**Integrating the Healthcare Enterprise**



**IHE Patient Care Coordination (PCC)**

**Technical Framework Supplement**

**Reconciliation of Clinical Content and Care Providers   
(RCCCP)**

**Draft in preparation for Public Comment**

<The IHE Documentation Specialist will change the title to just “Draft for Public Comment” upon publication for public comment; leave “as is” until then.>

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<Instructions to authors are encapsulated in angled brackets as “< … >” and denoted with italicized text. These instructions are to be deleted in their entirety prior to publication.>

<Use of capitalization: Please follow standard English grammar rules-only proper nouns and names are upper case. For example, “Modality Actor” is upper case, but “an actor which fulfills the role of a modality” is lower case. Do not use upper case to emphasize a word/topic.>

<Note: There are editing conventions, such as diagram numbering and how to use Microsoft Word tools, etc., at <http://wiki.ihe.net/index.php?title=Writing_Technical_Frameworks_and_Supplements>. Please review this prior to beginning a new Supplement. This is especially useful for first time authors.>

<This Supplement Template is intended for the development of new Profiles or for making significant changes to Profiles, such as adding formal Options. Simple changes to existing Supplements or Profiles should be made using the Change Proposal (CP) process. See the Technical Framework Development section at <http://wiki.ihe.net/index.php?title=Process#Technical_Framework_Development> for more guidance on Supplements vs. CPs.>

<All of the sections in this document are required. Sections may not be deleted. The outline numbering is intended to be consistent across Profiles and across Domains, so do not adjust the outline numbering. If there is no relevant content for a section, simply state “Section not applicable”, but leave the numbering intact. Sub-sections may be added for clarity.>

*<This Supplement Template includes templates for Volumes 1 (Profiles), 2 (Transactions), 3 (Content Modules), and 4 (National Extensions).>*

*<Volumes 1, 2, and/or 3 are developed together for Public Comment and Trial Implementation submission. Volume 4, National Extensions, is typically developed at a later point in time, usually at Trial Implementation or later. Templates for all four volumes are included in this document for the sake of completeness. If you are beginning a new profile, you are strongly discouraged from using National Extensions and should instead focus on optional data sets or other alternatives. For more information, see* [*http://wiki.ihe.net/index.php?title=National\_Extensions\_Process*](http://wiki.ihe.net/index.php?title=National_Extensions_Process)*.>*

**Foreword**

This is a supplement to the IHE Patient Care Coordination Technical Framework <VX.X>. Each supplement undergoes a process of public comment and trial implementation before being incorporated into the volumes of the Technical Frameworks.

*<For Public Comment:>* This supplement is published on <Month XX, 201x> for Public Comment. Comments are invited and may be submitted at [http://www.ihe.net/<domain>/<domain>comments.cfm](http://www.ihe.net/Technical_Framework/public_comment.cfm). In order to be considered in development of the Trial Implementation version of the supplement, comments must be received by <Month XX, 201X>.

*<For Trial Implementation:>* This supplement is published on <Month XX, 201X> for Trial Implementation and may be available for testing at subsequent IHE Connectathons. The supplement may be amended based on the results of testing. Following successful testing it will be incorporated into the <Domain Name> Technical Framework. Comments are invited and may be submitted at [http://www.ihe.net/<domain>/<domain>comments.cfm](http://www.ihe.net/%3cdomain%3e/%3cdomain%3ecomments.cfm).

This supplement describes changes to the existing technical framework documents.

“Boxed” instructions like the sample below indicate to the Volume Editor how to integrate the relevant section(s) into the relevant Technical Framework volume.

Amend section X.X by the following:

Where the amendment adds text, make the added text bold underline. Where the amendment removes text, make the removed text bold strikethrough. When entire new sections are added, introduce with editor’s instructions to “add new text” or similar, which for readability are not bolded or underlined.

General information about IHE can be found at: [www.ihe.net](http://www.ihe.net).

Information about the IHE <Domain Name> domain can be found at: <http://www.ihe.net/Domains/index.cfm>.

Information about the organization of IHE Technical Frameworks and Supplements and the process used to create them can be found at: <http://www.ihe.net/About/process.cfm> and <http://www.ihe.net/profiles/index.cfm>.

The current version of the IHE <Domain name>Technical Framework can be found at: <http://www.ihe.net/Technical_Framework/index.cfm>.

*<Comments may be submitted on IHE Technical Framework templates any time at* [*http://ihe.net/ihetemplates.cfm*](http://ihe.net/ihetemplates.cfm)*. Please enter comments/issues as soon as they are found. Do not wait until a future review cycle is announced.*

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# Introduction to this Supplement

<Provide a brief overview of the volumes/sections of the Technical Framework that get changed/ added by this supplement. Provide 200 words or less describing this supplement.>

## Open Issues and Questions

<List the open issues/questions that need to be addressed. These are particularly useful for highlighting problematic issues and/or specifically soliciting public comments.>

1. Reconciliation of structured templates (templates with entries) – IHE goal template is text only. Can we utilize null flavors and point to the text from the recon Act?
2. Would reconciliation of providers be treated differently than reconciliation of entries in sections? Will we be able to associate the reconciliation act with the provider when reconciliation occurs?
3. Source of truth – who owns the reconciled data? Is this something that should be addressed with this profile?
4. Reconciliation as a service Vs Reconciliation at the document level
5. How will this profile relate to RECON? Will RCCCP supercede RECON profile? How will we handle things that are different from how RECON worked?
6. Why is a different template ID needed in RECON based on the context of the reconciliation? Author entry relationship does not have specific authors based on context.
7. Need a way to maintain the original or initial identity of an item. RECON states – “When reconciling information from an external system, the reconciling application **shall** maintain the first identifier provided for the item as the original identifier”. Is this a viable approach or is there another way to do this?

## Closed Issues

<List the closed issues/questions with their resolutions. These are particularly useful for recording the rationale for closed issues to forestall unnecessary rehashing in the future and/or to make it easier to identify when a closed issue should be re-opened due to new information.>

<Note: The sections following this Introduction will eventually be added as Final Text to Volumes 1 – 4 of the Technical Framework. The material above this note (the Introduction, and Open and Closed Issues section) will be deleted when this Supplement is moved to Final Text.>

# General Introduction

Update the following Appendices to the General Introduction as indicated below. Note that these are not appendices to Volume 1.

Appendix A - Actor Summary Definitions

Add the following actors to the IHE Technical Frameworks General Introduction list of Actors:

<Add any actor definitions for new actors defined specifically for this profile. These will be added to the IHE TF General Introduction list of Actors namespace.>

|  |  |
| --- | --- |
| Actor | Definition |
|  |  |
|  |  |

Appendix B - Transaction Summary Definitions

Add the following transactions to the IHE Technical Frameworks General Introduction list of Transactions:

<Add any transaction definitions for new transactions defined specifically for this profile. These will be added to the IHE TF General Introduction list of Transactions namespace.>

|  |  |
| --- | --- |
| Transaction | Definition |
|  |  |
|  |  |

Glossary

Add the following glossary terms to the IHE Technical Frameworks General Introduction Glossary:

<Any glossary additions associated with the profile draft go here.>

|  |  |
| --- | --- |
| Glossary Term | Definition |
| Accountable Care Organization (ACO) | Health care entity which supports an organization of health care providers that agrees to be accountable for improving the health and experience of care for individuals and improving the health of populations while reducing the rate of growth in health care spending. |
|  |  |

Volume 1 – Profiles

## <*Copyright Licenses>*

<General copyright licenses and permissions are listed in the IHE Technical Frameworks General Introduction. Add information on any standards referenced in the profile that are not already addressed in the permission section.>

Add the following to the IHE Technical Frameworks General Introduction Copyright section:

## <*Domain-specific additions>*

<Some domains have specific sections, added as subsections to Sections 1 or 2, in their Technical Frameworks. These types of additions are allowed as long as they do not adjust the overall numbering scheme which needs to remain consistent across domains. If there are such additions, they should be included here.>

Add to Section …

<Reserve a subsequent section number in the current domain Technical Framework Volume 1 (DOM TF-1). Replace the letter “X” with that section heading number. This number should not change when this supplement is added to the Final Text Technical Framework. In this manner, references should be able to be maintained going forward.>

# X Reconciliation of Clinical Content and Care Providers (RCCCP) Profile

<Provide an end-user friendly overview of what the Profile does for them.   
Keep it brief (a paragraph or two, up to a page). If extensive detail is needed, it should be included in section X.4- Use Cases.>

<Explicitly state whether this is a Workflow, Transport, or Content Module (or combination) profile. See the IHE Technical Frameworks General Introduction for definitions of these profile types. The IHE Technical Frameworks General Introduction is published at <http://www.ihe.net/Technical_Framework/index.cfm>.

The challenge is that clinical capture or documentation of care information can originate or reside from within a single health care facility or from two or more facilities, and can arise from multiple disciplines. The information can span multiple periods of time and different clinical or social/family events. Multiple pieces of information can be confusing, conflicting, and lead to patient safety issue. The process of reconciling and consolidating clinical data/information and associated metadata from multiple sources can be daunting.

**World Health Organization (WHO)** World Alliance for Patient Safety and Collaborating Centre identifies the problems, impact, issues and suggested action for reconciliation accuracy at transitions of care. In the United States, clinical information reconciliation is needed as a component of Health Information Technology: Standards, Implementation Specifications, and Certification Criteria for Electronic Health Record Technology, 2014 Edition final rule. Australia Department of Health Victoria (Australia) Quality Use of Medicine includes reconciliation of medication as a key patient safety effort.

Regulatory and accrediting organizations require healthcare institutions to reconcile clinical information during every transfer of care, discharge or admission. IHE technical framework supplement on reconciliation of diagnosis, allergies and medications attempts to solve this problem, but is limited in scope to a small category of clinical data. IHE Patient Care Plan profile reconciles interventions and goals, which is itself also limited in scope relative to categories of clinical data.

HL7 Electronic Health Record System Functional Model (EHR-S FM), R2 IN.5 Standards-based Interoperability function supports the ability for certain information to be shared among EHR systems (including information that resides in regional, national, or international information exchanges). This promotes timely and efficient information capture, use, and re-use, reducing the cumulative workload of the broad set of stakeholders. EHR-S FM Care Provision Section identifies functions and supporting conformance criteria required to provide direct care to a specific patient and enable hands-on delivery of healthcare. Care provision supports the management of patient clinical history, clinical documentation, orders, results, treatment administration, future care, patient education and communication.

As data is exchanged, the ability to maintain the support of care provision is needed. As an attempt to support the management of care provision, Reconciliation of Clinical Content and Care Providers profile (RCCCP) will Identify and examine heuristics that can be used to facilitate identification of duplicated, overlapping, conflicting or superseded entries that may be introduced as a result of sematic interoperability. This will be accomplished by classifying clinical information into the following categories for the purpose of determining the heuristics that will be used for the purpose of reconciliation.

RCCCP profile classifies information into the following categories for the purpose of determining the information that needs reconciliation.

**Common observations**

These are collection of simple measurements or reported values that can be determined by using simple measuring devices (e.g. vital signs, assessment scales, etc) or which can be reported by the patient (date of last menstrual period, personal goal, etc) or care provider (patient goals, interventions, medical equipment, etc).

**Diagnostic Results**

These are a collection of observations made or performed using laboratory testing equipment, imaging procedures, visual examinations, etc.

**Concerns and Allergies**

These are a collection of diagnoses, clinical findings, allergies, or other risk factors that are recorded for the patient. The information may be obtained from patient reports, or through clinical decision making. It also includes such information as would be found in social and family history sections of clinical reports. This classification can be further subdivided into three groups.

***Conditions -*** This is a collection of disease conditions for the patient.

***Intolerances -*** This is a collection of the patient's allergies and other intolerances.

**Risk Factors -** This is a collection of the patients significant risk factors, as might be established based on a review of family history, social history, occupational exposures, et cetera. By themselves, they may not be indicative of a disease condition, but could contribute to one.

**Medications**

This is a collection of the medications that a patient is or has been taking for treatment of one or more conditions.

**Immunizations**

This is a collection of immunizations that have been given or not given due to a reason, or which are planned to be given to the patient.

**Professional Services**

This is a collection of procedures and/or encounters which the patient has participated in, or is expected to participate in. This also includes care team members who provide professional services.

Reconciliation of the following is needed:

**Concerns and Allergies -**

* *Risk factors*
  + - Patient History lists - social and family history, etc
* *Intolerances*
  + - Allergy, Intolerance, and Adverse Reaction list
* *Conditions*
  + - Problem Lists – e.g. conditions, diagnosis, discharge diagnosis, etc

**Medication**

* Medication Lists – e.g. medication, discharge medication, admission medication, administered medications, etc

**Immunizations**

* Immunization Lists – e.g. immunization administered, not administered, etc

**Common Observations**

* Medical equipment, Prosthetic/Orthotic, Device lists – e.g. implanted, external devices, supplies, etc
* Orders/interventions/goals– e.g. performables, orderables, attainables, etc
* Observations – e.g. vital signs, measurements used for trending, etc
* Procedures

**Diagnostic Results**

* Results – e.g. lab results, diagnostic results, etc

**Professional Services**

* Encounters – e.g. planned encounters, historical encounters, scheduled tests, etc
* Providers – e.g. care team members

Part of the reconciling process includes identifying performers of the reconciliation process, and clinical data and sources used.

## X.1 RCCCP Actors, Transactions, and Content Modules

This section defines the actors, transactions, and/or content modules in this profile. General definitions of actors are given in the Technical Frameworks General Introduction Appendix A at <http://www.ihe.net/Technical_Framework/index.cfm>.

*<Workflow/Transport Instructions>*

<If this profile does not define workflow or transport transactions, delete the following text and diagram until the “Content Module Instructions” below.>

<Continue here for workflow and/or transport profiles:>

Figure X.1-1 shows the actors directly involved in the RCCCP Profile and the relevant transactions between them. If needed for context, other actors that may be indirectly involved due to their participation in Query for Existing Data or PCC Content Profiles are shaded in the diagram below.

[PCC-1] Query for Existing Data

Share Content

Reconciliation Agent

Reconciliation Agent

Content Creator

Clinical Data Source

[PCC-1] Query for Existing Data

Share Content

Content Consumer

Content Consumer

Content Consumer

Content Consumer

Content Consumer

Content Consumer

Content Consumer

Content Consumer

Clinical Data Consumer

Reconciliation Agent

Reconciliation Agent

[PCC-1]  
Query for Existing Data

Share  
Content

Figure X.1-1: RCCCP Actor Diagram

Table X.1-1 lists the transactions for each actor directly involved in the RCCCP Profile. To claim compliance with this Profile, an actor shall support all required transactions (labeled “R”) and may support the optional transactions (labeled “O”).

<Actors from other profiles represented in dotted boxes, such as Actor C in the example above, should not be listed in Table X.1-1.>

Table X.1-1: RCCCP Profile - Actors and Transactions

| Actors | Transactions | Optionality | Section in TF |
| --- | --- | --- | --- |
| Reconciliation Agent | Share Content | R | PCC TF-1 :2.1 |
| Query Existing Data [PCC-1] | O | QED :3.1 |
| Content Creator | Share Content | R | PCC TF-1 :2.1 |
| Content Consumer | Share Content | R | PCC TF-1 :2.1 |
| Clinical Data Source | Query Existing Data [PCC-1] | R | QED :3.1 |
| Clinical Data Consumer | Query Existing Data [PCC-1] | R | QED :3.1 |

Note 1: *<For example, a note could describe that one of two possible transactions could be supported by an Actor or other variations. For example: Note: Either Transaction Y2 or Transaction Y3 shall be implemented for Actor D/Actor E. –or- Note: At least one of Transaction Y2, Transaction Y3, or Transaction Y4 shall be implemented for Actor D/Actor E.>*

<Content Module Instructions:>

<If this profile does not define Content Modules, delete the following diagram, text, and table.

The recommended Content Creator/Content Consumer diagram is given below. If this is not applicable to this profile, it is up to the author’s discretion to modify/replace. Authors are encouraged to maintain the neutrality of the content modules and incorporate transport by specifying grouping of the actors in the content module with actors from transport transactions.>

Figure X.1-1 shows the actors directly involved in the RCCCP Profile and the direction that the content is exchanged.

A product implementation using this profile must group actors from this profile with actors from a workflow or transport profile to be functional. The grouping of the content module described in this profile to specific actors is described in more detail in the “Required Actor Groupings” section below.

Table X.1-1 lists the content module(s) defined in the RCCCP Profile. To claim support with this profile, an actor shall support all required content modules (labeled “R”) and may support optional content modules (labeled “O”).

<Note that this table number has to change if this profile describes both transactions and content modules (or there will be two tables entitled X.1-1).>

<Note that the abbreviation in the column “Reference” the letter “D” will be incremented for every content module document defined in this profile (e.g., For example D1, D2).>

<In general, one supplement template will only contain one required content module document, but the example here shows multiple with one optional, just for illustration purposes.>

Table X.1-1: RCCCP Profile - Actors and Content Modules

| Actors | Content Modules | Optionality | Reference  *<this should be a reference to a location in Volume 3)* |
| --- | --- | --- | --- |
| Reconciliation Agent | Reconciliation Act  Template ID 1**.3.6.1.4.1.19376.1.5.3.1.1.24.3.1** | R | Where is Volume 3? If volume 2, this actor has not been added to vol 2 yet. |
| Content Creator |  | R | <Domain Acronym> TF-3: 6.3.1.D |
| Content Module 2 Name and Template ID | O See Note 1 | <Domain Acronym> TF-3: 6.3.1.D |
| Content Consumer | Content Module 1 Name and Template ID | O See Note 1 | <Domain Acronym> TF-3: 6.3.1.D |
| Content Module 2 Name and Template ID | R | <Domain Acronym> TF-3: 6.3.1.D |

Note 1: *<For example, a note could describe that one of two possible transactions could be supported by an Actor or other variations. For example: Note: Either Content Module 2 or Content Module 3 shall be implemented for the Content Creator or Content Consumer. –or, as a different example- Note: At least one of Content Module 2, Content Module 3, or Content Module 4 shall be implemented for Content Consumer. >*

### X.1.1 Actor Descriptions and Actor Profile Requirements

Most requirements are documented in Transactions (Volume 2) and Content Modules (Volume 3). This section documents any additional requirements on profile’s actors.

<Do not repeat the definitions of the Actors that are maintained in the TF General Introduction Appendix A (Actor Definitions). Include text in this section to describe the Actor in the context of this Profile.>

<This section is empty unless there is a need for specific descriptions or requirements. Actors without additional requirements or elaborate descriptions need not be listed here.>

<If this is a Workflow Profile the sequence of transactions often require data from an inbound transaction to be carried forward to subsequent transactions . Individual transactions, which are designed to be reusable, do not define this data mapping and it must be documented here. If this is a long technical mapping, consider including this material in an appendix to Volume 2. For an example, see Radiology Scheduled Workflow RAD TF-2: Appendix A.>

<This section may also define system behavior. For example, in the PIX Profile, an ADT message is first received by the PIX Manager. The PIX manager should then use this data to respond to subsequent queries. Although this may be implied, it should be explicitly documented in this section.>

<Note that for content modules, bindings to other transport or workflow modules are referenced in the Required Actor Groupings section below. >

#### X.1.1.1 Reconciliation Agent

<If the summary description of the actor in Appendix A is insufficient to understand its role in this Profile, elaborate here.>

<Requirements on actors are predominantly contained inside Transactions in Volume 2. The main requirement on actors contained in Volume 1 is to support the transactions identified in Table X.1-1 and the content modules identified in Table Z. Requirements that do not fit in those locations may be placed here.>

The Reconciliation Agent actor accesses clinical information in structured form. It automatically identifies potentially duplicated, overlapping, conflicting, or superseded information based upon application knowledge and provides that information for presentation to a clinician to complete the reconciliation process.

1. It shall present the demographics used identify the patient provided by each separate source of clinical information to the end user.
2. It shall highlight inconsistencies found during the automated reconciliation process and provides the clinician with mechanisms to adjust or correct the input.
3. It shall provide a mechanism for a clinician to add new information to the reconciled results.
4. It shall authenticate the clinician prior to storage of the reconciled data (this step may be combined with other authentication steps used to finalize the record).
5. It shall store the resulting data for future use by other actors as described below.

#### X.1.1.2 Content Consumer

The Content Consumer actor in this profile is similar to content consumers defined in other IHE profiles. It has one requirement, which is that it must be able to consume content containing problems, medications and allergies as defined in the PCC Technical Framework.

1. The Content Consumer actor shall implement a content profile supporting a Medical Summary as defined in PCC TF-2:6.3.1.2 Medical Summary.

#### X.1.1.3 Content Creator

The Content Creator actor in this profile is similar to content creators defined in other IHE profiles. It has one requirement, which is that it must be able to create content containing problems, medications and allergies as defined in the PCC Technical Framework.

1. The Content Creator actor shall create content conforming to a profile supporting a Medical Summary as defined in PCC TF-2:6.3.1.2 Medical Summary.

## X.1.1.4 Clinical Data Source

The Clinical Data Source actor in this profile is an implementation of the Clinical Data Source actor in the QED profiles. It has the additional requirement that it must be able to create content containing problems, medications or allergies as defined in the Query for Existing Data profile.

1. The Clinical Data Source shall implement either the Problems and Allergies Option described in QED: 3.4.2 or the Medications Option described in QED:3.4.4 or both.

## X.1.1.5 Clinical Data Consumer

The Clinical Data Consumer actor in this profile is an implementation of the Clinical Data Consumer actor in the QED profile. It has the additional requirement that it must be able to query for content containing problems, medications or allergies as defined in the Query for Existing Data profile.

1. The Clinical Data Consumer shall implement either the Problems and Allergies Option described in QED: 3.4.2 or the Medications Option described in QED:3.4.4 or both.

## X.2 RCCCP Actor Options

<Modify the following Table listing the actors in this profile, the options available for each, and references to sections that state requirements for compliance to each Option. For actors with no options, state “No options defined” in the Options column.>

<Note: Options are directly carried over to the Integration Statements which are published by vendors for review by buyers. Too many options can be confusing for readers.>

< Try to **minimize** options for Actors and only use if necessary.>

<Several options for Content Consumers are defined in PCC TF-2 section 3.1.1-3.1.4. It is recommended that these options are reused for content module definitions, but read the option definitions thoroughly to be certain that they apply. If they do apply in their entirety, you will need to define a corresponding option in this profile. The recommended naming convention for a similar, but different, option is, for example, “View Option - <profile acronym>, etc., “View Option – CIRC”.>

Options that may be selected for each actor in this profile, if any, are listed in the table X.2-1. Dependencies between options when applicable are specified in notes.

Table X.2-1: RCCCP - Actors and Options

| Actor | Option Name | Reference  *<either reference TF-3 or the applicable X.2.x subsection below table>* |
| --- | --- | --- |
| Reconciliation Agent | *Clinical Data Option* | PCC TF-1:X.4.1 |
| Content Creator | *None* | N/A |
| Content Consumer | *None* | N/A |
| Clinical Data Source | *None* | N/A |
| Clinical Data Consumer | *None* | N/A |

Note: *<Conditional or required options must be described in this SHORT note, for longer notes use section X.2.1.>,*

### X.2.1 Clinical Data Option

<Consider including a high level description of the option.>

<e.g., The Content Consumer actor is required to support at least one of the View or Discrete Data Import options. The Document Import and Section Import options also require the View option.>

<Repeat this section (and increment numbering) as needed for additional options.>

A reconciliation agent implementing the clinical data option shall support the PCC-1 Query for Existing Data transaction to query one or more Clinical Data Source actors and to respond to queries from Clinical Data Consumer actors.

## X.3 RCCCP Required Actor Groupings

*<Describe any requirements for actors in this profile to be grouped with other actors.>*

*<Note that this section effectively combines the previous “Profile Dependencies” Section (formerly Vol. 1, Section 2.1) and the previous “Groupings” section.>*

*<This section is for REQUIRED Actor Groupings (although “required” sometimes allows for a selection of one of several). To suggest other profile groupings or helpful references for other profiles to consider, use Section X.6 Cross Profile Considerations. Use X.5 for security profile recommendations.>*

*An Actor from this profile (Column 1) shall implement all of the required transactions and/or content modules in this profile* ***in addition to*** *all of the transactions required for the grouped actor (Column 2).*

*If this is a content profile, and actors from this profile are grouped with actors from a workflow or transport profile, the Content Bindings reference column references any specifications for mapping data from the content module into data elements from the workflow or transport transactions.*

*In some cases, required groupings are defined as at least one of an enumerated set of possible actors; this is designated by merging column one into a single cell spanning multiple potential grouped actors. Notes are used to highlight this situation.*

*Section X.5 describes some optional groupings that may be of interest for security considerations and section X.6 describes some optional groupings in other related profiles*.

## X.3.1 Content Consumer

The Reconciliation Agent Actor must be grouped with an eligible Content Consumer actor supporting the Discrete Data Import Option to obtain data about***, common observations, disgnostic results, concerns and allergies, medications, immunizations, and professional services that may or may not be obtained*** from clinical documents. Eligible Content Consumer actors are those that support content containing ***common observations, disgnostic results, concerns and allergies, medications, immunizations, and professional services .*** Any content profile that derives from the IHE Medical Summary template qualifies. Other content profiles may also qualify. The content used for Basic Patient Privacy Consents, and for Sharing of Laboratory Reports does not qualify.

### X.3.2 Clinical Data Consumer

A Reconciliation Agent actor implementing the Clinical Data Option must be grouped with a Clinical Data Consumer Actor that supports the ***simple observations, disgnostic results, concerns and allergies, medications, immunizations, and professional services*** Option and the Option defined in the Query for Existing Data (QED) Profile. This actor is used to obtain information about ***vitals, disgnostic results, concerns and allergies, medications, immunizations, and professional services*** from one or more clinical data sources.

## X.3.3 Content Creator

The Reconciliation Content Creator is grouped with at least one other Content Creator actor from another IHE Content Profile. That actor must implement the Reconciliation Content option.

<All Actors from this profile should be listed in Column 1. If no mandatory required grouping exists, “none” should be listed in Column 2. If the content module actor is bound to a transport or workflow actor it will be listed **with at least one** binding reference. Do not use “XD\*” as an actor name.>

<In some cases, required groupings are defined as at least one of an enumerated set of possible actors; to designate this create a row for each potential actor grouping and merge column one to form a single cell containing the profile actor which should be grouped with at least one of the actors in the spanned rows. In addition, a note should be included to explain the enumerated set. See example below showing Document Consumer needing to be grouped with at least one of XDS.b Document Consumer, XDR Document Recipient or XDM Portable Media Importer>

<The author should pay special consideration to IT and security profiles in this grouping section. Consideration should be given to Consistent Time (CT) Client, ATNA, as well as other profiles. For the sake of clarity and completeness, even if this table begins to become long, a line should be added for each actor for each of the required grouping for IT and security. Also see the ITI document titled ‘Cookbook: Preparing the IHE Profile Security Section’ at http://www.ihe.net/Technical\_Framework/index.cfm for a list of suggested IT and security groupings.>

<The Bindings column is used when a Content Module profile actor is grouped with a workflow or transport actor. Otherwise, mark it as “--”.>

Table X.3-1: RCCCP - Required Actor Groupings

| RCCCP Actor | Actor to be grouped with | | Reference | | Content Bindings Reference | |
| --- | --- | --- | --- | --- | --- | --- |
| Reconciliation Agent Actor | Content Consumer Actor | | TF- 1:3.3 | | None | |
| Clinical Data Consumer Actor | | QED suppl – 3.3 | | None | |

Note 1: <This is a short note. It may be used to describe situations where an Actor from this profile may be grouped with one of several other profiles/actors. This note could also be used to explain why the grouping is required, if that is still not clear from the text above.>

Note 2: Example note.

## X.4 RCCCP Overview

*<Volume 2 documents each transaction/content module in isolation. This section shows how the transactions/content modules of the profile are combined to address the use cases.>*

*<Use Cases are informative, not normative, and “SHALL” language is not allowed in use cases.>*

The RCCCP profile supports reconciliation of clinical data such as common observations, ***allergy and intolerances, problems, medications,*** immunizations, diagnostic results, procedures, encounters, and care providers. A wide variety of systems will need to reconcile clinical data as information is exchanged, stored and maintained in EMR system or other clinical data repository. Reconciled information can prevent information redundancy and can be used to support clinical care, quality reporting, financial transactions, public health reporting, clinical trials, drug interaction checking, and patient qualification for various protocols.

As stated in IHE PCC Reconciliation of Diagnosis, Allergies and Medications Profiles (IHE PCC RECON), in the Magic Number Seven, Plus or Minus Two[[1]](#footnote-1), George Miller argues that the average human memory can hold seven plus or minus two units of information. Subsequent studies reduce this figure when the units of information are words. Numerous research studies indicate that the average number of medications taken by high risk populations (elders, patients with chronic conditions, et cetera) approaches or exceeds seven. For complex cases, the task would then exceed the average capacity of human working memory.

IHE PCC RECON profile enables information contained in Health Information Systems and Exchanges to be used to support automation of reconciliation tasks and clinical workflows. It explains what information can help reconciliation, and how it can be used to assist healthcare providers to automate this complex task. *RCCCP profile will utilize concepts from IHE PCC RECON profile to define how to reconcile data obtained from various sources.*

### X.4.1 Concepts

<If needed, this section provides an overview of the concepts that provide necessary background for understanding the profile. If not needed, state “Not applicable.” For an example of why/how this section may be needed, please see ITI Cross Enterprise Workflow (XDW).>

<It may be useful in this section, but is not necessary, to provide a short list of the use cases described below and explain why they are different.>

RCCCP adopts the following five steps to the reconciliation identified by IHE RECON profile.

1. The first step is to gather the information that needs to be reconciled.
2. The data in this first step can come from clinical documents created for the patient, including discharge summaries, referral summaries, the history and physical, consultation notes, and Care Plans/Plan of Care documents, et cetera.
3. Data may also come from clinical summaries available from the patients’ personal health record or a Health Information Exchange (HIE).
4. Data can also be obtained as discrete data from various other clinical data sources, including clinical data repositories, electronic health records and personal health records
5. Data might also appear in pharmacy benefit records, and disease/condition specific information registries (e.g., a cancer registry, vaccination repository).
6. The second step automates the identification of any information that has been duplicated, overlaps, conflicts, or has been superseded. This second step identifies and/or produces candidate entries to appear into the list of reconciled data that is presented to the healthcare provider as a single merged data stream. The primary purpose of this step is to organize and reduce the quantity of information needing human intervention. This step is completed by analyzing similarities between the data using clinical knowledge and an understanding of the coding systems and structures used to capture this data.
7. The third step involves an interaction with a healthcare provider who confirms, corrects and updates the reconciled list. In this step, the application displays the collection of reconciled data; highlighting issues that need provider attention (e.g., to address ambiguities in interpretation, for example, related but not identical diagnoses, et cetera). At this stage, additional data may be obtained from the patient or their representative to help disambiguate issues identified during the automated process, and add any newly available information.
8. The healthcare provider interacts with the application to produce a set of reconciled data that will then be stored for subsequent use.
9. The resulting lists produced from this process are stored in an EHR or other Healthcare Information System.

1d. Query for Existing Data

Content Creator

Reconciliation

3. Reconcile

Information

Reconciliation

Content Creator

5. Share Content

1a. Share Content

1c. Query for Existing Data

Content

Consumer

Clinical Data

Repository/EHR

4. Store

Reconciled

Information

2. Merge Data

Streams

Content Creator

1b. Share Content]

Pharmacy

Figure X.4-1 Reconciliation concepts

The purpose of this profile is to Identify and examine heuristics that can be used by an application performing reconciliation to facilitate identification of duplicated, overlapping, conflicting or superseded entries.

The scope of RCCCP profile is to expand on the type of information that can be reconciled which was introduced by IHE PCC RECON profile. IHE PCC RECON profile was limited to reconciliation of diagnoses, allergies or medications. RCCCP provides the ability to reconcile clinical content and care providers that are commonly shared in lists. Clinical content are listed according to things that are of concern (e.g. problem, social history, allergy/reaction, etc), interventions to address concerns (e.g. medication, plan of care, procedure, encounters, etc), outcomes of the interventions (e.g. results, goals, etc) and providers that addresses concerns and/or provide interventions (e.g. care team members, pharmacy, etc).

RCCCP automatic reconciliation process should be viewed as an implementation of a clinical decision support service. There are a number of heuristics that can be used to facilitate identification of entries. These are described in further detail below.

The purpose of this profile is not to describe the specific mechanism or algorithm by which the application performing reconciliation identifies duplicated, overlapping, conflicting or superseded entries. The heuristics described below are provided to make developers aware of the issues and opportunities available within the clinical data provided in IHE profiles to assist in the automation of the reconciliation process. The same can also be applied to implementation guides using CDA constructs.

There are a few cases where the RCCCP profile mandates a particular behavior of the system implementing the actor. These are described in each of the following sections as numbered conformance requirements in the sections below.

#### X.4.1.1 Identity

Each entry appearing in a content implementation guide or an IHE content profile has a universally unique identifier which is typically required (id root, extension). The identifiers are distinct from the codes which indicate the type of entry. The identifier represents that instance of the event and no other, whereas the same code could be applied to two different occurrences of the same event. For example, each prescription ordered for a patient has a universally unique identifier. If two entries for a prescription for penicillin contain the same identifier, according to the rules of the standards used, they must represent the same prescription event. That equivalence cannot be assumed when they contain the same drug code (e.g., penicillin).

#### X.4.1.1.1 Maintenance and Verification of Original Identity

Universally unique identifiers are the only mechanism by which duplicated entries can be reliably located. However, experience has shown that systems cannot rely on the identity alone to ensure consistency. Some cross checks are required.

1. When matching two entries by universally unique identifier, the reconciling application **shall** verify that other details of the reconciled entries are consistent.
2. More specifically, a reconciling application **shall** demonstrate the ability to identify cases where two entries with the same identifier are about the same event, and when they are not, to report it.

The best way to ensure consistency when reconciling data across systems is to maintain the identity of entries when they are imported into information systems, and to reproduce those identifiers when the entries are exported. This ensures that the identifiers used to identify entries are maintained as information transitions between information systems.

1. When reconciling information from an external system, the reconciling application **shall** maintain the first identifier provided for the item as the original identifier. It **may** provide its own identifier for the data as well.
2. When exporting information that came from an external source through reconciliation, the reconciliation application **shall** report the original identifier as the first identifier reported for the item.
3. Subsequent identifiers after the first **may** be retained and reported but are not required by this profile.

Significant differences between two recorded events that should have the same meaning point to an error in implementation somewhere in the systems which contain clinical data for the patient.

1. The reconciling application **shall** report these inconsistencies in some way. Reports of these conditions **may** be to someone other than the user of the system (e.g., the system administrator, or other appropriate party).
2. The reconciling application **may** require manual reconciliation of the inconsistent entries. It SHALL assign a new identifier to each entry containing inconsistent data. The rationale for this requirement is to avoid persisting the conflicting identifiers.

#### X.4.1.1.2 Transitions in Identity

To ensure identity is maintained, the reconciling system must properly manage the identity of data items. Changes to an existing data item fall into four general categories:

* Status updates to the data item.
* Addition of new or previously unknown data or relationships to other data items.
* Changes in contextual meaning.
* Correction of the data item due to it being reported in error.

Transitions in identity are often accompanied by changes in the status of a data item. These are recorded in the statusCode element of entries in the document. Table X.2.1.2-1 below shows the meaning of these different status values from the HL7 ActStatus vocabulary.

#### X.4.1.1.2.1 Status Updates

Status updates are changes such as “this medication has been discontinued”, or “this problem is now resolved” or “this planned item has occurred”. Status updates do not change the identity of the data item whose status is being updated, or the facts in it as they were reported at a previous point in time. Status updates report on the normal evolution of a data item over time. Status can be represented as an observation value

~~One issue that implementers may need to address is the temporary suspension of medications during treatment. In these cases the orginal intention may have been to keep a patient on a medication for a certain time period, but due to treatment, that medication may need to be temporarily held. This profile does not require temporary holds to be reported, nor does it prevent them from being so reported. The decision to report or not report these holds is left to local policy.~~

Implementers of the Reconciliation Agent actor will need to examine the statusCode to determine if the status of two data items are different. The statusCode must be reconciled if there are differences.

Table X.4.1.1.2.1-1 ActStatus values

|  |  |
| --- | --- |
| ActStatus | Description |
| active | The activity represented by the data item is currently active. |
| completed | The activity represented by the data item transitioned to a normal state of completion. |
| suspended | The activity represented by the data item was put on hold after it was initiated. |
| aborted | The activity represented by the data item was terminated prior to the normal completion. |
| obsolete | The activity represented by the data item has been replaced by a new data item. |
| nullified | The activity represented by the data item was incorrectly reported. |
| Cancelled | The activity has been abandoned before activation |
| New | The activity is in the preparatory stages and may not yet be acted upon. |
| Held | The activity is still in the preparatory stages and may not be acted upon |

Implementers of the Reconciliation Agent actor will also need to examine the moodCode to determine if the mood of two data items are different. The moodCode must be reconciled if there are differences.

Table X.4.1.1.2.1-2 Act moodCode values

|  |  |
| --- | --- |
| Act moodCode | Description |
| EVN (event) | The entry defines an actual occurrence of an event. |
| INT (intent) | The entry is intended or planned. |
| APT (appointment) | The entry is planned for a specific time and place. |
| ARQ (appointment request) | The entry is a request for the booking of an appointment. |
| PRMS (promise) | A commitment to perform the stated entry |
| PRP (proposal) | A proposal that the stated entry be performed. |
| RQO (request) | A request or order to perform the stated entry. |

#### X.4.1.1.2.2 Addition of New or Previously Unknown Data or Relationships

When additional pieces of a data item become known, adding these pieces of data to the original data item does not change its identity. For example, if the dates of a prior illness were previously reported as being unknown, adding those dates does not create a new data item, it simply updates the previous item. Similarly, if codes for a data item recording a diagnosis were previously unreported, but are now added, the data item does not change its identity.

Similarly, when a new data item becomes known, it may be related to a pre-existing data item. These relationships may be added without changing the identity of the data item. Thus, a diagnosis that is previously untreated may have a relationship added (using an entryRelationship element) to indicate what the new treatment is for that item without changing the identity of the data item. An intervention that is previously intended may have a relationship added to indicate what the new indication is for that item without changing the identity of the data item. The addition of a new manifestation of an allergy will not change the identity of the previously described allergy. However, the manifestation itself is a new data item with a new identity.

Implementers of the Reconciliation Agent actor should compare data items to determine if there are differences in new or unknown data, or relationships, and must reconcile discrepancies. In cases where one data item simply has more data or relationships, the new data is often just merged.

When a disease progresses, this may also result in new facts and relationships. For example, in the case where a patient started with a diagnosis of “flu”, it is possible for the disease to progress to “Pneumonia”. In this case, the new diagnosis is an additional fact. The previous diagnosis is still true, and is retained. The act representing the concern is also retained, and is related to the new diagnosis.

When a new data item conflicts with a pre-existing data item, this results in a different type of transition. In this case, the new data item might represent a different diagnosis for a concern (e.g., “Lung Cancer” rather than “Bronchitis”). This case is described in the following section

#### X.4.1.2 Corrections to previously reported content

Changes in previously reported content create new “facts” that supplant or replace previous data items. The new data item has new identity, and the old data item is retained (although its status may be changed).

Perhaps the most common example is a change in dose for a particular medication, or substitution of a different medication for an existing medication that is being discontinued. In these cases, the new content is a new data item with a new identity, and the previous data item is marked as being aborted (stopped before a normal termination).

Refinements or changes in judgment can also occur, often as a result of new data. An example of refinement is when an initial intervention of low sodium diet is replaced by a more specific intervention of 2 gm sodium diet. Both statements are true. One is simply a refinement of the other. In another case, what was once bed rest is subsequently changed to activity ad lib. In this case, the previous activity is now superseded. However, it was still correctly recorded at the time, and is not subject to the rules about correction below. This is perhaps the best explanation of why a change in content is not treated as a correction. The fact that a patient activity needs changed is correct, and was correctly recorded.

In both cases, the new content is retained with a new identity, and the old content is marked as obsolete. The new data item can indicate that it replaces the old data item through the addition of an entryRelationship element showing the replacement.

Corrections to data correctly recorded, but incorrectly reported are treated in the same fashion. If a patient indicated in one visit that they are allergic to penicillin, only to later come back and report that they are actually allergic to amoxicillin and not allergic to penicillin, this is a change in reporting, not in recording. The same would occur if a patient reports that they exercise five times are week and later reports that they do not do any form of exercise at all.

#### X.4.1.3 Codes

To facilitate interoperability and avoid loss of data, this profile recommends that codes in imported entries be preserved and any mappings to new coding systems be recorded as translations on export. This is a recommendation and not a requirement because many EHR systems do not have the capability to store or validate codes from external coding systems. Also, many regional and national interoperability specifications have requirements to use specific coding systems for recording codes for different entries, and may not permit the transmission of alternate codes.

Another issue to consider is that not all entries will be coded. The PCC Technical Framework requires the presence of the <code> element, but permits the code to be null (not present). The entry will always have text that is associated with that element, whether a code is present or not. That text may also be mapped to a code using a number of different well-known techniques, including simple index lookup, string matching, natural language processing, et cetera.

The various entries use codes from a variety of different coding systems to identify ***what is represented***. Two entries using the same code are often, but not necessarily referencing the same event. For example, a SNOMED CT code could identify an entry that represents the diagnosis of an ankle sprain. It is very likely that two instances of ankle sprain in a 24 hour time period (or even longer) are referring to the same event. More data could help clarify. If both instances of ankle sprain had the same start date, and both referred to the left ankle, then the reconciling application could suggest these two separate instances as being about the same diagnosis/condition.

Different conditions require different information to disambiguate or suggest identity. If the diagnosis in both entries above had instead been Diabetes Type II, the application could have confirmed these two cases to be the same instance, because it is not possible for a patient to have two different instances of this condition. This is often the case in chronic conditions where the anatomical site is either unique or not applicable.

Coding systems provide different levels of detail in describing things. A diagnosis such as Diabetes Type II described above could also be classified more generally as Diabetes in the hierarchy of the coding system. These relationships appear in coding systems like ICD and SNOMED and can be accessed and navigated by applications which use those coding systems. So two entries in which one reported that a patient had a certain condition (e.g., Diabetes) and another reported a more specific instance of that disease (e.g., Diabetes Type II with insulin or uncontrolled Type II ) could be classified as Diabetes. However, traversing too many levels of a hierarchy could lead to cases where one concept (e.g., Disease of the Endocrinology System) is far too general to assert any sort of equality with a more specialized case (e.g., Diabetes). This clinical knowledge will often need to be separately represented by the reconciling application. While algorithms can be developed, there are few easy answers that can used in these cases.

Care is also needed in determining what code should be used as the most accurate representation of the diagnosis. In the example described above, the best code to report might very well be the more specific one, because it would ensure better clinical treatment. But other cases might demand that the more general code be used. For example, if one provider reports that a patient is allergic to Penicillin, and another provider reports the more general or broad allergy to **β-Lactam antibiotics**, patient safety might demand that the more general code be identified as the candidate for the reconciled result.

When dealing with data from multiple systems, entries for the same event may be coded in different coding systems. In these cases, crosswalks might be used to enable comparison. However, crosswalks between coding systems may be incomplete, costly to produce, and may become outdated. In many cases, the mapping may be inexact or worse. A code in one system may map to multiple codes in another system, or vice versa, or may have no mapping at all.

#### X.4.1.3.1 Value Sets Codes

IHE defines a value set is a collection of concepts drawn from one or more vocabulary code systems and grouped together for a specific purpose. It uniquely identifies valid concept representations to convey meaning. Codes obtained from value sets must be considered during the reconciliation process.

#### X.4.1.4 Timing

Timing can often be used to help disambiguate between different events, but this also requires clinical knowledge to be used effectively. Different occurrences of things are often resolved within a specific time period (e.g., flu within a few weeks, tests completed within a few hours, etc), so an assumption can be made when sufficient time has passed, that instances of the occurrence being referred to is distinct. In some cases, time can be instant, or short in duration but in other cases can be much longer. In some cases, time doesn’t really apply. For example, chronic diseases such as an instance of Diabetes Type II, in one year are likely the same diagnosis as a separate instance reported even decades later. Or an appendectomy performed today, may be the same surgical history item instance reported later.

#### X.4.1.5 Anatomical Site

Anatomical site can often be used both in conjunction with timing, and without reference to timing to assist in disambiguation. If two conditions are reported as being in different anatomical sites, then they are likely different. However, anatomic site also has the same issues of hierarchy as other coded data. A diagnosis reported in one place as a sprain of the left ankle and in another as a sprain of the left ankle deltoid ligament at the same time is likely the same diagnosis. The difference is in the specificity of the anatomical site.

#### X.4.1.6 Source of Information

The source of the information is another datum that may be used when disambiguating items in the reconciled list. The disambiguation process may give more or less weight to information depending upon the source and type of information provided. This may depend upon the information source’s relationship with the patient, their specialty and degree of medical and nursing training, the area of diagnosis, et cetera.

Care should be taken when reconciling diagnoses when a second opinion or consultation has been provided. The reconciling physician may keep the first diagnosis, or the diagnosis resulting from a second opinion, or both diagnoses may be recorded.

The accuracy of any information depends upon education and skills of the source and motivation for providing the information (e.g., drug seeking behavior). Patient sourced information is one area where special consideration is needed during the reconciliation process. Applying generalizations about patient’s knowledge of their diagnoses, allergies and medications will not apply equally. Some patients will be quite educated about their conditions, while others may have only very limited knowledge.

Information from Personal Health Records may not always be sourced by the patient. For example, a patient’s discharge summary may be sent to the patient’s PHR. The reconciliation content profile does provide specific guidance about how sources of information should be recorded to assist in the reconciliation process.

#### X.4.1.7 Degree of Clinical Judgment

Two entries that are otherwise similar but with different degrees of clinical judgment need to reconcile the level of clinical judgment associated with the issue. Clinical judgment is anything used to further explain or define the main concept. Examples of degree of clinical judgment include type of problem, indication for a medication, location of a procedure, etc

#### X.4.1.8 Severity

When two concepts are merged, there may be “conflicting” reports of the severity of the concept. Severity can change over time, and so this result is to be expected. The reconciling application should account for this and select the appropriate value (e.g., the most recently recorded concept) during the merging process. In addition, the method of attaching a clinical severity to reconciled concept may be considered by the reconciliation application in the presentation layer.

#### X.4.1.9 Merging of Information

When two entries describing a concept are merged, they may contain multiple attributes, which may also be duplicated, overlapping, conflicted, or superseded. The reconciling application should merge the two sets of attributes. Examples include multiple adverse reactions associated with an allergen or multiple reactions to a medication.

#### X.4.1.10 Negation and Null

Negation and null attribute in CDA is used to convey something that did not occur or that isn’t present (e.g. the patient did not receive an immunization, or the patient is not reaching a goal, procedure was not done, etc). In order to avoid misinterpreting things that did happen from things that did not occur, negation and null should be taken into consideration during the reconciliation process.

#### X.4.1.11 Data Creation and Update Time

Time of data creation and update is represented as author date/time of clinical data in CDA documents. It should be included in the reconciliation process. Author date/time provides the ability to determine if the associated data is newer or older than the existing information it is being reconciled with. After other data attributes are considered and a possible duplicate of data may exist, consideration of the author date/time will ascertain which data element is more recent. The data element with the more recent date/time should be considered as the more updated data element.

#### X.4.1.12 Disease Specific Reconciliation

#### X.4.1.13 Allergy Specific Reconciliation

#### X.4.1.14 Medication Specific Reconciliation

#### X.4.1.15 Care Provider Specific Reconciliation

When reconciling care providers, it is important to identify who the provider is. Providers can be a person or an organization. Identification of a provider includes the provider ID as well as the name and location of the provider. The types of provider also need to be considered.

## X.4.2 Use Cases

<One or two sentence simple description of this particular use case.>

*<Note that Section X.4.2.1 repeats in its entirety for additional Use Cases (replicate as section X.4.2.2, X.4.2.3, etc.).>*

Mr. Jonathan Allan is a 77 year old male ‘snowbird’. He lives in Michigan during the summer and in Florida the rest of the year. He has diabetes and has also undergone multiple open heart surgeries to correct irregular heartbeats and other ailments related to the heart. He is currently planning his return to Michigan. He makes an appointment with his Cardiologist in Michigan. His Cardiologist practice sets up an initial visit with the patient and obtains information about the patient from his care providers in Florida as well as from the Florida State HIE. The Cardiologist would like to reconcile pertinent clinical information and import it into his EHR so he can have updated information about his patient so he can effectively care for his patient.

### X.4.2.1 Use Case: Transfer of content with no variances

The first use case demonstrates reconciliation between two care provider systems where no conflicts are identified during the automated reconciliation.

Preconditions:

Mr. Allan has the following data in his PCP EHR.

* Hypercholesterolemia SNOMED 13644009; Status Active
* Diabetes – SNOMED 11530004; ICD9 250.42; Status Active
* Low cholesterol diet education provided February 12, 2013 – SNOMED 183062005
* HgbA1c 6.2 on December 10, 2013– LOINC 55454-3
* Goal is to exercise three to five times a week

**Use Case**

Reconciliation from PCP to Specialist EHR: Mr. Allan’s Michigan Cardiologist (Dr. Hart) office intake nurse is reconciling clinical content per practice protocol. His pre-existing records are examined and reconciled against this list. Since there are no conflicting entries, the newer list is automatically reconciled and presented to the intake nurse performing the reconciliation. She accepts the reconciled data into the specialist record.

### X.4.2.2 Use Case: Transfer of content with variances

The second use case demonstrates reconciliation of clinical content from a state HIE being performed by a PCP EHR. In this case there are issues identified during the reconciliation of clinical content because the PCP EHR is out of date.

**Preconditions:**

Mr. Allan’s medical records from the state HIE include the following information:

* Blood pressure readings (systolic and diastolic) – LOINC 8480-6, 8462-4 collected during 2013 encounters
* Inderal RxNorm prescribed October 19, 2012 status –active; Lopressor RxNorm 218072 prescribed December 10, 2013, status – active)
* Pneumococcal Vaccine – CVX 133 Administered on December 10, 2013
* Flu Vaccine – CVX 140 Not Administered on December 10, 2013 due to medical precautions
* Diabetic care instructions – SNOMED 385805005 planned December 10, 2013
* Social History, Smoking history ½ pack per day started smoking four months ago (August 2013)
* Cardiac rehab therapy declined – SNOMED 413756001; status - cancelled December 10, 2013

**Use Case**

Mr. Allan has returned from Florida and is at his Michigan PCP (Dr. Carey) office for a sick visit. He’s complaining of weakness and generalized tiredness with episodes of dizziness and decreased appetite. Mr. Allan informs Dr. Carey that he returned from Florida a month ago and had a visit with Dr. Hart, his cardiologist two weeks ago. Dr. Carey is aware that Mr. Allan’s providers in Florida participate in Florida State HIE. He would like to reconcile his records with Mr. Allan’s clinical information from the state HIE. The following information is in Dr. Carey’s record:

* Blood pressure readings (systolic and diastolic) – LOINC 8480-6, 8462-4 collected during 2012 encounters
* Inderal RxNorm prescribed October 19, 2012 status –active;
* Flu Vaccine – CVX 140 Administered October 2012
* Diabetic care instructions – SNOMED 385805005 completed October 2012
* Social history, Non-smoker
* Cardiac rehab therapy– SNOMED 313395003; status - new October 2012

Dr. Carey performs reconciliation and updates his EHR. He adds the updated blood pressure readings so that he is better able to track vital signs trends. Dr. Carey notices that Mr. Allan’s blood pressure medication was changed from Inderal to Lopressor. He reconciles this information to reflect his agreement with the plan and updates his record with the newer blood pressure medication. He notes that Mr. Allan did not receive a flu vaccine during the last flu season and plans for Mr. Allan to get the flu vaccine during the upcoming season. He updates Mr. Allan’s social history and provides smoking cessation counseling with Mr. Allan. Dr. Carey also notices that there were previous plans for Mr. Allan to participate in a cardiac rehabilitation program that was later cancelled by another of Mr. Allan’s providers. He discusses the reasons for the cancellation with Mr. Allan. With Mr. Allan permission, he schedules Mr. Allan for cardiac rehab.

### X.4.2.3 Use Case: Transfer of content with overlapping interpretations

In the third use case, information from care providers EHRs are collected showing variations in information which are detected and reconciled.

**Preconditions:**

The clinical EHRs contain the following provider information:

* Dr. Carey role as primary care provider (in Detroit); Provider type, internal medicine
* Dr. Hart role as consulting provider (in Detroit); provider type, cardiology
* Dr. Payne role as consulting provider (in Detroit); provider type, cardiology
* Dr. Seven role as primary care provider (in Florida); provider type, family practice
* Dr. Roberts role as consulting provider (in Florida); provider type, cardiology
* Dr. Smyth role as consulting provider (in Florida); provider type, podiatry

The clinical EHRs contain the following encounter information:

* Two encounters with Dr. Carey; type of encounter; Dates of encounter
* Two encounters with Dr. Hart; type of encounter; Dates of encounter
* One encounter with Dr. Seven; type of encounter; Dates of encounter
* Two encounters with Dr. Roberts; type of encounter; Dates of encounter
* One encounter with Dr. Smyth; type of encounter; Dates of encounter

**Use Case**

Mr. Allan participates in a care coordination program which includes an Accountable Care Organization (ACO) supported by his providers and payer. Mr. Allan’s care is being managed by a care manager who would like to ensure that he is receiving appropriate and timely care due to his chronic disease history. The care manager EHR receives a list of providers and encounters from the various EHRs and HIE containing Mr. Allan’s clinical information. During reconciliation of care providers and encounters there are issues identified due to multiple entries of the same type of care providers as well as care providers who have not provided care. The care manager is also able to determine if Mr. Allan is receiving care from the right types of providers and if the frequency of his interactions with the health care system is adequate to meet his care needs.

## X.5 RCCCP Security Considerations

Risks specific to reconciliation:

There are two risks that require consideration in systems which identify and merge information. If two different systems report the same event and they are not appropriately merged, systems might wind up recording duplicated diagnoses and treatments. In the case of medications, this can result in subsequent over-flagging of the duplicated treatment in the EHR. Negative consequences of overflagging including:

* Overuse of the provider’s time to correct these errors
* Alert fatigue
* Low morale
* System distrust or minimization of confidence in results of the system
* Implementation of “workarounds” that short-circuit the reconciliation process to avoid consequences.

These consequences could lead to the same kinds medical errors that this profile is meant to mitigate.

A second risk is simply the reverse problem. If the system identifies two events as being the same event when they are in fact different, this can result in missed diagnoses or allergies, and failure to identify duplicated treatments which increased toxicity leading to other health complications for the patient.

To avoid these risks, we require that systems import the identifiers used in entries, and export these identifiers on output. Using preexisting identifiers consistently enables information systems to identify data that has migrated across systems.

<Describe Profile-specific security considerations. This should include the outcomes of a risk assessment. This likely will include profile groupings, and residual risks that need to be assigned to the product design, system administration, or policy. See the ITI document titled ‘Cookbook: Preparing the IHE Profile Security Section’ at http://www.ihe.net/Technical\_Framework/index.cfm for suggestions on risk assessment, risk mitigation, and IT and security profiles.>

<If this is not a content module, delete the sentence below. If this is a content module profile, you may want to expound upon the security considerations provided by grouped actors.>

Appendices

<Add Appendices to this Profile here. Examples of an appendix include HITSP mapping to IHE Use Cases or long use case definitions.>

<Volume 1 Appendices are informational only. No “SHALL” language is allowed in a Volume 1 appendix.>

Appendix A

None

Appendix B

None

Volume 2 – Transactions

Add section 3.Y

## 3.Y <Transaction Name [Domain Acronym-#]>

*<The “Y” in the heading should be the same as the # in the [Domain Acronym -#] title>*

### 3.Y.1 Scope

This transaction is used to *<…describe what is accomplished by using the transaction. Remember that by keeping transactions general/abstract, they can be re-used in a variety of profiles>*

### 3.Y.2 Actor Roles

<Optional: if desired, in addition to the table, add a diagram as shown below to illustrate the actors included in this transaction, or delete the diagram altogether.>

Actor ABC

Actor ABC

Actor DEF

Actor DEF

Figure 3.Y.2-1: Use Case Diagram

Table 3.Y.2-1: Actor Roles

|  |  |
| --- | --- |
| **Actor:** | <Official actor name; list every actor in this transaction.> |
| **Role:** | <Very brief, one phrase, description of the role that this actor plays in this transaction.> |
| **Actor:** |  |
| **Role:** |  |
| **Actor:** |  |
| **Role:** |  |

*<The assignment and use of Role Names in transaction specifications has proved to be very effective/efficient in Radiology, especially when existing transactions are re-used by additional actors. Following is an alternative example of the Role section. Delete which ever form of the role section you choose not to use.>*

The Roles in this transaction are defined in the following table and may be played by the actors shown here:

Table 3.Y.2-1 Actor Roles

|  |  |
| --- | --- |
| **Role:** | *<Role Name:><Only unique within this transaction. Typically one word. The Role Name is analogous to SCU or SCP in DICOM Services.>* |
| **Actor(s):** | The following actors may play the role of *<Role Name>*:         *<Actor Name>: <optionally, the situation where the Actor would play this Role if needed for clarity.>*” |
| **Role:** | *<e.g., Requestor:*  *Submits the relevant details and requests the creation of a new workitem.>* |
| **Actor(s):** | *<e.g., The following actors may play the role of Requestor:*  *Workitem Creator: when requesting workitems*  *Workitem Performer: when performing unscheduled workitems>* |
| **Role:** | *<e.g., Manager:*  *Creates and manages a Unified Procedure Step instance for the requested*  *workitem.>* |
| **Actor(s):** | *<e.g., The following actors may play the role of Manager:*  *Workitem Manager: when receiving a new workitem for its worklist.>* |

Transaction text specifies behavior for each Role. The behavior of specific Actors may also be specified when it goes beyond that of the general Role.

### 3.Y.3 Referenced Standards

<e.g., HL7 2.3.1 Chapters 2, 3>

<e.g., DICOM 2008 PS 3.3: A.35.8 X-Ray Radiation Dose SR IOD>

### 3.Y.4 Interaction Diagram

<The interaction diagram shows the detailed standards-based message exchange that makes up the IHE transaction.>

Actor A

Actor A

Message 1

Message 1

Actor D

Actor D

Message 2

Message 2

#### 3.Y.4.1 <Message 1 Name>

<One or two sentence summary of what Message 1 accomplishes typically relating the message to the relevant standard. Avoid shall language in this upper level section. Do not duplicate the triggers, encoding, semantics, standards used, or expected actions. Those belong in the following sections.>

<Explicitly state if the multiplicity of an actor may be greater than one; i.e., if an actor (whether it is a client or server) can expect this message from a single source or multiple sources.>

##### 3.Y.4.1.1 Trigger Events

<Description of the real world events that cause the sender (Actor A) to send Message 1 (e.g., an operator or an automated function determines that a new workitem is needed).>

##### 3.Y.4.1.2 Message Semantics

<Detailed description of the meaning, structure and contents of the message, including any IHE specific clarifications of the message format, attributes, etc.>

<Start by describing the standard underlying the message and how the participating actors are mapped (e.g., “This message is a DICOM C-FIND Request. Actor A is the SCU. Actor D is the SCP.”).>

<Continue profiling the message by providing guidance or constraints on how the message parameters are populated, how the payload is encoded, how the message is structured and what the contents mean. These message semantics should both help the sender to construct the message and the receiver to interpret the message.>

##### 3.Y.4.1.3 Expected Actions

<Description of the actions expected to be taken as a result of sending or receiving this message.>

<Describe what the receiver is expected/required to do upon receiving this message. >

<Avoid re-iterating the transaction sequencing specified in the Profile Process Flows as expected actions internal to the transaction. Doing so prevents this transaction being re-used in other contexts.>

<Explicitly define any expected action based on the multiplicity of an actor(s), if applicable.>

#### 3.Y.4.2 <Message 2 Name>

<One or two sentence summary of what Message 2 accomplishes typically relating the message to the relevant standard. Avoid shall language in this upper level section. Do not duplicate the triggers, encoding, semantics, standards used, or expected actions. Those belong in the following sections.>

<Explicitly state if the multiplicity of an actor may be greater than one; i.e., if an actor (whether it is a client or server) can expect this message from a single source or multiple sources.>

<Repeat this section as necessary based on the number of messages in the interaction diagram.>

##### 3.Y.4.2.1 Trigger Events

<Description of the real world events that cause the sender (Actor A) to send Message 1(e.g., an operator or an automated function determines that a new workitem is needed).>

##### 3.Y.4.2.2 Message Semantics

<Detailed description of the meaning, structure and contents of the message, including any IHE specific clarifications of the message format, attributes, etc.>

<Start by describing the standard underlying the message and how the participating actors are mapped (e.g., “This message is a DICOM C-FIND Request. Actor A is the SCU. Actor D is the SCP.”).>

<Continue profiling the message by providing guidance or constraints on how the message parameters are populated, how the payload is encoded, how the message is structured and what the contents mean. These message semantics should both help the sender to construct the message and the receiver to interpret the message.>

##### 3.Y.4.2.3 Expected Actions

<Description of the actions expected to be taken as a result of sending or receiving this message.>

<Describe what the receiver is expected/required to do upon receiving this message. >

<Avoid re-iterating the transaction sequencing specified in the Profile Process Flows as expected actions internal to the transaction. Doing so prevents this transaction being re-used in other contexts.>

<Explicitly define any expected action based on the multiplicity of an actor(s), if applicable.>

### 3.Y.5 Security Considerations

<Description of the transaction specific security consideration; such as use of security profiles.>

#### 3.Y.5.1 Security Audit Considerations

<This section should identify any specific ATNA security audit event that is associated with this transaction and requirements on the encoding of that audit event. >

##### 3.Y.5.1.(z) <Actor> Specific Security Considerations

<This section should specify any specific security considerations on an Actor by Actor basis.>

Appendices

<Detailed cross transaction relationships or mapping details are described in an appendix in Volume 2x. Volume 2 appendices may be informational or normative. Immediately after the title of a Volume 2 appendix, provide a very explicit statement defining whether this new appendix is informative or normative.>

Appendix A – <Appendix A Title>

Appendix A text goes here.

* 1. <Add Title>

Appendix A.1 text goes here

Appendix B – <Appendix B Title>

Appendix B text goes here.

* 1. <Add Title>

Appendix B.1 text goes here.

Volume 2 Namespace Additions

Add the following terms to the IHE General Introduction Appendix G:

<Please explicitly identify all new OIDs, UIDs, URNs, etc., defined specifically for this profile. These will be added to the IHE TF General Introduction namespace appendix when it becomes available. These items should be collected from the sections above, and listed here as additions when this document is published for Trial Implementation. This section will be deleted prior to inclusion into the Technical Framework as Final Text, but should be present for publication of Public Comment and Trial Implementation.>

Volume 3 – Content Modules

<The current version of the supplement template only addresses HL7 v3 CDA Content Modules. All CDA Content Modules will go in Section 6 of Volume 3 of each domain’s Technical Framework document. In the future, this supplement template may have additional sections for DICOM Content Modules (section 7 of Volume 3) and other types of Content Modules (section 8, etc., of Volume 3).

<Please note that prior to the release of the new template set, some domains may have defined CDA Content Modules in Volume 2 (e.g., PCC); however, going forward CDA Content Modules will be defined in Volume 3.>

# 5. Namespaces and Vocabularies

Add to section 5 Namespaces and Vocabularies

<Note that the code systems already defined in the Technical Framework of this domain may (but not required) be replicated here just to aid in the supplement review as a standalone document. Also note that the Section 5 table numbers and names are already defined in the TF Volume 3.>

| codeSystem | codeSystemName | Description |
| --- | --- | --- |
| <oid or uid> | <code system name> | <short description or pointer to more detailed description> |
| <oid or uid> | <code system name> | <short description or pointer to more detailed description> |
| <oid or uid> | <code system name> | <short description or pointer to more detailed description> |

Add to section 5.1.1 IHE Format Codes

| Profile | Format Code | Media Type | Template ID |
| --- | --- | --- | --- |
| RCCCP | urn:ihe:pcc:RCCCP:2014 |  | <oids> |
|  |  |  |  |
|  |  |  |  |

Add to section 5.1.2 IHE ActCode Vocabulary

### 5.1.2 IHEActCode Vocabulary

|  |  |
| --- | --- |
| Code | Description |
| CONREC | Reconciliation of Content |

Add to section 5.1.3 IHE RoleCode Vocabulary

| Code | Description |
| --- | --- |
| <name of role> | <Short, one sentence description of role or reference to more info.> |
| <name of role> | <Short, one sentence description of role or reference to more info.> |
| <name of role> | <Short, one sentence description of role or reference to more info.> |

# 6. Content Modules

<Authors’ notes: This section of the supplement template is only for HL7 v3 CDA Content Module definitions. Please delete the entire section 6.3.1 if the Content Module is based on DICOM or another standard.

Please note that the template for DICOM or other types of content modules (other than CDA) has not yet been defined, although DICOM modules will eventually go into Volume 3 Section 7; yet another type of content module will go into Volume 3 Section 8, etc.>

## 6.3.1 CDA Document Content Modules

<Authors’ instructions: The understanding of content module grouping, options, and bindings are critical to CDA content modules. It is strongly recommended that the author review the IHE Technical Frameworks General Introduction section 10.3 and the Patient Care Coordination (PCC) Technical Framework Volume 2 sections 3 and 4 (PCC TF-2:3 and 4) prior to continuing. A critical understanding of CDA definitions for cardinality, optionality, coded terminology values, and CDA content module structure, as well as IHE CDA formatting conventions is also necessary. It is strongly recommended that the author is also conversant with the IHE Technical Frameworks General Introduction Appendix E “Conventions”.>

<This CDA Content Module template is divided into four parts:

D – Document –“D” will be replaced with a sub-section number when added to the Technical Framework

H – Header - “H” will be replaced with a sub-section number when added to the Technical Framework

S – Section - “S” will be replaced with a sub-section number when added to the Technical Framework

E – Entry - “E” will be replaced with a sub-section number when added to the Technical Framework

It is expected that the author will replicate each of these four parts as necessary within a supplement.>

All examples should be deleted after the example has been read and understood.>

Add to section 6.3.1.D Document Content Modules

<Authors’ note: replicate section 6.3.1.D for every CDA Document defined in this profile.>

#### 6.3.1.D <Content Module Name (Acronym)> Document Content Module

##### 6.3.1.D.1 Format Code

The XDSDocumentEntry format code for this content is **urn:ihe:pcc:RCCCP:2014** <*e.g., urn:ihe:card:imaging:2011>*

##### 6.3.1.D.2 Parent Template

<The following text is common, so it is left here for consistency. If it is not relevant, then change the text to the accurate information, but retain the formatting convention. Be sure to include all parent templates.>

<e.g., This document is a specialization of the IHE PCC Medical Document template (OID = 1.3.6.1.4.1.19376.1.5.3.1.1.1).>

<e.g., Note: The Medical Document includes requirements for various header elements; name, addr and telecom elements for identified persons and organizations; and basic participations record target, author, and legal authenticator.>

<e.g., This document is a specialization of the HL7 Procedure Note template (OID = 2.16.840.1.113883.10.20.18.1).>

<e.g., Note: This document is not a specialization of the HL7 Basic Diagnostic Imaging Report template due to conflicts with two Procedure Note requirements (format of serviceEvent/effectiveTime, and title on DICOM Catalogue section). When and if these are resolved, an instance may also comply to the Diagnostic Imaging Report.>

##### 6.3.1.D.3 Referenced Standards

<Identify ALL standards referenced by THIS content module.>

All standards which are reference in this document are listed below with their common abbreviation, full title, and link to the standard.

Table 6.3.1.D.3-1: <Document Name> - Referenced Standards

| Abbreviation | Title | URL |
| --- | --- | --- |
| <abbreviated name of standard> | <full name of standard> | <link to standard> |
| <abbreviated name of standard> | <full name of standard> | <link to standard> |
| <e.g., CDA-PN> | <e.g., HL7 Implementation Guide for CDA Release 2: Procedure Note (Universal Realm) (DSTU)> | <e.g., http://www.hl7.org/documentcenter/public/standards/dstu/CDAR2\_IG\_PROCNOTE\_DSTU\_R1\_2010JUL.zip> |

##### 6.3.1.D.4 Data Element Requirement Mappings to CDA

This section identifies the mapping of data between referenced standards into the CDA implementation guide.

<Any required data mappings should be listed in this section (mark NA if not needed). Delete SAMPLE table before publishing.>

*<To complete Table 6.3.1.D.4-1, the author should add the referenced standards abbreviations in the first row/title bar. Add or delete columns and sub-rows as necessary. If this table is more than 8 to 10 rows long, consider putting this table into an appendix of this supplement. A brief sample follows.>*

SAMPLE

| ACC Key Data Element (KDECI) | CDA-DIR |
| --- | --- |
|  | DICOM Object Catalog (5) |
| Administrative  Facility (5)  Data Source (1)  Priority (1)  Accreditation (2)  Insurance (1) | CDA Header  General (10)  Document (19)  Participants (20)  Order (1)  Service Event (12)  Encounter (10) |
| Study Referral Data (2) | Request |
| History and Risk Factors  Vital Signs (4)  Labs (2)  Problems (14)  Chest Pain (5)  Family History (1)  Tobacco Use (1)  Risk Estimates (6) | History |

*>*

Table 6.3.1.D.4-1: < Document Name Acronym> - Data Element Requirement Mappings to CDA

| Clinical Data Element <source> | < this document acronym> |
| --- | --- |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

<**Very important note:** From this point forward, the author may select one of two formats to represent the same data. The first format is a tabular format as was implemented in the Cardiology CIRC profile. The advantages to this format include that large amounts of data may be represented more concisely and that it is sometimes visually easier to determine if any information is missing. The second format is more similar to the current Consolidated CDA (C-CDA format). This format may be more verbose but may also be more recognizable to implementers familiar with other HL7 CDA Implementation Guides and may be easier for implementers to design and test with discrete conformance assertions.

The format that you select must be consistent through this supplement (do not mix and match formats). The format changes are identified by ###Begin Tabular format ###End CDA Tabular format and ###Begin Discrete Conformance format ###End Discrete Conformance format. Delete all references to the format which was not selected between the hash marks. Also, a domain may decide on a single format for all new supplements within that domain.>

##### 6.3.1.D.5 <Content Module Name (Acronym, if applicable)> Document Content Module Specification

This section specifies the header, section, and entry content modules which comprise the <Content Module Name (Acronym)> Document Content Module, using the Template ID as the key identifier.

Sections that are used according to the definitions in other specifications are identified with the relevant specification document. Additional constraints on vocabulary value sets, not specifically constrained within the section template, are also identified.

<Authors’ note: A critical understanding of CDA definitions for cardinality, optionality, coded terminology values, and CDA content module structure, as well as IHE CDA formatting conventions is necessary. It is strongly recommended that the author is also conversant with the IHE Technical Frameworks General Introduction Appendix E “Conventions”. >

###Begin Tabular format - Document

**Table 6.3.1.D.5-1 <Content Module Name (Acronym)> Document Content Module Specification**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Template Name | | <Template Name (Acronym, if applicable)> | | | |
| Template ID | | <oid/uid> | | | |
| Parent Template | | <Parent Template Name oid/uid [Domain Reference]>  <Parent Template Name oid/uid [Domain Reference]> <delete 2nd/additional parent templates if not applicable> | | | |
| General Description | | <short textual description> | | | |
| Document Code | | <MAY or SHALL> be < code/oid/uid, Code System, “Value Set name”> | | | |
| Opt and Card | Condition | Header Element or Section Name | Template ID | Specification Document | Vocabulary Constraint |
| **Header Elements** | | | | | |
| x [?..?] |  | <Header Element name> | <oid> | <reference to section of TF or supplement document for details> | <reference to section of TF or supplement document for explanation, if applicable> |
| <e.g., R [0..1] |  | Order | 1.3.6.1.4.1.19376.1.4.1.3.2 | CARD TF-3 6.3.2.H> |  |
| <e.g., M [1..1] |  | Patient Demographics | 1.3.6.1.4.1.19376.1.4.1.3.3 | CARD TF-3 6.3.2.H | CARD TF-3 6.3.1.D.5.1> |
| Sections | | | | | |
| x [?..?] |  | <Section name> | <oid> | <reference to section of TF or supplement document for details> | <reference to section of TF or supplement document for explanation, if applicable> |
| <e.g., M [1..1] |  | Medications | 1.3.6.1.4.1.19376.1.5.3.1.3.19 | PCC TF-2 | CARD TF-3 6.3.1.D.5.2> |
| <e.g., R [1..1] |  | Coded Social History | 1.3.6.1.4.1.19376.1.5.3.1.3.16.1 | CARD TF-3 6.3.3.S | CARD TF-3 6.3.1.D.5.3> |
| <e.g., O [0..1] |  | Physical Examination | 2.16.840.1.113883.10.20.2.10 | CDA-PN> |  |
| <e.g., C [1..1] | CARD TF-3 6.3.1.D.5.4 | DICOM Object Catalog | 1.3.6.1.4.1.19376.1.4.1.2.15 | CDA-PN> |  |

<For each (1:1 correspondence) Vocabulary Constraint or Condition listed in the table above, create an additional section/reference below. Add the Header Element or Section Name and then select either “Vocabulary Constraint” or “Condition” and delete the other word.>

<Note that every Conditional element MUST have an explanatory paragraph referenced below.>

<It is required to use SHALL, SHOULD, or MAY in each definition as defined in Appendix E of the Technical Frameworks General Introduction.>

###### 6.3.1.D.5.1 <Header Element or Section Name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., The value for serviceEvent / code SHOULD be drawn from value set 1.3.6.1.4.1.19376.1.4.1.5.2 Cardiac Imaging Procedures.>

###### 6.3.1.D.5.2 <Header Element or Section Name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., Within the Medications section the Content Creator SHALL be able to create a Medications entry (templateID 1.3.6.1.4.1.19376.1.5.3.1.4.7 [PCC TF-2]) for each of the cardiac relevant medications identified in Value Set 1.3.6.1.4.1.19376.1.4.1.5.14 Cardiac Drug Classes, encoding the value in substanceAdministration/consumable/ManufacturedProduct/Material/code.>

###### 6.3.1.D.5.3 <Header Element or Section Name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., Within the Allergies and Other Adverse Reactions section the Content Creator SHALL be able to create an Allergies and Intolerances Concern Entry (templateID 1.3.6.1.4.1.19376.1.5.3.1.4.5.3 [PCC TF-2]) for each of the cardiac imaging agent classes identified in Value Set 1.3.6.1.4.1.19376.1.4.1.5.10 Contrast Agents Classes for Adverse Reactions, encoding the value in observation/participant/participantRole/playingEntity/code.>

###### 6.3.1.D.5.4 <Header Element or Section Name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., A DICOM Object Catalog Section SHALL be present if other document sections contain references to DICOM SOP Instances (images, structured report measurements, or other information objects), and MAY be present otherwise.>

###End Tabular Format - Document

###Begin Discrete Conformance Format - Document

*<Delete the example information contained in the material below (from Cardiology CRC)>*

<e.g., The complete set of body constraints, including those from C-CDA section/entry definitions are:

1. **SHALL** contain exactly one [1..1] **component** (CONF:9588).
   1. A Cath Report Content SHALL have a structuredBody (CONF:9589-CRC).
      1. A Cath Report Content SHALL conform to CDA Level 3 (structuredBody containing sections that contain a narrative block and coded entries). In this template (templateId 2.16.840.1.113883.10.20.22.1.6), coded entries are optional. (CONF:9590-CRC).
   2. The component/structuredBody SHALL conform to the section constraints below (CONF:9595-CRC).
      1. Each **section** SHALL have a **title** and the **title** SHALL not be empty (CONF:9937).>

<The following table shows relationships among the templates in the body of a Cath Report Content document.>

Table 6.3.1.D.5-1 <Content Module Name (Acronym)> Document Content Module Specification

| Template Title | Opt and Card | Condition | Template Type | templateId | Vocabulary  Constraints |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
| Delete this row and the example information in the rows below. | | | | | |
| <e.g., Cath Report Content | R[1..1] |  | document | 1.3.6.1.4.1.19376.1.4.1.1.2 | 6.3.1.D.5.1 |
| Document Summary-Cardiac Section | O[0..1] |  | section | 1.3.6.1.4.1.19376.1.4.1.2.16 |  |
| Medical History - Cardiac Section | R[1..1] |  | section | 1.3.6.1.4.1.19376.1.4.1.2.17 |  |
| Procedure Activity Observation | O[0..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.13 |  |
| Procedure Activity Procedure | O[0..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.14 |  |
| Problem Observation - Cardiac | O[0..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.4 |  |
| Age Observation | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.31 |  |
| Health Status Observation | O[0..1] | 6.3.1.D.5.2 | entry | 2.16.840.1.113883.10.20.22.4.5 |  |
| Problem Status | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.6 |  |
| Severity Observation | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.8 |  |
| Allergies Section | R[1..1] |  | section | 2.16.840.1.113883.10.20.22.2.6 |  |
| Allergy Problem Act | O[0..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.30 |  |
| Allergy Observation | R[1..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.7 |  |
| Allergy Status Observation | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.28 |  |
| Reaction Observation | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.9 |  |
| Severity Observation | O[0..1] |  | entry | 2.16.840.1.113883.10.20.22.4.8 |  |
| Family History – Cardiac Section | O[0..1] |  | section | 1.3.6.1.4.1.19376.1.4.1.2.18 |  |
| Problem Observation - Cardiac | O[0..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.4 |  |
| Social History Section | O[0..1] |  | section | 2.16.840.1.113883.10.20.22.2.17 |  |
| Physical Exam Section | R[1..1] |  | section | 2.16.840.1.113883.10.20.2.10 |  |
| Vital Signs | R[1..1] |  | section | 2.16.840.1.113883.10.20.22.2.4.1 |  |
| Vital Signs Organizer | R[1..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.26 |  |
| Vital Sign Observation | R[2..\*] |  | entry | 2.16.840.1.113883.10.20.22.4.27> |  |

<For each (1:1 correspondence) Vocabulary Constraint or Condition listed in the table above, create an additional section/reference below. Add the Header Element or Section Name and then select either “Vocabulary Constraint” or “Condition” and delete the other word.>

<Note that every Conditional element MUST have an explanatory paragraph referenced below.>

<It is required to use SHALL, SHOULD, or MAY in each definition as defined in Appendix E of the Technical Frameworks General Introduction.>

###### 6.3.1.D.5.1 <Template Title name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., The value for serviceEvent / code SHOULD be drawn from value set 1.3.6.1.4.1.19376.1.4.1.5.2 Cardiac Imaging Procedures.>

###### 6.3.1.D.5.2 <Template Title name> <Vocabulary Constraint or Condition>

<add vocabulary constraint or condition definition>

<remove example below prior to public comment:>

<e.g., Within the Medications section the Content Creator SHALL be able to create a Medications entry (templateID 1.3.6.1.4.1.19376.1.5.3.1.4.7 [PCC TF-2]) for each of the cardiac relevant medications identified in Value Set 1.3.6.1.4.1.19376.1.4.1.5.14 Cardiac Drug Classes, encoding the value in substanceAdministration/consumable/ManufacturedProduct/Material/code.>

###End Discrete Conformance Format - Document

##### 6.3.1.D.6 <Document and Acronym Name> Conformance and Example

<This section is the same, independent of whether the tabular or discrete conformance formats were chosen.>

<Describe the conformance of this Document in terms of inheritance from other template(s). Use the OIDs of those templates for clarity. A complete example of this document MUST be placed on the IHE ftp server as part of the Public Comment process of a Content Module supplement. WHERE ON THE FTP SERVER? The file naming convention for these files should be <Domain Acronym>\_<Profile Acronym>\_CDA-sample\_<version number>.xml>.

CDA Release 2.0 documents that conform to the requirements of this document content module shall indicate their conformance by the inclusion of the <templateId> XML elements in the header of the document.

A CDA Document may conform to more than one template. This content module inherits from the *<template name(s) and template ID(s)>* <e.g., CDA-PN, 2.16.840.1.113883.10.20.18.1, and the PCC TF Medical Document, 1.3.6.1.4.1.19376.1.5.3.1.1.1, content modules> and so must conform to the requirements of those templates as well this document specification, *<templateName and templateID>* <e.g., Cardiac Imaging Report template, 1.3.6.1.4.1.19376.1.4.1.1.1>.

A complete example of the <Content Module Name and Acronym> Document Content Module is available on the IHE ftp server at: <indicate location here>.

Note that this is an example and is meant to be informative and not normative. This example shows the <templateId (OIDs)> elements for all of the specified templates.

Add to section 6.3.2 Header Content Modules

## 6.3.2 CDA Header Content Modules

#### 6.3.2.H <Header Element Module Name> Header Content Module

<Replicate this section/table for as many new Header Elements are added in this supplement.>

###Begin Tabular Format - Header

<Either the Parent Template OR the Header Element may constrain this Header Element, not both. One should be “N/A”.>

<The values in the column “Participations and Act Relationships” must come from the defined terms in the CDA schema. See the IHE Technical Frameworks General Introduction, Appendix E, CDA Conventions.>

**Table 6.3.2.H-1 <Content Module Name (Acronym)> Header**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Template Name | | <Template Name> | | | | |
| Template ID | | <oid> | | | | |
| Parent Template | | <Name and oid of parent template or N/A> | | | | |
| Header Element | | <CDA Header Elements participant or componentOf or N/A>  e.g., componentOf / encompassingEncounter | | | | |
| General Description | | <short textual description. Short paragraph at most.> | | | | |
| Opt and Card | Participation/ Act Relationship | Description | Template | Specification Document | Vocabulary Con-straint |
| x [?..?] | <select from defined part /act relationship terms; App E> | <Header Content description name> | <oid> | <document reference, if applicable> | <Vocab constraint, if applicable> |
|  |  |  |  |  |  |
| <e.g., R [1..1] | RESP | Responsible Party |  | CARD TF-3: 6.3.2.H.1> |  |
| <e.g., R [1..1] | LOC | Health Care Facility |  | CARD TF-3: 6.3.2.H.2> |  |
| <e.g., O [0..1] | REF | Referring Provider |  | CARD TF-3: 6.3.2.H.3> |  |
| <e.g., C [0..1] | ATND | Physician of Record | 2.16.840.1.113883.10.20.6.2.2 | CDA-DIR | CARD TF-3: 6.3.2.H.4> |

*<For each Vocabulary Constraint or Specification Document listed in the table above, create an additional section/reference below. Add the Description Name and then select either “Vocabulary Constraint” or “Spec Document” and delete the other word.>*

*<It is required to use SHALL, SHOULD, or MAY in each definition as defined in Appendix E of the Technical Frameworks General Introduction.>*

*<Also note that the Spec Document link can be a link to an outside document/reference. Do not replicate (cut and paste) sections of other documents into this document since they could become out of sync.>*

##### 6.3.2.H.1 <Description Name> <e.g., Responsible Party> <Specification Document *or* Vocabulary Constraint>

<Describe constraints or other info. This specification may include more information on conditions or cardinality, additions elements, data mappings, or data types, or other information.>

<Delete the example below prior to publishing for Public Comment.>

<e.g., The responsible party element represents only the party responsible for the encounter, not necessarily the entire episode of care.>

<e.g., The responsibleParty element MAY be present. If present, responsibleParty/ assignedEntity SHALL have at least one assignedPerson or representedOrganization element present.>

<e.g., Note: This is identical to CDA-DIR CONF-DIR-67>

<e.g., responsibleParty assignedEntity id SHALL be present with the responsible physician’s identifier.>

<e.g., assignedEntity code SHOULD be present with the responsible physician’s specialty.>

<e.g., assignedEntity MAY include an accreditation element from the **urn:ihe:card** namespace to provide physician accreditation status.>

<e.g., The accreditation element SHALL use the character string (ST) data type.

The accreditation element SHALL appear after the defined elements of the Role class, and before any scoper or player entity elements.>

<e.g., assignedEntity assignedPerson name SHALL be present with the responsible physician’s name.>

##### 6.3.2.H.2 <Description Name> <Specification Document OR Vocabulary Constraint>

##### 6.3.2.H.3 <Description Name> <Specification Document OR Vocabulary Constraint>

###End Tabular Format – Header

###Begin Discrete Conformance Format – Header

The header for the <*Document Name*> document shall support the following header constraints as noted in this section. Note that this content profile is realm agnostic. These header constraints are based on the C-CDA header constraints but all references to US Realm specific types have been removed.

<An example is provided to demonstrate the desired consistent use and format. Delete this example prior to publication for Public Comment. The statement must be numbered, begin with SHALL/SHOULD/MAY, identify the cardinality using [n..n], the name of the element, and a subitem which describes the value or source of the information.>

<e.g.,

1. **SHALL** contain exactly one [1..1] **typeId** (CONF:5361).
   1. This typeId **SHALL** contain exactly one [1..1] **@root**="2.16.840.1.113883.1.3" (CONF:5250).
   2. This typeId **SHALL** contain exactly one [1..1] **@extension**="POCD\_HD000040" (CONF:5251).
2. **SHALL** contain exactly one [1..1] **templateId** (CONF:5252) such that it
   1. **SHALL** contain exactly one [1..1] **@root**="1.3.6.1.4.1.19376.1.4.1.1.2" for the Cath Report Content document template (CONF:CRC-xxx).
3. **SHALL** contain exactly one [1..1] **id** (CONF:5363).
   1. This id SHALL be a globally unique identifier for the document (CONF:9991).
4. **SHALL** contain exactly one or two [1..2] **code** (CONF:5253-CRC).
   1. **SHALL** be selected from ValueSet ProcedureNoteDocumentTypeCodes 2.16.840.1.113883.11.20.6.1 DYNAMIC (CONF:8497). Either or both of the following codes should be included:

|  |  |  |  |
| --- | --- | --- | --- |
| Value Set: ProcedureNoteDocumentTypeCodes 2.16.840.1.113883.11.20.6.1 DYNAMIC  Code System: LOINC 2.16.840.1.113883.6.1 | | | |
| LOINC Code | Type of Service ‘Component’ | Setting ‘System’ | Specialty/Training/Professional Level ‘Method\_Type’ |
| 18745-0 | Study report | Heart | Cardiac catheterization |
| 34896-1 | Interventional procedure note | {Setting} | Cardiology |

1. **SHALL** contain exactly one [1..1] **title** (CONF:5254).
   1. Can either be a locally defined name or the display name corresponding to clinicalDocument/code (CONF:5255).>

###End Discrete Conformance Format – Header

## 6.3.3 CDA Section Content Modules

Add to section 6.3.3.10 Section Content Modules

<Replicate this section/table for as many new Sections as are added in this supplement.>

<Authors’ notes: Section naming instructions: If a Section is a specialization of an existing Section, begin the name with the original section name. For example, if Cardiology is creating a specialization of the “Medical History Section”, the new section should be named “Medical History Section – Cardiac” and not “Cardiac Medical History Section”.>

###Begin Tabular Format - Section

<Delete examples in rows of table below prior to Public Comment.>

#### 6.3.3.10.S <Section Module Name> - Section Content Module

Table 6.3.3.10.S-1 <Section Module Name> Section

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Template Name | | <exact same Section Module name listed above> | | | |
| Template ID | | <oid> | | | |
| Parent Template | | <Parent Template Name oid/uid [Domain - Reference]> | | | |
| General Description | | <brief textual description, one paragraph> | | | |
| Section Code | | <Code, Code Scheme, “Section Code Name”> | | | |
| Author | | <If inherited from encompassing content module use “current recordTarget”, unless otherwise specified. Role and entity must be specified if not inherited. > | | | |
| Informant | | <If inherited from encompassing content module use “current recordTarget”, unless otherwise specified.> | | | |
| Subject | | <If inherited from encompassing content module use “current recordTarget”, unless otherwise specified.> | | | |
| Opt and Card | Condition | Data Element or  Section Name | Template ID | Specification Document | Vocabulary  Constraint |
| Subsections | | | | | |
| x [?..?] | <ref or link to cond section below, if applicable> | <name of subsection> | <oid> | <reference or link to specification document location, if applicable> | <reference or link to vocab constraint, if applicable> |
| <e.g., O [0..1] |  | Active Problems | 1.3.6.1.4.1.19376.1.5.3.1.3.6 | PCC TF-3> |  |
| <e.g., O [0..1] |  | History of Present Illness | 1.3.6.1.4.1.19376.1.5.3.1.3.4 | PCC TF-3> |  |
| <e.g., O [0..1] |  | History of Past Illness | 2.16.840.1.113883.10.20.2.9 | CDA-PN> |  |
| Entries | | | | | |
| x [?..?] | <ref or link to cond section below, if applicable> | <name of entry> | <oid> | <reference or link to specification document location, if applicable> | <reference or link to vocab constraint, if applicable> |
| <e.g., C [1..\*] | CARD TF-3 6.3.3.x.S.1 | Problem Concern Entry | 1.3.6.1.4.1.19376.1.5.3.1.4.5.2 | PCC TF-3> |  |
| <e.g., C [1..1] |  | Diabetes Problem Entry | 1.3.6.1.4.1.19376.1.4.1.4.1 | CARD TF-3 6.3.3.1> |  |
| <e.g., C [1..1] |  | Angina Problem Entry | 1.3.6.1.4.1.19376.1.4.1.4.2 | CARD TF-3 6.3.3.1> |  |
| <e.g., C [1..\*] | CARD TF-3 6.3.3.x.S.1 | Simple Observation | 1.3.6.1.4.1.19376.1.5.3.1.4.13 | PCC TF-3 | CARD TF-3 6.3.3.x.S.2> |

##### 6.3.3.10.S.1 <Data Element or Section Name> <Condition, Specification Document, or Vocabulary Constraint>

<Describe constraints; refer to other Specification Document, condition, or other info. This specification may include more information on conditions or cardinality, additions elements, data mappings, or data types, or other information.>

<Delete the example below prior to publishing for Public Comment.>

<e.g., The Medical History Section SHALL contain at least one Problem Concern Entry or at least one Simple Observation.

Note: Problems MAY be recorded directly in the Medical History Section, or in one or more subsections such as Active Problems, History of Present Illness, or History of Past Illness.>

##### 6.3.3.10.S.2 <Data Element or Section Name> <Condition, Specification Document, or Vocabulary Constraint>

<Describe constraints, refer to other Specification Document, condition, or other info. This specification may include more information on conditions or cardinality, additions elements, data mappings, or data types, or other information.>

<Delete the example below prior to publishing for Public Comment.>

<e.g., A Content Creator SHALL be able to include a Problem Concern Entry for each of the conditions identified in Value Set [1.3.6.1.4.1.19376.1.4.1.5.4 Cardiac Problems/Concerns](#_1.3.6.1.4.1.19376.1.4.1.5.4__Cardia), encoding the value in act/entryRelationship/observation/code.

A Problem Concern Entry for {73211009, SNOMED CT, diabetes} SHALL use the specialized Diabetes Problem Entry (OID = 1.3.6.1.4.1.19376.1.4.1.4.1).

A Problem Concern Entry for {194828000, SNOMED CT, angina} SHALL use the specialized Angina Problem Entry (OID = 1.3.6.1.4.1.19376.1.4.1.4.2).>

##### 6.3.3.10.S.3 <Data Element or Section Name> <Condition, Specification Document, or Vocabulary Constraint>

###End Tabular Format – Section

###Begin Discrete Conformance Format – Section

<An example is provided to demonstrate the desired consistent use and format. Delete this example prior to publication for Public Comment. The statements must be numbered, begin with SHALL/SHOULD/MAY identify the cardinality using [n..n], the name of the element, and a subitem which described the value or source of the information.>

<e.g.,

#### 6.3.3.10.S Medical History - Cardiac Section 11329-0

[section: templateId 1.3.6.1.4.1.19376.1.4.1.2.17(open)]

[section: templateId 2.16.840.1.113883.10.20.22.2.39(open)]

The Medical History section describes all aspects of the medical history of the patient even if not pertinent to the current procedure, and may include chief complaint, past medical history, social history, family history, surgical or procedure history, medication history, and other history information. The history may be limited to information pertinent to the current procedure or may be more comprehensive. The history may be reported as a collection of random clinical statements or it may be reported categorically. Entries for History of Past Illness and History of Present Illness have been consolidated into this section. Social and Family History are discussed in their own sections. For this Cath Report Content profile, this section may also contain history about specific relevant problems as problem observations.

In the event that the patient was transferred from another facility where there was a problem indication that the patient was determined to need a cath procedure, this will be noted as a problem observation in this medical history section as text in the narrative for now until there is a code representing this.

1. SHALL contain exactly two [2..2] templateId (CONF:8160) such that it
   1. SHALL contain exactly one [1..1] @root="1.3.6.1.4.1.19376.1.4.1.2.17" (CONF:10403-CRC).
   2. SHALL contain exactly one [1..1] @root="2.16.840.1.113883.10.20.22.2.39" (CONF:10403).
2. SHALL contain exactly one [1..1] code/@code="11329-0" Medical (General) History (CodeSystem: LOINC 2.16.840.1.113883.6.1) (CONF:8161).
3. SHALL contain exactly one [1..1] title (CONF:8162).
4. SHALL contain exactly one [1..1] text (CONF:8163).
5. MAY contain zero or more [0..\*] entry (CONF:CRC-xxx) such that it
   1. SHALL contain exactly one [1..1] Problem Observation - Cardiac (1.3.6.1.4.1.19376.1.4.1.4.9) (CONF:CRC-xxx).
6. **MAY** contain zero or more [0..\*] **entry** (CONF:CRC-xxx) such that it
   1. **SHALL** contain exactly one [1..1] **Procedure Activity Observation** (2.16.840.1.113883.10.20.22.4.13) (CONF:CRC-xxx).
7. MAY contain zero or more [0..\*] entry (CONF:CRC-xxx) such that it
   1. SHALL contain exactly one [1..1] Procedure Activity Procedure (2.16.840.1.113883.10.20.22.4.14) (CONF:CRC-xxx).

<section>

<templateId root="1.3.6.1.4.1.19376.1.4.1.2.17"/>

<templateId root="2.16.840.1.113883.10.20.22.2.39"/>

<code code="11329-0" codeSystem="2.16.840.1.113883.6.1"

codeSystemName="LOINC"

displayName="MEDICAL (GENERAL) HISTORY"/>

<title>MEDICAL (GENERAL) HISTORY</title>

<text>

<list listType="ordered">

<item>Patient has had a recent issue with chest pain that does not seem to be related to any particular cause.</item>

<item>Previous concerns of heart disease were actually related to other causes.</item>

<item>Patient had recent weight gain due to sedentary lifestyle and

new job.</item>

</list>

</text>

<entry>

<observation classCode=”OBS” moodCode=”EVN”>

<templateId root=”1.3.6.1.4.1.19376.1.4.1.9”/>

<id root=”xyz”/>

…

</observation>

</entry>

</entry>

<observation classCode="PROC" moodCode="EVN">

<templateId root="2.16.840.1.113883.10.20.22.4.14"/>

<!-- Procedure Activity Procedure template -->

...

</observation>

</entry>

</entry>

<observation classCode="OBS" moodCode="EVN">

<templateId root="2.16.840.1.113883.10.20.22.4.13"/>

<!-- Procedure Activity Observation template -->

...

</observation>

</entry>

</section>

Figure Example: Example Section example>

###End Discrete Conformance Format - Section

## 6.3.4 CDA Entry Content Modules

Add to section 6.3.4.E Entry Content Modules

#### 6.3.4.E <Entry Content Module Name> Entry Content Module

<Replicate the Entry Content Module as many times as needed for this supplement.>

<If this entry has subsidiary/child entries, these entries are referenced in the table below. Create one row for each subsidiary/child entry.>

### Begin Tabular Format - Entry

Table 6.3.4.E-1 <Entry Module Name> Entry

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Template Name | | | | <Template name> | | | | | | |
| Template ID | | | | <oid> | | | | | | |
| Parent Template | | | | <Parent Template Name oid/uid [Domain - Reference]> | | | | | | |
| General Description | | | | <brief textual description, one paragraph> | | | | | | |
| Class/Mood | | Code | | | | Data Type | Value | | | |
| <use one of defined Class/Mood see General Intro App E> | | <Code, code system, code meaning e.g., 18118-0, LOINC, “LV Wall Motion Segmental Findings”> | | | | <Applies only if the Class/ Mood is OBS/EVN. Enumerated in HL7 V3 Data Types R1.> | <If the Class/Mood is OBS/EVN, then this Value field is the constraint on Observation Value. Otherwise, this field should be “N/A”.> | | | |
| Opt and Card | entryRelationship | | Description | | Template ID | | | Specification Document | Vocabulary Constraint |
| <e.g., x [?..?]> |  | | Simple Observation | | oid | | | reference to document e.g., PCC-TF-3 | <reference/link to definition of constraint, often in next paragraph/ subsection e.g., CARD TF-3 6.3.3.4.9.10> |
| <e.g., C [1..\*] | COMP | | Simple Observation | | 1.3.6.1.4.1.19376.1.5.3.1.4.13 | | | PCC TF-2 | CARD TF-3 6.3.4.E.1 (Wall morphology)> |
| <e.g., O [0..1] | COMP | | Simple Observation | | 1.3.6.1.4.1.19376.1.5.3.1.4.13 | | | PCC TF-2 | CARD TF-3 6.3.4.E.2 (Viability)> |
| <e.g., O [0..1] | COMP | | observationMedia Entry | | 1.3.6.1.4.1.19376.1.4.1.4.7 | | | CARD TF-3 6.3.1.6> |  |

##### 6.3.4.E.1 Simple Observation (wall motion) Vocabulary Constraints

<Describe constraints, refer to other Specification Document, condition, or other info. This specification may include more information on conditions or cardinality, additions elements, data mappings, or data types, or other information.>

<Can be in a tabular format or textual description.>

<Delete the example below prior to publishing for Public Comment.>

<e.g., The conditional entries specified in this table SHALL be present based on the exam type as specified in the CDA Header in the documentationOf / serviceEvent / code element.>

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Opt and Card | Condition | observation/code | Data Type | Unit of Measure | Value Set |
| <e.g., C [1..\*] | <Identifies the predicate and the if the predicate evaluates as true, then indicate whether mandatory, required or optional  e.g., Required if “exam type” is “LVG” (left ventriculogram)>  R: LVG | 60797005, SNOMED CT, “Cardiac Wall Motion”  <”+” = May be post-coordinated with priorityCode, methodCode, targetSiteCode . See HL7 V3. Include a value directly or include a link to a value set, if applicable.>  e.g., + targetSiteCode from 1.2.840.10008.6.1.219 DICOM CID 3718 Myocardial Wall Segments in Projection | CD | n/a unless the Data Type is PQ or IVL<PQ> | <include link to value set, e.g., 1.3.6.1.4.1.19376.1.4.1.5.20 Wall motion  OR, include value directly as e.g.,  <The Observation Value may also have a post-coordinated interpretation such as:>  +interpretationCode  +negationInd > |
| <e.g., C [1..\*] | R: SPECT, TTE, TEE, CMR  O:CCTA | 60797005, SNOMED CT, “Cardiac Wall Motion”  + targetSiteCode from 1.2.840.10008.6.1.218 DICOM CID 3717 Myocardial Wall Segments | CD | n/a | 1.3.6.1.4.1.19376.1.4.1.5.20 Wall motion > |

##### 6.3.4.E.2 Simple Observation (wall morphology) Constraints

<Describe constraints; refer to other Specification Document, condition, or other info. This specification may include more information on conditions or cardinality, additions elements, data mappings, or data types, or other information.>

<Can be in a tabular format or textual description.>

<Delete the example below prior to publishing for Public Comment.>

<e.g., The conditional entries specified in this table SHALL be present based on the exam type as specified in the CDA Header in the documentationOf / serviceEvent / code element.>

| Opt and Card | Condition | observation/code | Data Type | Unit of Measure | Value Set |
| --- | --- | --- | --- | --- | --- |
| <e.g., C [1..\*] | R: Cath with LVG | 72724002, SNOMED CT, “Morphology findings”  + targetSiteCode from 1.2.840.10008.6.1.219 DICOM CID 3718 Myocardial Wall Segments in Projection | CD | n/a | 1.3.6.1.4.1.19376.1.4.1.5.19 Myocardium Assessments> |
| <e.g., C [1..\*] | R: SPECT, echo, CMR  O:CCTA | 72724002, SNOMED CT, “Morphology findings”  + targetSiteCode from 1.2.840.10008.6.1.218 DICOM CID 3717 Myocardial Wall Segments | CD | n/a | 1.3.6.1.4.1.19376.1.4.1.5.19 Myocardium Assessments> |

<e.g., The observation/value MAY be a null flavor.>

<e.g., morphological assessment observation MAY have a subsidiary Severity observation (templateID 1.3.6.1.4.1.19376.1.5.3.1.4.1 [PCC TF-2]).>

### End Tabular Format - Entry

### Begin Discrete Conformance Format – Entry

<An example is provided to demonstrate the desired consistent use and format. Delete this example prior to publication for Public Comment. The statements must be numbered, begin with SHALL/SHOULD/MAY identify the cardinality using [n..n], the name of the element, and a subitem which described the value or source of the information.>

##### <e.g.,6.3.4.E Result Observation - Cardiac

[observation: templateId 1.3.6.1.4.1.19376.1.4.1.4.16 (open)]

A result observation is a clinical statement that a clinician has noted during the Cath Lab procedure. This entry is used to describe the specific procedure findings that were observed during the specific Cath Lab procedure.

The specific result observations are defined in 1.3.6.1.4.1.19376.1.4.1.5.38 Procedure Findings Constraints/ValueSet.

1. SHALL contain exactly one [1..1] @classCode="OBS" Observation (CodeSystem: HL7ActClass 2.16.840.1.113883.5.6) (CONF:7130).
2. SHALL contain exactly one [1..1] @moodCode="EVN" Event (CodeSystem: ActMood 2.16.840.1.113883.5.1001) (CONF:7131).
3. SHALL contain exactly one [1..1] templateId (CONF:7136) such that it
   1. SHALL contain exactly one [1..1] @root="2.16.840.1.113883.10.20.22.4.2" (CONF:9138).
4. SHALL contain at least one [1..\*] id (CONF:7137).
   1. The first id represents this specific globally unique result observation.
   2. The second id represents the lesion ID which should be an assigned numeric code that identifies lesions within a specific targetSiteCode.This lesion ID is used to link lesion specific data in this Result Observation – Cardiac with Procedure Activity Procedure - Cardiac.
5. SHALL contain exactly one [1..1] code (CONF:7133).
   1. SHOULD be from LOINC (CodeSystem: 2.16.840.1.113883.6.1) or SNOMED CT (Value Set: 1.3.6.1.4.1.19376.1.4.1.5.38) (CONF:7166-CRC).
6. SHOULD contain zero or one [0..1] text (CONF:7138).
   1. The text, if present, SHOULD contain zero or one [0..1] reference/@value (CONF:7139).
      1. This reference/@value SHALL begin with a '#' and SHALL point to its corresponding narrative (using the approach defined in CDA Release 2, section 4.3.5.1) (CONF:9119).
7. SHALL contain exactly one [1..1] statusCode="completed" Completed (CodeSystem: ActStatus 2.16.840.1.113883.5.14) (CONF:7134).
8. SHALL contain exactly one [1..1] effectiveTime (CONF:7140).
   1. represents clinically effective time of the measurement, which may be when the measurement was performed (e.g., a BP measurement), or may be when sample was taken (and measured some time afterwards) (CONF:7141).
9. SHALL contain exactly one [1..1] value with @xsi:type="ANY" (CONF:7143).
10. SHOULD contain zero or more [0..\*] interpretationCode (CONF:7147).
11. MAY contain zero or one [0..1] methodCode (CONF:7148).
12. MAY contain zero or one [0..1] targetSiteCode (CONF:7153).
    1. The targetSiteCode, if present, SHALL contain exactly one [1..1] code where the @code SHALL be selected from ValueSet Body Site 1.3.6.1.4.1.19376.1.4.1.5.32 STATIC (CONF:CRC).
13. MAY contain zero or one [0..1] author (CONF:7149).
14. SHOULD contain zero or more [0..\*] referenceRange (CONF:7150).
    1. The referenceRange, if present, SHALL contain exactly one [1..1] observationRange (CONF:7151).
       1. This observationRange SHALL NOT contain [0..0] code (CONF:7152).
15. SHOULD contain zero or one [0..1] entryRelationship (CONF:CRC-xxx) such that it
    1. SHALL contain exactly one [1..1] @typeCode="SUBJ" Has subject (CodeSystem: HL7ActRelationshipType 2.16.840.1.113883.5.1002) (CONF:CRC-xxx).
    2. SHALL contain exactly one [1..1] @inversionInd="true" TRUE (CONF:CRC-xxx).
    3. SHALL contain exactly one [1..1] Severity Observation (2.16.840.1.113883.10.20.22.4.8) (CONF:CRC-xxx).

<observation classCode="OBS" moodCode="EVN">

<templateId root="1.3.6.1.4.1.19376.1.4.1.4.16"/>

<!-- Result Observation template -->

<id root="c6f88321-67ad-11db-bd13-0800200c9a66"/>

<!-- This second ID represents the lesion ID -->

<id root="107c2dc0-67a5-11db-bd13-0800200c9a66" extension="1"/>

<code code="233970002"

codeSystem="2.16.840.1.113883.6.96"

codeSystemName="SNOMED CT"

displayName="Post procedure stenosis"/>

<text><reference value="1"/></text>

<statusCode code="completed"/>

<effectiveTime value="19991114"/>

<targetSiteCode code="41879009" codeSystem="1.3.6.1.4.1.19376.1.4.1.5.32"

displayName="Distal RCA"/>

<value xsi:type="PQ" value="0" unit="%"/>

<interpretationCode code="N" codeSystem="2.16.840.1.113883.5.83"/>

</observation>

e.g., Figure 6.3.4.E-1: Result observation example >

### End Discrete Conformance Format - Entry

Add to sections 6.4 and 6.5 Value Sets

## Section not applicable

This heading is not currently used in a CDA document.

## <Domain Acronym> Value Sets

<Replicate the Value Set 6.5.x section as many times as needed for this supplement.>

<It is preferable to use tabular format. Add notes as needed. Be aware of potential national licensing issues of coding schemes.>

### 6.5.x <Value Set Name> <oid>

<Add description or clarifications here if necessary.>

|  |  |
| --- | --- |
| Coding Scheme  Concept | <Coding Scheme Name> |
|  |  |
|  |  |
|  |  |
|  |  |

Note: <as necessary, applicable>

<Delete the example below prior to publication for Public Comment.>

### <e.g.,6.5.1 Drug Classes Used in Cardiac Procedure 1.3.6.1.4.1.19376.1.4.1.5.15

|  |  |  |
| --- | --- | --- |
| Coding Scheme  Concept | SNOMED CT | NDF-RT |
| Calcium channel blockers | 48698004 | N0000029119 |
| Beta-blockers | 33252009 | N0000029118 |
| Nitrates | 31970009 | N0000007647 |
| Aminophylline | 55867006 | N0000146397 |

Note: As described in Section 6.1.2.4, the selection of the appropriate coding system for use may be based on local policy or national regulation.>

Appendices

*<Add any applicable appendices below; NA if none.>*

Appendix A – <Appendix A Title>

Appendix A text goes here.

* 1. <Add Title>

Appendix A.1 text goes here

Appendix B – <Appendix B Title>

Appendix B text goes here.

* 1. <Add Title>

Appendix B.1 text goes here.

Volume 3 Namespace Additions

Add the following terms to the IHE Namespace:

<Please explicitly identify all new OIDs, UIDs, URNs, etc., defined specifically for this profile. These will be added to the IHE TF General Introduction namespace appendix when it becomes available. These items should be collected from the sections above by the author, and listed here as additions when this document is published for Trial Implementation. This section will be deleted prior to inclusion into the Technical Framework as Final Text, but should be present for publication of Public Comment and Trial Implementation.>

Volume 4 – National Extensions

Add appropriate Country section

4 National Extensions

4.I National Extensions for <Country Name or IHE Organization>

<A template for Volume 4 is included in this document for completeness; however, National Extensions are typically developed after a profile has been published for Trial Implementation. If you are developing a new profile for Public Comment, it is recommended that this section be marked “Not Applicable”.>

<Avoid using this section if you can, this is “only if absolutely necessary”. Differences add cost to implementation and testing and can reduce interoperability. Review carefully to determine if the national use case truly requires a difference in the profile mechanisms rather than just differences in system configuration.>

< National Extensions can add requirements above and beyond IHE, but NOT relax requirements. This would prevent Connectathon results based on national testing being recognized elsewhere. For more information, see <http://wiki.ihe.net/index.php?title=National_Extensions_Process>.>

The format of this section is not strongly specified due to the varying nature of national extensions. For an example of National Extensions, see Radiology TF Volume 4.>

4.I.1 Comment Submission

This national extension document was authored under the sponsorship and supervision of <sponsor name>, who welcome comments on this document and the IHE <country> initiative. Comments should be directed to:

<Name, organization, title, email address>

4.I.2 <Profile Name> <(Profile Acronym)>

<Add info or tables>

#### 4.I.2.1<Profile Acronym> <Type of Change>

<Add info or tables>

#### 4.I.2.2<Profile Acronym> <Type of Change>

<Add info or tables>

# 4.I+1.1 National Extensions for <Country Name or IHE Organization>

*<Repeat (and increment) the section above as needed for additional National Extensions>*

1. Available on the web at <http://psychclassics.yorku.ca/Miller/> [↑](#footnote-ref-1)