Standards 101

HINF537- Health Information Exchange Standards Virtual Workshop

Day 2 – May 16th, 2023

Julie Boutin, Standards Specialist
Janice Spence, Standards Specialist
Canada Health Infoway

About Us

Janice Spence

- Standards Specialist, National Release Centre, Canada Health Infoway

- B.Sc., CHIM , CTSS, CPHIMS-CA, FHIR R4 Certified

- Experience in healthcare and government (health information management, data integrity management, and health terminology standards subject matter expert)

- 20 years HIM industry experience, 9 in HIE standards

Julie Boutin

- Standards Specialist, National Release Centre, Canada Health Infoway

- Graduate Diploma in Health Informatics from University of Sherbrooke

- SNOMED CT Authoring Level 2 Certification

- Experience in healthcare and government (lab, LIS integration to QHR, implementing standards in support of health information systems)

- Involved in translation process for SNOMED CT content

Canada Health Infoway

Canada Health Infoway

Agenda

- Who we are

- What services we offer

- Overview of Health Terminology and Data Exchange Standards

- Applying Interoperability Standards

- What is on the horizon

- How to get involved

About Infoway and the Interoperability Standards Team

Canada Health Infoway

About Infoway

- Established in 2001

- Independent, not-for-profit corporation

- Equally accountable to 14 federal, provincial and territorial governments through the Members of the Corporation (f/p/t Deputy Ministers of Health)

- Independent Board of Directors appointed by the Members

Canada Health Infoway

Infoway's Mandate

- **National leadership** role in accelerating collective digital health efforts

- Ensuring a pan-Canadian **vision, strategy, architecture and plan**

- Ensuring **national standards** and common understandings about **privacy and security**

Canada Health Infoway

Who We Are

WE MOBILIZE CANADA'S HEALTH CARE STAKEHOLDERS TOWARDS A REIMAGINED FUTURE.

Vision

Healthier Canadians through innovative digital health solutions

Mission

Infoway will bring a pan-Canadian focus to: improving the patient experience, improving the health of populations, and unlocking value for the health system

Infoway's Focus

- PrescribeIT excellence and adoption

- Pan-Canadian interoperability across all F/P/T health systems

  - Availability of health data in a common format

  - Secure exchange of data in health care settings

  - Access to Canadians' health data in a digital, movable form

Interoperability Enablement and Standards

Change Management

National Procurement Support

Privacy and Cyber Security

Strategic Investments

Pan-Canadian Coordination

PrescribeIT®

Vendor Management and Certification

8

Canada Health Infoway

Our Partners and Collaborators

Governments

Provinces and territories

Health care organizations

Industry

Clinicians

Patients

Canada Health Infoway

Infoway's Goals

Connecting The Health System
Connected Care. A Healthier Canada.

Canadians expect a high-performing, world-class health system, but Canada's health system faces unprecedented strain. These challenges demand an extraordinary response to keep Canadians healthy. Harnessing data sharing will result in "connected care" and a modern health system.

Canadians will:
- Access, control and share their health information online
- Receive faster diagnoses and treatment
- Have fewer emergency department visits and shorter hospital stays
- Benefit from improved patient safety

Save $500 million/year

Health care providers will:
- Save time by accessing patients' complete health information in one place
- Communicate more efficiently across the health system
- Have improved confidence in their decision making
- Have more time to spend with patients

Save $350 million/year

The health system will:
- Deliver more effective and equitable care
- Increase system capacity and plan more effectively
- Retain health workers
- Create value through an innovative ecosystem

Save $500 million/year

Canada Health Infoway

Benefits from Infoway's Digital Health Investments

By the Numbers

$43B
in benefits since inception from foundational investments

97K+
Canadians enrolled in telehomecare programs since 2010

Our COVID-19 Rapid Response Helped:

100K+
health care providers adopt virtual visit tools.

5M+
facilitate more than 5 million virtual visits for Canadians.

Infoway's investments in digital health initiatives have exceeded $43 billion in benefits (cost savings and efficiencies) to Canadians and our health system. This includes investments in: connected health information (e.g., diagnostic imaging, drug and laboratory information systems), point-of-care systems (e.g., electronic medical records, telehealth) and virtual care (e.g., video and secure messages).

Canada Health Infoway

About the Interoperability Standards Team
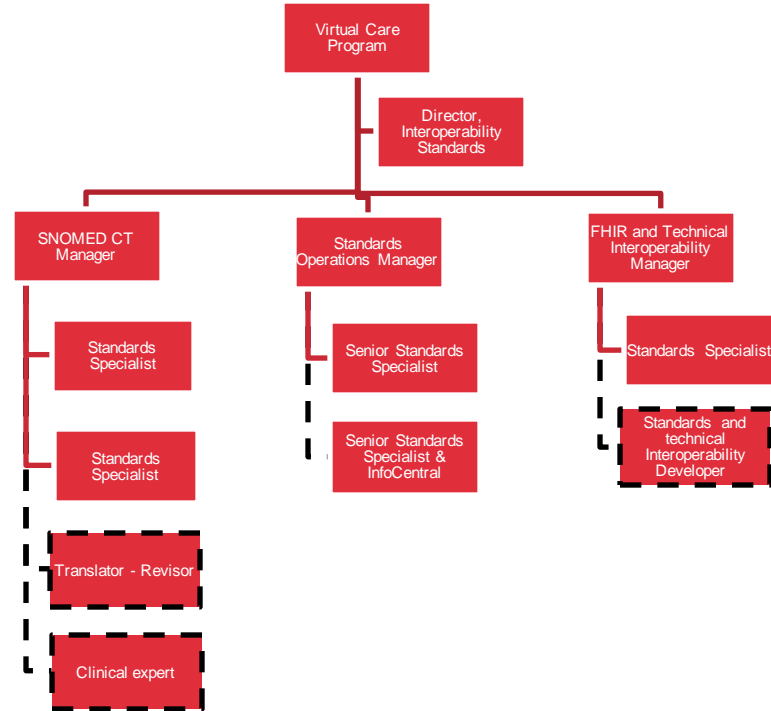
The Standards Services We Provide

Interoperability Standards at Infoway

Canada Health Infoway

Direct Services to Canadians

Standards Content Development

Licensing and Distribution
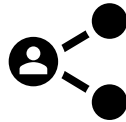
SDO Affiliates, Secretariat Support, Ballots, for HL7 Canada, DICOM, IHE Canada, ISO/TC215

Canada Health Infoway

Content Development

Licensing and Distribution

Release Management

Welcome to Terminology Gateway
Browse, download and leverage the terminology used in Canada

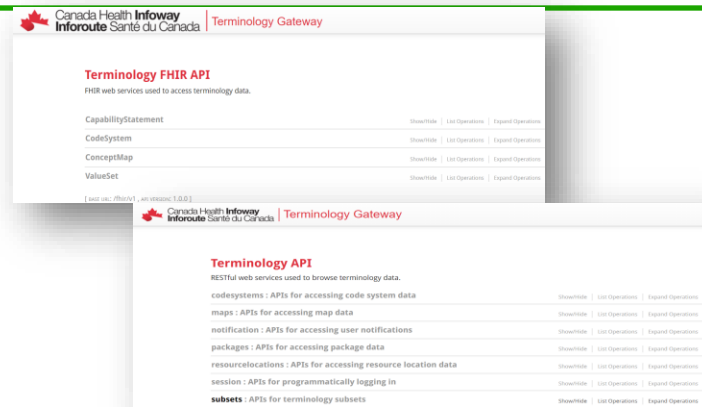- Q **Subsets**
- **pCLOCD**
- **SNOMED CT**
- **PrescribeIT®**
- **Canadian Clinical Drug Data Set**
- ○ **Additional Terminology Content**

Browser Query

Services to the Communities of Practice

Education & Training

Webinars

Collaboration Groups, Community of Practice

Communications, promotion and social media

Canada Health Infoway

InfoCentral: A Collaboration Hub

Working Groups

Communities

Standards Centre

SNOMED CT CA/ SNOMED CT

Infoway's Standards Resources for COVID-19 contains regularly updated information on terminology changes in support of the Coronavirus outbreak.

SNOMED CT is the largest and most comprehensive clinical reference terminology in the world.

The SNOMED CT Canadian Edition* contains content that is specific to Canadian use contexts and is maintained by Canada Health Infoway. It is released in March and September of each year.

The International Release of SNOMED CT contains international content and is maintained by SNOMED International released on January 31 and July 31 of each year.

⊙ **Download Latest Releases**

🔍 login required

pCLOCD/ LOINC

COVID-19 Surveillance: Single source for all SARS-CoV-2/COVID-19 LOINC content, includes both released and pre-release terms. Content is updated as new terms are created and pre-released.

Infoway's Standards Resources for COVID-19 contains regularly updated information on terminology changes in support of the Coronavirus outbreak.

LOINC® is the largest reference terminology used for Laboratory and Clinical observations in Canada today. The pan-Canadian LOINC Observation Code Database (pCLOCD) is a Canadian constraint of the larger LOINC terminology and includes example pan-Canadian names for jurisdictional lab viewers and recommended units of measure for use in Canada.

pCLOCD releases contains codes that are specific to use in Canada and is maintained by Canada Health Infoway. It is released on March 31 and September 30 of each year.
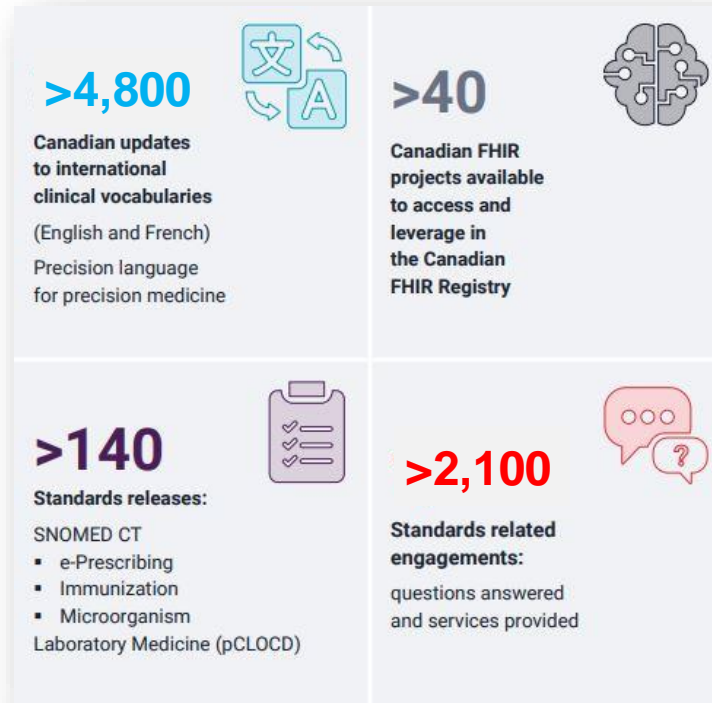
Canada Health Infoway

Education

- [SNOMED International](#)

- [Regenstrief Institute](#)

- [HL7 International](#)

- [Infoway ongoing Webinars](#)

- [University of Victoria](#)

- [CHIMA and CTSS credential](#)

- Training and refresher on :

  - Tooling and Standards

  - Requests for Change and Implementation questions

Canada Health Infoway

Some 2022-2023 Canadian Interoperability Metrics

>4,800

Canadian updates to international clinical vocabularies

(English and French)

Precision language for precision medicine

>40

Canadian FHIR projects available to access and leverage in the Canadian FHIR Registry

>140

Standards releases:

SNOMED CT
- e-Prescribing
- Immunization
- Microorganism

Laboratory Medicine (pCLOCD)

>2,100

Standards related engagements:

questions answered and services provided

Canada Health Infoway

Health Terminology Standards

Pan-Canadian constraint of Laboratory LOINC

- Infoway: Canada's National Release Centre for pCLOCD (pan-Canadian LOINC Observation Code Database)

- Largest laboratory terminology in the world

- US English and Canadian French

- Recommended units of measure (UCUM)

- Release dates: March 31 and September 30 each year

pan-Canadian LOINC Observation Code Database Metrics

Pan-Canadian LOINC Observation Code Database

March 2023 Release

38,759 total records, including:

17 new records added in English and French

11 records modified in English and French

Download on Terminology Gateway!

Canada Health Infoway

pCLOCD
LOINC® in Canada

Canada Health Infoway

Canadian Edition of SNOMED CT
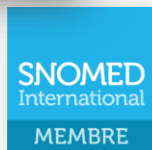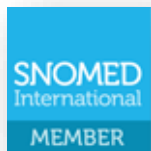
- Infoway: Canada's National Release Centre for SNOMED CT

- Largest clinical reference terminology in the world

- US English and Canadian French

- Release dates: Sept 30 and March 31 each year (Canadian and International content)

https://www.snomed.org/_files/ugd/900274_8a849a3565054d14a4c94cf1062331a3.pdf

Canadian Edition of SNOMED CT Metrics

SNOMED CT Canadian Edition
March 2023 Release

50
subsets maintained

9
new subsets

2,906
total requests for change

892
new concepts

74
concepts promoted to international

8
new COVID-19 vaccine concepts

Canada Health Infoway

Édition canadienne de SNOMED CT
Version de mars 2023

64 707
nouveaux concepts traduits

1 835
demandes de traduction (63 % des demandes totales)

65 170
nouveaux synonymes en français

8
concepts liés à la vaccination contre la COVID-19 traduits

302 940
synonymes actifs en français

Inforoute Santé du Canada

Canada Health Infoway

Uses for Standards
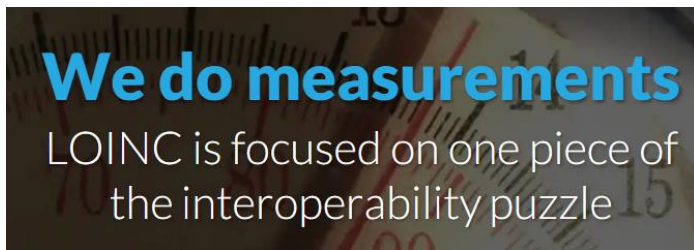
Health Terminologies

Fit for Purpose Terminology

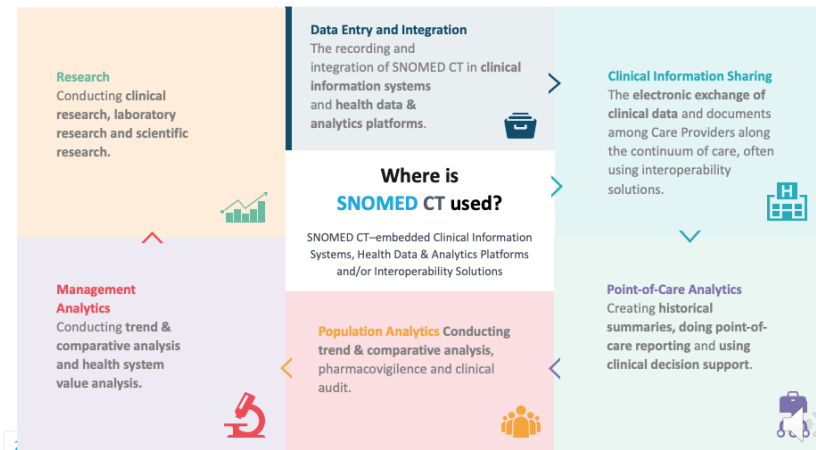*Lab tests, clinical measurements, documents, survey instruments:* **LOINC**

Clinical Data (Diagnosis, Problems, Procedures, Organisms etc.): **SNOMED CT;**

Drugs: **CCDD**

Statistical classification for aggregation, disease incidence and prevalence: **ICD-10-CA/CCI**
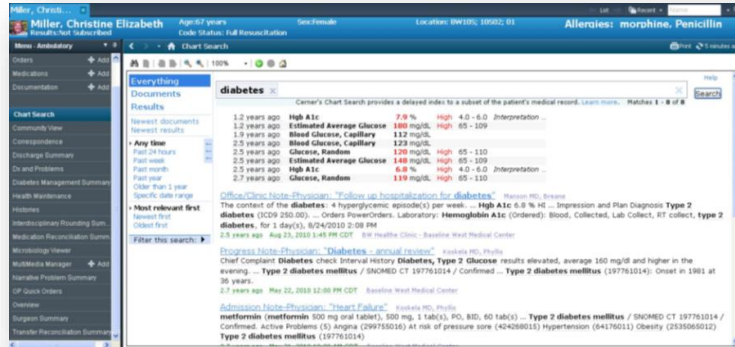
We do measurements

LOINC is focused on one piece of the interoperability puzzle

REF: **HTTPS://LOINC.ORG/FHIR/**

Where is SNOMED CT used?

SNOMED CT–embedded Clinical Information Systems, Health Data & Analytics Platforms and/or Interoperability Solutions

Research
Conducting clinical research, laboratory research and scientific research.

Data Entry and Integration
The recording and integration of SNOMED CT in clinical information systems and health data & analytics platforms.

Clinical Information Sharing
The electronic exchange of clinical data and documents among Care Providers along the continuum of care, often using interoperability solutions.

Management Analytics
Conducting trend & comparative analysis and health system value analysis.

Population Analytics Conducting trend & comparative analysis, pharmacovigilence and clinical audit.

Point-of-Care Analytics
Creating historical summaries, doing point-of-care reporting and using clinical decision support.

REF: **HTTPS://ELEARNING.IHTSDOTOOLS.ORG/**

Canada Health Infoway

For Data Capture/Entry and Integration

Codes for individual observations

2349-9   Glucose (Presence) in Urine
61644-1   Are you able to jump up and down
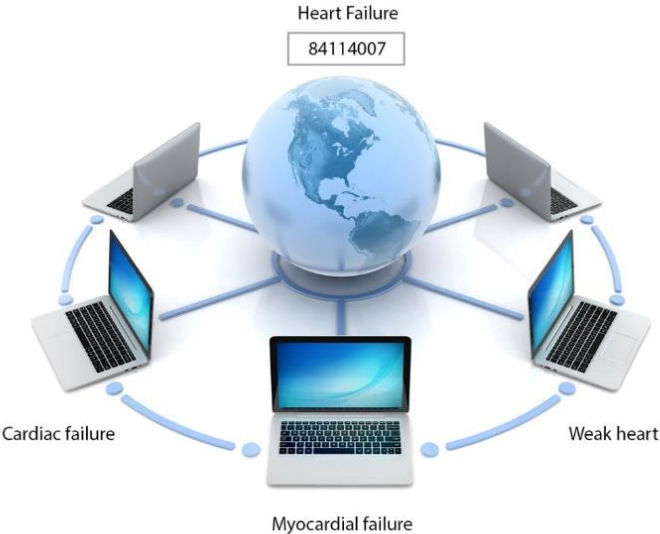8301-4   Body height
32433-5   Physical findings of Gait

Codes for collections of observations (panel, batteries and documents)

58410-2   Complete blood count (hemogram) panel
62068-2   PROMIS pediatric item bank - asthma
35095-9   Body temperature panel
18842-5   Discharge Summary

Symptoms: Location:

☐ Itching

☑ Pain   Left upper arm

☐ Eruption

3168410001 19 10 4
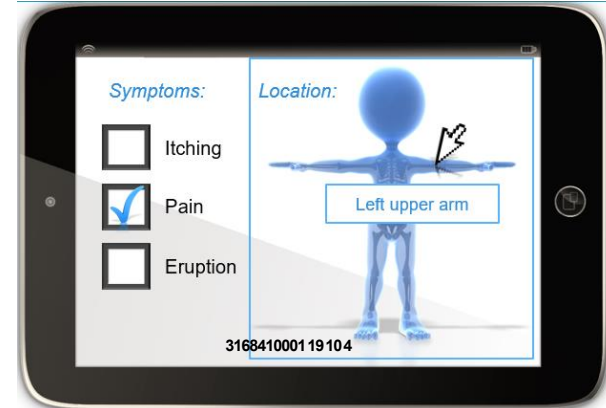
SNOMED INTERNATIONAL, SNOMED CT DATA ENTRY, 2016

For Sharing Information

Heart Failure 84114007	ECG 34534-8
CBC 58410-2	Electrolytes 55231-5

Heart Failure

84114007

Cardiac failure

Weak heart

Myocardial failure
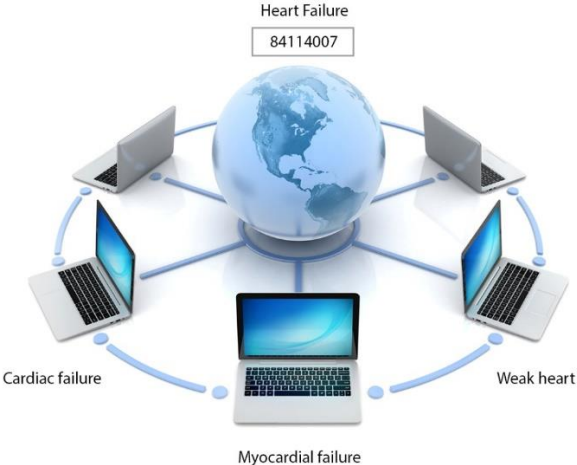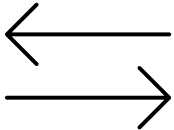
Canada Health Infoway
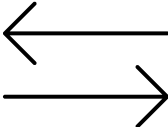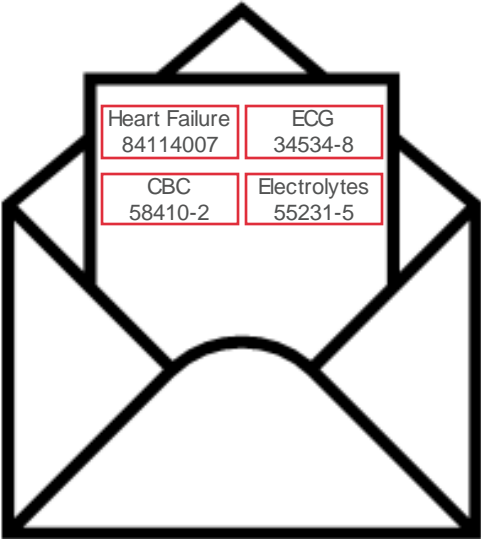
HL7 Standards: Data Exchange/Messaging

HL7® FHIR® (Fast Healthcare Interoperability Resources)

© 2017 Personal Connected Health Alliance. A HIMSS Organization
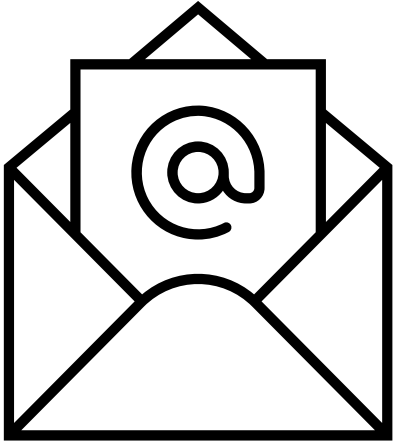
Heart Failure
84114007

Cardiac failure

Weak heart

Myocardial failure

Canada Health Infoway

Applying Standards

Standards and Interoperability in Healthcare

Interoperability

Organizational

Content and Terminology Standards (e.g. CDA, SNOMED-CT, LOINC)

Semantic

Data Exchange Standards (e.g. HL7 V2, FHIR, DICOM, IHE)

Structural

Foundational

Standards need to be applied to achieve

REFERENCE: IMPRIVATA.COM

Canada Health Infoway
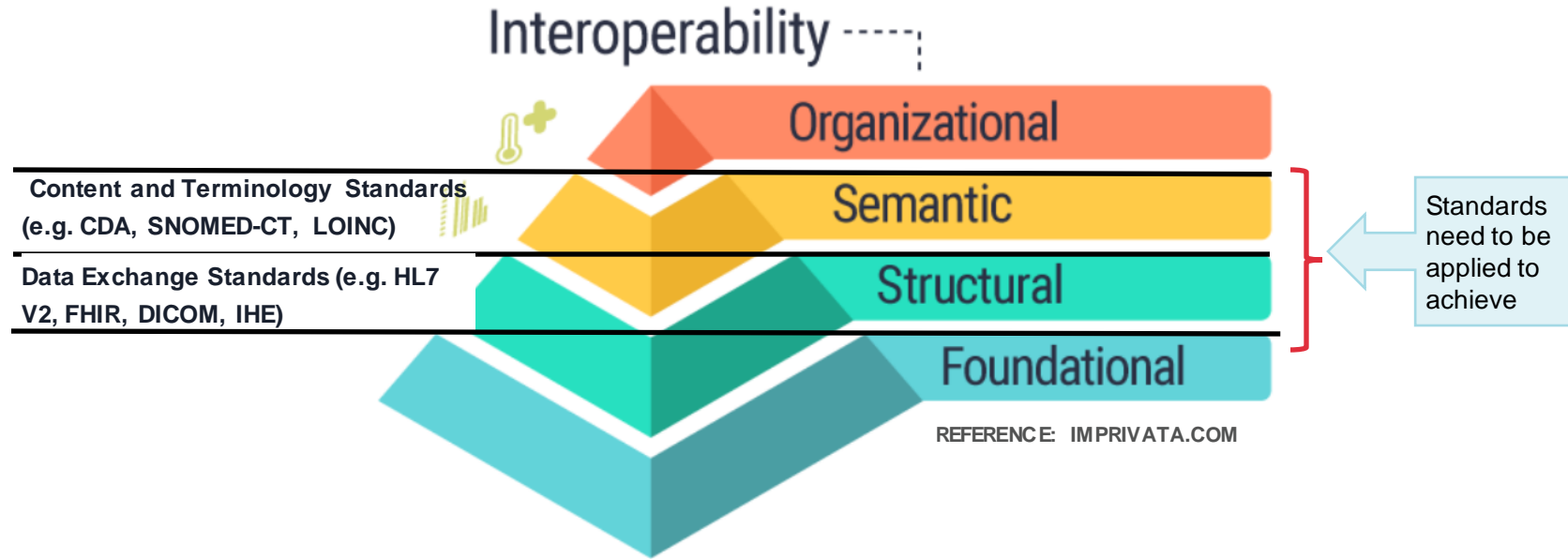
Why Interoperability Matters

- Improves continuity of care, collaboration between health providers and patient access to their health information

- Breaks down data silos

- Reduces inefficiencies and redundancies within the health system

Canada Health Infoway
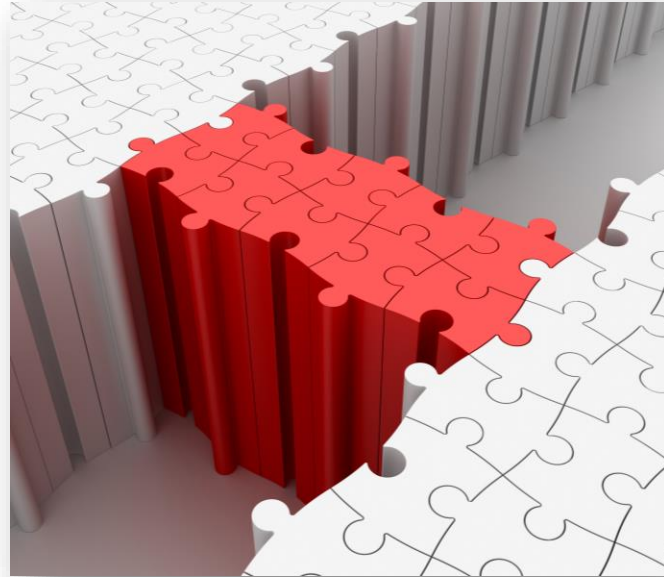
Implementation and Adoption Maturity Levels

SNOMED CT Maturity Framework

Implementation Level

Level	Description
Level 5	**Advanced Use**
⚙️	SNOMED CT is recorded directly in the health records, and used as an ontology. Support for expressions, expression constraints (ECL) and the Machine Readable Concept Model (MRCM) may be provided.
Level 4	**Semantic Network**
⬡	SNOMED CT is recorded directly in the health record, and used as a semantic network of relationships with simple ECL queries. All defining relationships may be traversed to support various system functions.
Level 3	**Hierarchy**
⛁	SNOMED CT is recorded directly in the health record, and used as a hierarchy of codes to support various system functions.
Level 2	**Simple Code System**
☰	SNOMED CT is recorded directly in the health records, and used as a flat list of codes. Support for translated terms or multiple synonyms may also be provided.
Level 1	**Mapping to SNOMED CT**
⇄	SNOMED CT is not recorded directly in the health record. SNOMED CT is used indirectly by mapping to SNOMED CT.
Level 0	**Plans to Use SNOMED CT**
☰	SNOMED CT is not yet used within the health record, but there are plans to do so. Clinical information is currently stored as free text or using local or vendor specific code systems.

REFERENCE:
HTTPS://CONFLUENCE.IHTSDOTOOLS.ORG/DISPLAY/IMP/I
MPLEMENTATION+MATURITY

Canada Health Infoway

Standards Process Maturity Levels

HL7® FHIR®

- **FMM0 (Draft)** – The resource is still in early development but has been accepted into the FHIR standard.

- **FMM1** – The Resource has no current technical errors and is believed to address all design goals.

- **FMM2** – The Resource has been tested and approved at a FHIR Connectathon with multiple FHIR-enabled computer systems tested.

- **FMM3** – The Resource passed all quality checks and an HL7 community ballot that determines if it is ready for trial use.

- **FMM4** – The Resource has been tested for functionality for all intended purposes, has been published in a formal HL7 publication, and is operating in at least one prototype system.

- **FMM5** – The Resource is in use in at least five distinct production systems operating in at least two countries.

Reference: https://www.healthit.gov/sites/default/files/page/2021-04/FHIR%20Version%20History%20Fact%20Sheet.pdf

Canada Health Infoway

The Journey

Canada Health Infoway

PrescribeIT® is Canada's national, not-for-profit e-prescribing service that provides safer and more effective medication management

- Electronic transmission of prescriptions electronically from EMR to the patient's pharmacy of choice
- Create Rx, Renew Rx, Rx Status (dispensed, cancelled etc)
- It is secure: it protects the patients' personal information from being sold or used for commercial activities
- HL7 FHIR Specification
- Leverages standards such as HL7, UCUM, pCLOCD and SNOMED-CT-CA

Fewer lost/damaged prescriptions

Improved medication safety

Decreased risk of privacy breaches due to fax transmission issues or unsecured email

Increased convenience and saved time and travel

https://www.Prescribeit.ca/

Canada Health Infoway

Canadian Clinical Drug Data Set (CCDD)

- Canada Health Infoway partnered with Health Canada to create a computable and human readable drug data set that is now owned and managed by Health Canada.

- Allows systems to exchange drug data using common drug identifiers

- Supported by knowledge base vendors and clinical systems connected to PrescribeIT®
  - Making prescribing safer for patients
  - Making clinical workflows more efficient
- CCDD is an interchange terminology

https://infocentral.infoway-inforoute.ca/en/standards/canadian/ccdd

Canada Health Infoway

Patient Summary-CA Specification

What is it?

- The Pan-Canadian Patient Summary Interoperability Specification is an implementable, testable specification, based on the IHE International Patient Summary specification and HL7 IPS IG

- Defines building blocks (both: data model and interoperability) to create and share condition-independent and specialty-agnostic patient summaries

Canada Health Infoway
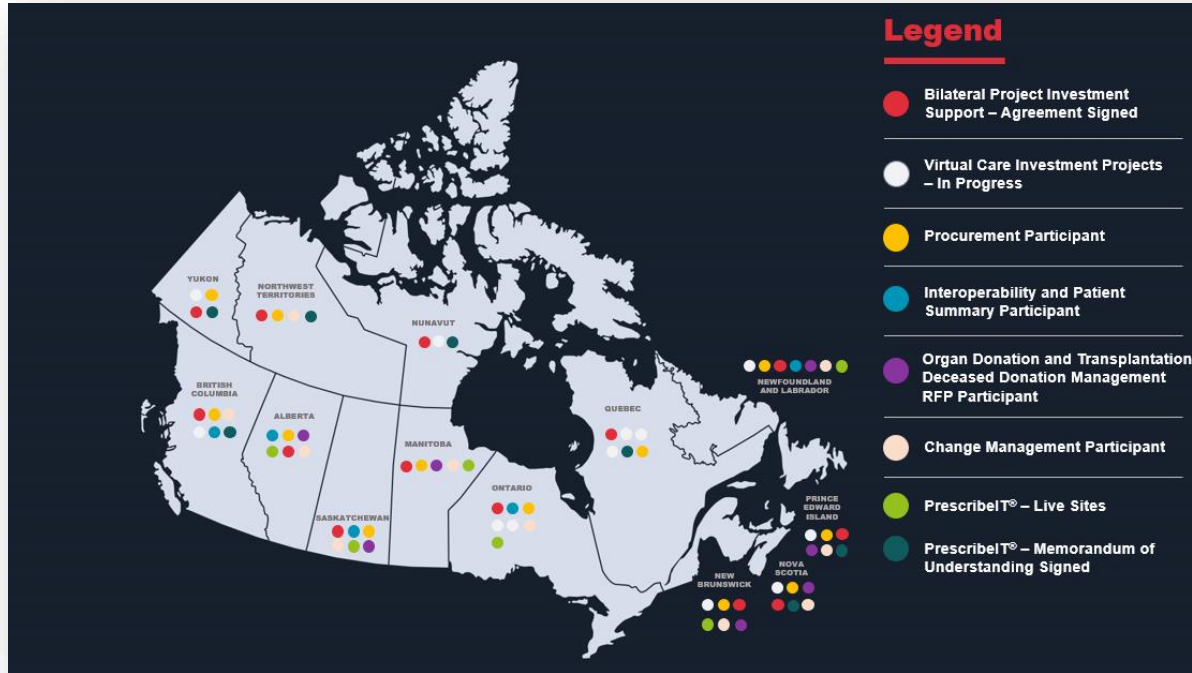
Content Data Model

Purpose

- Defines the Patient Summary-CA content data model and provides the required Implementation Guidance

- This section of the specification defines each data element, cardinality, data type, constraints, and code system references - all of the details needed for two systems to be semantically interoperable with each other
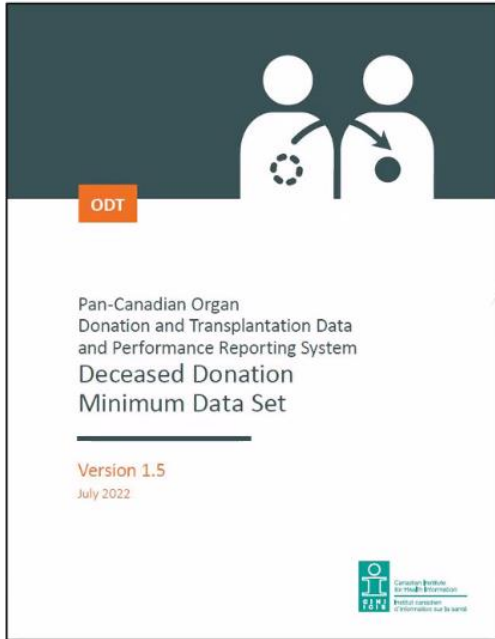
Standards

- SNOMED CT – CA Edition
- LOINC – pCLOCD
- panCanadian Valuesets
- Others

Canada Health Infoway

Canadian Implementations

Improving Interoperability of ODT Data Standards

Pan-Canadian Organ Donation and Transplantation Data and Performance Reporting System
Deceased Donation Minimum Data Set

Version 1.5
July 2022

Data element name	Valid values
Consented Donor Organ Disposition	• 37401000087100: Organ donation for transplant • 37391000087103: Organ donation for research • 37381000087100: Organ donation for medical education
	Note: The value set codes are sourced from SNOMED CT Canadian Edition.

Majority of the coding for ODT value sets were sourced from established standards including:
- International Organization for Standardization (ISO)
- Health Level Seven (HL7)
- Logical Observation Identifiers Names and Codes (LOINC)
- **Systematized Nomenclature of Medicine Clinical Terms (SNOMED CT) Canadian Edition (managed by Infoway)**
  - **DD MDS** – 89 new concepts & descriptions created
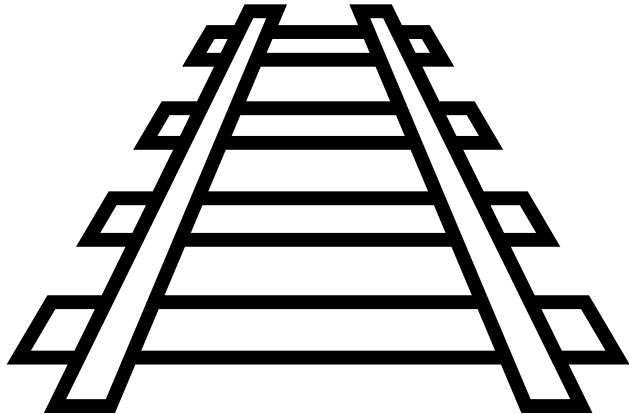 - **Tx/LD MDS** – 76 new concepts & descriptions created

Canada Health Infoway

What is on the Horizon

Digital Health Interoperabilty in Canada

- Strengthening Data and Information

- Health Standards Governance

- Partnerships

- Systems Integration and Collaboration

- Improve interoperability

Canada Health Infoway

How to Get Involved

How To Get Engaged And Stay Tuned

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Digital Health Dispatch | Le Babillard de la santé numérique

March 2023 Release of the Canadian Edition of SNOMED CT now available!

The March 2023 Canadian Edition (CA Edition) is harmonized with the SNOMED International February 2023 monthly release. Infoway also releases updated versions of SNOMED CT subsets as part of the CA Edition. The March 2023 CA Edition of SNOMED CT and all pan-Canadian Subsets are available on the Terminology Gateway.

March 2023 pCLOCD Release is Now Available

Latest pan-Canadian LOINC Observation Code Database (pCLOCD) release R05.18.00_2.74 is now available for review and implementation accessible from Terminology Gateway. Highlights of this release includes updates based on February 2023 LOINC 2.74 release and changes based on pCLOCD Community requests for change.

SUBSCRIBE

Canada Health Infoway

Quick links

- InfoCentral: https://infocentral.infoway-inforoute.ca/en/

- PrescribeIT: https://www.prescribeit.ca/

- Virtual Care: https://www.infoway-inforoute.ca/en/digital-health-initiatives/virtual-care

- Organ Donation and Transplantation: https://www.infoway-inforoute.ca/en/digital-health-initiatives/organ-donation-transplantation-data-management

- Health Terminologies Community: https://infocentral.infoway-inforoute.ca/en/collaboration/communities/health-terminologies

- Terminology Gateway: https://tgateway.infoway-inforoute.ca/

Canada Health Infoway

Questions?

Thank you!

Contact Us

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infoway-inforoute.ca

VISIT OUR SURVEY WEBSITE
insights.infoway-inforoute.ca/

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