



# British Columbia Document Ontology Implementation Guide

Version 1.0

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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 Document Ontology standard development.

## COMMENTS

Questions and/or feedback on this document ontology initiative in British Columbia can be directed to:  
B.C Ministry of Health, Health Information Standards and Conformance & Integration Services, Health Sector Information Management & Technology Division. E-mail: [HLTH.CISSupport@gov.bc.ca](mailto:HLTH.CISSupport@gov.bc.ca)

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## VERSION CONTROL

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### APPROVAL & SIGN-OFF

This Implementation Guide has been reviewed, approved and endorsed by the following sponsors as listed below.

<b>B.C. EXECUTIVE SPONSOR</b>	Doctors of BC	Date: July 2018
<b>B.C HEALTH INFORMATION STANDARDS STANDING COMMITTEE (HISSC)</b>	Consensus approval for Implementation Guide	Date: July 2018

## 1.0 Introduction

The purpose of this implementation guide is to define how the British Columbia (B.C.) Document Ontology can be implemented within Health Information Systems as a foundation for standardized archiving, data mining, and information exchange based upon clinical document types and metadata attributes.

The B.C. Document Ontology consists of a set of all Logical Observation Identifiers, Names and Codes (LOINC) and non LOINC document codes currently being distributed in B.C. throughout the health information exchange networks. These document codes are built on an underlying framework and classification of the key attributes for naming clinical documents. Health Authorities across B.C. and Canada are expanding the list of document types being exchanged to include medical specialty and procedure specific document types which is driving the need for a document ontology to help classify and categorize this growing list of documents types.

Work on the B.C. Document Ontology began in 2016 with collaboration between Health Authorities, Doctors of BC and the B.C. Ministry of Health. The ontology is based on the HL7 LOINC document ontology standard and is extended to include other document types current in use or previously used in B.C. that are not specified in LOINC. This ontology is a conceptual and simple to implement structure for labeling and organizing documents within Health Information Systems.

### 1.1 Audience

The audience for this implementation guide is EMR vendors and developers of healthcare system throughout British Columbia.

### 1.2 Purpose

The implementation guide is designed to give guidance to health information system developers and business analysts to assist them in providing two key capabilities in their systems:

1. The ability to search for specific document types using a common ontology of document names. The specific need for the ontology is to provide semantics for names of documents that are exchanged between health information systems.
2. The ability to search for focused collections of documents that have many different document types, but share common attributes. This capability can be accomplished through the use of filters applied to the 5 Document Ontology axis attributes.

### 1.3 Scope

The scope of this implementation guide is twofold. Firstly, it is to build an understanding of the various document codes, names and axis attributes available in the B.C. Document Ontology.

Secondly, this guide is intended to document integration techniques, use cases and best practices that an implementer can use to successfully integrate with the B.C. Document Ontology.

## 1.4 Conformance Guidelines

Conformance guidelines for the B.C. Document Ontology are loosely specified in this guide and may differ slightly from actual conformance tests. Because of the nature of the B.C. Document Ontology, conformance language in this implementation guide has a much looser level of constraints than other health interoperability standards.

- A conformant healthcare system SHALL support all document type codes listed in the B.C. Ontology that are in use in B.C. These are specified in Value Set 2.16.840.1.113883.XXX
- In addition to the subset above, a conformant healthcare system MAY support the usage of all document type codes listed in LOINC where classification = DOC. ONTOLOGY. This would help “future proof” the system as new codes are added.
- A conformant healthcare system SHALL use the 5 axis attribute value lists AS IS.
- A conformant healthcare system SHALL check and download the latest copy of the B.C. master ontology file annually from the B.C. Health Information Standards website.
- A conformant healthcare system MAY continue to support its own document codes and localized names in addition to the B.C. document ontology codes and names.

## 1.5 Use of Local Codes and Document Names

The B.C. Document Ontology produces document type codes with consistent semantics for sharing, exchanging, and aggregating documents across independent facilities or health care systems. We recognize that local document codes and names often serve many important purposes within a system and its local user base. It is assumed that local document names will be preserved in the systems that originally created the document and that they can be included in the exchange (along with the LOINC code) when the document is sent to an external organization.

This implementation guide uses LOINC as the standard coding system for document types, but even the most comprehensive standard vocabulary will not cover every local variation in document names. If an appropriate LOINC code exists for a local document type, the LOINC code should be used as the standard identifier. If an appropriate LOINC code does not exist for a local document type, a local code may be used (referred to as an X-code) to identify the document. Additional guidance on what to do when an implementer cannot find an appropriate LOINC code for a local document type is contained in Section 4.1.6 - Extending the B.C. Document Ontology.

## 1.6 Document Titles and Document Types

Documents in B.C. are generally exchanged in one of two message formats: HL7 v2 ORU and HL7 v3 CDA.

It is important to clarify that the document codes within the B.C. document ontology apply to the “document type” and not the “document title”.

In CDA documents, the document type can be found in the `clinicalDocument.code` element. The human readable title of the document is found in the `title` element.

*example: CDA document snippet*

```
<code code="34816-9" codeSystem="2.16.840.1.113883.6.1" codeSystemName="LOINC"
displayName="Otolaryngology Consult note" />
<title>ENT Consult</title>
```

In HL7 v2, the document type is most often stored in the OBR-4.1 field and the title in the OBR-4.2 field.

*example: HL7 v2 ORU snippet*

```
OBR|1||30195081|34816-9^ENT Consult
||20100813135200|20100813135200|20100813135200||||20100813135200
||90909^MDCARE^BOB||||20100817125019|ENTCONS3|F||90909^MD CARE^BOB OBX
```

## 2.0 B.C Document Ontology Structure

The structure of the B.C. Document Ontology is based on the HL7 LOINC Document Ontology structure which is defined by Regenstrief Institute and the LOINC Committee. The LOINC International Document Ontology Working Group Committee currently meets once a month and updates and developments are monitored by the B.C. Health Information Standards Technical Working Group.

### 2.1 Technical Approach

The technical approach of this implementation guide consists of:

- Documentation of the current B.C. Document Ontology as-is.
- Documentation of the use of metadata to support queries for document types outside of simple queries based on LOINC code alone.

### 2.2 B.C. Document Ontology Master File Structure

The B.C. Document Ontology is distributed in a single downloadable file that contains all document codes and metadata required for system designers to fully implement the B.C. Document Ontology.

### 2.3 Master File fields and relationships to LOINC

Name	Purpose	Source	Example	Value Set
Code	Primary document type code	LOINC and B.C. Extensions	34826-8	LOINC DOC.ONTOLOGY
LOINC Long Name	Long name format (could be used as the document title)	LOINC and B.C. Extensions	Plastic Surgery Consult Note	N/A
Short Name	Short name format	LOINC and B.C. Extensions	Plastic Surg Consult	N/A
Document Kind	Type of document	LOINC (Component)	Note	
Subject Matter Domain	Medical specialty	LOINC (Method)	Plastic Surgery	N/A

Service	Medical service performed	LOINC (Component)	Consultation	N/A
Setting	Clinical setting where service was performed	LOINC (System)	Emergency Department	N/A
Role	Service provider's role who performed the service	LOINC (Method)	Nurse	N/A
Synonyms	Alternative names used as document titles in other healthcare systems	B.C. Healthcare systems	Plastic Surg Consultation	N/A

## 3.0 Document Ontology

The B.C. Document Ontology schema is represented by a required long name, a required short name, up to 5 attributes of additional metadata and a list of synonyms representing other localized names that this document type may be referred to in other healthcare systems and settings.

### 3.1 Code

The Code is the primary means to define the document type. Historically the document code was limited to only a handful of generalized document types (e.g. discharge summary, consult note, progress note, procedure note, operative note). Many Health Authorities are now expanding their document types to include hundreds of document types/codes as a means to clearly and easily describe the actual content of the clinical data in the document without requiring the user to open the document.

The Code is derived from one of two sources, the first being LOINC and the second coming from Excelleris (referred to as a custom extension or an “X” code). The need for a custom extension code is most often driven from the absence of a proper LOINC document type code in the LOINC database. Over time LOINC does add new document type codes to their system, and as this occurs custom codes in the B.C. Document Ontology may be deprecated in favor of new LOINC codes. For example, prior to June 2018, LOINC combined the specialties of “Obstetrics and Gynecology”. In June 2018 LOINC International Working group accepted a recommendation from Canada Health Infoway to break this specialty into their two respective specialties based on the understanding that each specialty was unique in its own right and a document type for a Gynecology specialist may need to be handled differently than a note classified under an Obstetrics specialty.

The current list of document types in B.C. consists of over 500 unique document codes in the B.C. Document Ontology.

### 3.2 Long Name

The long name is pulled from the Long Common Name in the LOINC coding system. In the event the code is a custom extension, the long name SHOULD follow the same naming convention as similar document types. Custom extensions at a provincial level SHALL be reviewed and decided on by the B.C. Health Information Standards Working Group and approved by the B.C. Health Information and Standards Committee.

The Long Name fully describes the document and created by joining the 5 LOINC axis attributes in the following order: <SubjectMatterDomain><Setting><Role><Service><Document.Kind>

### 3.3 Short Name

The Short Name is a simplified document name that uses common medical abbreviations or acronyms to replace certain words in the long name. In the event the code is a custom extension, the short name SHOULD follow the same naming convention as similar document types. Custom

extensions at a provincial level SHALL be reviewed and decided on by the B.C. Health Information Standards Working Group and approved by the B.C. Health Information Standards Standing Committee.

### **3.4 Document Kind**

The Document Kind is a LOINC ontology standard that describes the classification of the document type.

Refer to Appendix 6.1 for a complete list of codes (LOINC Attribute Part Number).

### **3.5 Subject Matter Domain**

Individual clinical domains and medical specialties are established at the top of the ontological structure to allow for initial query functions to be implemented through traversing a clinical domain. The domains within the ontology are used to classify the subject matter domain of a specific document.

Refer to Appendix 6.2 for a complete list of codes (LOINC Attribute Part Number).

### **3.6 Service**

The type of Service refers to the specific detail about the type of care delivered to the patient and represents the overall context of the document.

Refer to Appendix 6.3 for a complete list of codes (LOINC Attribute Part Number).

### **3.7 Setting**

The Setting within the ontology classifies documents according to the types of settings (e.g. department, unit) where they are created and used. Setting is not meant to mean a specific location, but rather to correlate with the setting in which a service is provided.

Many document names include a setting (at least at the top level) to avoid confusion between important classes of documents. For example, an admission History & Physical is usually taken to be the Hospital Admission History & Physical, but it could be confused with an extended care nursing home History & Physical if not distinguished by the setting.

Refer to Appendix 6.4 for a complete list of codes (LOINC Attribute Part Number).

### **3.8 Role**

The Role in the context of this Document Ontology refers to the document author's training or professional level. It refers to the role the author played at the point in time when creating the document (e.g. admitting physician).

Refer to Appendix 6.5 for a complete list of codes (LOINC Attribute Part Number).

### 3.9 Synonyms

Synonyms are alternative document names that may have the document referred to in other health care systems. It may be useful from a search or regression perspective. The list of synonyms was gathered from various B.C. Health Authority systems as well as Canada Health Infoway and LOINC.

## 4.0 Implementation of the Ontology

Implementing the Document Ontology provides a foundation for standardized searching, archiving, data mining and information exchange based upon clinical document types. This will provide immediate value to the end user for existing documents that have already been received and captured as well as future clinical documents that will be exchanged.

The current list of document codes in the B.C. Document Ontology covers ALL past and present clinical documents that have been delivered from Health Authority sources to end user EMR systems via Excelleris and Clinical Document Exchange (CDX).

For the purposes of this guide, it is important to clarify that document codes within the B.C. Document Ontology apply to “Document Types” and not “Document Titles”.

In HL7v3 CDA documents, the Document Type is represented by the `clinicalDocument.code`, and is intended to convey a universally understandable description of the content and intent of the document. The Document Title is generally represented by the `clinicalDocument/title`, and is intended to convey the local title for a document which may or may not have significant meaning between different systems.

### 4.1 Implementation Techniques

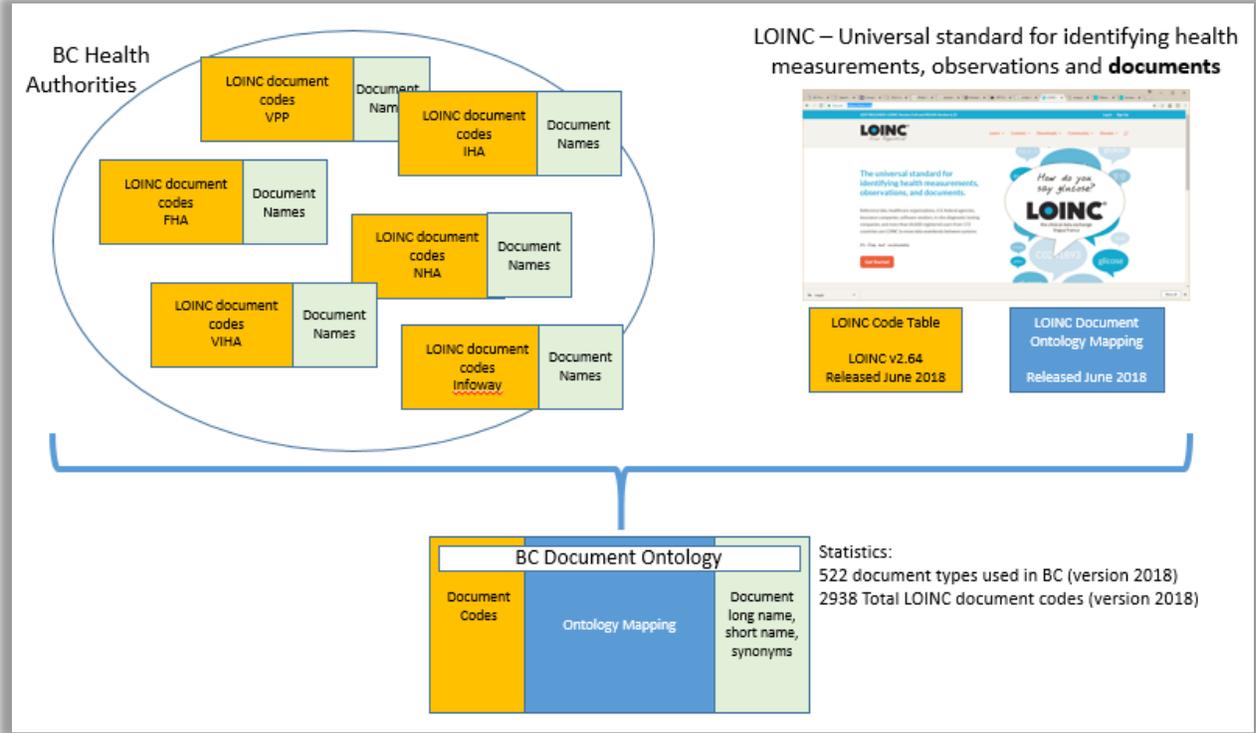
Implementation techniques may vary based on the EMR system and the level of skill of the system implementer but in general the implementation guidelines described below are geared to provide the full value of the B.C. Document Ontology without requiring any data manipulation or transformation of data in an existing system.

#### 4.1.1 The Master B.C. Document Ontology mapping file

The core data comprising the B.C. Document Ontology consists of one master file. It is available in Excel or CSV format. The key for each row in this document is the “document code” in the first column. The remaining columns contain the ontology axis values which will be referred to as the “Ontology metadata”. The document code matches the clinical document type code that is sent from the Health Authority system. The master file is fairly small in terms of current memory standards and can easily be stored in cached memory for EMR systems to use in real-time for display purposes or it could be persisted into a database table and referenced whenever a new document is received or opened.

**Note:** Implementers should be prepared to update this file once a year. As LOINC adds new document codes and expands the list of values, this master file will be updated, versioned and published by the B.C. Health Information Standards Working Group.

### 4.1.1.1 Image 4.1.1.a Gathering document types workflow



### 4.1.1.2 Image 4.1.1.b Master File layout

Document Code	LOINC Long Name	BC Short Name	5 Axis LOINC attributes					Alternate names used throughout BC Healthcare
Code	LOINC Long Name	Short Name	Document Kind	Subject Matter Domain	Service	Setting	Role	Synonyms
386 28579-1	Physical therapy Plan of care note	Plan of Care - Physical Therapy	Note	Physical therapy	Plan of care			Physical Therapy Note
387 80762-8	Physical therapy Progress note	Physical Therapy Progress Note	Note	Physical therapy	Progress			Physical Therapy Progress Note, Physical Therapy Progress Note
388 11508-9	Physician Admission evaluation note	Admission Evaluation Note - Physician	Note		Admission evaluation		Physician	Admission Note Provider, Physical Adm
389 83805-2	Physician consulting Progress note	Physician Consulting Progress Note	Note		Progress		Physician	Consultant Inpatient Progress Note, Phys
390 28569-2	Physician Emergency department Note	Physician Emerg Note	Note			Emergency department	Physician	Ed Note Provider, Podiatry Emergency D
391 28568-4	Physician History and physical note	Physician History and Physical Note	Note		History and physical		Physician	History And Physical Note, Physician Hist
392 28626-0	Physician Initial evaluation note	Physician Initial Evaluation Note	Note		Initial evaluation		Physician	Physician Initial Assessment Note, Physic
393 18736-9	Physician Letter	Letter - Physician	Note				Physician	Letter Provider, Physician Letter
394 75476-4	Physician Note	Note - Physician	Note				Physician	Clinic Note Other, Physician Note
396 11505-5	Physician procedure note	Physician Procedure Note	Note		Procedure		Physician	Physician procedure note
397 83794-4	Physician urgent care center Note	Urgent Care Note - Physician	Note			Urgent care center	Physician	Physician Urgent care center Note
398 131011	Physician/rg Clinic Note	Note - Physician/rg	Note				Physician	Physician/rg Clinic Note
399 18776-5	Plan of care note	Plan of Care	Note		Plan of care			Plan Of Care Note
400 34826-8	Plastic surgery Consult note	Plastic Surgery Consult	Note	Plastic surgery	Consultation			Plastic Surgery Consult, Plastic Surgery C
401 34827-6	Plastic surgery Note	Plastic Surgery Note	Note	Plastic surgery				Plastic Surgery Clinic Note, Plastic Surger
402 83854-0	Plastic surgery procedure note	Plastic Surgery Procedure Note	Note	Plastic surgery	Procedure			Plastic Surgery Procedure Note
403 68595-8	Plastic surgery Progress note	Plastic Surgery Progress Note	Note	Plastic surgery	Progress			Plastic Surgery Progress Note
404 34828-4	Podiatry Consult note	Podiatry Consult	Note	Podiatry	Consultation			Podiatry Consult, Podiatry Consult Note,
405 34829-2	Podiatry Note	Podiatry Note	Note	Podiatry				Podiatry Clinic Note, Podiatry Note
406 28625-2	Podiatry procedure note	Podiatry Procedure Note	Note	Podiatry	Procedure			Podiatry Procedure Note
407 11509-7	Podiatry Progress note	Podiatry Progress Note	Note	Podiatry	Progress			Podiatry Progress Note
408 28833-6	Polysonnography (sleep) study	Sleep study	Note	Sleep medicine	Diagnostic study			Sleep Study, Polysonnography (sleep) S
409 67862-3	Preoperative evaluation and management	Preoperative Evaluation and Mgmt Note	Note		Preoperative evaluation and management			Pre-operative Evaluation & Management
410 84132-0	Primary care Patient's home Discharge sum	Primary Care Patient's Home Discharge summary	Note	Primary care	Discharge summary	Patient's home		Primary Care Patient's Home Discharge, F
411 84136-1	Primary care Patient's home Plan of care n	Plan of Care - Primary Care Patient's Home	Note	Primary care	Plan of care	Patient's home		Primary Plan Of Care Note, Primary care
412 75479-6	Primary care Physician Note	Primary care Physician Note	Note	Primary care			Physician	Primary care Physician Note
413 80777-6	Primary care Plan of care note	Plan of Care - Primary Care	Note	Primary care	Plan of care			Primary care Plan of care note
414 131067	Proceduralist Consult Note	Proceduralist Consult	Note		Consultation			Proceduralist Consult Note
415 28570-0	Procedure note	Procedure Note	Note		Procedure			Map/map interpretation, Procedure Note
416 11506-3	Progress note	Progress Note	Note		Progress			Progress Note
417 34788-0	Psychiatry Consult note	Psychiatry Consult	Note	Psychiatry	Consultation			Psychiatry Consult, Psychiatry Consult
418 59229-2	Psychiatry Discharge summary	Psychiatry Discharge Summary	Note	Psychiatry	Discharge summary			Psychiatry Discharge Summary
419 68599-0	Psychiatry History and physical note	Psychiatry History and Physical Note	Note	Psychiatry	History and physical			Psychiatry History & Physical, Psychi
420 34102-4	Psychiatry Hospital Consult note	Psychiatry Consult	Note	Psychiatry	Consultation	Hospital		Psychiatry Hospital Consult Note

### 4.1.2 Document Type Code and Ontology metadata storage

A clinical document sent from a health authority system to an EMR system does not contain the Ontology metadata therefore the system implementer needs to decide if they want to apply the Ontology metadata at the time of receipt and store it with the document or leave the Ontology metadata as stand-alone data elements within the Ontology file/table only to be referenced during search and retrieval actions.

If the Ontology is stored stand-alone, the link to the metadata can be done through a HashMap key lookup if stored in memory or through a SQL database join statement if stored in a database table.

Note: If the implementer is applying and storing the Ontology metadata with the document at time of receipt, the implementer SHOULD consider how to modify the meta-data if it changes in the future with an updated version of the Ontology. Although the document code (key) would not change, some values in the Ontology may be changed (e.g. additional synonyms may be added in the future)

### 4.1.3 Search and Filter

The primary reason for the B.C. Document Ontology is to allow users to query and filter clinical documents based on standardized subsets of metadata values. The EMR system SHALL allow the user to search and/or filter clinical documents based on two or more of the 5 axis values (kind, domain, service, role, setting). The most important axis values are “Subject Matter Domain” and “Service”.

“Subject Matter Domain” can be referenced and referred to as the author’s specialty and the “Service” can be referred to as the specific service that the author provided to the patient.

*example:* Dr. Johnson in Cardiology provided a consultation to the patient, this was captured in a document with a document type code = 34099-2. The ontology metadata for code 34099-2 is (Subject Matter Domain = Cardiovascular disease) (Service = Consultation)

Implementers SHOULD build search capability to search based on a multi-select pick lists of axis values and combinations thereof.

*example:* User should be able to search for (service=Consultation) documents that match (Subject Matter Domain = Cardiac surgery OR Cardiovascular disease OR Pulmonary disease)

### 4.1.4 Display and Implementation Approaches

EMR clinical document list display standards may already be addressed through other conformance processes but can be enhanced using the B.C. Document Ontology. Although most systems send a document title or name along with the document code, it is often a localized system name and may not match the name that another system uses for the same type of document or document code. This is where the B.C. Ontology “Long Name” and “Short Name” can provide the end user with a standardized naming convention across platforms and EMRs. The long name fully represents the document’s name from a LOINC perspective and the short name

provides a more simplified easy to read name based on current medical naming conventions and feedback gathered from providers through a Doctors of BC working group. In addition, the short name assists with space and size restrictions in the GUI and on mobile devices. Both Long Name and Short Name SHOULD be optional view settings accessible by the end user.

*example:* a provider is working at Lions Gate Hospital and is accustomed to viewing patient document lists that use the long name format (standard for the LGH Cerner system). This view can be represented in a local EMR by allowing the user to switch to the B.C. Ontology long name view which pulls the long name from the B.C. ontology file and uses that as the primary display title for the document in a list view.

#### 4.1.5 Display Standard using Ontology metadata combined with document metadata

A fully comprehensive display of the document that represents not only the document type but also the source of the document can be achieved by combining the Ontology metadata (marked in <red>) with discrete data that is sent along with the document (marked in <green>). Extensive work with a Doctors of BC working group has produced the following recommendation when it comes to this type of display.

##### Medical Documents:

<Subject Matter Domain> + <Service> + <Document Kind> + <Author's Name> + <Setting>or<Setting>+ <Location>

*example:* Cardiology Consult, Dr. Heart, Inpatient, RJH

##### Procedural Documents:

<Procedure Name> + <Service> + <Document Kind> + <Author's Name> + <Location>

*example:* Left Total Arthroplasty, Surgical Note, Dr. Orthopedic, VGH

#### 4.1.6 Extending the B.C. Document Ontology

When a system implementer (EMR or Health Authority) is using a new document code that does not exist in the B.C. Document Ontology the following process should apply:

1. Search LOINC.org for an appropriate LOINC document code that has a "DOC.ONTOLOGY" classification. See image below
2. If an appropriate document code can be found on LOINC.org, contact the B.C. Ministry of Health, Health Information Standards Group ([HLTH.CISSupport@gov.bc.ca](mailto:HLTH.CISSupport@gov.bc.ca)) at which point they will add the code to the B.C. Document Ontology master file as well as the clinical distribution systems in B.C. (Excelleris, CDX and CareConnect).
3. If an appropriate code CANNOT be found in LOINC, contact the B.C. Ministry of Health, Health Information Standards Group ([HLTH.CISSupport@gov.bc.ca](mailto:HLTH.CISSupport@gov.bc.ca)) to request a new document code and title. If an appropriate LOINC document code does not already exist, they will assign a temporary code that will be used in production. A request will be submitted to Canada Health Infoway for creation of a new LOINC code in a future release of the LOINC International Ontology if appropriate.

Image: 4.1.6.a LOINC Search Result

The screenshot shows a web browser window with the URL <https://search.loinc.org/searchLOINC/search.zul?query=cardiology+note>. The search bar contains the text "cardiology note" and a "Search" button. A red arrow points to the "Class" column header in the table below.

LOINC	LongName	Component	Property	Timing	System	Scale	Method	exU	exU	Lfor	Rar	SIR	Class	Shor
<a href="#">68723-6</a>	Pediatric cardiology Preoperative evaluation and management note	Preoperative evaluation and management note	Find	Pt	{Setting}	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">68722-8</a>	Pediatric cardiology Note	Note	Find	Pt	{Setting}	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">85938-9</a>	Cardiology Postoperative evaluation and management note	Postoperative evaluation and management note	Find	Pt	{Setting}	Doc	Cardiovascular disease						DOC. ONTOLOGY	Card
<a href="#">84176-7</a>	Interventional cardiology Postoperative evaluation and management note	Postoperative evaluation and management note	Find	Pt	{Setting}	Doc	Interventional cardiology						DOC. ONTOLOGY	IC Ph
<a href="#">68623-3</a>	Advanced heart failure and transplant cardiology Preoperative evaluation and management note	Preoperative evaluation and management note	Find	Pt	{Setting}	Doc	Advanced heart failure and transplant cardiology						DOC. ONTOLOGY	AHF
<a href="#">83537-1</a>	Cardiology Preoperative evaluation and management note	Preoperative evaluation and management note	Find	Pt	{Setting}	Doc	Cardiovascular disease						DOC. ONTOLOGY	Card
<a href="#">84177-5</a>	Interventional cardiology Preoperative evaluation and management note	Preoperative evaluation and management note	Find	Pt	{Setting}	Doc	Interventional cardiology						DOC. ONTOLOGY	IC Ph
<a href="#">68727-7</a>	Pediatric cardiology Hospital Consult note	Consultation note	Find	Pt	Hospital	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">68718-6</a>	Pediatric cardiology Diagnostic study note	Diagnostic study note	Find	Pt	{Setting}	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">68721-0</a>	Pediatric cardiology History and physical note	History and physical note	Find	Pt	{Setting}	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">68726-9</a>	Pediatric cardiology Transfer summary note	Transfer summary note	Find	Pt	{Setting}	Doc	Pediatric cardiology						DOC. ONTOLOGY	Peds
<a href="#">68471-2</a>	Cardiology Hospital Admission evaluation note	Admission evaluation note	Find	Pt	Hospital	Doc	Cardiovascular disease						DOC. ONTOLOGY	Card

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## 5.0 References

Various sections of this document are based on:

- HL7 Implementation Guide: LOINC Document Ontology, Release 1) June 2015  
<https://loinc.org/document-ontology/> (articles and resources)
- LOINC Document Ontology Accessory File (v 2.6.4) June 2018  
<https://loinc.org/document-ontology/>

## 6.0 Appendix: 5 Axis LOINC Attributes

### 6.1 Document Kind

Note: Code set accurate as of Dec 2018, please use link for most up to date code set

<https://loinc.org/document-ontology/>

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document	
					<b>Document Kind</b>
					<b>Document Part Number</b>
					Abortion consent
					LP173395-7
					ADHD action plan
					LP173754-5
					Administrative note
					LP173387-4
					Advance directives
					LP173409-6
					Adverse event note
					LP173419-5
					Against medical advice note
					LP173388-2
					Agreement
					LP173389-0
					Anaphylaxis action plan
					LP173755-2
					Anesthesia consent
					LP173396-5
					Asthma action plan
					LP173756-0
					Autism action plan
					LP173757-8
					Birth certificate
					LP173391-6
					Case report
					LP183503-4
					Certificate
					LP173390-8
					Checklist
					LP200111-5
					Complex medical conditions action plan
					LP173758-6
					Consent
					LP173394-0
					Cystic fibrosis action plan
					LP173759-4
					Death certificate
					LP173392-4
					Diabetes type I action plan
					LP173765-1
					Diabetes type II action plan
					LP173766-9
					Diagram
					LP173414-6
					Discharge checklist
					LP267279-0
					Discharge instructions
					LP173118-3
					Do not resuscitate
					LP173410-4
					Driver license
					LP193873-9

Evaluation of mental and physical incapacity certificate	LP173393-2
Flowsheet	LP173415-3
Form	LP181112-6
Health insurance card	LP173404-7
Health insurance-related form	LP173405-4
Heart disease action plan	LP173760-2
Hysterectomy consent	LP173397-3
Inflammatory bowel disease action plan	LP173761-0
Instructions	LP181116-7
Legal document	LP173407-0
Legal letter	LP200113-1
Letter	LP173417-9
List	LP204161-6
Living will	LP173412-0
Long-term opioid therapy for pain consent	LP267417-6
Mandatory reporting form	LP204180-6
Medical clearance note	LP248740-5
Multiple sclerosis action plan	LP173762-8
Muscular dystrophy action plan	LP173763-6
Note	LP173418-7
Order	LP181207-4
Organ donation consent	LP173398-1
Patient Consent	LP173418-7
Photographic image	LP181231-4
Power of attorney	LP173408-8
Prescription for diagnostic or specialist care	LP181529-1
Prescription for durable medical equipment attachment	LP181530-9
Prescription for eyewear	LP181190-2
Prescription for medical equipment or product	LP181531-7
Prescription for medication	LP181532-5
Prescription for rehabilitation	LP181533-3
Prescription list	LP181534-1
Prescription request	LP181085-4
Procedure consent	LP173399-9
Registry report	LP183502-6

Release of information consent	LP173400-5
Report	LP173421-1
Research Consent	LP173418-7
Seizure disorder action plan	LP173764-4
Sterilization consent	LP173401-3
Surgical operation consent	LP173402-1

## 6.2 Subject Matter Domain

Note: Code set accurate as of Dec 2018, please use link for most up to date code set

<https://loinc.org/document-ontology/>

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document
<b>Subject Matter Domain</b>				<b>Domain Part Number</b>
Acupuncture				LP172911-2
Addiction medicine				LP263512-8
Addiction psychiatry				LP172912-0
Adolescent medicine				LP172913-8
Advanced heart failure and transplant cardiology				LP172914-6
Aerospace medicine				LP172915-3
Allergy and immunology				LP172916-1
Anesthesiology				LP172918-7
Audiology				LP172919-5
Bariatric surgery				LP248500-3
Birth defects				LP192135-4
Blood banking and transfusion medicine				LP172920-3
Bone Marrow Transplant				BC100001-0
Brain injury				LP263714-0
Cardiac surgery				LP207300-7
Cardiovascular disease				LP172921-1
Chemical pathology				LP208902-9
Child and adolescent psychiatry				LP172922-9
Child and adolescent psychology				LP248501-1
Chiropractic medicine				LP172923-7
Clinical biochemical genetics				LP172926-0
Clinical cardiac electrophysiology				LP172927-8
Clinical genetics				LP172929-4
Clinical neurophysiology				LP172931-0
Clinical pathology				LP208906-0
Clinical pharmacology				LP220238-2
Colon and rectal surgery				LP172932-8
Community health care				LP204156-6

Critical care medicine	LP172933-6
Dentistry	LP172934-4
Dermatology	LP172935-1
Developmental-behavioral pediatrics	LP172937-7
Diabetology	LP172938-5
Dialysis	LP263511-0
Emergency medicine	LP172940-1
Endocrinology	LP172941-9
Environmental health	LP267441-6
Epilepsy	LP248726-4
Ethics	LP172942-7
Family medicine	LP172943-5
Forensic medicine	LP172894-0
Gastroenterology	LP172945-0
General medicine	LP172946-8
Geriatric medicine	LP172946-8
Gynecologic oncology	LP202989-2
Gynecology	LP221284-5
Hematology	LP175685-9
Hepatology	LP172950-0
HIV	LP183500-0
Infectious disease	LP172951-8
Internal medicine	LP172952-6
Interventional cardiology	LP172953-4
Interventional radiology	LP172896-5
Kinesiotherapy	LP172954-2
Maternal and fetal medicine	LP172955-9
Medical genetics	LP172956-7
Medical microbiology - pathology	LP208903-7
Medical Oncology	LP175686-7
Medical toxicology	LP172957-5
Mental health	LP172958-3
Multi-specialty program	LP172960-9
Neonatal perinatal medicine	LP172961-7
Nephrology	LP172962-5

Neurological surgery	LP172963-3
Neurology	LP172964-1
Neurology w special qualifications in child neuro	LP172898-1
Neuropsychology	LP248729-8
Nutrition and dietetics	LP172899-9
Obstetrics	LP221283-7
Obstetrics and gynecology	LP172971-6
Occupational medicine	LP172972-4
Occupational therapy	LP172973-2
Oncology	LP172901-3
Ophthalmology	LP172974-0
Optometry	LP172975-7
Oral and maxillofacial surgery	LP172902-1
Orthopaedic surgery	LP172978-1
Orthotics prosthetics	LP172979-9
Otolaryngology	LP172980-7
Pain medicine	LP172981-5
Palliative care	LP172982-3
Pastoral care	LP172983-1
Pathology	LP172984-9
Pediatric cardiology	LP172985-6
Pediatric critical care medicine	LP172986-4
Pediatric dermatology	LP172987-2
Pediatric endocrinology	LP172989-8
Pediatric gastroenterology	LP172990-6
Pediatric hematology-oncology	LP172991-4
Pediatric infectious diseases	LP172992-2
Pediatric nephrology	LP172993-0
Pediatric otolaryngology	LP172994-8
Pediatric pulmonology	LP172995-5
Pediatric rehabilitation medicine	LP172997-1
Pediatric rheumatology	LP172998-9
Pediatric surgery	LP172999-7
Pediatric transplant hepatology	LP173000-3
Pediatric urology	LP173001-1

Pediatrics	LP173002-9
Pharmacology	LP173003-7
Physical medicine and rehab	LP173004-5
Physical therapy	LP173005-2
Plastic surgery	LP173006-0
Podiatry	LP173008-6
Polytrauma	LP265794-0
Preventive medicine	LP173009-4
Primary care	LP173010-2
Psychiatry	LP173011-0
Psychology	LP173012-8
Public health	LP173014-4
Pulmonary disease	LP173015-1
Radiation oncology	LP173016-9
Radiology	LP173018-5
Recreational therapy	LP173019-3
Reproductive endocrinology and infertility	LP173020-1
Research	LP173021-9
Respiratory therapy	LP173022-7
Rheumatology	LP173023-5
Sleep medicine	LP248728-0
Social work	LP173024-3
Speech-language pathology	LP173025-0
Spinal cord injury medicine	LP173026-8
Spine Surgery	BC100002-0
Sports medicine	LP173027-6
Surgery	LP173028-4
Surgery of the hand	LP173029-2
Surgical critical care	LP173030-0
Surgical oncology	LP207940-0
Thoracic and cardiac surgery	LP173031-8
Transplant surgery	LP173033-4
Trauma	LP183499-5
Tumor board	LP173034-2
Undersea and hyperbaric medicine	LP173035-9

Urology	LP173036-7
Vascular neurology	LP173038-3
Vascular surgery	LP173039-1
Vocational rehabilitation	LP173040-9
Women's health	LP248732-2
Wound care management	LP185997-6

## 6.3 Service

Note: Code set accurate as of Dec 2018, please use link for most up to date code set

<https://loinc.org/document-ontology/>

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document
Admission evaluation				LP173205-8
Admission history and physical				LP173200-9
Admission notification				LP203034-6
Annual evaluation				LP173123-3
Antepartum summary				LP173218-1
Autopsy				LP173237-1
Cardiopulmonary resuscitation				LP267418-4
Communication				BC100003-0
Comprehensive history and physical				LP173201-7
Conference				LP173099-5
Confirmatory consultation				LP173111-8
Consultation				LP173110-0
Counseling				LP173100-1
Crisis intervention				LP173130-8
Daily or end of shift signout				LP173114-2
Diagnostic study				LP173115-9
Disability examination				LP173132-4
Discharge notification				LP203035-3
Discharge summary				LP173221-5
Discharge teaching				LP173120-9
Disease staging				LP173131-6
Education				LP173117-5
Evaluation				LP173124-1
Evaluation and management				LP173122-5
Evaluation and management of anticoagulation				LP173193-6
Evaluation and management of hyperlipidemia				LP173194-4
Evaluation and management of hypertension				LP173195-1
Evaluation and management of overweight and obesity				LP173196-9
Evaluation and management of radiation exposure				LP267443-2

Evaluation and management of smoking cessation	LP173197-7
Evaluation and management of workers compensation	LP208913-6
Fall risk assessment	LP173128-2
Follow-up	BC100004-0
Functional status assessment	LP173125-8
Group counseling	LP173113-4
History and physical	LP173198-5
Immunization	LP263510-2
Immunization summary	LP222264-6
Individual counseling	LP173112-6
Initial evaluation	LP173204-1
Interventional procedure	LP173235-5
Labor and delivery admission history and physical	LP173202-5
Labor and delivery summary	LP173223-1
Maternal discharge summary	LP173222-3
Medical equipment or product	LP204160-8
Medication administration	LP207306-4
Medication management	LP173231-4
Medication reconciliation	LP173232-2
Outreach	LP173233-0
Parenteral therapy	LP266264-3
Plan of care	LP173209-0
Population summary	LP175732-9
Postoperative evaluation and management	LP173215-7
Preoperative evaluation and management	LP173216-5
Procedure	LP173234-8
Progress	LP173213-2
Readiness for military duty assessment	LP173126-6
Referral	LP173238-9
Respite	LP173240-5
Restraint	LP173211-6
Risk assessment and screening	LP173127-4
Safety issue assessment	LP204157-4
Suicide prevention	LP263715-7
Summary	LP173103-5

Summary of death	LP173225-6
Summary of encounters	LP200117-2
Summary of episode	LP173224-9
Supervisory	LP173104-3
Surgical operation	LP173214-0
Targeted history and physical	LP173203-3
Transfer summary	LP173226-4
Transplant candidate evaluation	LP173227-2
Transplant donor evaluation	LP173228-0
Triage	LP173242-1
Trial	BC100005-0
Visit notification	LP204130-1
Weight management summary	LP189614-3
Well child visit	LP173229-8

## 6.4 Setting

Note: Code set accurate as of Dec 2018, please use link for most up to date code set

<https://loinc.org/document-ontology/>

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document
		<b>Setting</b>		<b>Setting Part Number</b>
		Adult day care center		LP266261-9
		Custodial care facility		LP173047-4
		Emergency department		LP173043-3
		Hospital		LP173065-6
		Intensive care unit		LP173045-8
		Long term care facility		LP173046-6
		Nursing facility		LP173048-2
		Observation unit		LP222061-6
		Outpatient		LP173051-6
		Outpatient hospital		LP173054-0
		Patient's home		LP173056-5
		Pharmacy		LP220237-4
		Recovery room		LP248736-3
		Skilled nursing facility		LP173049-0
		Telehealth		LP173058-1
		Teleimaging		LP248737-1
		Telephone encounter		LP173059-9
		Urgent care center		LP173055-7
		Urgent care centre		LP173055-7
		Wound Clinic		BC100006-0

## 6.5 Role

Note: Code set accurate as of Dec 2018, please use link for most up to date code set

<https://loinc.org/document-ontology/>

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document
	<b>Role</b>			<b>Role Part Number</b>
	Case manager			LP173067-2
	Clinical nurse specialist			LP173078-9
	Hygienist			LP173071-4
	Interdisciplinary			LP173072-2
	Licensed practical nurse			LP173081-3
	Medical student			LP173092-0
	Midwife			LP221282-9
	Nurse			LP173075-5
	Nurse practitioner			LP173080-5
	Patient			LP173083-9
	Pharmacist			LP181523-4
	Physician			LP173084-7
	Physician assistant			LP173090-4
	Physician attending			LP173085-4
	Physician consulting			LP173086-2
	Physician fellow			LP173087-0
	Physician intern			LP173088-8
	Physician resident			LP173089-6
	Rapid response team			LP203036-1
	Registered nurse			LP173082-1
	Team			LP173073-0
	Technician			LP173094-6
	Therapist			LP173095-3