Canada Health Infoway

Patient Summaries in Canadian Interoperability

Information sharing

Location: Online
Date: June 5, 2023

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Digital Health Interoperability

Objectives

- Quick overview of Infoway and the PS-CA
- Provide insights into our approach to Interoperability
- Projectathon 2023
- Answer questions

Introduction to Infoway

We are an independent, not-for-profit organization funded by the federal government with a history of supporting the highest priority transformational solutions, with a focus on standardization, that improve Canadians health outcomes.

At Canada Health Infoway, we work with governments, health care organizations, clinicians and patients to build a more connected and collaborative system.

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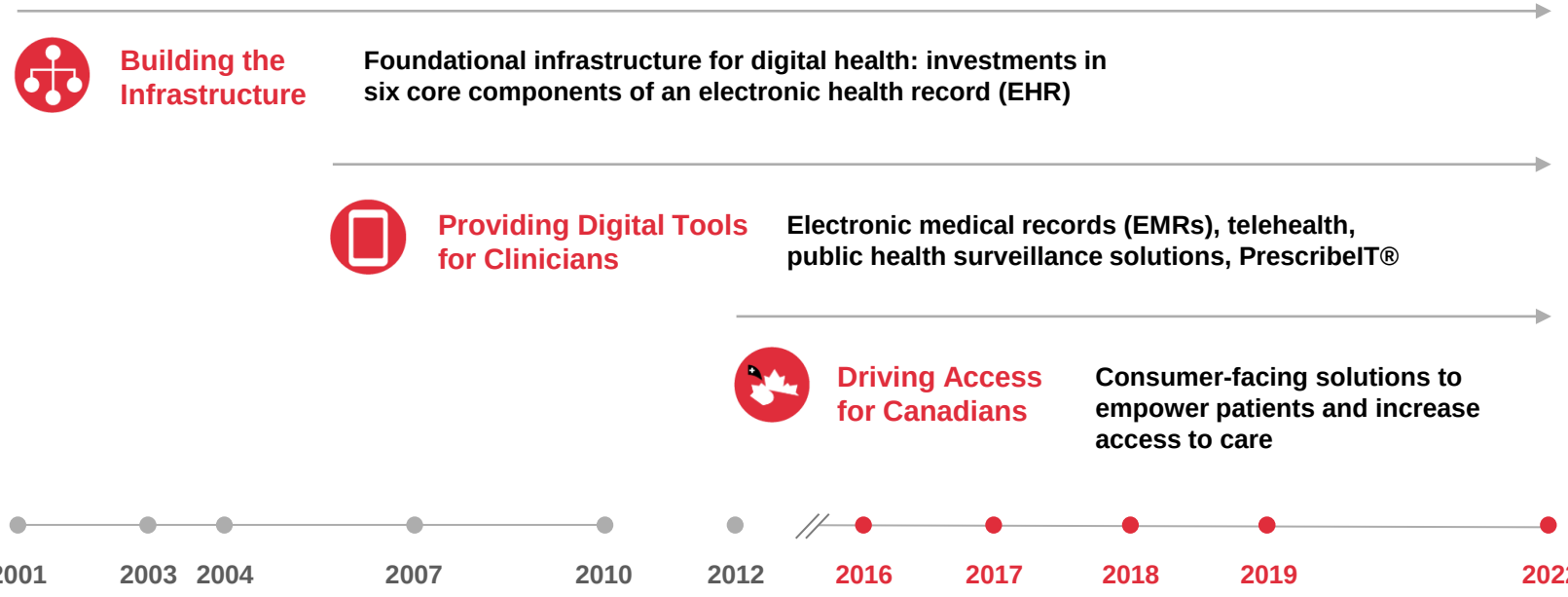
Infoway's Mandates to Date



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Opportunities:
Health Minister's Mandate Letter

"…strengthen our universal public health care system and public health supports, backed by an early **increase of investments in primary and virtual care and mental health services** so all Canadians can get the care they need no matter where they live."

"…advance an integrated, comprehensive and patient-centric strategy, **harnessing the full potential of data and digital systems**…by **expanding virtual care**, helping to cover digital infrastructure and other system improvements so that Canadians can access virtual medical consultations or remote monitoring."

"…expedite work to create a **world-class health data system** that is timely, usable, open-by-default, connected and comprehensive."

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PS-CA and IPS

An implementable, testable specification, based on the International Patient Summary (IPS), as defined by IHE International Patient Summary Specification, HL7 IPS Implementation Guide, CEN-EN 17269 and ISO/DIS 27269.

The PS-CA FHIR profile set is as closely aligned to the HL7 IPS-UV specification as possible, while still supporting localized needs and reducing barriers to early adoption

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

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Solving for specific interoperability priorities, such as Patient Summaries, while also addressing the broader interoperability landscape

2 Conformance testable specifications focused on specific infrastructure or clinical needs, and associated data sets

- IHE IT Infrastructure (ITI) Framework
- Care Coordination including the IHE International Patient Summary (IPS)
- Medication/Pharmacy
- Radiology
- Cardiology
- Lab/Pathology
- Devices
- Others

1 BASE STANDARDS

HL7 v2, v3, CDA | HL7 FHIR | LOINC | SNOMED | DICOM | ICD9/10

The pan-Canadian Patient Summary specification (PS-CA) is a level 2 specification

1 **Adoption of Base Standards is not enough**
- Projects and vendors across the country use base standards but there is lack of harmonization across implementations

2 **Interoperability requires harmonization of testable specifications** across public and private sector implementers
- **There is a growing body of testable specifications in use by multiple countries and healthcare sectors**
- The diagnostic imaging sector is most mature in embracing testable specifications

An integrated and harmonized collection of specifications, policies and infrastructure is required to enable wider interoperability

In a few weeks Infoway will introduce a Proposed pan-Canadian Interoperable Reference Architecture to stimulate a conversation on a key dimension of the wider Interoperability landscape

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pan-Canadian PS Specifications - Project Scope (R1)

An overview

Project Background

Patient Summary-CA – **A national collaborative effort of developing a pan-Canadian implementable specification**

Project Approach

Baseline: Develop foundational Use Cases and Business Requirements for pan-Canadian Patient Summaries based on **collaborative workshopping** with jurisdictions, industry, clinical expert and other relevant organizations

Collaborate: Collaborate with jurisdictions, clinical SMEs, technical SMES, vendors, participating organizations to develop and refine detailed artefacts

Review: Review and provide feedback into artefacts through engagement workshops and input gathering

Publish: Publish artefacts for broader stakeholder consultation

Recommend: Recommend draft artefacts for approval

Iterate: Continue to refine as per testing and priorities

Jurisdictional Alignment

Stakeholder Engagement has identified a set of common use cases for the pan-Canadian Patient Summary, **Release 1** prioritizes these 3.

Use Cases in Scope for Release 1	AB	BC	NL	ON	SK
1. Health Care Provider (HCP) Creates and submits a Patient Summary-CA	x	x	x	x	x
2. Health Care Provider (HCP) Retrieves, Views and Uses a Patient Summary-CA	x	x	x	x	x
3. Patient Accesses and Views their Patient Summary-CA	x	x	x	x	

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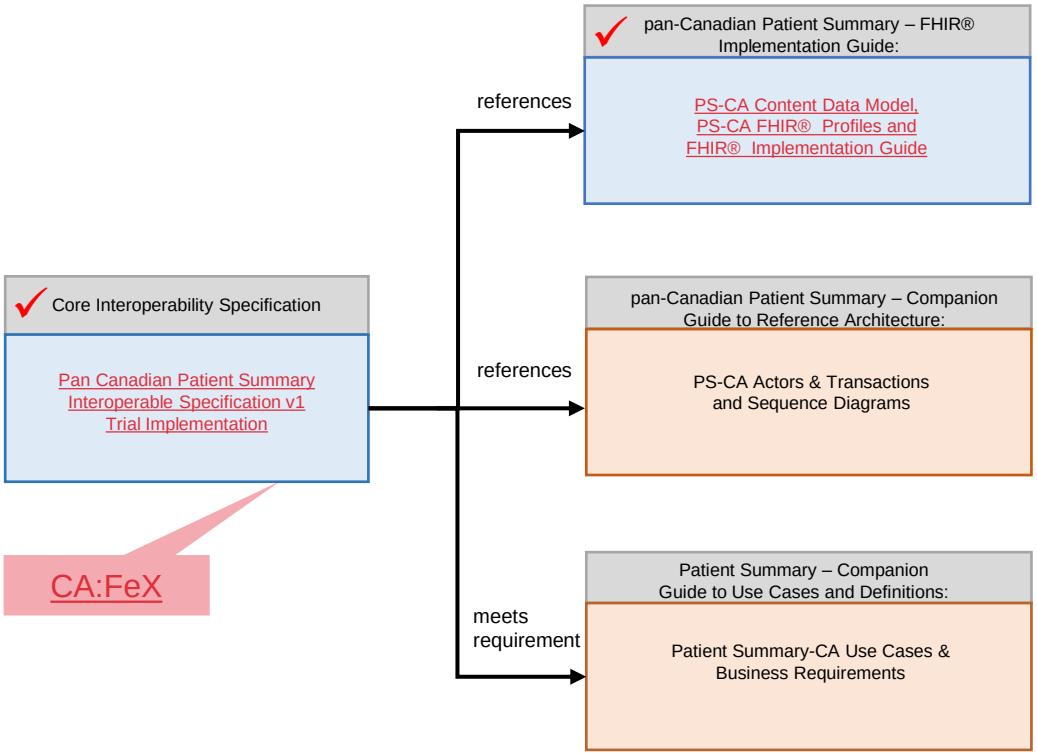
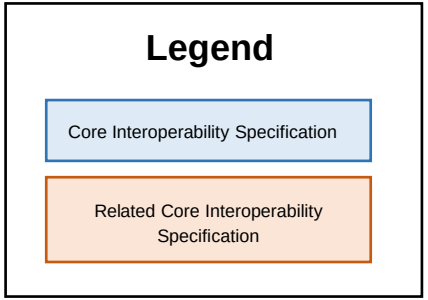
Patient Summary PS-CA Specification Package

The pan-Canadian Patient Summary specification (PS-CA) is a level 2 specification



Link to specification package



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Cross-jurisdictional PS-CA Building Blocks Prioritization

Patient Summary-CA: Data Domains of Interest by Canadian Jurisdiction and Release

	IPS-UV		PS- CA	AB	BC	MB	NL	ON	SK	v1.0.0 TI	Future
Header	Subject	Header	Subject								+
	Author		Author								+
	Attester		Attester								+
	Custodian		Custodian								+
Required	Medication Summary	Recommended	Medication Summary								+
	Allergies and Intolerances		Allergies and Intolerances								+
	Problem List		Problem List								+
Recommended	Immunizations		Immunizations								+
	History of Procedures		History of Procedures								+
	Medical Devices		Medical Devices								
	Diagnostic Results		Diagnostic Results								
Optional	Vital Signs	Optional	Vital Signs								+
	Past history of Illness		Past History of Illness								+
	Social History		Social History								+
	Advance Directives		Advance Directives								
	Pregnancy		Pregnancy								
	Functional Status		Functional Status								
	Plan of Care		Plan of Care								
		EXT	Extension(s)								
			Family History								+

Infoway has orchestrated a collaborative process to
- reach consensus on priorities
- consolidate requirements
- conduct detailed data analysis to understand jurisdictional needs and the required flexibility for the design of PS-CA building blocks

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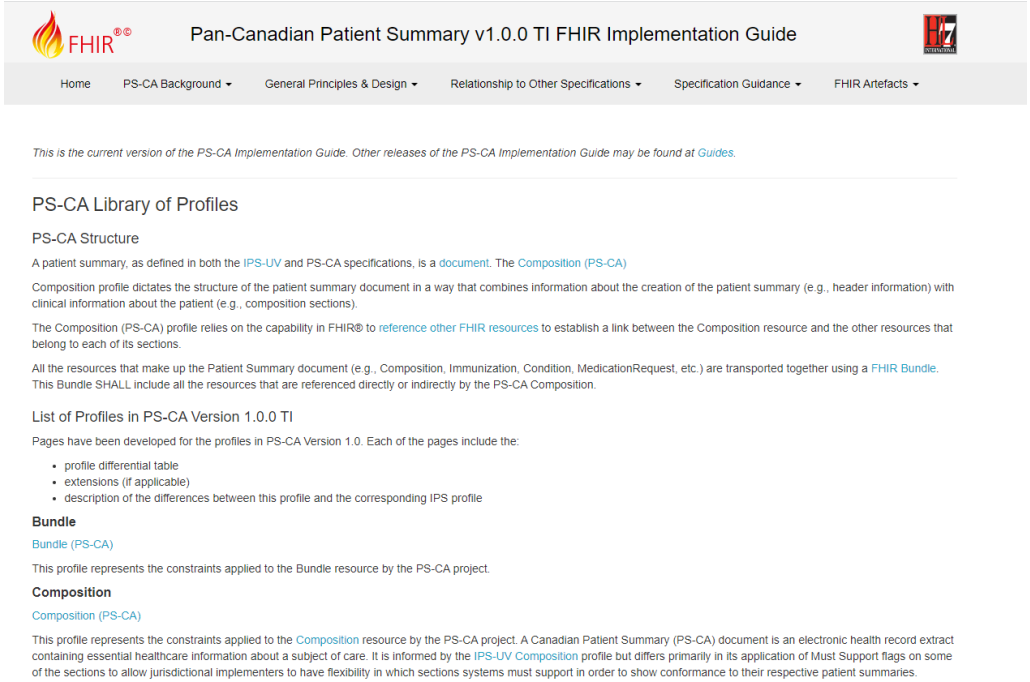
The pan-Canadian Patient Summary FHIR Implementation Guide & HL7 FHIR® Profiles

- **The pan-Canadian Patient Summary - FHIR Implementation Guide** is an implementable, testable specification for the FHIR composition that defines the data payload of the PS-CA specification and is based on the HL7 FHIR IPS implementation guide
- **The PS-CA FHIR Profiles** are implementable, testable data content models that reflect configurable building blocks for creating a well formed pan-Canadian Patient Summary as a FHIR document

Link to PS-CA FHIR bundle



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Integration Profiles – Reference Architecture

Reference Architecture Overview

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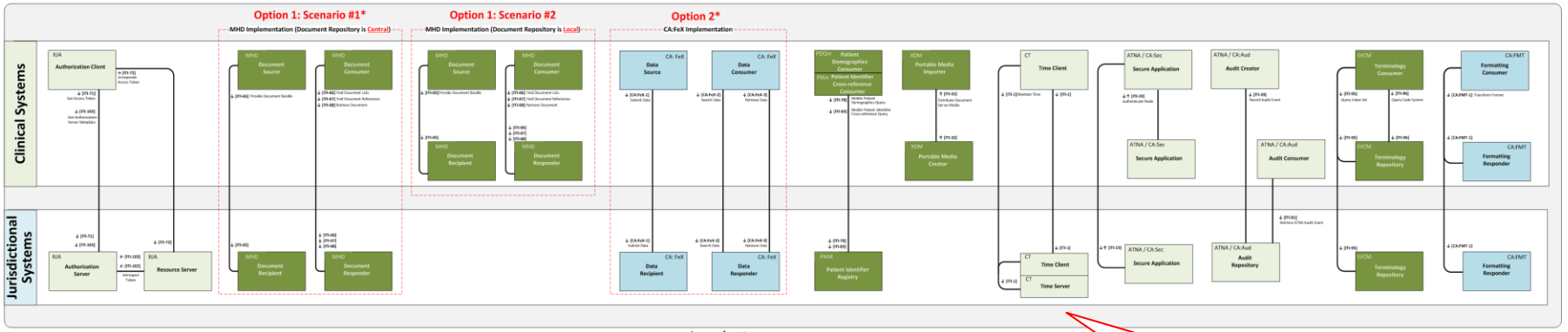

IHE Profiles

IUA	Internet User Authorization
ATNA	Audit Trail and Node Authentication
CT	Consistent Time
MHD	Mobile access to Health Documents
PMIR	Patient Master Identity Registry
PDQm	Patient Demographics Query for Mobile
PIXm	Patient Identifier Cross-Reference for Mobile
XDM	Cross-enterprise Document Media Interchange
SVCM	Sharing Valuesets, Codes and Maps

Canadian Specifications and Guidance

CA:FeX	Canadian FHIR Exchange
CA:FMT	Canadian Formatting Service
CA:Sec	Canadian Network Security (based on ATNA)
CA:Aud	Canadian Audit Trail (based on ATNA)

*Preferred Option

Legend

Legend: actors

Core IHE Actor | Actor with further Implementation Guidance | Actor part of a National Extension | Actor part of a new Canadian Specification

An approach allowing for a standardized set of eco-system capabilities, capable of supporting scalable growth without imposing deployment architectures

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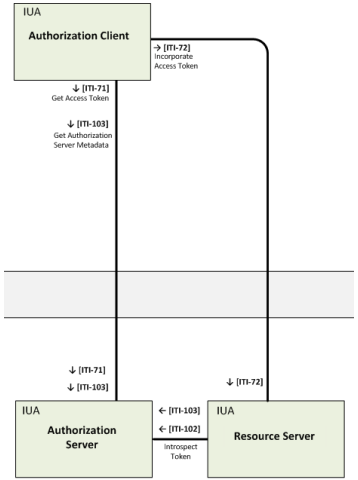
Integration Profiles in Vendor Systems

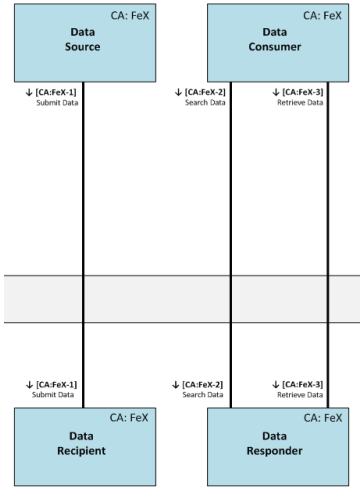


Clinical System (e.g., EMR, HIS, etc.)

Vendor systems can compete on everything they choose to, except for the interoperability profiles they claim to support

IUA Authorization Client	CA:Sec (ATNA) Secure Application	CA:FeX Data Source / Data Consumer

This vendor system claims they can operate as a secure node, authorize their users and submit and receive Patient Summaries (three Profiles, four Actors)



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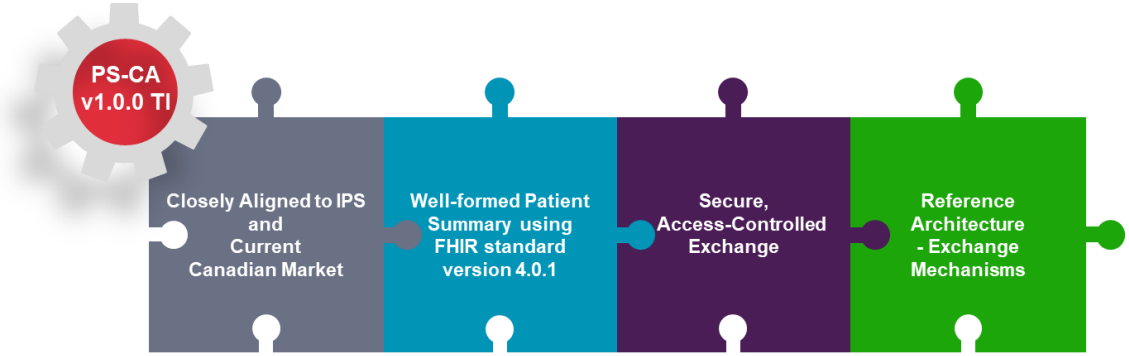
Projectathon 2023

Vendors had an opportunity to test and demonstrate capabilities in two distinct areas of the specification:

A. Document format and content,
B. Secure, exchange transactions.

Implementing the Standards into Clinical Systems



Vendors build in the **existing, standardized, modular components,** as defined in the specifications

Clinical System (e.g., EMR, HIS, etc.)

Vendor systems **can compete on all product features**

IUA Authorization Client	CA:Sec (ATNA) Secure Application	CA:FeX Data Source / Data Consumer

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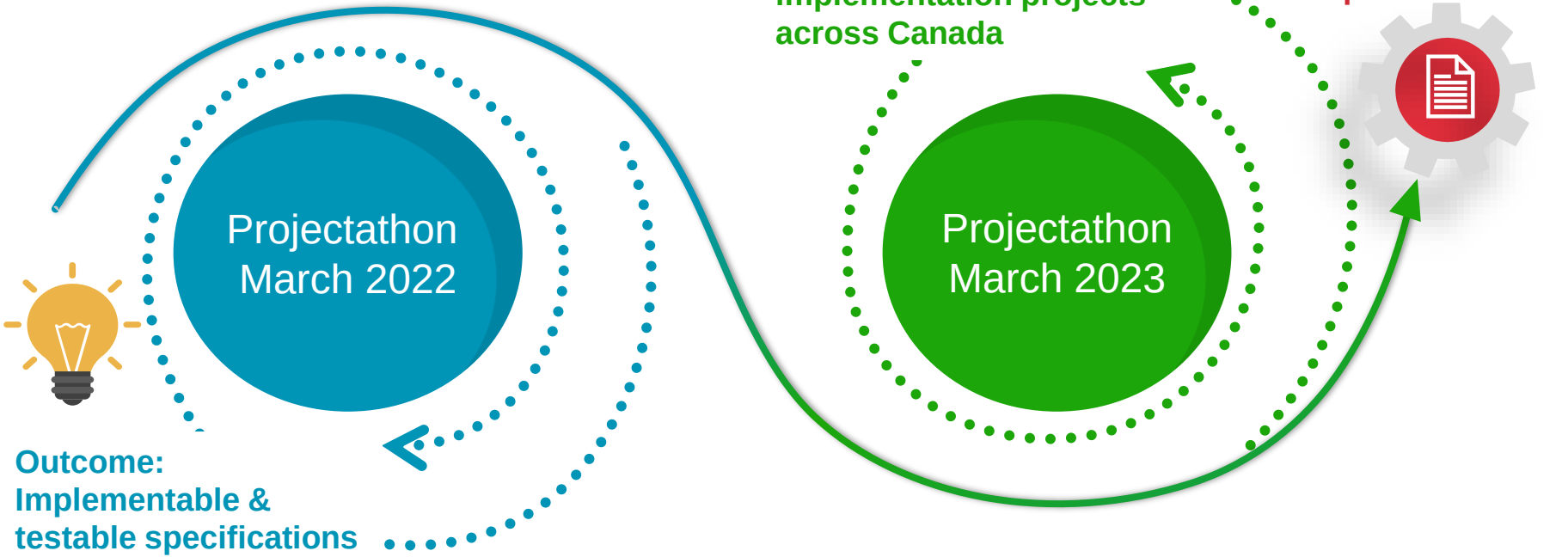
Projectathon 2022/23



Outcome:
Implementable & testable specifications

Focus:
Patient Summary implementation projects across Canada

Patient Summary Implementations

Read more about the Projectathon: Pan-Canadian Projectathon final report

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B. Testing Secure, Exchange Transactions

Implementation patterns may differ from jurisdiction to jurisdiction and information exchange channels may vary in terms of their security footprint.

Therefore, the Projectathon test cases have been organized into two categories:

Category 1 - Test cases that test **individual actor capabilities in isolation**, e.g., how a system can handle encrypted transactions, how a system can handle a CA:FeX transaction, how a system can handle an OAuth 2 token exchange, etc.

Category 2 - Complex test cases that **group individual actor capabilities with other relevant actor capabilities to simulate real world scenarios,** e.g., how a patient summary creator system can submit the document to a repository by using an OAuth 2 integration, etc.

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Projectathon Testing: Integration Profiles

1. **CA:FeX** — Implementable, testable interoperability specification based on HL7 FHIR. Defines building blocks to enable creating, consuming and sharing clinical data via FHIR RESTful exchange patterns.
2. **MHD** — Defines one standardized interface to health document sharing. This profile is applicable to systems where needs are simple, such as pulling the latest summary for display.
3. **IUA** — Provides an authorization profile for the HTTP restful transactions. Ensures that the users (e.g., Patient, provider, etc.) and applications requesting access to the FHIR document (e.g., Patient summary) are authorized to have access.
4. **CA:Sec** — Specifies the foundational elements needed to securely execute transactions between two systems. Based on the ATNA profile and aims to bring improvements via loose coupling, with focus on node and application security.
5. **CA:Aud** — Specifies the foundational elements needed to perform event logging for auditing purposes. It is based on the ATNA profile and aims to bring improvements via loose coupling with focus on auditing using modern formats and technologies.
6. **CT** — Provides a means to ensure that the system clocks and time stamps of the many computers in a network are well synchronized.

To learn more about the integration profiles, go here.

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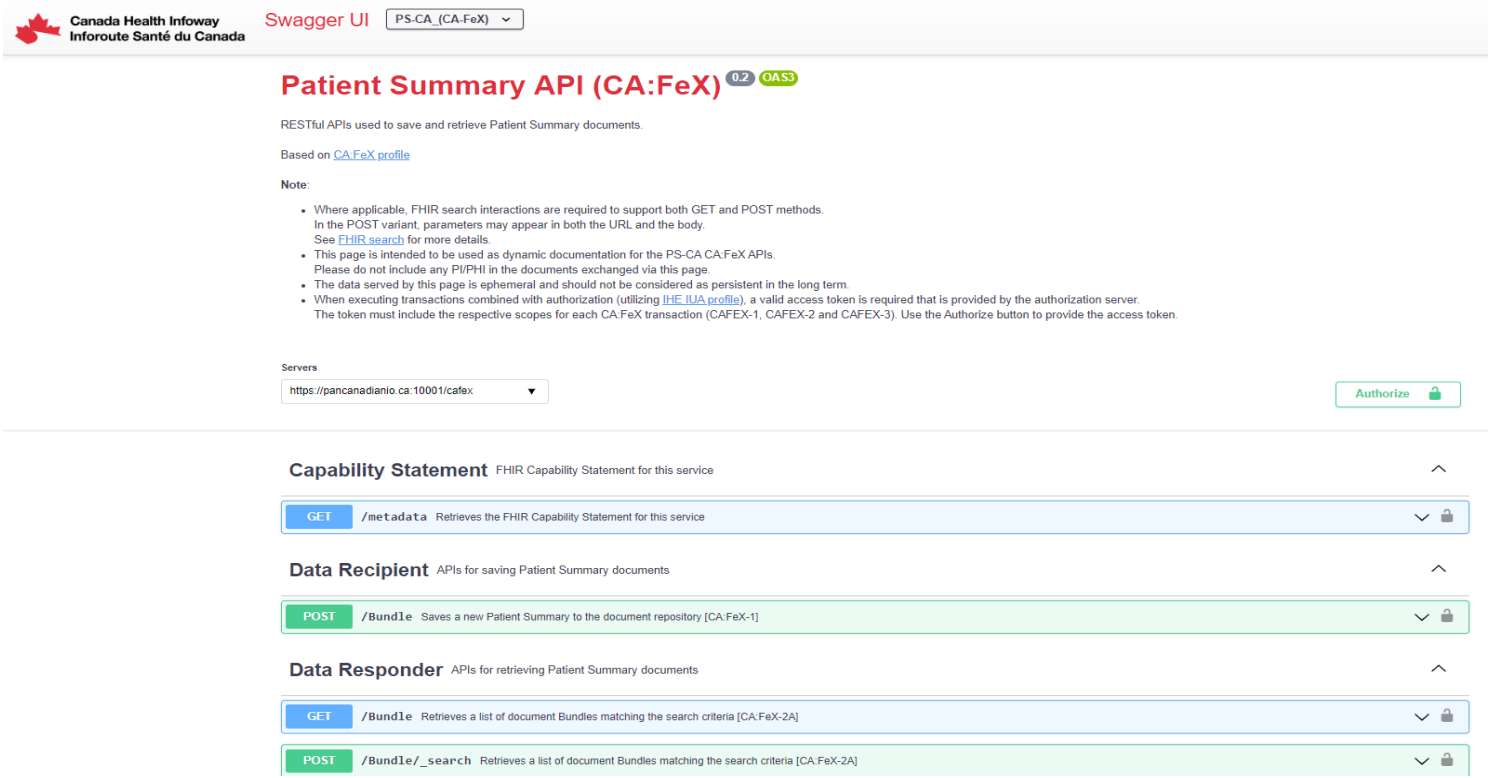
CA:FeX, MHD, IUA Simulators



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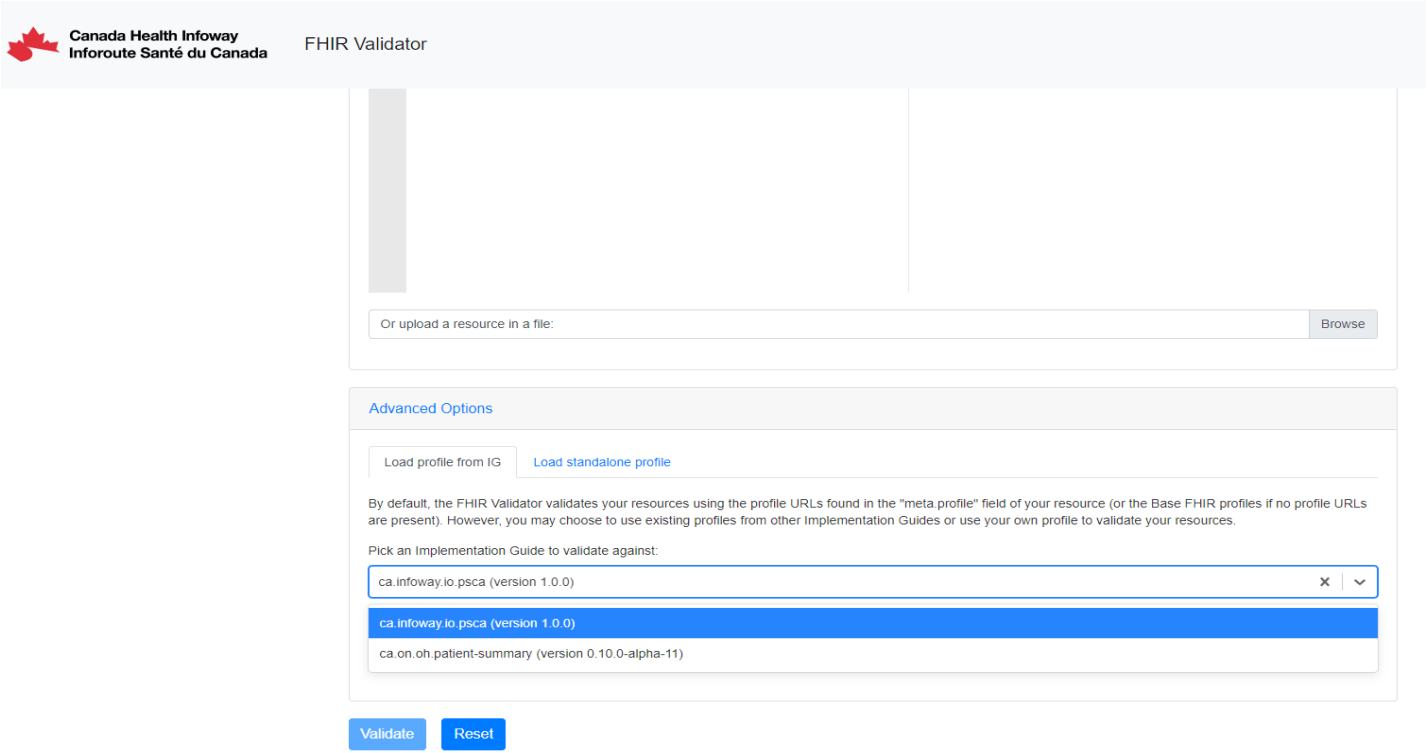
Validators and Renderers



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Projectathon Testing Days

- The purpose of the Projectathon was to test the PS-CA and PS-ON (Ontario patient summary implementation guidance) specifications with a focus on both content and exchange
- Nine vendors completed over 200 tests both individually and collaboratively related to:
  - Security and authorization
  - Transport of a patient summary
  - Assessment of FHIR documents against PS-CA and PS-ON
- **7/9** vendors were able to successfully interact with the retrieve data transaction
- **2/9** vendors were able to demonstrate the ability to create a well-formed patient summary (PS-CA) document
- **One** vendor was able to partially demonstrate ability to create a well-formed PS-ON document
- **All** vendors showed some capability of being able to submit a patient summary (either via a PS they created or a sample that was provided

Participating Systems from:

TELUS Health, VeroSource Solutions, akinox, smile DIGITAL HEALTH, ORACLE, VERTO, enovacom, WELL Health, MICROQUEST

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Total Profiles Tested	Total Tests Conducted	Total No-Peer Tests	Total Peer-to-Peer Tests	Total Submitted PS-CA Tests	Total Submitted PS-ON Tests
6	203	144	59	3	1

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Symposia day

1. Keynote: International Interoperability Experience: Switzerland. Participants learned about eHealth Suisse's interoperability experience, key takeaways and next steps. This was an interactive session with questions and answers throughout, hosted by Martin Smock.

2. **Primer to the pan-Canadian Interoperability Strategy & Shared Roadmap.** Participants learned about the pan-Canadian strategy to achieving connected care and associated key initiatives.

3. **Canadian FHIR exchange (CA:FeX) v2.0.0 draft.** Participants learned about the next iteration of CA:FeX and how it can help drive modernization of health information exchanges.

4. **Clinical session: Achieving pan-Canadian alignment on data elements.** Participants joined an open, interactive discussion about the opportunities for achieving pan-Canadian interoperability. During this session, clinicians shared their thoughts and recommendations on several topics.

The presentation materials and session recordings are available here.

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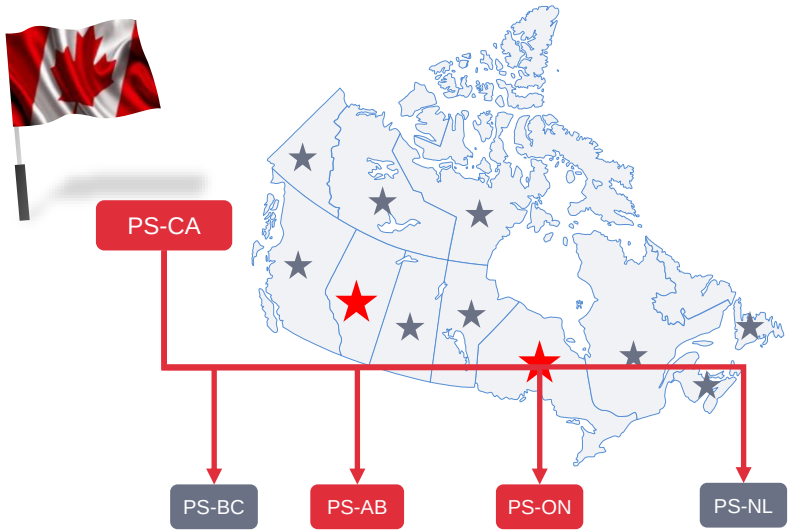

As the Patient Summary (and other initiatives such as eReferral) evolve and implementations expand across the country, a formal **decision-making** approach to **achieve alignment** is needed **to solve for differences** (e.g., legislation, policy, clinical workflow, terminology, technical, etc.)

Committing to a **core pan-Canadian approach** (e.g., core data model, minimum must support values, cardinality, etc.) requiring **minimal configurations** to meet **intra-jurisdictional needs** without limiting the future of **inter-jurisdictional exchange.**

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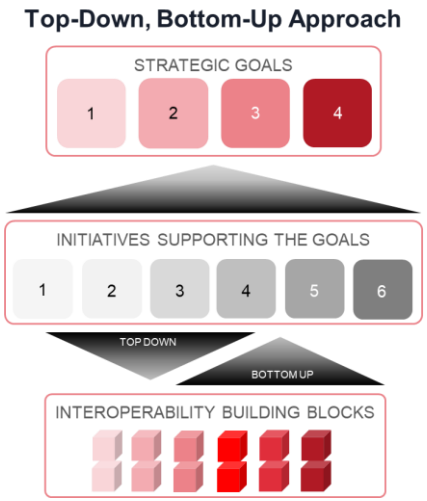
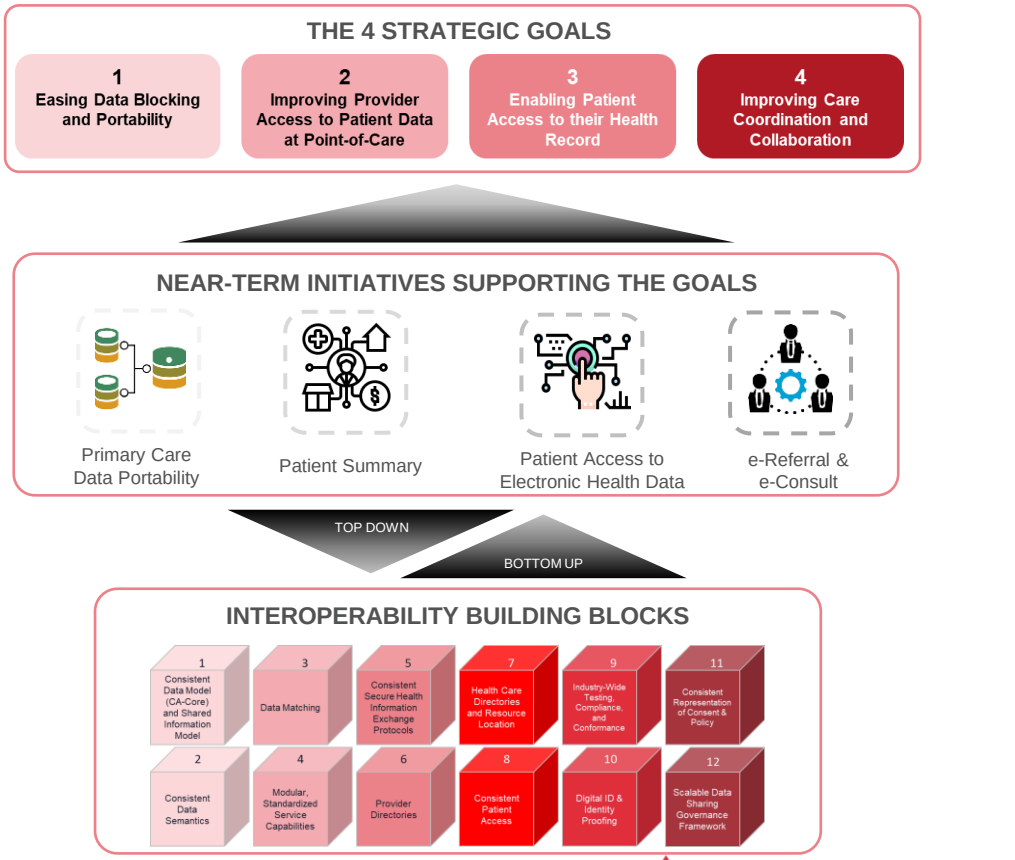
A Comprehensive Approach To Advance Pan-Canadian Interoperability





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Q & A

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Thank you!

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