

# Collaborative Approach to Advance Digital Health Interoperability

InfoCentral Community Engagement  
November 18, 2022

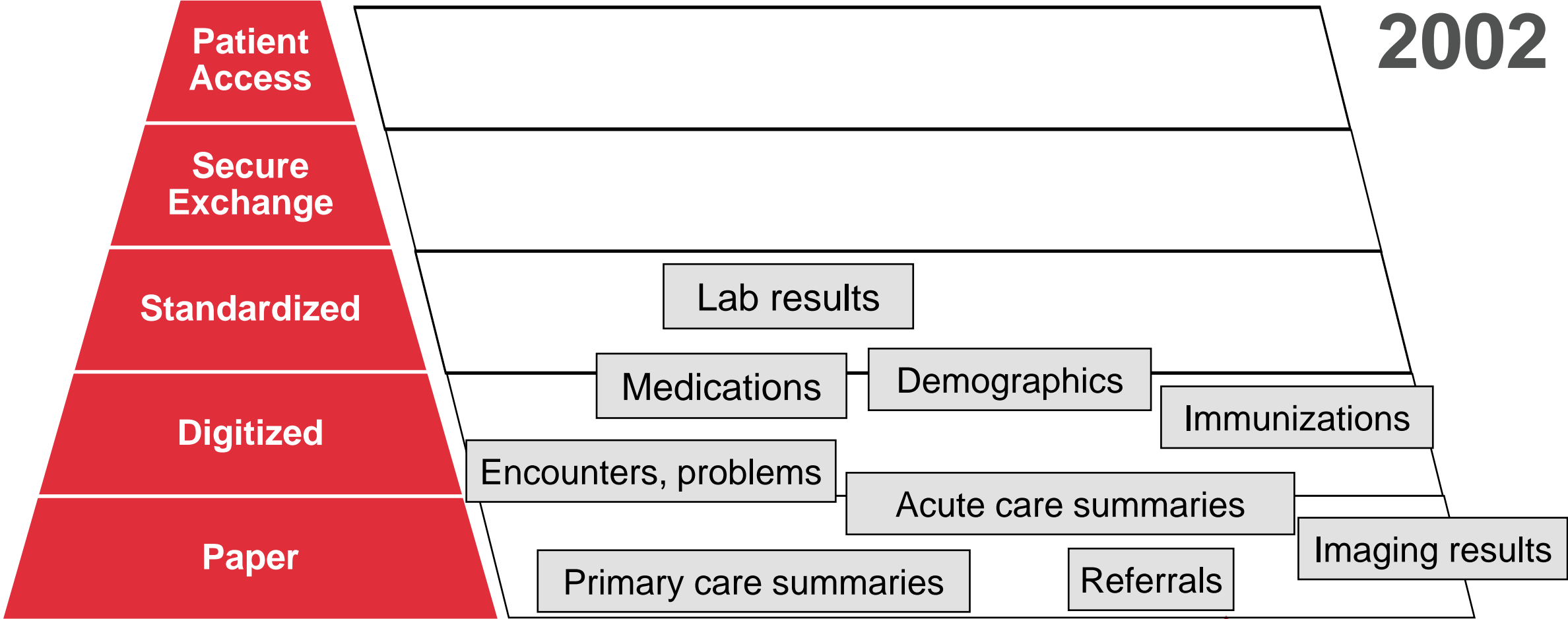


Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé

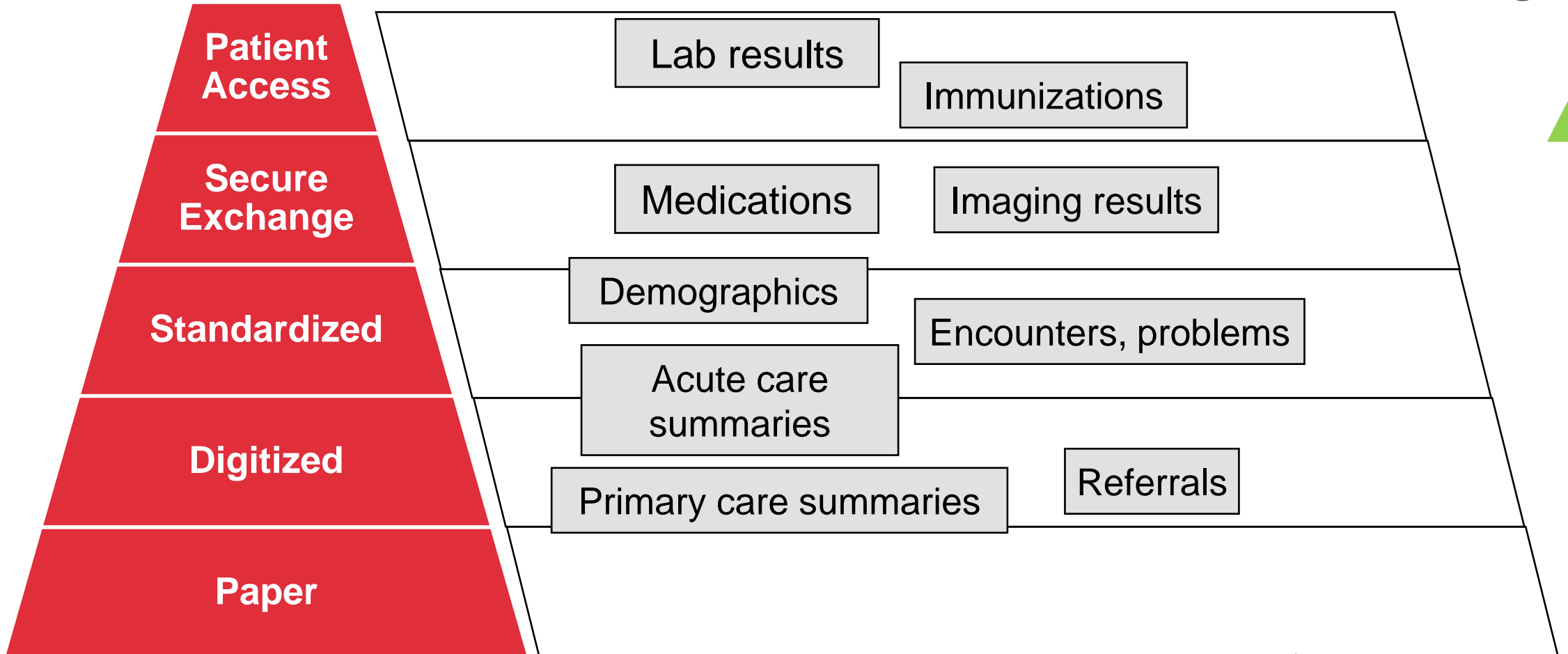
# 20 years ago, Canada's health system lagged other industries in digitization



# Canadian patient health data are now largely digitized

While some key data elements are available to patients and can be commonly shared, opportunities to further progress this standardization persist:

2022





**Canada Health Infoway**

**So, where are the gaps?**

# Keeping patients at the centre

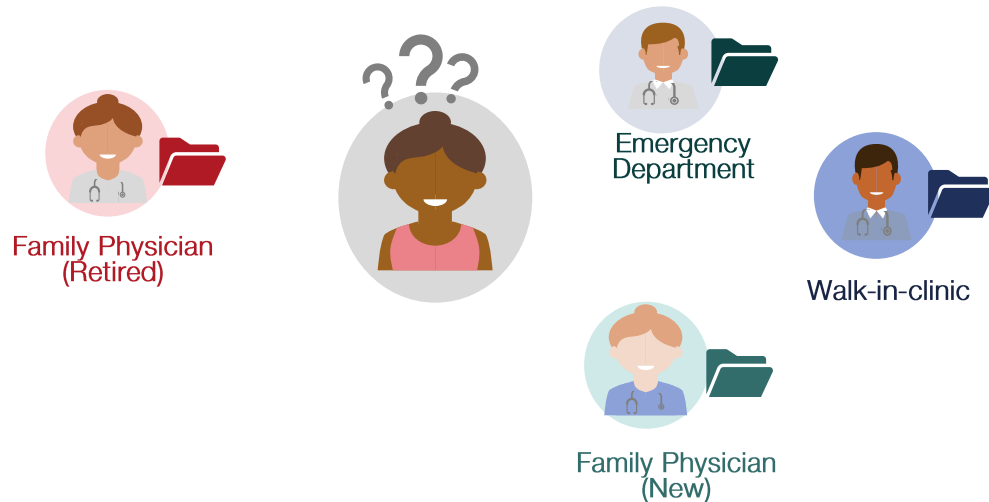
## The Unattached Patient



### About me

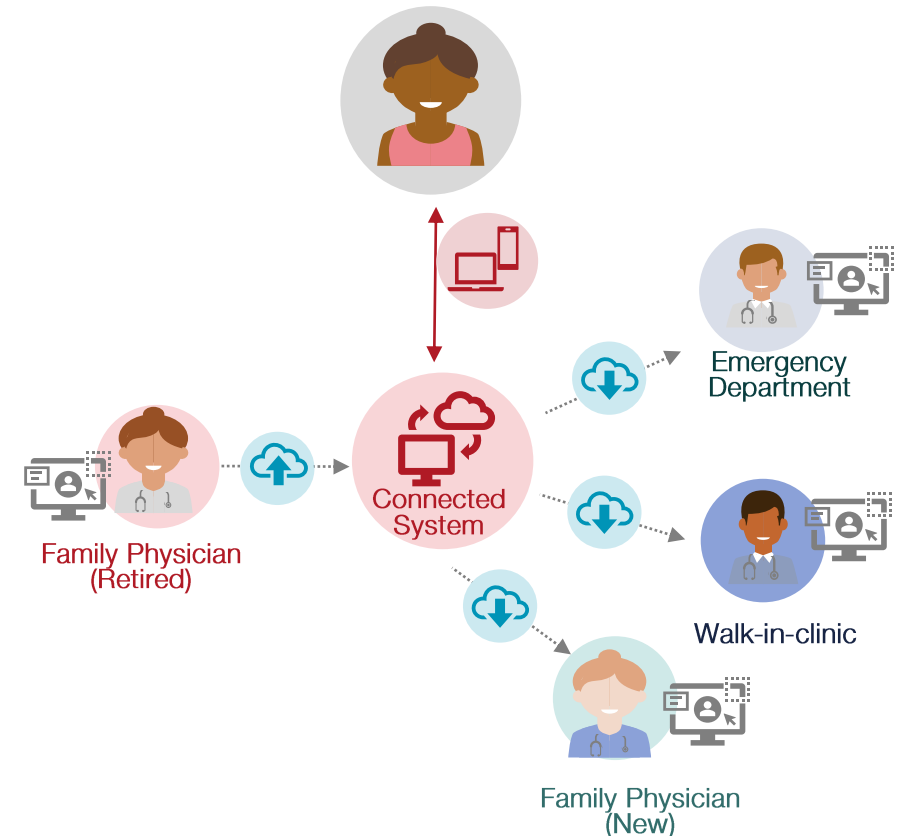
- I am 48 years old and have a family history of heart disease and type 2 diabetes. I have been fairly healthy until now but have recently felt unwell.

## Current State and Challenges



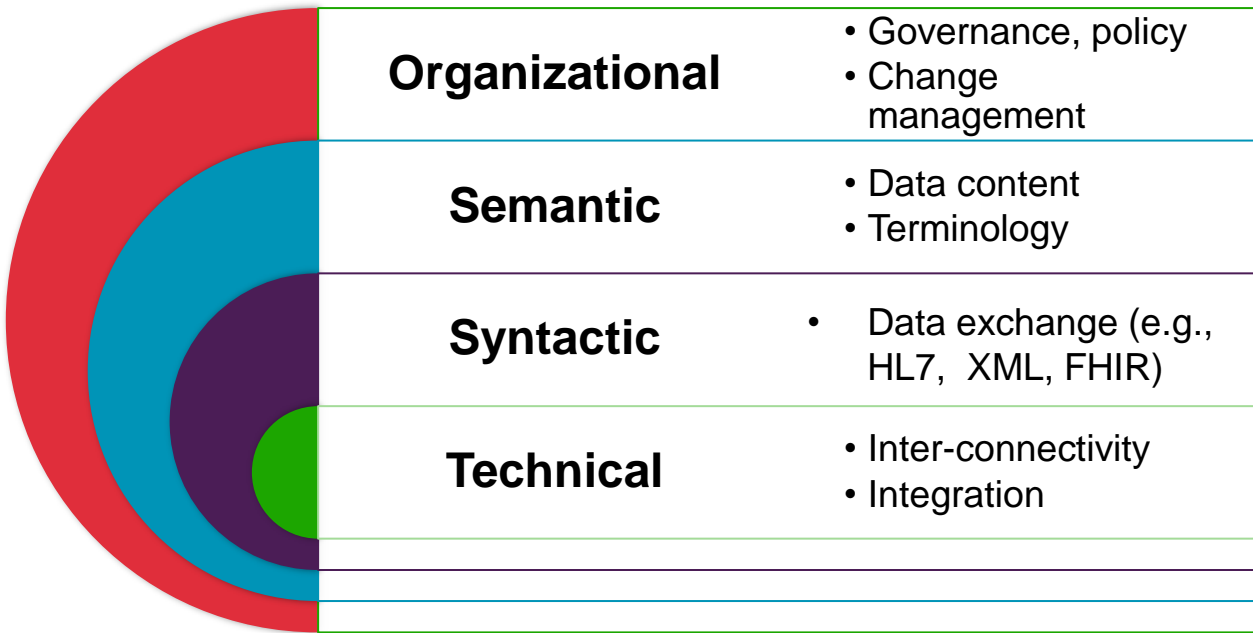
## With a Connected System

- Patients & providers can access past and current medical records seamlessly.
- Patients & providers can share health information and records electronically with providers across different care.





# Defining Interoperability



*It's the flow of seamless information between different disciplines, authorities, institutions.*

PHARMACIST

*More seamless - easy to access information through a direct link/button. Not jumping through hoops.*

NURSE

*I think it would be a seamless system that allows physicians to interact with each other. Sending info back and forth both ways. It should be Province Wide - not just regions*

SPECIALIST

*Interoperability means to be able to be accessible to everyone who needs. I wish they were connected to a National program.*

ADMINISTRATOR

**EXCHANGE OF DATA BETWEEN SYSTEMS + ABILITY TO USE THAT DATA = INTEROPERABILITY**

# Pan-Canadian Interoperability Strategy





Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé

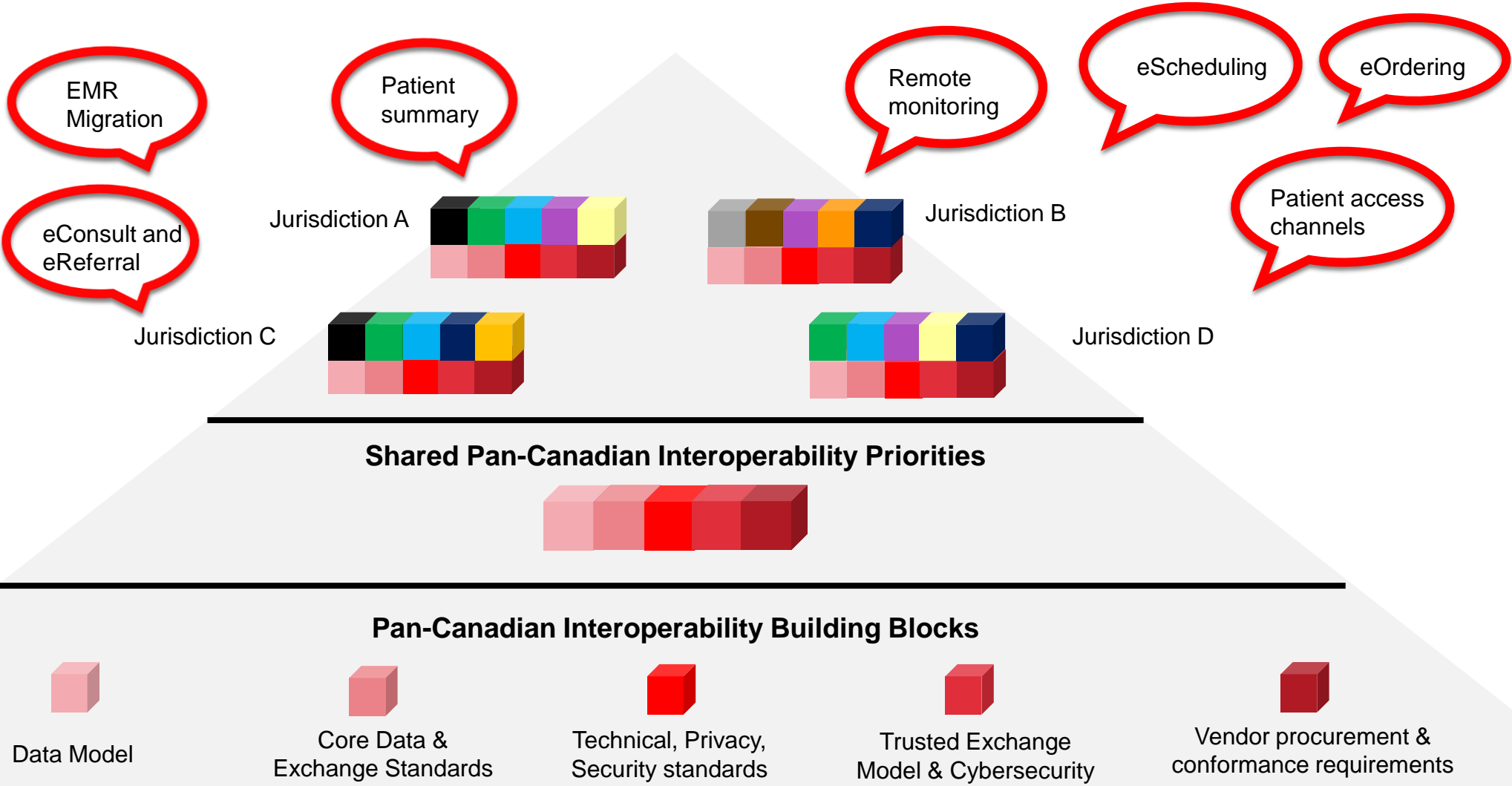
# Six pillars of our pan-Canadian Interoperability Strategy

		Lead	Partners
	<b>1. Pan-Canadian Interoperability Governance</b> Develop an inclusive pan-Canadian interoperability governance model that leverages existing structures and relationships, to guide and govern pan-Canadian interoperability and health data exchange		
	<b>2. Shared Pan-Canadian Interoperability Roadmap</b> Co-develop a shared pan-Canadian interoperability roadmap that serves the needs of all provinces and territories to achieve common goals in a systematic manner		
	<b>3. Core Data &amp; Exchange Standards and Functions</b> Collaboratively design, select, implement, adopt and maintain pan-Canadian data standards and specifications (e.g. Patient Summary – PS-CA)		 
	<b>4. Trusted Exchange Framework</b> Work together to develop a common trusted exchange model to enable health information exchange, that mobilizes privacy and security resources to support interoperability efforts		
	<b>5. Vendor Activation Program</b> Harmonize pan-Canadian efforts on vendor conformance, incentives and other mechanisms to maximize buy-in and active participation from vendors in support of digital health interoperability initiatives		
	<b>6. Common Procurement Requirements</b> Develop common requirements for the procurement of health data and IT solutions including software solutions that embed interoperability standards		

High level overview for today

Primary focus for today

# Pan-Canadian building blocks to support digital health interoperability priorities



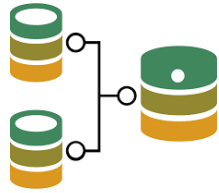
# Pan-Canadian design, local execution: expected benefits

Pan-Canadian collaboration on a shared vendor mobilization strategy, in support of local priorities, creates:

- Improved industry buy-in and commitment on interoperability priorities
- Cost efficiencies by reducing duplication of efforts
- Faster local implementations
- Increased competition



# Collaborating across five common opportunity areas



Data blocking and portability



Improved provider ability to add & access patient data at point-of-care



Patient access to their health record



Care coordination and collaboration



Cyber security

# Pan-Canadian Digital Health Interoperability Programs



Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé



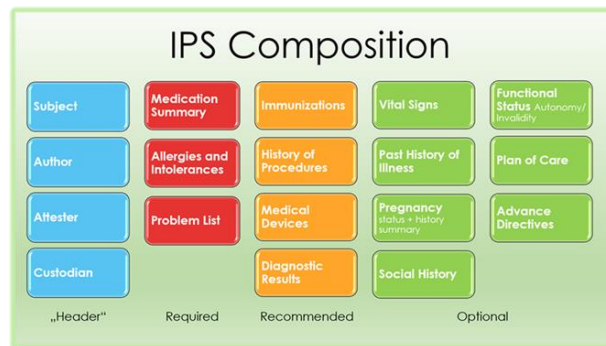
**Canada Health Infoway**

# **1. Patient Summary**

# What is a Patient Summary?

A health record extract comprising of a standardized collection of clinical and contextual information (retrospective, concurrent, prospective) that provides a snapshot in time of an individual's health information and healthcare:

- Provides a healthcare summary for a citizen at the point of care
- It is minimal and non-exhaustive standard health data set
- It is specialty-agnostic and condition independent.....but still clinically relevant



The most relevant patient information that should be shared in a summary.



The data standards language and format required to share the information.



The technical approach to ensure systems can exchange patient summaries securely.

# Patient Summary

Extensive consultations with jurisdictions, clinicians, patients and industry identified shareable **patient summaries** as an **interoperability priority** that would help to solve a number of key health care challenges :

- **Better patient outcomes**
- **Unattached patients** that visit multiple providers either virtually or in-person
- **Unplanned/emergency care** in environments not connected to the primary clinician's system
- **Human health resource** challenges in part due to time spent trying to obtain patient data
- For **vendors and innovators**, the use of open common standards means implementing once for reuse across multiple jurisdictions.

**IPS: pan-Canadian Patient summary(PS-CA)** helps to establish the foundational standards for patient, provider data access and exchange while delivering better patient outcomes through care coordination.

# Progress to date

In collaboration with key stakeholders, including five lead provinces (ON, BC, AB, NL, SK), vendors, CIHI, and international standards bodies, we have achieved:



## Specifications:

- **Four open reviews on two specifications** aligned to IPS:
  - Patient Summary Canada (PS-CA) identifies the core minimum data required for a Patient Summary
  - Canadian FHIR Exchange (CA:FeX) defines the way the data is exchanged



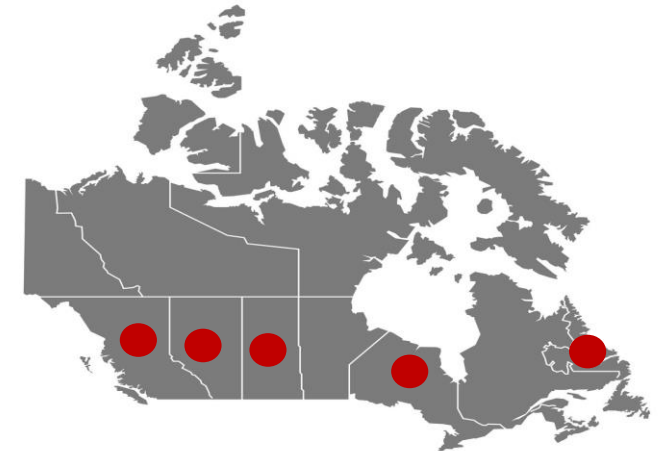
## Governance and Collaboration:

- **40+ collaboration sessions** with key stakeholders
- Established initiative level governance and an engagement approach for Patient Summary development
- Channels established to continue collaborating on Global Patient Summary and interoperability strategies and initiatives



## Specifications Testing:

- Hosted a 3-day testing and collaboration session with vendors, jurisdictions, clinicians and other key stakeholders resulting in **four vendors** being enabled to share a well-formed patient summary



Five Jurisdictional Leads  
(BC, AB, NL, SK, ON)

## **2. Common Data Standard for Primary Health Care**

**pan-Canadian and interoperable**



Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé

# Patient care is a continuum

Patients see more than one provider, and often return for multiple visits.

It's important that patients and providers have an accurate picture of the patient journey across the care continuum.

This requires unambiguous communication.

Health and care information should follow the patient. It needs to be available at the right time, at the right place and to the right people.

**My information is available to me, when, and where I need it**



# Patients have not traditionally had access to their digital health data, which limits patient understanding of their own health and reduces engagement in their care



## Improved self-care

- Enable patients to take an active part in managing their health and care



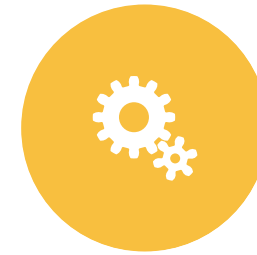
## Patient centric outcomes

- Support improvements in individuals' health outcomes
- Inform quality of care



## Informed conversations

- Enable patients and clinicians to have key relevant information about them to inform care plans
- Improve circle of care understanding of care plans



## Streamlined services

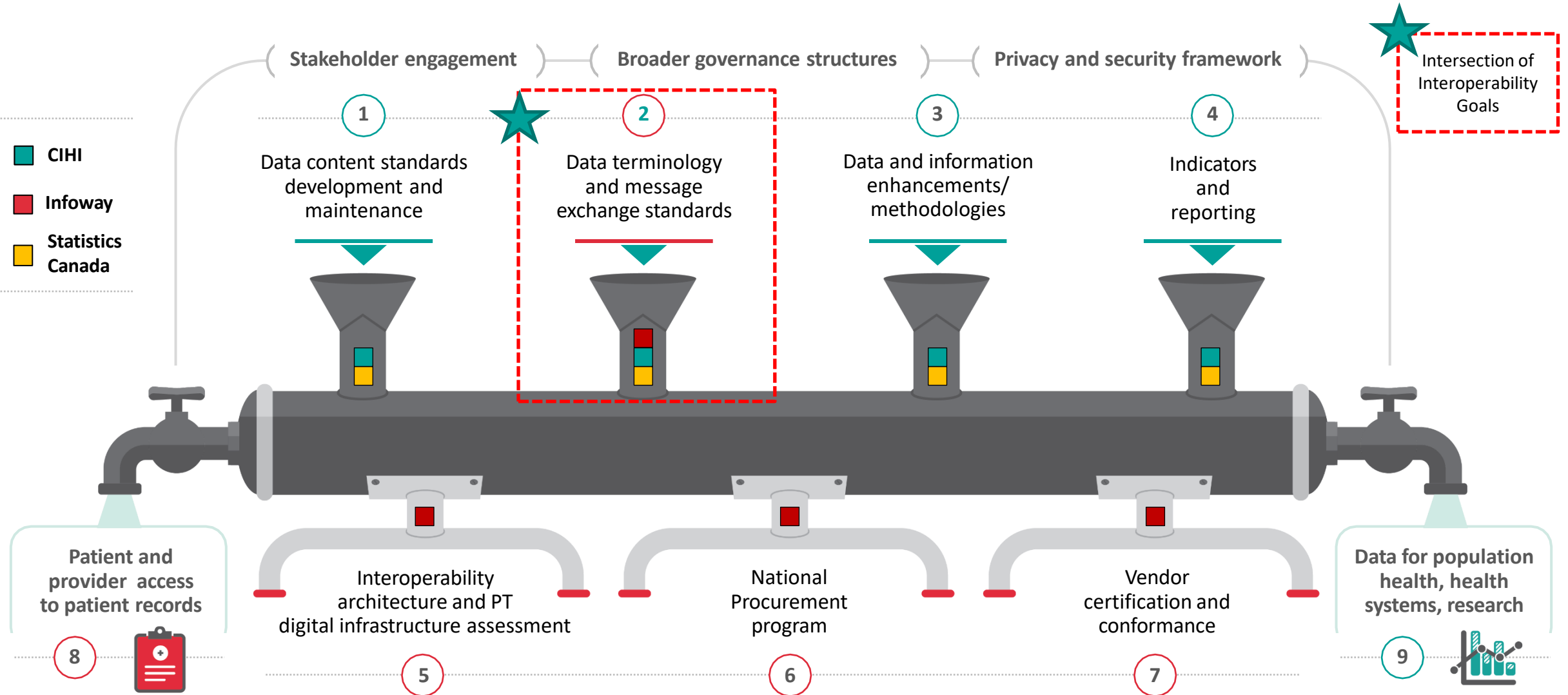
- Reduce the number of in-person visits
- Decrease health provision costs
- Efficiently share information with other providers, patients and family members

Goal: Putting the patient in the driver's seat of their own care



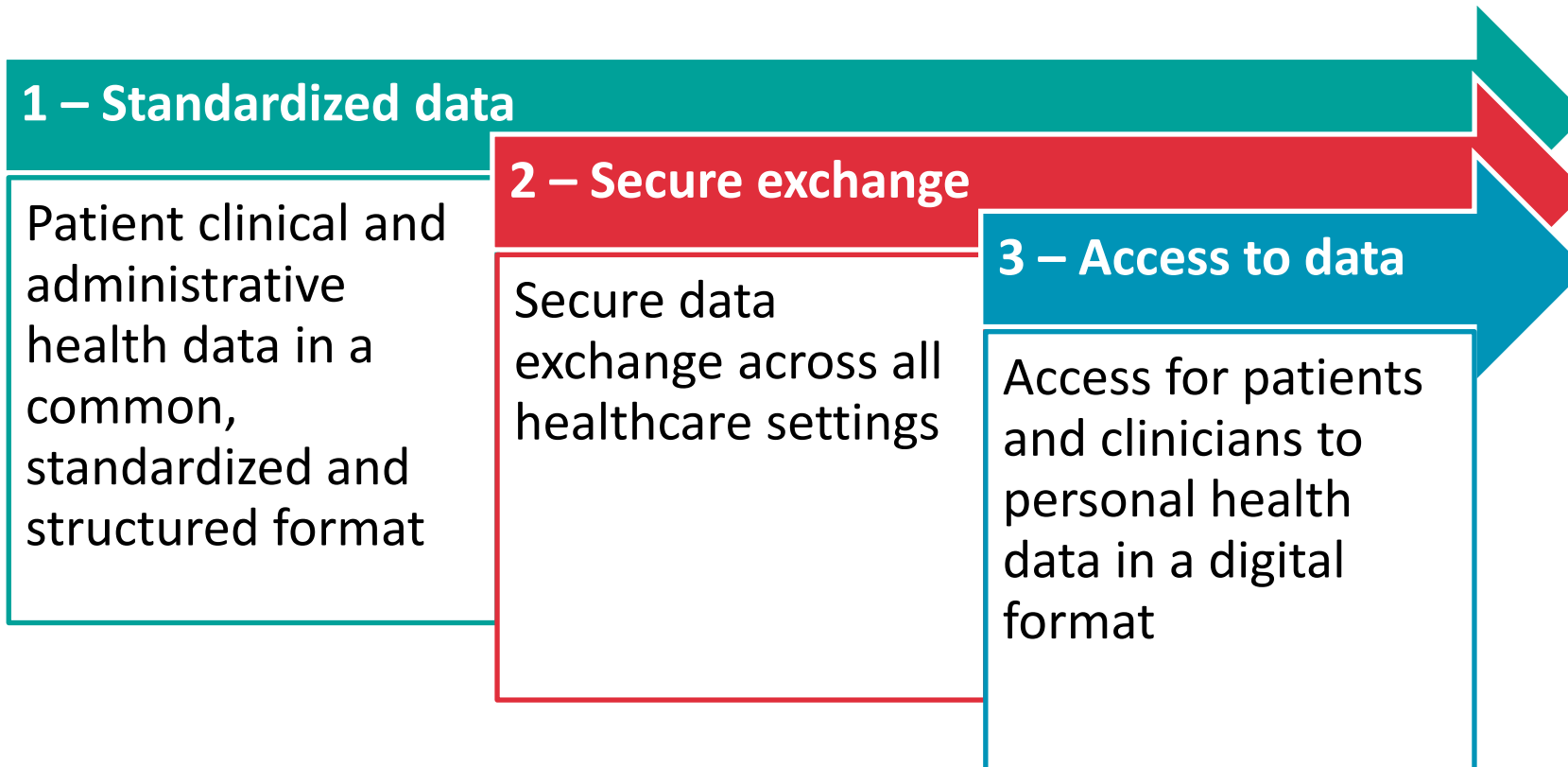
# CIHI, Infoway and Statistics Canada collaboration

# Yours to leverage: CIHI, Infoway and Statistics Canada's strengths



# Our shared interoperability goals

CIHI, Infoway and Statistics Canada are working together to achieve 3 interoperability goals with our F/P/T partners - standardize healthcare data; enable secure data exchange; and provide the general public and clinicians with easy access to personal health information in a digital format



# Common data standards enable interoperability



**1. Develop semantic standards (content and terminology)** that list the health concepts to be collected and provide a format, structure and values for each selected concept

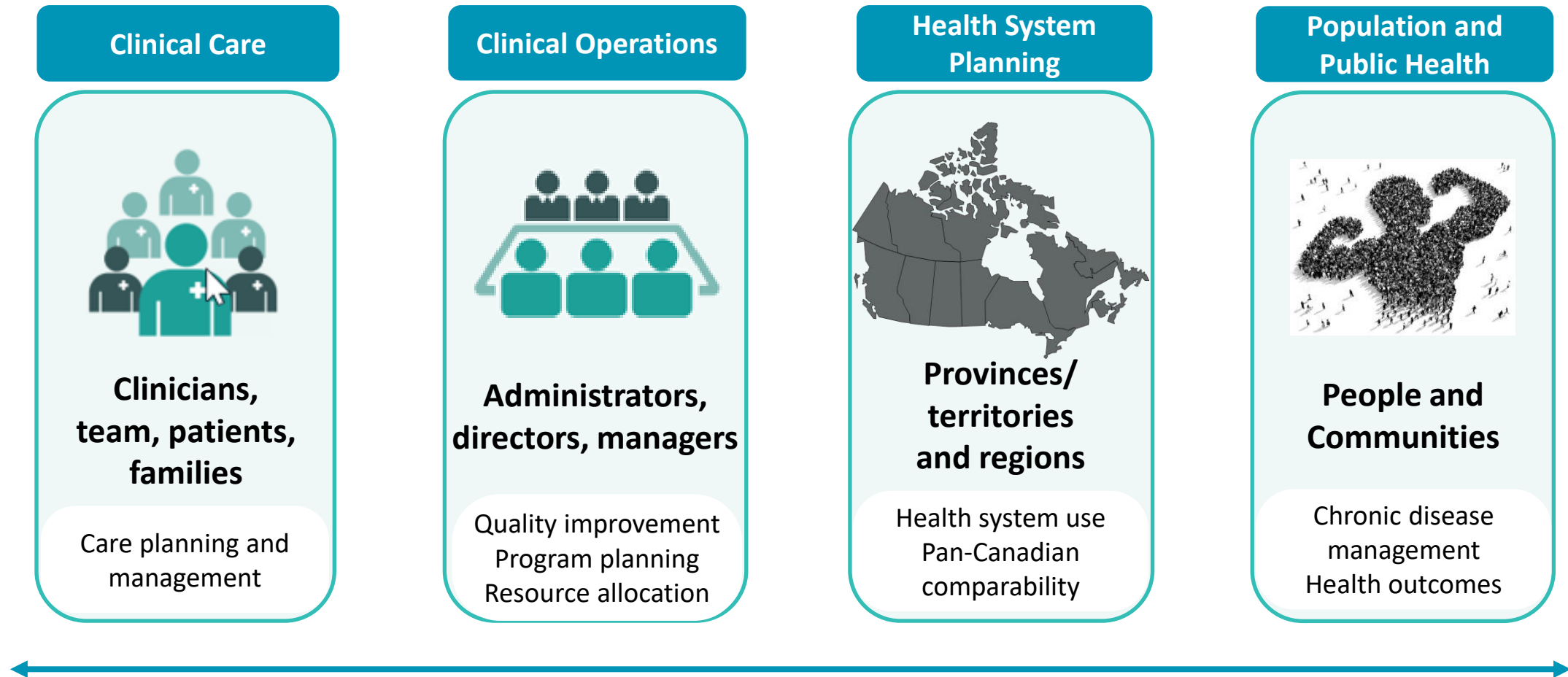


**2. Develop data models** to organize data elements, define how data elements relate to one another, and establish rules for relationships and outputs



**3. Technical standards (data exchange)** leverage semantic standards and modeled relationships to exchange information seamlessly from one data system to another

# The interoperable primary health care common data standard needs to inform ...



# Commonalities across care domains

## Core concepts



Patient



Provider



Allergies



Medications



Immunizations



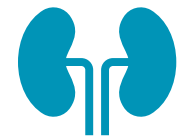
Problem



Diagnostics



Laboratory



Procedures

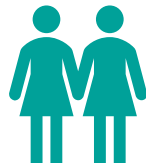
## Primary health care



Care team members



Patient goals



Family history

## Patient Summary-CA



Preferred provider



History of illness



History of procedures

## Acute and ambulatory care



Admission



Triage



Discharge

# PHC Common Data Standard Proposed Modular Approach

## Current state

Overview: Pan-Canadian Primary Health Care EMR Minimum Data Set, Version 1.1

Patient/Client	Clinician/Provider	Service delivery location	Visit/Encounter	Observation	Intervention	Lab tests	Diagnostic imaging	Referral	Prescribed medication	Immunization
<b>Core</b>										
<ul style="list-style-type: none"> <li>• Patient Identifier and Type</li> <li>• Identifier Assigning Authority</li> <li>• Date of Birth</li> <li>• Gender</li> <li>• Status</li> <li>• Postal Code</li> <li>• Race</li> <li>• Indigenous Identity</li> </ul>	<ul style="list-style-type: none"> <li>• Clinician Identifier and Type</li> <li>• Identifier Assigning Authority</li> <li>• Provider Type</li> </ul>	<ul style="list-style-type: none"> <li>• Service Delivery Identifier</li> <li>• Service Delivery Postal Code</li> <li>• Provider Type</li> </ul>	<ul style="list-style-type: none"> <li>• Reason for Visit</li> <li>• Visit Modality</li> </ul>	<ul style="list-style-type: none"> <li>• Health Concern</li> <li>• Social Behaviour</li> <li>• Blood Pressure</li> <li>• Height</li> <li>• Weight</li> <li>• Clinician Assessment</li> </ul>	<ul style="list-style-type: none"> <li>• Intervention (Treatment)</li> </ul>	<ul style="list-style-type: none"> <li>• Lab Test Ordered</li> <li>• Lab Test Name</li> <li>• Lab Test Result</li> </ul>	<ul style="list-style-type: none"> <li>• Diagnostic Imaging Test Ordered</li> </ul>	<ul style="list-style-type: none"> <li>• Referral</li> </ul>	<ul style="list-style-type: none"> <li>• Prescribed Medication</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccine Administered</li> </ul>
<b>Supplementary</b>										
<ul style="list-style-type: none"> <li>• Highest Education</li> <li>• Housing Status</li> <li>• Primary Language</li> <li>• Date of Death</li> <li>• Rostered Date</li> <li>• Ethnicity</li> </ul>	<ul style="list-style-type: none"> <li>• Clinician Expertise</li> </ul>	<ul style="list-style-type: none"> <li>• Service Delivery Name</li> <li>• Service Delivery Type of Service</li> </ul>	<ul style="list-style-type: none"> <li>• Payment Source and Type</li> <li>• Billing Code</li> <li>• Waist Circumference</li> </ul>	<ul style="list-style-type: none"> <li>• Family Member Health Allergies/Intolerances</li> </ul>	<ul style="list-style-type: none"> <li>• Intervention Refusal Reason</li> </ul>	<ul style="list-style-type: none"> <li>• Lab Test Result Low/High Range</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>	<ul style="list-style-type: none"> <li>• n/a</li> </ul>	<ul style="list-style-type: none"> <li>• Medication Strength, Dose, Form, Frequency, Route, Refills</li> <li>• Reason Vaccine Not Given</li> <li>• Reason Not Prescribed</li> <li>• Medication Compliance</li> <li>• Dispensed</li> </ul>	<ul style="list-style-type: none"> <li>• Vaccine Administered</li> <li>• Reason Vaccine Not Given</li> </ul>

## Revision process

**Common data standard development:**

1. Environmental scan
2. Gap analysis
3. Use case development
4. Data model development
5. Code system selection
6. Implement PHC CDS into HL7 FHIR

*Ongoing stakeholder engagement & consultation*

## Timeline

**Primary health care Common Data Standard**

← Ongoing incorporation of stakeholder feedback →

v0.1 (Mar 2023)

v0.2 (Mar 2024)

v1.0 (Mar 2025)

Individual level modules  
Operational level modules  
System level modules

## Future state

<b>Allergies and Intolerances</b> <ul style="list-style-type: none"> <li>• Substance (Medication)</li> <li>• Substance (Drug Class)</li> <li>• Reaction</li> </ul>	<b>Health Status/Assessments</b> <ul style="list-style-type: none"> <li>• Health Concerns</li> <li>• Functional Status</li> <li>• Disability Status</li> <li>• Mental/Cognitive Status</li> <li>• Pregnancy Status</li> <li>• Smoking Status</li> </ul>	<b>Problems</b> <ul style="list-style-type: none"> <li>• Problems</li> <li>• SDOH Problems/Health Concerns</li> <li>• Date of Diagnosis</li> <li>• Date of Resolution</li> </ul>
<b>Assessment and Plan of Treatment</b> <ul style="list-style-type: none"> <li>• Assessment and Plan of Treatment</li> <li>• SDOH Assessment</li> </ul>	<b>Immunizations</b> <ul style="list-style-type: none"> <li>• Immunizations</li> </ul>	<b>Procedures</b> <ul style="list-style-type: none"> <li>• Procedures</li> <li>• SDOH Interventions</li> <li>• Reason for Referral</li> </ul>
<b>Care Team Member(s)</b> <ul style="list-style-type: none"> <li>• Care Team Member Name</li> <li>• Care Team Member Identifier</li> <li>• Care Team Member Role</li> <li>• Care Team Member Location</li> <li>• Care Team Member Telecom</li> </ul>	<b>Laboratory</b> <ul style="list-style-type: none"> <li>• Tests</li> <li>• Values/Results</li> <li>• Specimen Type</li> <li>• Result Status</li> </ul>	<b>Provenance</b> <ul style="list-style-type: none"> <li>• Author Organization</li> <li>• Author Time Stamp</li> </ul>
<b>Clinical Notes</b> <ul style="list-style-type: none"> <li>• Consultation Note</li> <li>• Discharge Summary Note</li> <li>• History &amp; Physical</li> <li>• Procedure Note</li> <li>• Progress Note</li> </ul>	<b>Medications</b> <ul style="list-style-type: none"> <li>• Medications</li> <li>• Dose</li> <li>• Dose Unit of Measure</li> <li>• Indication</li> <li>• Fill Status</li> </ul>	<b>Unique Device Identifier(s) for a Patient's Implantable Device(s)</b> <ul style="list-style-type: none"> <li>• Unique Device Identifier(s) for a patient's implantable device(s)</li> </ul>
<b>Clinical Tests</b> <ul style="list-style-type: none"> <li>• Clinical Test</li> <li>• Clinical Test Result/Report</li> </ul>	<b>Patient Demographics/Information</b> <ul style="list-style-type: none"> <li>• First Name</li> <li>• Last Name</li> <li>• Middle Name (Including middle initial)</li> <li>• Name Suffix</li> <li>• Previous Name</li> <li>• Date of Birth</li> <li>• Date of Death</li> <li>• Race</li> <li>• Ethnicity</li> <li>• Tribal Affiliation</li> <li>• Sex</li> <li>• Sexual Orientation</li> <li>• Gender Identity</li> <li>• Preferred Language</li> <li>• Current Address</li> <li>• Previous Address</li> <li>• Coverage Type</li> <li>• Coverage Number</li> <li>• Relationship to Subscriber</li> <li>• Member Identifier</li> <li>• Subscriber Identifier</li> <li>• Group Number</li> <li>• Payer Identifier</li> </ul>	<b>Vital Signs</b> <ul style="list-style-type: none"> <li>• Systolic Blood Pressure</li> <li>• Diastolic Blood Pressure</li> <li>• Heart Rate</li> <li>• Respiratory Rate</li> <li>• Body Temperature</li> <li>• Body Height</li> <li>• Body Weight</li> <li>• Pulse Oximetry</li> <li>• Inhaled Oxygen Concentration</li> <li>• BMI Percentile (2 - 20 years)</li> <li>• Weight-for-length Percentile (Birth - 24 Months)</li> <li>• Head Occipital-frontal Circumference Percentile (Birth- 36 Months)</li> </ul>

Source: USCDI v3 (2022)

## Deliverables

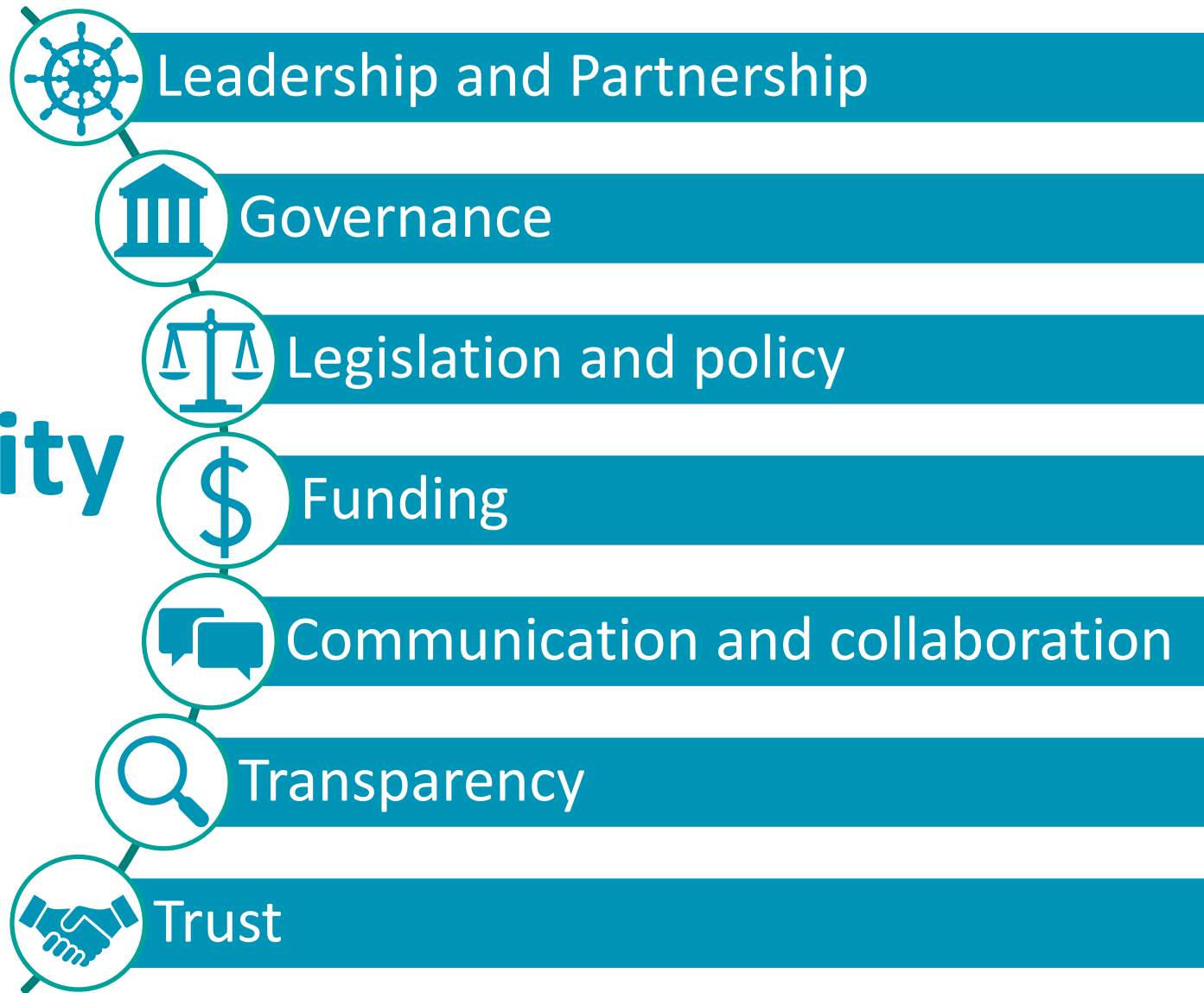
- ✓ Primary Health Care Common Data Standard
- ✓ HL7 FHIR Primary Health Care Data Exchange Model
- ✓ HL7 FHIR Primary Health Care Implementation Guide



## Feeds into

Pan-Canadian Core Data for Interoperability (CA-Core)

# Interoperability enablers



# 3. Governance





# Pan-Canadian Interoperability Governance



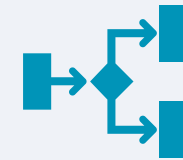
## What it is

A governance approach to guide and facilitate consensus for the selection, design, implementation, adoption and maintenance of pan-Canadian standards and specifications.



## Why it matters

Ensures balanced output and consensus-driven direction, as well as structures and processes to support execution of the roadmap.



## Outcomes

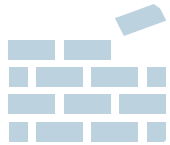
Effective decision-making and accountability for implementation will ensure collective pan-Canadian milestones and goals are met.

# Pan-Canadian Digital Health Interoperability Governance

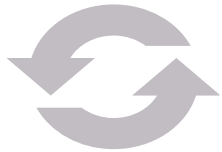
CIHI and Infoway are working collaboratively to develop an inclusive governance approach that leverages existing structures and relationships, to guide and govern pan-Canadian interoperability and health data exchange.



**What we heard:** keep it simple; focus on pan-Canadian; recognize the need to start where we are and incrementally evolve; drive early value through coordination of activities; build in knowledge exchange.



**We are continuing to build forward:** Research and stakeholder engagement activities continue to inform our approach, as do potential changes within the broader health ecosystem.



**The Approach:** Drafted key principles for moving forward with a minimal viable governance. This initial approach will evolve as the landscape and pan-Canadian initiatives evolve.



**Next steps:** We will continue to keep you engaged and informed as this work progresses.

# Timeline: Multi-year, phased approach

Current Area of Focus



## Initiation Phase

May 2022 – March 2023

- Establish Infoway/CIHI Governance working group and project team
- Complete planning & discovery activities (comparative review and research assessment, proposed approach, execution plan)
- Conduct on-going stakeholder engagement
- Plan and host Interoperability Governance Forum (Fall 2022)
- Prepare to launch initial level of governance (Winter 2023)



## Execution Phase

April 2023 – March 2024

- Assess and iteratively evolve governance approach as required to ensure alignment and coordination across initiatives and within broader health ecosystem
- Continue to build consensus and collaboration among jurisdictions and other stakeholders to advance interoperability



## Maturation Phase

April 2024 & Beyond

- Sustain & operate the Interoperability Governance approach, aligned within the broader health system, on an on-going basis



Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé

# We have heard that Canada needs:



A pan-Canadian approach with consistent representation



Maintained pan-Canadian artefacts: founded in use cases and a model-based approach



Adapted HL7 International FHIR maturity model, public reviews and ballots



To establish a path for “grassroots” priorities to filter up and gain pan-Canadian support and alignment



Open and transparent project and operational activities and decisions



Communication mechanisms: Infoway, CIHI, InfoCentral, Dispatch, social media, conferences, and you and others

# What about the CA-Baseline?



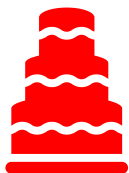
Congratulations on the CA-Baseline. Thank you for the great work and a pan-Canadian starting point



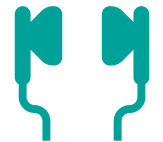
The CA-Baseline will serve as the starting point for the CA-core and the PHC work



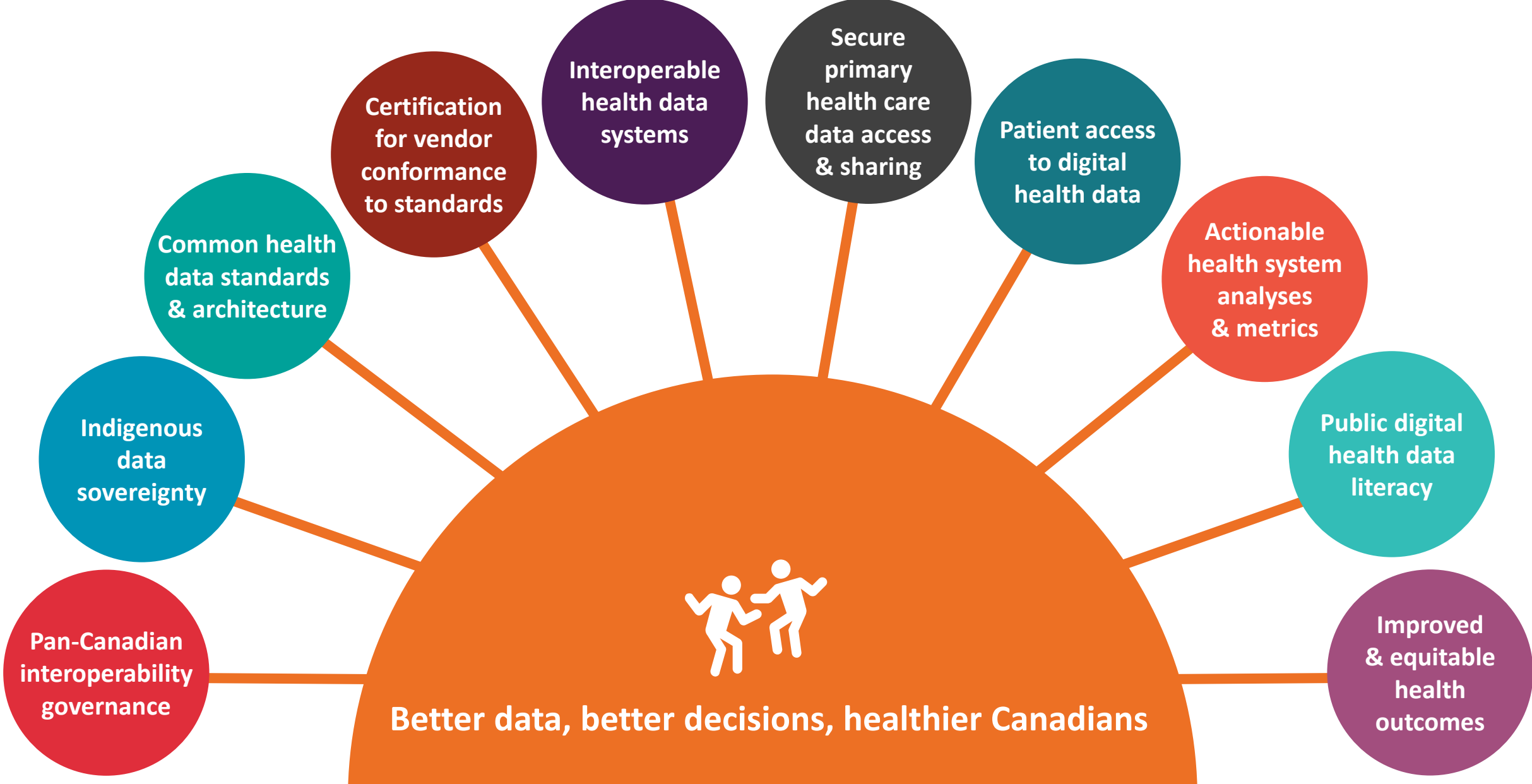
Work in progress: Governance, public review processes, ballot processes, RFC processes and more



The cake is not baked: pan-Canadian input required, and more to come....stay tuned



# CIHI, Infoway and Statistics Canada: Our aspirational big picture



# IT TAKES ALL OF US WORKING TOGETHER



# **Q&A and Discussion**



Canadian Institute for Health Information

Better data. Better decisions. Healthier Canadians.



**Canada Health Infoway**

[Contact us](#)



Canada Health Infoway  
Inforoute Santé du Canada



Canadian Institute  
for Health Information  
Institut canadien  
d'information sur la santé