route	1..1

3.18 Medication Instruction 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, rationale for current dose and timing, or safe and appropriate use.
Definition Source	NEHTA
Synonymous Names	
Data Type	Text

Usage

Examples	1. Patient requires an administration aid. 2. Portable Pulse Oximeter measurement to be taken by clipping the sensor onto the tip of a finger. 3. Consulted prescriber concerning dose.
Misuse	Use for information that could be recorded as structured data.

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.19 DISPENSING

Identification

Label	DISPENSING
Metadata Type	Data Group
Identifier	DG-16442
OID	1.2.36.1.2001.1001.101.102.16442

Definition

Definition	Information for the dispenser.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	1..1

Children

Data Type	Name	Occurrences
	Quantity to Dispense (AMOUNT OF MEDICATION)	1..1
	Maximum Number of Repeats (Number of Repeats)	0..1
	Minimum Interval Between Repeats	0..1
	Brand Substitution Permitted	0..1
	~~Grounds for Concurrent Supply~~	~~0..0~~
	~~Dispensing Instructions~~	~~0..0~~

3.20 AMOUNT OF MEDICATION

Identification

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

Definition

Definition	The amount of medicine, vaccine or other therapeutic good to be dispensed.
Definition Source	NEHTA
Synonymous Names	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	DISPENSING	1..1

Children

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

3.21 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 to Dispense (AMOUNT OF MEDICATION)	1..1

3.22 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 expressed quantity of medicine, vaccine or other therapeutic good may be refilled or redispensed without a new prescription.
Definition Source	NEHTA
Synonymous Names	
Data Type	Integer

Usage

Examples	

Relationships

Parents

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

3.23 Minimum Interval Between Repeats

Identification

Label	Minimum Interval Between Repeats
Metadata Type	Data Element
Identifier	DE-10164
OID	1.2.36.1.2001.1001.101.103.10164

Definition

Definition	The minimum time between repeat dispensing of the medicine, vaccine or therapeutic good.
Definition Source	NEHTA
Synonymous Names	
Notes	This is specified by the ordering clinician for a specific reason such as safety or best practice. Where the prescription is for a Schedule 8 medicine and the dispensing of the prescription is authorised to be repeated, the minimum intervals at which it may be dispensed must be written on the prescription by the prescriber. This is different to the PBS rules for claiming subsidies for repeat prescriptions. This may be used for situations where a prescriber wants to limit access – e.g. if there are safety concerns or if the subject of care is taking greater than the prescribed dose.
Data Type	Duration

Usage

Examples	1. 20 days

Relationships

Parents

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

3.24 Brand Substitution Permitted

Identification

Label	Brand Substitution Permitted
Metadata Type	Data Element
Identifier	DE-10107
OID	1.2.36.1.2001.1001.101.103.10107

Definition

Definition	Indicates whether or not the substitution of a prescribed medicine with a different brand name of the same medicine, vaccine or other therapeutic good, that has been determined as bioequivalent, is allowed when the medication is dispensed/supplied.
Definition Source	NEHTA
Synonymous Names	Allow Substitutions
Notes	PBS prescriptions must not be prepared using a computer prescribing program that contains a default that would result in all prescriptions being indicated as Brand Substitution Not Permitted [DHA2009a].
Data Type	Boolean

Usage

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

Relationships

Parents

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

3.25 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 therapeutic good.
Definition Source	NEHTA
Synonymous Names	
Notes	This element can assist with claims processing. This element is typically used for the PBS Manufacturer's Code, a DoHA allocated detailed code that specifies the sponsor of the pharmaceutical item supplied. 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

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	0..1

3.26 Administrative Manufacturer Code Values

Identification

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

Definition

Definition	The set of two-letter manufacturer codes used in the Australian Pharmaceutical Benefit Schedule.
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

3.27 DateTime Medication Instruction Expires

Identification

Label	DateTime Prescription Expires
Metadata Type	Data Element
Identifier	DE-10104
OID	1.2.36.1.2001.1001.101.103.10104

Definition

Definition	The date and, optionally, time after which the *Medication Instruction* is no longer effective or in force.
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)
	Prescription Item (MEDICATION INSTRUCTION)	1..1

3.28 Medication Instruction Instance Identifier

Identification

Label	Prescription Item Identifier
Metadata Type	Data Element
Identifier	DE-16713
OID	1.2.36.1.2001.1001.101.103.16713

Definition

Definition	A globally unique object identifier for each instance of a *Medication Instruction* instruction.
Definition Source	NEHTA
Synonymous Names	
Data Type	UniqueIdentifier

Usage

Examples	

Relationships

Parents

Data Type	Name	Occurrences (child within parent)
	Prescription Item (MEDICATION INSTRUCTION)	1..1

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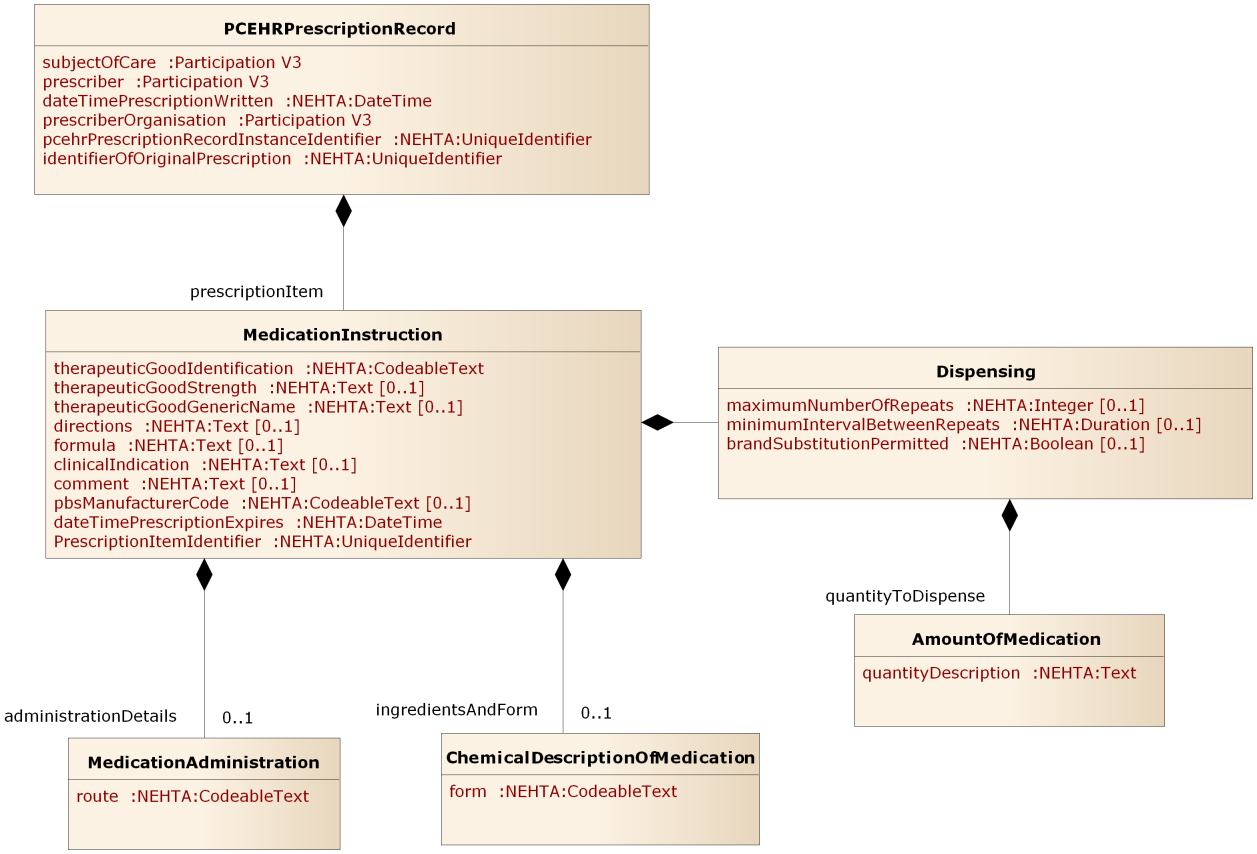
4 UML Class Diagrams

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. Mappings from Requirements

The requirements are:

1. Allow all prescription records sourced from systems connected to the National Prescription and Dispense Record Repository to be recorded as PCEHR Prescription Records.
2. Allow all relevant data items contained in any prescription record sourced from systems connected to the National Prescription and Dispense Record Repository to be captured as discrete data items.
3. Allow data which is not contained in a system connected to the National Prescription and Dispense Record Repository prescription record to be omitted.
4. Allow data which is encoded or structured in ways different to existing PCEHR designs to be included.
5. Allow the data to be displayed in a form **similar to** other medication data in the PCEHR.

The recommendations are:

1. Use data structures and terminologies consistent with existing NEHTA and PCEHR designs.
2. Align the design with the forthcoming ETP 3.2 (ATS 4888).

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

Data Item	SCS Data Element
Subject of Care	Subject of Care
Prescriber	Prescriber
Prescriber Organisation	Prescriber Organisation (HEALTHCARE FACILITY)
Prescription Identifier	Prescription Identifier
DateTime Prescription Written	DateTime Prescription Written
DateTime Prescription Expires	Prescription Item.DateTime Prescription Expires (DateTime Medication Instruction Expires)
Prescription Item	Prescription Item (MEDICATION INSTRUCTION)
Prescription Item Identifier	Prescription Item.Prescription Item Identifier (Medication Instruction Instance Identifier)
Therapeutic Good Identification	Prescription Item.Therapeutic Good Identification
Extemporaneous Description	Prescription Item.Formula
Quantity to Dispense	Prescription Item.Dispensing.Quantity to Dispense.Quantity Description
Brand Substitute Allowed	Prescription Item.Dispensing.Brand Substitute Allowed

Data Item	SCS Data Element
Maximum Number of Repeats	Prescription Item.Dispensing.Maximum Number of Repeats (Number of Repeats)
Minimum Interval Between Repeats	Prescription Item.Dispensing.Minimum Interval Between Repeats
Clinical Indication	Prescription Item.Clinical Indication
Comment	Prescription Item.Comment (Medication Instruction Comment)
Medication Form	Prescription Item.Ingredients and Form.Form
Item Strength	Prescription Item.Therapeutic Good Strength (Additional Therapeutic Good Detail)
Item Generic Name	Prescription Item.Therapeutic Good Generic Name (Additional Therapeutic Good Detail)
Route	Prescription Item.Administration Details.Route
PBS Item Code	Prescription Item.Therapeutic Good Identification
PBS Manufacturer Code	Prescription Item.PBS Manufacturer Code (Administrative Manufacturer Code)
Directions	Prescription Item.Directions

Appendix B. Known Issues

Reference	Description
No requirements	There are no written requirements for this document. However, it was constructed using the Detailed Clinical Model for Medication Instruction (which is used for many PCEHR structured document specifications).

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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.

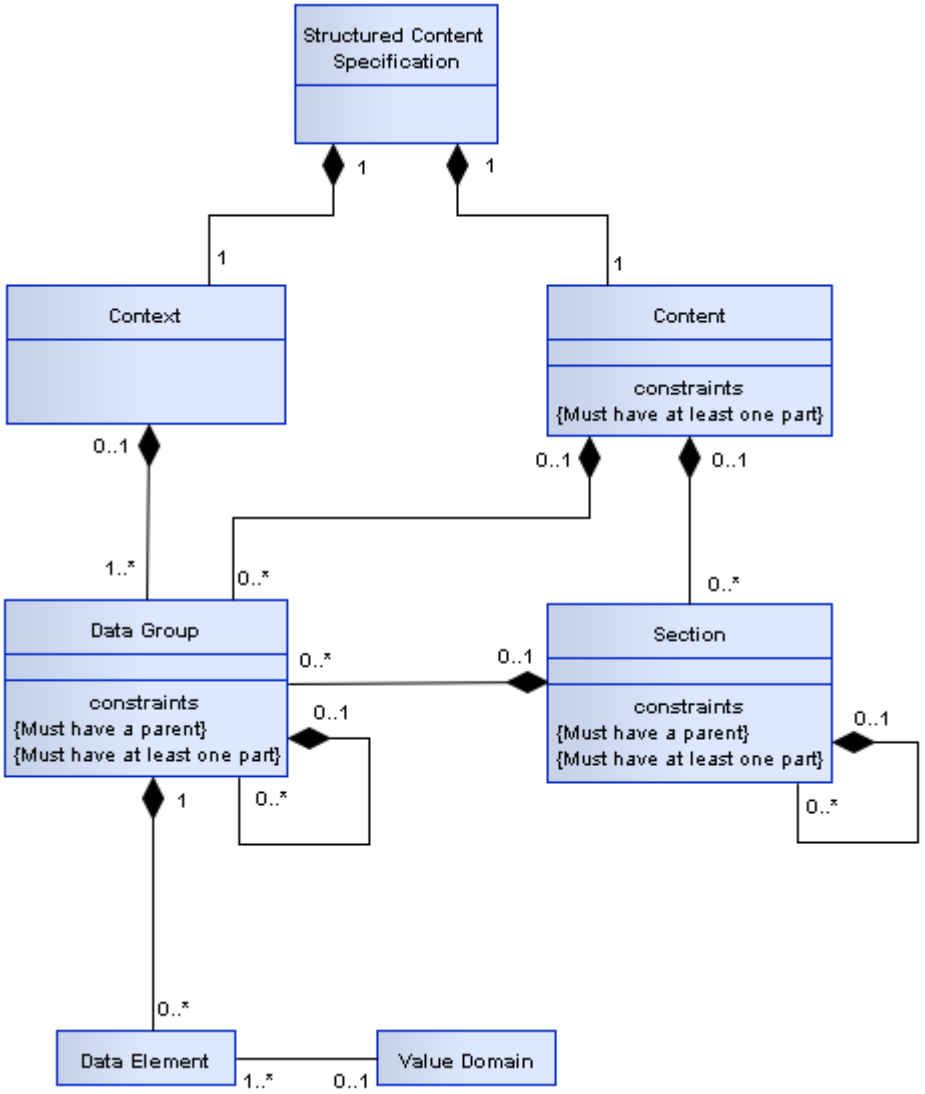

Figure 1: SCS Metamodel

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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