



Digitally preparing Canada for a COVID-19 vaccine

The Canadian Vaccine Catalogue

Publishing National Data Standards for COVID-19 Vaccination Tracking



Outline

- Introductions
- Challenges ahead for the Pan-Canadian rollout of the COVID-19 vaccine
- Background of the Canadian Vaccine Catalogue
- Opportunities for the Canadian Vaccine Catalogue to help

Who we are

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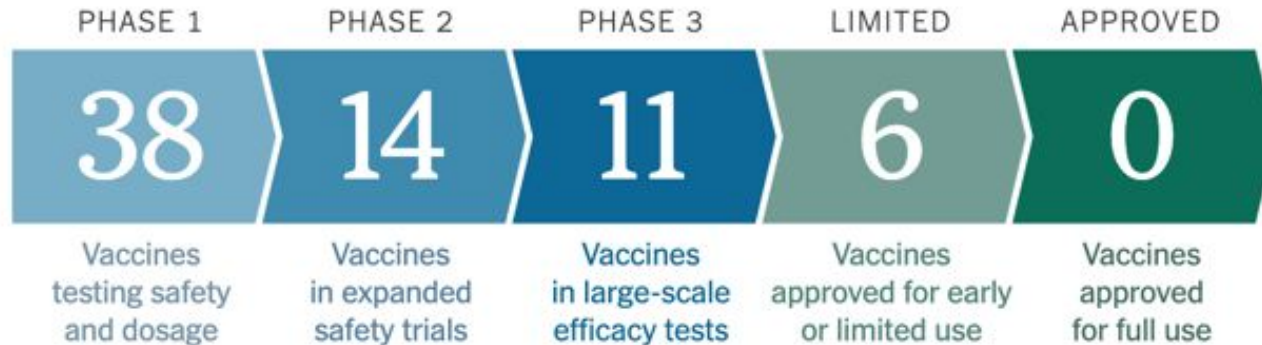
Tara Mawhinney



COVID-19 vaccine arriving soon

Coronavirus Vaccine Tracker

By Jonathan Corum, Sui-Lee Wee and Carl Zimmer Updated November 7, 2020



Canada is well positioned to protect its population with a vaccine

Amongst the most vaccines purchased per capita in the world

Contracts with multiple manufacturers

CAEFISS system for adverse event monitoring

Immunization information systems at PT level

National Immunization Data Dictionary already exists

Pan-Canadian citizen facing digital immunization platform



Problem #1

There may be multiple COVID-19 vaccine products simultaneously distributed to Canadians. Each will have different safety profiles, efficacies, series requirements, and supply management considerations.

Knowing exactly which vaccine a person received will be essential:

- Governments may need to change their guidance on vaccines over time as evidence for their safety and efficacy becomes available.
- Potential for recalls increased given the speed at which the COVID-19 vaccine candidates have been developed.
- People will need to complete the series of the specific vaccine they received first.

Problem #2

Canada's immunization repositories, EMRs, and pharmacy systems will be used to track administered vaccines.

At present, there is variability in the terminologies and data standards used across all of these systems.

There are limited existing processes or interfaces for P/Ts to report immunization data (even in aggregate) to PHAC. This will be essential for PHAC and Health Canada to monitor and report on the safety, coverage, and effectiveness of the specific COVID-19 vaccines.

Risks

- If Health Canada issues recall of COVID-19 vaccine, but vaccine lot numbers are not tracked, large segments of the population and their healthcare providers may not know whether they received a recalled vaccine.
- Non-standardized data elements and terminology would make rolling up immunization data for surveillance or reporting at the national level, very difficult.
- Gaps have been created by the absence of the Vaccine Identification Database System (VIDS) in 2018, which was used by some systems to access vaccine lot data and product information provided by vaccine manufacturers.

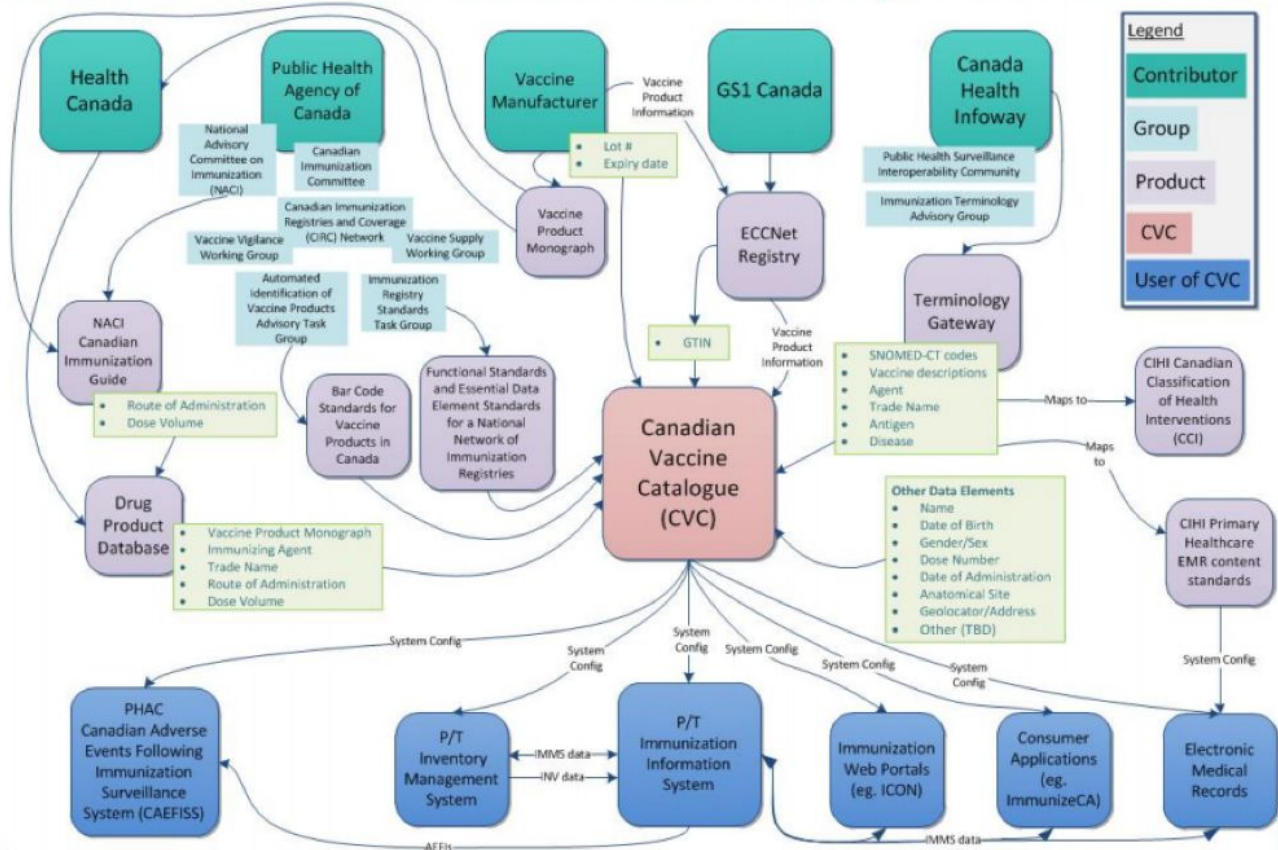
Immunization Data Standards in Canada

For historical context, here is a summary of some of the milestones in the development of Canada's F/P/T immunization repository standards:

- 1996: Canadian Immunization Conference identifies need for an “immunization tracking system”
- 1998: Goal for a National Immunization Records Network developed; formation of the National Working Group for an Immunization Records Network (NWGIRN) (referred to now as the Canadian Immunization Registries and Coverage (CIRC) Network)
- 2000: Formation of sub-committee on Data and Technical Standards
- 2002: Publication of Functional Standards and Minimum (Core) Data Sets for a National Immunization Registry Network in CCDR
- 2007 to 2013: Development and launch of Vaccine Information Database System (VIDS)
- February 2016: The Immunization Registry Standards Task Group (IRSTG) initiated to draft revised functional standards and essential data elements to meet CIRC Network mandate.
- March 2016: PHAC funds the Ottawa Hospital Research Institute to develop the technology and processes of the Canadian Vaccine Catalogue
- May 2019: Vaccine Identification Database System is decommissioned



Vision for the Canadian Vaccine Catalogue Infrastructure



The Canadian Vaccine Catalogue

[Explore the Catalogue](#)

[Download Version 1.1.4](#)

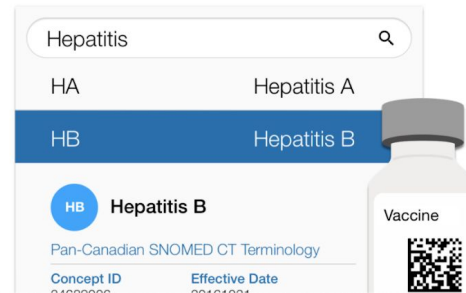
About the Catalogue

The Canadian Vaccine Catalogue (CVC) is the comprehensive, standards-based source-of-truth resource for vaccine terminology and vaccine product information in Canada. It has been funded by the Public Health Agency of Canada and is currently developed and maintained by the CANImmunize team.

[Subscribe to CVC Updates](#)

What you need to know

- The catalogue is intended for use by health informatics and IT professionals developing digital health information systems that require up-to-date standardized vaccine terminology and product data.
- New versions of the catalogue will be released monthly.
- The catalogue is designed to extend the Pan-Canadian Immunization SNOMED CT® Reference Sets developed by Canada Health Infoway.



The screenshot shows a search interface with a search bar containing 'Hepatitis'. Below the search bar, there are two search results: 'HA Hepatitis A' and 'HB Hepatitis B'. The 'HB Hepatitis B' result is highlighted with a blue background. Below the highlighted result, there is a circular icon with 'HB' and the text 'Hepatitis B'. Underneath, it says 'Pan-Canadian SNOMED CT Terminology'. At the bottom, there are two columns: 'Concept ID' and 'Effective Date'. To the right of the search results is an illustration of a vaccine bottle labeled 'Vaccine' with a QR code on it.

Canadian Vaccine Catalogue > Explore



Explore the contents of the Canadian Vaccine Catalogue by selecting a dataset, and clicking on the individual concepts.

Please note that use of the SNOMED CT terminology within products is subject to your acceptance of the [SNOMED CT Affiliate Agreement](#) and the [SNOMED CT Canadian National License Agreement](#). To accept the terms of these agreements, please create an account at <https://infocentral.infoway-inforoute.ca/en/register>.

- Generics
- Tradenames
- Diseases
- Antigen/Immunoglobulin/Antitoxin
- Administrative Gender
- Anatomical Site
- Reporting Source
- Route Of Administration
- Forecast Status
- Shelf Status
- Lot Lookup
- GTIN Lookup

Generic Immunizing Agents

Generic Immunizing Agents subset contains generically described vaccines and passive immunizing agents used in Canada. It is an extension of the Pan-Canadian Immunization Reference Sets Vaccine Historical Name Code and Passive Historical Immunizing Agent Code subset developed by Canada Health Infoway.

[Click on a concept for details...](#)

Abbreviation	Display Term	SNOMED CT ID
ap	Pertussis	7781000087107
aP	Pertussis	7771000087105
ap/aP	Pertussis	449019003

[Generics](#)
[Tradenames](#)
[Diseases](#)
[Antigen/Immunoglobulin/Antitoxin](#)
[Administrative Gender](#)

Abbreviation Display Term SNOMED CT ID

[Lot Lookup](#) [GTIN Lookup](#)

Inf	FLULAVAL® TETRA	20811000087102
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TRADENAME VACCINE CONCEPT Close

Inf

[Pan-Canadian SNOMED CT Terminology](#)

Concept ID 20811000087102	Fully Specified name FLULAVAL TETRA 15 micrograms per 0.5 milliliter suspension for injection ID Biomedical Corporation of Quebec (product)
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[Canadian Vaccine Catalogue Info](#)

Product on Shelf Marketed	Last Updated 2020-10-06
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[Clinician Friendly Picklist Terminology](#)

Abbreviation English Inf French Inf	Clinician Friendly Picklist Term English FLULAVAL® TETRA (Inf) French FLULAVAL® TETRA (Inf)
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[Generics](#)
[Tradenames](#)
[Diseases](#)
[Antigen/Immunoglobulin/Antitoxin](#)
[Administrative Gender](#)

Abbreviation Display Term SNOMED CT ID

[Lot Lookup](#) [GTIN Lookup](#)

[Linked Product Data](#)

Global Trade Item Numbers
 62021406957
 20620214069576
 10620214069579

Lot Numbers
 5EK3R
 4L4A4
 MC33R
[Show 27 More...](#)

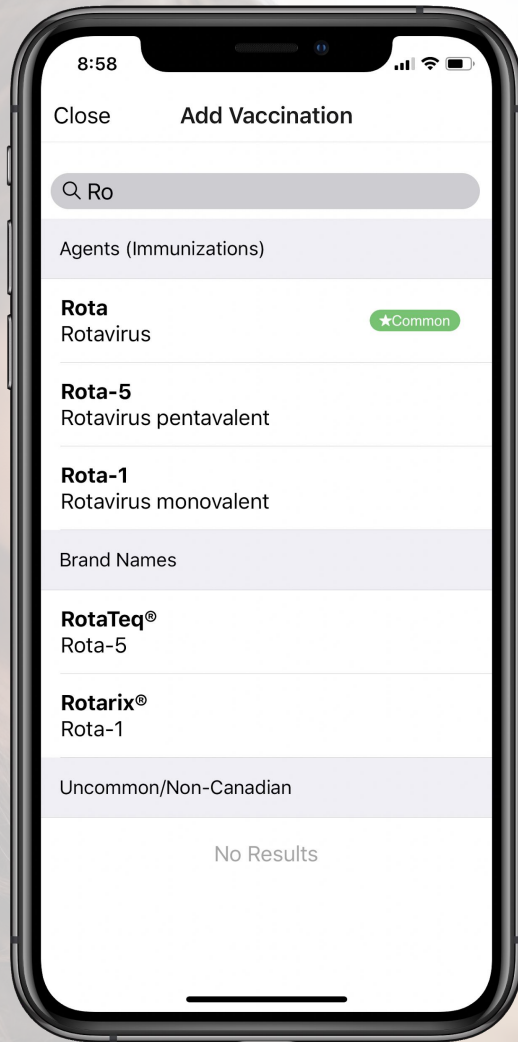
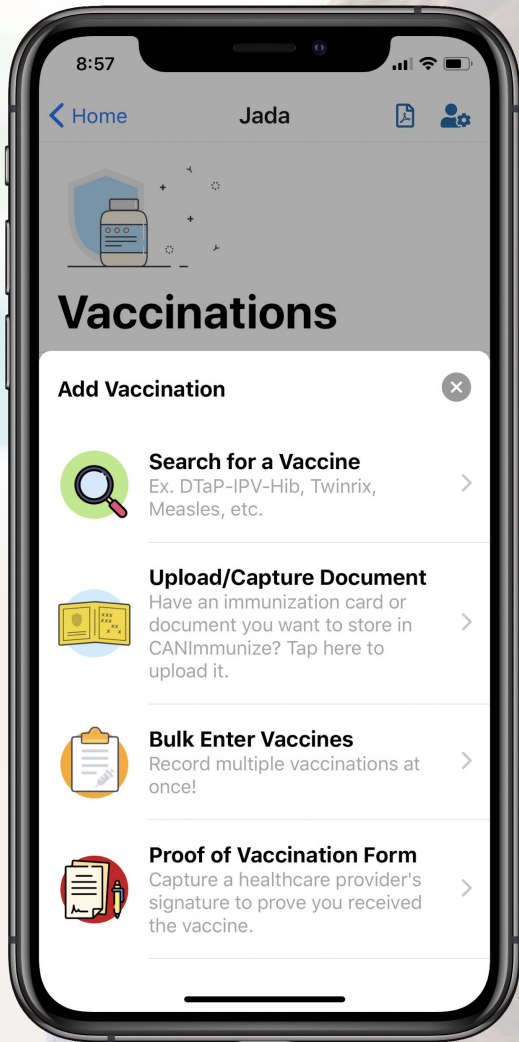
[Linked Concepts](#)

Linked Generic Concepts
 Influenza quadrivalent

This vaccine protects against the following diseases:
 Influenza

This vaccine protects contains the following antigens:
 Influenza virus antigen



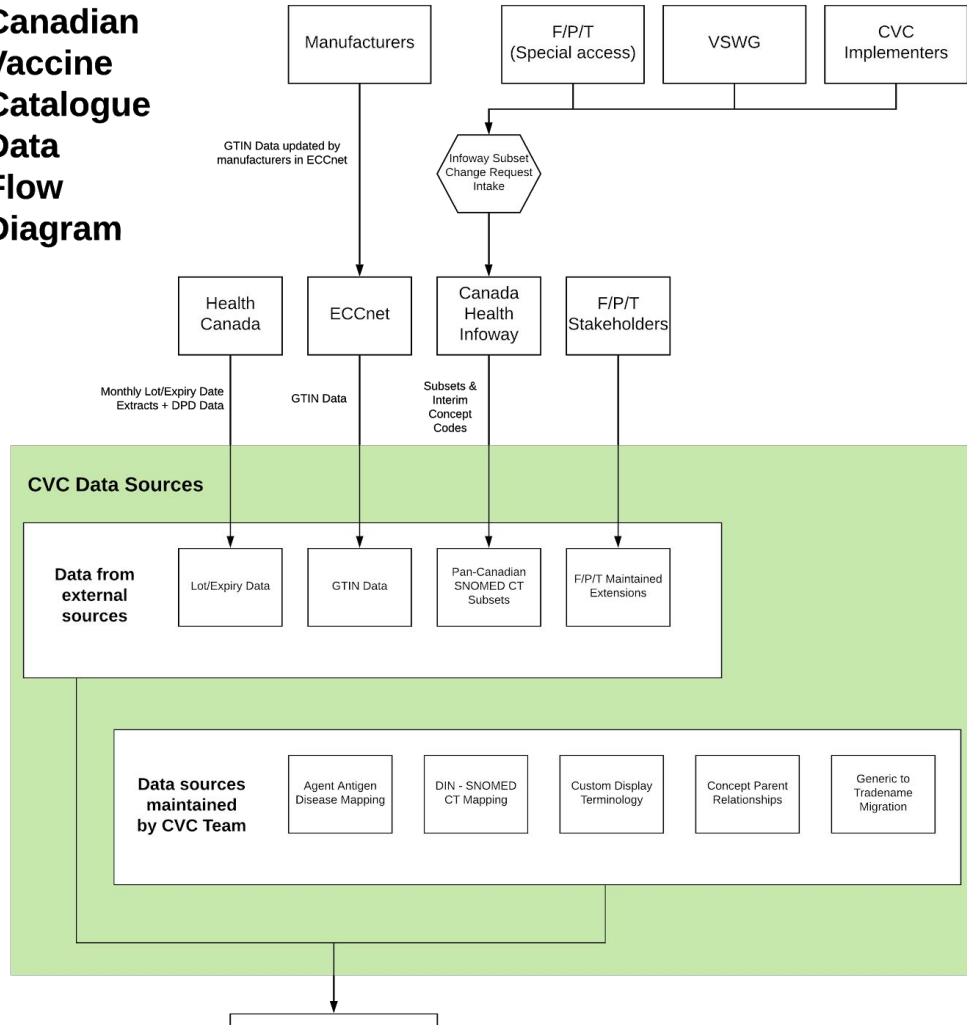


CANImmunize
Canadian Vaccine Catalogue



CANImmunize

Canadian Vaccine Catalogue Data Flow Diagram



Data sources maintained by CVC Team

Agent Antigen Disease Mapping

DIN - SNOMED CT Mapping

Custom Display Terminology

Concept Parent Relationships

Generic to Tradename Migration

Draft CVC Version Produced

Review by CVC Working Group

New CVC Version Published

CVC Explorer
(cvc.canimmunize.ca)

CVC Excel Doc

CVC FHIR API

EMR Systems

Immunization Information Systems

Consumer Health Applications



Background on CVC Funding and Participation

- The CVC was initially developed through an Immunization Partnership Fund G&C in 2016.
- PHAC ended its funding of the CVC in 2019.
- Ontario and BC are adopting the CVC and have done significant work to align their repository implementations with the catalogue. Ontario has funded EMR vendors to implement integrations with the CVC as part of their efforts to collect immunization data from physicians.
- Ontario provided financial support for the transitional year after PHAC's funding ended.
- Infoway has supported the CVC for two years, but there is not currently a commitment for ongoing support/maintenance of the CVC beyond April 2022.
- The Canadian Immunization Committee has endorsed the National Immunization Data Dictionary, which is available through the CVC. But PHAC has not endorsed the CVC and does not direct users to the CVC from its website.



Who is using the CVC?

Implementation/working group partners



Orgs/vendors that report data to WG partners:



Many more individuals and organizations access the CVC content through the CVC Explorer at cvc.canimmunize.ca



CVC COVID-19 Readiness

- The CVC working group and team has already begun preparing for the COVID-19 release. So far, we have:
 - RFC submissions to Infoway in progress to include COVID-19 immunization, antigen, and disease concepts in the Pan-Canadian Immunization Reference Sets.
 - We have reached out to our colleagues at the Health Canada Biologic and Radiopharmaceutical Drugs Directorate (Viral Vaccines Division) to request ad hoc reports of lot releases for COVID-19 vaccines instead of the usual monthly reports.
 - We are tracking the various vaccine candidates as they move through their trials and regulatory processes.
 - Dr. Wilson is on the independent data safety monitoring board for the Medicago vaccine and has worked with the Vaccine Task Force.

National Data Standards for COVID-19 Vaccination

- Publishing a national data standard for health system implementers is the most important thing PHAC can do to promote standardization of COVID-19 vaccination data in Canada.
- The CVC working group is the best place to convene the work required to establish this standard.
 - Two of the largest provinces are already using it.
 - This would promote broader adoption of the CVC and therefore greater interoperability of vaccination data in Canada.
- The CVC is the natural place to host these data standards and terminologies given its existing role in hosting national immunization standards.
 - Can rapidly publish new content
 - Modern HL7 FHIR APIs
 - Existing QA and implementer support processes.



Collecting and Analyzing Real-time COVID-19 Vaccine Data

- In order to determine national estimates of COVID-19 vaccination coverage, PHAC will also need to establish processes for collecting this information from the provinces, territories, and federal healthcare providing entities. These interfaces will need to validate that submitted data conforms to the established standards and store the data for use in surveillance, dashboarding, and reporting.
- We recommend that an HL7® FHIR® interface and data store be setup to accomplish this. The CVC/CANImmunize team has broad experience working with the provinces and territories on their immunization APIs/repositories, including consultation work for Infoway to establish the immunization APIs for their pan-Canadian consumer gateway. We would be well positioned to provide or support this solution.

Our Recommendations

1. PHAC should endorse the Canadian Vaccine Catalogue as the source of truth for Canadian immunization standards and terminology.
2. Ensure the CVC is supported on an ongoing basis (past the CHI support ending in 2022) to ensure adopter confidence of the longevity of the CVC.
3. Fund the CVC team to develop a working group (which PHAC would co-chair) to create the national standards for tracking COVID-19 immunizations. The CVC team would undertake the following:
 - Convene the working group and drive consensus towards a national standard, incorporating feedback from FPT partners.
 - Modify the CVC to make the data standards and required terminologies available through the CVC and its API.
 - Provide adopters with support and guidance in implementing these standards ahead of the COVID-19 vaccine rollout through documentation, webinars, one-on-one training sessions, help desk, etc.
4. Fund the development of an HL7® FHIR® based reporting interface and data store, that implements the working group developed standards, to collect either de-identified or aggregate immunization data from P/Ts and federal healthcare providing bodies. This data should be made publicly available in a dashboard on PHAC's website.

Discussion

Thank You

