

CIC 2018 CCI | December 4-6
4 - 6 décembre
OTTAWA

**Using technology to connect Canadians
to their immunization records across
Canada:
Leveraging the Canadian Vaccine
Catalogue (CVC)**

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Disclosure Statement

- I have no affiliation (financial or otherwise) with a pharmaceutical, medical device or communications organization.

Agenda

- Vision, background: The National Immunization Data Dictionary and the Canadian Vaccine Catalogue
- Introducing the Canadian Vaccine Catalogue (including demo)
- Ontario Perspective
- British Columbia Perspective
- Canada Health Infoway: CVC governance and accessibility

Purpose of our session

- Inform stakeholders about:
 - The benefits of the CVC
 - Examples of the CVC in use and how to access it
- Share planned next steps and governance model

➤ Background

Public health stakeholders (led by Ontario and BC) have been working together to create standards-based immunization content to support digital immunization assets

July 2015-Sept 2016: Immunization Interoperability Canada Health Infoway (CHI) Working Group

- ✓ Defined Minimum Immunization Data Elements for interoperability

“NEW” March 2018: National Immunization Data Dictionary CHI Work Group

- ✓ Create national system-agnostic coded immunization terminology to support EMRs / immunization repositories / consumer apps

➤ What is the National Immunization Data Dictionary?

- **A human readable** immunization data dictionary with SNOMED CT terminology content to support data *capture* and *sharing* between point of care systems and the jurisdictional immunization information system **regardless of the messaging specification**.
- The NIDD contains:
 - Immunization data elements
 - Terminology subsets
 - Implementation guidance



➤ What is the National Immunization Data Dictionary?

- Developed in consultation with public health experts across Canada to ensure alignment with provincial and national public health business requirements
- Endorsed by the Canadian Immunization Committee in September 2018

The Canadian Vaccine Catalogue (CVC): leveraging the NIDD

Why was the CVC created?

To provide a “one-stop shop” for standardized vaccine content needed for systems to support complete and accurate **POS vaccine record-keeping** and **vaccine inventory management**.

In addition to the NIDD content, the CVC contains variable data (lot number, expiry date, GTIN, etc.) for vaccine products available in Canada (updated monthly).

The CVC is designed to allow electronic medical record applications to incorporate vaccine picklists that are always up-to-date and backed by standardized interoperable terminology.



CANImmunize

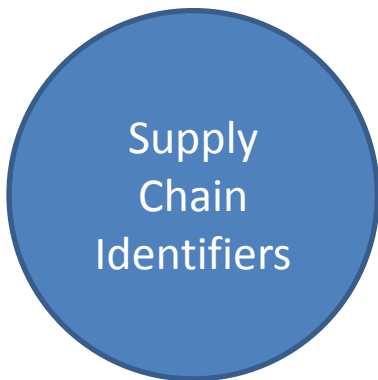
Canadian Vaccine Catalogue

DIN

SNOMED CT

GTIN

DTaP-IPV-Hib



GLN

AHFS

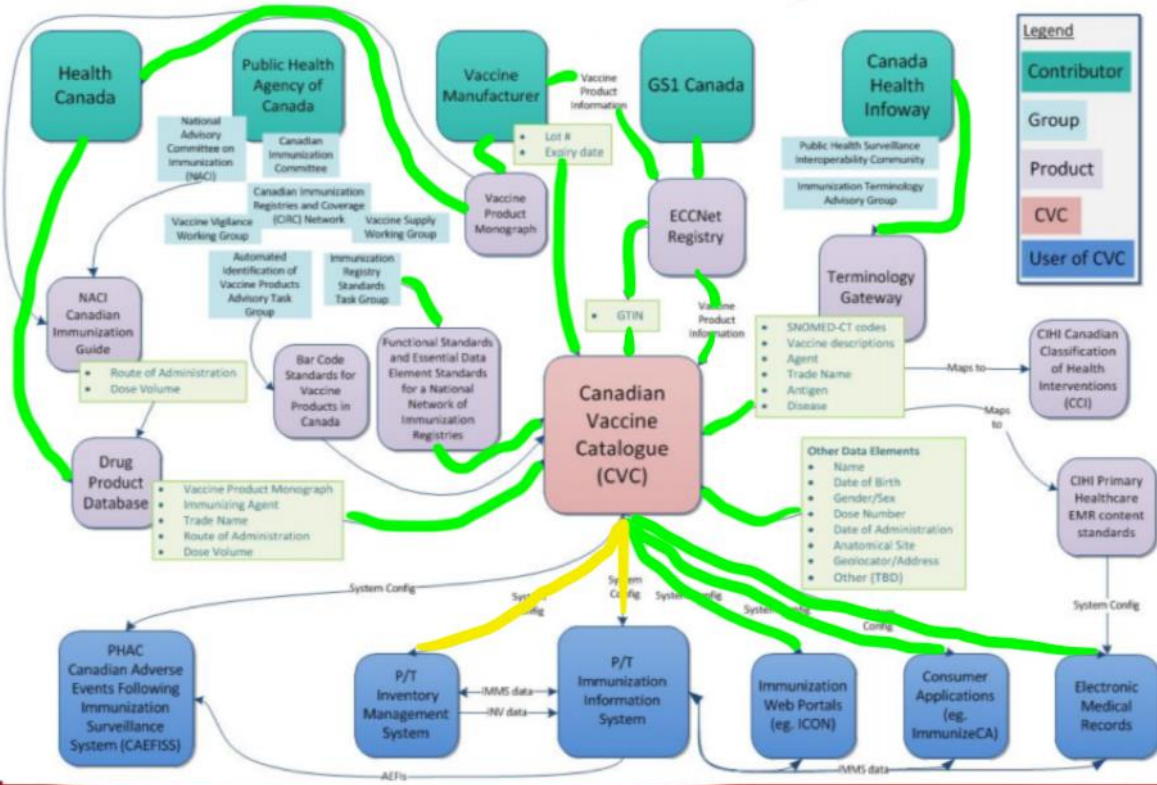
Lot Number

ATC Code

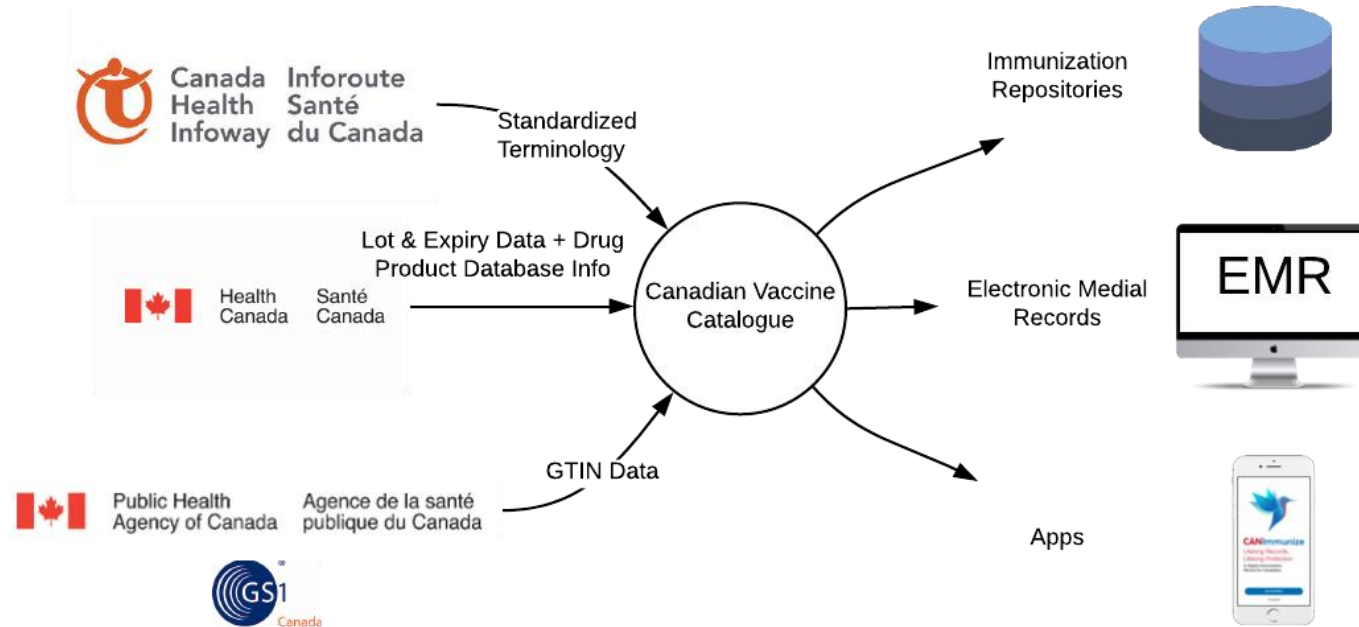
CVX

ICD

Vision for the Canadian Vaccine Catalogue Infrastructure



Data Sources and Use Cases





Home Insert Page Layout Formulas Data Review View

Calibri 11 A A

Wrap Text Merge & Center

General \$ %

Conditional Formatting Format as Table Cell Styles

Insert Delete Format

AutoSum Fill Clear

Sort & Filter

A1 fx Concept Code

	A	B	C	D	E	F	G	H	I	J
1	Concept Code	Concept Name (Fully Specified Name)	Display Name (en)	Display Name (fr)	Concept Effective Date	Concept Active	Abbreviation (en)	Abbreviation (fr)	Picklist (en)	Picklist (fr)
2	7781000087107	Acellular pertussis low dose vaccine (product)	ap pertussis acellular adult unspecified	ca coqueluche acellulaire adulte non spécifié	20161031	Active	ap	ca	[ap] Pertussis	[ca] coqueluche
3	7771000087105	Acellular pertussis standard dose vaccine (product)	aP pertussis acellular pediatric unspecified	Ca coqueluche acellulaire pédiatrique non spécifié	20161031	Active	aP	Ca	[aP] Pertussis	[Ca] coqueluche
4	449019003	Acellular pertussis vaccine (product)	Pertussis acellular unspecified	coqueluche acellulaire non spécifié	20161031	Active	ap/aP	ca/Ca	[ap/aP] Pertussis	[ca/Ca] coqueluche
5	333521006	Anthrax vaccine (product)	Anth anthrax unspecified	Anth charbon non spécifié	20161031	Active	Anth	Anth	[Anth] Anthrax	[Anth] Anthrax
6	418268006	Product containing attenuated bacillus calmette guerin (medicinal product)	BCG Bacillus Calmette Guerin unspecified	BCG bacille de Calmette-Guérin non spécifié	20161031	Active	BCG	BCG	[BCG] Bacillus Calmette Guerin	[BCG] Bacillus Calmette Guerin
7	7721000087106	Cholera + E. coli oral vaccine (product)	Chol-Ecol-O cholera + E. coli oral unspecified	Chol-Ecol-O choléra + E. coli oral non spécifié	20161031	Active	Chol-Ecol-O	Chol-Ecol-O	[Chol-Ecol-O] Cholera + E coli	[Chol-Ecol-O] choléra + E.Coli
8	35736007	Cholera vaccine (product)	Chol cholera unspecified	Chol choléra non spécifié	20161031	Active	Chol	Chol	[Chol] Cholera	[Chol] choléra
9	7741000087102	Diphtheria low dose vaccine (product)	d diphtheria adult unspecified	d diphtérie adulte non spécifié	20161031	Active	d	d	[d] Diphtheria	[d] diphtérie
10	8211000087108	Diphtheria standard dose + pertussis standard dose + tetanus + Haemophilus influenzae type b vaccine (product)	DPT-Hib diphtheria + pertussis + tetanus + Haemophilus influenzae type b pediatric unspecified	DCT-Hib diphtérie + coqueluche + tétanos + Haemophilus influenzae de type b pédiatrique non spécifié	20161031	Active	DPT-Hib	DCT-Hib	[DPT-Hib] Diphtheria + Pertussis + Tetanus + Hib	[DCT-Hib] diphtérie + coqueluche + tétanos + Hib
11	7871000087103	Diphtheria standard dose + pertussis standard dose + tetanus + inactivated poliomyelitis vaccine (product)	DPT-IPV diphtheria + pertussis + tetanus + inactivated poliomyelitis pediatric unspecified	DCT-VPI diphtérie + coqueluche + tétanos + polio inactivé pédiatrique non spécifié	20161031	Active	DPT-IPV	DCT-VPI	[DPT-IPV] Diphtheria + Pertussis + Tetanus + Polio	[DCT-VPI] diphtérie + coqueluche + tétanos + polio inactivé
12	8221000087100	Diphtheria standard dose + pertussis standard dose + tetanus + poliomyelitis standard dose + Haemophilus influenza type b vaccine (product)	DPT-Polio diphtheria + pertussis + tetanus + poliomyelitis + Haemophilus influenza type b pediatric unspecified	DCTP-Hib diphtérie + coqueluche + tétanos + polio + Haemophilus influenzae de type b pédiatrique non spécifié	20161031	Active	DPTP-Hib	DCTP-Hib	[DPTP-Hib] Diphtheria + Pertussis + Tetanus + Polio + Hib	[DCTP-Hib] diphtérie + coqueluche + tétanos + polio + Hib
13	7861000087107	Diphtheria standard dose + pertussis standard dose + tetanus + poliomyelitis standard dose vaccine (product)	DPTP diphtheria + pertussis + tetanus + poliomyelitis pediatric unspecified	DCTP diphthérie + coqueluche + tétanos + polio pédiatrique non spécifié	20161031	Active	DPTP	DCTP-Polio	[DPTP] Diphtheria + Pertussis + Tetanus + Polio	[DCTP-Polio] diphtérie + coqueluche + tétanos + polio
14	7831000087100	Diphtheria standard dose + pertussis standard dose + tetanus vaccine (product)	DPT diphtheria + pertussis + tetanus pediatric unspecified	DCT diphtérie + coqueluche + tétanos pédiatrique non spécifié	20161031	Active	DPT	DCT	[DPT] Diphtheria + Pertussis + Tetanus	[DCT] diphtérie + coqueluche + tétanos
15	7731000087108	Diphtheria standard dose + tetanus + acellular pertussis standard dose + hepatitis b + inactivated poliomyelitis + Haemophilus influenzae type b vaccine (product)	DTaP-HB-IPV-Hib diphtheria + tetanus + acellular pertussis + hepatitis b + inactivated poliomyelitis + Haemophilus influenzae type b pediatric unspecified	DCaT-HB-VPI-Hib diphtérie + coqueluche acellulaire + tétanos + hépatite B + polio inactivé + Haemophilus influenzae de type b pédiatrique non spécifié	20161031	Active	DTaP-HB-IPV-Hib	DCaT-HB-VPI-Hib	[DTaP-HB-IPV-Hib] Diphtheria + Tetanus + Pertussis + Hepatitis B + Polio + Hib	[DCaT-HB-VPI-Hib] diphtérie + coqueluche acellulaire + tétanos + hépatite B + polio inactivé + Hib
16	20641000087100	Diphtheria standard dose + tetanus + acellular pertussis standard dose + hepatitis b + inactivated poliomyelitis vaccine (product)	DTaP-HB-IPV diphtheria + tetanus + acellular pertussis + hepatitis b + inactivated poliomyelitis pediatric unspecified	DCaT-HB-VPI diphtérie + coqueluche acellulaire + tétanos + hépatite B + polio inactivé pédiatrique non spécifié	20161031	Active	DTaP-HB-IPV	DCaT-HB-VPI	[DTaP-HB-IPV] Diphtheria + Tetanus + Pertussis + Hepatitis B + Polio	[DCaT-HB-VPI] diphtérie + coqueluche acellulaire + tétanos + hépatite B + polio inactivé
		Diphtheria standard dose + tetanus + acellular pertussis standard dose + inactivated poliomyelitis + Haemophilus influenzae	DTaP-IPV-Hib diphtheria + tetanus + acellular pertussis + inactivated poliomyelitis + Haemophilus influenzae	DCaT-VPI-Hib diphtérie + coqueluche acellulaire + tétanos + polio inactivé + Haemophilus influenzae de type b					[DTaP-IPV-Hib] Diphtheria + Tetanus +	[DCaT-VPI-Hib] diphtérie + coqueluche acellulaire + tétanos + polio inactivé

Info Data Dictionary **Generic** Tradename Passive Administered Passive Historical Disease Antigen ImmsAdminGender ImmsAnatomicalSite ImmsRepSource Imms +

Preventions - Google Chrome

192.168.1.49:8080/oscar_15/oscarPrevention/AddPreventionData.jsp?id=69&demographic_no=1

Preventions TEST, TEST M 39 years [Help](#) | [About](#) | [License](#)

Summary

Prevention DTaP provided by doctor oscar doc on 2018-01-12 09:26 entered by doctor oscar doc on 2018-01-12
 Name: Tripacel® Hybrid
 ExpiryDate: 2018-09-30
 Lot: C5079B

Prevention : DTaP

Completed **Date:** 2018-01-12 09:26
 Refused **Provider:** oscar doc doctor
 Ineligible **Creator:** oscar doc doctor

Result

Trade Name: Tripacel® Hybrid
Location:
Route:
Dose:
Lot: C5079B
Expiry Date: 2018-09-30
Manufacture:

Comments

Public Health Agency of Canada

Recommendations

has never been reviewed
 smoking

Refused
 Ineligible
 Pending
 Abnormal
 Other

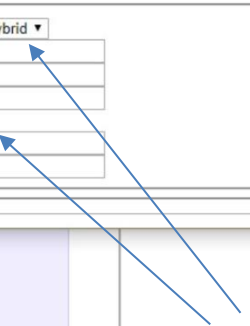
01-12 Age: 39 years Date: 2018-01-12

Refused
 Ineligible
 Pending
 Abnormal
 Other



- [VZ](#)
- [HZV](#)
- [HepB](#)
- [I](#)
- [Td-IPV](#)
- [dTdap](#)
- [Td](#)
- [Flu](#)
- [HA-Typh-I](#)
- [HBTmf](#)
- [HepA](#)
- [HepAB](#)
- [Chol-Ecol-O](#)
- [CHOLERA](#)
- [Rabies](#)
- [Typhoid](#)
- [Typh-O](#)
- [HPV Vaccine](#)
- [Tuberculosis](#)
- [TdP](#)
- [IPV](#)
- [BCG](#)
- [YF](#)
- [TBE](#)
- [IS](#)

CVC Values



4:50



< Back

Cameron



Vaccinations

SCHEDULE

LIST

Two Month Visit >

Four Month Visit >

Six Month Visit >

Twelve Month Visit >

Fifteen Month Visit >

Eighteen Month Visit >

4 to 6 Years Visit >

14 to 16 Year Visit >



Vaccinations



Medications



Growth



Profile



Connect

Vaccinations

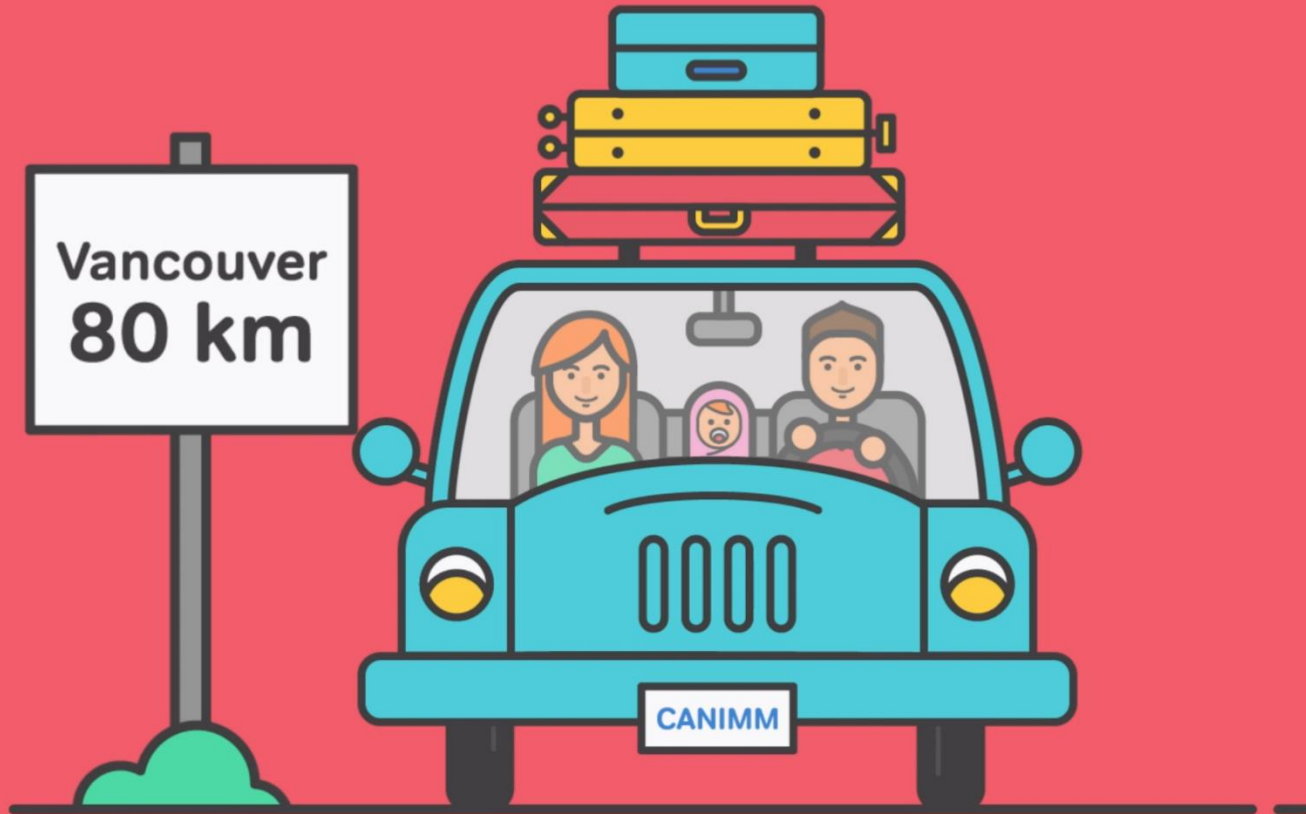
SCHEDULE

LIST

- Two Month Visit >
- Four Month Visit >
- Six Month Visit >
- Twelve Month Visit >
- Fifteen Month Visit >
- Eighteen Month Visit >
- 4 to 6 Years Visit >

**Ontario
Immunization
Record**





5:22




[← Back](#)

Cameron

Connect

Connections let you share your immunization records with others.

Add a Connection



Ontario

Download your records from
the Ontario Immunization
Repository

Connect

How
to
con
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Other Connections

I want to share Cameron's record with...



Vaccinations



Medications



Growth



Profile



Connect

Ontario perspective

Lori Kane

Ontario Ministry of Health

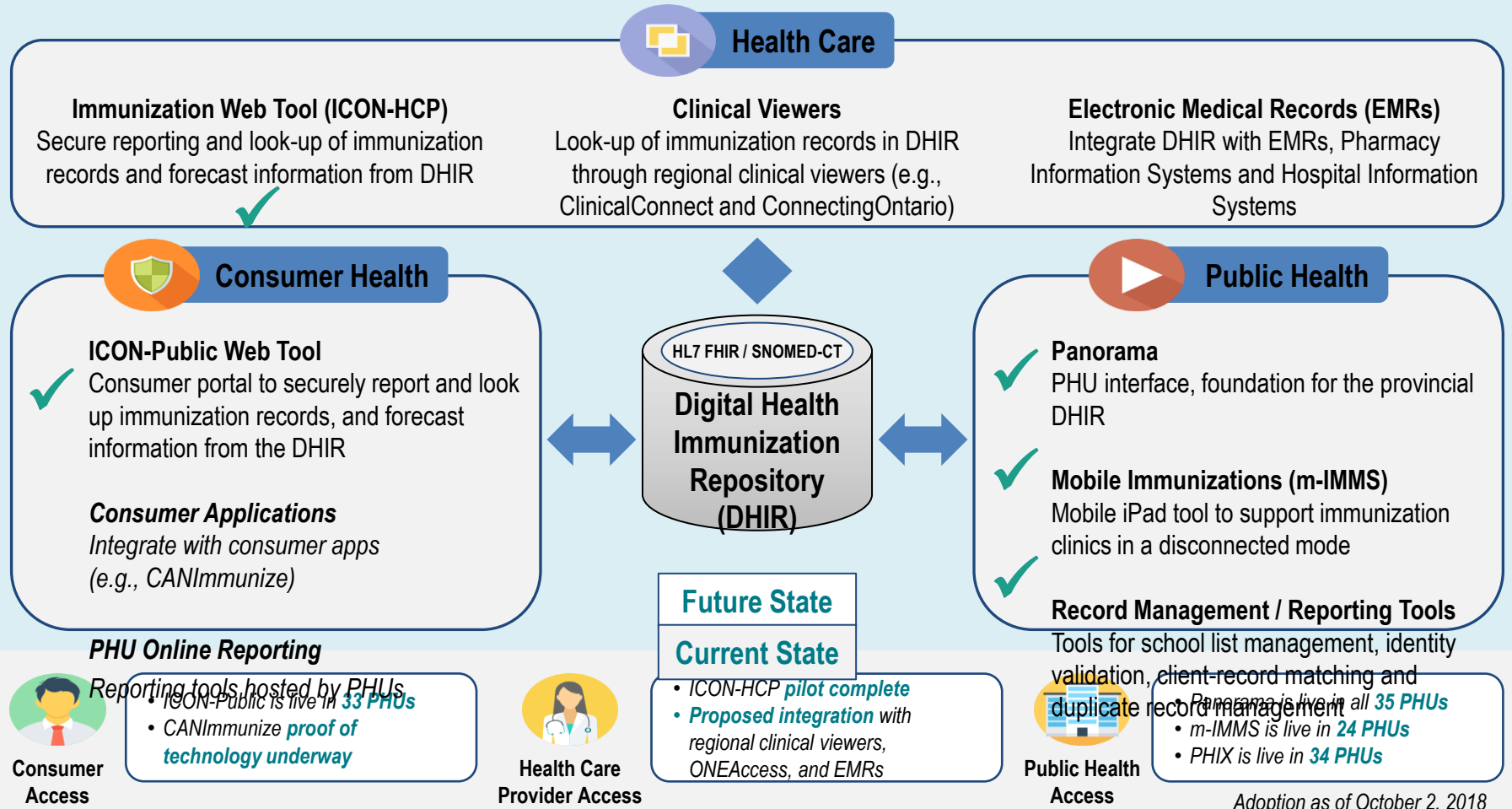
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Ontario's Digital Health Immunization Repository (DHIR)

- The provincial DHIR is a centralized repository of standardized electronic immunization records, which forms the foundation of a broader interoperable ecosystem for immunization data in Ontario.
- The DHIR currently contains 99 million immunization records for 6.7 million Ontarians.
 - Public Health Units (PHUs) administer ~15% of publicly funded immunizations, while health care providers in other settings (mostly primary care) administer the remaining ~85%.
- Currently, the DHIR primarily supports data sharing for public health purposes.
 - Ontario's 35 PHUs access the DHIR through **Panorama**.
 - The public are able to access (submit and retrieve) their immunization health records in the DHIR through **Immunization Connect Ontario** for Public (ICON-Public or Digital Yellow Card).
 - Health care providers (HCPs) will be able to access their patients' immunization records in the DHIR through ICON-HCP, and ultimately through direct integration of their EMRs.
- *SNOMED-CT is the foundational terminology for immunization records in the DHIR.*

Supporting the Provincial Immunization System through Digital Health



Health Care

Immunization Web Tool (ICON-HCP)

Secure reporting and look-up of immunization records and forecast information from DHIR



Clinical Viewers

Look-up of immunization records in DHIR through regional clinical viewers (e.g., ClinicalConnect and ConnectingOntario)

Electronic Medical Records (EMRs)

Integrate DHIR with EMRs, Pharmacy Information Systems and Hospital Information Systems



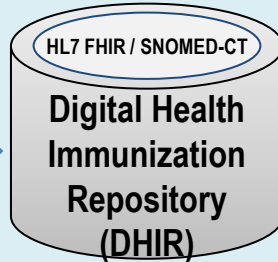
Consumer Health

ICON-Public Web Tool

Consumer portal to securely report and look up immunization records, and forecast information from the DHIR

Consumer Applications

Integrate with consumer apps (e.g., CANImmunize)



Public Health

Panorama

PHU interface, foundation for the provincial DHIR

Mobile Immunizations (m-IMMS)

Mobile iPad tool to support immunization clinics in a disconnected mode

Record Management / Reporting Tools

Tools for school list management, identity validation, client record matching and duplicate record management

Future State

Current State

- ICON-HCP *pilot complete*
- *Proposed integration* with regional clinical viewers, ONEAccess, and EMRs



Consumer Access

Reporting tools hosted by PHUs

- ICON-Public is live in **33 PHUs**
- CANImmunize *proof of technology underway*



Health Care Provider Access



Public Health Access

- Panorama is live in all **35 PHUs**
- m-IMMS is live in **24 PHUs**
- PHIX is live in **34 PHUs**

Adoption as of October 2, 2018

DHIR Terminology | Solutions for Public Health Units

Panorama

- PHUs use Panorama's Immunization Module to the record immunizations (administered and historical) and exemptions, and to assess population coverage.
- Panorama's Inventory Module is used to:
 - Manage the drug, medical supplies and vaccine inventories of PHUs and Ontario's Government pharmacy (OGP).
 - Facilitate transactions between internal and external holding points for vaccine and non-vaccine products

Agent SNOMED	Agent Short Eng Name	Agent Short French	Antigen SNOMED	Antigen English	Antigen French	Antigen display label	Disease SNOMED	English Disease	French Disease
419550004	MMRV	RRO-Var	121030007	Measles virus antigen	Antigène du virus de la rougeole	Measles (M)	14189004	Measles	Rougeole
419550004	MMRV	RRO-Var	121087003	Mumps virus antigen	Antigène du virus des oreillons	Mumps (Mu)	36989005	Mumps	Oreillons
419550004	MMRV	RRO-Var	120998006	Rubella virus antigen	Antigène du virus de la rubéole	Rubella (R)	36653000	Rubella	Rubéole
419550004	MMRV	RRO-Var	121005009	Varicella antigen	Antigène du virus varicella-zoster	Varicella (Var)	38907003	Varicella	Varicelle

DHIR Terminology | Solutions for Public Health Units *(continued)*

Public Health Information Exchange (PHIX)

- PHUs use PHIX to review and validate immunization records from all external sources (i.e. ICON, m-IMMS, Excel, and PDF forms) before they are uploaded to the DHIR as the authoritative immunization record. This tool helps to ensure standardization and minimizes duplicate records.
- In addition to the SNOMED-CT Agent/Antigen/Disease terminology used in

SNOMED CT Agent Code	Agent	Snomed CT Tradename Code	Panorama	Trade Friendly English (ICON)	Clinician Trade Name English (ICON HCP)
333680004	Hib	7031000087105	Hib Act-HIB SP	Act-HIB®	Act-HIB® (Hib)
7851000087109	Tdap	7431000087103	Tdap ADACEL SP	Adacel®	Adacel® (Tdap)
7891000087104	Tdap-IPV	7481000087104	Tdap-IPV ADACEL-POLIO SP	Adacel®-Polio	Adacel®-Polio (Tdap-IPV)

DHIR Terminology | Solutions for Ontario Residents


Immunization Connect Ontario (ICON) - Public

- ICON / Digital Yellow Card (DYC) is a simple, secure mechanism for parents to view their or their child's immunization records online through a web application anywhere, anytime and to submit updates to the immunization records for validation by their PHU. Parents are also able to quickly and conveniently determine which immunizations their children need in the coming months per the Ontario publicly funded schedule.

SNOMED CT Agent Code	Agent	Snomed CT Tradename Code	Panorama	Trade Friendly English (ICON)	Clinician Friendly Trade Name English (ICON HCP)
333680004	Hib	7031000087105	Hib Act-HIB SP	Act-HIB®	Act-HIB® (Hib)
7851000087109	Tdap	7431000087103	Tdap ADACEL SP	Adacel®	Adacel® (Tdap)
7891000087104	Tdap-IPV	7481000087104	Tdap-IPV ADACEL-POLIO SP	Adacel®-Polio	Adacel®-Polio (Tdap-IPV)

in Progress

CANImmunize DHIR Integration

- The CANImmunize application is a digital tool for all Canadians to securely track, store and update their immunization records.
- CANImmunize provides mobile capability and a variety of features such as infectious diseases outbreak notifications and immunization reminders.
- This project will enable CANImmunize mobile and web application users to read and update their immunization records stored in the Digital Health Immunization Repository (DHIR).
- CANImmunize uses  and is connected to the Canadian Vaccine Catalogue.

DHIR Terminology | Solutions for Health Care Providers

Immunization Connect Ontario (ICON) – Health Care Providers (HCPs)

in Progress

- ICON for HCPs is a web application for HCPs to submit immunization records to public health, view immunization records from the DHIR, and receive immunization clinical decision support based on the provincial immunization schedule.
- ICON for HCPs required expanded terminology display terms. HCPs tend to be familiar with vaccine trade name concepts, and not necessarily agents. **Clinician-**

SNOMED CT Agent Code	Agent	Snomed CT Tradename Code	Panorama	Tradename Friendly English (ICON)	Clinician Friendly Trade Name English (ICON HCP)
333680004	Hib	7031000087105	Hib Act-HIB SP	Act-HIB®	Act-HIB® (Hib)
7851000087109	Tdap	7431000087103	Tdap ADACEL SP	Adacel®	Adacel® (Tdap)
7891000087104	Tdap-IPV	7481000087104	Tdap-IPV ADACEL-POLIO SP	Adacel®-Polio	Adacel®-Polio (Tdap-IPV)

DHIR Terminology | Solutions for Health Care Providers

(continued)

Direct EMR integration

in progress

- The ministry recognizes that direct Electronic Medical Record (EMR) integration with the provincial Digital Health Immunization Repository (DHIR) is the preferred technology approach for advancing the provincial immunization system.
- Appropriate use of immunization SNOMED-CT codes will be required by EMR vendors to ensure integration with the DHIR.

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British Columbia Perspective

Elizabeth Lee

BC Provincial Health Services Authority

Disclosure Statement

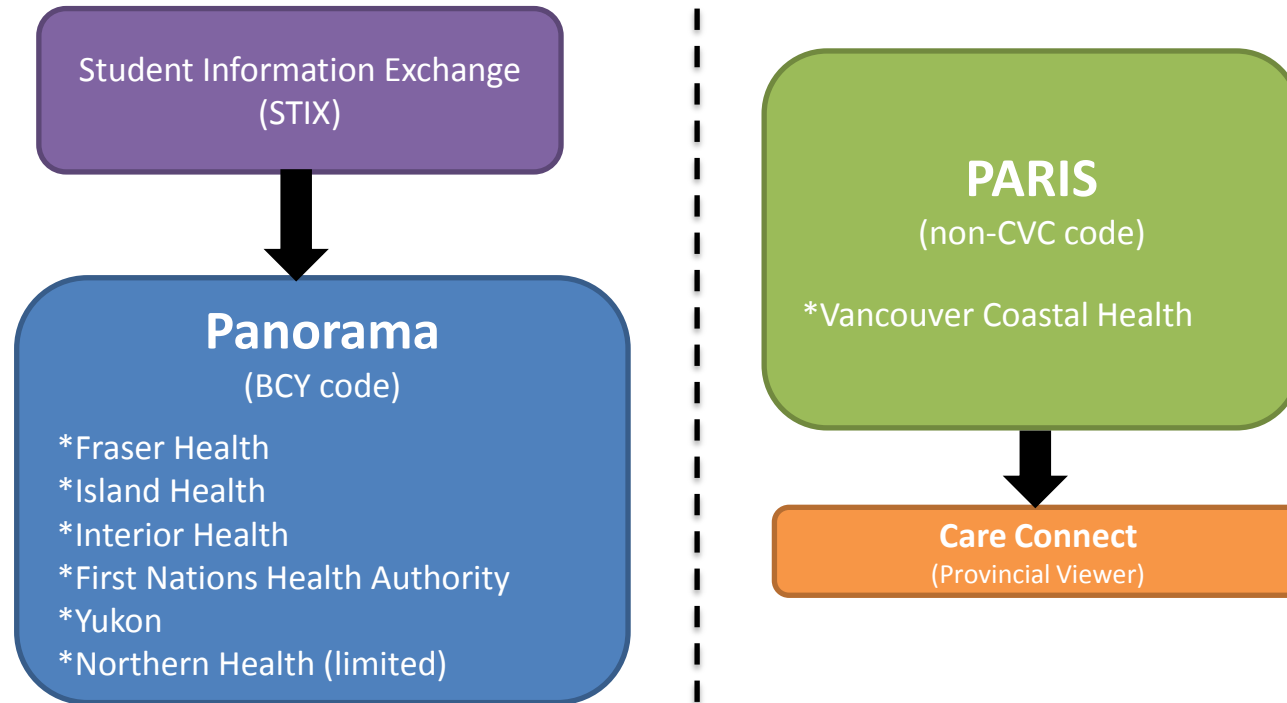
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BC Perspective - History

- Using Panorama for immunization clinical documentation and surveillance since 2013
- Currently 4 Health Authorities, First Nations Health Authority and Yukon document directly into Panorama
- BC and Yukon align immunization schedules and share the care of TB clients – BCY instance

Ministry of Health Mandate

Panorama is Provincial Immunization Registry

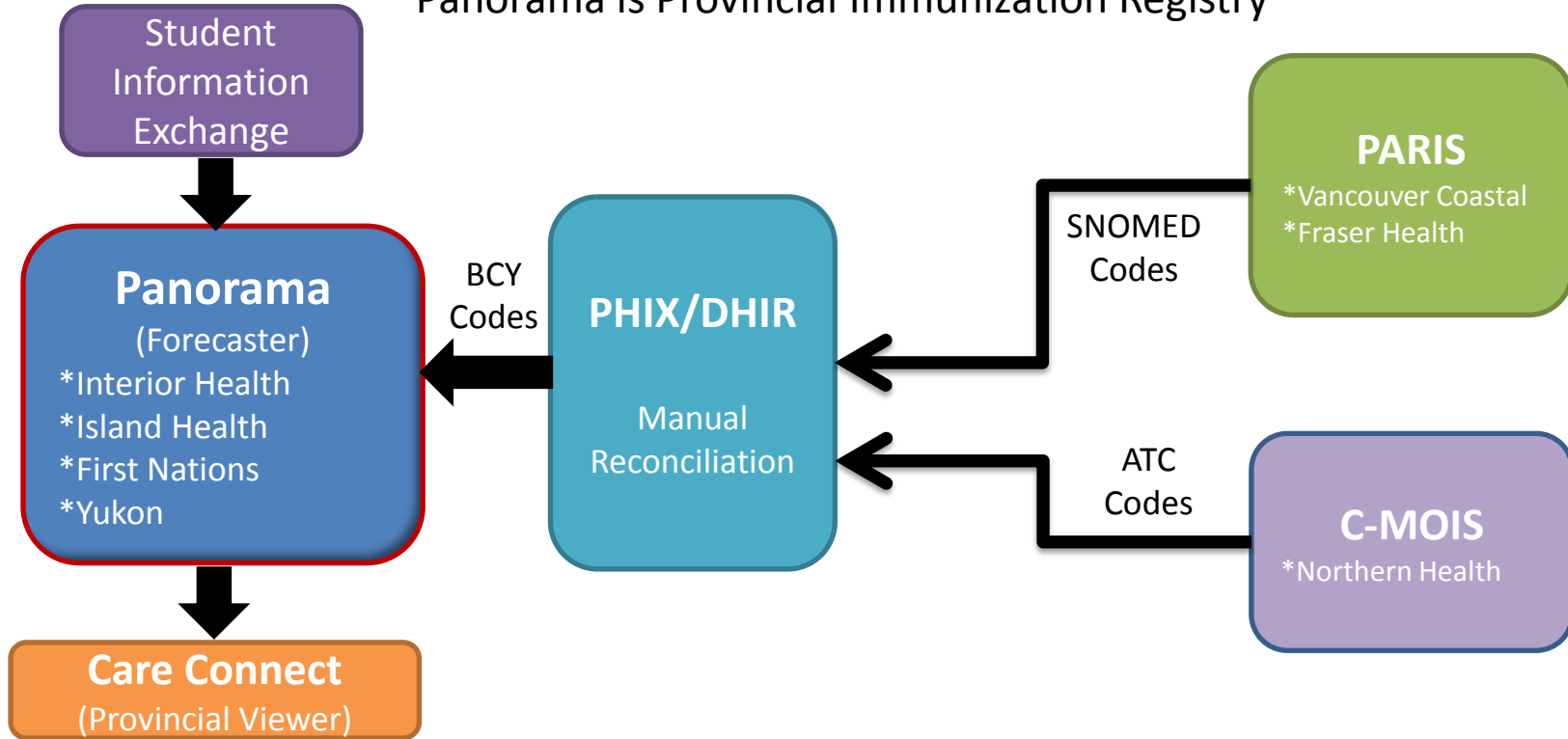


BC Perspective - History

- Deployed Immunizations in Panorama in 2013 – created BCY codes because SnoMed codes and CVC did not exist
- No access to immunization records in PARIS – relied on parents/clients to provide history
- BC Ministry of Health mandates in 2017 declared Panorama the BC Immunization Registry
- Provincial viewer only connected to PARIS

Ministry of Health Mandate

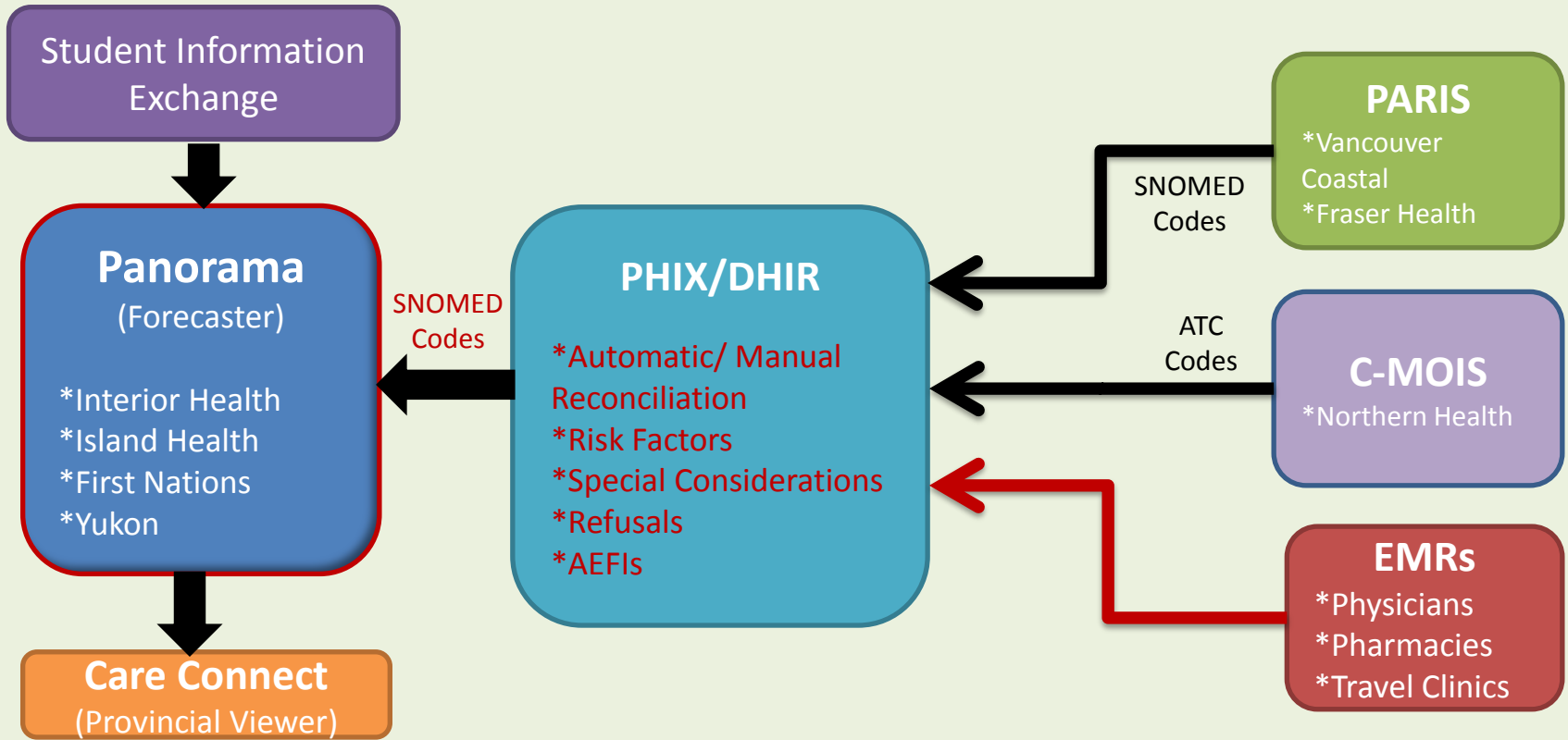
Panorama is Provincial Immunization Registry



BC Perspective – Current State

- Leveraging our tools and standards to develop our registry based on our MOH mandate
- Initial scope is public health delivered immunizations followed by physician/EMR then other vaccine providers (pharmacy, travel clinics etc.)
- Student information will be entered into registry via STIX so we are prepped for outbreak management
- Provincial viewer will contain Panorama immunization histories and forecast for future immunizations

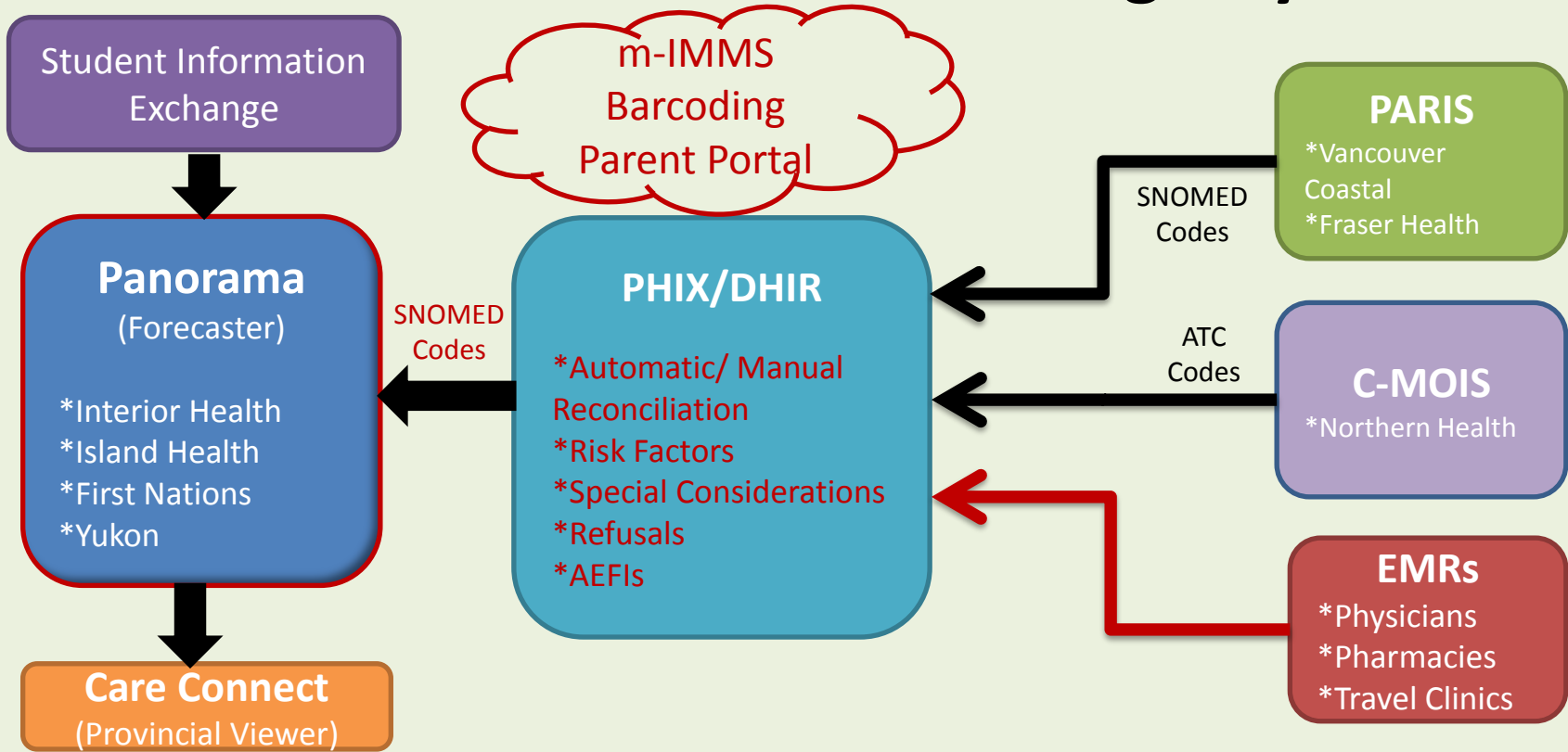
Provincial Immunization Registry



BC Perspective - Future

- Update BCY codes to align with CVC codes
- PHIX Upgrades:
 - Automatic reconciliation
 - Inclusion of supplementary information (Risk Factors, Special Considerations, Refusals)
 - Interface for AEFI reporting
- Interface with EMRs, pharmacies and travel clinics

Provincial Immunization Registry



BC Perspective - Future

- Continue to leverage tools to support MOH mandate:
 - M-IMMS
 - Parent Portal
 - Barcoding

Benefits and Challenges

Benefits:

- ✓ Ease of immunization interoperability within BC and Yukon and BC First Nations
- ✓ Provincial Immunization Registry
 - ✓ Improved clinical immunization decision-making
 - ✓ Improved surveillance
 - ✓ Enabled best practice of immunizing based on history for school imms
- ✓ Aligning Health Authority practices
- ✓ Aligning with provincial legislation and mandates
- ✓ EMR vendor support
- ✓ Interoperability between provinces

Benefits and Challenges

Challenges:

- Interfaces built using CVC codes but BCY Panorama not there yet
→ increased complexity for building interfaces
- Variant support from Health Authorities - data remediation, clinical decisions
- Determining denominator for immunization coverage rates
- EMR user authentication

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CVC Governance and Accessibility

Beverly Knight
Canada Health Infoway

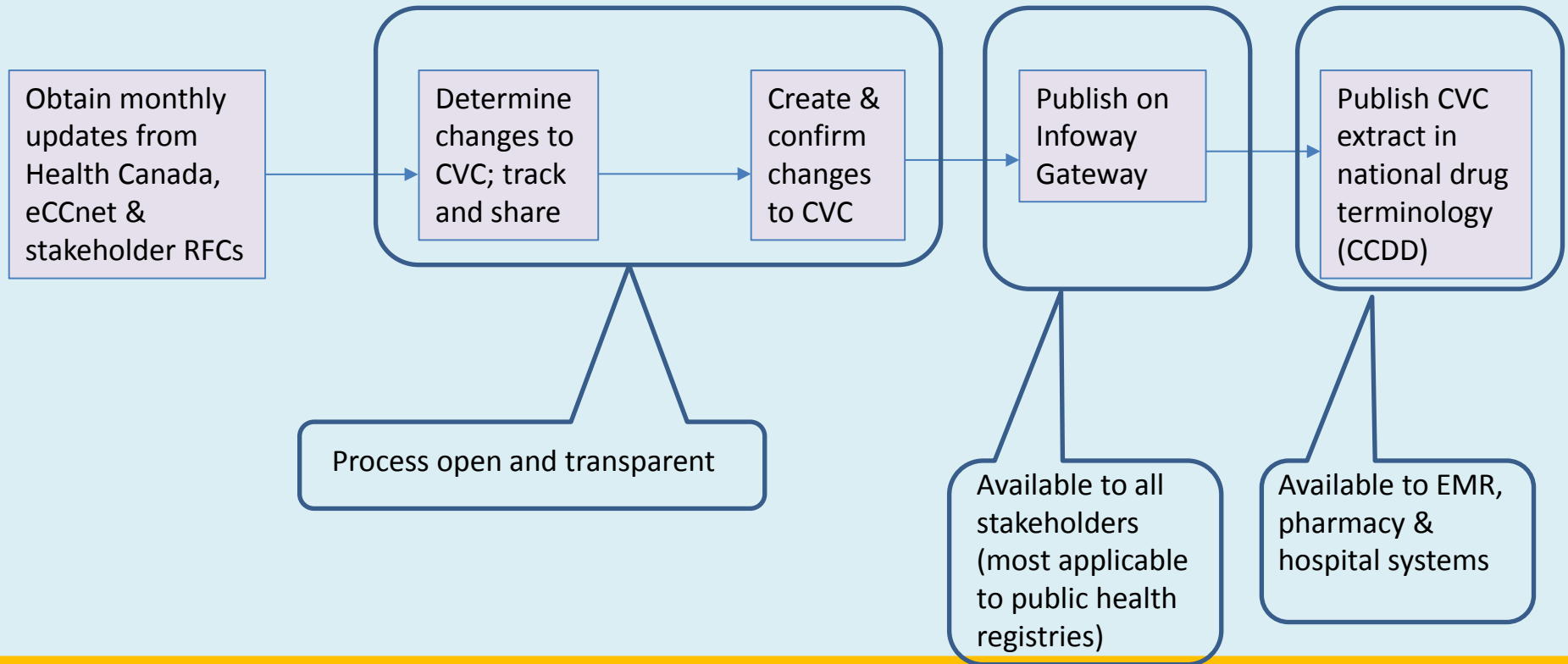
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CVC Governance and Accessibility

- Development and maintenance process is open and transparent
- Stakeholders using the CVC participate in managing content
- Content is relevant and updated timely
- Leverage Infoway platforms and terminology expertise
 - InfoCentral [Public Health Surveillance Community](#)
 - Issue tracking software
 - Terminology Gateway for publishing
- Develop partnerships with organizations who are the authoritative source for the data in Canada
 - Health Canada, GS1, etc
- Leverage the new national drug terminology, Canadian Clinical Drug Data Set (CCDD) and Infoway investment with knowledge base vendors
 - Publish a CVC extract within CCDD

CVC Monthly Workflow (proposed)



➤ Next steps – support adoption

What is happening to make sure software developers (pharmacy, physician EMR, hospital, etc.) and other vendors are using the CVC?

- Health Canada – working to include immunization content in “Canadian Clinical Drug Dataset” project (key resource for real-time drug applications)
- CHI initiative with drug knowledge base vendors will push the content into hospital, EMR and pharmacy systems (including terminology in drop lists)
- Panorama – to include CVC in future RI releases
- Ontario – “EHR Asset” initiative

➤ Next steps – support adoption

What can be done to make sure the CVC gets used in provincial registries?

- Leverage CIC's influence in P/Ts to progress interoperability of immunization registries – which should be the priority (e.g., inter/intra-provincial)?

➤ Questions?