

IPA & IPS: Peanut Butter and Jelly, Better Together

Bryant Karras, Isaac Vetter, Jason Vogt, Matthew Rahn



HL7 FHIR DevDays 2024 | Minneapolis, MN | June 10-13, 2024 | @HL7 | @FirelyTeam | #fhirdevdays | www.devdays.com

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HL7[®]
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Speakers



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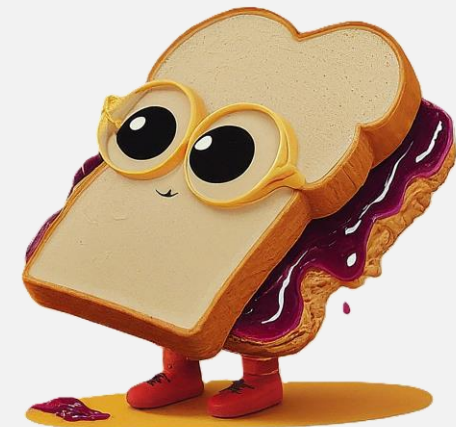
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*Standards Director, Office of
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Session Agenda

- IPA & IPS
- WVeri+ Case Study of using “IPA servers” for “IPS Documents”
- Global Digital Health Partnership (GDHP) & Interoperability Support
- Provider to provider IPS



Origins of Peanut Butter & Jelly

1901



Peanuts and Pralines
 By Julia Davis Chandler

WE must regard the peanut with respect, not derision, since Edward Atkinson estimates that soon the peanut crop will be of more value to the United States than the cotton crop. Peanut pastes and butters are made in many ways, and are called by various names, as pralines,—a general term for nuts cooked in sugar.

A Creole dish for state occasions is bombe pralines and fruits.

At a pretty dinner recently given in Philadelphia, burnt almonds were used in the centre cream, while the outside was an apricot ice, or sherbet, as some call it.

The following is a recipe from a Creole family in Louisiana:—

Bombe Pralines aux Fruits
 Sauté three ounces of blanched almonds in one-half ounce of fresh butter and one ounce of fine sugar. When a deep brown, pound quickly till smooth, and mix with rather less than a pint of whipped cream and freeze. Line a bombe mould about an inch thick with this ice, and fill with half a pint of sweetened whipped cream, mixed with a wine-glass of kirsch and stoned fresh fruits, which have been cut and tossed in a syrup flavored with kirsch. Stoned cherries are particularly nice this way.

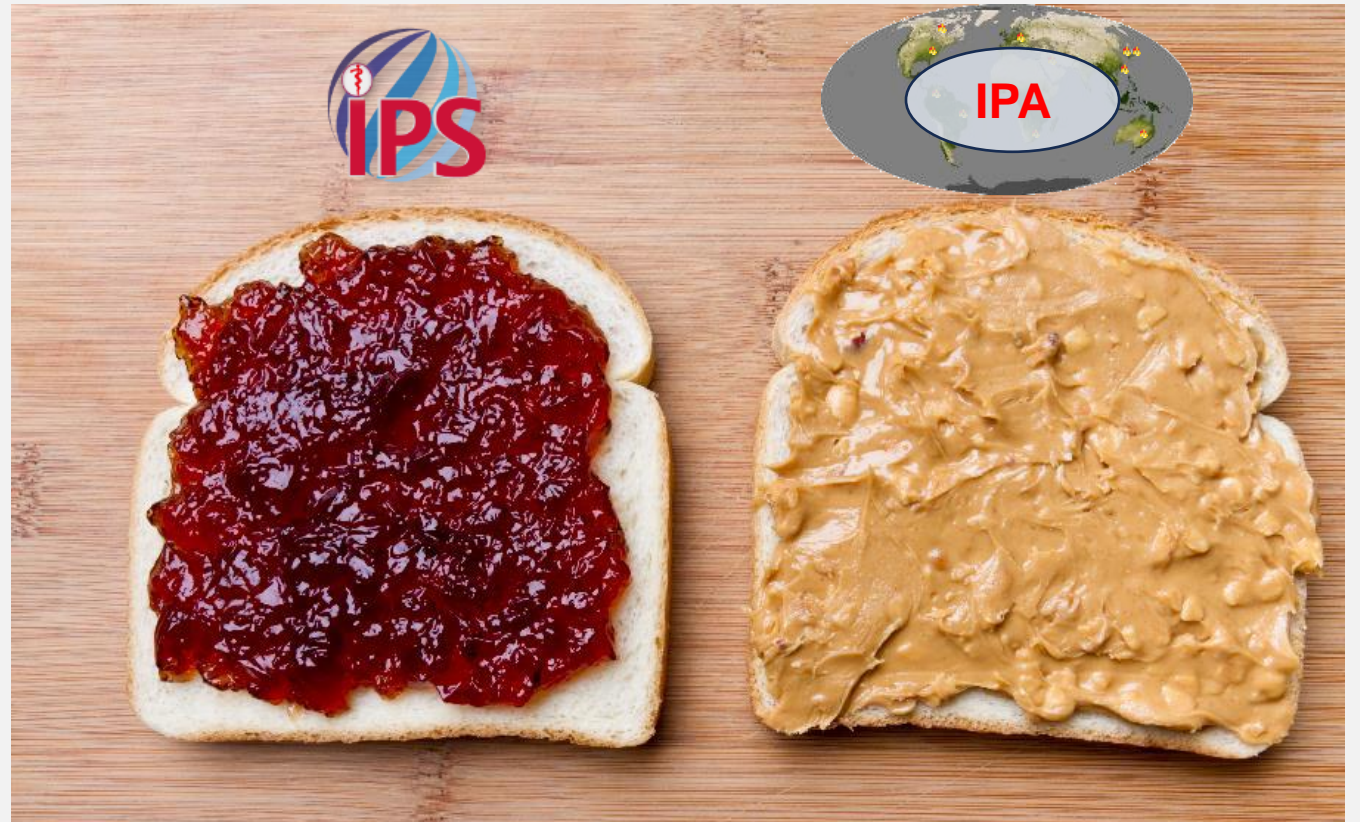
Creole Coconut Pralines
 Boil a cup of granulated sugar in half a cup of water until brittle. Add butter the size of a walnut. Put in plenty of shaved coconut, and cook a few minutes. Drop on buttered tins, or plates, or oiled paper. These may be made of white sugar, and either left white, or colored pink with vegetable coloring. Sometimes the coconut is used with brown sugar, but not usually. Peanuts are called in the South "goobers," also "pindars" or ground-nuts. A little Northern child, staying South, hesitated about accepting "sugared goobers," but

For variety, some day try making little sandwiches, or bread fingers, of three very thin layers of bread and two of filling, one of peanut paste, whatever brand you prefer, and currant or crab-apple jelly for the other. The combination is delicious, and, so far as I know, original

‘For variety, some day try making little sandwiches...of bread and two fillings, one of peanut paste, whatever brand you prefer, and currant or crab-apple jelly. The combination is delicious, and as far as I know, original’

2024

For better care, some day try making patient summaries using FHIR documents with IPA content. Allergies, medications and problems are required ingredients. The combination is delicious, and as far as I know, interoperable



Track Proposal

Is global interoperability your **jam**? Join us for an introduction to two delectable FHIR projects – **International Patient Access (IPA)** defines a universal realm API for apps and **International Patient Summary (IPS)** enables cross-border care summary exchange. While the initiatives sound similar, they solve different goals in complementary ways and **pear** great! Both are intended for global use and are already in use by multiple countries. And when deployed, they work **grape** together to meet the emerging mix of national and regional standards that facilitate interoperability.

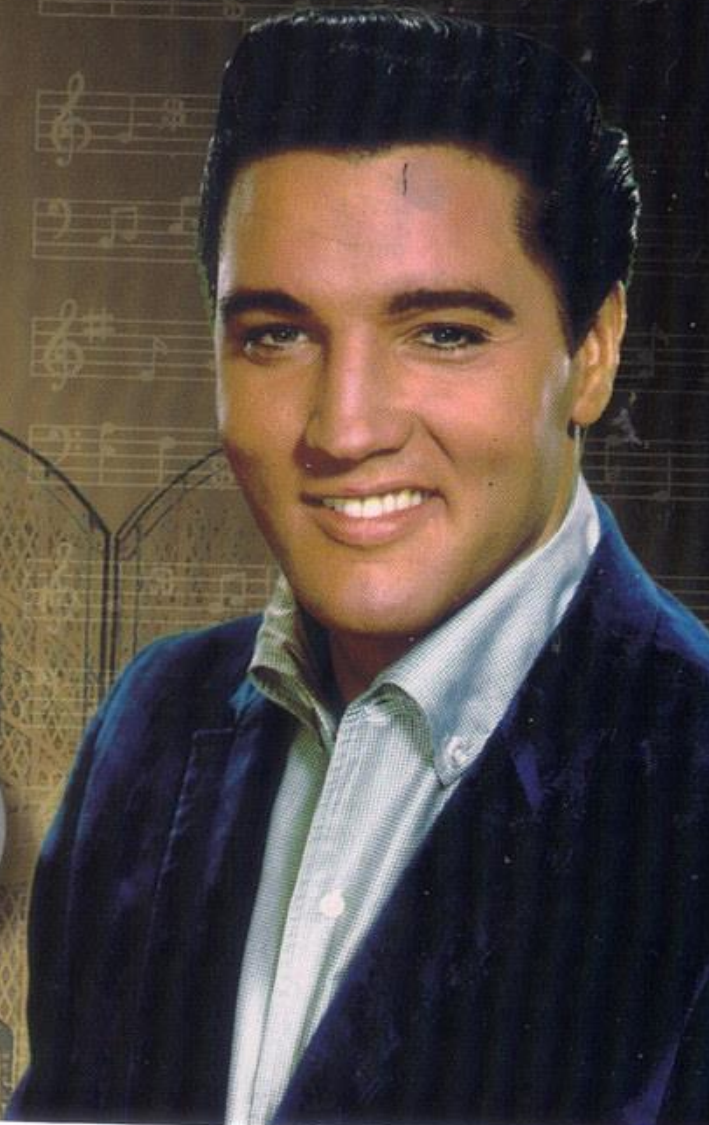
Learn how these two complementary (and scrumptious) FHIR implementation guides work and how the Global Digital Health Partnership (GDHP) is supporting their advancement worldwide.



PEANUT BUTTER & JELLY + BANANA SANDWICHES

- 2 large bananas
- 6 slices white bread
- 1 stick (1/2 cup) butter
- 1 cup peanut butter

Peel and mash bananas. Mix peanut butter with bananas thoroughly. Toast bread lightly and spread mix on bread. Melt butter in skillet and brown sandwiches on each side slowly until golden brown.



What is the IPS (International Patient Summary)?

- A standardized set of basic clinical data, which includes most important health and care related facts
- A summarized version of a patient's clinical data provides health professionals the essential information needed for care during a care transition



The International Patient Summary is a minimal and non-exhaustive set of basic clinical data of a patient, specialty-agnostic, condition-independent, but readily usable by all clinicians for the unscheduled (cross-border) patient care.

International IPS Progress (Canada)


By the Numbers



203
tests executed



9
participating vendors



4
symposia sessions

Open Source ▾

Pan-Canadian Projectathon

In collaboration with the provinces and territories, Infoway invited vendors to participate in our second Projectathon, held March 20-23, 2023. Projectathons are an important step and best practice approach in testing and validation of a specification package. The March 2023 Projectathon was dedicated to supporting Patient Summary implementation projects across Canada, convening vendors to test and collaborate on the specific use cases within the PS-CA. Among other objectives, the event sought to:

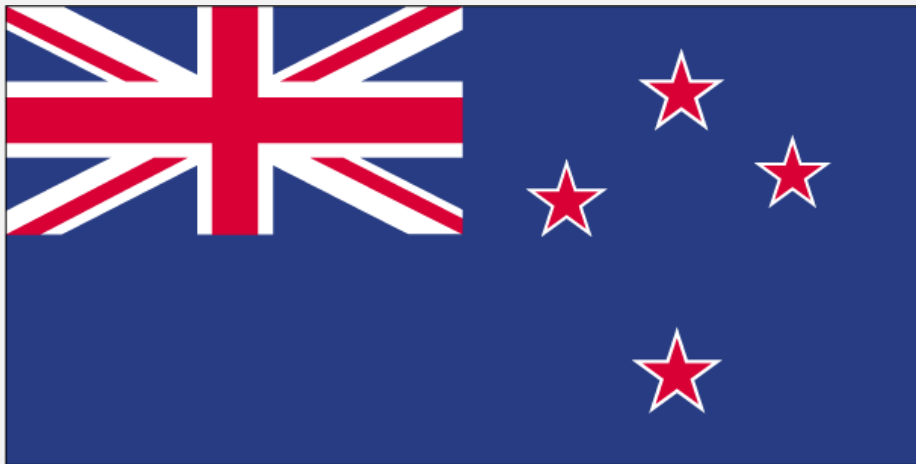
- Enable vendors to demonstrate the ability to implement the IPS-aligned PS-CA and pan-Canadian FHIR Exchange (CA:FeX) specifications for the secure exchange of well-formed patient summaries
- Communicate next steps and future planning for the Shared Pan-Canadian Interoperability Roadmap, especially regarding PS-CA and CA:FeX specifications

The 2023 Projectathon represented a significant milestone in our journey toward pan-Canadian interoperability. Learnings from the event will be aligned with Infoway's vendor mobilization strategy, complementary to the Shared Pan-Canadian Interoperability Roadmap, and Infoway will continue to work toward progressing pan-Canadian interoperability initiatives.

Learn more about Projectathon 2023 by checking out our final [report](#) or go behind the scenes by tuning in to our [podcast episode](#).



International IPS Progress (New Zealand)



The screenshot shows a website header with the 'bes' logo and navigation links: 'What we do', 'Products', 'Our Stories', 'About', and a red 'Contact Us' button. The main heading reads 'We're launching our International Patient Summary' with a breadcrumb trail 'Home / Our Stories / We're launching our International Patient Summary'. Below this is a paragraph: 'We are proud to be launching Tamaru's International Patient Summary (IPS) this week at a dedicated Connectathon during Health Informatics New Zealand conference in Hamilton NZ. This event draws together global digital health providers for the purpose of showing off their IPS implementation and sharing ideas on patient data exchange as they move between services and countries.' The page features the Tamaru logo (a location pin icon with a plus sign) and a form titled 'International patient summary'. The form text says 'Please enter the patient date of birth to access the International Patient Summary' and includes a date input field with a calendar icon and an 'Enter' button. A photograph of a smiling healthcare worker in a clinical setting is visible on the right side of the page.

International Patient Access

- RESTful APIs: SMART, search parameters
- Minimal profiles: reflect current state
- Terminologies specified locally



HL7 International	International Patient Access 1.0.0 - STU1 	 HL7 FHIR
Home Conformance Using The API ▾ Security and Privacy Artifact Index ▾ Support ▾		
Table of Contents > International Patient Access		
This page is part of the International Patient Access (v1.0.0: STU 1) based on FHIR R4 . This is the current published version. For a full list of available versions, see the Directory of published versions		
<h2>1 International Patient Access</h2>		
Official URL: http://hl7.org/fhir/uv/ipa/ImplementationGuide/hl7.fhir.uv.ipa	Version: 1.0.0	
Active as of 2023-02-01	Computable Name:	



AU Core Implementation Guide, published by HL7 Australia. This is not an authorized publication; it is the continuous build for version 0.2.1. This version is based on the current content of <https://github.com/hl7au/au-fhir-core/> and changes regularly. See the [Directory of published versions](#)







3.2 Comparison with other national and international specifications

Page standards status: [Informative](#)

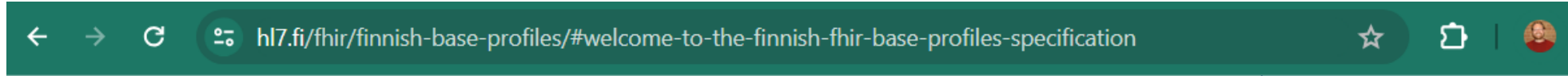
A resource may be conformant to multiple implementation guides. In addition to the core FHIR specification, a resource conformant to an AU Core profile may be conformant to profiles published project implementation guides, other national, or international implementation guides.

The table provides a high-level comparison, indicating if a resource conformant to a particular AU Core profile also satisfies (i.e. is conformant to) a profile from [International Patient Access](#), [International Patient Summary](#), or [US Core](#).

Conformance in reverse is not guaranteed, i.e. a resource conforming to [International Patient Access](#), [International Patient Summary](#), or [US Core](#) **MAY NOT** conform to AU Core.

AU Core ↗	International Patient Access ↗	International Patient Summary ↗	US Core ↗
AU Core Alcohol Status	IPA-Observation ↗ 		US Core Simple Observation ↗ 
AU Core AllergyIntolerance	IPA-AllergyIntolerance ↗ 	Allergy Intolerance (IPS) ↗  if patient is supported as AllergyIntolerance.patient.reference	US Core AllergyIntolerance ↗ 
AU Core Assertion of No Relevant Finding	IPA-Observation ↗ 		

Finland Base inherits IPA



1.1 Welcome to the Finnish FHIR Base Profiles Specification

This implementation guide specifies the Finnish FHIR base profiles.

This is an R4 IG. None of the features it uses are changed in R4B, so it can be used as is with R4B systems. Packages for both R4 ([hl7.fhir.fi.base.r4](#)) and R4B ([hl7.fhir.fi.base.r4b](#)) are available. There is no plan yet to base this implementation guide on FHIR R5.

This implementation guide depends on the [International Patient Access](#) specification, and many profile definitions in this guide derive from IPA profiles.

IG	Package	FHIR	Comment
 Finnish Base Profiles	hl7.fhir.fi.base#1.0.0	R4	
 HL7 Terminology (THO)	hl7.terminology.r4#5.3.0	R4	Automatically added as a dependency - all IGs depend on HL7 Terminology
 FHIR Extensions Pack	hl7.fhir.uv.extensions.r4#1.0.0	R4	Automatically added as a dependency - all IGs depend on the HL7 Extension Pack
 International Patient Access	hl7.fhir.uv.ipa#1.0.0	R4	

- [Welcome to the Finnish FHIR Specification](#)
- [Why Do We Need Finnish FHIR Base Profiles?](#)
- [Notable FHIR Implementations](#)
- [Profiling Approach](#)
- [Governance](#)
- [Collaboration](#)
- [Safety Considerations](#)
- [License and Legal Terms](#)

1.1.1 Companion Specifications

There is a separate [Finnish Implementation Guide for SMART App Launch](#) that describes how the [SMART](#) specification is applied in Finland.

See also [all FHIR implementation guides published by HL7 Finland](#) and also [HL7 Finland in Simplifier](#).

The [Profiles page](#) lists some Finnish FHIR implementation guides published by other parties.

1.2 Why Do We Need Finnish FHIR Base Profiles?










Better flow of information between systems is one of the key enablers for digitalization and improved efficiency of healthcare systems. Better flow of information and interoperability standards. HL7 FHIR® is one of the most important standards for interoperability and exchange of healthcare data.

... as does Vulcan's RWD Universal IG

← → ↻ build.fhir.org/ig/HL7/vulcan-rwd/technical.html#ig-dependencies 🔍 ☆ 🏠 | 👤 New Chrome

4.6 IG Dependencies

This IG Contains the following dependencies on other IGs.

IG	Package	FHIR	Comment
 Retrieval of Real World Data for Clinical Research	hl7.fhir.uv.vulcan-rwd#1.0.0	R4	
  HL7 Terminology (THO)	hl7.terminology.r4#5.0.0	R4	Automatically added as a dependency - all IGs depend HL7 Terminology
  International Patient Access	hl7.fhir.uv.ipa#1.0.0	R4	
  HL7 Terminology (THO)	hl7.terminology.r4#5.0.0	R4	
  SMART App Launch	hl7.fhir.uv.smart-app-launch#2.0.0	R4	

Package [hl7.fhir.uv.smart-app-launch#2.0.0](#)

Package [hl7.fhir.uv.ipa#1.0.0](#)

This IG describes how an application acting on behalf of a patient can access information about the patient from clinical records system using a FHIR based API. The clinical records system may be supporting a clinical care provider (e.g. a hospital, or a general practitioner), or a health data exchange, including a national health record system. (built Sun, Mar 26, 2023 20:50+0000+00:00)

Can an app *actually* work anywhere in the world?

There are challenges.

- Differences do exist in what should be available. E.g.
 - Is patient race a mandatory or a forbidden element?
 - Street addresses, names.
 - Different code sets and vocabularies.

What we *can* do:

- A promise for app developers, systems vendors, and profile authors on what is supposed to work internationally
- Lowest common denominator
- Build IPA as the base layer

We're still figuring some of this out!

What's in it for Patients?

- Greater access to health data empowers patients to standardly and computably access and retain their health data.
- The promise of a broader choice of health apps.

What's in it for app developers?

- Guidelines for developers new to health it, or FHIR.
- Lowest common denominator, globally.
- Base layer of interoperability.

What's in it for regulators & nations?

- A starting place for governments to jumpstart a national health API ecosystem, with an emphasis on patient access.
- The promise of a broader choice of health apps for your citizens.

What's in it for FHIR servers?

- Enables reusable technology that conforms with regional requirements.
- Enables reusable technology that works with existing apps.
- Discourages regional, regulated incompatibilities.

What's in it for Profile Authors?

- Greater alignment with regional requirements globally
- More FHIR servers, app and data will be conformant

Argonaut ❤️ IPA

- Consumer & regulator education





Argonaut Website Build

Overview
This document contains an estimate of the components, time, and costs to deliver a consumer/policymaker-facing website for the Argonaut project. This proposal is based on our understanding from initial discussions and the competitive landscape.

Scope of Work
Built Mighty, working with the Argonaut project team, will apply an iterative development and implementation approach to plan for and deliver the desired functionality:

Website Design & Build
Built Mighty will design, build, and launch a responsive website using Jekyll on GitHub pages.

- Framework to support internationalization. Launch with 2 languages and ready to support more.
- Basic traffic analytics - minimal, no cookie accept
- Staging environment (for testing, QA, updates, etc)
- GitHub for hosting and version control



Theme Design / Development

- Custom header
- Custom footer
- Style guide to include colors and typography, navigation, logos, etc.
- Ensure a responsive design friendly to desktop and mobile users
- Accessibility standards WCAG 2.1 AA

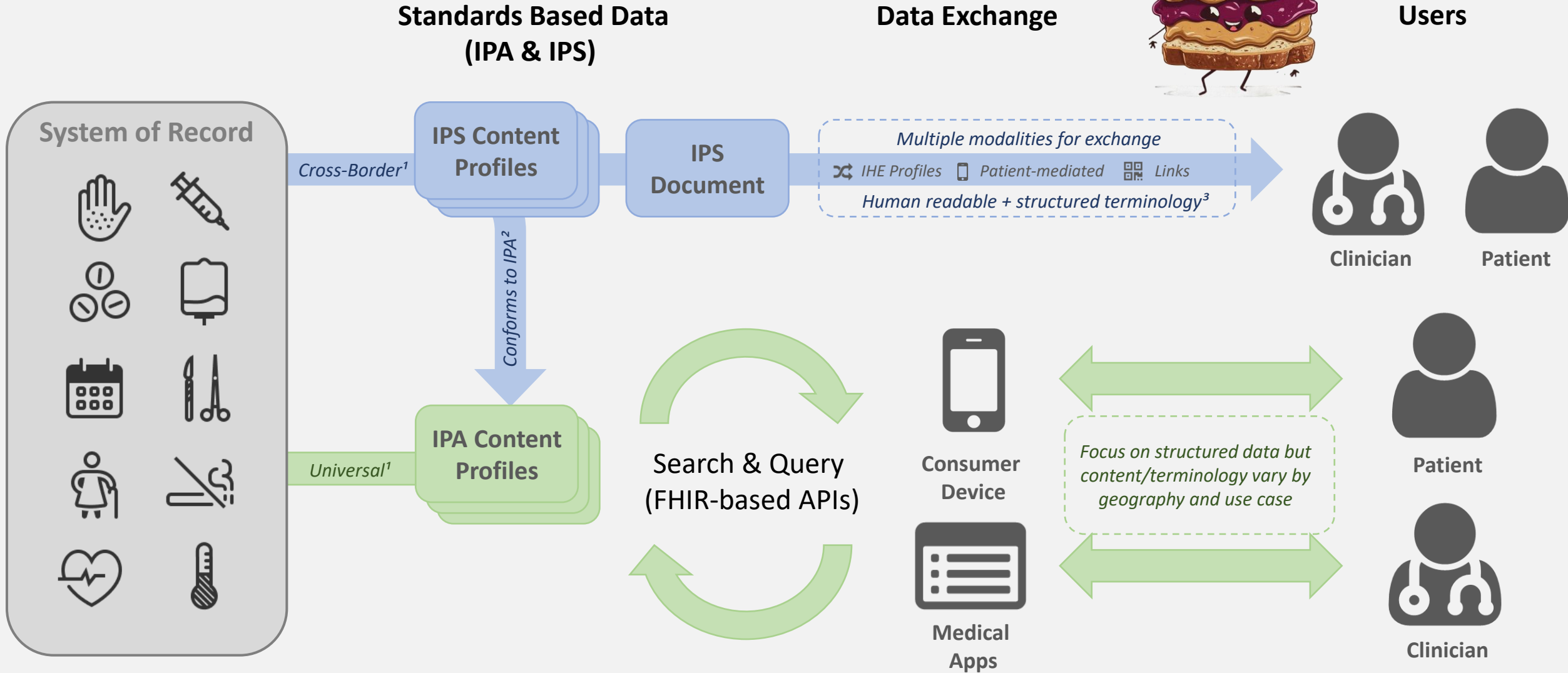
Content Development
Your Project Manager will work with you to edit and populate the site content. This will include providing a wireframe and recommendations of what type of content should go where.

- Definition and development of internal pages
 - About Us - affiliates and documentation
 - Install locations
 - FAQ - using [SMART](#) as an example and includes
 - Argonauts relationships to national 'cores'
 - Country or health system RFP language
 - Guide reader to next steps and HL7 affiliate
- Install locations ([SMART](#) as example) + map
- Blog - initial content similar to [HL7 blog](#)





IPS & IPA Working Together



1. "Cross-Border" has an international focus but may be any organizational, regional, or national jurisdiction. "Universal" includes data access within and across borders as a baseline for international commerce.
 2. Pending final ballot reconciliation of IPA and updates to IPS — 3. IPS primarily uses the SNOMED IPS Terminology where most appropriate

IPS & IPA Pear Great



Summary



Domestic &
Cross Border



Between
Organizations

Access



Authentication



Authorization



Access

WAverify – Digital Vaccine Verification in Washington State

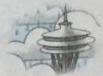
- Digital Vaccine Verification using SMART Health Cards
- Successful Public-Private-Academic Partnership
- Leveraged the shareable components and reusable code
- Rapid 8-week development, deployment, and testing
- Nearly 2 million verification requests since launch (October 2021)
- Demoed printed cards at HIMSS23 Interoperability Showcase
- **Now adding: WAverify+**
- Demoed at HIMSS24 Interoperability Showcase





FRIDAY, OCTOBER 29, 2021

The Seattle Times



RAIN LIKELY
High, 51. Low, 40. > A15
seattletimes.com/weather

WINNER OF 11 PULITZER PRIZES

INDEPENDENT AND LOCALLY OWNED FOR MORE THAN 125 YEARS

SEATTLETIMES.COM

\$2.00

Washington launches online tool for verifying COVID vaccinations

By ELISE TAKAHAMA
Seattle Times staff reporter

Washington state this week quietly launched a new online tool that shows proof of a COVID-19 vaccination, taking a step toward improving its verification systems as it prepares to require full vaccination, or a

recent negative coronavirus test, at all large indoor and outdoor venues starting Nov. 15.

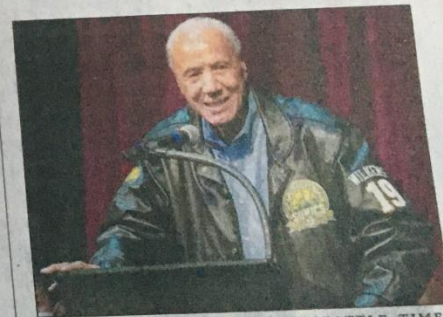
The tool, WA Verify (*waverify.doh.wa.gov*), is fairly straightforward: Provide your name, date of birth, contact information and a four-digit PIN (needed to securely access digital records, accord-

ing to the website), and the system will text a link leading to a scannable QR code and a digital copy of your COVID-19 vaccination records.

The electronic record is drawn from the data stored in the state's immunization registry, according to WA Verify's FAQ page.

Once you receive WA Verify's QR code, you can take a screenshot and present it in restaurants, gyms or other venues that require proof of immunization.

If you have an iPhone, you can save the QR code to the Apple Health app (on the newest operating system).
See > **VERIFICATION, A16**

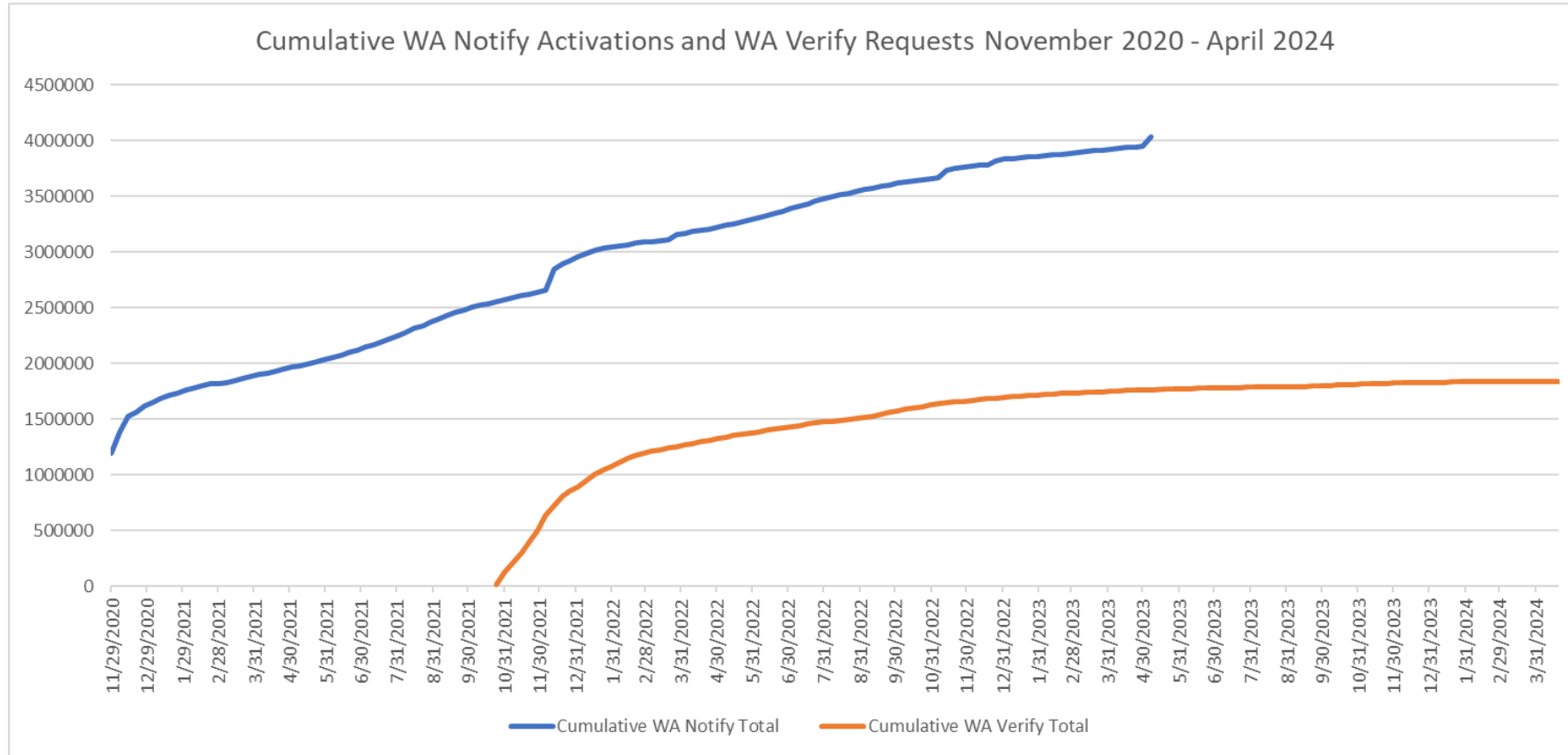


KEN LAMBERT / THE SEATTLE TIMES

Lenny Wilkens Way

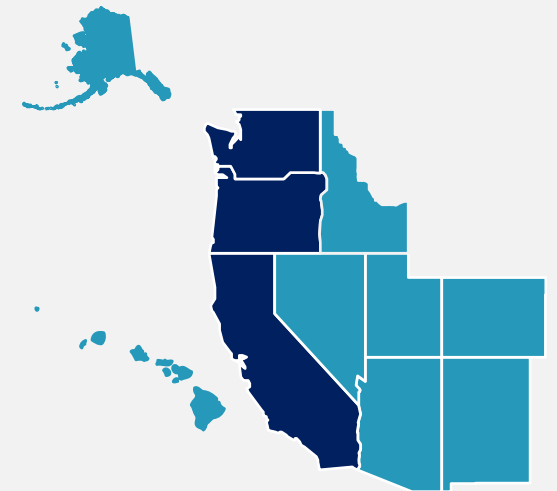
Seattle honors the superstar SuperSonic with a street-renaming party > **Sports, B1**

Cumulative WA Verify Requests and WA Notify Activations



Multi-State and Cross-Sector Collaboration

- Multi-state collaboration with California, Oregon, and Washington
 - Leveraged the sharable components and reusable code with github repository
 - Shared configurations, lessons learned, enhancements, and approaches
 - Model for future projects
- Public-Private-Academic Partnerships



- Open VCI
- Interoperable apps from other vendors, including Docket



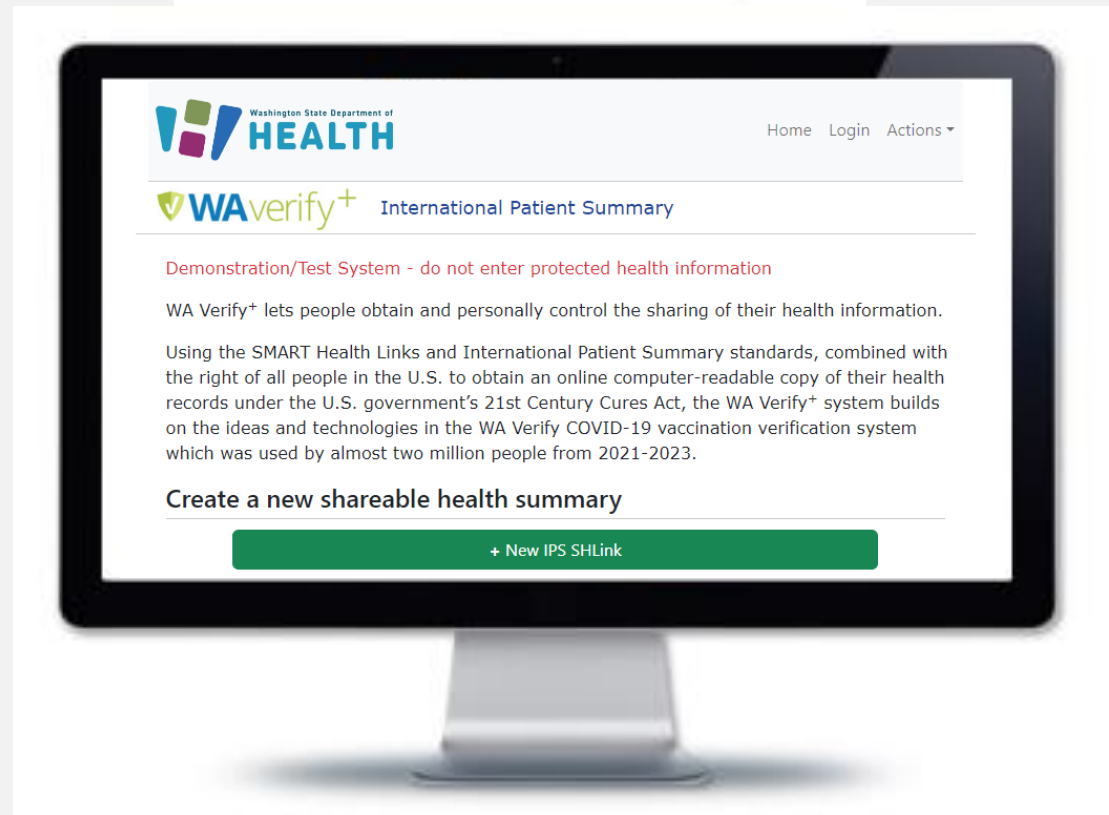
WAVerify+

Server Available:

<https://smart-health-links-ips.cirg.washington.edu/>

Populated using fictional HL7 patient information,

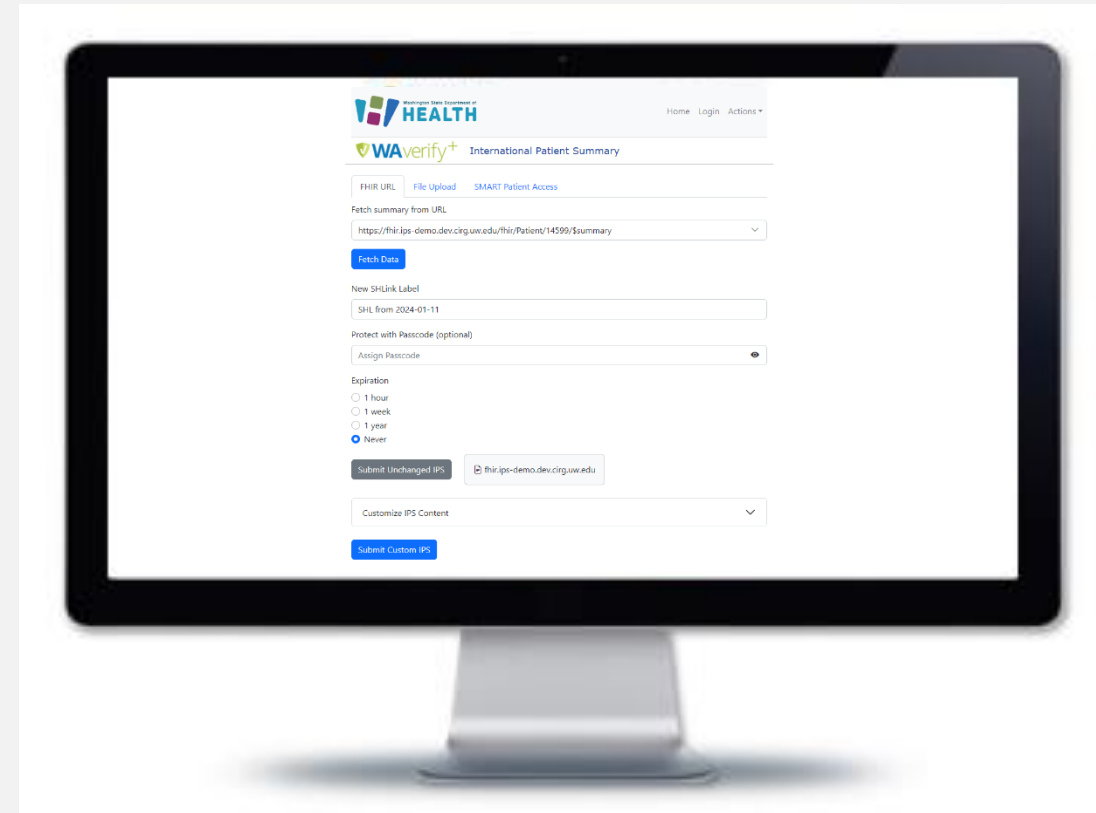
<https://ips.health>



Multiple Methods for Access and Storing

1. FHIR URL
2. FHIR bundle
3. SMART authorization

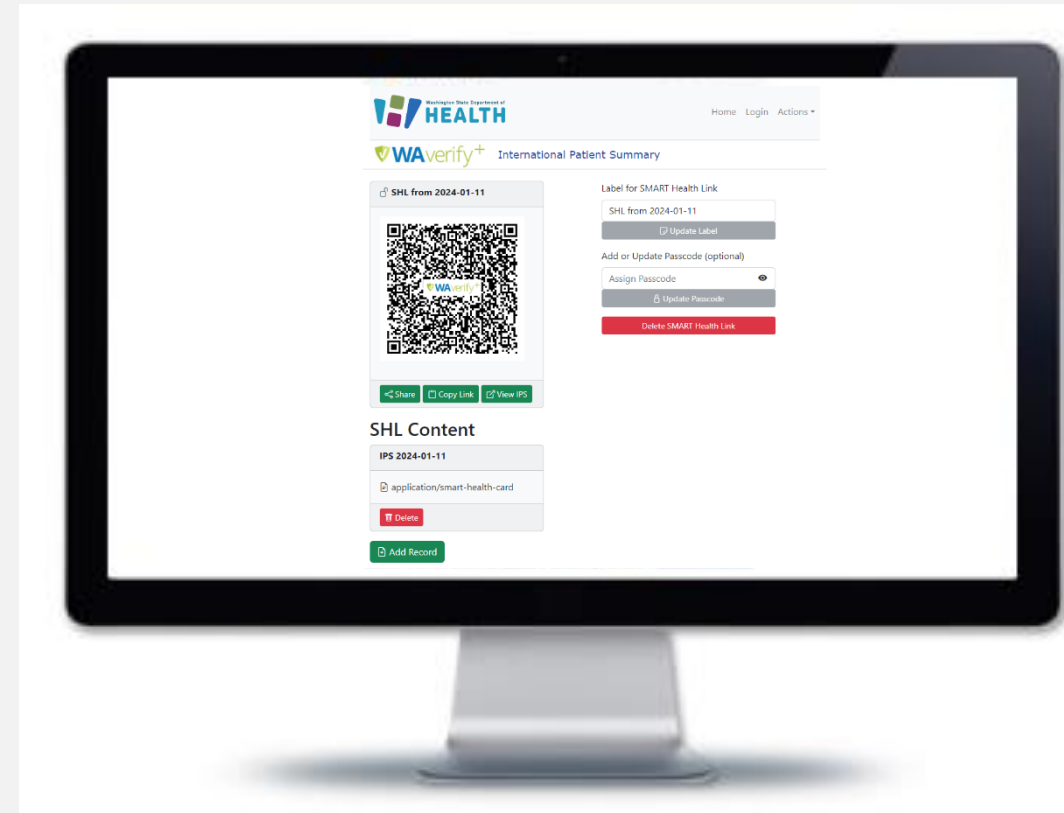
Each with selection for expiration duration – an hour, week, etc.

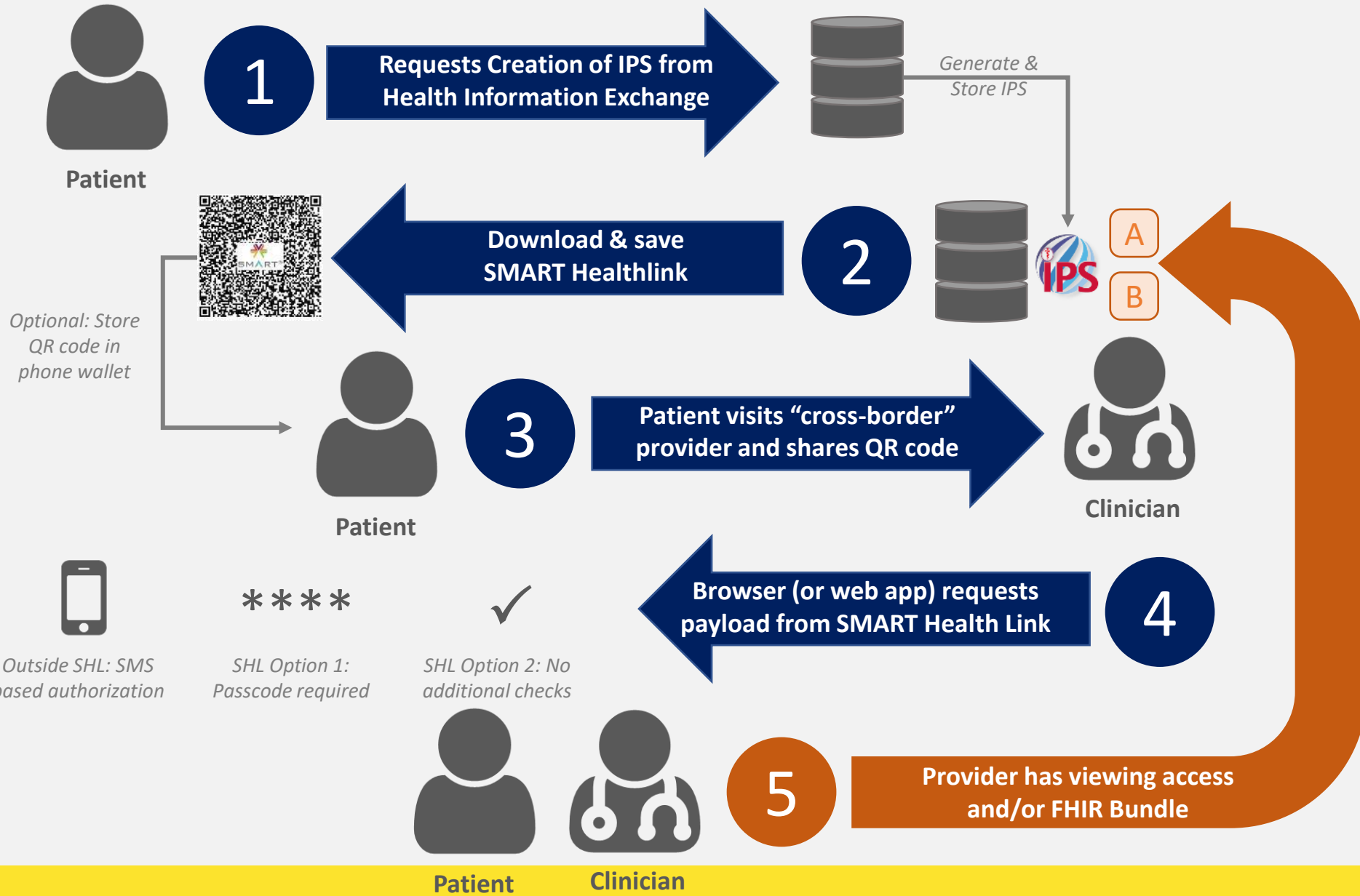


Password Protection

Waverify+ SMART Healthlink can be passcode protected for additional security.

The link itself is protected with encryption, minimizing risk of guessing or locating the link.






A. Readable View (HTML)



B. Computable Data (FHIR)



ePatient Dave




At September 2023 HL7 FHIR Connectathon, we create an IPS with SMART Health Link for ePatient Dave




At HIMSS 2024, ePatient Dave told story of Casey Quinlan



International Patient Summary
Please keep this record card for sharing your medical summary.



deBronkart	Dave	ePatient
<i>Last Name</i>	<i>First Name</i>	<i>MI</i>
01/20/1951		
<i>Date of Birth</i>		



Washington State Department of Health


Powered by VAXSYS®

e-Patient Dave

Democratizing healthcare





International Patient Summary



Present this Substitutable Medical Applications Reusable Technologies (SMART) Quick Response (QR) code to share your medical summary.

Medical summary includes allergies and intolerances, problems or diagnoses, current medications, and social history.

Visit waverify.doh.wa.gov to update your medical summary.



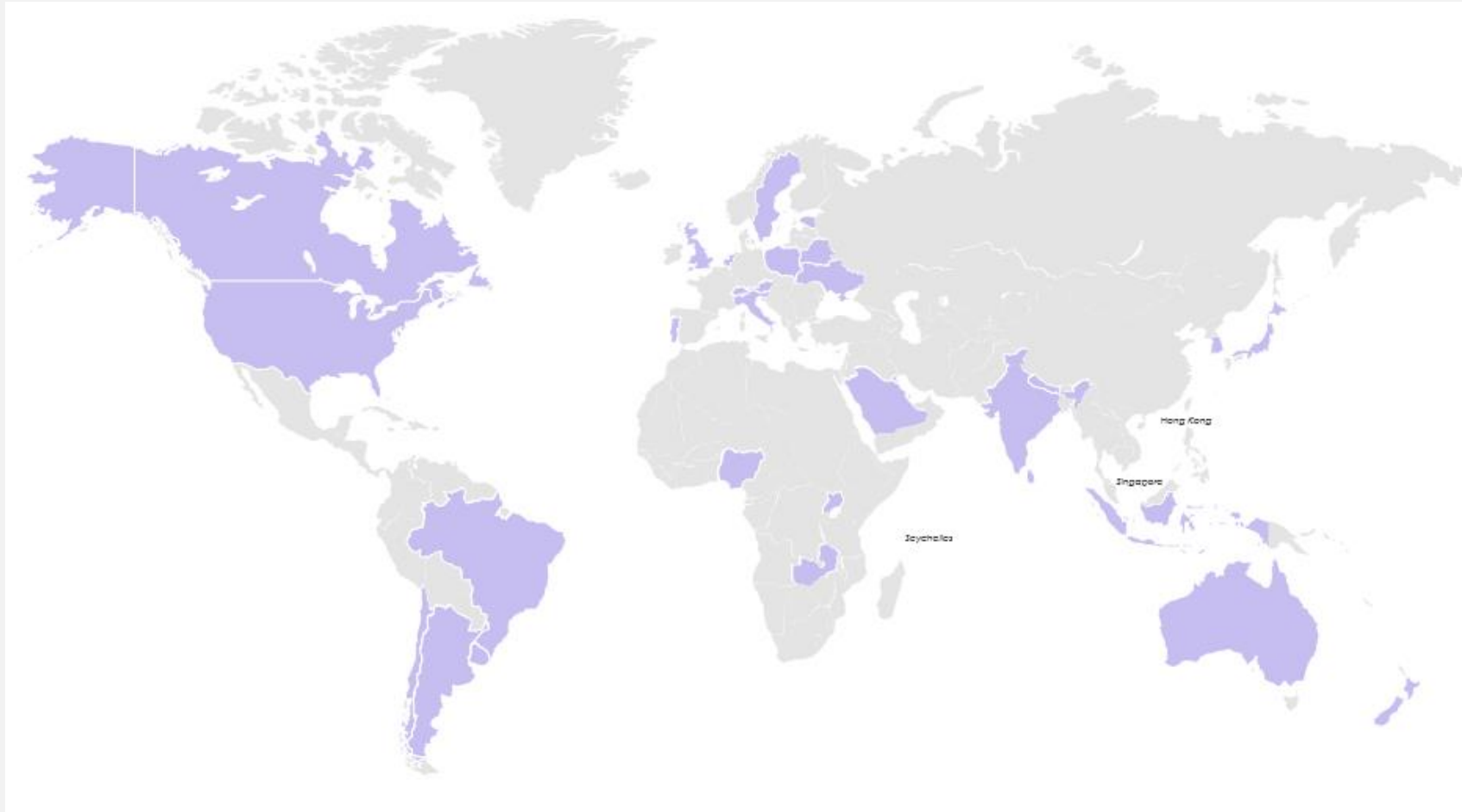

Public-Private-Academic coalitions have a unique power to do what a single entity cannot by itself. This superpower is invaluable when interoperability is needed and the common good is at stake.



Global Digital Health Partnership (GDHP)

- Established in 2018, member nations formed the GDHP to identify international best practices for the use of health data to advance health and healthcare, provide opportunities for networking and knowledge transfer, and facilitate environmental scanning to more accurately forecast emerging trends
- 35 countries, nations, territories and organizations collaborating on digital health representing 2+ billion people
- 5 workstreams, one of which is **interoperability**

36+ GDHP Members



GDHP IPS Support: 2022-2024

- Focus on patient-mediated exchange with goals of advancing standard, piloting and adoption
- Provide venue for nations to learn, connect and discuss about activities related to IPS FHIR development
- Support Connectathon Activities
 - HL7 Connectathons: Jan 2022, May 2022, September 2022, January 2023, May 2023, September 2023 and January 2024
 - GDHP Mini-Connectathons (4-hour virtual events): May 2021, June 2021, October 2021, January 2022, June 2022, November 2022 and July 2023
- Support open-source development & other connectathons
 - IPS Viewer (based on original open-source work from Argentina)
 - IPS Generation from HAPI (with significant support from Smile Digital Health and Canada)

Active Support / Development¹

MEDITECH

Google Health

smile
DIGITAL HEALTH

DRIMPY
brengt zorg samen

HAPI FHIR

PatientCentricSolutions

Epic

CommonHealth

Vendors Engaged

In Discussion²

aws health

Microsoft

HealthKit

Curavista

+ many others

1. Either an active product available or known development for IPS support
2. Vendor has participated in discussion and/or connectathon but no implied IPS commitment

International Patient Summary



MEDITECH

Customers Across the World

North America

- Bahamas
- British Virgin Islands
- Canada
- Honduras
- Puerto Rico
- U.S. Virgin Islands
- United States

Europe

- Ireland
- United Kingdom

Oceania

- Australia



Asia

- Kuwait
- Pakistan
- Singapore
- United Arab Emirates

Africa

- Botswana
- Ghana
- Kenya
- Kingdom of eSwatini (Swaziland)
- Lesotho
- Mozambique
- Namibia
- Nigeria
- South Africa
- Tanzania
- Uganda
- Zambia
- Zimbabwe

MEDITECH Canada

British Columbia	197
Ontario	133
Alberta	128
Newfoundland & Labrador	52
Nova Scotia	33
New Brunswick	26
Yukon	8
Nunavut	3



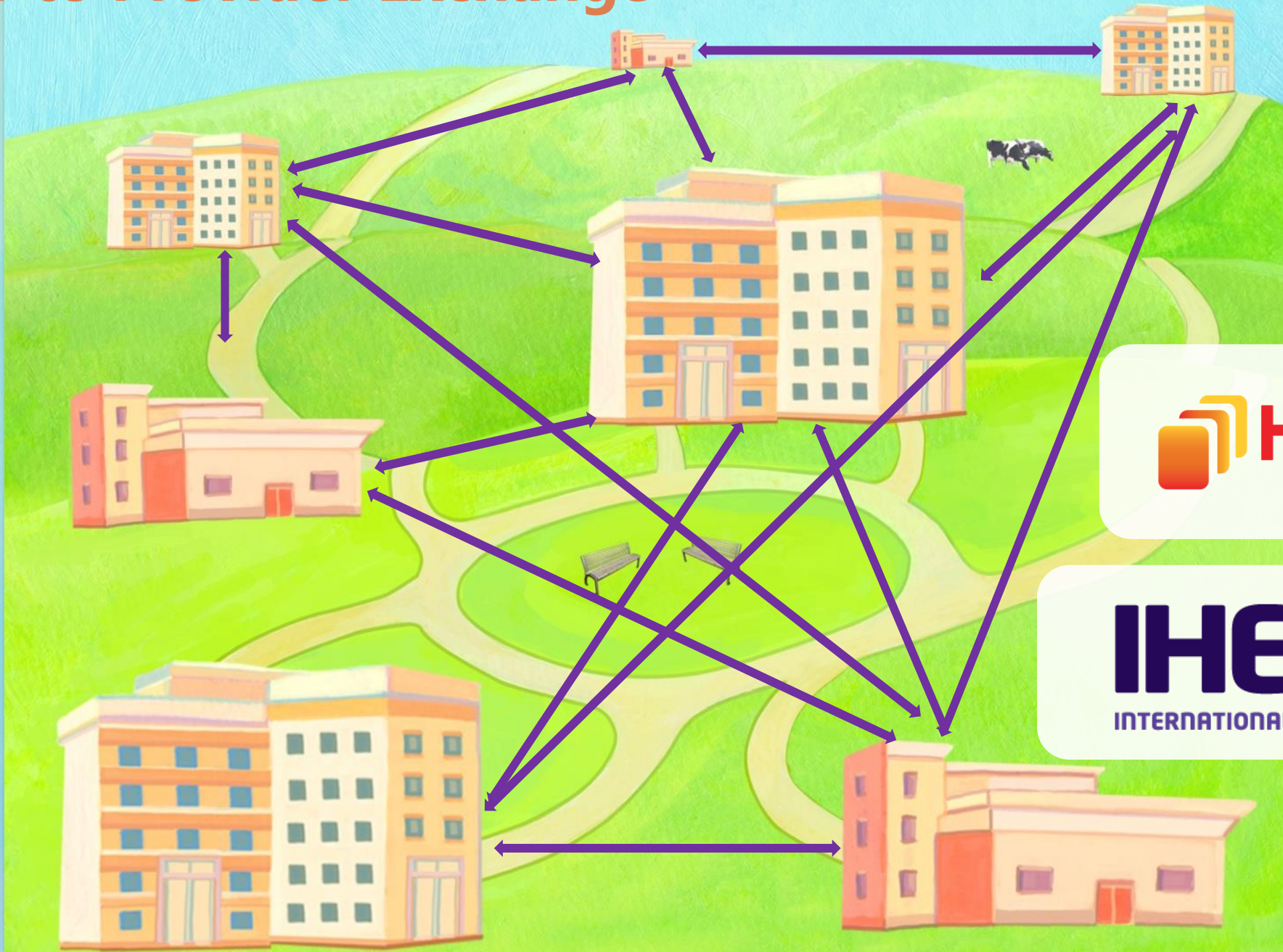
Supporting MEDITECH's Strategy

- ❖ Furthering our FHIR transition
- ❖ Extracting and writing data from FHIR resources
- ❖ Building on the ITK3 work in the United Kingdom
- ❖ Supporting our Canadian Customers
 - pan-Canadian Patient Summary (PS-CA)
 - Ontario Patient Summary (PS-ON)

Project Plan and Scope

- ❖ In Scope
 - Document creation for IPS, PS-CA and PS-ON
 - Connectathon Testing
 - Learning and engaging with the community
 - Determine what “summary” means
- ❖ To be Determined
 - Transport and Exchange mechanisms
 - SMART Health Link
 - IPS Ingestion

Provider to Provider Exchange




The Epic logo is written in a bold, pink, sans-serif font. The background of the entire slide is a vibrant, stylized illustration of a landscape with rolling green hills, a blue lake with a small sailboat, and a warm, orange-toned sky. A family of four is sitting on a grassy hill in the foreground, and a hot air balloon is visible in the sky. The scene is framed by decorative diagonal stripes in blue and orange.

Epic

20 million

**patient records
daily***

*as of April, 2024

A smaller version of the Epic logo, consisting of a stylized lowercase 'e' in red and orange, is located in the bottom right corner of the slide.

Planned Epic support for IPS



International Patient Summary

←  Produce IPS



For Document Exchange

Summer '25

↶  Receive & Display



IPS from Other Systems

FUTURE



Why FHIR for Patient Summary?

- ✿ Not all locales have history with CDA
- ✿ Net-new integrations tends towards FHIR
- ✿ Multiple exchange models: same resources

Why IPS?

International Standard

Global Investment

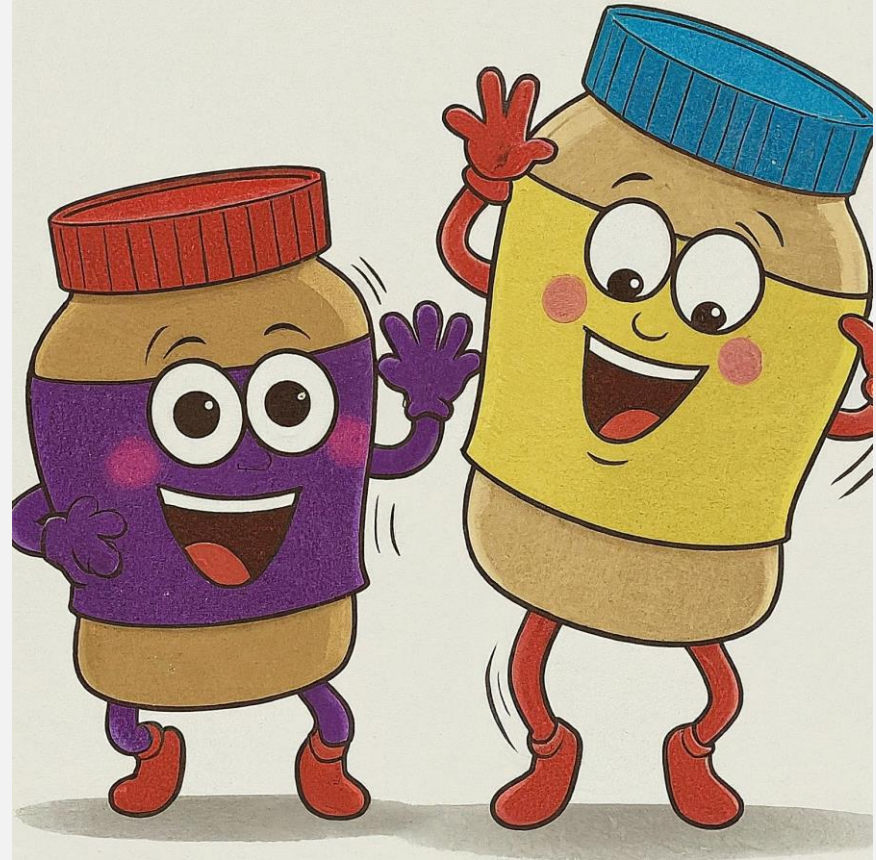
Established Workflows

Come together on universal standards



Wrap-up

- Support from GDHP, nations
- Access & Summary pair great!
- Patient mediated IPS
- Provider-to-provider IPS
- Get Involved!



Q & A



What questions do you have?

Connectathons, Showcases, and FHIR Dev Days

HL7 FHIR Connectathons: New Orleans May 2023; Amsterdam June 2023; Phoenix Sept 2023, Virtual Jan 2024
HIMSS24 Interoperability Showcase: Share Health Data When it Matters: International Travel
HIMSS23 Interoperability Showcase: Moving the Needle: Sharing Immunization Records
Cantor, S. SMART Health QR Codes Ready for Take-Off. AMIA/HL7 FHIR Applications Competition 2023: 3rd Place

Conference Presentations and Posters

D'Amore J, Karras BT, Rahn, M. Patient Empowerment Using the International Patient Summary and Specific, Measurable, Achievable, Relevant, Time-Bound Health Links. HIMSS24. Mar 2024.
Karras BT. WAVerify+ International Patient Summary. Global Health Innovation Xchange Webinar, Washington Global Health Alliance. Feb 2024.
Karras BT. WAVerify+ International Patient Summary. Gravitate Health Hackathon. Jan 2024.
Karras BT. Overview and Demo of Washington State's Work with IPS. 12th GDHP Summit IPS plenary. Dec 2023.
Karras BT, D'Amore J, Rahn, M. Making the IPS Portable and Expanding Access to Verifiable Health Information, The Experience of USA and Washington State with IPS, QR Codes and SMART Health Links. Lac Pass Connectathon. Nov 2023.
Karras BT, West L. Integrating Digital Public Health Tools to Advance Health Equity and Data Access. CDC Health Data Innovation Summit. Sept 2023.
Karras BT, Lober W, Anderson B, Miller G. SMART Health Cards and Links in Public Health - WAVerify+. Washington Health Data Innovation Summit. Aug 2023.
Karras BT, Lober W, Kafle R, D'Amore J. Washington State Early Demonstration – WA Verify+ International Patient Summary. GDHP Interoperability Work Stream Update. June 2023.
Karras BT. How to put out the FHIR: Leveraging equity, innovation, and engagement for COVID immunization with SMART Health Cards. HL7 FHIR DevDays. June 2023.
Cantor S, Higgins A. Public Health Informatics Innovations: Offering Multi-Language Accessibility to Increase Communications Equity, Engagement, and Self-Efficacy of Resource Utilization. NACCHO360 Annual Conference. July 2023.
Cantor S. Multi-Language Access to Verifiable Records. AIRA National Meeting. May 2023.
Karras BT, Chorath J. Washington: WA Verify. AIRA National Meeting. April 2022.

Blog Posts

deBronkart, Dave. Casey Quinlan's QR code dream starts coming to life – using FHIR. e-Patient Dave. Accessed 11/8/2023. Available online: <https://www.epatientdave.com/2023/09/11/making-caseys-qr-dream-starts-coming-to-life-at-last-slowly-using-fhir/>



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- University of Washington Clinical Informatics Research Group
 - University of Washington School of Public Health
 - John D'Amore, More Informatics
 - Health Level 7 (HL7) International Patient Care Working Group and Public Health Working Group
 - LACPASS
 - VAXSYS Technologies, Inc. | Barcodes, Inc.
 - e-Patient Dave (Dave deBronkart)

- Microsoft Corp & Microsoft Research
- Google
- Apple
- MITRE Corporation
- Verifiable Clinical Information
- The Commons Project, JP Pollak, PhD
- Centers for Disease Control and Prevention (CDC)
- California Dept. of Technology (CDT) and Dept. of Public Health
- Boston Children's SMART Health