

Towards a Pan-Canadian LOINC Document Ontology

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Outline

- Analysis of BC and ON Document Ontology
- Moving Towards a Pan-Canadian Document Ontology
- Questions / Discussion

Analysis of BC and ON Document Ontology

The background features a dark blue field with large, overlapping geometric shapes in a lighter blue, green, and yellow. The shapes are angular and abstract, creating a modern, geometric aesthetic.

LOINC Document Ontology Axes

- **Subject Matter Domain** (Method)
 - E.g., Cardiology, Pediatric Cardiology, Physical Therapy
- **Role** (Method)
 - E.g., Physician, Nurse, Case Manager, Therapist, Patient
- **Setting** (System)
 - E.g., Hospital, Outpatient, Emergency Department
- **Type of Service** (Component)
 - E.g., Consultation, History and Physical, Discharge Summary
- **Kind of Document** (Component)
 - E.g., Note, Letter, Consent

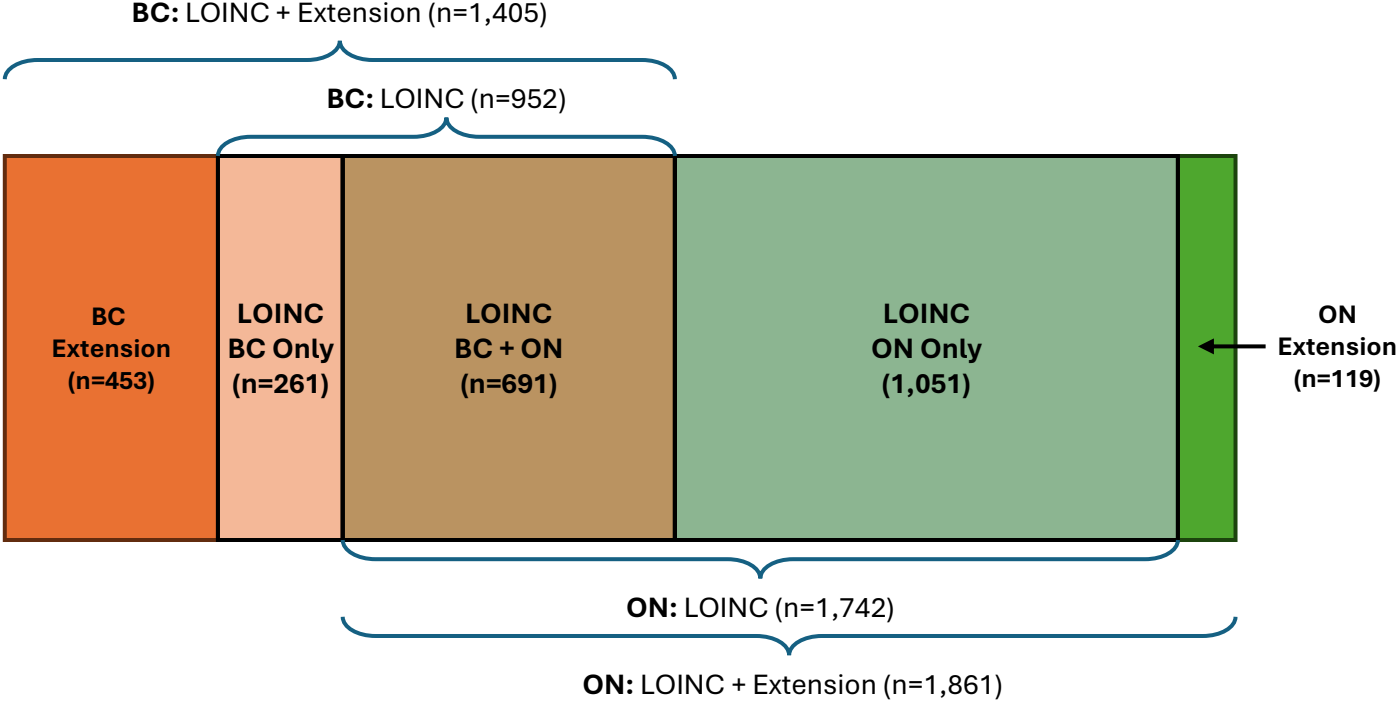
Titles you'll see at
LOINC.ORG

Valuable LOINC ontology description: <https://loinc.org/kb/users-guide/document-ontology/>

Overview of BC and ON Document Ontology

	BC	ON
Version	September 22, 2025	June 19, 2025
Total Codes	1,405	1,861
LOINC Codes	952	1,742
Extension Codes	453	119

Comparison of BC and ON Codes (n=2,575)



BC Editorial Guidelines

- **BC Display Name (short name format)**
 - The BC Display Name is a simplified/shorter document name that uses common medical abbreviations or acronyms to replace certain words in the long name.
 - Generally, document titles are preferred to fit within 40 characters in length.
 - 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 by the B.C. Health Information Standards team and approved by the DHSO.

Notes:	
a.	For the acute health systems, ISLH, VPP, FHA have made the decision to generally NOT send out any progress notes. The reason is that progress notes are generally only related to in-patient visits and also limitations on the volume of these note types created daily for a complex patient and are they are also created by authors that are often nurses and allied health in addition to physicians.
b.	An outpatient's progress is tracked using the clinic notes which are used by the outpatient clinics. Although the word outpatient does not show in the title or LOINC, acute systems often refer to these note types as "outpatient clinic notes". This standard is one that both ISLH, VPP and FHA have followed for quite sometime in both systems.
c.	The LOINC Long Name will NOT be present in the value set for codes that start with 'Xxxxxx'. These codes do not originate from LOINC.
d.	Pulmonology is the term for the U.S. specialty, Respirology is the term for the Canadian medical specialty.
e.	When a vendor upgrades their system they SHOULD periodically review and/or modify 'Replacement Preferred' and 'Deprecated' codes.
f.	* Status Legend
A: Active	The LOINC or X-CODE in column name Code is in use at one or more health authorities in B.C.
D: Deprecated	The X-CODE in column C may be in use but the code in column D is the preferred LOINC code to use.

BC Editorial Guidelines - Undocumented

- Goal of the display name is reader can anticipate the contents of the document
 - Reduces the specificity of the display name and coding
 - Don't specify the 'rank' of the physician or use LOINC terms with expanded SMD e.g. *Geriatric Medicine. Attending*
- "Note" is removed from most display names unless
 - No service is specified (*Geri Psych Note*)
 - Part of 'adjective-Note' pair (*Operative Note*)
- Very limited disease-specific notes
- Progress notes written in an outpatient clinic are given Setting = Outpatient, Display name =...*Clinic Note*

BC Editorial Guidelines - Undocumented

Author	Display Name Change	Role	SMD	NOTE
Registered Nurse	<i>-RN</i> (suffix)	Nurse	By medical discipline	
Nurse Practitioner	<i>-NP</i> (suffix)	Nurse Practitioner	By medical discipline	
Hospitalist	<i>Hospitalist</i> (prefix)	Hospitalists	By medical discipline	
Pharmacist	<i>Pharmacist</i> (prefix)	Pharmacist	Pharmacology	Not using LOINC “Pharmacology” in display name
Social Worker	<i>Social Worker</i> (prefix)	Social Worker	Social Work	
Speech-Language Pathology	<i>Speech-Lang Pathology</i> (prefix)	Speech-Language Pathology	Speech-Language Pathology	
Group	<i>Interdisciplinary</i> (prefix)	Interdisciplinary	Interdisciplinary	
Team	<i>Conference Note</i> (suffix)	Team	By medical discipline	Service is Conference
Might be a group	<i>Plan of Care</i> (suffix)	Not specified	By medical discipline	Plan of Care is a Service type. It is condition-specific
Might be a group	<i>Care Plan</i> (suffix)	Not specified	By medical discipline	Care Plan is a Service type. It is patient-centred, all issues

BC Editorial Guidelines - Undocumented

- Separate Gynecology and Obstetrics notes
- “UPCC” is used for Urgent Care
- GP specialists are given extension codes for needed Service Types
- Use the Service = Referral for incoming documents to that SMD
- Non-‘doc.ontology’ class
 - Service = Diagnostic Study
 - Kind = Report
 - Assigned an SMD
 - If necessary, display name adds
 - “Report” if the patient is in their ‘natural’ state
 - “Test” if the patient is in a stimulated state

ON Editorial Guidelines

Editorial Guidelines	
Terms	Map as
Admission History and Physical vs Admission Evaluation	These terms are used interchangeably - An Admission Evaluation consists of a History and Physical, Differential Diagnosis and and Plan - when you examine the d
Advance directive/Living will/Goals of care	Patient Personal advance care plan - Advanced directives and living wills are used in common language in Ontario, however, these terms should not be used as "t
Antimicrobial Stewardship	Infectious Diseases
Assessment	Evaluation
Bariatrics	Bariatric Surgery
Behaviour Therapy/Applied Behavioral Analysis (ABA)	Psychology
Blood Conservation	Blood banking and transfusion medicine
Cardiac Critical Care	Cardiology Intensive Care Unit
Cardiac Surgery	Cardiac surgery (could also consider Cardiovascular surgery)
Cardiology	Cardiology but has Cardiovascular disease as SMD except for Diagnostic Studies which retained the Code for Cardiology for viewer compatibility
Cardiopulmonary	has Cardiovascular disease + pulmonary disease as SMD
Clinical Biochemistry consult	Chemical pathology Consult note
Communication	Communication (Type of service) is just Note in LOINC - Note that 11 Communication RFCs were rejected as duplicate and mapped to Note ****another reason w
Community medicine/Discharge Planning/HCCSS	Community healthcare
Complementary medicine/Alternative medicine (ie. Acupuncture, Massage therapy, Aromatherapy, Hypnotherapy, Reflexology, Meditation)	Integrative medicine
Complex Continuing Care/Restorative Care	Multi-specialty program
Consult vs Referral	A consultation is a request by a qualified provider for the advice or opinion of a physician regarding the evaluation and/or management of a specific problem. A re
Emergency Medicine/Emergency Department	All documents generated by Emergency Medicine should have the SMD assigned. LOINC codes with Site:Emergency Department ([Site]) are not sufficiently specif
General Surgery	Surgery
Gerontology	Geriatric Medicine
Gynecology Surgery	Gynecology
Head and Neck Surgery	Otolaryngology
Heart Function	Heart failure
History	History documents do not exist in LOINC as a separate document - they are only referenced as part of History&Physical or Admission History & Physical or Admi
Internal Medicine	General Medicine
Laboratory Medicine	Clinical pathology - all laboratories fall under Clinical Pathology example Biochemistry-Chemical pathology;
Laboratory Microbiology consult	Medical microbiology - pathology Consult note
Laboratory Pathology consult	Clinical pathology Consult note
Medical Assistance in Dying	Medical Aid in Dying
Medical Biochemistry consult	Chemical pathology Consult note

LOINC Status

Version 2.80	BC	ON
Active	950	1,726
Discouraged		16
Trial	2	
Total	952	1,742

BC – LOINC Status: Trial

- **69046-1** – Airway Status
- **77596-5** – Transportation summary Document

ON – LOINC Status: Discouraged (Page 1)

ON Code	ON Display Name	BC Deprecated and Replaced With
34777-3	Obstetrics and Gynecology Consult note	89216-6 – Gynecology Consult note 89227-3 – OB Consult note
34778-1	Obstetrics and Gynecology Note	85937-1 – Gynecology Note 89461-8 – OB Prog note
68558-6	Obstetrics and Gynecology Discharge summary	89218-2 – Gynecology D/C sum 89214-1 – OB D/C sum
68560-2	Obstetrics and Gynecology History and physical note	
68563-6	Obstetrics and Gynecology procedure note	89223-2 – Gynecology Procedure note 89232-3 – OB Procedure note
68564-4	Obstetrics and Gynecology Progress note	89224-0 – Gynecology Prog note 89233-1 – OB Prog note
78719-2	Obstetrics and Gynecology Surgical operation note	
78723-4	Obstetrics and Gynecology Initial evaluation note	
84386-2	Obstetrics and Gynecology Telephone encounter Note	

All BC replacement codes are in ON set

ON – LOINC Status: Discouraged (Page 2)

ON Code	ON Display Name	BC Deprecated and Replaced With
80562-2	Diagram	
80563-0	Report	
80566-3	Checklist	
80567-1	Flowsheet	
80568-9	Form	
80570-5	Agreement	
80571-3	Certificate	

BC Duplicate Display Names (Examples)

Display Name	Code - Long Common Name / Short Name	Frequency
Mammo Screen (Amended) Review Needed	BRDRREQA2N BRDRREQAM BRDRREQN2A BRDRRESA2N BRDRRESAM BRDRRESAMN BRDRRESN2A	7
Admit Note	67851-6 - Admission evaluation note / Admit eval note 67852-4 - Hospital Admission evaluation note / Hosp Admit eval note 83805-2 - Physician Admission evaluation note / MD Admit eval note	3
Cervix Screen (HPV Positive) Book Pap	CXDRAHRESP CXDRPRCLL CXDRRSRCLL	3
Colonoscopy (Ineligible) Review Needed	CODRDISCHB CODRREFERB CODRREFERC	3
Advance Care Planning	42348-3 - Advance healthcare directives / Adv healthcare directives 81334-5 - Patient Personal advance care plan / Personal adv care plan	2
Allergy / Immun Consult	68633-7 - Allergy and Immunology Hospital Consult note / Allergy+Immunology Hosp Consult note 77429-9 - Allergy and Immunology Consult note / Allergy+Immunology Consult note	2

BC and ON Display Name (n=691)

- Same/Similar Display Name: 39
 - 68636-0
 - BC: Audiology Note
 - ON: Audiology Note
 - 28636-9
 - BC: Initial Evaluation Note
 - ON: Initial evaluation note
- Different Display Name: 652
 - 87252-3
 - BC: Addiction Med Admit
 - ON: Addiction medicine Admission evaluation note
 - 42348-3
 - BC: Advance Care Planning
 - ON: Advance directives

Reasons for Display Name Differences

- Use of abbreviations
 - Med vs Medicine
 - Resuscitation Note vs CPR note
- Reference to kind of document
 - Antepartum Summary vs Antepartum summary note
 - Cardiology Plan of Care vs Cardiology Plan of care note
- Different terms
 - Cardiology Outpatient Note vs Cardiology Clinic Note
 - Colonoscopy study vs Colonoscopy
- Other
 - Advance directives vs Advance Care Planning
 - Adolescent medicine History and physical note vs Adolescent Med Admit

Capitalisation in Display Name

- BC
 - **X11037** – Cardiac Surg Peds Clinic **n**ote
 - **X11220** – General Surg Clinic **N**ote
- ON
 - **93892-8** – Addiction medicine **P**rogress **n**ote
 - **C1456-1** – Case manager **P**rogress **N**ote
 - **84063-7** – Anesthesiology Telephone **e**ncounter **N**ote

BC and ON Display Name vs LOINC Short Name

	BC	ON
Display Name is same as Short Name	31	352
Display Name is different from Short Name	921	1,390
Total	952	1,742

Extension Code Structure Convention

- ON
 - LOINC Code: **C**NNNN-N
 - LOINC Part: **CGTA**NNNN-N
- BC
 - LOINC Code: **X**NNNNN, BRDREF..., CODRDISCH..., CXDR..., LNDRRE...
 - LOINC Part: N/A

ON LOINC Parts

Axis	LOINC Parts	ON LOINC Parts
Subject Matter Domain	119	22
Role	17	1
Setting	9	2
Type of Service	53	10
Kind of Document	20	4

ON LOINC Parts

Subject Matter Domain	Role	Setting	Type of Service	Kind of Document
<ul style="list-style-type: none">• Angio• Cardiology• CCAC• Clinical Biochemistry• CT• DI Other• DXA BMD• Gen Rad• Laboratory Medicine• Laboratory Microbiology• Laboratory Pathology• Mammo• MRI• Nuc Med• Other• PET• Polysomnography• RF• Special Proc• Unspecified• US• WSIB	<ul style="list-style-type: none">• Unspecified	<ul style="list-style-type: none">• Unspecified• Unspecified	<ul style="list-style-type: none">• Action plan• Admission History• Equipment /Supplies• Legal• Medication Reconciliation• Observation• Requisition• Safety• Screening• Unspecified	<ul style="list-style-type: none">• Form• Goals, preferences, and priorities for care experience• Order• Personal advance care plan

Same ON and LOINC Parts

Axis	ON LOINC Part Number	ON LOINC Part Name	Frequency	LOINC Part Number	LOINC Part Name
Kind of Document	CGTA3008-1	Form	12	LP181112-6	Form
Kind of Document	CGTA3011-1	Order	1	LP181207-4	Order
Subject Matter Domain	CGTA1008-4	Nuc Med	1	LP172968-2	Nuclear medicine
Type of Service	CGTA2002-1	Admission History	19	LP173200-9 (?)	Admission history and physical
Type of Service	CGTA2020-1	Medication Reconciliation	1	LP173232-2	Medication reconciliation
Type of Service	CGTA2014-1	Safety	1	LP204157-4 (?)	Safety issue assessment

ON LOINC Parts Unspecified

Axis	Part Number	Part Name	Frequency
Subject Matter	CGTA1009-1	Unspecified	230
Domain			
Role	CGTA4001-1	Unspecified	1,695
Setting	CGTA4001-1	Unspecified	2
Setting	CGTA5001-1	Unspecified	1,533
Type of Service	CGTA2019-1	Unspecified	490


ON Extension Overlap with LOINC (Examples)

#	Code	Display Name / Long Common Name
1.	C1400-1	Child and adolescent psychiatry Education note
	101885-2	Child and adolescent psychiatry Education note
2.	C1385-1	Medical toxicology Discharge summary
	101890-2	Medical toxicology Discharge summary
3.	C1389-1	Cardiology Letter
	101894-4	Cardiology Letter
4.	C1408-1	Trauma Referral note
	103547-6	Trauma Referral note


History Tracking

- BC
 - Status (Active, Deprecated)
 - Replacement [Code]
- ON
 - Date added

Suggested BC Quality Assurance Steps

- Reconcile or document reasons for duplicate Display Names (n=70)
 - Define BC extension codes using LOINC Parts (n=453)
 - Fix inconsistency in capitalisation
 - Complete documentation
- 


Suggested ON Quality Assurance Steps

- Reconcile or document reasons for
 - re-used unspecified in setting (n=2)
 - overlaps in ON LOINC Part extensions with LOINC Parts
 - overlaps in ON Extension and LOINC
 - Fix inconsistency in capitalisation
 - Complete documentation
- 

Moving Towards a Pan-Canadian Document Ontology

The background features a dark blue field on the left. On the right, there are large, overlapping geometric shapes: a light blue triangle pointing downwards, a yellow triangle pointing upwards, and a green triangle pointing to the left. These shapes overlap each other and the dark blue background.

Options to Consider

- Display Name
 - Code Structure
 - Editorial Guidelines
 - Mapping and History
 - Distribution Formats
 - Request LOINC Codes and Parts
- 

Display Name Options

- Option 1: Single Display Name across Canada
 - [SMD] [R] [S] [ToS] [KoD]?
- Option 2: Multiple Display Names
 - Pan-Canadian Display Name
 - BC Display Name
 - ON Display Name
 - ... Display Name

Code Structure Options

- Option 1: BC and ON codes
 - ON: **C**NNNN-N
 - BC: **X**NNNNN
- Option 2: CA pCLOCD
 - LOINC Code: **XCA**NNNNN-N

Editorial Guidelines Options

- Option 1: Pan-Canadian editorial guidelines for all jurisdictions
- Option 2:
 - Pan-Canadian editorial guidelines for all Canadian Display Names
 - Editorial guidelines for each jurisdiction
- Contents of Editorial Guidelines (Examples)
 - Equivalent term replacements
 - Structure of display name
 - Capitalisation and punctuation

Mapping and History Considerations

- Mapping (Examples)
 - BC → Pan-Canadian Document Ontology codes
 - ON → Pan-Canadian Document Ontology codes
- History (Examples)
 - Status (E.g., Active, Deprecated)
 - Replacement Code
 - Date Added
 - Reason for Inactivation

Distribution Formats Options

- Human-readable
 - Microsoft Excel Spreadsheet
- Machine-processable
 - Comma separated values (CSV) or tab-delimited (TAB)
 - Java Script Object Notation (JSON)

Request LOINC Codes and Parts

- Request formal LOINC Codes
- Request formal LOINC Parts

Questions / Discussion

The background is a dark blue gradient. On the right side, there are three overlapping geometric shapes: a large blue triangle pointing downwards, a green triangle pointing to the right, and a yellow triangle pointing upwards. These shapes are partially cut off by the right edge of the frame.