British Columbia CDA Implementation Guide

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MAINTENANCE

This document is a living document. The content may require edits, additions and/or maintenance as actual implementations provide the necessary technical validation. Additional adjustments may be required over time to reflect requirements in British Columbia, or to align with emerging pan-Canadian CDA standard development.

COMMENTS

In late 2014, The B.C. Standing Committee of Health Information Management and Information Technology (SCHIMIT) initiated a governance structure in order to advance Health Information Exchange in the province. Executive Council Interior Health Authority has been approved by Standing Committee for Information Management Information Technology of BC (formerly BC Health CIO Council) to facilitate interim stewardship of the document/standard. Questions and/or feedback on this document and this CDA initiative in British Columbia can be directed to:

BC Ministry of Health, Conformance & Integration Services, Health Sector Information Management & Technology Division. E-mail: HLTH.CISSupport@gov.bc.ca

1. Introduction

1.1. BACKGROUND

With the introduction and increase of technology in the health care sector the need to exchange data between disparate systems has also increased. At its very basic level, the automation of data creation and consumption between systems decreases the level of human interaction and the need for re-keying, therefore saving on resources required to maintain and support a Health Information System (HIS). The greatest advantages of this practice are realized from a clinical and patient care perspective. The technology can enable quicker turnaround of medical results and information to assist a clinician with making diagnoses sooner. The bi-directional exchange of data also helps create a more complete health record for a patient, which in turn can help a clinician with patient plans of care and treatment.

Many agencies have facilitated the requirement of data exchange using technology and procedures closely tied to their own environment. Although these methods have been successful in meeting internal needs and outward requirements to some extent, the increase in technology adoption across the sector has led to a corresponding increased need for exchanging data. To facilitate this, the B.C. Information Management and Information Technology Standing Committee (IMITSC) (formerly SCIMIT, BC Health CIO Council), initiated this project. The objective was to establish a standard messaging format and method, to improve the ability for different health information systems to exchange clinical information. By supporting a provincial CDA standard, it is expected to make it easier for organizations to adopt that standard, and progressively and incrementally exchange data with other organizations already using the standard. BC IMITSC supports the CDA approach to the various clinical document types, including the existing HL7 Continuity of Care Document (CCD) and the HL7/IHE Consolidated Health Story. These CDA standards will be leveraged and modified as required to encompass the needs for health information exchange within the province of British Columbia.

1.2. AUDIENCE

The intended audiences for this document are software developers, clinical, business and technical analysts, data architects, implementers and providers from the various provincial and federal stakeholder groups. This document outlines a standardized CDA framework with the purpose of sharing patient clinical data.

1.3. GOVERNANCE

The standards within this guide have been endorsed by the provincial Clinical Messaging Standards Working Group, and by the B.C. Information Management and Information Technology Standing Committee (IMITSC) (formerly SCIMIT, BC Health CIO Council). It has been determined that the BC Health Information Standards Standing Committee will ultimately hold responsibility to develop, implement and maintain the governance framework and guidelines for the BC CDA Implementation Guide standards.

1.4. SCOPE

This Implementation Guide outlines the provincial-wide CDA standards and constraints. These standards were developed to facilitate the exchange of clinical data to care providers across regions, and across the continuum of care. Specifically, the following types of clinical data are included:

1. Results: Lab, Anatomic Pathology and Diagnostic Imaging result types,
2. Clinical Documents: Discharge Summaries, Procedure Notes, Admission Notifications, Discharge Notifications and various other clinical documents which fall under the category of "unstructured."

1.5. OUT OF SCOPE

This Implementation Guide defines the clinical content within the CDA message structure and relevant conformance. It does not define the messaging distribution or transport mechanism, although it is encouraged that CDA implementers within the province work collaboratively on approach to transport mechanisms/schemas.

1.6. APPROACH

Significant analysis and review of a number of documents and specifications was undertaken to ensure the standards developed would be applicable and attainable to the various stakeholder groups. Constraints were developed by reviewing inputs and assessing gaps, feeding into the proposed statements and definitions. The various health authority and organizational members of the provincial Working Group were consulted on issues where clarification was required around clinical workflow process and data capture, to validate the proposed statements and definitions. Wherever possible, content templates defined and reviewed by standards bodies were referenced, and appropriate constraints for the BC context applied.

1.7. ASSUMPTIONS

It is assumed that those using this Implementation Guide will reference the appropriate standard documentation for HL7 v3, CCD and CDA and the referenced IHE profiles. Constraints defined here are in addition to the base requirements of CDA release 2.0.

Document exchange mechanisms are not addressed in this implementation guide. This project addresses content and structure only. Where IHE profiles are referenced, only the content constraints are part of this specification. The use of XDS or other document exchange approaches is not specified here.

1.8. REFERENCED DOCUMENTS

Those reference materials include, but are not limited to the following:

- Canada Health Infoway Pan Canadian Standards, including the draft pan-Canadian CDA Implementation Guide and Guidance documents
- Canada Health Infoway Canadian Data Type Specification and Master Terminology Worksheet
- B.C. PITO e2e CDA Implementation Guide
- B.C. PLIS Business Requirements

- B.C. Subject Identity Standards
- B.C. Master OID list and OID policy
- HL7 Clinical Document Architecture, Release 2
- pCLOCD / LOINC
- IHE Laboratory Technical Framework Volume 3 (XD-LAB)
- IHE Anatomic Pathology Technical Framework Supplement – Anatomic Pathology Structure Reports (APSR)
- HL7 Implementation Guide for CDA r2: IHE Health Story Consolidation, Release 1
- Various Clinical Document Messaging Specifications, including U.S. Social Security CDA, U.S. HITSP Encounter Document/IHE Medical Summary, Australia NEHTA Discharge Summary.

2. DESIGN APPROACH AND CONSIDERATIONS

2.1. CDA LEVELS OF CONSTRAINT

The CDA specification defines three levels of conformance which allow for incremental interoperability in clinical document messaging:

- CDA Level 1: The simplest form of CDA, which includes the CDA Header plus an unstructured block which could be comprised of plain narrative text, or an attachment (PDF or RTF document). See Section 2.3 for details around level one narrative text and attachments,
- CDA Level 2: The CDA header along with an XML body with defined sections, called "templates." These templates represent narrative blocks, and are identified by an associated templateID,
- CDA Level 3: The CDA header, along with an XML body with defined sections. Within at least one of the defined section templates, there are discrete data elements, called "entries." Entries may use references to relevant codeSystems, such as LOINC, SNOMED-CT-CA, ICD-10-CA, etc.

It is evident that the richness of the clinical data increases with each individual level, as does the interoperable usefulness of that data. While implementers are encouraged to send structured information at the highest possible level, it is understood that not all source systems will be in a position to achieve this at the outset. In those instances, it is acceptable to start at CDA Level 1. It is recommended that data stewards of source systems develop strategic plans for those systems to move toward achieving CDA Level 3.

2.2. USE OF TEMPLATES

Templates are defined at three levels:

- Document templates,
- Section templates,
- Entry templates.

Unique identifiers (templateIDs) are used to declare compliance with constraints defined for each type of template. (These template types are further explained below.) The template identifier provides a reference for the implementation guide publishers to label document and section definitions, and for implementers to indicate in an instance which data constraints the information they are supplying adheres to. It is a short-hand mechanism for document creators to assert conformance, and carries no semantics other than the label for a group of constraints.

2.2.1. Open/Closed Templates

The templates of this Implementation Guide, unless otherwise stated, are "open" templates. When a template is "open," this indicates that the template elements MAY contain anything the "parent" templates (the referenced IHE templates) or the HL7 CDA model allow, except where template constraints over-ride that flexibility by specifically further constraining the allowed values. "Closed" templates, as alluded to by the name, have no flexibility in that they must strictly adhere to the constraints defined for that template.

2.2.2. Document Templates

There are constraints that apply to all clinical documents, such as the overall header constraints. Additional constraints can be further defined within specific document templates, including unique constraints on the header, or the type of section templates a clinical document SHALL or MAY include.

2.2.3. Section Templates

CDA section templates includes constraints that provide direction on what the section is comprised of, such as the title, an associated narrative block, and in some cases what type of entries (discrete data) may be included. Each section template is a reusable building block that can be used by one or more clinical document templates.

A context table is provided for each section template in this guide, which identifies which documents or sections use that section template.

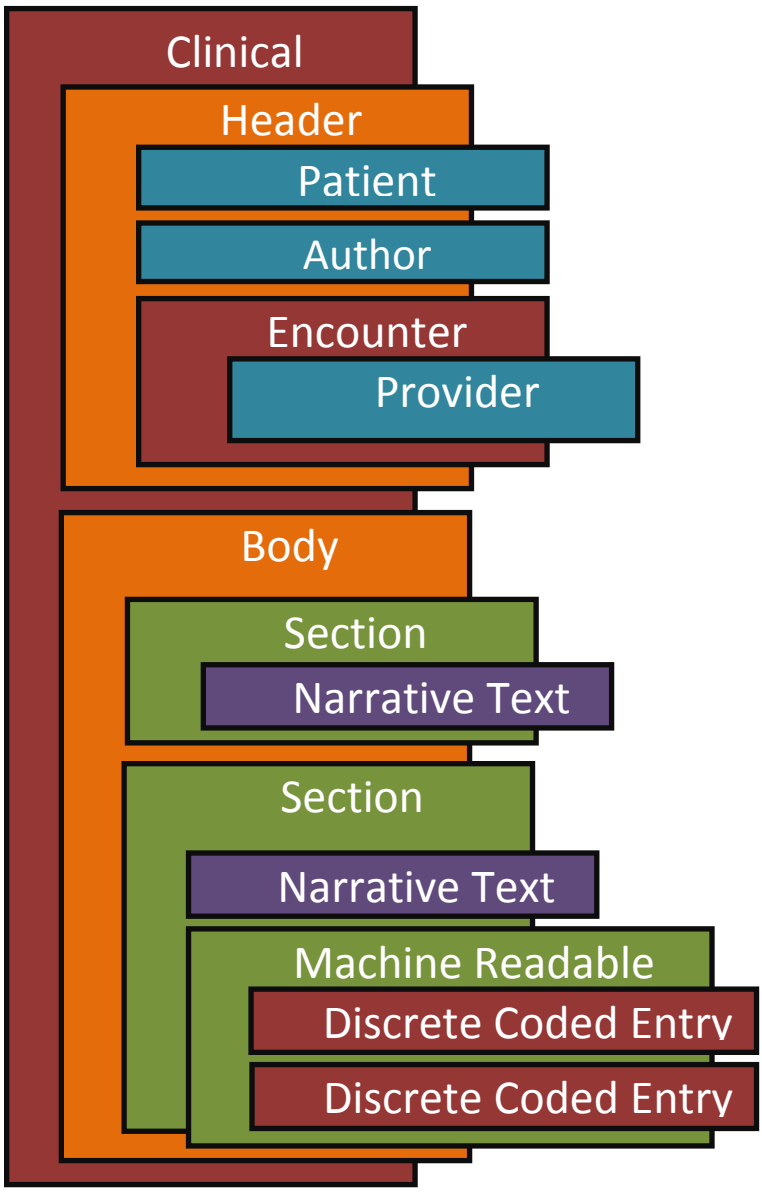
2.2.4. Entry Templates

CDA entry level templates define the constraints related to discrete data elements that may be included in specific section or parent entry level template.

A context table is provided for each entry level template in this guide, which identifies which sections or entries which use that entry template.

2.2.5. CDA Structured Document Visual Representation

The following is a visual representation of a CDA Structured Document, as textually explained above.



2.3. CDA LEVEL 1 NARRATIVE TEXT AND ATTACHMENTS

For the purposes of this implementation guide, Level 1 documents are restricted to:

- plain text – which SHALL be embedded, and SHOULD be rendered inline where possible, and SHALL NOT contain inline images or other media element. At times, source systems may include "instructional" text in this section.
- attachments (PDF, RTF, JPEG, PNG, TIFF) – SHALL be included within the CDA as an external link, as an alternative to plain text, and which can potentially be rendered inline within the CDA.

Markup is not allowed in a level 1 document; only in level 2 narrative sections.
The related conformance statements are further outlined below:

CONF-BC0009: A Level 1 document conforming to this implementation guide **SHALL** have exactly one [1..1] `ClinicalDocument/component/nonXMLBody/text` element

CONF-BC0010: This `text` element **SHALL** have exactly one [1..1] `text.mediaType`, which **SHALL** be one of the following values: "`text/plain`", "`application/pdf`", or "`text/rtf`"

CONF-BC0011: If `text.mediaType="text/plain"`, this text element **SHALL** have exactly one [1..1] `text.representation="TXT"` and the value of the `text` element **SHALL** contain only plain text content with no markup, and **SHALL NOT** contain attachments, inline images or other media elements (IE: text.representation="B64")

Clinical Documents – Example of "text/plain":

```
<component typeCode="COMP">
   <nonXMLBody classCode="DOCBODY" moodCode="EVN">
      <text mediaType="text/plain" representation="TXT">
         TEXT REPORT INSERTED HERE

      </text>
   </nonXMLBody>
</component>
```

CONF-BC0012: If `text.mediaType="text/rtf"`, or "`application/pdf`" this text element SHALL contain exactly one [1..1] reference element with `reference.value` referencing the URL of the content file

Clinical Documents – Example of "application/pdf":

```
<component typeCode="COMP">
   <nonXMLBody classCode="DOCBODY" moodCode="EVN">
      <text mediaType="application/pdf">
         <reference value="Discharge Summary.pdf"/>
      </text>
   </nonXMLBody>
```

```
</component>
```

2.4. OIDS

CONF-BC0538: There **SHALL** be an OID assigned to the `root` attribute for every ID element (including `id`, `typeId`, `templateId`, `setId`, etc.).

CONF-BC0539: Every identifier that may be exposed to human readers **SHOULD** have a human-readable description of the associated `root` OID in the `assigningAuthorityName` attribute, especially for locally defined identifiers. This use of `assigningAuthorityName` allows implementers to make the OIDs used in the document more human-readable.

CONF-BC0540: There **SHALL** be an OID assigned to the `code.codeSystem` attribute for every code element.

CONF-BC0541: Every `code.codeSystem` OID **SHOULD** have a human-readable description of the associated OID in the `code.codeSystemName` attribute, especially for locally defined code systems.

VOCABULARY CONFORMANCE

Vocabularies and code systems referenced in this implementation guide are from various sources, such as HL7 v3®, LOINC®, pan Canadian Standards, pCLOCD, SNOMED CT-CA®, ICD-10-CA®,

When value-sets are included, they include:

1. a conformance keyword (**SHALL**, **SHOULD**, **MAY**, etc.),
2. the type of binding, whether **STATIC** or **DYNAMIC**. (**STATIC** means that a specific version of a value set must be adhered to, **DYNAMIC** means that the most current version of a value set must be used.)

Please refer to the PanCanadian Standards as well as the HL7 V3 Normative Edition 2010 for more detailed information on the appropriate representation of vocabulary.

Additionally, in July 2012, the Information Management Information Technology Executive Council of BC (formerly BC Health CIO Council) endorsed the provincial use of pan Canadian LOINC for laboratory coding. In that regard, for mapping regional/local LIS tests to the pCLOCD standard, implementers may find it useful to reference the Saskatchewan Automated Mapping Assistant (SAMA) as suggested in the PITO e2e CDA Implementation Guide.

2.5. RELATION TO PAN CANADIAN STANDARDS

This project strives to follow HL7 and pan-Canadian standards whenever possible, and should be considered a subset, a further constraint, and a specific implementation of the HL7 and pan-Canadian standards.

2.5.1. DATATYPE SPECIFICATION

The generic HL7 standards are followed, except where the pan-Canadian extensions or restrictions to the standards are required for this project.

The datatypes used in this implementation will follow the HL7 v3 R1 datatypes. However, the id (II) datatype has been modified to use the id.assigningAuthorityName attribute as if it were the new id.identifierName attribute from the HL7 v3 R2 II data type. This attribute can be used to provide a human-readable description of the identifier (as opposed to just the assigning authority name).

2.5.2. MASTER TERMINOLOGY WORKSHEET

The MR2009 - Master Terminology Worksheet (MTW) was continually referenced to ensure that pan-Canadian harmonized vocabulary concept domains and value sets were adhered to where appropriate.

2.6. VALUE SETS

This project strives to follow HL7 and pan-Canadian standards whenever possible, and should be considered a subset, a further constraint, and a specific implementation of the HL7 and pan-Canadian standards.

3. CONVENTIONS USED

3.1. CARDINALITY

Cardinality defines the minimum and maximum allowable occurrences of section or entry templates within a document instance. Cardinality is expressed in the "m..n" format, where m represents the minimum and n represents the maximum.

Note:

- A minimum cardinality of 0 means the section or entry is "optional,"
- A minimum cardinality of 1 or more means the section or entry is "mandatory,"
- If a section or element is mandatory but is not known, it must be represented by a `nullFlavor`.

Cardinality	Description
0..*	The section or data element may have zero or more instances.
0..1	The section or data element may have zero or one instance.
1..n	The section or data element must have at least one instance, and not more than n instances.
1..*	The section or data element may have one or more instances.
1..1	The section or data element may have one and only one instance.
2..*	The section or data element must have at least two instances, but may have more.
2..2	The section or data element must have two instances.

3.2. NULL FLAVOR

Clinical data source systems may not always have mandatory elements available for various reasons: item is unknown, not relevant or not computable or measurable. In these instances, `nullFlavor` is used a method of describing the reason for the data missing in the message, unless the use of `nullFlavor` is explicitly allowed.

The following table (derived from the HL7 IHE Consolidated Health Story R2) outlines the HL7 list of `nullFlavors` that are more commonly used in clinical documents. For a complete list, the `nullFlavor` vocabulary domain in the CDA normative edition should be consulted.

nullFlavor	Description
NI	No information. This is the most general and default null flavor.
NA	Not applicable. Known to have no proper value
UNK	Unknown. A proper value is applicable, but is not known.
ASKU	Asked, but not known. Information was sought, but not found (e.g., the patient was asked but did not know).
NAV	Temporarily unavailable. The information is not available, but is expected to be available later.
NASK	Not asked. The patient was not asked.
MSK	There is information on this item available but it has not been provided by the sender due to security, privacy, or other reasons. There may be an alternative mechanism for gaining access to this information.

3.3. CONFORMANCE KEYWORDS

Conformance keywords in this implementation guide adhere to the definition as outlined in the HL7 Version 3 Publishing Facilitator's Guide. The following Conformance Keywords Definition table outlines the conformance definitions.

Conformance Term	Definition
SHALL	An absolute requirement.
SHALL NOT	An absolute prohibition against inclusion.
SHOULD	Recommended. Valid reasons may exist where a decision is made to ***exclude*** a particular item, contrary to the specification recommendation to include the item. The full implications of not including a recommended item must be understood and carefully weighed prior to such a decision being made.
SHOULD NOT	Not recommended. Valid reasons may exist where a decision is made to ***include*** a particular item, contrary to the specification recommendation against it. The full implications of including a item which is not recommended must be understood and carefully weighed prior to such a decision being made.
MAY/NEED NOT	Truly optional; can be included or omitted as the author decides with no implications.

3.4. ELEMENT AND ATTRIBUTE NOTATION

This document uses traditional dotted notation used by HL7 to represent Reference Information Model (RIM) classes in conformance statements and elsewhere to identify the Extended Markup Language (XML) elements and attributes within the CDA document. The implicit context of these expressions is the node being discussed within that section of the implementation guide.

Within the narrative and within `example blocks`, XML statements and components appear in this document in a monospace font.

Slash notation will be used to denote a heirarchy of elements (or nodes). For example, `parentElement/childElement`

RMIM dotted notation will be used for all attributes, instead of XPath "`/@`" notation. For example, `elementName.attributeName`

Whenever ambiguity may arise from lack of context, parent elements will be included in the notation. For example, `parentElement/elementName.attributeName`

4. CDA HEADER CONSTRAINTS

This section describes constraints that apply to a common CDA header for use in British Columbia. These are additional constraints on the CDA R2 base standard to meet jurisdictional needs. Not every available CDA component is reiterated in this guide nor is it precluded. Additional constraints for specific document types (for instance, Procedure Notes, Discharge Summaries, or Lab Results) will be identified in the section for the respective document details.

4.1. Header Attributes

4.1.1. Clinical Document

DESCRIPTION

Header attributes contain detailed information on the creation of the document, including the level of conformance, document type, document version identifier, etcetera.

CONFORMANCE

The namespace for CDA R2 is *urn:hl7-org:v3*. The appropriate namespace must be used in the XML instance of the clinical document. In the examples in this specification, elements are shown unprefixed, assuming that the default namespace is declared to be *urn:hl7-org:v3*.

CONF-BC0001: The root of a document conforming to this specification SHALL be a `ClinicalDocument` element from the *urn:hl7-org:v3* namespace.

CONF-BC0502: The `ClinicalDocument` element **SHALL** have the `classCode` attribute fixed to "`DOCCLIN`" and the `moodCode` attribute fixed to "`EVN`".

CDA requires a `typeId` be present to identify the constraints imposed by CDA Release 2, essentially acting as a version identifier.

CONF-BC0002: SHALL contain exactly one [1..1] `typeId`

CONF-BC0003: This `typeId` SHALL contain exactly one [1..1] `typeId.root = "2.16.840.1.113883.1.3"`

CONF-BC0004: This `typeId` SHALL contain exactly one [1..1] `typeId.extension="POCD_HD000040"`

CONF-BC0005: SHALL contain exactly one [1..1] `realmCode` element with a `code` attribute of `"CA-BC"`

An example of header attributes (from the CCD standard example) is shown below:

Example of Header Attributes:

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="yes"?>
<?xml-stylesheet type="text/xsl" href="CDA.xsl"?>
<!-- The following sample document depicts a fictional character's health summary. Any
resemblance to a real person is coincidental. -->
<ClinicalDocument xmlns="urn:hl7-org:v3" xmlns:xsi="http://www.w3.org/2001/XMLSchema-
instance" classCode="DOCCLIN" moodCode="EVN">
<!--
**********************************************************
CDA Header
**********************************************************
-->
    <realmCode code="CA-BC"/>
    <typeId root="2.16.840.1.113883.1.3" extension="POCD_HD000040"
assigningAuthorityName="HL7 CDA R2 document"/>
    <templateId root="2.16.840.1.113883.3.51.60.2.4" assigningAuthorityName="Discharge
Summary template"/>
    <id root="2.16.840.1.113883.3.277.3.4.1" extension="db734647-fc99-424c-a864-
7e3cda82e703" assigningAuthorityName="IHA Clinical Document ID"/>
    <code codeSystem="2.16.840.1.113883.6.1" code="18842-5" displayName="Discharge
Summary"/>
    <title>Discharge Summary</title>
    <effectiveTime value="20000407130000-0800"/>
    <confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25"/>
    <languageCode code="en-CA"/>
    <setId root="2.16.840.1.113883.3.277.3.4.2" extension="1" assigningAuthorityName="IHA
Clinical Document Revision Number"/>
    <versionNumber value="1"/>
```

4.1.2. ClinicalDocument/templateId

A `templateId` is defined for each document type described in this guide. When applicable, the `templateId` element SHALL be used to assert compliance with specific implementation guide document type templates. Template identifiers may also appear on sections and entries to assert compliance with specific sets of constraints. Multiple `templateId` elements may be included to assert compliance with different sets of constraints. Specific requirements for document type template identifiers will be defined in the section describing each document. Examples of the `ClinicalDocument/templateId` elements used for two kinds of document are given below.

Example of templateId element for a Discharge Summary:

```
<!-- Discharge Summary template -->
<templateId root="2.16.840.1.113883.3.51.60.2.4"/>
```

Example of templateId element for a Level 1 Unstructured Consultation Report:

```
<!-- Unstructured Report template -->
<templateId root="2.16.840.1.113883.10.20.19"/>
```

4.1.3. Clinical Document Identifiers

The `ClinicalDocument/id/@root` should always be the Clinical Document ID OID for the respective submitting authority. Other IDs should not be used in place, such as message IDs or IDs from other source systems.

CONF-BC0014: **SHALL** contain exactly one [1..1] `id` with an `id.root` containing the ID's namespace OID, as per section 2.4.

CONF-BC0015: `id.extension` attribute **SHALL** be a `GUID`

As noted in section 2.5 and 4.3.3, revisions and addenda to documents can be communicated using the `relatedDocument/parentDocument` structure, where a complete replacement of the original document is provided with reference to the previous ("parent") document. To facilitate this, each Clinical Document instance requires a unique identifier, and a means to trace between document versions. The identifier, set identifier and version number are meant to work together with the parent document relationship to achieve this. However, this relationship does not support all use cases where documents must be related, nor does it address constraints in some source HIS systems.

`ClinicalDocument/setId` and `ClinicalDocument/versionNumber` are used to denote document revision numbers. The `ClinicalDocument/effectiveTime` is set to the time of the new revision. The `ClinicalDocument/relatedDocument.typeCode` would be set to `RPLC` (replace), unless for specific instances for Diagnosting Imaging, where it may be set to `XFRM` (transform). Note that revisions and addenda to documents will be handled by providing a complete replacement of the document and referencing the previous ("parent") document. For this reason, the `relatedDocument.typeCode` value of `APND` (append) is precluded from use.

CONF-BC0016: **MAY** contain exactly 1 [0..1] `setId`.

CONF-BC0552: Where `setId` is leveraged, any document that is not related to an existing one (i.e. the first document in any series) **SHALL** use the same values for `setId` as specified in the `ClinicalDocument/id/@root`, resulting in both elements containing the same data/value.

CONF-BC0553: Where `setId` is leveraged, subsequent related documents must have the same `ClinicalDocument/setID` value as the first document in the series.

CONF-BC0017: `setId.extension` **SHALL** be a `GUID`

CONF-BC0018: Where `setId` is leveraged, **SHALL** contain exactly 1 [1..1] `versionNumber`

CONF-BC0019: `versionNumber.value` attribute **SHALL** be an integer representing the version of the document, with the initial version of 1, incrementing with each version of the document.

CONF-BC0020: Where `setId` is leveraged, `setId` and `versionNumber` **SHALL** both be present.

CONF-BC0554: Where `setId` is leveraged, the `versionNumber` **SHALL** be set at the value of "1" for the original version of the document, and in the instance of a replacement document the `versionNumber` **SHALL** be an increment of 1 from the document version it replaces.

CONF-BC0555: Where `setId` is leveraged, the `versionNumber` **SHALL** be set at the value of "1" for the original version of the document, and in the instance of a replacement document the `versionNumber` **SHALL** be an increment of 1 from the document version it replaces.

4.1.4. ClinicalDocument/code

The code element specifies the type of Clinical Document and is taken from the LOINC/pCLOCD document type value set. It is recommended that the more general code value for a specific document type be used (e.g., use 28570-0 Procedure Note for all Procedure Notes rather than more specialized sets of codes). Refer to the discussion of specific document types for code value constraints for that document type.

CONF-BC0021: SHALL contain exactly one [1..1] `code`

CONF-BC0022: The value for `code.code` **SHOULD** be selected from the value set `2.16.840.1.113883.2.20.5.1` pCLOCD `DocumentTypeCodes` DYNAMIC and **MAY** be selected from `2.16.840.1.113883.6.1` LOINC `DocumentTypeCodes` DYNAMIC. The OID of the code system used SHALL be placed in the `code.codeSystem` attribute, and the code system name SHOULD be placed in the `code.codeSystemName` attribute. The `code.displayName` attribute SHOULD contain the text equivalent of the code. This text value will probably be the same as the value of `ClinicalDocument/title`, or very similar.

Example of a ClinicalDocument/code element:

```
<code codeSystem="2.16.840.1.113883.6.1" code="11502-2" displayName="Lab Report"/>
```

4.1.5. ClinicalDocument/title

CONF-BC0023: SHALL contain exactly one [1..1] `title` element valued with a string that specifies the local name used for the document.

CONF-BC0024: The value for `ClinicalDocument/title` SHOULD match the official text for the `ClinicalDocument/code` and **SHALL NOT** conflict with it.

Example of a ClinicalDocument/title element:

```
<title>Lab Report</title>
```

4.1.6. ClinicalDocument/effectiveTime

CDA requires an effective time element that signifies the document creation time.

CONF-BC0025: SHALL contain exactly one [1..1] `effectiveTime`

CONF-BC0026: The `effectiveTime.value` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

Example of a ClinicalDocument/effectiveTime element:

```
<effectiveTime value="201210251150-0800"/>
```

4.1.7. documentationOf/serviceEvent/statusCode

In most instances, clinical documents should not be sent unless in a FINAL status. However, there are a number of clinical use cases that require the ability to send clinical documents where a change in the status of the clinical document has occurred. For example:

- a final Discharge Summary document may have been updated resulting in an appended document being triggered,
- a preliminary Medical Imaging document being sent prior to the final version.

The CDA R2 does not allow for this, so please note the following extensions to CDA R2:

1. The IHE XD-LAB technical framework defines an extension to CDA to enable sharing of non-final ***lab result*** reports; it adds an optional sub element of `statusCode` in `documentationOf/serviceEvent`.

2. The BC CDA Implementation Guide similarly defines an extension to CDA to leverage document `statusCode` for the exchange of all clinical document templates/types, including lab.

   The extension is protected by the following namespace in document instances: *xmlns:bc="urn:bccda"*

A report is considered non-final (e.g. a preliminary report) if and only if it documents an Act which is still in the status `"active"` (that is, `serviceEvent/statusCode.code="active"`)

As noted above, the status code sub element is an extension to CDA R2 and is optional. When it is not present, the documented Act is assumed to be complete, and the report is assumed to be a final report.

4.1.8. documentationOf/serviceEvent/effectiveTime

In the instance of a Procedure Note, the `ServiceEvent/effectiveTime` element captures the actual procedure event, such as a colonoscopy or a cardiac stress study. In other clinical document types, this element captures the date/time that the health service was provided, as opposed to the encounter surrounding the event took place.

CONF-BC0547: MAY contain one or more [1..*] `documentationOf/ServiceEvent`

CONF-BC0548: This `ServiceEvent` if present, **SHALL** contain exactly one [1..1] `effectiveTime`

The preferred vocabulary for `ServiceEvent/code` would be a British Columbia defined filter on SNOMED-CT, which is not available at the time of this writing. Although SNOMED-CT is the current preferred choice, this guide also allows the option of providing a code from ICD10-CA or CCI (Canadian Classification of Health Interventions) maintained by CIHI. However, it is also

recognized that current challenges around mandatory coding for MSP billing may necessitate some implementers to use ICD9 codes in the interim.

CONF-BC00549: The value of `ServiceEvent/code` **SHOULD** be from the SNOMED CT (`codeSystem 2.16.840.1.113883.6.96`) `ValueSet Procedure 2.16.840.1.113883.3.88.12.80.28` DYNAMIC, or the value of `ServiceEvent/code` **MAY** be from ICD10-CA (`codeSystem 2.16.840.1.113881.6.94`) or CCI (`codeSystem 2.16.840.1.113883.6.94`).

4.1.9. ClinicalDocument/confidentialityCode

CDA requires a value for `confidentialityCode`. In BC, procedures around document and result confidentiality are handled by business processes outside of the document itself. For this reason, the `confidentialityCode` element will be fixed to `N` "`normal`".

CONF-BC0027: SHALL contain exactly one [1..1] `confidentialityCode`

CONF-BC0028: `confidentialityCode.code` **SHOULD** be fixed to `N` (normal) from `Value Set 2.16.840.1.113883.2.20.3.139 x_BasicConfidentialityKind` STATIC. Where appropriate to the use case, the following values from `x_BasicConfidentialityKind` may also be used: Restricted, Very Restricted, and Taboo.

CONF-BC0503: `confidentialityCode.codeSystem` **SHALL** be `2.16.840.1.113883.5.25`

Sample Confidentiality Code:

```
<confidentialityCode code="N" codeSystem="2.16.840.1.113883.5.25"
codeSystemName="Confidentiality"/>
```

4.1.10. ClinicalDocument/languageCode

CONF-BC0029: **SHALL** contain exactly one [1..1] `languageCode`

CONF-BC0030: `languageCode.code` **SHALL** be either "`en`" or "`en-CA`"

Sample Language Code:

```
<languageCode code="en-CA"/>
```

4.2. Header Participants

This section describes the common elements that are contained within the header portion of a clinical document.

4.2.1. Common Elements

4.2.1.1. Person Names

Mandatory
Cardinality: 2..7
TemplateId: 2.16.840.1.113883.3.51.60.1.1

Names are encoded as a sequence of Name Parts such as given name, family name, prefixes and suffixes. Constraints for names are consistent with the requirements set out in the Pan Canadian Data Type Specification for the data type flavor `PN.BASIC`, with some additional constraints described below.

CONF-BC0031: Name parts **SHALL** be taken from the `Value Set 2.16.840.1.113883.2.10.3.141 x_BasicPersonNamePartType` DYNAMIC. The `qualifier` attribute is required (SHOULD be sent if available), and if present SHALL be taken from the Value Set `2.16.840.1.113883.2.20.3.140 x_BasicPersonNamePartQualifier` DYNAMIC. At present, the only value for `name/given.qualifier` is `IN` (initial), indicating that the name part is just an initial.

CONF-BC0032: Each name part is constrained to a 50 character string (`ST`).

CONF-BC0033: Exactly one [1..1] `name/family` part **SHALL** be present.

CONF-BC0034: One or more [1..*] `name/given` parts **SHALL** be present. The first occurrence of a given name is the "`first name`". Middle names are represented by additional given names.

CONF-BC0035: Zero or 1 [0..1] `name/prefix` name parts may be provided.

CONF-BC0036: Zero or 1 [0..1] `name/suffix` name parts may be provided.

CONF-BC0037: At most seven name parts may be present. Since a family name part and at least one given name are mandatory, the cardinality for name parts is [2..7]

CONF-BC0038: **SHALL** contain `name.use`, which **SHALL** be selected from the Value Set `2.16.840.1.113883.2.20.3.142 x_BasicPersonNameUse` DYNAMIC (this may include the following values: `L` = legal, `P` = pseudonym, `ASGN` = assigned, `C` = license or professional name, `HC` = healthcare card)

Header – Example of Person Name Elements:

```
<name use="L">
    <family>Smithwick</family>
    <given>Fombok</given>
    <given qualifier="IN">A</given>
    <suffix>Jr.</suffix>
</name>
```

4.2.1.2. Addresses

Mandatory
Cardinality: 1..1
TemplateId: 2.16.840.1.113883.3.51.60.1.2

Addresses are encoded with the street address sent as the value text of the address element, and additional address parts. Constraints for addresses are consistent with the requirements set out in the Pan Canadian Data Type Specification for the data type flavor AD.BASIC, with the exception of the fact that the pan Canadian Data Type specification pre-adopted coded state (province) and country elements from HL7's release 2 Datatypes. Since CDA is fixed to release 1 datatypes, and the coded address parts are not available, the value for state and country address parts should be taken from the value sets assigned in the pan Canadian Datatype Specification.

CONF-BC0039: Address parts **SHALL** be taken from the Value Set `2.16.840.1.113883.2.20.3.138 x_BasicAddressPartType` DYNAMIC. Current values are `CNT` (country), `CTY` (city), `STA` (state or province), `ZIP` (postal code). The address parts **SHOULD** be present. All other address information is sent as plain text, separated by delimiter tags. There may be up to 4 additional lines of delimiter separated information in addition to the specified address parts of `city`, `state`, `postalCode` and `country`.

CONF-BC0040: Both address parts and delimiter-separated text are constrained to a length of 80 characters.

CONF-BC0041: SHOULD contain `addr.use`, which **SHALL** be one of the following values: `H` (home address), `WP` (Workplace address), `TMP` (temporary address), `PST` (postal address) which come from the Value Set `2.16.840.1.113882.2.20.3.142 x_BasicPostalAddressUse` STATIC

CONF-BC0042: SHALL NOT contain `addr.useablePeriod`.

CONF-BC0043: SHALL NOT contain `addr.isNotOrdered`.

CONF-BC0044: `Country` address part **SHALL NOT** contain `Country.code`. If present, the value **SHALL** be taken from ISO 3166-1 two character alpha codes. If the country code is not present, it is assumed to be `CA`.

CONF-BC0045: `State` address part **SHALL NOT** contain `State.code`. The value **SHALL** be taken from ISO 3166-2 two character subdivision alpha codes, appended with a hyphen

after the ISO 3166-1 two character country code, for example, `CA-BC` for British Columbia, Canada.

CONF-BC0046: For other address parts, the `code` attribute **SHALL NOT** be present.

Header – Example of Address Elements:

```
<addr use="H">
   Apt A5 123 Some Street N.W.<delimiter/>
   <city> Kelowna </city>
   <state>CA-BC</state>
   <postalCode>A1B 2C3</postalCode>
   <country>CA </country>
</addr>
```

4.2.1.3. Provider IDs

Mandatory
Cardinality: 1..2

CONF-BC0504: Participant provider elements **SHALL** contain one to two [1..2] `id` elements.

CONF-BC0505: A primary `id` element **SHALL** be present.

CONF-BC0542: If the provider is a physician, the `extension` attribute of the first `id` **SHALL** be the BC Ministry Practitioner ID, and the `id.root` attribute **SHALL** be the OID `2.16.840.1.113883.3.40.2.11`.

CONF-BC0543: For other providers/practitioners, this `id` element **SHALL** be the unique identifier assigned to the providers/practitioner by the licensing/credentialing organization that represents the provider/practitioner type, and the `id.root` **SHALL** be the OID of the identifier system used. For example, if the provider is a NURSE (BScN), the ID would be from the College of Registered Nurses of British Columbia.

CONF-BC0544: If an appropriate primary ID is not available for the physician/provider/practitioner, a `nullFlavor` attribute **SHALL** be used.

CONF-BC0506: A second `id` element **MAY** be present. If the care provider/practitioner does not fall under any licensing/credentialing organization, the second `id` element `id.extension` **MAY** be a locally assigned identifier or externally assigned identifier, and the `id.root` **SHALL** be the OID of the identifier system used.

4.2.2. Record Target (Patient Identifiers)

Mandatory
Cardinality: 1..1 (exactly one)
TemplateId: 2.16.840.1.113883.3.51.60.1.3

A record target element must be present and records the patient whose health information is described by the clinical document, including patient identification, patient characteristics, the patient's name, address and phone number.

The future state principles in the BC Client ID Subject Strategy include the following statements as it relates to the PHN:

- All recipients of service who should be identified, will be identified and will attract a PHN,
- The PHN will become the universal client identifier throughout the health sector,
- All points of service will be required to identify clients, and resolve PHNs, and all will be equipped to do so.

It is recognized, however, that not all stakeholder organizations or groups have achieved this ideal in the current state. As such, the conformance statement for patientRole/id reflects that the PHN **should** be the primary identifier. It is expected that organizations and groups will incorporate concrete plans to become compliant to the BC Client ID Subject principles as previously noted. Active integration with the BC provincial EMPI solution is encouraged.

CONF-BC0047: Exactly one `recordTarget` element **SHALL** be present and **SHALL** contain exactly one `patientRole` element.

CONF-BC0507: The `recordTarget` element **SHALL** have the `typeCode` attribute fixed to "`RCT`" and the `contextControlCode` attribute fixed to "`OP`".

CONF-BC0508: The `patientRole` element **SHALL** have the `classCode` attribute fixed to "`PAT`".

CONF-BC0048: `patientRole` **SHALL** contain at least one or more [1..*] `id` elements. `nullFlavor` is permitted (for de-identification purposes), but reports without an associated BC PHN may cause issues with report routing and discovery. Active integration with the Provincial EMPI is encouraged.

CONF-BC0049: One `patientRole/id` **SHOULD** be the BC PHN, for which the OID `root` is `2.16.840.1.113883.4.50`.

CONF-BC0050: Additional `patientRole/id` values **MAY** be a local identifier and **MAY** be an out of province PHN

CONF-BC0051: `patientRole` **MAY** contain zero or more [0..*] `addr (address)` elements. If present, `addr` SHALL conform to the restrictions for the described common elements for addresses.

CONF-BC0052: `patientRole` **MAY** contain zero or more [0..*] `telecom` (address) elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian datatype flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0053: `patientRole` **SHALL** contain exactly one [1..1] `patient`

CONF-BC0509: The `patient` element **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0054: `patient` **SHALL** contain at least 1 [1..*] `name`, which **SHALL** conform to the restrictions described in the common elements for names

CONF-BC0055: A `patient/administrativeGenderCode` element **SHALL** be present. If unknown, it **SHALL** be represented with a `nullFlavor`. The value for `GenderCode` **SHALL** be selected from the `Value Set 2.16.840.1.113882.1.11.1 Administrative Gender` (HL7 v3) STATIC

CONF-BC0056: `patient` **SHALL** contain exactly one [1..1] `birthTime` element, which **SHALL** be precise to the month, and **SHOULD** be precise to the day.

CONF-BC0057: `patient` **SHALL** contain zero or more [0..*] `languageCommunication` elements if available. If unknown, it **SHALL** be represented with a `nullFlavor`. `languageCommunication/languageCode` **SHALL** be selected from the `Value Set 2.16.840.1.113883.1.11.11526 Human Language` (CDAR2) DYNAMIC. If implementers find it necessary to include additional `languageCommunication` elements such as `modeCode`, `proficiencyLevelCode` and `preferenceInd`, please refer to the pan-Canadian CDA Implementation Guide for further direction.

The pan-Canadian CDA Implementation Guide also defines additional constraints to capture `guardian` as well as `providerOrganization` information related to the `recordTarget`. Please refer to that guide for further direction.

4.2.3. Author

Mandatory
Cardinality: 1..* (one or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.4

Author information provides demographic information on the author(s) of the document, as well as the software system used to create the document. Some documents may be created entirely by software, in which case there will only be one participation with recording the `assignedAuthoringDevice`. In most cases, there will be at least two participations recorded, the `assignedPerson` and the `assignedAuthoringDevice`.

CONF-BC0058: At least one [1..*] `author` element **SHALL** be present

CONF-BC0510: The `author` element **SHALL** have the `typeCode` attribute fixed to "`AUT`" and the `contextControlCode` attribute fixed to "`OP`".

CONF-BC0059: `author` elements **SHALL** contain exactly one [1..1] `time`

CONF-BC0060: The `author/time.value` **SHALL** be precise to the day and **SHOULD** be precise to the minute. If more precise than the day, **SHALL** include a time zone offset. This represents the date/time that the clinical document was dictated by the `assignedPerson`. In instances where the clinical document is authored by an `assignedAuthoringDevice` , this date/time represents the time that the document was created by the device. (e.g. ECG auto-interpretation)

CONF-BC0061: `author` elements **SHALL** contain exactly one [1..1] `assignedAuthor`

CONF-BC0511: The `assignedAuthor` element **SHALL** have the `classCode` attribute fixed to "`ASSIGNED`".

CONF-BC0062: `assignedAuthor` elements **SHALL** contain one or more [1..*] `id` elements. Supporting additional author identifiers allows communication of local or out of province identifiers.

CONF-BC0063: If the `author` is a Provider, the id elements SHALL conform to section 4.2.1.3.

CONF-BC0064: If the `author` is a *not* a Provider, `assignedAuthor/id` **MAY** be a locally assigned identifier

CONF-BC0065: `assignedAuthor` **SHALL** contain either an `assignedPerson` or an `assignedAuthoringDevice` element.

CONF-BC0066: `assignedAuthor` **MAY** contain zero or more [0..*] `addr` (address) elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0067: `assignedAuthor` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0512: If `assignedAuthor` contains an `assignedPerson` element, `assignedPerson` **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

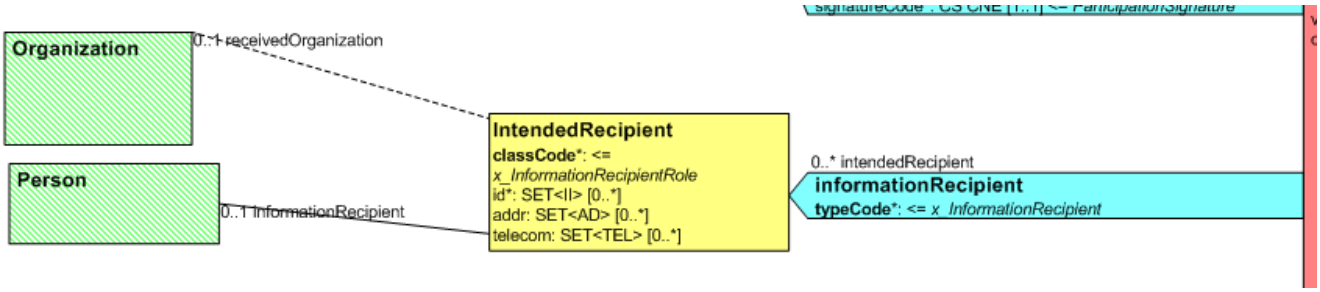
CONF-BC0068: If `assignedAuthor` contains an `assignedPerson` element, `assignedPerson` **SHALL** contain exactly one [1..1] `name`, which **SHALL** conform to the restrictions described in the common elements section for names.

CONF-BC0513: If `assignedAuthor` contains an `assignedAuthoringDevice` element, `assignedAuthoringDevice` **SHALL** have the `classCode` attribute fixed to "`DEV`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0069: If `assignedAuthor` contains an `assignedAuthoringDevice` element, `assignedAuthoringDevice` **SHALL** contain exactly one [1..1] `softwareName` to identify the originating system.

4.2.4. Information Recipient

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.5



Information Recipients may be optionally provided, and include the primary receiver (in most cases, the ordering provider) and any "copy to" recipients. In this section, the receivers of the clinical document are identified as primary and secondary receivers, via the `intendedRecipient` element.

To indicate the roles of providers involved in the encounter (e.g., Attending Physician, Consultant, Referrers, etc.), use the provider participants associated with the encounter in the `encounterParticipant` element.

A provider may appear as both an encounter recipient and as an information recipient, if appropriate.

In certain clinical workflows the `informationRecipient` may be an organization (i.e. a clinic) without a specific provider defined as a "person" recipient of the document. `informationRecipient/receivedOrganization/organization`.

CONF-BC0070: MAY contain zero or more [0..*] `informationRecipient`

CONF-BC0071: `informationRecipient` **SHALL** have the attribute `typeCode` which **SHALL** be either "`PRCP`" (primary recipient) or "`TRC`" (secondary recipient), from HL7 Value Set `x_InformationRecipient`. There **SHALL** be at least one [1..*] primary recipient ("`PRCP`").

The following are the value set descriptions for HL7 `x_InformationRecipient`:

Code	HL7 x_InformationRecipient Value Set Definitions
`PRCP` (primary information recipient)	Information recipient to whom a clinical document is primarily directed. (e.g., a primary care provider/family physician receiving a discharge letter from a hospitalist, a health department receiving information on a suspected

Code	HL7 x_InformationRecipient Value Set Definitions
	case of infectious disease.)
TRC (tracker)	A "tracker" is a secondary information recipient, who receives copies (e.g., a primary care provider/family physician receiving copies of results as ordered by specialist or other provider).

CONF-BC0072: `informationRecipient`, if present **SHALL** contain exactly one [1..1] `intendedRecipient`

CONF-BC0074: the `intendedRecipient` element **SHALL** have the attribute `classCode` fixed to "`ASSIGNED`"

CONF-BC0073: `intendedRecipient` element **SHOULD** contain one to two [1.. 2] `id` elements.

CONF-BC0075: If the `informationRecipient` is a Provider, the `id` elements SHALL conform to section 4.2.1.3.

CONF-BC0076: If the `informationRecipient` is a *not* a Provider, `intendedRecipient/id.extension` **MAY** be a locally assigned identifier

CONF-BC0077: `intendedRecipient` **MAY** contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0078: `intendedRecipient` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0079: `intendedRecipient` element **SHALL** contain exactly one [1..1] `informationRecipient/name`, which **SHALL** conform to the restrictions described in the common elements section for names.

CONF-BC0080: `intendedRecipient` **MAY** contain zero or one [0..1] `receivedOrganization` elements.

CONF-BC0081: `receivedOrganization`, if present, **SHALL** contain exactly one [1..1] `name`

CONF-BC0545: `receivedOrganization`, if present, **SHALL** contain at least one [1..*] `id`

4.2.5. Participating Providers

Providers associated with a Clinical Document instance are recording in several sections of the header: they may be an `author`, an `authenticator`, an `information recipient` as well as having specific roles related to the patient. Many of these participations are optional, and are provided for in the header definition to be used based on the requirements of the specific use case. Specific document types may make further constraints on the provider information that must be included. For example, the `performer` of a procedure is recorded in the `ServiceEvent`, and a Procedure Note may require that the performer is documented.

Where a document is providing information related to a specific encounter (for instance, Discharge Summary), the providers associated with that encounter (Attending Physician, Referring Physician, Consultant, etc.) are recorded as participants in the `EncompassingEncounter`. In the case where the Primary Care or Family Physician is not part of the encounter, but should be included in the document, the Primary Care or Family Physician is included in the Generic Participant construct, with appropriate codes to indicate his or her role.

See the specific sections on `Service Event, Encompassing Encounter, and Generic Participant` for more detailed constraints for the specific participations.

4.2.6. Custodian

Mandatory
Cardinality: 1..1 (exactly one)
TemplateId: 2.16.840.1.113883.3.51.60.1.6

CDA r2 requires every document to have a `custodian` – an organization that is in charge of maintaining the document.

CONF-BC0082: SHALL contain exactly one [1..1] `custodian`

CONF-BC0083: The `custodian` element **SHALL** have the `typeCode` attribute fixed to "`CST`".

CONF-BC0084: `custodian` **SHALL** contain exactly one [1..1] `assignedCustodian`

CONF-BC0514: The `assignedCustodian` element **SHALL** have the `classCode` attribute fixed to "`ASSIGNED`".

CONF-BC0085: `assignedCustodian` **SHALL** contain exactly one [1..1] `representedCustodianOrganization`

CONF-BC0515: The `representedCustodianOrganization` element **SHALL** have the `classCode` attribute fixed to "`ORG`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0086: `representedCustodianOrganization` **SHALL** contain exactly one [1..1] `id`.

a. If the clinical document is generated from a Health Authority, this `id` **SHALL** contain the root OID of the Health Authority, and the facility `id` shall be used as the extension.
b. If the clinical document is generated from an EMR, this `id` **SHALL NOT** contain the root OID of a Health Authority or of the BC Ministry of Health.

CONF-BC0087: `representedCustodianOrganization` **MAY** contain zero or one [0..1] `name`

4.2.7. Data Enterer

Optional
Cardinality: 0..1 (zero or one)
TemplateId: 2.16.840.1.113883.3.51.60.1.7

This participation is where the transcriptionist, if any, is entered. If the data enterer is different from the author, this information should be provided.

CONF-BC0088: **MAY** contain zero or one [0..1] `dataEnterer`

CONF-BC0089: if `dataEnterer` is not the same as the `author`, `dataEnterer` **SHOULD** be present

CONF-BC0516: The `dataEnterer` element **SHALL** have the `typeCode` attribute fixed to "`ENT`" and the `contextControlCode` attribute fixed to "`OP`".

CONF-BC0090: `dataEnterer` , if present, **SHALL** contain exactly one [1..1] `assignedEntity`

CONF-BC0517: The `assignedEntity` element **SHALL** have the `classCode` attribute fixed to "`ASSIGNED`".

CONF-BC0550: `dataEnterer` elements **SHALL** contain exactly one [1..1] `time`

CONF-BC0551: The `dataEnterer/time.value` **SHALL** be precise to the day and **SHOULD** be precise to the minute. If more precise than the day, **SHALL** include a time zone offset. This represents the date/time that the clinical document was transcribed by the `dataEnterer`.

CONF-BC0091: `assignedEntity` **SHOULD** contain zero or one [0..1] `id`, which **MAY** be a local identifier. This cardinality supports use cases where the name/id of the data enterer is not known or not relevant.

CONF-BC0092: `assignedEntity` **MAY** contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0093: `assignedEntity` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0094: `assignedEntity` **SHOULD** contain zero or one [0..1] `assignedPerson`. This supports use cases where the name/id of the data enterer is not known or not relevant.

CONF-BC0518: The `assignedPerson` element **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0095: `assignedPerson` **SHALL** contain exactly one [1..1] `name`, which **SHALL** conform to the restrictions described in the common elements section for names.

4.2.8. Authenticator and Legal Authenticator

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.8

> **CONF-BC0096:** `Authenticator` is the person or persons who attest to the content of the document. For lab results, this is the lab verifier. See details in the Lab Result Document header constraint section for specific constraints when the authenticator is a lab result verifier. For other document types, `Authenticator` **MAY** be present.

The pan-Canadian CDA Implementation Guide also allows inclusion of a `legalAuthenticator` element and associated attributes, to identify the person who has legally authenticated the document. If implementers want to capture the `legalAuthenticator`, please refer to that guide for further direction.

4.2.9. Generic Participant

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.9

This `participant` relationship can be used to record roles important to the information in the document instance that are not addressed elsewhere.

Examples:

- The Primary Care Provider/Family Physician is not the `author` or `authenticator` of a document and is not part of the actual encounter, the Primary Care Provider/Family Physician should be included as a generic participant of the document instance.
- The Ordering Provider for Laboratory tests is not the `author` or `authenticator` of a document, but should be included as a generic participant of the document instance.

The following constraints for this circumstance are based on the HL7 Health Story Consolidation DSTU Procedure Note recommendations, as well as the IHE XD-Lab Content framework.

Where the generic participant is used to record the primary care provider or ordering provider, the following constraints apply:

CONF-8504: MAY contain zero or more [0..*] `participant` such that:

CONF-8505: The `participant` element **SHALL** have the `@typeCode` attribute fixed to "`IND`" and the `contextControlCode` attribute fixed to "`OP`" overriding propagating.

CONF-8506: SHALL contain exactly one [1..1] `functionCode.code = "PCP" (Primary Care Physician) 2.16.840.1.113883.2.20.3.88` HL7ParticipationFunction STATIC

CONF-8507: SHALL contain exactly one [1.1] `associatedEntity` where the `classCode` attribute **SHALL** be fixed to "`PROV`".

CONF-8508: the `associatedEntity` **SHALL** contain exactly one [1..1] `associatedPerson`

CONF-BC0519: The `associatedPerson` element **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

For use in British Columbia, the following constraints apply to the participation:

CONF-BC0097: `associatedEntity` element **SHOULD** contain exactly one to two [1..2] `id` elements.

CONF-BC0098: If the `participant` is a provider, the `id` elements SHALL conform to section 4.2.1.3.

CONF-BC0099: If the `participant` is a *not* a Provider, `associatedEntity/id.extension` **MAY** be a locally assigned identifier

CONF-BC0101: `associatedEntity` **MAY** contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0102: `associatedEntity` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0100: `associatedEntity/associatedPerson` element **SHALL** contain exactly one [1..1] `name`, conforming to the constraints in the common section on names.

The pan-Canadian CDA Implementation Guide also allows inclusion of an `informant` element and associated attributes, where a person (source of information) provides relevant information about the patient. For example, a parent of a comatose patient providing information about the patient's behavior. If implementers want to capture the `informant`, please refer to that guide for further direction.

4.2.10. Stewardship and Roles Related to Clinical Documents

The various roles associated to clinical documents can be somewhat confusing, and additional scenarios/information are shared here to provide clarity.

As per the CDA R2, a core characteristic of a clinical document is "stewardship." Conceptually this means at any time in the future you should be able to go back and locate the organization that maintains the original clinical document. This is especially important in an interoperability context where the CDA now being passed from system A to system B actually originates somewhere else entirely in the chain of interoperability exchanges.

This characteristic is defined as "A clinical document is maintained by an organization entrusted with its care." As per the CDA R2, the custodian in the header is the "steward" as per that definition. Every CDA document has one (and only one) custodian and it is always an organization.

The "author" (person and/or machine) produced the document and the "custodian" is responsible for it. In the simplest/common case the "author" is the physician/provider who produced the document, and the "custodian" is the healthcare organization they work for that would maintain responsibility for that document even if the author moved on. However, there doesn't necessarily have to be a direct relationship between the author and the custodian.

The "author" is commonly a person. That person commonly belongs to an organization - which may not be (though often will be) the custodian/steward of the document. If the person-author belongs to the organization that is the custodian/steward (commonly the case), the organization should appear twice - both as the `representedCustodianOrganization` of the document, and as the `representedOrganization` that is part of the `assignedAuthor`.

In terms of a device (computer system) being the author rather than a person, this use case is supported but appears to be limited to the scenario where the document is principally/almost wholly created by a computer system. In the common case where the author-person uses a computer system to technically create the document, but it is the author-person that actually drives the content, the author is typically just the person, not the computer system.

In addition to the CDA R2 requirement that every CDA document must have one and only one custodian, it also notes that there must be one or more authors. The authors can be persons, devices and/or organizations. CONF-13 in CDA R2 indicates how to handle the use case where the author(s) are only an organization(s) and no persons/devices are in `assignedAuthor`.

4.3. Header Relationships

4.3.1. Service Event

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.10

The Service Event provides information on the service that is the subject of the document, and SHOULD BE included if the document relates to a specific service event. For instance, a Procedure Note encapsulates documentation of a specific procedure service event as well as the related. Therefore, document definitions may make more stringent constraints on the information required for the specific use case.

CONF-BC0520: If present, `documentationOf` **SHALL** have the attribute `typeCode` fixed to the value "`DOC`".

CONF-BC0103: If present, **SHALL** contain one or more [1..*] `documentationOf/serviceEvent` elements.

CONF-BC0521: If present, `serviceEvent` **SHALL** have the attribute `classCode` fixed to the value "`ACT`" and the attribute `moodCode` fixed to the value "`EVN`".

CONF-BC0104: `serviceEvent` **MAY** contain zero or more [0..*] `performer` elements to indicate the primary and secondary performers of the service.

CONF-BC0105: If present, `performer` **SHALL** contain the `typeCode` attribute whose value **SHALL** be either "`PPRF`" (primary performer) or "`SPRF`" (secondary performer).

CONF-BC0106: Each `performer` **SHALL** contain exactly one [1..1] `assignedEntity`

CONF-BC0522: The `assignedEntity` element **SHALL** have the `classCode` attribute fixed to "`ASSIGNED`".

CONF-BC0107: `assignedEntity` **SHALL** contain a `code` element, whose value **SHALL** be taken from Value Set `2.16.840.1.113883.2.20.3.48` HealthCareProviderRoleType DYNAMIC

CONF-BC0108: `assignedEntity` element **SHOULD** contain one to two [1..2] `id` elements.

CONF-BC0109: If the `performer` is a Provider, the `id` elements SHALL conform to section 4.2.1.3.

CONF-BC0110: If the `performer` is a *not* a Provider, `assignedEntity/id` **MAY** be a locally assigned identifier

CONF-BC0523: The `assignedEntity` **SHALL** have exactly one [1..1] `associatedPerson` element, which **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0111: `assignedEntity/assignedPerson` element **SHOULD** contain exactly one [1..1] `name`, conforming to the constraints in the common section on names

CONF-BC0112: `assignedEntity` MAY contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0113: `assignedEntity` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

4.3.2. Order

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.12

This class represents the order that is fulfilled by the document instance. For example, to provide the connection between an order for an X-Ray to the Diagnostic Imaging report, the accession number would be included as the inFulfillment of order id element, and the performed X-Ray procedure in the service event.

This act also serves to relate documents in a clinical workflow, such as a referral (i.e. order being placed) and a consult report (i.e. the order being fulfilled).

CONF-BC0524: If present, `inFulfillmentOf` SHALL have the attribute `typeCode` fixed to the value "`FLFS`".

CONF-BC0123: If present, SHALL contain exactly one [1..1] `inFulfillmentOf/order` element.

CONF-BC0525: `inFulfillmentOf/order` SHALL have the attribute `classCode` fixed to the value "`ENC`" and the attribute `moodCode` fixed to the value "`RQO`".

CONF-BC0124: `inFulfillmentOf/order` element SHALL contain at least one [1..*] `id` element. This number represents the unique identifier of the order that is being fulfilled.

CONF-BC0526: `inFulfillmentOf/order` element MAY contain one [0..1] `code` element. If present, `code` SHALL contain the status code of the order. Therefore, if present, `code.codeSystem` SHALL contain "`statusCode`" and `code.code` SHALL contain "`completed`," "`active`," or "`aborted`."

This class represents the order that is fulfilled by the document instance. For example, to provide the connection between an order for an X-Ray to the Diagnostic Imaging report, the accession number would be included as the inFulfillment of order id element, and the performed X-Ray procedure in the service event.

CONF-BC0524: If present, `inFulfillmentOf` **SHALL** have the attribute `typeCode` fixed to the value "`FLFS`".

CONF-BC0123: If present, **SHALL** contain exactly one [1..1] `inFulfillmentOf/order` element.

CONF-BC0525: `inFulfillmentOf/order` **SHALL** have the attribute `classCode` fixed to the value "`ENC`" and the attribute `moodCode` fixed to the value "`RQO`".

CONF-BC0124: `inFulfillmentOf/order` element **SHALL** contain at least one [1..*] `id` element. This number represents the unique identifier of the order that is being fulfilled.

CONF-BC0526: `inFulfillmentOf/order` element **MAY** contain one [0..1] `code` element. If present, `code` **SHALL** contain the status code of the order. Therefore, if present, `code.codeSystem` **SHALL** contain "`statusCode`" and `code.code` **SHALL** contain "`completed`," "`active`," or "`aborted`."

4.3.3. relatedDocument

Optional
Cardinality: 0..2 (at most 2)
TemplateId: see appropriate document relationship section for appropriate templateId to use

4.3.3.1. Business Requirements

A number of use cases require systems exchanging clinical documents to be able to associate versions of a document together, or denote a relationship between documents. The use of setId and versionId as depicted in the HL7 RIM cannot support all use cases. Additionally, based upon various factors, a single approach could not be leveraged to address the following requirements:

1. Provide the ability to relate documents transformed from source messages/documents that contain a single common correlation value across a set of messages/documents. In this scenario multiple messages will each contain a single value that is common among all messages in the set, but unique to that set of messages.
2. Provide the ability to relate documents transformed from source messages/documents that contain multiple correlation values across a set of messages/documents. In this scenario multiple messages will each contain multiple values that are common among all messages in the set, but unique to that set of messages.
3. Provide the ability to relate a document to a specific existing document.
4. Provide the ability to indicate if a document replaces or transforms an existing document.
5. Provide the ability to relate documents together when one document is a response to another, but does not replace or transform that document. In this scenario, multiple documents represent a business process flow (i.e. workflow) between two parties (e.g. referral as an order/request, consultation as a response).

4.3.3.2. General Constraints

Generally, the `relatedDocument` relationship provides a way for a document instance to point to its `ParentDocument`. Revisions and addenda to documents will be handled by providing a complete replacement of the document and referencing the previous ("parent") document. For this reason, the `relatedDocument.typeCode` value of `APND` (append) is precluded from use. In some cases, a document may have been transformed from another format (e.g. HL7 v2, DICOM), in which case the `typeCode` of `XFRM` (transform) is appropriate. A given document instance may be a replacement of one document and a transformation, so may be related to a maximum of two `ParentDocuments`.

CONF-BC0125: MAY contain up to two [0..2] `ClinicalDocument/relatedDocument` elements.

CONF-BC0126: `relatedDocument.typeCode` **SHALL** be either `RPLC` (replace) or `XFRM` (transform)

CONF-BC0127: `relatedDocument` **SHALL** be contain exactly one [1..1] `parentDocument` element, which **SHALL** have the `classCode` attribute fixed to "`DOCCLIN`" and the `moodCode` attribute fixed to "`EVN`".

CONF-BC0556: `ClinicalDocument/relatedDocument/ParentDocument/id/@root` **SHALL** be the `ClinicalDocument/Id/@root` for the document it relates to.

CONF-BC0557: `ClinicalDocument/relatedDocument/ParentDocument/id/@extension` **SHALL** be the `ClinicalDocument/Id/@extension` for the document it relates to.

CONF-BC0558: `ClinicalDocument/relatedDocument/ParentDocument/id/@assigningAuthorityName` **SHALL** be the `ClinicalDocument/Id/@assigningAuthorityName` for the document it relates to.

CONF-BC0527: `relatedDocument` **SHALL** contain exactly one [1..1] `id`, and **MAY** contain `setID` and `versionNumber` elements to identify the `parentDocument`.

CONF-BC0128: `parentDocument` **MAY** contain the `text` element with the `text.mediaType` attribute set to indicate the `MIME` type of the related document.

CONF-BC0129: The related document **SHALL NOT** be embedded in `parentDocument/text` element.

CONF-BC0559: When sending a relatedDocument, the `ClinicalDocument/relatedDocument.typeCode` **SHALL** be present, set at the value of "RPLC" for the original version of the document, and in the instance of a replacement document the `versionNumber` if present, **SHALL** be an increment of 1 from the document version it replaces.

CONF-BC0560: Replacement documents are meant to completely replace the previous version of a document, and as such **SHALL NOT** be handled as addendums in receiving systems.

CONF-BC0561: Replacement documents **SHALL** represent a transitive relationship, where document A.1 can be replaced by A.2, A.2 can be replaced by A.3, and so on. Multiple documents **SHALL NOT** replace the same document; i.e. A.1 being replaced by A.2 and also by A.3.

CONF-BC0562: Receiving systems **MAY** retain parent documents that are considered superseded for historical and auditing purposes. If parent documents are maintained, the receiving system **SHALL** very clearly identify the parent document as superseded by a more current version of the document.

4.3.3.3. Relating Documents from Transformed Source Messages

This set of use cases covers scenarios where CDA documents are created based on source message message/document formats (such as HL7v2) from other systems (such as an HCIS) that do not produce CDA documents natively. In these scenarios, middle tier software consumes the source messages, and translates it to a CDA before forwarding the translated CDA to the destination system.

4.3.3.3.1 and 4.3.3.3.2 outline the approach where a source message contains a single correlational value that is the same across a set of messages, where the set of messages contains an original message and 1 or more update messages.

4.3.3.3.3 and 4.3.3.3.4 outline the approach where a source message contains multiple correlational values that are the same across a set of messages, where the set of messages contains an original message and 1 or more update messages.

4.3.3.3.1. Single Correlation Value - Original

** THIS SECTION IS PENDING TECHNICAL REVIEW **

hen creating the CDA document, the following rules will be applied:

CONF-BC0563: The sending system **SHALL** create a unique GUID to identify the CDA document, and **SHALL** place the GUID in the `ClinicalDocument/`**`id`** element

CONF-BC0???: The sending system **SHALL** set the `ClinicalDocument/`**`effectiveTime`** value as the creation time of the source message

CONF-BC0???: The sending system **SHALL** place the unique ID of the message (control id for HL7v2 messages) in a `ClinicalDocument/`**`relatedDocument`**`/ParentDocument/ID` element with a `typeCode` of "`XFRM`", indicating the CDA document is a transformation of the source message.

CONF-BC0???: The sending system **SHALL** place the unique ID of the message (control id for HL7v2 messages) in a `ClinicalDocument/`**`relatedDocument`**`/ParentDocument/ID` element with a `typeCode` of "`XFRM`", indicating the CDA document is a transformation of the source message.

- The unique ID correlating to the data will be placed in a `ClinicalDocument/`**`inFulfillmentOf`**`/order/id` element, indicating the CDA document can be correlated to other (future) documents with the same order id.
- The `ClinicalDocument/`**`setID`** can optionally be used. A `setID` represents a set of documents containing the original (first) document, and subsequent documents that belong to the same set, such as updates. The `setID` can only be used under the following constraints:

- The original source message, and all subsequent updates will contain the same `setID` in the resulting CDA documents.
- The `ClinicalDocument/`**`versionNumber`** is populated representing the revision number of the updated document. The original document contains a version of 1 and subsequent versions are incremented by 1.
- If `setID` is used, `versionNumber` must also be included.

4.3.3.4. Single Correlation Value - Update

In this use case, a source message contains a single value that is the same across a set of messages, where the set of messages contains an original message and 1 or more update messages.

When creating the CDA document, the following rules will be applied:

- Create a unique GUID to identify the CDA document, and place it in the `ClinicalDocument/`**`id`** element.
- Set the `ClinicalDocument/`**`effectiveTime`** value as the creation time of the source message.
- The unique ID of the message (control id for HL7v2 messages) will be placed in a `ClinicalDocument/`**`relatedDocument`**`/ParentDocument/ID` element with a `typeCode` of "`XFRM`", indicating the CDA document is a transformation of the source message.
- The unique ID correlating to the data will be placed in a `ClinicalDocument/`**`inFulfillmentOf`**`/order/id` element, indicating the CDA document can be correlated to other (future) documents with the same order id.
- The `ClinicalDocument/`**`setID`** can optionally be used. A `setID` represents a set of documents containing the original (first) document, and subsequent documents that belong to the same set, such as updates. The `setID` can only be used under the following constraints:
  - The original source message, and all subsequent updates will contain the same `setID` in the resulting CDA documents.
  - The `ClinicalDocument/`**`versionNumber`** is populated representing the revision number of the updated document. The original document contains a version of 1 and subsequent versions are incremented by 1.
  - If `setID` is used, `versionNumber` must also be included.

4.3.3.5. Single Correlation Value - Original

When creating the CDA document, the following rules will be applied:

- Create a unique GUID to identify the CDA document, and place it in the `ClinicalDocument/`**`id`** element.

4.3.4. Relate Documents Which are Part of a Workflow

To address the business requirements to relate documents which are part of a workflow, constraints are applied using the generic participant and templateId.

4.3.4.1. Relating Documents in a Workflow - Conformance Statements

Note the following general guidelines to assist you with your implementation:

- The initiating document in a workflow conceptually represents an ORDER, and the responding document represents the fulfillment of that ORDER. It is strongly recommended that systems implement/ closed-loop ordering with unique orderIds to properly support this essential clinical workflow through health information exchange.
- Having a responder requires having a workflow.
- A workflow can exist without a responder, such as in the following instances:
  - At the conclusion of a workflow; you should NOT have a responder.
  - In a workflow where the responder is not be known. For example, when a referral is sent to a clinic and the referring where there are multiple specialists, and the recipient clinic/location internally assigns the referrals.

CONF-BC0???: When a document is part of a workflow, the infulfillmentOf.orderId **SHOULD** be populated. Please note the following direction, depending on the instance , as follows

1. Initiating workflow document (2 options)
   a. Populate the infulfillmentOf.orderId with the originating system's unique ORDER ID
   b. Where the originating system does not support creation of ORDER IDs, leave the infulfillmentOf.orderId unpopulated.
2. Responding workflow document
3. Set the infulfillmentOf.orderId to the value populated in infulfillmentOf.orderId as received from the originating/requesting system.
4. Leave infulfillmentOf.orderId unpopulated where infulfillmentOf.orderId is unpopulated in the CDA by the originating/requesting system.

CONF-BC0???: When a document is part of a workflow, there **SHALL** be one and only one generic participant on the header to represent that this workflow relationship between documents exists.

Note the above conformance statement does not preclude any other use of the generic participant; but restricts usage of that generic participant for workflow to one and only one.

CONF-BC0???: When a document is part of a workflow, the generic participant participation SHALL contain the OID assigned to that participant.templateId. That OID SHALL contain the value **2.16.840.1.113883.3.277.100.4**.

CONF-BC0???: When a document is part of a workflow, the generic participant participation.typeCode **SHALL** contain the value "REF".

CONF-BC0???: When the responder is known, the generic participant participation.associatedEntity element **SHOULD** be present.

CONF-BC0???: When the responder is known, participant.associatedEntity.templateID **SHALL** be equal to **2.16.840.1.113883.3.277.100.5**

CONF-BC0???: When the responder is known, participation.associatedEntity.id **SHALL** be present and **SHALL** conform to the provider identifier conformance statements in the comment elements section.

CONF-BC0???: When the responder is known, participation.associatedEntity.associatedPerson.name **SHOULD** be present and **SHALL** conform to the patient name conformance statements in the common elements section.

CONF-BC0504: Participant provider elements **SHALL** contain one to two [1..2] `id` elements.

CONF-BC0505: A primary `id` element **SHALL** be present.

CONF-BC0542: If the provider is a physician, the `extension` attribute of the first `id` **SHALL** be the BC Ministry Practitioner ID, and the `id.root` attribute **SHALL** be the OID `2.16.840.1.113883.3.40.2.11`.

CONF-BC0543: For other providers/practitioners, this id element **SHALL** be the unique identifier assigned to the providers/practitioner by the licensing/credentialing organization that represents the provider/practitioner type, and the `id.root` **SHALL** be the OID of the identifier system used. For example, if the provider is a NURSE (BScN), the ID would be from the College of Registered Nurses of British Columbia.

CONF-BC0544: If an appropriate primary ID is not available for the physician/provider/practitioner, a `nullFlavor` attribute **SHALL** be used.

CONF-BC0506: A second `id` element **MAY** be present. If the care provider/practitioner does not fall under any licensing/credentialing organization, the second `id` element `id.extension` **MAY** be a locally assigned identifier or externally assigned identifier, and the `id.root` **SHALL** be the OID of the identifier system used.

CONF-BC0031: Name parts **SHALL** be taken from the `Value Set 2.16.840.1.113883.2.10.3.141 x_BasicPersonNamePartType` DYNAMIC. The `qualifier` attribute is required (SHOULD be sent if available), and if present SHALL be taken from the Value Set `2.16.840.1.113883.2.20.3.140 x_BasicPersonNamePartQualifier` DYNAMIC. At present, the only value for `name/given.qualifier` is `IN` (initial), indicating that the name part is just an initial.

CONF-BC0032: Each name part is constrained to a 50 character string (`ST`).

CONF-BC0033: Exactly one [1..1] `name/family` part **SHALL** be present.

CONF-BC0034: One or more [1..*] `name/given` parts **SHALL** be present. The first occurrence of a given name is the "`first name`". Middle names are represented by additional given names.

CONF-BC0035: Zero or 1 [0..1] `name/prefix` name parts may be provided.

CONF-BC0036: Zero or 1 [0..1] `name/suffix` name parts may be provided.

CONF-BC0037: At most seven name parts may be present. Since a family name part and at least one given name are mandatory, the cardinality for name parts is [2..7]

CONF-BC0038: **SHALL** contain `name.use`, which **SHALL** be selected from the Value Set `2.16.840.1.113883.2.20.3.142 x_BasicPersonNameUse` DYNAMIC (this may include the following values: `L` = legal, `P` = pseudonym, `ASGN` = assigned, `C` = license or professional name, `HC` = healthcare card)

CONF-BC0???: If there is a workflow responder (participant element with templateID equal to 2.16.840.1.113883.3.277.100.4 and a participant/associatedEntity with templateID equal to 2.16.840.1.113883.3.277.100.5) the responder **SHALL** also be specified as an informationRecipient (informationRecipieint/intendedRecipient).

In practical implementation terms, the above conformance statement means that the IDs for the responder's participant/associatedEntity element must match the IDs for one of the informationRecipient/intendedRecipients. This will ensure that the workflow clinical document will be appropriately routed.

CONF-BC0???: When the responder is not known or there is no responder (such as when the document is the end of a workflow), the associatedEntity.nullFlavor **SHALL** contain a nullFlavor whose value **SHALL** be equal to "NA".

4.3.4.2. XML Example – relatedDocument Referral Request

Essentially, a template id of 2.16.840.1.113883.3.277.100.4 in the participant element is used to designate this document has been transformed and is part of a workflow.

```
    <participant typeCode="REF" contextControlCode="OP">

    <!-- A participation with a specific template oid of means workflow -->
    <templateId root="2.16.840.1.113883.3.277.100.4" />

    <!-- Associated entities are participants in the workflow -->
    <associatedEntity classCode="ASSIGNED">

        <!-- An associated entity with a specific template oid means responder-->
        <templateId root="2.16.840.1.113883.3.277.100.5" />

        <id root="2.16.840.1.113883.3.40.2.11" extension="93171"/>
        <id root="2.16.840.1.113883.3.277.1.61" extension="PLISIHDU"/>
        <associatedPerson classCode="PSN">
            <name use="L">
                <prefix>Dr</prefix>
                <family>Plisiha</family>
                <given>Dusty</given>
            </name>
        </associatedPerson>
    </associatedEntity>
</participant>
```

4.3.5. Encompassing Encounter

Optional
Cardinality: 0..1 (zero or one)
TemplateId: 2.16.840.1.113883.3.51.60.1.11

Optionally, information about an encounter and the participating providers may be transmitted as part of the Encompassing Encounter. Depending on the use case, the referring provider, attending provider and other participants may be noted. As defined by CDA r2, the Responsible party is the person or organization having primary legal responsibility for the encounter, whom may or may not be present at the encounter. The `encounterParticipant` represents providers directly associated with an encounter. The value set for `encounterParticipant.typeCode` as defined in the CDA standard is reproduced below:

Code	HL7 x_EncounterParticipant Value Set Definitions
`ADM` (admitter)	The practitioner who is responsible for admitting a patient to a patient encounter.
`ATND` (attender)	The primary practitioner that has responsibility for overseeing a patient's care during a patient encounter.
`CON` (consultant)	An advising practitioner participating in the encounter by performing evaluations and making recommendations.
`DIS` (discharger)	The practitioner who is responsible for the discharge of a patient from a patient encounter.
`REF` (referrer)	A person having referred the patient for services resulting in the encounter. Typically, a referring physician will receive a report.

The constraints for encounter participants described here indicate how to record optional encounter information. Specific document types (e.g., Discharge Summary) may prescribe more stringent requirements.

CONF-BC0528: If present, `componentOf` **SHALL** have the attribute `typeCode` fixed to the value "`COMP`".

CONF-BC0114: If present, `componentOf` **SHALL** contain exactly one [1..1] `encompassingEncounter` element.

CONF-BC0529: `componentOf/encompassingEncounter` **SHALL** have the attribute `classCode` fixed to the value "`ENC`" and the attribute `moodCode` fixed to the value "`EVN`".

CONF-BC0116: `encompassingEncounter` **MAY** contain zero or one [0..1] `responsibleParty` elements . If present, the `responsibleParty/assignedEntity` element **SHALL** have at least one of `encounterParticipant/assignedEntity` or `representedOrganization` element present.

CONF-BC0530: If present, the `responsibleParty` element **SHALL** have the `typeCode` attribute fixed to "`RESP`".

CONF-BC0115: **MAY** contain zero or more [0..*] `encounterParticipant` elements . If present, the `encounterParticipant/assignedEntity` element **SHALL** have at least one of `assignedPerson` or `representedOrganization` element present.

CONF-BC0117: `encounterParticipant` **SHALL** have a `typeCode` attribute, and it **SHALL** be drawn from HL7 Value Set `x_EncounterParticipant` (see table above).

CONF-BC0531: If present, the `assignedEntity` elements **SHALL** have the `classCode` attribute fixed to "`ASSIGNED`".

CONF-BC0118: `assignedEntity` elements **SHOULD** contain one to two [1..2] `id` elements.

CONF-BC0119: if an `assignedEntity` is a Person, the `id` elements SHALL conform to section 4.2.1.3.

CONF-BC0121: `assignedEntity` **MAY** contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0122: `assignedEntity` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0532: If present, the `assignedEntity/assignedPerson` element **SHALL** have the `classCode` attribute fixed to "`PSN`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0120: If present, the `assignedEntity/assignedPerson` element **SHALL** contain exactly one [1..1] `name`, conforming to the constraints in the common section on names.

CONF-BC0533: If present, the `representedOrganization` elementS **SHALL** have the `classCode` attribute fixed to "`ORG`" and the `determinerCode` attribute fixed to "`INSTANCE`".

CONF-BC0534: If present, the `representedOrganization` elements **SHALL** contain exactly one [1..1] `name` element.

5. Document Templates

5.1. Document Type – Lab Results

TemplateId: 2.16.840.1.113883.3.51.60.2.1

Communication of laboratory results in British Columbia may occur as an HL7 message or as a Clinical Document following this specification. Several sources of content templates for CDA laboratory results were assessed for applicability. The primary candidates were the Results section of the Continuity of Care Document, and the XD-LAB specification for CDA laboratory results defined by IHE in the IHE Laboratory Technical Framework Volume 3 (LAB TF-3) Content.

Within in the provincial Laboratory Information System (PLIS), result messages are a constrained version of the Pan-Canadian HL7 version 3 message standard. The core message type for general laboratory results is POLB_MT04000CA. As well, HL7 v2 messages from local laboratory systems that report to PLIS have been mapped to the version 3 message specification.

The IHE CDA specification is an international specification which maps lab results reporting within CDA information structures to the HL7 International lab results message type (POLB_MT04000). As such, IHE XD-LAB provides a basis for specification that allows BC Lab Results CDA documents to align as closely as possible with BC lab results messages.

This specification addresses the required constraints for the content and structure of lab results within a CDA. Specific transport strategies for the document payload are addressed in a separate initiative. The IHE Technical Framework includes XDS – a mechanism for sharing of documents between organizations, and includes the metadata required by that mechanism. Those items are out of scope of this specification, and will not be addressed here.

5.1.1. Relationship with HL7 Version 3 Result Message

IHE mapped the information structures in the Universal Realm Result Event model (POLB_MT004000) to the CDA model. That mapping is replicated below, with an additional mapping to the Canadian Generic Result Event model (POLB_MT004000CA) and the Canadian Laboratory Microbiology Sensitivity Result Event Model (POLB_MT004100CA).

This excerpt from the IHE Lab Technical Framework Volume 3 (19-May-2011) outlines mapping to HL7 v3: "The Level 3 entries must be compatible with the results contained in message type POLB_MT004000 of the Laboratory Domain. Thus, a laboratory information system able to produce HL7 V3 results messages will easily produce lab reports from the same data. The equivalence with POLB_MT004000 is as follows:"

CA Result Event RMIM Class	Universal Result Event RMIM class	CDA object
ObservationReport (classCode ACT)	ObservationReport (classCode ENTRY)	ACT (classCode ACT)
BatteryEvent (classCode BATTERY) (generic model)	ObservationBattery (classCode BATTERY)	Organizer (classCode BATTERY)
SpecimenObservationCluster (classCode CLUSTER) (microbiology model)	SpecimenObservationCluster (classCode CLUSTER)	Organizer (classCode CLUSTER)
ObservationEvent (classCode OBS)	ObservationEvent (classCode OBS)	Observation (classCode OBS)

"To cope with a current limitation of vocabulary in the CDA R2 entry model, we chose to represent the `ObservationReport class (classCode ENTRY)` by an `ACT (ACT)` rather than by an `ORGANIZER (CLUSTER)`. Although this is not the ideal solution, it is a practical and semantically appropriate solution, which avoids an extension to the `x_ActClassDocumentEntryOrganizer` domain vocabulary from the CDA R2 normative edition."

Note: As of this writing, in the current version of the POLB_MT004000 universal model, the `classCode` for Observation Report is `GROUPER`. The version that was current as of the CDA specification had the `classCode ENTRY`.

5.1.2. Additional Header Constraints

5.1.2.1. ClinicalDocument/templateId

An additional template id element identifies the document as compliant with the XD-LAB specification.

CONF-BC0130: A `ClinicalDocument/templateId` element **SHALL** be present representing conformance with the BC CDA Lab Report specification with the attribute value `root=2.16.840.1.113883.3.51.60.2.1`

5.1.2.2. ClinicalDocument/code

`ClinicalDocument/code` identifies the document type and indicates a multi-disciplinary or single discipline report.

CONF-BC0131: If the document is a (potentially) multi-disciplinary laboratory report, the value for `ClinicalDocument/code` **SHALL** be `11502-2 LABORATORY REPORT.TOTAL 2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0132: If the document is a single discipline laboratory report, the value for `ClinicalDocument/code` **SHOULD** be selected from `Value Set` Laboratory Specialties DYNAMIC

NOTE: LOINC has been endorsed as the lab nomenclature standard for the province of BC. However, it is recognized that in the current state not all source systems may be able to map to the appropriate LOINC Laboratory Specialty Code. It is recommended that plans be put in place to incorporate the LOINC codeSystem standard in all HCIS and EMR systems in the province.

In the meantime, it is acceptable to use `ClinicalDocument/code 26436-2 LABORATORY STUDIES 2.16.840.1.113883.6.1` LOINC STATIC, and include the Laboratory Specialty name in the narrative block if available.

LOINC Code	Laboratory Specialties Name
18717-9	Blood Bank Studies
18718-7	Cell Marker Studies
18719-5	Chemistry Studies
18720-3	Coagulation Studies

LOINC Code	Laboratory Specialties Name
18721-1	Therapeutic Drug Monitoring Studies
18722-9	Fertility Studies
18723-7	Hematology Studies
18724-5	HLA Studies
18725-2	Microbiology Studies (Note: includes mycology and parasitology, as well as bacteriology. May also include virology.)
18727-8	Serology Studies (Note: May also include virology.)
18728-6	Toxicology Studies
18729-4	Urinalysis Studies
18767-4	Blood Gas Studies
18768-2	Cell Counts & Differential Studies
18769-0	Microbial Susceptibility Tests
26435-8	Molecular Pathology Studies
26436-6	Laboratory Studies (Note: a report where observations from multiple specialties can be displayed in the same text block)
26437-4	Chemistry Challenge Studies
26438-2	Cytology Studies

5.1.2.3. Laboratory Results Validator

Optional
Cardinality: 0..* (zero or more)
TemplateId: `2.16.840.1.113883.3.51.60.1.8`

The `ClinicalDocument/authenticator` participation **MAY** be present. In the context of a Laboratory Result, it represents the clinical expert who performed the clinical validation of the report, also called the validator. For British Columbia lab results distribution, all validators included in the document will appear in the report header as authenticators.

CONF-BC0133: If the Legal Authenticator of a Lab Results document is included, and that person is also one of the validators of the laboratory results in the report, they **SHALL** also be included as a validator as described in this section.

Additionally, the laboratory results validator shall have the following:

CONF-BC0134: `ClinicalDocument/authenticator` **MAY** be present

CONF-BC0135: If present, `ClinicalDocument/authenticator` **SHOULD** contain exactly one [1..1] `time`

CONF-BC0136: `time` **SHALL** be precise to the day and **SHOULD** be precise to the minute and, if more precise than the day, **SHALL** include a time zone offset.

CONF-BC0137: If present, `ClinicalDocument/authenticator` **SHALL** contain exactly one [1..1] `assignedEntity`

CONF-BC0138: `assignedEntity` **MAY** contain one or more [1..*] `id` elements. If the `authenticator` is a provider, the `id` elements SHALL conform to section 4.2.1.3.

CONF-BC0139: `assignedEntity` **MAY** contain zero or more [0..*] `addr` elements. If present, `addr` **SHALL** conform to the restrictions for the described in common elements for addresses.

CONF-BC0140: `assignedEntity` **MAY** contain zero or more [0..*] `telecom` elements. If present, `telecom` **SHALL** conform to the restrictions for the pan-Canadian data type flavor `TEL.PHONE` or `TEL.EMAIL`

CONF-BC0141: `assignedEntity` **SHALL** contain exactly one [1..1] `assignedPerson`

CONF-BC0142: `assignedEntity/assignedPerson` element **SHALL** contain exactly one [1..1] `name`, conforming to the constraints in the common section on names

Additionally, the laboratory results validator shall have the following:

CONF-BC0143: The `templateId` element identifies this authenticator as a laboratory results validator. The `templateId` SHALL have the attribute `root="2.16.840.1.113883.3.51.60.1.8"`.

5.1.2.4. inFulfillmentOf/order

Optional
Cardinality: 0..* (zero or more)
TemplateId: 2.16.840.1.113883.3.51.60.1.12

CONF-BC0144: As per the XD-LAB specification, the `inFulfillmentOf/order` element **MAY** be present and represents the Placer Order (HL7 V2: ORC-2) or the Placer Group (HL7 V2: ORC-4) that was fulfilled, the identifier of which is carried in `inFulfillmentOf/order/id`. When present, these elements conform to the constraints described in the general header section of this guide.

CONF-BC0546: If the `inFulfillmentOf/order` element is present, it **SHALL** contain exactly one [1..1] `statusCode` (HL7 V2: ORC-5), which represents the status code of the order. Therefore, if present, `code.codeSystem` **SHALL** contain "`statusCode`" and `code.code` **SHALL** contain `"completed," "active," or "aborted."`

5.1.2.5. documentationOf/serviceEvent

The `documentationOf/serviceEvent` represents the main Act being documented. In the case of a lab report, it is the act of reporting Result Events produced by a laboratory (See the Result Event RMIM in the pan Canadian Standards, volume 9 – POLB_MT004000CA).

CONF-BC0145: `documentationOf/serviceEvent` **MAY** be present. Where present, `serviceEvent` **SHALL** conform to the requirements specified in the general BC header definition.

In most instances, clinical documents should not be sent unless in a FINAL status. However, there are a number of clinical use cases, including with lab results, which require the ability to send clinical documents where a change in the status of the clinical document has occurred (e.g. a preliminary microbiology report).

The CDA R2 does not allow for this, so please note the following extensions to CDA R2 following the precedent in IHE XD-LAB:

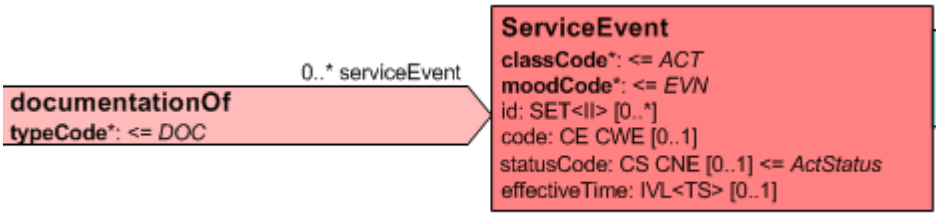
1. The IHE XD-LAB technical framework defines an extension to CDA to enable sharing of non-final ***lab result*** reports; it adds an optional sub element of `statusCode` in `documentationOf/serviceEvent`.

2. The BC CDA Implementation Guide similarly defines an extension to CDA to leverage document `statusCode` for the exchange of all clinical document templates/types, including lab result reports.

3. The extension is protected by the following namespace in document instances:
   xmlns:bc="urn:bccda"

A report is considered non-final (e.g. a preliminary report) if and only if it documents an Act which is still in the status "`active`" (that is, `serviceEvent/statusCode.code="active"`)

The status code sub element is an extension to CDA r2 and is optional. When it is not present, the documented Act is assumed to be complete, and the report is assumed to be a final report.



From IHE XD-LAB specification: Figure 2.3.6.3-1: statusCode added to serviceEvent in the CDA Header

5.1.3. Document Body Constraints

IHE XD-Lab defines that Laboratory Reports are comprised of one or more Laboratory Specialty Sections identified by the appropriate LOINC Specialty Code as noted in the table in section 5.1.2.2.

Each **Laboratory Specialty** Section is comprised of one or more **Laboratory Report Item** Sections, each of which documents a **Laboratory Report Item**: i.e. a battery, specimen study or an individual test. Report Item Sections contain the narrative text of the report, and a Lab Report Data Processing Entry containing the machine readable result data from which the narrative block of this section is derived.

> **CONF-BC0146:** Every Laboratory Report **SHALL** contain at least one [1..*] Laboratory Specialty Section, identified with its LOINC specialty code.

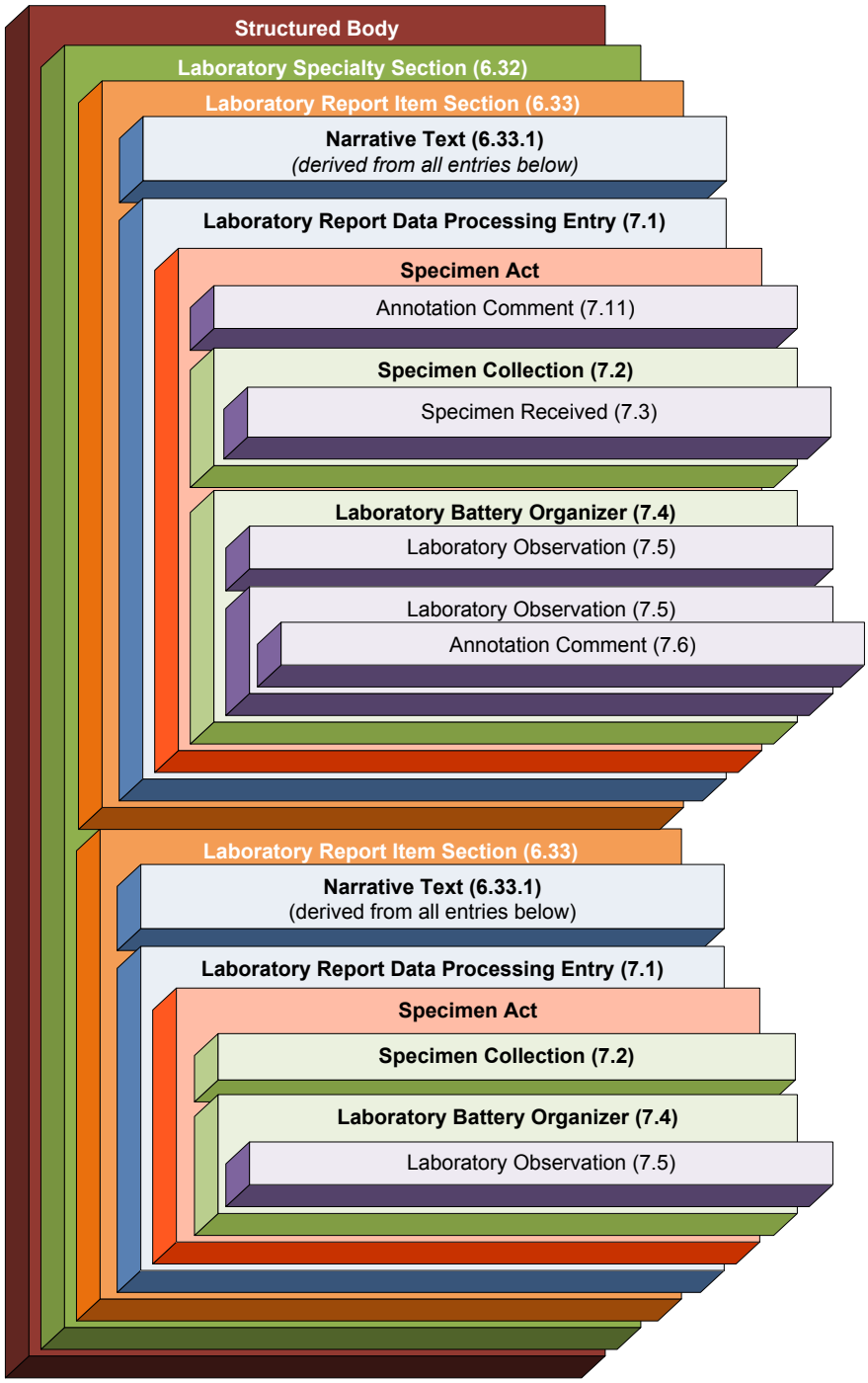
As mentioned in the Laboratory `ClinicalDocument/code` section 5.1.2.2, it is recognized that not all source systems may be able to map to the appropriate LOINC Laboratory Specialty Code. In these instances, it is acceptable to use `ClinicalDocument/code 26436-2 LABORATORY STUDIES 2.16.840.1.113883.6.1` LOINC STATIC, and include the Laboratory Specialty name in the narrative block if available.

The body of a Level 3 Laboratory Report is structured in a nested hierarchy as follows:

Structured Body
- Laboratory Specialty Section(s) (6.32)
  - Laboratory Report Item Section (6.33)
    - Narrative Text (derived from all entries below) (6.33.1)
    - Laboratory Report Data Processing Entry (7.1)
      - Specimen Act
        - Annotation Comment(s) (7.6)
        - Specimen Collection (7.2)
          - Specimen Received (7.3)
        - Laboratory Battery Organizer (7.4)
          - Laboratory Observation(s) (7.5)
          - Annotation Comment(s) (7.6)

Note that this visual representation of the hierarchy does not indicate cardinality or optionality, except for elements with plural forms in brackets. In these instances, there is a maximum cardinality of two or more. Please see the individual section and entry templates in this guide for details on how to implement them.

Below is a graphical representation of the body of a level 3 Laboratory Report:



A model of a Lab CDA with a single lab specialty and two batteries.
The first battery has two annotations, one attached to the specimen / battery, and one attached to a specific observation / test.

5.1.3.1. Structured Body constraints

Lab Results documents **SHOULD** have a level 3 structured body, as per **CONF-BC0146**, above. If a Lab Results document contains a structured body, the following constraints also apply:

CONF-BC0535: There **SHALL** be exactly one [1..1] `ClinicalDocument/component/structuredBody` element. The `component` element **SHALL** have its `typeCode` attribute fixed to "`COMP`" and the `structuredBody` element **SHALL** have its `classCode` attribute fixed to "`DOCBODY`" and its `moodCode` attribute fixed to "`EVN`".

CONF-BC0536: The `structuredBody` element **SHALL** have one or more [1..*] `component/section` elements. The `component` elements **SHALL** have their `typeCode` attribute fixed to "`COMP`", and the `section` elements SHALL have the `classCode` attribute fixed to "`DOCSECT`" and the `moodCode` attribute fixed to "`EVN`".

CONF-BC0537: Each top-level `section` element **SHALL** be a Laboratory Specialty Section (6.32), structured as explained above.

5.2. Document Type – Anatomic Pathology

- **TemplateId:** 2.16.840.1.113883.3.51.60.2.2
- **LOINC:** 11526-1

Current Anatomic Pathology reporting in BC is primarily in the form of non-discrete text reports communicated via HL7 v2 messaging. The v3 Pathology Result event model used in PLIS allows for a mixture of text and structured information, with the text divided into appropriate report sections, but does not prescribe the sections that should be included. Current practice is to include the complete report in one section.

Recommendations in this specification are based on the IHE Anatomic Pathology Technical Framework Supplement – Anatomic Pathology Structure Reports (APSR), developed jointly by HL7 and IHE. The APSR defines a general template for AP reports, as well as disease specific variations with specific assigned terminology. The profile also provides details regarding CDA level 3 encoding of the AP information, in order to support synoptic reporting.

It is recognized that BC Anatomic Pathology reports may be initially transmitted as Level 1 CDA documents, likely in formatted text. Refer to section 4.1.2 of this specification for conformance constraints that apply to Level 1 documents.

Conformance constraints for a Level 2 narrative Anatomic Pathology report in BC are described below. Level 3 encoded entries conforming to the APSR IHE profile may be provided, although not all receivers will be able to process them initially.

The APSR profile re-uses, where appropriate, templates from the IHE Laboratory Technical Framework (XD-LAB), and CCD templates referenced via the Patient Care Coordination (PCC) profile.

5.2.1. Additional Header Level Constraints

The requirements of the BC Header definition apply to Anatomic Pathology Structure Reports. The following additional constraints apply.

5.2.1.1. ClinicalDocument / templateId

CONF-BC0147: A `ClinicalDocument/templateId` element **SHALL** be present representing conformance to the constraints of the BC APSR, with the attribute value `root=2.16.840.1.113883.3.51.60.2.2`

5.2.1.2. ClinicalDocument / code

CONF-BC0148: SHALL contain `ClinicalDocument/code.code` with a `code` attribute of "`11526-1`", a `displayName` attribute of "`Pathology Report`", a `codeSystem` attribute of `2.16.840.1.113883.6.1`, and a `codeSystemName` attribute of "`LOINC`".

5.2.2. Document Body Constraints

CDA APSR documents are comprised of 1 to 6 sections containing human readable narrative text and optional encoded entries organized by specimen (or group of specimens examined together). This specification focuses on the Level 2 narrative text sections. Only the Diagnosis Section is mandatory. While the provision of individual sections with the appropriate section code and text is encouraged, in order to provide a transition path to a more structured report, this specification permits combining the remaining sections into one document section. Additionally, the IHE APSR specification defines coded entries to contain clinical statements carrying the structured information for each section. The initial scope of the BC specification is to define level 2 text reports. Level 3 structured entries conforming to the IHE APSR templates MAY be provided, but may not be processed by all receivers.

5.2.2.1. Anatomic Pathology Report - Sections

Section Name	Conformance	LOINC Code
Clinical Information	Optional	22636-5
Intraoperative Observation	Optional	
Macroscopic Observation	Optional	22634-0
Microscopic Observation	Optional	22635-7
Diagnosis	Mandatory	22637-3
Procedure Steps	Optional	46059-2
Pathology Report Text	Optional	46450-3

CONF-BC0149: Each provided section **SHALL** contain a narrative block, represented by the `section.text` element, which renders the human readable information.

CONF-BC0150: Each provided section **SHALL** contain exactly one [1..1] `title`.

CONF-BC0151: **MAY** contain zero or one [0..1] Clinical Information Section (`templateId 1.3.6.1.4.1.19376.1.8.1.2.1`)

CONF-BC0152: **MAY** contain zero or one [0..1] Intraoperative Observation Section (`templateId 1.3.6.1.4.1.19376.1.8.1.2.2`)

CONF-BC0153: **MAY** contain zero or one [0..1] Macroscopic Observation Section (`templateId 1.3.6.1.4.1.19376.1.8.1.2.3`)

CONF-BC0154: **MAY** contain zero or one [0..1] Microscopic Observation Section (`templateId 1.3.6.1.4.1.19376.1.8.1.2.4`)

CONF-BC0155: **SHALL** contain exactly one [1..1] Diagnosis Section (`templateId 2.16.840.1.113883.5.51.60.3.1`)

CONF-BC0156: **MAY** contain zero or one [0..1] Procedure Steps Section (`templateId 1.3.6.1.4.1.19376.1.8.1.2.6`)

CONF-BC0157: **MAY** contain zero or one [0..1] Pathology Report Text Section (`templateId 2.16.840.1.113883.5.51.60.3.2`)

5.3. Document Type – Procedure Note

- **TemplateId:** 2.16.840.1.113883.3.51.60.2.3
- **LOINC:** 28570-0

In December 2011, HL7 International and IHE published as a Draft Standard for Trial Use (DSTU) the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1. This effort reviewed the templates from existing Health Story Implementation Guides including Continuity of Care (CCD), Procedure Note, Discharge Summary, History and Physical, Diagnostic Imaging Report, and others. Since many section and entry level templates are re-used in a variety of documents, the content was harmonized and combined into one Implementation Guide to ensure consistency and ease of re-use.

Recommendations in this specification for Procedure Note are based on the content of the above DSTU. Where templates and conformance constraints are taken directly from the DSTU, template identifiers and constraint numbers are carried forward. Where BC requirements have driven a change to the definition (for instance, to apply Canadian terminology), BC template identifiers and constraint numbers have been assigned.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Procedure Note required and optional sections.

5.3.1. Additional Header Level Constraints

The requirements of the BC Header definition apply to Procedure Notes. The following additional constraints apply.

5.3.1.1. ClinicalDocument / templateId

CONF-BC0158: A `ClinicalDocument/templateId` element **SHALL** be present representing conformance to the constraints of a Procedure Note, with the attribute value `root="2.16.840.1.113883.3.51.60.2.3"`

5.3.1.2. ClinicalDocument / code

The Health Story DSTU allows use of any LOINC Codes from the ValueSet ProcedureNoteDocumentTypeCodes (`value set OID 2.16.840.1.113883.11.6.1`) for Procedure Note Documents, but recommends the use of a single document type code (28570-0 "Procedure Note") to minimize potential conflicts between header information and document type codes pre-coordinated by practice setting and/or training level of the author. This specification follows that recommendation, and limits CDA documents claiming conformance to this specification to the single general LOINC code.

CONF-BC0159: SHALL contain `ClinicalDocument/code.code = "28570-0"` (Procedure Note) `2.16.840.1.113883.6.1` LOINC STATIC

5.3.1.3. componentOf/EncompassingEncounter

Information regarding the encounter within which the documented procedure occurred is found in the header in `componentOf/EncompassingEncounter`. Procedure Notes following this specification must conform to the British Columbia Header requirements documented above.

Additionally, for Procedure Notes the following constraints apply:

CONF-8499: SHOULD contain zero or one [0..1] `componentOf/EncompassingEncounter`

CONF-8500: This `componentOf/EncompassingEncounter` **SHALL** contain at least one [1..*] `location/healthCareFacility/id`

5.3.1.4. Generic Participant: Primary Care Provider

If the Primary Care provider is not otherwise associated with the encounter or service event, they may be recorded as a generic participant. See the participant constraints in the BC Header definition for details.

5.3.1.5. documentationOf/serviceEvent

As defined in the HL7 Health Story DSTU, a ServiceEvent is required in the Procedure Note to represent the main act, such as a colonoscopy or a cardiac stress study, being documented. A `ServiceEvent/effectiveTime` element indicates the time the actual event (as opposed to the encounter surrounding the event) took place.

CONF-8510: SHALL contain at least one [1..*] `documentationOf/ServiceEvent`

CONF-10062: This `ServiceEvent` **SHALL** contain exactly one [1..1] `effectiveTime`

The preferred vocabulary for `ServiceEvent/code` would be a British Columbia defined filter on SNOMED-CT identifying the appropriate subset of codes descending from 71388002 (Procedure) for BC use. Work has begun in some regions on such a subset, but it is not available as of this writing. The HL7 Health Story DSTU provides a value set defined on SNOMED-CT for this purpose. This is provided as the current preferred choice, with the option of providing a code from ICD10-CA or CCI (Canadian Classification of Health Interventions) maintained by CIHI. However, it is also recognized that current challenges around mandatory coding for MSP billing may necessitate some implementers to use ICD9 codes in the interim.

CONF-BC0160: The value of `ServiceEvent/code` **SHOULD** be from the SNOMED CT (`codeSystem 2.16.840.1.113883.6.96) ValueSet Procedure 2.16.840.1.113883.3.88.12.80.28` DYNAMIC, or the value of `ServiceEvent/code` **MAY** be from ICD10-CA (`codeSystem 2.16.840.1.113881.6.94`) or CCI (`codeSystem 2.16.840.1.113883.6.94`).

The performer participant represents the clinicians who carry out the `ServiceEvent`. Assistants may be documented as secondary performers. See the BC Header definition section for constraints regarding how to document the performer of the `ServiceEvent`.

CONF-BC0161: SHOULD contain exactly one [1..1] primary performer where `performer.typeCode ="PPRF"` Primary Performer from `HL7ParticipationType 2.16.840.1.113883.5.90`

CONF-BC0162: MAY contain zero or more [0..*] secondary performers where `performer.typeCode ="SPRF"` Secondary Performer from `HL7ParticipationType 2.16.840.1.113883.5.90`

5.3.2. Document Body Constraints

The Health Story Consolidation DSTU specifies a list of required and optional sections for a Procedure Note. Many of the sections have two sets of constraints, referenced by different template ids indicating whether Level 3 entries are required or optional. This specification references sections with optional entries, as it is expected that most Procedure Notes in British Columbia, at least initially, will be Level 2 documents.

CONF-BC0163: Each provided section **SHALL** contain a narrative block, represented by the `section.text` element, which renders the human readable information.

CONF-BC0164: Each provided section **SHALL** contain exactly one [1..1] `title`.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Procedure Note required and optional sections.

5.3.2.1. Procedure Note – Required Sections

For this Implementation Guide, separate sections will be specified where the DSTU gives a choice of either combining or separating sections, (for instance "Assessment and Plan", or "Assessment" followed by "Plan of Care").

Section Name	LOINC Code
Assessment	51848-0
Plan of Care	18776-5
Complications	55109-3
Procedure Indications	59768-2
Postprocedure Diagnosis	59769-0
Procedure Description	29554-3

CONF-BC0165: **SHALL** contain exactly one [1..1] Assessment Section `(templateId 2.16.840.1.113883.10.20.22.2.8)`

CONF-BC0166: **SHALL** contain exactly one [1..1] Plan of Care Section `(templateId 2.16.840.1.113883.10.20.22.2.10)`

CONF-BC0167: **SHALL NOT** contain Assessment and Plan Section `(templateId 2.16.840.1.113883.10.20.22.2.9)`

CONF-9802: **SHALL** contain exactly one [1..1] Complications Section `(templateId 2.16.840.1.113883.10.20.22.2.37)`

CONF-9850: **SHALL** contain exactly one [1..1] Postprocedure Diagnosis Section `(templateId 2.16.840.1.113883.10.20.22.2.36)`

CONF-9805: **SHALL** contain exactly one [1..1] Procedure Description Section `(templateId 2.16.840.1.113883.10.20.22.2.27)`

CONF-9807: **SHALL** contain exactly one [1..1] Procedure Indications Section `(templateId 2.16.840.1.113883.10.20.22.2.29)`

5.3.2.2. Procedure Note – Optional Sections

Section Name	LOINC Code
Allergies Section (entries optional)	48765-2
Anesthesia	59774-0
Chief Complaint / Reason for Visit	46239-0
Family History	10157-6
History of Past Illness	11348-0
History of Present Illness	10164-2
Medical (General) History	11329-0
Medications Section (entries optional)	10160-0
Medications Administered	29549-3
Physical Exam	29545-1
Planned Procedure	59772-4
Procedure Disposition	59775-7
Procedure Findings	59776-5
Procedure Implants	59771-6
Procedure Specimens Taken	59773-2
Procedures Section (entries optional)	47519-4
Review of Systems	10187-3
Social History	29762-2

CONF-9809: **MAY** contain zero or one [0..1] Allergies Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.6)

CONF-9811: **MAY** contain zero or one [0..1] Anesthesia Section (templateId 2.16.840.1.113883.10.20.22.2.25)

The Health Story consolidation DSTU offers the choice of combining or separating the Chief Complaint and Reason for Visit sections . For the purposes of this specification, based upon Working Group clinical recommendation, the sections have been combined into the "Chief Complaint and Reason for Visit" section.

CONF-BC0168: **SHALL NOT** contain Chief Complaint Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1)

CONF-BC0169: **SHALL NOT** contain Reason for Visit Section (templateId 2.16.840.1.113883.10.20.22.2.12)

CONF-7480: **MAY** contain Chief Complaint and Reason for Visit Section (templateId 2.16.840.1.113883.10.20.22.2.13)

CONF-9817: **MAY** contain zero or one [0..1] Family History Section (templateId 2.16.840.1.113883.10.20.22.2.15)

CONF-9819: **MAY** contain zero or one [0..1] History of Past Illness Section (templateId 2.16.840.1.113883.10.20.22.2.20)

CONF-9821: **MAY** contain zero or one [0..1] History of Present Illness Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.4)

CONF-9823: **MAY** contain zero or one [0..1] Medical (General) History Section (templateId 2.16.840.1.113883.10.20.22.2.39)

CONF-9825: **MAY** contain zero or one [0..1] Medications Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.1)

CONF-9827: **MAY** contain zero or one [0..1] Medications Administered Section (templateId 2.16.840.1.113883.10.20.22.2.38)

CONF-9829: **MAY** contain zero or one [0..1] Physical Exam Section (templateId 2.16.840.1.113883.10.20.2.10)

CONF-9831: **MAY** contain zero or one [0..1] Planned Procedure Section (templateId 2.16.840.1.113883.10.20.22.2.30)

CONF-9833: **MAY** contain zero or one [0..1] Procedure Disposition Section (templateId 2.16.840.1.113883.10.20.18.2.12)

CONF-9835: **MAY** contain zero or one [0..1] Procedure Estimated Blood Loss Section (templateId 2.16.840.1.113883.10.20.18.2.9)

CONF-9837: **MAY** contain zero or one [0..1] Procedure Findings Section (templateId 2.16.840.1.113883.10.20.22.2.28)

CONF-9839: **MAY** contain zero or one [0..1] Procedure Implants Section (templateId 2.16.840.1.113883.10.20.22.2.40)

CONF-9841: **MAY** contain zero or one [0..1] Procedure Specimens Taken Section (templateId 2.16.840.1.113883.10.20.22.2.31)

CONF-9843: **MAY** contain zero or one [0..1] Procedures Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.7)

CONF-9847: **MAY** contain zero or one [0..1] Review of Systems Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.18)

CONF-9849: **MAY** contain zero or one [0..1] Social History Section (templateId 2.16.840.1.113883.10.20.22.2.17)

5.4. Document Type – Discharge Summary

- **TemplateId:** 2.16.840.1.113883.3.51.60.2.4
- **LOINC:** 18842-5

In December 2011, HL7 International and IHE published as a Draft Standard for Trial Use (DSTU) the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1. This effort reviewed the templates from existing Health Story Implementation Guides including Continuity of Care (CCD), Procedure Note, Discharge Summary, History and Physical, Diagnostic Imaging Report, and others. Since many section and entry level templates are re-used in a variety of documents, the content was harmonized and combined into one Implementation Guide to ensure consistency and ease of re-use.

Recommendations in this specification for Discharge Summary are based on the content of the above DSTU. Where templates and conformance constraints are taken directly from the DSTU, template identifiers and constraint numbers are carried forward. Where BC requirements have driven a change to the definition (for instance, to apply Canadian terminology), BC template identifiers and constraint numbers will be assigned.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Discharge Summary required and optional sections.

Note that coded entries are optional for the Discharge Summary template. Although certain sections (noted below) are mandatory to claim conformance to CDA Level 2, and associated entries to claim conformance to CDA Level 3, sending systems may still use the Discharge Summary template ID to declare conformance to CDA Level 1.

5.4.1. Additional Header Level Constraints

The requirements of the BC Header definition apply to Discharge Summaries. The following additional constraints apply.

5.4.1.1. ClinicalDocument/templateID

CONF-BC0170: A `ClinicalDocument/templateId` element **SHALL** be present representing conformance to the constraints of a Discharge Summary, with the attribute value `root="2.16.840.1.113883.3.51.60.2.4"`

5.4.1.2. ClinicalDocument/code

The Health Story DSTU allows use of any LOINC Codes from the `ValueSet DischargeSummaryDocumentTypeCodes (value set OID 2.16.840.1.113883.11.20.4.1)` for Discharge Summary Documents, but recommends the use of a single document type code (18842-5 "Discharge Summarization Note") to minimize potential conflicts between header information and document type codes pre-coordinated by practice setting and/or training level of the author. This specification follows that

recommendation, and limits CDA documents claiming conformance to this specification to the single general LOINC code.

CONF-BC0171: SHALL contain `ClinicalDocument/code.code` = "18842-5" (Discharge Summarization Note) `2.16.840.1.113883.6.1` LOINC STATIC

5.4.1.3. componentOf/EncompassingEncounter

Discharge summaries are associated with a hospital admission via the `EncompassingEncounter` element in the header. Refer to the constraints in the BC Header section for guidance regarding representing the participants in the encounter. While the `EncompassingEncounter` is Optional for the generalized header, it is mandatory for a Discharge Summary.

Admission and Discharge dates are recorded in the low and high value elements, respectively, of `componentOf/EncompassingEncounter/effectiveTime`.

Vocabulary for `dischargeDispositionCode` has been adjusted to reflect pan Canadian Standards.

CONF-8471: SHALL contain exactly one [1..1] `componentOf`

CONF-8472: This `componentOf` **SHALL** contain exactly one [1..1] `EncompassingEncounter`

CONF-8473: This `EncompassingEncounter` **SHALL** contain exactly one [1..1] `effectiveTime/low`

CONF-8475: This `EncompassingEncounter` **SHALL** contain exactly one [1..1] `effectiveTime/high`

CONF-BC0172: The `dischargeDispositionCode` **SHALL** be present where the value of the `code` **SHALL** be selected from pan Canadian ValueSet `EncounterDischargeDisposition 2.16.840.1.113883.2.20.3.43` DYNAMIC

Note that `effectiveTime/high` element does not reflect the time of death of a patient. To convey death time requires leveraging the CDA R2 extension as documented here: http://wiki.hl7.org/index.php?title=CDA_R2_Extensions

5.4.2. Document Body Constraints

The Health Story Consolidation DSTU specifies a list of required and optional sections for a Discharge Summary at CDA Level 2 or CDA Level 3. Many of the sections have two sets of constraints, referenced by different template ids indicating whether Level 3 entries are required or optional.

CONF-BC0173: Each provided section **SHALL** contain a narrative block, represented by the `section/text` element, which renders the human readable information.

CONF-BC0174: Each provided section **SHALL** contain exactly one [1..1] `title`.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Discharge Summary required and optional sections.

5.4.2.1. Discharge Summary – Required Sections

The following section templates are required to be present in a Discharge Summary if conforming to CDA Level 2 or CDA Level 3. Many of the sections have two sets of constraints, referenced by different template ids indicating whether Level 3 entries are required or optional.

Section Name	LOINC Code
Allergies (entries optional)	48765-2
Hospital Course	8648-8
Hospital Discharge Diagnosis	11535-2
Hospital Discharge Medications (entries optional)	10183-2
Plan of Care	18776-5

CONF-9542: **SHALL** contain exactly one [1..1] Allergies Section (entries optional) `(templateId 2.16.840.1.113883.10.20.22.2.6)`

CONF-9544: **SHALL** contain exactly one [1..1] Hospital Course Section `(templateId 1.3.6.1.4.1.19376.1.5.3.1.3.5)`

CONF-9546: **SHALL** contain exactly one [1..1] Hospital Discharge Diagnosis Section `(templateId 2.16.840.1.113883.10.20.22.2.24)`

CONF-9548: **SHALL** contain exactly one [1..1] Hospital Discharge Medications Section (entries optional) `(templateId 2.16.840.1.113883.10.20.22.2.11)`

CONF-9550: **SHALL** contain exactly one [1..1] Plan of Care Section `(templateId 2.16.840.1.113883.10.20.22.2.10)`

5.4.2.2. Discharge Summary – Optional Sections

Section Name	LOINC Code
Chief Complaint	10154-3
Reason for Visit	29299-5
Discharge Diet	42344-2
Family History	10157-6
Functional Status	47420-5
History of Past Illness	11348-0
History of Present Illness	10164-2
Hospital Admission Diagnosis	46241-6
Hospital Admission Medications (entries optional)	42346-7
Hospital Consultations	18841-7
Hospital Discharge Instructions	8653-8
Hospital Discharge Physical	10184-0
Hospital Discharge Studies Summary	11493-4
Immunizations	11369-6
Problem (entries optional)	11450-4
Procedures (entries optional)	47519-4
Review of Systems	10187-3
Social History	29762-2
Vital Signs (entries optional)	8716-3

The Health Story Consolidation DSTU offers the choice of combining or separating the Chief Complaint and Reason for Visit sections. As per working group recommendation, only the two separate sections may be included.

CONF-9554: **MAY** contain zero or one [0..1] Chief Complaint Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.1.13.2.1)

CONF-9878: **MAY** contain zero or one [0..1] Reason for Visit Section (templateId 2.16.840.1.113883.10.20.22.2.12)

CONF-BC0175: SHALL NOT contain Chief Complain and Reason for Visit Section (templateId 2.16.840.1.113883.10.20.22.2.13)

CONF-9558: **MAY** contain zero or one [0..1] Discharge Diet Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.33)

CONF-9560: **MAY** contain zero or one [0..1] Family History Section (templateId 2.16.840.1.113883.10.20.22.2.15)

CONF-9562: **MAY** contain zero or one [0..1] Functional Status Section (templateId 2.16.840.1.113883.10.20.22.2.14)

CONF-9564: **MAY** contain zero or one [0..1] History of Past Illness Section (templateId 2.16.840.1.113883.10.20.22.2.20)

CONF-9566: **MAY** contain zero or one [0..1] History of Present Illness Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.4)

CONF-9928: **MAY** contain zero or one [0..1] Hospital Admission Diagnosis Section (templateId 2.16.840.1.113883.10.20.22.2.43)

CONF-10111: **MAY** contain zero or one [0..1] Hospital Admission Medications Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.44)

CONF-9924: **MAY** contain zero or one [0..1] Hospital Consultations Section (templateId 2.16.840.1.113883.10.20.22.2.42)

CONF-9926: **MAY** contain zero or one [0..1] Hospital Discharge Instructions Section (templateId 2.16.840.1.113883.10.20.22.2.41)

CONF-9568: **MAY** contain zero or one [0..1] Hospital Discharge Physical Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.26)

CONF-9570: **MAY** contain zero or one [0..1] Hospital Discharge Studies Summary Section (templateId 2.16.840.1.113883.10.20.22.2.16)

CONF-9572: **MAY** contain zero or one [0..1] Immunizations Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.2)

CONF-9574: **MAY** contain zero or one [0..1] Problem Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.5)

CONF-9576: **MAY** contain zero or one [0..1] Procedures Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.7)

CONF-9580: **MAY** contain zero or one [0..1] Review of Systems Section (templateId 1.3.6.1.4.1.19376.1.5.3.1.3.18)

CONF-9582: **MAY** contain zero or one [0..1] Social History Section (templateId 2.16.840.1.113883.10.20.22.2.17)

CONF-9584: **MAY** contain zero or one [0..1] Vital Signs Section (entries optional) (templateId 2.16.840.1.113883.10.20.22.2.4)

5.5. Document Type – Diagnostic Imaging Report

- **TemplateId:** 2.16.840.1.113883.3.51.60.2.5
- **LOINC:** 18748-4

In December 2011, HL7 International and IHE published as a Draft Standard for Trial Use (DSTU) the HL7 Implementation Guide for CDA Release 2: IHE Health Story Consolidation, Release 1. This effort reviewed the templates from existing Health Story Implementation Guides including Continuity of Care (CCD), Procedure Note, Discharge Summary, History and Physical, Diagnostic Imaging Report, and others. Since many section and entry level templates are re-used in a variety of documents, the content was harmonized and combined into one Implementation Guide to ensure consistency and ease of re-use.

Recommendations in this specification for Diagnostic Imaging Report are based on the content of the above DSTU. Where templates and conformance constraints are taken directly from the DSTU, template identifiers and constraint numbers are carried forward. Where BC requirements have driven a change to the definition (for instance, to apply Canadian terminology), BC template identifiers and constraint numbers have been assigned.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Diagnostic Imaging Report required and optional sections.

5.5.1. Additional Header Level Constraints

The requirements of the BC Header definition apply to Diagnostic Imaging Reports (DIR). The following additional constraints apply.

5.5.1.1. ClinicalDocument/templateID

CONF-BC0176: A `ClinicalDocument/templateId` element **SHALL** be present representing conformance to the constraints of a Diagnostic Imaging Report, with the attribute value `root= "2.16.840.1.113883.3.51.60.2.5"`

5.5.1.2. ClinicalDocument/code

The Health Story DSTU recommends the use of a single LOINC Code for Diagnostic Imaging Reports.

CONF-BC0177: SHALL contain `ClinicalDocument/code.code = "18748-4"` (Diagnostic Imaging Report) `2.16.840.1.113883.6.1` LOINC STATIC

5.5.1.3. componentOf/EncompassingEncounter

Diagnostic Imaging Reports are associated with a hospital admission via the `EncompassingEncounter` element in the header. Refer to the constraints in the BC Header section for guidance regarding representing the participants in the encounter. While the `EncompassingEncounter` is Optional for the generalized header, it is mandatory for a Diagnostic Imaging Report.

5.5.2. Document Body Constraints

The Health Story Consolidation DSTU specifies a list of required and optional sections for a Diagnostic Imaging Report. Many of the sections have two sets of constraints, referenced by different `template ids` indicating whether Level 3 entries are required or optional. This specification references sections with optional entries.

CONF-BC0178: Each provided section **SHALL** contain a narrative block, represented by the `section/text` element, which renders the human readable information.

CONF-BC0179: Each provided section **SHALL** contain exactly one [1..1] `title`.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Diagnostic Imaging Report required and optional sections.

5.5.2.1. Diagnostic Imaging Report – Required Sections

The following section templates are required to be present in a Diagnostic Imaging Report if conforming to CDA Level 2 or CDA Level 3.

Section Name	LOINC Code	DICOM Code
DICOM Object Catalogue	*N/A*	121181
Findings (Radiology Study Observation)	18782-3	121070

CONF-9408: **SHALL** contain exactly one [1..1] DICOM Object Catalogue section (`templateId 2.16.840.1.113883.10.20.6.1.1`), which **SHALL** be the first section in the document body.

CONF-9484: **SHALL** contain exactly one [1..1] Findings section (`templateId 2.16.840.1.113883.10.20.6.1.2`)

CONF-BC0180: **SHALL** contain exactly one [1..1] `component`

CONF-BC0181: A Diagnostic Imaging Report can have either a structuredBody or a nonXMLBody

CONF-BC0182: A Diagnostic Imaging Report can conform to CDA Level 1 (nonXMLBody), CDA Level 2 (structuredBody with sections that contain a narrative block), or CDA Level 3 (structuredBody containing sections that contain a narrative block and coded entries). In this template, coded entries are optional.

CONF-BC0183: If structuredBody, the `component/structuredBody` **SHALL** conform to the constraints defined for each section.

CONF-9412: Each section element included in the `DIR` document body **SHALL** have a code element, which **SHALL** be the LOINC code. Where no LOINC equivalent exists, the `Dicom/DCM code` **SHALL** be used.

5.5.2.1. Diagnostic Imaging Report - Optional Section Level Templates

The following section templates may be present in a Diagnostic Imaging Report conforming to CDA Level 2 or CDA Level 3.

Section Name	LOINC Code	DICOM Code
Addendum	55107-7	121078
Clinical Presentation	55108-5	121110
Complications	55109-3	121113
Conclusions	55110-1	121076
Current Imaging Procedure Descriptions	55111-9	121064
Document Summary	55112-7	121111
Key Images	55113-5	121180
Medical (General) History		
Prior Imaging Procedure Descriptions	55114-3	121066
Radiology – Impression	19005-8	121072
Radiology Comparison Study – Observation	18834-2	121068
Radiology Reason for Study	18785-6	121109
Radiology Study – Recommendation	18783-1	121074
Requested Imaging Studies Information	55115-0	121062

The section codes in the table above describe narrative document sections. As per the Health Story Consolidation DSTU, for Level 2 conformance, "all section elements that are present in the body of the document must have a code and some nonblank text or one or more subsections, even if the purpose of the text is only to indicate that the information is unknown."

CONF-BC0184: Each provided section **SHALL** contain a narrative block, represented by the `section.text` element, which renders the human readable information.

CONF-BC0185: Each provided section **SHALL** contain exactly one `[1..1] title`.

Please refer to the "Section Templates" portion of the Implementation Guide for conformance statements and details related to each of the Diagnostic Imaging Report required and optional sections.

CONF-9412: (As also noted in the DIR required sections above), each section element included in the DIR document body **SHALL** have a code element, which **SHALL** be the LOINC code. Where no LOINC equivalent exists, the Dicom/DCM code SHALL be used.

CONF-BC0186: **MAY** contain zero or one [0..1] Addendum section, which if present conforms to LOINC 55107-7 as outlined in the Health Story Consolidation DSTU.

CONF-BC0187: **MAY** contain zero or one [0..1] Clinical Presentation section, which if present conforms to LOINC 55108-5 as outlined in the Health Story Consolidation DSTU.

CONF-BC0188: **MAY** contain zero or one [0..1] Complications section, `templateID 2.16.840.1.113883.10.20.22.2.37`.

CONF-BC0189: **MAY** contain zero or one [0..1] Conclusions section, which if present conforms to LOINC 55110-1 as outlined in the Health Story Consolidation DSTU.

CONF-BC0190: **MAY** contain zero or one [0..1] Current Imaging Procedure Descriptions section, which if present conforms to LOINC 55111-9 as outlined in the Health Story Consolidation DSTU.

CONF-BC0191: **MAY** contain zero or one [0..1] Document Summary section, which if present conforms to LOINC 55112-7 as outlined in the Health Story Consolidation DSTU.

CONF-BC0192: **MAY** contain zero or one [0..1] Key Images section, which if present conforms to LOINC 55113-5 as outlined in the Health Story Consolidation DSTU.

CONF-BC0193: **MAY** contain zero or one [0..1] Medical (General) History section, `templateID 2.16.840.1.113883.10.20.22.2.39`.

CONF-BC0194: **MAY** contain zero or one [0..1] Prior Imaging Procedure Descriptions section, which if present conforms to LOINC 55114-3 as outlined in the Health Story Consolidation DSTU.

CONF-BC0195: **MAY** contain zero or one [0..1] Radiology - Impression section, which if present conforms to LOINC 19005-8 as outlined in the Health Story Consolidation DSTU.

CONF-BC0196: **MAY** contain zero or one [0..1] Radiology Comparison Study – Observation section, which if present conforms to LOINC 18834-2 as outlined in the Health Story Consolidation DSTU.

CONF-BC0197: **MAY** contain zero or one [0..1] Radiology Reason for Study section, which if present conforms to LOINC 18785-6 as outlined in the Health Story Consolidation DSTU.

CONF-BC0198: **MAY** contain zero or one [0..1] Radiology Study - Recommendations section, which if present conforms to LOINC 18783-1 as outlined in the Health Story Consolidation DSTU.

CONF-BC0199: **MAY** contain zero or one [0..1] Requested Imaging Studies Information section, which if present conforms to LOINC 55115-0 as outlined in the Health Story Consolidation DSTU.

5.5.2.2. Diagnostic Imaging Report - Optional HL7 V3 Entry Level Templates

Entry Level Template Name
Boundary Observation
Code Observations
Purpose of Reference Observation
Quantity Measurement Observation
Referenced Frames Observation
Series Act
SOP Instance Observation
Study Act
Text Observation

5.6. Document Type – Other Clinical Document Types

- **TemplateId:** 2.16.840.1.113883.10.20.19

As stated before, creators of clinical documentation are encouraged to send structured information whenever possible. The CDA Release 2: IHE Health Story Consolidation, Release 1.1 – U.S. Realm Implementation Guide has structured templates for four additional clinical document types not covered in this guide. These document types are listed below, along with the recommended `templateId` values to use from the HL7 OID registry (http://www.hl7.org/oid) and the recommended LOINC codes to use in the `code.extension` attribute.

Document Template Name	templateId	LOINC code
Consultation Note	2.16.840.1.113883.10.20.4	11488-4
History & Physical Note	2.16.840.1.113883.10.20.2	34117-2
Operative Note	2.16.840.1.113883.10.20.7	11504-8
Progress Note	2.16.840.1.113883.10.20.21	11506-3

If sending structured documents, implementers SHOULD use these document templates where gaps exist in this guide, while using Pan-Canadian domains and valueSets where appropriate and conforming to this guide whenever possible.

For unstructured versions of these reports, as well as all other clinical document types, these documents MAY be sent within the current framework using the Unstructured Report type. All general header constraints in section 4 SHALL be followed, as well as the Level 1 conformance rules from section 4.1.2. The LOINC code listed above **SHOULD** be used in these documents if possible.

> **CONF-BC006:** A `ClinicalDocument/templateId` element **SHALL** be present representing conformance to the constraints of an Unstructured CDA Document, with the attribute value `root="2.16.840.1.113883.10.20.19"`

5.7. Document Type – Admission Notification and Discharge Notification Document Types

In June 2016, British Columbia Health Information Standards Working Group collaborated to develop two new CDA document template OIDs, as noted in the table below. These will be used in conjunction with the identified LOINC codes, and will be initially constrained to containing and unstructured body template in all other aspects.

Document Template Name	templateId	LOINC code
Admission Notification	2.16.840.1.113883.3.51.60.2.7	79429-7
Discharge Notification	2.16.840.1.113883.3.51.60.2.6	79430-5

6. Section Level Templates

Each of the template sections will contain a table which outlines where the described section template will be identified as Mandatory (M) or Optional (O) for the following types of documents. Please note the acronyms that follow the document names, as these are used in each table rather than the document full name.

- Procedure Note (PN)
- Discharge Summary (DS)
- Anatomic Pathology Summary Report (AP)
- Laboratory Results (LAB)
- Diagnostic Imaging Results (DI)
- Consultation (CO)*
- History & Physical (HP) *
- Progress Note (PR) *
- Operative Note (ON) *

The document types denoted with an asterisk (*) are out-of-scope within the bounds of this current project, and are simply included here for comparison and reference.

6.1. Addendum - LOINC 55107-7

- Cardinality: 0..1
- **LOINC:** 55107-7
- **DICOM:** 121078

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, an Addendum section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0200: SHALL contain exactly one [1..1] **code.code**="55107-7" (Addendum) LOINC STATIC

CONF-BC0201: SHALL contain exactly one [1..1] **title**

CONF-BC0202: SHALL contain exactly one [1..1] **text**

6.2. Allergies - LOINC 48765-2 (entries optional)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.6
- **LOINC:** 48765-2

Used by the following Clinical Documents:	Contains:
Progress Note Consultation Note Discharge Summary History and Physical Procedure Note	Allergy & Intolerance Observation Comment Observation Lifestage Observation Reaction Observation Severity Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Allergies section "lists and describes any medication allergies, adverse reactions, idiosyncratic reactions, anaphylaxis/anaphylactoid reactions to food items, and metabolic variations or adverse reactions/allergies to other substances (such as latex, iodine, tape adhesives) used to assure the safety of health care delivery. At a minimum, it should list currently active and any relevant historical allergies and adverse reactions."

This specification references the template identifier for the entries optional version of the Allergies section.

CONF-BC0203: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.6"`

CONF-7801: **SHALL** contain exactly one [1..1] **`code.code`**`="48765-2"` Allergies, & Intolerances (Reaction List) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-7802: **SHALL** contain exactly one [1..1] **`title`**

CONF-7803: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0204: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0205: **SHALL** contain exactly one [1..1] **`Allergy & Intolerance Observation`** conforming to `templateId` `2.16.840.1.113883.3.1818.10.3.3` defined in the PITO e2e Consolidated CDA Implementation Guide.

Discharge Summary - Example of Section with Allergies and Adverse Reactions

```
<component typeCode="COMP">
   <section classCode="DOCSECT" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.22.2.6"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="48765-2"
displayName="ALLERGIES AND INTOLERANCES LIST"/>
      <title>Allergies & Intolerances List</title>
      <text>
         <list listType="ordered">
            <item>Levaquin</item>
            <item>Lorazepam</item>
            <item>Peanuts</item>
         </list>
      </text>
   </section>
</component>
```

6.3. Anesthesia - LOINC 59774-0 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.25
- **LOINC:** 59774-0

Used by the following Clinical Documents:	Contains:
Progress Note Operative Note	Procedure Activity

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Anesthesia section "briefly records the type of procedure anesthesia (e.g., general or local) and may state the actual agent used. This may or may not be a subsection of the Procedure Description. The full details of anesthesia are usually found in a separate Anesthesia Note."

This specification references the template identifier for the entries optional version of the Anesthesia section.

CONF-10380: A `templateId` element **SHALL** be present, with the attribute value **`root=`**"`2.16.840.1.113883.10.20.22.2.25`"

CONF-8067: **SHALL** contain exactly one [1..1] **`code.code`**="59774-0" (Anesthesia) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-8068: **SHALL** contain exactly one [1..1] **`title`**

CONF-8069: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0206: **MAY** contain zero or more [0..*] **`entry`** such that it
CONF-BC0207: **SHALL** contain exactly one [1..1] `Procedure Activity Procedure` conforming to `templateId 2.16.840.1.113883.10.20.22.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0208: **MAY** contain zero or more [0..*] **`entry`** such that it
CONF-BC0209: **SHALL** contain exactly one [1..1] `Medication Activity` conforming to `templateId (2.16.840.1.113883.10.20.22.4.16)` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

6.4. Assessment - LOINC 51848-0

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.8
- **LOINC:** 51848-0

Used by the following Clinical Documents:	Contains:
Progress Note Consultation Note History and Physical Procedure Note	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, "the Assessment section (also called impression or diagnosis) represents the clinician's conclusions and working assumptions that will guide treatment of the patient. The assessment formulates a specific plan or set of recommendations. The assessment may be a list of specific disease entities or a narrative block."

CONF-10382: A `templateId` element **SHALL** be present, with the attribute value **`root=`**"`2.16.840.1.113883.10.20.22.2.8`"

CONF-8067: SHALL contain exactly one [1..1] **`code.code`**="51848-0" (Assessments) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-7713: SHALL contain exactly one [1..1] **`text`**

CONF-BC0210: SHALL contain exactly one [1..1] **`title`**

Procedure Note - Example of Section with Assessment

```
<component typeCode="COMP">
   <section classCode="DOCSECT" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.22.2.8"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="51848-0"
displayName="ASSESSMENTS"/>
      <title>ASSESSMENTS</title>
      <text>
         ...
      </text>
   </section>
</component>
```

6.5. Chief Complaint and Reason for Visit - LOINC 46239-0

- **Cardinality:** 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.13
- **LOINC:** 46239-0

Used by the following Clinical Documents:	Contains:
Procedure Note Discharge Summary Consultation Note History and Physical Progress Note	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Chief Complaint and Reason for Visit section "records the patient's chief complaint (the patient's own description) and/or the reason for the patient's visit (the provider's description of the reason for visit)."

CONF-7840: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.13."`

CONF-7841: SHALL contain exactly one [1..1] **`code.code`**="46239-0" (Chief Complaint and Reason for Visit) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-7843: SHALL contain exactly one [1..1] **`text`**

CONF-7842: SHALL contain exactly one [1..1] **`title`**

Discharge Summary - Chief complaint and reason for visit section example

```
<component typeCode="COMP">
   <section classCode="DOCSECT" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.22.2.13"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="46239-0"
displayName="CHIEF COMPLAINT AND REASON FOR VISIT"/>
      <title>CHIEF COMPLAINT</title>
      <text>Back Pain</text>
   </section>
</component>
```

6.6. Clinical Information - LOINC 22636-5

- **Cardinality:** 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.8.1.2.1
- **LOINC:** 22636-5

Used by the following Clinical Documents:	Contains:
Anatomic Pathology	

The Clinical Information section of an Anatomic Pathology Report contains the information provided by the ordering physician: Clinical history, preoperative diagnosis, postoperative diagnosis, reason for anatomic pathology procedure, clinical laboratory data, specimen collection procedure including target site, performer, specimen type, specimen(s) clinical description, and tumor site in case of a cancer. This section may contain nested subsections providing particular types of clinical information.

CONF-BC0211: SHALL contain exactly one [1..1] `code.code` = "22636-5" Pathology Report Relevant History 2.16.840.1.113883.6.1 LOINC STATIC

CONF-BC0212: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.8.1.2.1"`

CONF-BC0213: SHALL contain exactly one [1..1] **`text`**

CONF-BC0214: SHALL contain exactly one [1..1] **`title`**

CONF-BC0215: MAY contain zero or one [0..1] `component/section` whose `code.code` = "42349-1" (Reason for referral) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0216: MAY contain zero or one [0..1] `component/section` whose `code.code` = "10164-2" (History of Present illness) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0217: MAY contain zero or one [0..1] `component/section` whose `code.code` = "11450-4" (Problem List) `2.16.840.1.113883.6.1` LOINC STATIC

6.7. Clinical Presentation - LOINC 55108-5

- Cardinality: 0..1
- **LOINC:** 55108-5
- **DICOM:** 121110

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, an Clinical Presentation section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0218: SHALL contain exactly one [1..1] **`code.code`**="`55108-5`" ("Clinical Presentation") LOINC STATIC

CONF-BC0219: SHALL contain exactly one [1..1] **`title`**

CONF-BC0220: SHALL contain exactly one [1..1] **`text`**

6.8. Complications - LOINC 55109-3

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.37
- **LOINC:** 55109-3
- **DICOM:** 121113

Used by the following Clinical Documents:	Contains:
Procedure Note Anatomic Pathology Operative Note	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm "the Complications section records problems that occurred during the procedure or other activity. The complications may have been known risks or unanticipated problems."

CONF-BC0221: A `templateId` element SHALL be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.37"`

CONF-7833: SHALL contain exactly one [1..1] `code.code="55109-3"` (Complications) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-8176: SHALL contain exactly one [1..1] `title`

CONF-8177: SHALL contain exactly one [1..1] `text`

CONF-8797: There **SHALL** be a statement providing details of the complication(s) or it **SHALL** explicitly state there were no complications.

CONF-BC0222: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0223: SHALL contain exactly one [1..1] **`Problem Observation`** conforming to `templateId 2.16.840.1.113883.10.20.22.4.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Procedure Note - Example of Complications Section

```
<component typeCode="COMP">
   <section classCode="DOCSECT" moodCode="EVN">
      <templateId root="2.16.840.1.113883.10.20.22.2.37"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="55109-3"
displayName="COMPLICATIONS"/>
      <title>COMPLICATIONS</title>
      <text>None</text>
   </section>
```

```
</component>
```

6.9. Conclusions - LOINC 55110-1

- Cardinality: 0..1
- **LOINC:** 55110-1
- **DICOM:** 121076

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Conclusions section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0224: SHALL contain exactly one [1..1] **`code.code`**="55110-1" ("Conclusions") LOINC STATIC

CONF-BC0225: SHALL contain exactly one [1..1] **`title`**

CONF-BC0226: SHALL contain exactly one [1..1] **`text`**

6.10. Current Imaging Procedure Descriptions - LOINC 55111-9

- Cardinality: 0..1
- **LOINC:** 55111-9
- **DICOM:** 121064

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Current Imaging Procedure Descriptions section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0227: SHALL contain exactly one [1..1] **`code.code="55111-9"`** ("Current Imaging Procedure Descriptions") LOINC STATIC

CONF-BC0228: SHALL contain exactly one [1..1] **`title`**

CONF-BC0229: SHALL contain exactly one [1..1] **`text`**

6.11. Diagnosis - LOINC 22637-3

- **Cardinality:** 1..1 (exactly 1)
- **TemplateId:** 2.16.840.1.113883.3.51.60.3.1
- **LOINC:** 22637-3

Used by the following Clinical Documents:	Contains:
Anatomic Pathology	

The Diagnosis section of an Anatomic Pathology Report contains diagnoses on all specimens that are delivered to the pathology department from one operation or patient visit to a single clinician on a particular day. The diagnoses for each specimen or group of specimens are reported separately. This section includes additional pathologic finding(s) and the results of ancillary study(ies) and may include diagrams and still images or virtual slides, if taken. In case of cancer, this section includes the cancer checklist.

In addition to making a diagnosis section mandatory, APSR makes coded entries for Diagnosis mandatory. This specification relaxes that requirement to MAY, and hence does not conform to the APSR templateId. Since the APSR template is not adhered to, a BC identifier will need to be assigned.

CONF-BC0230: SHALL contain exactly one [1..1] `code.code ="22637-3"` (Pathology report diagnosis) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0231: SHALL contain exactly one [1..1] `templateId.root="2.16.840.1.113883.3.51.60.3.2"`

CONF-BC0232: SHALL contain exactly one [1..1] `text`

CONF-BC0233: SHALL contain exactly one [1..1] `title`

CONF-BC0234: MAY contain zero or more [0..*] Specimen Diagnosis entry elements conforming to APSR `templateId 1.3.6.1.4.1.19376.1.8.1.3.5`, defined in IHE Anatomic Pathology Technical Framework Volume 3 section 6.2.5.6 (PAT TF-3 6.2.5.6), except using pan-Canadian domains and valueSets where appropriate.

6.12. DICOM Object Catalog – DCM 121181

- **Cardinality:** 1..1 (exactly 1)
- **TemplateId:** 2.16.840.1.113883.10.20.6.1.1
- **DCM:** 121181

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the DICOM Object Catalog section "lists all referenced objects and their parent Series and Studies, plus other DICOM attributes required for retrieving the objects. DICOM Object Catalog sections are not intended for viewing and contain empty section text. "

CONF-8530: SHALL contain exactly one [1..1] `code.code` =" 121181" DICOM Object Catalog `(Code System: 1.2.840.10008.2.16.4 DCM)`

CONF-8525: SHALL contain exactly one [1..1] `templateId.root="2.16.840.1.113883.10.20.6.1.1"`

CONF-8527: If the document contains references to DICOM Images, a DICOM Object Catalog **SHALL** be present. If present, it **SHALL** be the first section in the document.

CONF-BC0235: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0236: SHALL contain exactly one [1..1] **Study Act** entry conforming to `templateId` 2.16.840.1.113883.10.20.6.2.6, defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

6.13. Discharge Diet - LOINC 42344-2

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.3.33
- **LOINC:** 42344-2

Used by the following Clinical Documents:	Contains:
Discharge Summary	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Discharge Diet section "records a narrative description of the expectations for diet, including proposals, goals, and order requests for monitoring, tracking, or improving the dietary control of the patient, used in a discharge from a facility such as an emergency department, hospital, or nursing home."

CONF-BC0237: A `templateId` element **SHALL** be present, with the attribute value `root=" 1.3.6.1.4.1.19376.1.5.3.1.3.33"`

CONF-7976: SHALL contain exactly one [1..1] **`code.code`**`="42344-2"` Discharge Diet (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7977: SHALL contain exactly one [1..1] **`title`**

CONF-7978: SHALL contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Discharge Diet

```
<component typeCode="COMP">
    <section classCode="DOCSECT" moodCode="EVN">
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.33"/>
        <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="42344-2"
displayName="DISCHARGE DIET"/>
        <title>DISCHARGE DIET</title>
        <text>Low-fat, low-salt, cardiac diet.</text>
    </section>
</component>
```

6.14. Document Summary - LOINC 55112-7

- Cardinality: 0..1
- **LOINC:** 55112-7
- **DICOM:** 121111

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Document Summary section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0238: SHALL contain exactly one [1..1] **`code.code="`**`55112-7`**`"`** ("Document Summary") LOINC STATIC

CONF-BC0239: SHALL contain exactly one [1..1] **`title`**

CONF-BC0240: SHALL contain exactly one [1..1] **`text`**

6.15. Family History - LOINC 10157-6 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.15
- **LOINC:** 10157-6

Used by the following Clinical Documents:	Contains:
Procedure Note Discharge Summary Consultation Note History and Physical	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Family History section "defines the patient's genetic relatives in terms of relevant health-risk factors that have a potential impact on the patient's health care profile. "

CONF-BC0241: A `templateId` element **SHALL** be present, with the attribute value `root=" 2.16.840.1.113883.10.20.22.2.15"`

CONF-7933: SHALL contain exactly one [1..1] **`code.code="10157-6"`** Family History (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7934: SHALL contain exactly one [1..1] **`title`**

CONF-7935: SHALL contain exactly one [1..1] **`text`**

CONF-BC0242: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0243: SHALL contain exactly one [1..1] **Family History Organizer** conforming to templateId `2.16.840.1.113883.10.20.22.4.45` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

6.16. Findings - DCM 121070

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.1.2
- **DCM:** 121070

Used by the following Clinical Documents:	Contains:
Diagnostic Imaging	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Findings section of a Diagnostic Imaging Report "contains the main narrative body of the report. While not an absolute requirement for transformed DICOM SR reports, it is suggested that Diagnostic Imaging Reports authored in CDA follow Term Info guidelines for the codes in the various observations and procedures recorded in this section . "

CONF-BC0244: A `templateId` element **SHALL** be present, with the attribute value `root=" 2.16.840.1.113883.10.20.6.1.2"`

CONF-BC0245: SHALL contain exactly one [1..1] **`code.code`**`="121070"` Findings (CodeSystem: `DCM 1.2.840.10008.2.16.4`)

CONF-BC0246: SHALL contain exactly one [1..1] **`title`**

CONF-BC0247: SHALL contain exactly one [1..1] **`text`**

CONF-8532: "This section **SHOULD** contain only the direct observations in the report, with topics such as Reason for Study, History, and Impression placed in separate sections. However, in cases where the source of report content provides a single block of text not separated into these sections, that text **SHALL** be placed in the Findings section."

6.17. Functional Status - LOINC 47420-5 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.14
- **LOINC:** 47420-5

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Functional Status section "describes the patient's status of normal functioning at the time the Care Record was created. Functional statuses include information regarding the patient relative to:

- Ambulatory ability
- Mental status or competency
- Activities of Daily Living (ADLs), including bathing, dressing, feeding, grooming
- Home / living situation having an effect on the health status of the patient
- Ability to care for self
- Social activity, including issues with social cognition, participation with friends and acquaintances other than family members
- Occupation activity, including activities partly or directly related to working, housework or volunteering, family and home responsibilities or activities related to home and family
- Communication ability, including issues with speech, writing or cognition required for communication
- Perception, including sight, hearing, taste, skin sensation, kinesthetic sense, proprioception, or balance

Any deviation from normal function that the patient displays and is recorded in the record should be included. Of particular interest are those limitations that would in any way interfere with self care or the medical therapeutic process. In addition, an improvement, any change in or noting that the patient has normal functioning status is also valid for inclusion."

CONF-BC0248: A `templateId` element **SHALL** be present, with the attribute value `root=" 2.16.840.1.113883.10.20.22.2.14"`

CONF-7921: **SHALL** contain exactly one [1..1] **`code.code`**`="47420-5"` Functional Status (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7922: **SHALL** contain exactly one [1..1] **`title`**

CONF-7923: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0249: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0250: SHALL contain exactly one [1..1] **Problem Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0251: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0252: SHALL contain exactly one [1..1] **Result Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.2` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Functional Status

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.1.5"/>
      <id root="2.16.840.1.113883.19" extension="32452353"/>
      <code code="47420-5" displayName="FUNCTIONAL STATUS ASSESSMENT"
         codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
      <title>FUNCTIONAL STATUS</title>
      <text>
         Ambulatory.
      </text>
   </section>
</component>
```

6.18. History of Past Illness – LOINC 11348-0 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.20
- **LOINC:** 11348-0

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	O				O	M		

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the History of Past Illness section "describes the history related to the patient's current complaints, problems, or diagnoses. It records the historical details leading up to and pertaining to the patient's current complaint or reason for seeking medical care."

CONF-BC0253: A `templateId` element **SHALL** be present, with the attribute value `root=" 2.16.840.1.113883.10.20.22.2.20"`

CONF-7929: **SHALL** contain exactly one [1..1] **`code.code`**`="11348-0"` History of Past Illness (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7830: **SHALL** contain exactly one [1..1] **`title`**

CONF-7931: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0254: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0255: **SHALL** contain exactly one [1..1] **Problem Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with History of Past Illness

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.2.20"/>
      <code code="11348-0" codeSystem="2.16.840.1.113883.6.1"
         codeSystemName="LOINC"
         displayName="HISTORY OF PAST ILLNESS"/>
      <title>PAST MEDICAL HISTORY</title>
      <text> No other recent fractures.    </text>
   </section>
</component>
```

6.19. History of Present Illness - LOINC 10164-2

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.3.4
- **LOINC:** 10164-2

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	O				M	O		

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the History of Present Illness section "describes the history related to the patient's current complaints, problems, or diagnoses. It records the historical details leading up to and pertaining to the patient's current complaint or reason for seeking medical care."

CONF-BC0256: A `templateId` element **SHALL** be present, with the attribute value `root=" 1.3.6.1.4.1.19376.1.5.3.1.3.4"`

CONF-7849: **SHALL** contain exactly one [1..1] **`code.code`**`="10164-2"` History of Present Illness (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7850: **SHALL** contain exactly one [1..1] **`title`**

CONF-7851: **SHALL** contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with History of Present Illness

```
<component>
   <section>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.4"/>
      <code code="10164-2" codeSystem="2.16.840.1.113883.6.1"
         codeSystemName="LOINC" displayName="HISTORY OF PRESENT ILLNESS"/>
      <title>HISTORY OF PRESENT ILLNESS</title>
      <text>
         Patient slipped and fell on ice, twisting her ankle as she fell.
      </text>
   </section>
</component>
```

6.20. Hospital Admission Diagnosis – LOINC 46241-6 (Entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.43
- **LOINC:** 46241-6

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Admission Diagnosis section "contains a narrative description of the primary reason for admission to a hospital facility. The section includes an optional entry to record patient conditions."

CONF-BC0257: A `templateId` element **SHALL** be present, with the attribute value `root=" 2.16.840.1.113883.10.20.22.2.43"`

CONF-9931: SHALL contain exactly one [1..1] **`code.code="46241-6"`** Hospital Admission Diagnosis (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-9932: SHALL contain exactly one [1..1] **`title`**

CONF-9933: SHALL contain exactly one [1..1] **`text`**

CONF-BC0258: MAY contain zero or one [0..1] **`entry`** such that it

CONF-BC0259: SHALL contain exactly one [1..1] **Hospital Admission Diagnosis** conforming to `templateId 2.16.840.1.113883.10.20.22.4.34` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Hospital Admission Diagnosis Section and Entry

```
<component typeCode="COMP">
    <section classCode="DOCSECT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.22.2.43"/>
        <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="46241-6"
displayName="HOSPITAL ADMISSION DIAGNOSIS"/>
        <title>HOSPITAL ADMISSION DIAGNOSIS</title>
        <text>Appendicitis</text>
        <entry>
            <act classCode="ACT" moodCode="EVN">
                <!-- Admission Diagnosis template -->
                <templateId root="2.16.840.1.113883.10.20.22.2.43"/>
                <id root="5a784260-6856-4f38-9638-80c751aff2fb"/>
                <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="46241-
6" displayName="HOSPITAL ADMISSION DIAGNOSIS"/>
                <statusCode code="active"/>
                <effectiveTime>
                    <low value="20090303"/>
                </effectiveTime>
                <entryRelationship typeCode="SUBJ" inversionInd="false">
                    <observation classCode="OBS" moodCode="EVN" negationInd="true">
                        <templateId root="2.16.840.1.113883.10.20.22.4.4" />
                        <code code="ASSERTION" codeSystem="2.16.840.1.113883.5.4" />
                        <statusCode code="completed" />
                        <value xsi:type="CD" code="55607006"
                            codeSystem="2.16.840.1.113883.6.96"
                            displayName="Problem" />
                    </observation>
                </entryRelationship>
            </act>
        </entry>
    </section>
</component>
```

6.21. Hospital Admission Medications – LOINC 42346-7 - (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.44
- **LOINC:** 42346-7

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Admission Medications section "defines the relevant medications administered prior to admission to the facility. The currently active medications must be listed."

CONF-BC0260: A `templateId` element **SHALL** be present, with the attribute value `root=`" 2.16.840.1.113883.10.20.22.2.44"

CONF-10099: SHALL contain exactly one [1..1] **`code.code`**`="42346-7"` Medications on Admission (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-10100: SHALL contain exactly one [1..1] **`title`**

CONF-10101: SHALL contain exactly one [1..1] **`text`**

CONF-BC0261: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0262: SHALL contain exactly one [1..1] **Admission Medication** conforming to `templateId 2.16.840.1.113883.10.20.22.4.36` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Hospital Admission Medications

```
    <component typeCode="COMP>
       <section classCode="DOCSECT" moodCode="EVN">
        <templateId root="2.16.840.1.113883.10.20.22.2.44"/>
        <code code="42346-7"
              codeSystem="2.16.840.1.113883.6.1"
              codeSystemName="LOINC"
              displayName="ADMISSION MEDICATIONS"/>
        <title>Hospital Admission Medications</title>
        <text>
           Proventil 0.09 MG/ACTUAT inhalant solution,
           2 puffs QID PRN wheezing
        </text>
        <entry typeCode="DRIV">
           <act classCode="ACT" moodCode="EVN">
              <templateId root="2.16.840.1.113883.10.20.22.4.36"/>
              <id root="5a784260-6856-4f38-9638-80c751aff2fb"/>
              <code  code="42346-7"
                     codeSystem="2.16.840.1.113883.6.1"
                     codeSystemName="LOINC"
                     displayName="ADMISSION MEDICATIONS"/>
              <statusCode code="active"/>
              <effectiveTime>
                 <low value="20903003"/>
              </effectiveTime>
              <entryRelationship typeCode="SUBJ">
                 <substanceAdministration moodCode="" classCode="SBADM">
                    <templateId root="2.16.840.1.113883.10.20.22.4.16"/>
                    <substanceAdministration classCode="SBADM" moodCode="EVN">
                       <templateId root="2.16.840.1.113883.10.20.22.4.16"/>
                       <id root="cdbd33f0-6cde-11db-9fe1-0800200c9a66"/>
                       <text><reference value="#med1/>
                          Proventil 0.09 MG/ACTUAT inhalant solution,
                          2 puffs QID PRN wheezing
                       </text>
                       <statusCode code="completed"/>
                       <effectiveTime xsi:type="IVL_TS">
                          <low value="20110301"/>
                          <high value="20120301"/>
                       </effectiveTime>
                       <effectiveTime xsi:type="PIVL_TS" institutionSpecified="true"
operator="A">
                          <period value="6" unit="h"/>
                       </effectiveTime>
                 </substanceAdministration>
              </entryRelationship>
           </act>
        </entry>
       </section>
    </component>
```

6.22. Hospital Consultations – LOINC 18841-7

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.42
- **LOINC:** 18841-7

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Admission Medications section "records consultations that occurred during the admission."

CONF-BC0263: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.42"`

CONF-9916: **SHALL** contain exactly one [1..1] **`code.code`**`="18841-7"` Hospital Consultations Section (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-9917: **SHALL** contain exactly one [1..1] **`title`**

CONF-9918: **SHALL** contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Hospital Consultations

```
<component>
   <section>
   <templateId root="2.16.840.1.113883.10.20.22.2.42"/>
   <code code="18841-7" codeSystem="2.16.840.1.113883.6.1"
      codeSystemName="LOINC" displayName="Hospital Consultations Section"/>
  <title>HOSPITAL CONSULTATIONS</title>
  <text>
    <list listType="ordered">
      <item>Gastroenterology</item>
      <item>Cardiology</item>
      <item>Dietitian</item>
    </list>
  </text>
   </section>
</component>
```

6.23. Hospital Course - LOINC 8648-8

- Cardinality: 1..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.3.5
- **LOINC:** 8648-8

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	M							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Course section "describes the sequence of events from admission to discharge in a hospital facility."

CONF-BC0264: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.5.3.1.3.5"`

CONF-7853: **SHALL** contain exactly one [1..1] **`code.code`**`="18841-7"` Hospital Consultations Section (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7854: **SHALL** contain exactly one [1..1] **`title`**

CONF-7855: **SHALL** contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Hospital Course

```
<component>
   <section>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.5"/>
      <code code="8648-8" displayName="HOSPITAL COURSE"
         codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
      <title>HOSPITAL COURSE</title>
      <text>
         The patient was admitted and started on Lovenox and nitroglycerin paste.
         The patient had a serial cardiac enzymes and was ruled out for myocardial
         Infarction.  The patient underwent a dual isotope stress test.  There was
         no evidence of reversible ischemia on the Cardiolite scan.  The patient
         has been ambulated.  The patient had a Holter monitor placed but the report
         is not available at this time.  The patient has remained hemodynamically
         stable.  Will discharge.
      </text>
   </section>
</component>
```

6.24. Hospital Discharge Diagnosis - LOINC 11535-2 (entries optional)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.24
- **LOINC:** 11535-2

Applicable Clinical Documents								
PN	**DS**	**AP**	**LAB**	**DI**	**CO***	**HP***	**PR***	**ON***
	M							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Discharge Diagnosis section "describes the relevant problems or diagnoses at the time of discharge that occurred during the hospitalization or that need to be followed after hospitalization. This section includes an optional entry to record patient conditions."

CONF-BC0265: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.24"`

CONF-7980: **SHALL** contain exactly one [1..1] **`code.code`**="`11535-2`" Hospital Discharge Diagnosis (CodeSystem: `2.16.840.1.113883.6.1 LOINC`)

CONF-7981: **SHALL** contain exactly one [1..1] **`title`**

CONF-7982: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0266: **MAY** contain zero or one [0..1] **`entry`** such that it

> **CONF-BC0267:** **SHALL** contain exactly one [1..1] **Hospital Discharge Diagnosis** conforming to `templateId 2.16.840.1.113883.10.20.22.4.33` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0268: **MAY** contain zero or one [0..1] **`Discharge Diagnosis`** code such that it

> **CONF-BC0269:** **SHOULD** be from the SNOMED-CT (`codeSystem 2.16.840.1.113883.6.96`) `ValueSet Diagnosis`, or the value MAY be from ICD10-CA/CCI (codeSystem `2.16.840.1.113883.6.94`)

Discharge Summary - Example of Section with Hospital Discharge Diagnosis

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20. 22.2.24"/>
      <code code="11535-2" displayName="HOSPITAL DISCHARGE DX"
         codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
      <title>HOSPITAL DISCHARGE DIAGNOSIS</title>
      <text>
         Unspecified chest pain.
      </text>
   </section>
</component>
```

6.25. Hospital Discharge Instructions – LOINC 8653-8

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.41
- **LOINC:** 8653-8

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Discharge Instructions section "records instructions at discharge."

CONF-BC0270: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.41"`

CONF-9920: SHALL contain exactly one [1..1] **`code.code`**`="8653-8"` HOSPITAL DISCHARGE INSTRUCTIONS (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-9921: SHALL contain exactly one [1..1] **`title`**

CONF-9922: SHALL contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Hospital Discharge Instructions

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.22.2.41"/>
      <code code="8653-8" codeSystem="2.16.840.1.113883.6.1"
         codeSystemName="LOINC" displayName="HOSPITAL DISCHARGE INSTRUCTIONS"/>
      <title>HOSPITAL DISCHARGE INSTRUCTIONS</title>
      <text>
         Discharge instructions.
      </text>
   </section>
</component>
```

6.26. Hospital Discharge Medications - LOINC 10183-2 (entries optional)

- **Cardinality:** 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.11
- **LOINC:** 10183-2

Applicable Clinical Documents								
PN	**DS**	**AP**	**LAB**	**DI**	**CO***	**HP***	**PR***	**ON***
	M							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Discharge Medications section "defines the medications that the patient is intended to take (or stop) after discharge. The currently active medications must be listed. The section may also include a patient's prescription history and indicate the source of the medication list, for example, from a pharmacy system versus from the patient."

CONF-BC0271: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.11"`

CONF-7817: SHALL contain exactly one [1..1] **`code.code`**`="10183-2"` Hospital Discharge Medications (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7818: SHALL contain exactly one [1..1] **`title`**

CONF-7819: SHALL contain exactly one [1..1] **`text`**

CONF-BC0272: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0273: SHALL contain exactly one [1..1] **Discharge Medication** conforming to `templateId 2.16.840.1.113883.10.20.22.4.35` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

6.27. Hospital Discharge Physical - LOINC 10184-0

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.3.26
- **LOINC:** 10184-0

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Discharge Physical section "records a narrative description of the patient's physical findings."

CONF-BC0274: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.5.3.1.3.26"`

CONF-7972: SHALL contain exactly one [1..1] **`code.code`**`="10184-0"` Hospital Discharge Physical (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7973: SHALL contain exactly one [1..1] **`title`**

CONF-7974: SHALL contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Hospital Discharge Physical

```
<component>
   <section>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.26"/>
      <code code="10184-0" displayName="HOSPITAL DISCHARGE PHYSICAL"
         codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"/>
      <title>HOSPITAL DISCHARGE PHYSICAL</title>
      <text>
         GENERAL: Well-developed, slightly obese man.
         NECK: Supple, with no jugular venous distension.
         HEART: Intermittent tachycardia without murmurs or gallops.
         PULMONARY: Decreased breath sounds, but no clear-cut
            rales or wheezes.
         EXTREMITIES: Free of edema.
      </text>
   </section>
</component>
```

6.28. Hospital Discharge Studies Summary - LOINC 11493-4

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.16
- **LOINC:** 11493-4

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O							

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Hospital Discharge Studies Summary section "This section records the results of observations generated by laboratories, imaging procedures, and other procedures. The scope includes hematology, chemistry, serology, virology, toxicology, microbiology, plain x-ray, ultrasound, CT, MRI, angiography, echocardiography, nuclear medicine, pathology, and procedure observations. This section often includes notable results such as abnormal values or relevant trends, and could record all results for the period of time being documented.

Laboratory results are typically generated by laboratories providing analytic services in areas such as chemistry, hematology, serology, histology, cytology, anatomic pathology, microbiology, and/or virology. These observations are based on analysis of specimens obtained from the patient and submitted to the laboratory.

Imaging results are typically generated by a clinician reviewing the output of an imaging procedure, such as where a cardiologist reports the left ventricular ejection fraction based on the review of an echocardiogram.

Procedure results are typically generated by a clinician wanting to provide more granular information about component observations made during the performance of a procedure, such as when a gastroenterologist reports the size of a polyp observed during a colonoscopy.

CONF-BC0275: A `templateId` element SHALL be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.16"`

CONF-7911: SHALL contain exactly one [1..1] **`code.code="`**`11493-4`**`"`** Hospital Discharge Studies Summary (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7912: SHALL contain exactly one [1..1] **`title`**

CONF-7913: SHALL contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section with Hospital Discharge Studies Summary

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.16.2.3"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         code="11493-4" displayName="HOSPITAL DISCHARGE STUDIES SUMMARY"/>
      <title>HOSPITAL DISCHARGE STUDIES SUMMARY</title>
      <text>
         <table>
            <tbody>
               <tr><td colspan=”2”>LABORATORY INFORMATION</td></tr>
               <tr><td colspan=”2”>Chemistries and drug levels</td></tr>
               <tr><td colspan=”2”>Sodium</td><td>138</td></tr>
               . . .
               <tr><td colspan=”2”>ELECTROCARDIOGRAM (EKG) INFORMATION</td></tr>
               <tr><td colspan=”2”>Sinus rhythm without acute changes.</td></tr>
            </tbody>
         </table>
      </text>
   </section>
</component>
```

6.29. Immunizations - LOINC 11369-6 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.2
- **LOINC:** 11369-6

Used by the following Clinical Documents:	Contains:
Transfer Summary (CDA R2) Consultation Note Discharge Summary History and Physical	Immunization Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Immunizations section "defines a patient's current immunization status and pertinent immunization history. The primary use case for the Immunization section is to enable communication of a patient's immunization status. The section should include current immunization status, and may contain the entire immunization history that is relevant to the period of time being summarized."

CONF-BC0276: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.2"`

CONF-7966: **SHALL** contain exactly one [1..1] **`code.code`**`="11369-6"` History of Immunizations (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7967: **SHALL** contain exactly one [1..1] **`title`**

CONF-7968: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0277: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0278: **SHALL** contain exactly one [1..1] **Immunization Observation** conforming to `templateId 2.16.840.1.113883.3.1818.10.3.11` defined in the PITO e2e Consolidated CDA Implementation Guide.

Discharge Summary - Example of Section with Immunizations

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.1.6"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         code="11369-6" displayName="HISTORY OF IMMUNIZATIONS"/>
      <title>IMMUNIZATIONS</title>
      <text>
         Tetanus and diphtheria toxoids, IM
         Completed 1997
      </text>
   </section>
</component>
```

6.30. Intraoperative Observation

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.8.1.2.2
- **LOINC:** APSR Requested

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

The Intraoperative Observation section of an Anatomic Pathology Report contains an intraoperative diagnosis for each specimen examined, the specimen identification and description, intraoperative observation procedure description (frozen section, gross examination, intraoperative cytology) and derived specimen dissected for other ancillary procedures (flow cytometry, cytogenetics, molecular studies, and electron microscopy).

Note: The IHE APSR project requested a LOINC code for this clinical document section. At the time of the most recent update of this document (October 2012), the LOINC database was searched and no code had yet been assigned, and no other appropriate section code was found.

CONF-BC0279: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.8.1.2.2"`

CONF-BC0280: SHALL contain exactly one [1..1] **`code.code`**`="APSR Requested"` Intraoperative Observation (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-BC0281: SHALL contain exactly one [1..1] **`title`**

CONF-BC0282: SHALL contain exactly one [1..1] **`text`**

6.31. Key Images - LOINC 55113-5

- Cardinality: 0..1
- **LOINC:** 55113-5
- **DICOM:** 121180

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Key Images section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0283: SHALL contain exactly one [1..1] **`code.code`**="`55113-5`" ("Key Images") LOINC STATIC

CONF-BC0284: SHALL contain exactly one [1..1] **`title`**

CONF-BC0285: SHALL contain exactly one [1..1] **`text`**

6.32. Laboratory Specialty Section

- **Cardinality:** 1..*
- **TemplateID:** 1.3.6.1.4.1.19376.1.3.3.2.1

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
			M					

CONF-BC0286: A `templateId` element **SHALL** be present, with the attribute value **`root="1.3.6.1.4.1.19376.1.3.3.2.1"`** identifying this section as a Laboratory Specialty Section.

CONF-BC0287: If present, the Laboratory Specialty Section **SHALL** have a code element which identifies the LOINC laboratory specialty. The `code, codeSystem,` and `displayName` attributes **SHALL** be present. The `codeSystemName` **MAY** also be present. See the table in section 5.1.3, **CONF-BC0146** for a list of specialty sections and their LOINC codes.

CONF-BC0288: The Laboratory Specialty Section `title` element **MAY** be present. It is the local translation of the `code.displayName`.

A Laboratory Specialty Section **SHALL** contain one or more [1..*] **Laboratory Report Item Sections**, and **SHALL NOT** directly contain text or entries.

CONF-BC0289: **SHALL** contain one or more [1..*] Laboratory Report Item Sections (`templateId 1.3.6.1.4.1.19376.1.3.3.2.2`)

CONF-BC0290: Laboratory Specialty Section **SHALL NOT** contain a `text` element (the text narrative is contained in the Laboratory Report Item Section(s) contained in the Laboratory Specialty section).

CONF-BC0291: Laboratory Specialty Section **SHALL NOT** contain `entry` elements. Like the `text` element above, entries are included below the Laboratory Report Item Section(s).

Example of Laboratory Specialty section, Laboratory Report Item section, and Specimen Act

```
<component typeCode="COMP">
   <structuredBody classCode="DOCBODY" moodCode="EVN">
      <component typeCode="COMP">
         <section classCode="DOCSECT" moodCode="EVN">
            <templateId  root="1.3.6.1.4.1.19376.1.3.3.2.1"
                         assigningAuthorityName="Laboratory Specialty Section"/>
            <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                  code="18768-2" displayName="Cell Counts + Differential Studies"/>
            <title>Laboratory Studies</title>
            <component typeCode="COMP">
               <section classCode="DOCSECT" moodCode="EVN">
                  <templateId  root="1.3.6.1.4.1.19376.1.3.3.2.2"
                               assigningAuthorityName="Laboratory Report Item Section" />
                  <code codeSystem="2.16.840.1.113883.2.20.5.1" codeSystemName="pCLOCD"
                        code="24336-0" displayName="Gas Panel; Arterial Blood"/>
            <title>Gas Panel; Arterial Blood</title>
            <!-- ==== Derived Text Representation of Discrete Lab Results ==== -->
            <text> ...Derived Narrative Text Goes Here... </text>
            <!-- ==== Machine Readable HL7 V3 Discrete Lab Results ==== -->
            <entry typeCode="DRIV">
               <templateId root="1.3.6.1.4.1.19376.1.3.1"
                  assigningAuthorityName="Laboratory Report Data Processing Entry"/>
               <!-- Specimen Act -->
               <act classCode="ACT" moodCode="EVN" >
                  <code codeSystem="2.16.840.1.113883.2.20.5.1" codeSystemName="pCLOCD"
                        code="24336-0" displayName="Gas Panel; Arterial Blood"/>
                  <statusCode code="completed"/>
                  <!-- Specimen Collection entry -->
                  <entryRelationship typeCode="COMP">
                     <procedure classCode="PROC" moodCode="EVN">
                        ...
                     </procedure>
                  </entryRelationship>
                  <entryRelationship typeCode="COMP">
                  <!-- organizers, observations, annotations go here -->
                  </entryRelationship>
               </act>
            </entry>
         </section>
      </component>
   </section>
</component>
```

6.33. Laboratory Report Item Section

- **Cardinality:** 1..*
- **TemplateID:** 1.3.6.1.4.1.19376.1.3.3.2.2

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
			M					

At the second level (nested in one **Laboratory Specialty** section), each "leaf" section represents a **Report Item**. It can be a battery (or test panel), an individual test, or the complete study of a specimen (particularly in the MICROBIOLOGY STUDIES specialty). A Laboratory Report Item Section under a Laboratory Specialty Section **SHALL** represent only one **Report Item**. Please see the hierarchical list of Laboratory sections and entries in section 5.1.3, and the example XML in the **Laboratory Specialty Section** (section 6.32) above, for how to construct a Laboratory Report Item section inside a Laboratory Specialty section. The general rule is to put the specimen at the **highest possible level** in the hierarchy of the document.

CONF-BC0292: A `templateId` element **SHALL** be present, with the attribute value **`root="1.3.6.1.4.1.19376.1.3.3.2.2"`**, identifying this section as a **Laboratory Report Item Section** under a **Laboratory Specialty Section**.

CONF-BC0293: The Laboratory Report Item Section **SHALL** have a code element which identifies the single **Report Item** using a code system such as LOINC or pCLOCD. The `code`, `codeSystem`, and `displayName` attributes **SHALL** be present. The `codeSystemName` and `orginalText` attributes **MAY** also be present. This code **SHALL** be the same as code of the primary organizer or observation contained in this section.

CONF-BC0294: `section/code` **SHOULD** use the pan-Canadian value set `ObservationResultableLabType 2.16.840.1.113883.2.20.3.105` DYNAMIC

CONF-BC0295: The `title` element **MAY** be present. If present, it SHOULD be the corresponding LOINC/pCLOCD `code.displayName`. (Note: Until all source systems have fully updated to use the LOINC/pCLOCD standard as endorsed by the Information Management Information Technology Executive Council of BC (formerly BC Health CIO Council), the local translation code MAY be used.)

CONF-BC0296: The `text` element **SHALL** be present and not blank. This narrative block **SHALL** present to the human reader and represent the observations produced for this **Report Item**, using the various structures available in the CDA Narrative Block schema (`NarrativeBlock.xsd`): tables, lists, paragraphs, hyperlinks, footnotes, references to attached or embedded multimedia objects. Please see section 6.33.1 for more details.

CONF-BC0297: The Laboratory Report Item Section **SHALL** contain a **Laboratory Report Data Processing Entry** (`templateId 1.3.6.1.4.1.19376.1.3.1`). This entry contains the machine-readable result data from which the narrative block of this section is derived.

6.33.1. Recommendations For Narrative Text

The narrative text of the Laboratory Report Item section **SHALL** be entirely derived from the test result information in the section's entries, and all information in the entries **SHALL** be reflected in the narrative text.

Implementers **SHALL** make every effort to align the contents of the narrative block with the clinically validated BC PLIS report format. This format is outlined in the ***iEHR-PLIS Project Results Report Format*** document. Sections 5 and 6 are the most relevant for this section.

Where the PLIS project provides guidance in terms of labels, layout and element inclusion, this guidance will be followed as much as is possible, taking into consideration the inherent differences between the technologies.

Where the PLIS project provides no guidance, implementers **SHOULD** attempt to stay within the spirit of the PLIS report format, while not omitting any data included within the entries.

6.33.1.1. Specimen Section

If specimen information is available*, then, for each specimen, the following **SHALL** be present once in the text, as a specimen section:

- The specimen number, labeled "Specimen #"
- The specimen collection event date/time, i.e., when the specimen was drawn from the patient, or the best approximation to it. Labeled "Collected:" and formatted as "dd/Mmm/yyyy hh:mm" (alpha month, e.g. "Jan").
- The specimen received time, labeled "Received:" and formatted as "dd/Mmm/yyyy hh:mm" (alpha month, e.g. "Jan"). If there is no specimen received time, the label will still be included.

* Note that although the PLIS system does not accommodate the concept of "specimen," most LIS source systems do. Therefore, the PLIS output report format does not include this section.

Example of mandatory specimen fields (with blank received time):

Specimen Information

Specimen #	PT0609:BG00010S
Collected:	02/Sep/2012 14:08
Received:	

The following **MAY** be present in the specimen section of the narrative (if the information is part of the associated entries).

- The specimen type if it is not implied by the test. If it is present it **SHALL** use the HL7 V3 vocabulary domain SpecimenEntityType or another international standard terminology (e.g., SNOMED CT) and it **SHALL NOT** conflict with the specimen inherent to the test code, when using a test vocabulary that implies the specimen type, (like LOINC does with its "SYSTEM" property).
- The specimen source site if relevant (e.g., swab on left foot in microbiology, arterial blood for blood gas)

- The collecting method if relevant. (e.g., catheter, fine needle aspirate).
- Specimen comments.

Example of optional specimen fields:

Type:	Arterial blood
Source Site:	Radial artery
Method:	Arterial catheter
Comments:	Example of optional specimen fields

6.33.1.2. Results Section

Each Battery **SHALL** have a table, with the LOINC based title displayed at the top. Battery Comments, if available, **SHALL** be placed underneath the title and above the table.

For each test result the narrative block presents the following items in a table. There **SHALL** be a column for each item, even if there is no value for that item:

- The name of the analyte or finding.
- The observation value.
- The interpretation code if known and relevant, **SHALL** be taken from Pan Canadian HL7 V3 vocabulary domain ObservationInterpretation OID 2.16.840.1.113883.2.20.3.78 (dynamic) (e.g., D = decreased, L = low, A = abnormal, R = resistant…). Note that a status of "N = normal" SHOULD NOT be displayed. Often, normalcy of a result should be determined through clinical evaluation of the result value in conjunction with other relevant results and factors.
- The reference range if known and relevant, with optional criteria pre-conditioning it (e.g., "newborn age < 6 weeks").
- The unit of measure, if relevant. It is specified in the Unified Code for Units of Measure (UCUM) [http://aurora.rg.iupui.edu/UCUM]. Realms SHALL use mixed case.
- The time resulted (also referred to as result release or result availability time), formatted as "dd/Mmm/yyyy hh:mm" (alpha month, e.g. "Jan").

Example of sequence/battery/observations (with annotations):

24336-0 Gas Panel; Arterial Blood

Test ID	Test Name	Test Result	Result Flags	Reference Range	Result Units	Time Resulted
2744-1	pH; Arterial Blood	7.41		7.35-7.45		02/Sep/2012 14:10
2019-8	Carbon Dioxide; Partial Pressure; Arterial Blood	51	H	35-45	mmHg	02/Sep/2012 14:11
20124-4	Ventilation Mode; Ventilator					02/Sep/2012 14:11
		Observation Annotation: nasal prongs				
59274-1	O2 CT VFr BldA Calc	15	L	18-20	%	02/Sep/2012 14:11

As well, the following items MAY be included for a test result, if present in the entries:

- In case the tests were subcontracted, the mention of the subcontractor lab's name or code.
- The testing method if relevant. If it is present it **SHALL NOT** conflict with the method inherent to the test code (like LOINC does with its "METHOD_TYP" property).
- Any previous values obtained for the same test on the same patient.
  - Previous results **MAY** appear only if they are clearly comparable, i.e., produced with the same method on the same specimen type, and expressed with the same unit.
  - The Result date/time of these previous values (using above format).

6.33.1.3. Footer Section

In order to align with the PLIS report format , the narrative section **SHOULD** have a footer that contains the following information:

- A legend that explains the abnormal flag codes.
- The performing lab's name and telecom information, as well as any other relevant information about the lab.
- In case the tests were subcontracted, the mention of the subcontractor lab's name and telecom information, as well as any other relevant information about the lab.
- The status of the report, such as "Active" or "Complete". PLIS uses the term "Partial" for "Active"; this is also acceptable.

Example of footer section:

Result Flags Legend:	H/L/A HH/LL/AA	Abnormal Value Critical Value
Primary Lab:	Kootenay Boundary Hospital (IHKBH) Phone: 250-368-3311 Fax: 250-364-3422	
Secondary Lab:	Penticton Regional Hospital (IHPRH) Phone: 250-492-4000 Fax: 250-492-9068	
Report Status:	ACTIVE / PARTIAL	

6.34. Macroscopic Observation - LOINC 22634-0

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.8.1.2.3
- **LOINC:** 22634-0

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

The Macroscopic Observation section of an Anatomic Pathology Report contains the description of the specimen(s) received or obtained by the laboratory (specimen type and state), the gross observation, links to gross images, if taken, processing information and tissue disposition (representative sampling and tissue submitted for additional studies or sent to biorepository.

CONF-BC0298: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.8.1.2.3"`

CONF-BC0299: SHALL contain exactly one [1..1] **`code.code`**`="22634-0"` Pathology Report Gross Observation (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-BC0300: SHALL contain exactly one [1..1] **`title`**

CONF-BC0301: SHALL contain exactly one [1..1] **`text`**

6.35. Medical (General) History - LOINC 11329-0

- Cardinality: 0..1
- **TemplateID:** 2.16.840.1.113883.10.20.22.2.39
- **LOINC:** 11329-0

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Medical (General) 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. Categorical report formats may be divided into multiple subsections including Past Medical History, Social History.."

CONF-BC0302: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.39"`

CONF-BC0303: **SHALL** contain exactly one [1..1] **`code.code`**`="11329-0"` (Medical (General) History) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0304: **SHALL** contain exactly one [1..1] **`title`**

CONF-BC0305: **SHALL** contain exactly one [1..1] **`text`**

6.36. Microscopic Observation - LOINC 22635-7

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.8.1.2.4
- **LOINC:** 22635-7

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

The Microscopic Observation section of an Anatomic Pathology Report contains optionally the histopathologic findings of the case and many laboratories use this section to record the results of histochemical and immunohistochemical stains.

CONF-BC0306: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.8.1.2.4"`

CONF-BC0307: SHALL contain exactly one [1..1] **`code.code`**`="22635-7"` Pathology Report Microscopic Observation (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-BC0308: SHALL contain exactly one [1..1] **`title`**

CONF-BC0309: SHALL contain exactly one [1..1] **`text`**

6.37. Pathology Report Text - LOINC 46450-3

- Cardinality: 0..1
- TemplateId: 2.16.840.1.113883.3.51.60.3.2
- **LOINC:** 46450-3

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

The Pathology Report Text section is provided in the BC Anatomic Pathology report specification to provide a migration path for those senders who may be able to produce a Diagnosis section only but not able to separate the remaining report information into Level 2 sections. This section contains narrative text covering the content that would be included in the other 5 sections. Senders that cannot separate out the Diagnosis section would send a Level 1 CDA document containing the entire report. 46450-3

CONF-BC0310: A templateId element **SHALL** be present, with the attribute value **`templateId.root`**="2.16.840.1.113883.3.51.60.3.2"

CONF-BC0311: SHALL contain exactly one [1..1] **`code.code`**="46450-3" Text – Miscellaneous Section (CodeSystem: LOINC 2.16.840.1.113883.6.1)

CONF-BC0312: SHALL contain exactly one [1..1] **`title`**

CONF-BC0313: SHALL contain exactly one [1..1] **`text`**

6.38. Plan of Care - LOINC 18776-5 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.10
- **LOINC:** 18776-5

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	M				O	O	O	O

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm the Plan of Care section "contains data that defines pending orders, interventions, encounters, services, and procedures for the patient. It is limited to prospective, unfulfilled, or incomplete orders and requests only, which are indicated by the `moodCode` attribute of the entries within this section. All active, incomplete, or pending orders, appointments, referrals, procedures, services, or any other pending event of clinical significance to the current care of the patient should be listed unless constrained due to privacy issues. The plan may also contain information about ongoing care of the patient and information regarding goals and clinical reminders. Clinical reminders are placed here to provide prompts for disease prevention and management, patient safety, and health-care quality improvements, including widely accepted performance measures. The plan may also indicate that patient education was given or will be provided."

CONF-BC0314: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.10"`

CONF-7724: **SHALL** contain exactly one [1..1] **`code.code`**`="18776-5"` Plan of Care (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7725: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0315: **MAY** contain zero or more [0..*] **`entry`** such that it

> **CONF-BC0316:** **SHALL** contain exactly one [1..1] **Plan of Care Activity Act** conforming to `templateId 2.16.840.1.113883.10.20.22.4.39` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0317: **MAY** contain zero or more [0..*] **`entry`** such that it

> **CONF-BC0318:** **SHALL** contain exactly one [1..1] **Plan of Care Activity Encounter** conforming to `templateId 2.16.840.1.113883.10.20.22.4.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0319: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0320: SHALL contain exactly one [1..1] **Plan of Care Activity Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.44` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0321: MAY contain zero or more [0..*] **entry** such that it

CONF-BC0322: SHALL contain exactly one [1..1] **Plan of Care Activity Procedure** conforming to `templateId 2.16.840.1.113883.10.20.22.4.41` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0323: MAY contain zero or more [0..*] **entry** such that it

CONF-BC0324: SHALL contain exactly one [1..1] **Plan of Care Activity Substance Administration** conforming to `templateId 2.16.840.1.113883.10.20.22.4.42` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0325: MAY contain zero or more [0..*] **entry** such that it

CONF-BC0326: SHALL contain exactly one [1..1] **Plan of Care Activity Supply** conforming to `templateId 2.16.840.1.113883.10.20.22.4.43` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Plan of Care

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20. 22.2.10 "/>
      <code code=”18776-5” codeSystem=”2.16.840.1.113883.6.1”
         codeSystemName=”LOINC” displayName=”TREATMENT PLAN”/>
      <title>PLAN OF CARE</title>
      <text>
         <paragraph>Acetaminophin with codeine prn for pain.</paragraph>
         <paragraph>Stay off the foot.  Keep foot elevated, and use
         Supplied air splint and crutches.</paragraph>
         <paragraph>Advise follow-up with orthopedist if not significantly
         Better in 5 days.</paragraph>
      </text>
   </section>
</component>
```

6.39. Postprocedure Diagnosis - LOINC 59769-0

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.36
- **LOINC:** 59769-0

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
M								

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Postprocedure Diagnosis section "encodes the diagnosis or diagnoses discovered or confirmed during the procedure. Often it is the same as the pre-procedure diagnosis or indication."

CONF-BC0327: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.36"`

CONF-8758: SHALL contain exactly one [1..1] **`code`**`="59769-0"` Postprocedure Diagnosis (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-BC0328: MAY contain exactly one [1..1] attribute **`classCode`** with the value `"ACT"`

CONF-BC0329: MAY contain exactly one [1..1] attribute **`moodCode`** with the value `"EVN"`

CONF-BC0330: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0331: SHALL contain exactly one [1..1] **Postprocedure Diagnosis** conforming to `templateId 2.16.840.1.113883.10.20.22.4.51` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Postprocedure Diagnosis

```
    <component>
       <section>
       <templateId root="2.16.840.1.113883.10.20.22.2.36"/>
       <code code="59769-0" codeSystem="2.16.840.1.113883.6.1"
          codeSystemName="LOINC" displayName="POSTPROCEDURE DIAGNOSIS"/>
       <title>Postprocedure Diagnosis</title>
       <text>
          ...
       </text>
       <entry>
          <act moodCode="EVN" classCode="ACT">
             <templateId root="2.16.840.1.113883.10.20.22.4.51"/>
             <!-- ** Postprocedure Diagnosis Entry ** -->
              <code code="59769-0" codeSystem="2.16.840.1.113883.6.1"
               codeSystemName="LOINC"
               displayName="Postprocedure Diagnosis"/>
              <entryRelationship typeCode="SUBJ">
                 <observation classCode="OBS" moodCode="EVN">
                  <templateId root="2.16.840.1.113883.10.20.22.4.4"/>
                  <!-- Problem Observation template -->
                    <id root="d11275e7-67ae-11db-bd13-0800200c9a66"/>
                    <code code="409586006" codeSystem="2.16.840.1.113883.6.96"
displayName="Complaint"/>
                    <text>
                        ...
                    </text>
                    <statusCode code="completed"/>
                    <effectiveTime>
                        <low value="1950"/>
                    </effectiveTime>
                    <value xsi:type="CD" code="195967001" codeSystem="2.16.840.1.113883.6.96"
displayName="Asthma"/>
                 </observation>
              </entryRelationship>
          </act>
       </entry>
       </section>
    </component>
```

6.40. Prior Imaging Procedure Descriptions - LOINC 55114-3

- Cardinality: 0..1
- **LOINC:** 55114-3
- **DICOM:** 121066

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Prior Imaging Procedure Descriptions section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0332: SHALL contain exactly one [1..1] **`code.code="55114-3"`** ("Prior Imaging Procedure Descriptions") LOINC STATIC

CONF-BC0333: SHALL contain exactly one [1..1] **`title`**

CONF-BC0334: SHALL contain exactly one [1..1] **`text`**

6.41. Problem - LOINC 11450-4 (entries optional)

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.5
- **LOINC:** 11450-4

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O				O	O	O	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Problem section "lists and describes all relevant clinical problems at the time the document is generated. At a minimum, all pertinent current and historical problems should be listed."

CONF-BC0335: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.5"`

CONF-7878: **SHALL** contain exactly one [1..1] **`code.code`**`="11450-4"` Problem List (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7879: **SHALL** contain exactly one [1..1] **`title`**

CONF-7880: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0336: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0337: **SHALL** contain exactly one [1..1] **Problem Concern Act (Condition)** conforming to `templateId 2.16.840.1.113883.10.20.22.4.3` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Problems

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.1.11"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         code="11450-4" displayName="PROBLEMS"/>
      <title>PROBLEMS</title>
      <text>
         <table border="1" width="100%">
            <thead>
               <tr>
                     <th>Condition</th>
                     <th>Effective Dates</th>
                     <th>Condition Status</th>
               </tr>
            </thead>
            <tbody>
               <tr><td>Asthma</td><td>1950</td><td>Active</td>
               <tr><td>Pneumonia</td><td>Jan 1997</td><td>Resolved</td>
            </tbody>
         </table>
      </text>
   </section>
</component>
```

6.42. Procedures - LOINC 47519-4 (entries optional)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.7
- **LOINC:** 47519-4

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	O				O	O		

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Problem section "defines all interventional, surgical, diagnostic, or therapeutic procedures or treatments pertinent to the patient historically at the time the document is generated. The section is intended to include notable procedures, but can contain all procedures for the period of time being summarized. The common notion of "procedure" is broader than that specified by the HL7 Version 3 Reference Information Model (RIM). Therefore this section contains procedure templates represented with three RIM classes: Act, Observation, and Procedure. Procedure act is for procedures the alter that physical condition of a patient (Splenectomy). Observation act is for procedures that result in new information about a patient but do not cause physical alteration (EEG). Act is for all other types of procedures (dressing change)."

The length of an encounter is documented in the `documentationOf/encompassingEncounter/effectiveTime` and length of service in `documentationOf/ServiceEvent/effectiveTime`.

CONF-BC0338: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.7"`

CONF-6272: **SHALL** contain exactly one [1..1] **`code.code`**="`47519-4`" History of Procedures (CodeSystem: `2.16.840.1.113883.6.1 LOINC`)

CONF-6273: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0339: **MAY** contain zero or more [0..*] **`entry`** such that it

> **CONF-BC0340:** **SHALL** contain exactly one [1..1] **Procedure Activity Procedure** conforming to `templateId 2.16.840.1.113883.10.20.22.4.14` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0341: **MAY** contain zero or more [0..*] **entry** such that it

CONF-BC0342: SHALL contain exactly one [1..1] **Procedure Activity Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.13` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0343: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0344: SHALL contain exactly one [1..1] **Procedure Activity Act** conforming to `templateId 2.16.840.1.113883.10.20.22.4.12` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Procedures

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.1.12"/>
      <codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         code="47519-4" displayName="HISTORY OF PROCEDURES"/>
      <title>PROCEDURES</title>
      <text>
         <table border="1">
            <thead>
               <tr>
                     <th>Procedure</th>
                     <th>Date</th>
                     <th>Location</th>
               </tr>
            </thead>
            <tbody>
               <tr><td>Laparoscipic Cholecystectomy</td><td>9/28/2012</td>
                     <td>Royal Inland Hospital</td>
               </tr>
            </tbody>
         </table>
      </text>
   </section>
</component>
```

6.43. Procedure Disposition - LOINC 59775-7

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.18.2.12
- **LOINC:** 59775-7

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O								O

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Problem section "records the status and condition of the patient at the completion of the procedure or surgery. It often also states where the patient was transferred to for the next level of care."

CONF-BC0345: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.18.2.12"`

CONF-8071: **SHALL** contain exactly one [1..1] **`code.code`**`="59775-7"` Procedure Disposition (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-8072: **SHALL** contain exactly one [1..1] **`title`**

CONF-8073: **SHALL** contain exactly one [1..1] **`text`**

Procedure Note - Example of Section with Procedure Disposition

```
    <component>
       <section>
          <templateId root="2.16.840.1.113883.10.20.18.2.12"/>
          <code code="59775-7" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
             displayName="PROCEDURE DISPOSITION"/>
          <title>Procedure Disposition</title>
          <text> The patient was taken to the Endoscopy Recovery Unit in stable condition.
</text>
       </section>
    </component>
```

6.44. Procedure Estimated Blood Loss - LOINC 59770-8

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.18.2.9
- **LOINC:** 59770-8

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O								M

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Procedure Estimated Blood Loss section "may be a subsection of another section such as the Procedure Description section. The Estimated Blood Loss section records the approximate amount of blood that the patient lost during the procedure or surgery. It may be an accurate quantitative amount, e.g., 250 milliliters, or it may be descriptive, e.g., "minimal" or "none"."

CONF-BC0346: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.18.2.9"`

CONF-8075: SHALL contain exactly one [1..1] **`code.code`**`="59770-8"` Procedure Estimated Blood Loss (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-8076: SHALL contain exactly one [1..1] **`title`**

CONF-8077: SHALL contain exactly one [1..1] **`text`**

CONF-BC0347: The Estimated Blood Loss section **SHALL** include a statement providing an estimate of the amount of blood lost during the procedure, even if the estimate is text, such as "minimal" or "none"

Procedure Note - Example of Section with Procedure Estimated Blood Loss

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.18.2.9"/>
      <code code="59770-8" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         displayName="PROCEDURE ESTIMATED BLOOD LOSS"/>
      <title>Procedure Estimated Blood Loss</title>
      <text> Minimal. </text>
   </section>
</component>
```

6.45. Procedure Findings - LOINC 59776-5

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.18.2.8
- **LOINC:** 59776-5

Applicable Clinical Documents								
PN	**DS**	**AP**	**LAB**	**DI**	**CO***	**HP***	**PR***	**ON***
O								M

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Procedure Findings section "records clinically significant observations confirmed or discovered during the procedure or surgery."

CONF-BC0348: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.28"`

CONF-8079: **SHALL** contain exactly one [1..1] **`code.code`**`="59776-5"` Procedure Findings (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-8080: **SHALL** contain exactly one [1..1] **`title`**

CONF-8081: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0349: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0350: **SHALL** contain exactly one [1..1] **Problem Observation** conforming to `templateId 2.16.840.1.113883.10.20.22.4.4` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Procedure Note - Example of Section with Procedure Findings

```
    <component>
       <section>
          <templateId root="2.16.840.1.113883.10.20.18.2.15"/>
          <code code="59776-5" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
             displayName="PROCEDURE FINDINGS"/>
          <title>Procedure Findings</title>
          <text> A 9 mm sessile polyp was found in the ascending colon and removed by snare,
no cautery.  Bleeding was controlled.
          </text>
       </section>
    </component>
```

6.46. Procedure Implants - LOINC 59771-6

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.40
- **LOINC:** 59771-6

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O								M

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Procedure Implants section "records any materials placed during the procedure including stents, tubes, and drains."

CONF-BC0351: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.40"`

CONF-8179: **SHALL** contain exactly one [1..1] **`code.code`**`="59771-6"` Procedure Implants (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-8180: **SHALL** contain exactly one [1..1] **`title`**

CONF-8181: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0352: The Implants section **SHALL** include a statement providing details of the implants placed, or assert no implants were placed

Procedure Note - Example of Section with Procedure Implants

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.18.2.11"/>
      <code code="59771-6" codeSystem="2.16.840.1.113883.6.1"
         codeSystemName="LOINC"     displayName="PROCEDURE IMPLANTS"/>
      <title>Procedure Implants</title>
      <text> No implants were placed. </text>
   </section>
</component>
```

6.47. Procedure Indications - LOINC 59768-2

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.29
- **LOINC:** 59768-2

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
M								O

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Procedure Implants section "records details about the reason for the procedure or surgery. This section may include the pre-procedure diagnosis or diagnosis as well as one or more symptoms that contribute to the reason the procedure is being performed."

CONF-BC0353: A `templateId` element **SHALL** be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.29"`

CONF-8059: **SHALL** contain exactly one [1..1] **`code.code`**`="59768-2"` Procedure Indications (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-8060: **SHALL** contain exactly one [1..1] **`title`**

CONF-8061: **SHALL** contain exactly one [1..1] **`text`**

CONF-BC0354: **MAY** contain zero or more [0..*] **`entry`** such that it

CONF-BC0355: **SHALL** contain exactly one [1..1] **Indication** conforming to `templateId 2.16.840.1.113883.10.20.22.4.19` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Procedure Note - Example of Procedure Indications Section

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.18.2.1"/>
      <code code="59768-2" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
         displayName="PROCEDURE INDICATIONS"/>
      <title>Procedure Indications</title>
      <text> The procedure is performed for screening in a low risk individual. </text>
   </section>
</component>
```

6.48. Procedure Steps - LOINC 46059-2

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.8.1.2.6
- **LOINC:** 46059-2

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

The Procedure steps section of an Anatomic Pathology Report contains the description of tissue dissection: representative specimens and derived specimens dissected for other ancillary procedures (flow cytometry, cytogenetics, molecular studies, electron microscopy, etc.) or biorepository.

CONF-BC0356: A `templateId` element **SHALL** be present, with the attribute value `root="1.3.6.1.4.1.19376.1.8.1.2.6"`

CONF-BC0357: **SHALL** contain exactly one [1..1] `code.code` ="46059-2" (Special treatments and procedures section) `2.16.840.1.113883.6.1` LOINC STATIC

CONF-BC0358: **SHALL** contain exactly one [1..1] **`title`**

CONF-BC0359: **SHALL** contain exactly one [1..1] **`text`**

6.49. Radiology Impression - LOINC 19005-8

- Cardinality: 0..1
- **LOINC:** 19005-8
- **DICOM:** 121072

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Radiology Impression section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0360: SHALL contain exactly one [1..1] **`code.code="`**`19005-8`**`"`** ("Radiology Impression") LOINC STATIC

CONF-BC0361: SHALL contain exactly one [1..1] **`title`**

CONF-BC0362: SHALL contain exactly one [1..1] **`text`**

6.50. Radiology Comparison Study - Observation - LOINC 18834-2

- Cardinality: 0..1
- **LOINC:** 18834-2
- **DICOM:** 121068

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Radiology Comparison Study - Observation section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0363: SHALL contain exactly one [1..1] **`code.code`**`="18834-2"` ("Radiology Comparison Study - Observation") LOINC STATIC

CONF-BC0364: SHALL contain exactly one [1..1] **`title`**

CONF-BC0365: SHALL contain exactly one [1..1] **`text`**

6.51. Radiology Reason for Study - LOINC 18785-6

- Cardinality: 0..1
- **LOINC:** 18785-6
- **DICOM:** 121109

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
				O				

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Radiology Reason for Study section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0366: SHALL contain exactly one [1..1] **`code.code`**="`18785-6`" ("Radiology Reason for Study") LOINC STATIC

CONF-BC0367: SHALL contain exactly one [1..1] **`title`**

CONF-BC0368: SHALL contain exactly one [1..1] **`text`**

6.52. Radiology Study - Recommendations - LOINC 18783-1

- Cardinality: 0..1
- **LOINC:** 18783-1
- **DICOM:** 121074

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Radiology Study - Recommendations section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0369: SHALL contain exactly one [1..1] **`code.code`**="`18783-1`" ("Radiology Study - Recommendations ") LOINC STATIC

CONF-BC0370: SHALL contain exactly one [1..1] **`title`**

CONF-BC0371: SHALL contain exactly one [1..1] **`text`**

6.53. Requested Imaging Studies Information - LOINC 55115-0

- Cardinality: 0..1
- **LOINC:** 55115-0
- **DICOM:** 121062

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
		O						

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, a Requested Imaging Studies Information section may be present within a Diagnostic Imaging Report, adhering to the conformance presented below. Please also refer to the Health Story Consolidation DSTU for additional clarification and details.

CONF-BC0372: SHALL contain exactly one [1..1] **`code.code`**="55115-0" (" ") LOINC STATIC

CONF-BC0373: SHALL contain exactly one [1..1] **`title`**

CONF-BC0374: SHALL contain exactly one [1..1] **`text`**

6.54. Review of Systems - LOINC 10187-3

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.3.18
- **LOINC:** 10187-3

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	O				O	M	O	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Review of Systems section "contains a relevant collection of symptoms and functions systematically gathered by a clinician. It includes symptoms the patient is currently experiencing, some of which were not elicited during the history of present illness, as well as a potentially large number of pertinent negatives, for example, symptoms that the patient denied experiencing."

CONF-BC0375: A templateId element SHALL be present, with the attribute value `root="1.3.6.1.4.1.19376.1.5.3.1.3.18"`

CONF-7813: SHALL contain exactly one [1..1] **`code.code`**`="10187-3"` Review of Systems (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7814: SHALL contain exactly one [1..1] **`title`**

CONF-7815: SHALL contain exactly one [1..1] **`text`**

Discharge Summary - Example of Section Review of Systems

```
<component>
   <section>
      <templateId root="1.3.6.1.4.1.19376.1.5.3.1.3.18"/>
      <code code="10187-3" codeSystem="2.16.840.1.113883.6.1"
        codeSystemName="LOINC" displayName="REVIEW OF SYSTEMS"/>
      <title>REVIEW OF SYSTEMS</title>
      <text>Review of systems otherwise negative.</text>
   </section>
</component>
```

6.55. Social History - LOINC 29762-2

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.17
- **LOINC:** 29762-2

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
O	O				O	M		

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Social History section "contains a relevant collection of symptoms and functions systematically gathered by a clinician. It includes contains data defining the patient's occupational, personal (e.g. lifestyle), social, and environmental history and health risk factors, as well as administrative data such as marital status, race, ethnicity and religious affiliation. Social history can have significant influence on a patient's physical, psychological and emotional health and wellbeing so should be considered in the development of a complete record."

CONF-BC0376: A templateId element SHALL be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.17"`

CONF-7937: SHALL contain exactly one [1..1] **`code.code`**`="29762-2"` Social History (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-7938: SHALL contain exactly one [1..1] **`title`**

CONF-7839: SHALL contain exactly one [1..1] **`text`**

CONF-BC0377: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0378: SHALL contain at least one [1..*] **Social History Observation** conforming to templateId `2.16.840.1.113883.10.20.22.4.38` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

CONF-BC0379: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0380: SHALL contain exactly one [1..1] **Pregnancy Observation** conforming to templateId `2.16.840.1.113883.10.20.22.4.38` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Social History

```
<component>
   <section>
      <templateId root="2.16.840.1.113883.10.20.1.15"/>
      <code code=”29762-2” codeSystem="2.16.840.1.113883.6.1”
         codeSystemName="LOINC" displayName="SOCIAL HISTORY"/>
      <title>SOCIAL HISTORY</title>
      <text>
         <paragraph>Substance Use History</paragraph>
         <paragraph>   - Drugs: None.</paragraph>
         <paragraph>   - Cigarettes: 1 pack per day 1972-2000,
                           None 2001-present.</paragraph>

      </text>
   </section>
</component>
```

6.56. Vital Signs - LOINC 8716-3

- Cardinality: 0..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.2.4
- **LOINC:** 8716-3

Applicable Clinical Documents								
PN	DS	AP	LAB	DI	CO*	HP*	PR*	ON*
	O				O	M	O	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Vital Signs section "contains relevant vital signs for the context and use case of the document type, such as blood pressure, heart rate, respiratory rate, height, weight, body mass index, head circumference, and pulse oximetry. The section should include notable vital signs such as the most recent, maximum and/or minimum, baseline, or relevant trends.

Vital signs are represented in the same way as other results, but are aggregated into their own section to follow clinical conventions."

CONF-BC0381: A `templateId` element SHALL be present, with the attribute value `root="2.16.840.1.113883.10.20.22.2.4"`

CONF-7269: SHALL contain exactly one [1..1] **`code.code`**`="8716-3"` Vital Signs (CodeSystem: `LOINC 2.16.840.1.113883.6.1`)

CONF-9966: SHALL contain exactly one [1..1] **`title`**

CONF-7270: SHALL contain exactly one [1..1] **`text`**

CONF-BC0382: MAY contain zero or more [0..*] **`entry`** such that it

CONF-BC0383: SHALL contain exactly one [1..1] **Vital Signs Organizer** conforming to templateId `2.16.840.1.113883.10.20.22.4.26` defined in the Health Story Consolidation DSTU, except using pan-Canadian domains and valueSets where appropriate.

Discharge Summary - Example of Section with Vital Signs

```
    <component>
       <section>
          <templateId root='2.16.840.1.113883.10.20.22.2.4' />
          <code code=”8716-3” codeSystem="2.16.840.1.113883.6.1” codeSystemName="LOINC"
displayName=" VITAL SIGNS"/>
          <title>VITAL SIGNS</title>
          <text>
             All Vital Signs normal.
          </text>
          <entry>
             <!-- Required Vital Signs Organizer element -->
             <organizer>
                <templateId root=1.3.6.1.4.1.19376.1.5.3.1.4.13.1'/>
                <statusCode code='completed'/>
                <effectiveTime value=''/>
                <!-- one or more vital signs observations -->
                <component typeCode='COMP'>
                   <observation classCode='OBS' moodCode='EVN'>
                         <templateId root='1.3.6.1.4.1.19376.1.5.3.1.4.13.2'/>
                               <code code='3141-9' codeSystem='2.16.840.1.113883.6.1'
codeSystemName='LOINC'/>
                               <text><reference value='#xxx'/></text>
                               <statusCode code='completed'/>
                               <effectiveTime value=''/>
                               <repeatNumber value=' '/>
                               <value xsi:type='PQ' value='75' unit='kg'/>
                               <interpretationCode code=' ' codeSystem=' '
codeSystemName=' '/>
                               <methodCode code=' ' codeSystem=' ' codeSystemName=' '/>
                               <targetSiteCode code=' ' codeSystem=' ' codeSystemName=' '/>
                   </observation>
                </component>
             </organizer>
          </entry>
       </section>
    </component>
```

7. Entry Level Templates

In a CDA, entries provide machine-readable content in a human-readable document. Entries MAY be nested inside sections or inside other entries, depending on the document. In the sections containing entries, the contents of the narrative text SHALL entirely match the contents of the associated entries, and the narrative text SHOULD be derived directly from the entries.

7.1. Laboratory Report Data Processing

- Cardinality: 1..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.3.1

In a Level 3 Lab document, a **Laboratory Report Item** section **SHALL** contain a **Laboratory Report Data Processing** entry conforming to the IHE Laboratory Technical Framework - Volume 3. The Laboratory Report Data Processing entry **SHALL** contain a single `act` sub-element, the **Specimen Act**. All other CDA Level 3 content modules are nested in this one `act`. The Specimen Act shall contain at least one **Laboratory Observation**. Multiple observations **MAY** be collected in an organizer such as the **Laboratory Battery Organizer**. If all observations of the entry have been produced on the same specimen, this specimen **SHALL** be attached to the top Specimen Act as a **Specimen Collection** procedure sub-element.

Please refer to the hierarchal diagram in section 5.1.3 for more information on how to nest the laboratory entries, and the example XML for the **Laboratory Specialty Section** for how to nest this entry.

The following further conformance applies:

> **CONF-BC0384: SHALL** contain exactly one [1..1] `templateId` element, with the attribute `root="1.3.6.1.4.1.19376.1.3.1"`

The "**Specimen Act**" is mandatory and is nested under this entry.

> **CONF-BC0385: SHALL** contain exactly one [1..1] **`act.classCode`** attribute with value `"ACT"`

> **CONF-BC0386: SHALL** contain exactly one [1..1] **`act.moodCode`** attribute with value `"EVN"`

> **CONF-BC0387: SHALL** contain exactly one [1..1] **`act/code`**. Like the **Laboratory Report Item** `code` element above this entry, this code **SHALL** be the same as code of the primary organizer or observation contained in this section.

CONF-BC0388: SHALL contain exactly one [1..1] `act/statusCode,` where the value is "completed," "active," or "aborted." The definitions for these values are found in the IHE Lab TF Vol 3 specification document.

CONF-BC0389: MAY contain zero or one [0..1] `subject,` when a non-human subject is attached to the report. When present, `subject.typeCode="SBJ"` (CodeSystem:).

7.2. Specimen Collection – LOINC 33882-2 (Laboratory)

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.3.1.2
- **LOINC:** 33882-2

Laboratory Reports **SHOULD** contain Specimen Collection entry conforming to `templateId 1.3.6.1.4.1.19376.1.3.1.2` defined in the IHE Laboratory Technical Framework - Volume 3. This is represented as a `entryRelationship/procedure` element under the **Specimen Act**. The Specimen Collection entry can also be placed under the **Laboratory Battery Organizer**.

Additionally, the following conformance applies:

CONF-BC0405: SHALL contain exactly one [1..1]
`entryRelationship.`**`typeCode`**`="COMP"`

CONF-BC0391: SHALL contain exactly one [1..1]
`entryRelationship/procedure.`**`classCode`**`="PROC"`

CONF-9283: SHALL contain exactly one [1..1]
`entryRelationship/procedure.`**`moodCode`**`="EVN"`

CONF-BC0390: MAY contain zero or one [0..1] `procedure/templateId` element, with the attribute value `root="1.3.6.1.4.1.19376.1.3.1.2"`

CONF-BC0404: SHALL contain exactly one [1..1] `procedure/code` element with a `code` attribute of `"33882-2"` and a `displayName` attribute of "`Specimen Collection`" (`CodeSystem: LOINC 2.16.840.1.113883.6.1`)

CONF-BC0406: SHALL contain exactly one [1..1] `procedure/`**`effectiveTime`** indicating the date and time of specimen collection

CONF- BC0407: MAY contain zero or one [0..1] `procedure/`**`targetSiteCode`** indicating the source of the specimen

CONF- BC0408: MAY contain zero or one [0..1] `procedure/`**`performer`** indicating the specimen collection organization

CONF-BC0409: SHALL contain exactly one [1..1]
`procedure/participant.`**`typeCode`**`="PRD"`

CONF- BC0410: SHALL contain exactly one [1..1]
`participant/participantRole.`**`classCode`**`="SPEC"`

CONF- BC0411: SHALL contain exactly one [1..1] `participantRole/id` indicating the specimen ID number

CONF- BC0412: SHALL contain exactly one [1..1] `participantRole/playingEntity/code` indicating the specimen type. If no specimen type information is provided, a `nullFlavor` of `UNK` may be used.

CONF- BC0413: MAY contain zero or one [0..1] `procedure/entryRelationship/act` **Specimen Received** entry (see section 7.3 below), conforming to `templateId` 1.3.6.1.4.1.19376.1.3.1.3 defined in the IHE Laboratory Technical Framework - Volume 3, and to the entry level conformance defined for **Specimen Received** entries within this Implementation Guide.

Example of a Specimen Collection entry:

```
<!-- inside the Specimen Act -->

<entryRelationship typeCode="COMP">
   <procedure classCode="PROC" moodCode="EVN">
      <templateId  root="1.3.6.1.4.1.19376.1.3.1.2"
                   assigningAuthorityName="Specimen Collection"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
            code="33882-2" displayName="Specimen Collection"/>
      <effectiveTime value="201208220002-0800"/>
      <targetSiteCode/>
      <performer>
         <assignedEntity>
            <id/>
            <representedOrganization>
               <name/>
               <telecom/>
               <addr>...</addr>
            </representedOrganization>
         </assignedEntity>
      </performer>
      <participant typeCode="PRD">
         <participantRole classCode="SPEC">
            <id root="2.16.840.1.113883.3.277.1.21"
               extension="PT2208:H00004R"
               assigningAuthorityName="IHA Test/Specimen"/>
            <playingEntity>
               <code nullFlavor="UNK"/>
            </playingEntity>
         </participantRole>
      </participant>
   </procedure>
</entryRelationship>
```

7.3. Specimen Received (Laboratory)

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.3.1.3

Used by:	Contains Entries:
Specimen Collection	

Laboratory Report **Specimen Collection** procedure entry may contain a **Specimen Received** nested entry conforming to `templateId` 1.3.6.1.4.1.19376.1.3.1.3 defined in the IHE Laboratory Technical Framework - Volume 3. Additionally, the following conformance applies:

CONF- BC0414: SHALL contain exactly one [1..1] `entryRelationship/templateId` element, with the attribute value `root=”1.3.6.1.4.1.19376.1.3.1.3”`

CONF- BC0415: SHALL contain exactly one [1..1] `entryRelationship.typeCode="COMP"`

CONF- BC0416: SHALL contain exactly one [1..1] `entryRelationship/act.classCode="ACT"`

CONF- BC0417: SHALL contain exactly one [1..1] `entryRelationship/act.moodCode="EVN"`

CONF- BC0418: SHALL contain exactly one [1..1] `act/code.code="SPRECEIVE"`, with `CodeSystem="1.3.5.1.4.1.19376.1.5.3.2"`, and `codeSystemName="IHEActCode"`

CONF- BC0419: SHALL contain exactly one [1..1] `act/effectiveTime` indicating the date and time of specimen receipt.

Example of a Specimen Received entry inside a Specimen Collection entry:

```
<!-- Specimen Collection -->
<entryRelationship typeCode="COMP">
   <procedure classCode="PROC" moodCode="EVN">
      ...
      <performer>
         ...
      </performer>
      <participant typeCode="PRD">
         ...
      </participant>
      <!-- Specimen Received -->
      <entryRelationship typeCode="COMP">
         <act classCode="ACT" moodCode="EVN">
            <templateId  root="1.3.6.1.4.1.19376.1.3.1.3"
                         assigningAuthorityName="Specimen Received entry template"/>
            <code code="SPRECEIVE" codeSystem="1.3.5.1.4.1.19376.1.5.3.2"
                  codeSystemName="IHEActCode" displayName="Receive Time"/>
            <effectiveTime value="20080408000000.0000-0700"/>
         </act>
      </entryRelationship>
   </procedure>
</entryRelationship>
```

7.4. Laboratory Battery Organizer

- Cardinality: 0..1
- **TemplateId:** 1.3.6.1.4.1.19376.1.3.1.4

A Laboratory Report Data Processing Entry MAY contain a Laboratory Battery Organizer conforming to `templateId` 1.3.6.1.4.1.19376.1.3.1.4 defined in the IHE Laboratory Technical Framework - Volume 3. The Laboratory Battery Organizer is used to group **Laboratory Observations** for a battery of tests.

CONF- BC0467: SHALL contain exactly one [1..1] `organizer/templateId` element, with the attribute value `@root="1.3.6.1.4.1.19376.1.3.1.4"`

CONF- BC0468: SHALL contain exactly one [1..1] `organizer.classCode="BATTERY"`

CONF- BC0469: SHALL contain exactly one [1..1] `organizer.moodCode="EVN"`

CONF- BC0470: MAY contain zero or one [0..1] `organizer/id` locally identifying the battery. If present, represents the lab filler order number (ORC-3 and OBR-3 in HL7 v2.5) for this battery.

CONF- BC0471: MAY contain zero or one [0..1] `organizer/code` with a `code` attribute value identifying the battery in the appropriate vocabulary (e.g. pCLOCD, LOINC, SNOMED, CT)

CONF- BC0472: SHALL contain exactly one [1..1] `organizer/statusCode` with a `code` attribute of either "`completed`" or "`aborted`". A status of `completed` means all expected results for this isolate are in a final state. A status of `aborted` means that the battery did not reach the end of testing; some results MAY be there.

CONF- BC0473: MAY contain zero or one [0..1] `organizer/effectiveTime` which is the time of results on this battery.

CONF- BC0474: MAY contain zero or one [0..1] `organizer/performer` if the performer of this battery **is different** than the one in the CDA header under `ClinicalDocument/documentationOf/ServiceEvent`

CONF- BC0475: MAY contain zero or one [0..1] `organizer/author` if the author of this battery **is different** than the one in the CDA header under `ClinicalDocument/author`

CONF- BC0476: MAY contain zero or more [0..*] `organizer/participant` with `typeCode` of "`AUTHEN`" or "`DEV`". `AUTHEN` means **verifier**, and MAY be used if the verifier is different than the Laboratory Results Validator in the CDA header. `DEV` means

device, and may be used to indicate the device used (for example a lab analyzer). Participants listed here SHALL conform to the participant constraints listed above in the CDA header section.

CONF- BC0477: MAY contain zero or more [0..*] `organizer/component` with **`typeCode`** of "`COMP`" which may contain a Specimen Collection, Laboratory Observation(s) and/or Annotation Comment(s).

Example of a Laboratory Battery Organizer entry:

```
<!-- Inside the Specimen Act -->
<entryRelationship typeCode="COMP">
   <organizer classCode="CLUSTER" moodCode="EVN">
      <templateId  root="1.3.6.1.4.1.19376.1.3.1.4"
                   assigningAuthorityName="Laboratory Battery Organizer entry template"/>
      <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
            code="29576-6" displayName="Microbiology Susceptibility" />
      <statusCode code="completed"/>
      <effectiveTime value="20071108000000.0000-0500"/>
      <performer typeCode="PRF">
         <templateId  root="1.3.6.1.4.1.19376.1.3.3.1.7"
                      assigningAuthorityName="Laboratory Performer template"/>
         ...
      </performer>
      <author typeCode="AUT">
         ...
      </author>
      <!-- Validator -->
      <participant typeCode="AUTHEN">
         <templateId  root="1.3.6.1.4.1.19376.1.3.3.1.5"
                      assigningAuthorityName="Laboratory Results Validator template"/>
         ...
      </participant>
      <!-- Observation / Test -->
      <component>
         <observation classCode="OBS" moodCode="EVN">
            <templateId root="1.3.6.1.4.1.19376.1.3.1.6"
                        assigningAuthorityName="Laboratory Observation template"/>
            <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                  code="89029-0" displayName="Microbiology Culture"/>
            ...
         </observation>
      </component>
      <!-- Associated Observation Annotation -->
      <component>
         <act classCode="ACT" moodCode="EVN">
            <templateId extension="1.3.6.1.4.1.19376.1.5.3.1.4.2"/>
            <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
                  code="48767-8" displayName="Annotation Comment"/>
            <text><reference value="organizerComment"/></text>
            <statusCode code="completed"/>
         </act>
      </component>
      ...
   </organizer>
</entryRelationship>
```

7.5. Laboratory Observation

- Cardinality: 1..*
- **TemplateId:** 1.3.6.1.4.1.19376.1.3.1.6

The **Laboratory Data Processing** entry **SHALL** contain a Laboratory Observation entry in an `entryRelationship` under the **Specimen Act**, conforming to `templateId` 1.3.6.1.4.1.19376.1.3.1.6 defined in the IHE Laboratory Technical Framework - Volume 3. The Laboratory Observation SHALL record a single laboratory observation in the document, either standalone or as part of a **Laboratory Battery Organizer** or a **Laboratory Isolate Organizer**. Additionally, the following conformance applies:

CONF- BC0478: SHALL contain exactly one [1..1] `observation/templateId` element, with the attribute value `root="1.3.6.1.4.1.19376.1.3.1.6"`

CONF- BC0479: SHALL contain exactly one [1..1] `observation.classCode="OBS"`

CONF- BC0480: SHALL contain exactly one [1..1] `observation.moodCode="EVN"`

CONF- BC0481: MAY contain zero or more [0..*] `observation/id` locally identifying the observation.

CONF- BC0482: SHALL contain exactly one [1..1] `observation/code` with a code attribute value uniquely identifying this test in a standard code system (pCLOCD, LOINC, SNOMED-CT).

CONF- BC0483: SHALL contain exactly one [1..1] `observation/statusCode.code={"completed"|"aborted"}` A status of `completed` means the result is present. A status of `aborted` means the test could not be performed.

CONF- BC0484: MAY contain zero or one [0..1] `observation/effectiveTime`

CONF- BC0485: MAY contain zero or one [0..1] `observation/value` which is the result obtained for this test using the appropriate data type specified with attribute `xsi:type`.

- Numeric results use data type `PQ`, and have the value in a value attribute.
- Text results use data type `ST`, and have two additional attributes, `mediaType="text/plain"` and `representation="TXT"`. Text results are represented between the opening and closing tags of the value element.
- The result is absent in aborted observations.

CONF- BC0486: MAY contain zero or one [0..1] `observation/interpretationCode` which will be one or more codes interpreting the result, expressed with ObservationInterpretation vocabulary (e.g., `H` = high, `L` = low). These codes are also known as

"Abnormal Flags". In case of a antimicrobial susceptibility test in microbiology, the vocabulary domain is ObservationInterpretationSusceptibility:

- S = susceptible
- R = resistant
- I = intermediate
- VS = very susceptible
- MS = moderately susceptible

CONF- BC0487: MAY contain zero or one [0..1] `observation/`**`methodCode`** which is the method used for this observation, expressed with ObservationMethod vocabulary (CWE).

CONF- BC0488: MAY contain zero or more [0..1] `observation/performer` if the performer of this observation **is different** than the one in the CDA header under `ClinicalDocument/documentationOf/ServiceEvent`

CONF- BC0489: MAY contain zero or one [0..1] `observation/`**`author`** if the author of this observation **is different** than the one in the CDA header under `ClinicalDocument/author`

CONF- BC0490: MAY contain zero or more [0..*] `observation/participant` with **`typeCode`** of "`AUTHEN`" or "`DEV`". `AUTHEN` means **verifier**, and MAY be used if the verifier is different than the Laboratory Results Validator in the CDA header. `DEV` means **device**, and may be used to indicate the device used (for example a lab analyzer). Participants listed here SHALL conform to the participant constraints listed above in the CDA header section.

CONF- BC0491: MAY contain zero or more [0..*] `observation/entryRelationship` which may contain a **Specimen Collection** and/or **Annotation Comment**(s).

CONF- BC0492: MAY contain zero or more [0..*] `observation/entryRelationship` with **`typeCode`** of "`REFR`" which contains previous observations for the same patient, test, method and unit.

- The `entryRelationship/observation/code` SHALL match the parent observation.
- The `entryRelationship/observation/effectiveTime` contains the previous test's result date/time.
- The `entryRelationship/observation/value` contains the previous result obtained for this test.

CONF- BC0493: MAY contain zero or one [0..1] `observation/referenceRange` which SHALL have a **`typeCode`** attribute of "`REFV`", and a nested `observation/referenceRange/observationRange` with a classCode attribute of "`OBS`" and a moodCode attribute of "`EVN.CRT`".

CONF- BC0494: MAY contain zero or one [0..1] `referenceRange/observationRange/value`

- Discrete numeric values use data type IVL_PQ, (numeric interval) and have the range values in `low` and `high` sub-elements with value and unit attributes.
- Text intervals use data type `ST`, and have two additional attributes, `mediaType="text/plain"` and `representation="TXT"`. Text results are represented between the opening and closing tags of the value element.

Example of a Laboratory Observation entry:

```
<observation classCode="OBS" moodCode="EVN">
   <templateId root="1.3.6.1.4.1.19376.1.3.1.6"/>
   <code codeSystem="2.16.840.1.113883.2.20.5.1" codeSystemName="pCLOCD" code="2714-4"
displayName="Oxyhemoglobin/Total Hemoglobin; Arterial Blood"/>
   <statusCode code="completed"/>
   <effectiveTime value="201209061409-0800"/>
   <value value="88.8" unit="%" xsi:type="PQ"/>
   <interpretationCode codeSystem="2.16.840.1.113883.3.277.1.30" codeSystemName="IHA
Observation Interpretation Code (Abnormal Flag)" code="L"/>
   <entryRelationship typeCode=COMP>
      <procedure classCode="PROC" moodCode="EVN">
         <!-- Specimen collection -->
         <templateId root="1.3.6.1.4.1.19376.1.3.1.2"" assigningAuthorityName="Specimen
Collection entry template"/>
         ...
      </procedure>
   </entryRelationship>
   <entryRelationship typeCode="REFR">
      <!-- Previous result 95.3 from Mar 12, 2011 08:15 -->
      <observation classCode="OBS" moodCode="EVN">
         <code codeSystem="2.16.840.1.113883.2.20.5.1" codeSystemName="pCLOCD"
code="2714-4" displayName="Oxyhemoglobin/Total Hemoglobin; Arterial Blood"/>
         <statusCode code="completed"/>
         <effectiveTime value="20110312081500-0800"/>
         <value value="95.3" unit="%" xsi:type="PQ"/>
      </observation>
   </entryRelationship>
   <performer typeCode="PRF">
      <assignedEntity classCode="ASSIGNED">
         <id nullFlavor="NI"/>
         <representedOrganization classCode="ORG" determinerCode="INSTANCE">
            <id root="2.16.840.1.113883.3.277.1.62" extension="IHKGH"
assigningAuthorityName="IHA Lab Provider"/>
            <name>Kelowna General Hosp</name>
         </representedOrganization>
      </assignedEntity>
   </performer>
   <referenceRange typeCode="REFV">
      <observationRange classCode="OBS" moodCode="EVN.CRT">
         <value mediaType="text/plain" representation="TXT" xsi:type="ST">95.0-
98.0</value>
      </observationRange>
   </referenceRange>
</observation>
```

7.6. Annotation Comment - LOINC 48767-8 (Laboratory)

- Cardinality: 0..*
- **TemplateId:** 1.3.6.1.4.1.19376.1.5.3.1.4.2
- **LOINC:** 48767-8

This entry enables representation of a comment within the parent entry.
It is represented by an entry, as an `entryRelationship/act` element. It can be placed at various levels in the Laboratory hierarchy, depending on what part of the observation is being annotated. It SHALL NOT have any nested elements beneath it. See the hierarchy in section 5.1.3 for more details.

CONF- BC0495: SHALL contain exactly one [1..1]
`entryRelationship.`**`typeCode`**`="COMP"`

CONF- BC0496: SHALL contain exactly one [1..1]
`entryRelationship/act.`**`classCode`**`="ACT"`

CONF- BC0497: SHALL contain exactly one [1..1]
`entryRelationship/act.`**`moodCode`**`="EVN"`

CONF- BC0498: SHALL contain exactly one [1..1] `act/templateId` element, with the attribute value `root="1.3.6.1.4.1.19376.1.5.3.1.4.2"`

CONF- BC0499: SHALL contain exactly one [1..1] `act/code` element with a `code` attribute of `"48767-8"` and a `displayName` attribute of `"Annotation Comment"` (`CodeSystem: LOINC 2.16.840.1.113883.6.1`)

CONF- BC0500: SHALL contain exactly one [1..1] `act/text` element

CONF- BC0501: SHALL contain exactly one [1..1] `act/statusCode` element with a `code` attribute of `"completed"`

Example of Annotation Comment

```
<entryRelationship typeCode="COMP">
    <act classCode="ACT" moodCode="EVN">
        <templateId root="1.3.6.1.4.1.19376.1.5.3.1.4.2" assigningAuthorityName="Annotation
Comment"/>
        <code codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC" code="48767-8"
displayName="Annotation Comment"/>
        <text>O2 Route: Nasal prongs</text>
        <statusCode code="completed"/>
    </act>
</entryRelationship>
```

7.7. Boundary Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.11
- **DICOM:** 113036

Used by:	Contains Entries:
Referenced Frames Observation	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the following is stated related to Boundary Observation "A Boundary Observation contains a list of integer values for the referenced frames of a DICOM multiframe image SOP instance. It identifies the frame numbers within the referenced SOP instance to which the reference applies. The CDA Boundary Observation numbers frames using the same convention as DICOM, with the first frame in the referenced object being Frame 1. A Boundary Observation must be used if a referenced DICOM SOP instance is a multiframe image and the reference does not apply to all frames."

CONF-BC0392: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `@root="2.16.840.1.113883.10.20.6.2.11"`

CONF-9282: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"OBS"`

CONF-9283: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9284: SHALL contain exactly one [1..1] **`code="113036"`** Frames for Display (`CodeSystem: DCM 1.2.840.10008.2.16.4`)

CONF-9285: SHALL contain exactly one [1..1] **`value`**, which **`value`**:

CONF-9286: SHALL contain exactly one [1..1] **`value.xsi:type`** where the **`value.code="INT"`**

CONF-9287: And each number represents a frame for display

7.8. Code Observations (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.13

Used by:	Contains Entries:
	Quantity Measurement Observation SOP Instance Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the following is stated related to Code Observations "DICOM Template 2000 specifies that Imaging Report Elements of Value Type Code are contained in sections. The Imaging Report Elements are inferred from Basic Diagnostic Imaging Report Observations that consist of image references and measurements (linear, area, volume, and numeric). Coded DICOM Imaging Report Elements in this context are mapped to CDA-coded observations that are section components and are related to the SOP Instance Observations (`templateId 2.16.840.1.113883.10.20.6.2.8`) or Quantity Measurement Observations (`templateId 2.16.840.1.113883.10.20.6.2.14`) by the `SPRT` (Support) act relationship."

CONF-9306: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.13"`

CONF-9304: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"OBS"`

CONF-9305: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9307: SHALL contain exactly one [1..1] **`code`**

CONF-9308: SHALL contain exactly one [1..1] **`value`**

CONF-9309: SHOULD contain zero or one [0..1] **`effectiveTime`**, which if present:

1. **CONF-BC0393:** The `effectiveTime` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9310: SHALL contain Code Observations which are rendered into section/text in separate paragraphs

CONF-9311: MAY contain zero or more [0..*] **`entryRelationship`**, which if present:

1. **CONF-9312: SHALL** contain exactly one [1..1] entryRelationship.typeCode="SPRT", Has Support
2. **CONF-9313: SHALL** contain exactly one [1..1] SOP Instance Observation.

CONF-9314: **MAY** contain zero or more [0..*] **`entryRelationship`**, which if present:

1. **CONF-9315:** **SHALL** contain exactly one [1..1] entryRelationship.typeCode="SPRT", Has Support
2. **CONF-9216:** **SHALL** contain exactly one [1..1] Quantity Measurement Observation.

7.9. Purpose of Reference Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.9

Used by:	Contains Entries:
SOP Instance Observation	

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the following is stated related to Purpose of Reference Observation, "A Purpose of Reference Observation describes the purpose of the DICOM composite object reference. Appropriate codes, such as externally defined DICOM codes, may be used to specify the semantics of the purpose of reference. When this observation is absent, it implies that the reason for the reference is unknown."

CONF-10531: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.9"`

CONF-9264: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"OBS"`

CONF-9265: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9267: SHALL contain exactly one [1..1] **`code,`** which **`code`**:

1. **CONF-9268: SHOULD** contain zero or one [0..1] `code="ASSERTION" (CodeSystem: ActCode 2.16.840.1.113883.5.4)`
2. **CONF-9269: MAY** be taken from `ValueSet 2.16.840.1.113883.11.20.9.28 DICOMPurposeOfReference` DYNAMIC (to maintain backwards compatability with the DICOM CMET).

CONF-BC0394: SHOULD contain zero or one [0..1] **`value`** with **`@xsi:type`** where the **`@code="CD", and where the @code`**

1. **CONF-9273: SHOULD** be selected from `ValueSet DICOMPurposeOfReference 2.16.840.1.113.11.20.9.28` DYNAMIC
   a. **CONF-9274:** As per the Health Story DSTU, "The value element is a **SHOULD** to allow backwards compatibility with the DICOM CMET. Note that the use of ASSERTION for the code differs from the DICOM CMET. This is intentional. The DICOM CMET was created before the Term Info guidelines describing the use of the assertion pattern were released. It was determined that this IG should follow the latest Term Info guidelines. Implementers using both this IG and the DICOM CMET will need to be aware of this difference and apply appropriate transformations."

Value Set: DICOMPurposeOfReference 2.16.840.1.113883.11.20.9.28 DYNAMIC Code System(s): DCM 1.2.840.10008.2.16.4		
Code	**Code System**	**Print Name**
121079	DCM	Baseline
121080	DCM	Best illustration of finding
121112	DCM	Source of Measurement

7.10. Quantity Measurement Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.14

Used by:	Contains Entries:
Text Observation Code Observation	SOP Instance Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Quantity Measurement Observation records "quantity measurements based on image data such as linear, area, volume, and numeric measurements. The codes in `DIRQuantityMeasurementTypeCodes` (`ValueSet: 2.16.840.1.113883.11.20.9.29`) are from the qualifier hierarchy of SNOMED CT and are not valid for observation/code according to the Term Info guidelines. These codes can be used for backwards compatibility, but going forward, codes from the observable entity hierarchy will be requested and used."

CONF-9319: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.14"`

CONF-9317: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"OBS"`

CONF-9318: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9320: SHALL contain exactly one [1..1] **`code`** , which **`code`**:

1. **CONF-9322: SHOULD** contain zero or one [0..1] **`code.code`** which **SHALL** be selected from ValueSet **`DIRQuantityMeasurementTypeCodes`** 2.16.840.1.113883.11.20.9.29 **DYNAMIC**
2. **CONF-9323:** contain zero or one [0..1] **`code.code`** which **SHALL** be selected from ValueSet **`DICOMQuantityMeasurementTypeCodes`** 2.16.840.1.113883.11.20.9.30 **DYNAMIC**
3. **CONF-9330:** The value set of the observation/code includes numeric measurement types for linear dimensions, areas, volumes, and other numeric measurements. This value set is extensible and comprises the union of SNOMED codes for observable entities as reproduced in `DIRQuantityMeasurementTypeCodes` (`ValueSet: 2.16.840.1.113883.11.20.9.29`) and DICOM Codes in `DICOMQuantityMeasurementTypeCodes (ValueSet: 2.16.840.1.113883.11.20.9.30)`

CONF-9324: SHALL contain exactly one [1..1] **`value`**, which **`value`**:

- **CONF-9325: SHALL** contain exactly one [1..1] **value.xsi:type** where the **value.code="PQ"**

CONF-9326: SHOULD contain zero or one [0..1] **effectiveTime**, which if present:

- **CONF-BC0395:** The effectiveTime **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9327: MAY contain zero or more [0..*] **entryRelationship**, which if present:

- **CONF-9328: SHALL** contain exactly one [1..1] entryRelationship.typeCode="SPRT", Has Support
  1. **CONF-9329: SHALL** contain exactly one [1..1] SOP Instance Observation 2.16.840.1.113883.10.20.6.2.8.

7.11. Referenced Frames Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.10

Used by:	Contains Entries:
SOP Instance Observation	Boundary Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the following is stated related to Referenced Frames Observation: "A Referenced Frames Observation is used if the referenced DICOM SOP instance is a multiframe image and the reference does not apply to all frames. The list of integer values for the referenced frames of a DICOM multiframe image SOP instance is contained in a Boundary Observation nested inside this class."

CONF-BC0396: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.10"`

CONF-9276: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"ROIBND"`, Bounded Region of Interest

CONF-9277: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9278: SHALL contain exactly one [1..1] **`code`** Referenced Frames (CodeSystem: `DCM 1.2.840.10008.2.16.4`)

CONF-9279: SHALL contain exactly one [1..1] **`entryRelationship`**, which if present:

1. **CONF-9280: SHALL** contain exactly one [1..1] entryRelationship.typeCode="COMP"
2. **CONF-9281: SHALL** contain exactly one [1..1] Boundary Observation (`templateId 2.16.840.1.113883.10.20.6.2.10`)

7.12. Series Act (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.22.4.63

Used by:	Contains Entries:
Study Act	SOP Instance Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Series Act Template "contains the DICOM series information for referenced DICOM composite objects. The series information defines the attributes that are used to group composite instances into distinct logical sets. Each series is associated with exactly one study. Series Act clinical statements are only instantiated in the DICOM Object Catalog section inside a Study Act, and thus do not require a separate templateId; in other sections, the SOP Instance Observation is included directly."

CONF-BC0397: MAY contain exactly one [0..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.22.4.63"`

CONF-9222: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"ACT"`

CONF-9223: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9224: SHALL contain exactly one [1..*] **`id`**, which **`id:`**

CONF-9225: SHALL contain exactly one [1..1] **`id.root`**

1. **CONF-9227: `id.root` SHALL** contain the OID of the study instance UID (since DICOM study ids consist only of an OID, without extensions).
2. **CONF-9226: SHALL NOT** contain [0..0] `id.extension`.

CONF-9228: SHALL contain exactly one [1..1] **`code`**`="113015"` (CodeSystem: `DCM 1.2.840.10008.2.16.4`)

CONF-9229: SHALL contain exactly one [1..1] **`qualifier`**

1. **CONF-9230:** This qualifier **SHALL** contain exactly one [1..1] **`name="121139" Modality (C`**odeSystem: DCM 1.2.840.10008.2.16.4)
2. **CONF-9231:** This qualifier contain exactly one [1..1] `value` with `qualifier.xsi:type="ANY"`
   - **CONF-9232:** The `value` element code contains a modality code (CodeSystem: DCM 1.2.840.10008.2.16.4)

CONF-9233: MAY contain zero or one [0..1] **`text`**, which if present:

CONF-9234: The **`text` SHALL** contain the description of the series.

CONF-9235: SHOULD contain zero or one [0..1] **`effectiveTime`**, which if present:

1. **CONF-9236:** The `effectiveTime` **SHALL** contain the time the series was started.
2. **CONF-BC0398:** The `effectiveTime` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9237: **SHALL** contain at least one [1..*] **`entryRelationship`**, which if present:

1. **CONF-9238:** **SHALL** contain exactly one [1..1] entryRelationship.typeCode="COMP", Component
2. **CONF-9239:** **SHALL** contain exactly one [1..1] SOP Instance Observation.

7.13. SOP Instance Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.8

Used by:	Contains Entries:
Series Act Text Observation Code Observations Quantity Measurement Observation	Purpose of Reference Observation Referenced Frames Observation SOP Instance Observation

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the SOP Instance Observation Template "contains the DICOM Service Object Pair (SOP) Instance information for referenced DICOM composite objects. The SOP Instance act class is used to reference both image and non-image DICOM instances. The text attribute contains the DICOM WADO reference."

CONF-BC0399: MAY contain exactly one [0..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.8"`

CONF-9240: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"DGIMG"`

CONF-9241: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9242: SHALL contain exactly one [1..*] **`id`**, which **`id:`**

CONF-9243: `id.root` SHALL contain the OID representing the DICOM SOP Instance UID

CONF-9244: SHALL contain exactly one [1..1] **`code`** (CodeSystem: `DCMUID 1.2.840.10008.2.6.1`), which **`code:`**

CONF-9245: SHALL contain the OID for a valid SOP class name UID

CONF-9246: SHOULD contain zero or one [0..1] **`text`**, which if present:

1. **CONF-9247**: The `text` **SHALL** contain exactly one [1..1] **`text.mediaType="application/dicom"`**
2. **CONF-9248:** The **`text` SHALL** contain exactly one [1..1] **`reference`**, which **`reference:`**
3. **CONF-9249:** The **`reference` SHALL** contain **`reference.value`**, which contains a WADO reference as a URI

CONF-9216: SHOULD contain zero or one [0..1] **`effectiveTime`**, which if present:

CONF-9218: The `effectiveTime` **SHALL** contain the time the study was started.

CONF-BC0400: The `effectiveTime` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9219: **SHALL** contain at least one [1..*] **`entryRelationship`**, which if present:

1. **CONF-9220:** **SHALL** contain exactly one [1..1] entryrelationship.typeCode="COMP"
2. **CONF-9221:** **SHALL** contain exactly one [1..1] Series Act

7.14. Study Act (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.6
- **DICOM:** 113014

Used by:	Contains Entries:
DICOM Object Catalog Section	Series Act

As per the HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, the Study Act Entry Level Template "contains the DICOM study information that defines the characteristics of a referenced medical study performed on a patient. A study is a collection of one or more series of medical images, presentation states, SR documents, overlays, and/or curves that are logically related for the purpose of diagnosing a patient. Each study is associated with exactly one patient. A study may include composite instances that are created by a single modality, multiple modalities, or by multiple devices of the same modality. The study information is modality-independent. Study Act clinical statements are only instantiated in the DICOM Object Catalog section; in other sections, the SOP Instance Observation is included directly."

CONF-BC0401: MAY contain exactly one [0..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.6"`

CONF-9207: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"ACT"`

CONF-9208: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9210: SHALL contain exactly one [1..*] **`id`**, which **`id:`**

CONF-9213: SHALL contain exactly one [1..1] **`id.root`**

1. **CONF-9212: `@root` SHALL** contain the OID of the study instance UID (since DICOM study ids consist only of an OID, without extensions).
2. **CONF-9211: SHALL NOT** contain [0..0] `id.extension`.

CONF-9214: SHALL contain exactly one [1..1] **`code`**`="113014"` (CodeSystem: `DCM 1.2.840.10008.2.16.4`)

CONF-9215: MAY contain zero or one [0..1] **`text`**, which if present:

CONF-9217: The **`text` SHALL** contain the description of the study.

CONF-9216: SHOULD contain zero or one [0..1] **`effectiveTime`**, which if present:

1. **CONF-9218:** The `effectiveTime` **SHALL** contain the time the study was started.

2. **CONF-BC0402:** The `effectiveTime` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9219: **SHALL** contain at least one [1..*] **`entryRelationship`**, which if present:

1. **CONF-9220:** **SHALL** contain exactly one [1..1] entryRelationship.typeCode="COMP", Component
2. **CONF-9221:** **SHALL** contain exactly one [1..1] Series Act

7.15. Text Observation (Diagnostic Imaging)

- Cardinality: 1..1
- **TemplateId:** 2.16.840.1.113883.10.20.6.2.12

Used by:	Contains Entries:
Findings Section (DIR)	Quantity Measurement Observation

The HL7 Implementation Guide for CDA R2: IHE Health Story Consolidation, R1- US Realm, states the following about Text Observation: "DICOM Template 2000 specifies that Imaging Report Elements of Value Type Text are contained in sections. The Imaging Report Elements are inferred from Basic Diagnostic Imaging Report Observations that consist of image references and measurements (linear, area, volume, and numeric). Text DICOM Imaging Report Elements in this context are mapped to CDA text observations that are section components and are related to the SOP Instance Observations (`templateId 2.16.840.1.113883.10.20.6.2.8`) or Quantity Measurement Observations (`templateId 2.16.840.1.113883.10.20.6.2.14`) by the `SPRT` (Support) act relationship.

A Text Observation is required if the findings in the section text are represented as inferred from SOP Instance Observations."

CONF-9290: SHALL contain exactly one [1..1] `templateId` element, with the attribute value `root="2.16.840.1.113883.10.20.6.2.12"`

CONF-9288: SHALL contain exactly one [1..1] **`classCode`** attribute with value `"OBS"`

CONF-9289: SHALL contain exactly one [1..1] **`moodCode`** attribute with value `"EVN"`

CONF-9291: SHALL contain exactly one [1..1] **`code`**

CONF-9292: SHALL contain exactly one [1..1] **`value`**, which **`value`**:

CONF-9293: **SHALL** contain exactly one [1..1] **`value.xsi:type`** where the **`value.code="ED"`**

CONF-9294: SHOULD contain zero or one [0..1] **`effectiveTime`**, which if present:

CONF-BC0403: The `effectiveTime` **SHALL** be precise to the day, and **SHOULD** be precise to the minute and, if more precise than day, **SHALL** include a time zone offset.

CONF-9295: MAY contain zero or one [0..1] **`text`**, which if present:

CONF-9296: The `text` **SHOULD** contain zero or one [0..1] **`reference.value`**

a. **CONF-9297:** The **`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-9301: MAY contain zero or one [0..*] **entryRelationship**, which if present:

1. **CONF-9302: SHALL** contain exactly one [1..1] entryRelationship.typeCode="SPRT", Has Support
2. **CONF-9239: SHALL** contain exactly one [1..1] Quantity Measurement Observation. (2.16.840.1.113883.5.1002)

8. Template References

8.1. Alignment of Clinical Document Types to Section Templates

The following table outlines which section templates are Mandatory (M) or Optional (O) for the following types of clinical document templates:

- Procedure Note (PN)
- Discharge Summary (DS)
- Anatomic Pathology Summary Report (AP)
- Laboratory Results (LAB)
- Diagnostic Imaging Results (DI)
- Consultation (CO)*
- History & Physical (HP) *
- Progress Note (PR) *
- Operative Summary (OS) *
- Continuity of Care Document (CCD)

The section templates in this table are taken from the *HL7 Implementation Guide for CDA r2: IHE Health Story Consolidation, Release 2*, and are listed to provide implementers with a visual comparison aid. You will find that not all section templates in the table below have been included in this version of the BC CDA Implementation Guide, since the initial scope did not include all clinical document types defined in the HL7 IHE Consolidated Health Story.

Section Template Name	LOINC	PN	DS	AP	LAB	DI	CO*	HP*	PR*	OS*	CCD
Advance Directives			M in BC								M
Allergies	48765-2	O	M				O	M	O		
Assessment	51848-0	M					O	O	O		
Anesthesia	59774-0	O								M	
Chief Complaint / Reason for Visit	46239-0	O	O				O	O	O		
Clinical Information Section	22636-5			O							
Complications	55109-3	M								M	
Diagnosis	22637-3			M							
DICOM Object Catalog						M					

Section Template Name	LOINC	PN	DS	AP	LAB	DI	CO*	HP*	PR*	OS*	CCD
Discharge Diet	42344-2		O								
Encounters											O
Family History	10157-6	O	O				O	M			O
Findings						M					
Functional Status	47420-5		O								O
General Status	10210-3						O	M			
History of Past Illness	11348-0	O	O				O	M			
History of Present Illness	10164-2	O	O	O			M	O			
Hospital Admission Diagnosis	46241-6		O								
Hospital Admission Medications	42346-7		O								
Hospital Consultations	18841-7		O								
Hospital Course	8648-8		M								
Hospital Discharge Diagnosis	11535-2		M								
Hospital Discharge Instructions	8653-8		O								
Hospital Discharge Medications	10183-2		M								
Hospital Discharge Physical	10184-0		O								
Hospital Discharge Studies Summary	11493-4		O								
Immunizations	11369-6		O				O	O			O
Intraoperative Observation Section	####			O							
Interventions	62387-6								O		
Macroscopic Observation Section	22634-0			O							
Medical Equipment											O
Medical (General)	11329-0	O									

Section Template Name	LOINC	PN	DS	AP	LAB	DI	CO*	HP*	PR*	OS*	CCD
History											
Medications	10160-0	O					O	M	O		M
Medications Administered	29549-3	O									
Microscopic Observation	22635-7			O							
Objective	61149-1								O		
Operative Note Fluids	10216-0									O	
Operative Note Surgical Procedure	10223-6									O	
Past Medical History	11348-0										
Pathology Report Text Section	22635-7			O							
Physical Exam	29545-1	O					O	M	O		
Plan of Care/Treatment	18776-5	M	M				M	M	O	O	O
Planned Procedure	59772-4	O								O	
Postoperative Diagnosis	10218-6									M	
Postprocedure Diagnosis	59769-0	M									
Preoperative Diagnosis	10219-4									M	
Problem	11450-4		M in BC	O			O	O	O		O
Procedures	47519-4	O	O				O	O			O
Procedure Description	29554-3	M								M	
Procedure Disposition	59775-7	O								O	
Procedure Estimated Blood Loss	59770-8	O								M	
Procedure Findings	59776-5	O								M	
Procedure Implants	59771-6	O								O	
Procedure Indications	59768-2	M								O	

Section Template Name	LOINC	PN	DS	AP	LAB	DI	CO*	HP*	PR*	OS*	CCD
Procedure Steps	46059-2										
Procedure Specimens Taken	59773-2	O								M	
Reason for Referral	42349-1						O				
Reason for Visit	29299-5	O	O				O	M			
Results	30954-2						O	M	O		M
Review of Systems	10187-3	O	O				O	M	O		
Social History	29762-2	O	O				O	M			O
Subjective										O	
Surgical Drains	11537-8									O	
Vital Signs	8716-3		O				O	M	O		O

9. Stylesheets

XML stylesheet files developed within this project are based upon the U.S. realm CDA stylesheets, and can be requested from the Core Project Team. Picture representations of partial clinical document stylesheets are included below for example purposes only.

9.1. Discharge Summary – CDA Level 2

Discharge Summary

Patient	**Levon Daniel Regvjhrrf**		
Date of Birth	**January 1, 1964** Age: 51	**Sex**	**Female**
Patient Contact Info	**Home:** 123 4 Ave Armstrong, CA-BC V0E 1B0 Tel (Home): 250-555-1515	**Patient IDs**	9879645698 (BC Patient Health Number) A5-B20141114113730600 (IHA Patient EMR Number) KG00020382 (IHA Patient Unit Number)
Encounter Id	KG0070210/15 (IHA Patient Account Number)		
Encounter Date(s)	Admission: January 6, 2015, 14:06, PST Discharge: January 6, 2015, 14:10, PST		
Encounter Location	SDC:KELKGHCED (Patient Type:Unit) id: IHKGH (IHA Meditech Location Identifier)		
Healthcare Provider	Dr Aaron Plisihd Ordering Provider		
Primary Recipient	Dr Aaron Plisihd 93190 (BC MSP Provider License Number) PLISIHAA (IHA Provider Code)		
Secondary Recipient	Todd Kinnee KINT5 (IHA Provider Code)		
Author	Dr Aaron Plisihd		
Authoring System	OE_IHKGH (IHA Software Code)		
Document Maintained By	IHKGH (IHA Meditech Location Identifier)		
Document Created	February 23, 2015, 11:45, PST		
Document Id	a3247895-baa6-44f1-9521-598ae336e863 (CDX Clinical Document ID)		

Table of Contents

HOSPITAL ADMISSION DIAGNOSIS

1. Severe asthma.
2. Paroxysmal supraventricular tachycardia, exact etiology unclear.
3. Obstructive sleep apnea.

For details leading to the patient's admission, please see admission history and physical.

ALLERGIES AND ADVERSE REACTIONS

The patient initially reported an allergy to Aspirin when admitted, but on speaking with her, the physician was able to discern that there may have been some confusion about this being in the same family as CLINDAMYCIN from which she reports difficulties with shivering. She tolerated Aspirin fine during her most recent hospitalization. Possible allergy to Plavix. Possible allergy to penicillin with the complaint of itchy hands. Other medications of concern included naproxen.

9.2. Laboratory Results Report – CDA Level 3

General Lab Report

Patient	**Kelsey Labrihrrf**		
Date of Birth	**September 3, 1985** Age: 29	**Sex**	**Female**
Patient Contact Info	**Home:** 101 Easy Street Barkerville, CA-BC V0K 1B0 Tel (Home): 250-666-9999	**Patient IDs**	9879205915 (BC Patient Health Number) A00030395 (IHA Patient EMR Number) KA00020015 (IHA Patient Unit Number)
Encounter Id	KA0070053/15 (IHA Patient Account Number)		
Encounter Date(s)	Admission/Registration: November 28, 2014, 08:17, PST		
Encounter Location	IN:KAMRIHICU:RIHHICU:1 (Patient Type:Unit:Room:Bed) id: IHRIH (IHA Meditech Location Identifier)		
Healthcare Provider	Dr Dusty Plisiha Primary Care Physician		
Healthcare Provider	Dr Dusty Plisiha Ordering Provider February 3, 2015, 10:08, PST		
Primary Recipient	Dr Dusty Plisiha 93171 (BC MSP Provider License Number) PLISIHDU (IHA Provider Code)		
Authoring System	LAB_IHRIH (IHA Software Code)		
Document Maintained By	IHRIH (IHA Meditech Location Identifier)		
Document Created	February 3, 2015, 10:08, PST		
Document Id	01722604-2379-4cd7-9a48-8e04aa4495d7 (CDX Clinical Document ID)		

Laboratory Studies

CBC & Auto Differential

Specimen Information

Specimen #:	PT0302:H00002R
Collected:	03/Feb/2015 10:07 PST
Received:	03/Feb/2015 10:07 PST
Requisition #:	IHRIH-2015-00001140

57021-8 CBC & Auto Differential

Test ID:	Test Name:	Test Result:	Result Flags:	Reference Range:	Result Units:	Time Resulted:	Status:
6690-2	Leukocytes	**10.0**	**H**	**3.1-9.7**	10^9/L	03/Feb/2015 10:07 PST	completed
789-8	Erythrocytes	4.0	N	3.7-5.0	10^12/L	03/Feb/2015 10:07 PST	completed
718-7	Hemoglobin	140	N	118-151	g/L	03/Feb/2015 10:07 PST	completed
4544-3	Hematocrit	0.40	N	0.33-0.45	L/L	03/Feb/2015 10:07 PST	completed
787-2	Mean Corpuscular Volume	85.0	N	84.0-98.0	fL	03/Feb/2015 10:07 PST	completed
785-6	Mean Corpuscular Hemoglobin	29.0	N	28.3-33.5	pg	03/Feb/2015 10:07 PST	completed
786-4	Mean Corpuscular Hemoglobin Concentration	350	N	329-352	g/L	03/Feb/2015 10:07 PST	completed
788-0	Erythrocyte Distribution Width	14.0	N	12.0-15.0	%	03/Feb/2015 10:07 PST	completed
777-3	Platelets	150	N	147-375	10^9/L	03/Feb/2015 10:07 PST	completed

Result Flags Legend:	**H/L/A** **HH/LL/AA**	Abnormal Value Critical Value
Performing Lab:	Royal Inland Hosp, Kamloops (IHRIH)	
Report Status:	completed	

INQUIRIES - Please direct all inquiries to the Collecting Lab.

CONFIDENTIAL - This clinical document contains confidential personal information and is for direct care purposes only. Please use, copy and share with authorized individuals only.

END OF REPORT

9.3. Order of Section Templates

For each type of clinical document (for example, a Level 2 or Level 3 Discharge Summary) the associated "Diagnosis" section SHALL appear first, followed by any additional mandatory sections in alphabetical order. The mandatory sections may then be followed by the optional sections in alphabetical order.

10. Appendices

10.1. Glossary

This is a glossary of terms, acronyms and abbreviations used within this guide.

Acronym	Full Name	Additional Details if applicable
CCD	*Continuity of Care Document*	
CDA	*Clinical Document Architecture*	
CIAC	*Clinical Integration Advisory Council*	
DICOM	*Digital Imaging and Communications in Medicine*	*Diagnostic Imaging Standard*
eHR	*Electronic Health Record*	
GUID	*Globally Unique Identifier*	*A 128-bit integer. For the purposes of clinical data sharing, GUIDs are generated to uniquely identify the different components used in messages.*
HITSP	*Health Information Technology Standards Panel*	
HL7	*Health Level Seven®*	
ICD-10-CA/CCI	*ICD10-CA - International Classification of Diseases – Canadian version of the 10th revision CCI – Canadian Classification of Health Interventions*	
IHE	*Integrating the HealthCare Enterprise®*	*IHE facilitates adoption of standards by defining profiles on, and recommended uses of, existing standards. IHE-Canada is part of the Canadian Standards Collaborative.*
LOINC®	*Logical Observation Identifiers names and Codes*	*Laboratory Messaging and Nomenclature Standards*
OID	*Object Identifier*	
pCLOCD	*Pan Canadian LOINC Observation Code Database*	*Canadianized versions of LOINC® codes*
PHN	*Provincial Health Number*	
pHR	*Personal Health Record*	
pLIS	*Provincial Lab Information System*	

10.1. Pan-Canadian ValueSets

10.2. Change Log

Date of Change	Author of Change	Version	Description of Change(s)
30/Jan/13	ABruce	3.001	Updated BC Template OIDs to assigned root 2.16.840.1.113883.3.51.60
31/Jan/13	ABruce	3.002	Added Template OIDs and LOINC codes to the top of each Document Type in Section 5, added LOINC codes for Other Clinical Document Types in section 5.6, and indicated that unstructured documents should use these LOINC codes.
01/Feb/13	ABruce	3.003	4.2.1.1 CONF-BC0038: the name.use attribute was expanded, the value set explicitly listed, and the example fixed to include this required attribute.
05/Feb/13	ABruce	3.004	Corrected template IDs for: Laboratory Specialty Section : 1.3.6.1.4.1.19376.1.3.3.2.1 Laboratory Report Item Section: 1.3.6.1.4.1.19376.1.3.3.2.2 Procedure Steps: 1.3.6.1.4.1.19376.1.8.1.2.6
21/Feb/13	Crobertson	3.005	5.4.2 and 5.4.2.1 Added clarification that required/optional Sections for Discharge Summary only apply when implementers intend to send CDA Level 2 or CDA Level 3 documents.
22/Feb/13	Crobertson	3.006	5.5.2.1 and 5.5.2.2 Added clarification that required/optional Sections for Diagnostic Imaging Report only apply when implementers intend to send CDA Level 2 or CDA Level 3 documents.
13/Mar/13	Abruce	3.007	Added Lab Narrative section.
20/Mar/13	Abruce Crobertson	3.008	Updates to Lab Narrative section, based upon PLIS SME and CDA Expert comments/direction.
27/Mar/13	Crobertson	3.009	Added receivedOrganization element requirement to informationRecipient
16/Apr/13	Crobertson	3.010	Clarified CONF-BC0505 to indicate that nullFlavor shall be used if provider type is NOT a physician. Clarified CONF-BC506 to indicate that the second id element SHOULD be the unique identifier assigned to the provider by the licensing/credentialling organization that represents the provider type. If the care provider does not fall under any licensing/credentialling organization, the second id element MAY be a locally assigned identifier.
24/Jul/2013	CRobertson	3.011	Added clinicalDocument/participant conformance for Ordering Provider for Laboratory Results. Added clarity around ID for custodianOrganization. Commenced adding Index to provide implementation clarity.

18/Oct/2013	CRobertson	3.012	Clarified the use of the relatedDocument structure, which is an extension to CDA R2 under the *xmlns:bccda="urn:bccda"*
27/Nov/2013	CRobertson	3.013	Changed CDA R2 extension namespace for lab documents to *xmlns:bccda="urn:bccda"* from the IHE extension that was previously used. Added "Transfer Summary" as an applicable CDA R2 document that may optionally use the Immunizations section. Update to CONF-BC0278 to replace CDA R2 entry template, as valueSets were not transferrable. Alternately, allowed the use of PITO e2e entry template for Immunization Observation.
6/Dec/2013	CRobertson	3.014	Fixed typeCode attribute error for ParticipationType, from "AUTH" to "AUT." Updated statusCode typo in BC0546. 4.2.10 added to provide clarity around stewardship and roles related to clinical documents
16/May/2014	CRobertson	3.015	Added clarity around parentDocument and relatedDocument handling, including use of clinicalDocument ID, setID and version.
20/Aug/2014	CRobertson	3.016	Further edits for relatedDocument.
26/Sep/2014	CRobertson	3.017	Further edits for relatedDocument
02/Jan/2015	CRobertson	3.018	Edits to table showing clinical document alignment of section templates
23/Feb/2015	CRobertson	3.019	Edits to section 4.2.4 to clarify that sending a clinical document to an organization without a provider specified is allowable.
30/Sep/2015	CRobertson	4.0	Edits to incorporate the details around document relationships.
30/Nov/2015	CRobertson	4.01	Edit section for lab stylesheet so that "N = Normal" is not indicated.
7/Jan/2016	CRobertson	4.02	Edits to Header certain elements to align to PanCdn and e2e: BC0111 – corrected associatedPerson to assignedPerson Edits to section 4.1.3 for Clinical Document IDs, including setID and versionID. Edits to section 5.4.1.3 related to Patient Time of Death.
3/June/2016	CRobertson	4.03	Section 1.4 – change scope to include Admission and Discharge Notification documents Section 5.7 – added two new document types; Admission Notification and Discharge Notification. Section 2.3 – added note around source systems sending "instructional" text.

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