MedMorph TEP Meeting – 04/21/2020

	TOPIC	LEAD(S)	TIME (ET)
1	Roll Call & Welcome	Maria Michaels TEP Co-Chairs: Bill Lober John Loonsk	3:00 - 3:05
2	HL7 Update	Nagesh "Dragon" Bashyam MedMorph Project Team	3:05 - 3:10
3	University of Washington StayHome.App http://stayhome.app	Bill Lober	3:10 - 3:20
4	eCR Now	John Loonsk Laura Conn	3:20 - 3:35
5	Discussion	Entire TEP	3:35 - 3:55
6	Questions, Next Steps Next Meeting – May 19, 2020	Bill Lober John Loonsk MedMorph Project Team	3:55 - 4:00

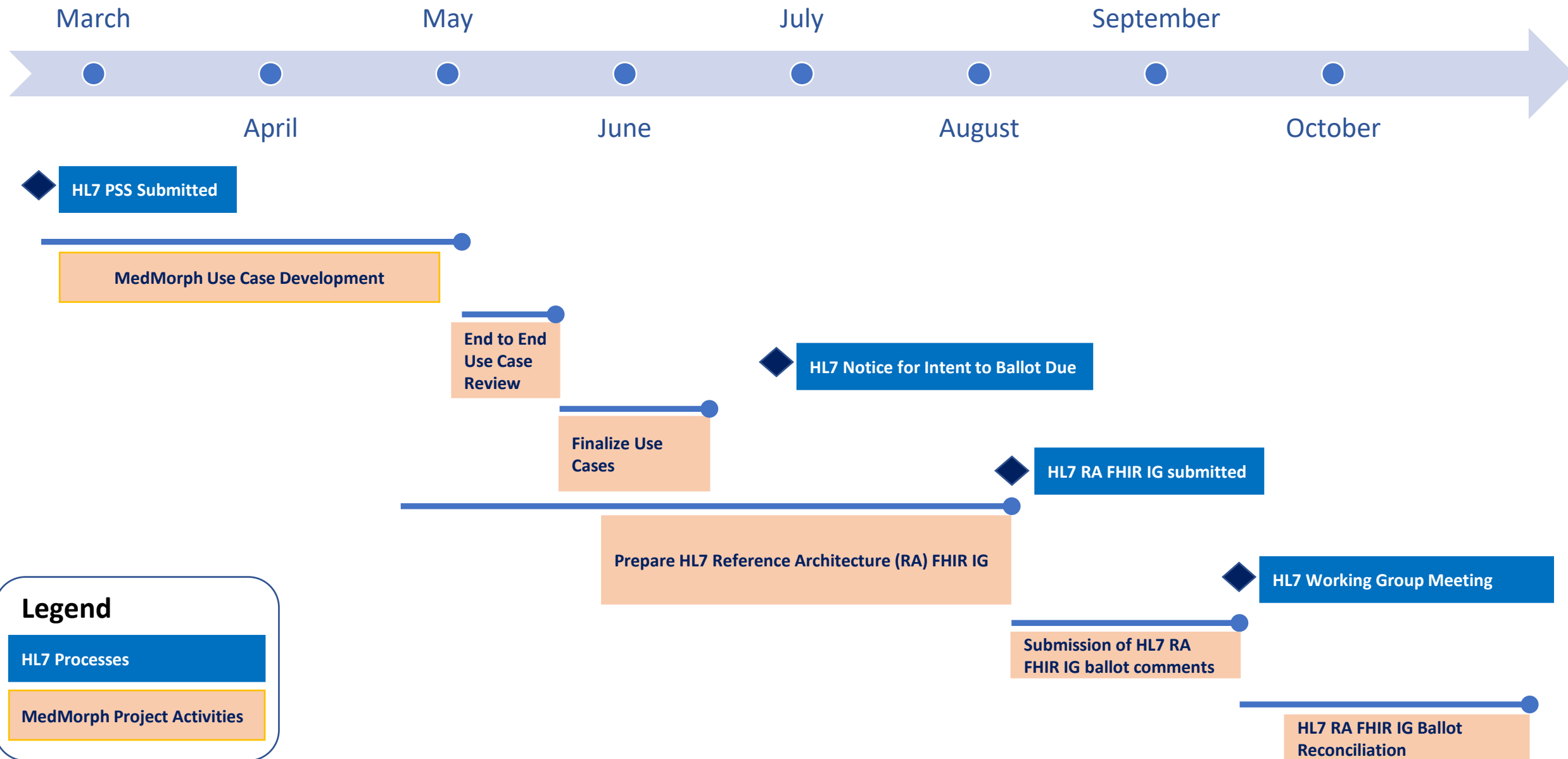# HL7 Update

From Project Scope Statement:

The goal of the MedMorph project is to develop and pilot a scalable and extensible standards-based reference architecture. This reference architecture will enable clinical data exchange with EHR systems and public health systems, specialized registries, national health care survey systems, and research information systems for multiple conditions. Initially, the reference architecture will be outlined using three priority use cases:

- Hepatitis C
- Cancer
- Health Care Surveys

HL7 FHIR Reference Architecture Ballot Timeline

Date	Artifact	Status
February 20, 2020	Draft PSS Presented to the HL7 Supporting WG	Completed
February 21, 2020	Submit PSS Scope Statement for September 2020 Ballot Cycle	Completed https://confluence.hl7.org/display/PHWG/Making+EHR+Data+More+Available+for+Research+and+Public+Health+%28MedMorph%29+Reference+Architecture+HL7+FHIR+Implementation+Guide
April 19, 2020	HL7 Steering Division Approval	Completed, PSS Approved
May 16th-17th	HL7 FHIR Connectathon- San Antonio, TX (https://www.hl7.org/events/working_group_meeting/2020/05/)	Will be virtual this year
May 18th-22nd, 2020	HL7 Workgroup Meeting - San Antonio, TX (https://www.hl7.org/events/working_group_meeting/2020/05/)	CANCELED
July 5th, 2020	Notice for Intent to Ballot	
July 26th-August 13th, 2020	Ballot Pool/Consensus Group Sign Up	
August 9th, 2020	Ballot content due (FHIR Reference Architecture Implementation Guide)	
August 14th- September 14th, 2020	Ballot open for voting	
September 19th-20th	HL7 FHIR Connectathon – Baltimore, MD (http://www.hl7.org/events/)	
September 21st-25th, 2020	HL7 Workgroup Meeting – Baltimore, MD (http://www.hl7.org/events/)	

Timeline: MedMorph Activities & IG Balloting

March
April
May
June
July
August
September
October

HL7 PSS Submitted

MedMorph Use Case Development

End to End Use Case Review

HL7 Notice for Intent to Ballot Due

Finalize Use Cases

HL7 RA FHIR IG submitted

Prepare HL7 Reference Architecture (RA) FHIR IG

HL7 Working Group Meeting

Submission of HL7 RA FHIR IG ballot comments

HL7 RA FHIR IG Ballot Reconciliation

Legend

HL7 Processes

MedMorph Project Activities

University of Washington StayHome.app

Bill Lober

http://stayhome.app

https://StayHome.app
COVID-19 Symptom Tracking Diary

- Patient Reported Outcomes: subjective
  - Questionnaires, assessments, si

- Patient Generated Health Data: objective
  - BP, T, Wt., HR, location (fitness, chronic disease)

- PROs/PGHD in cancer, HIV, pain, BH, 1°C, surg…
  - Clinical utility – integrate w/ visit, impacts care
  - Research utility – esp. when providers, pts are motivated to participate
  - Public health utility…

- How do Patient Reported Outcomes and PGHD fit in with the MedMorph reference architecture?

- "FHIR-first" architecture

https://StayHome.app
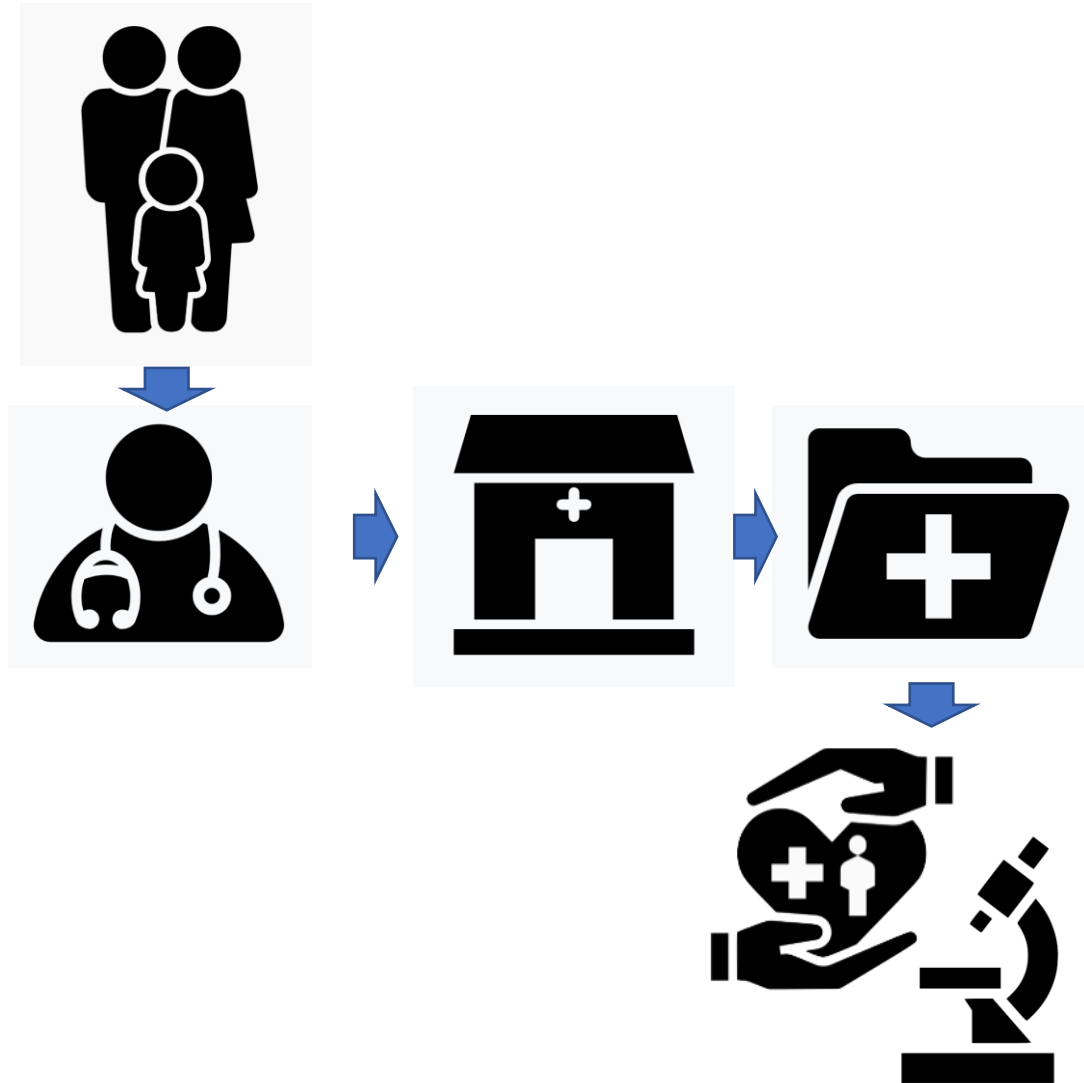# Public Health/Research Utility

- User/Patient/Person-centered

- Sx Diary (PROs, PGHD)

- Link to CDC Sx Self-Checker

- Record testing, pregnancy, HCW/occupation, at risk conditions (PROs)

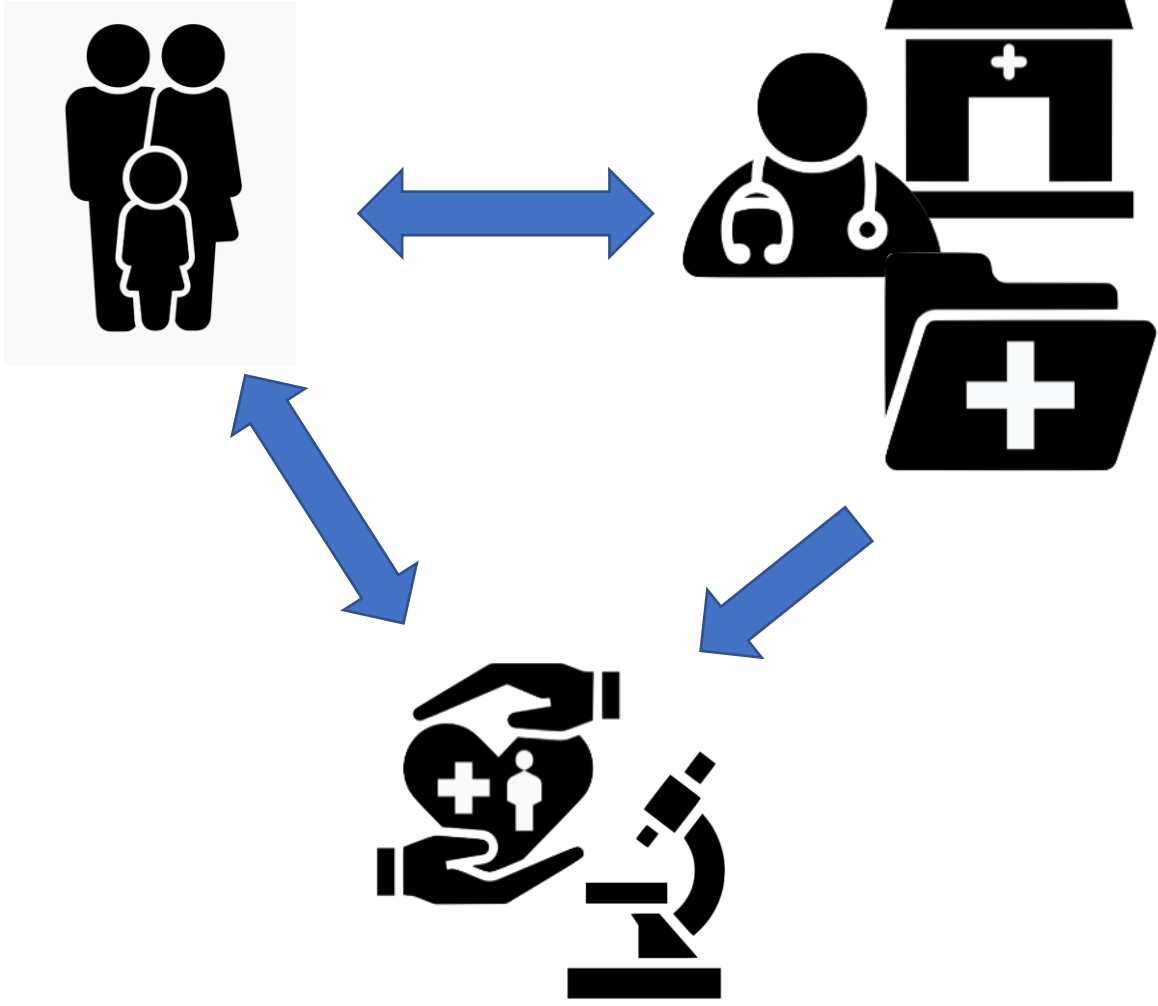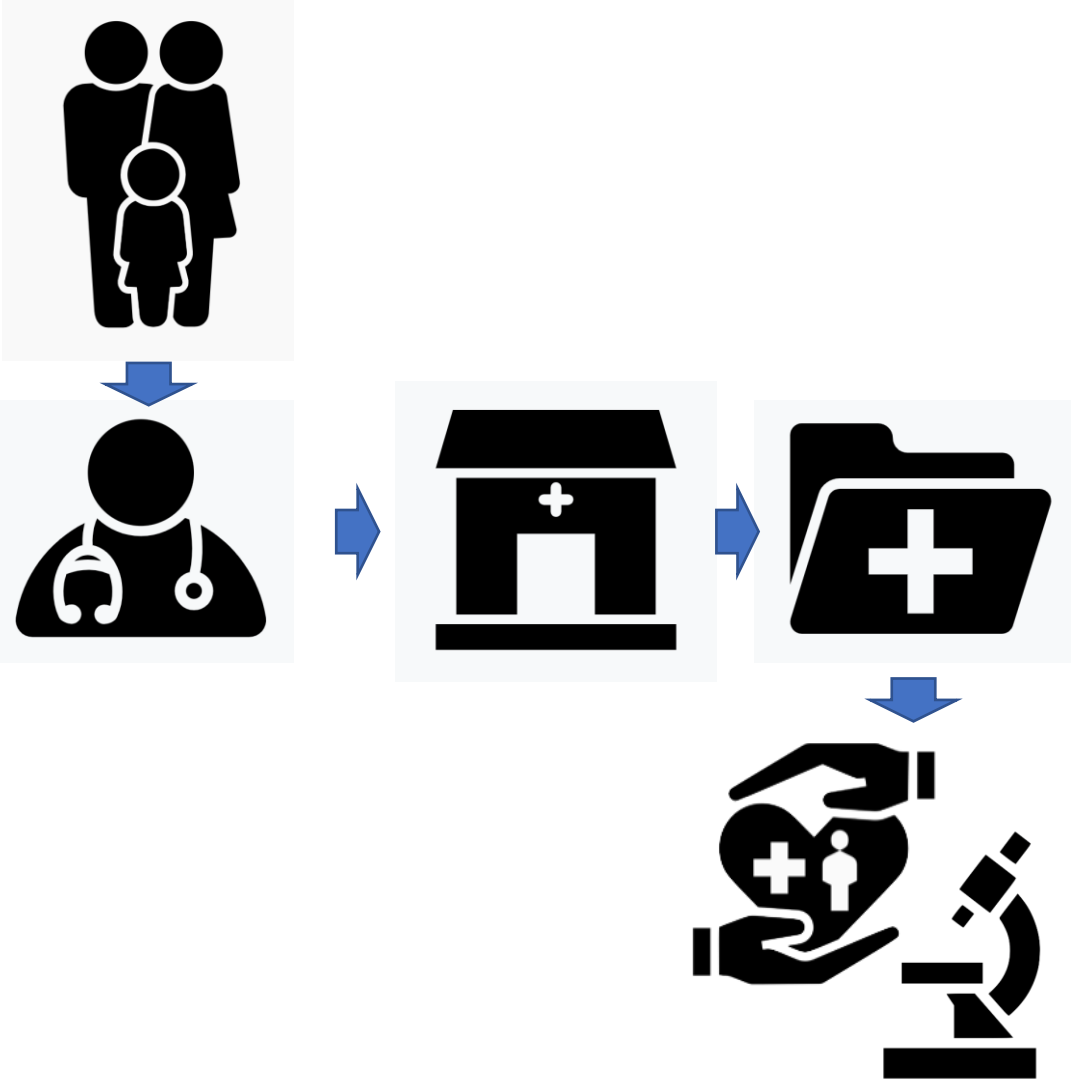- Data sharing with clinical programs, public health, researchers
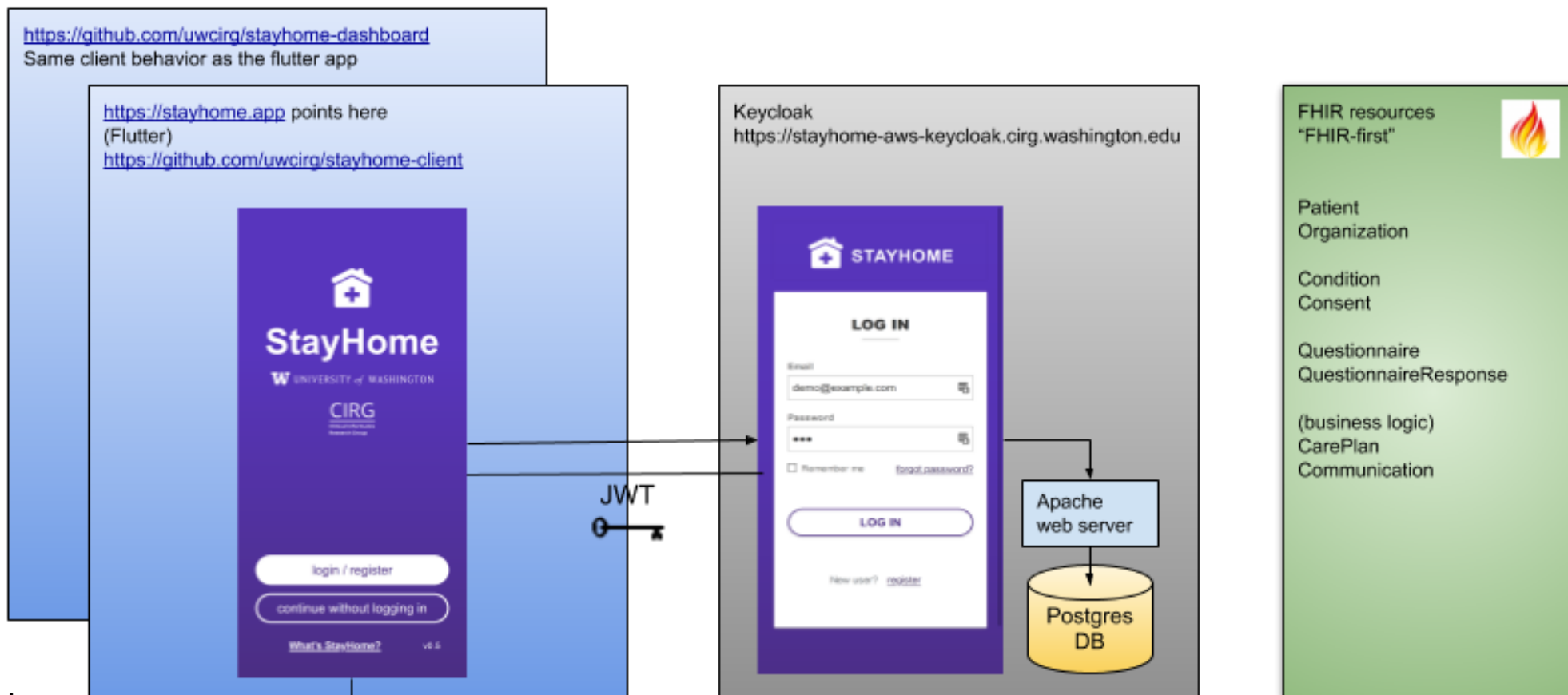
- Longitudinal Trends

https://StayHome.app
Public Health/Research Utility

https://StayHome.app
Public Health/Research Utility

stayhome.cirg.washington.edu

StayHome

Profile and Information Sharing

Florida International University: student, faculty, or staff

FIU NeighborhoodHELP program

You can choose to share your information directly with the NeighborhoodHELP program. If you do they will know if you might be sick from COVID-19, and what kind of help you or your family might need. If you share information with NeighborhoodHLEP they will have access to:

- Your symptoms, testing, and health condition information,
- Your general location information (zip code), AND
- Your name and contact information (email and/or phone number).

Share my information with FIU NeighborhoodHELP

Seattle Coronavirus Assessment Network (SCAN)

stayhome.app Architecture (production)

https://github.com/uwcirg/stayhome-dashboard
Same client behavior as the flutter app

https://stayhome.app points here
(Flutter)
https://github.com/uwcirg/stayhome-client

Keycloak
https://stayhome-aws-keycloak.cirg.washington.edu

FHIR resources
"FHIR-first"

Patient
Organization

Condition
Consent

Questionnaire
QuestionnaireResponse

(business logic)
CarePlan
Communication

StayHome
W UNIVERSITY of WASHINGTON

CIRG

login / register

continue without logging in

What's StayHome?   v6.6

STAYHOME

LOG IN

Email
demo@example.com

Password
•••

☐ Remember me   forgot password?

LOG IN

New user? register

Apache
web server

Postgres
DB

JWT

Github
FHIR-first
Containerized
Scalable
AWS
....

https://stayhome.app

MAP-API
https://stayhome-api.cirg.washington.edu
https://github.com/uwcirg/map-api

RESTful Services

Postgres
DB

JWT

HAPI (FHIR datastore - http://hapi.fhir.org/about v 4.2.0)
https://github.com/uwcirg/hapi-fhir-oauth2-starter

AWS hosted

Apache web server
Locked access

hapi-fhir-base
(RESTful server)
JPA DB abstraction

Postgres
DB
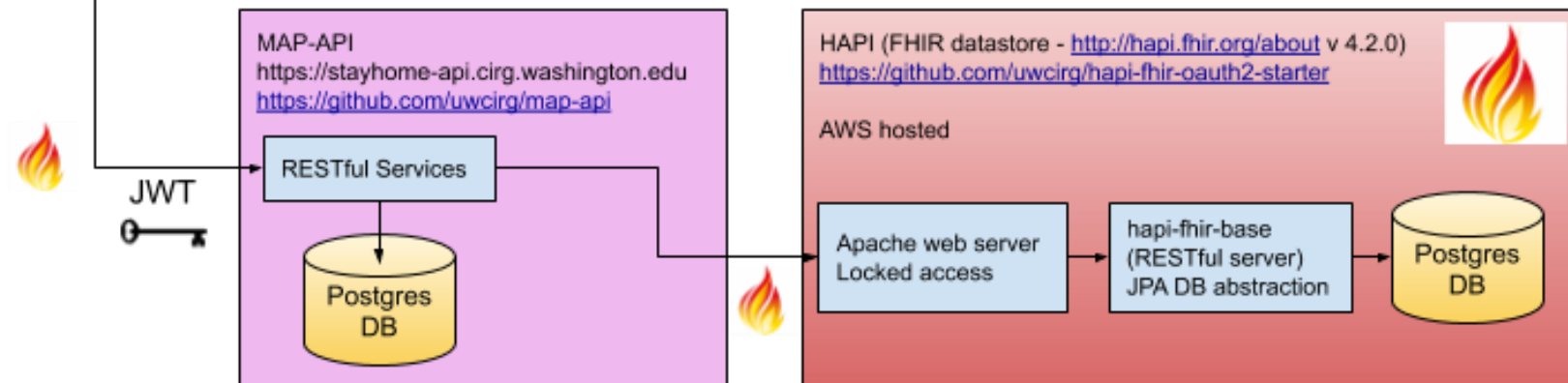
eCR Now

John Loonsk
Laura Conn

eCR Now

April 2020

Version 8

eCR-Info@aimsplatform.org

Electronic case reporting (eCR)

The automated identification of reportable health events in electronic health records and their transmission to state and local public health authorities for review and action.

eCR Now

- Electronic case reporting (eCR) is a critical tool for COVID-19 and other outbreak management needs
  - Automated reporting from EHRs
  - Minimizes healthcare provider burden and meets core public health needs
  - Supports case management, contact tracing, situational awareness and reporting, connecting lab results, coordinating isolation and other response measures
- Case reporting to state and local public health agencies (PHAs) is followed by sending appropriate data to the Centers for Disease Control and Prevention
- eCR is operating well now for COVID-19, but there were a limited number EHRs with eCR capabilities when COVID-19 began
- We need more implementations of <u>eCR Now</u>

eCR Now Elements

1. Cohort-based COVID-19 rapid eCR implementations for provider sites that have eCR enabled EHRs

2. A new eCR Now FHIR app that non-eCR enabled EHRs can rapidly implement to automate COVID-19 eCR

3. Extension of the existing eHealth Exchange policy framework through a developing Carequality eCR implementation guide

eCR Now – Element 1

- Accelerated, cohort-based onboarding
  - Implementation streamlined to just 3 days
  - Last week initial California cohort onboarded 4.5 million covered patients and 13,000 physicians
- FHIR trigger code distribution service (eRSD)
  - Over 60,000 case reports have been triggered from evolving codes (ICD, LOINC, SNOMED)
- Confirmed cases automatically delivered to Public Health Agencies for surveillance – no manual entry in clinical care, minimized burden on healthcare providers and public health
- Electronic case reports are faster and more complete than manual reporting or ELR for outbreak management

eCR Now FHIR App – Element 2

- FHIR app that can be rapidly implemented to automate COVID-19 eCR in otherwise non-enabled EHRs

- Connect COVID-19 electronic case reporting to existing infrastructure to confirm cases and route to appropriate public health surveillance systems

- Immediately implement in as many EHRs as possible, based on API that is "in the wild" without waiting for EHR software releases

- Had been working on a full eCR, subscription-based, backend services app for the longer term

- Initial version of eCR Now app for COVID-19 and source code available May 1

eCR Now - FHIR Reporting App

	eCR Now COVID-19 and full eCR option	Backend Services App	Reporting Services in FHIR API
Description	***Expedited delivery of app to provide COVID-19 eICR now for EHRs that don't have it***	*Planned roll-out of app with fully automated launch, trust services, and other reporting functions*	*Working on advancing FHIR Common Reporting Functions into FHR API – all EHRs must report*
Timing	**App / source code available May 1**	Projected for 2021	Longer term objective
Output	**HL7 CDA electronic Initial Case Report (eICR) Version 1.1**	HL7 FHIR electronic Initial Case Report Version 1.0 and other FHIR payloads	Multiple FHIR payloads
Operations	• **Manages all triggering with eRSD input** • **SMART on FHIR App launch for patient and encounter context** • **Followed by system access for triggering and eICR loading or refresh tokens**	• Full backend services app • Trust services for chronic surveillance • FHIR Subscription triggering • CQL engine connection	• Minimized app services • Possible CQL engine services
Query Data	• **Argonaut 1.0.0 (R2) based on FHIR Version 1.0.2** • **USCore 2.0.0 (STU 2) based on FHIR Version 3.0.1**	• FHIR Release 5 • USCore	• TBD

FHIR Reporting Technical Team

- John Loonsk, APHL and Johns Hopkins

- Nagesh Bashyam, Drajer Consulting

- Sarah Gaunt, Lantana Consulting Group

- Rick Geimer, Lantana Consulting Group

- Grahame Grieve, Health Intersections

- Michele Mottini, CareEvolution

- Bryn Rhodes, Dynamic Content Group

- Brett Marquard, WaveOne Associates

- Mike Flanigan, Carradora

- Tim Morris, ScioInformatics

Existing eCR Infrastructure
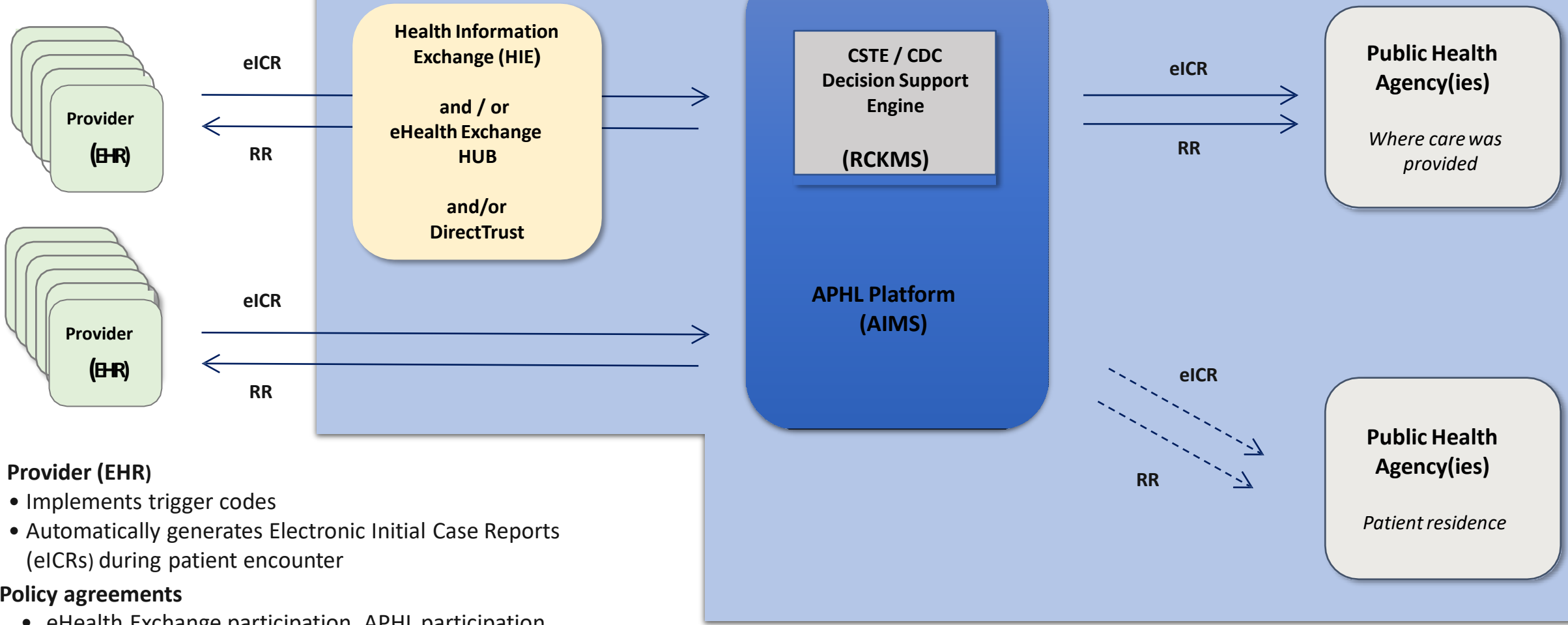
Provider (EHR)
- Implements trigger codes
- Automatically generates Electronic Initial Case Reports (eICRs) during patient encounter
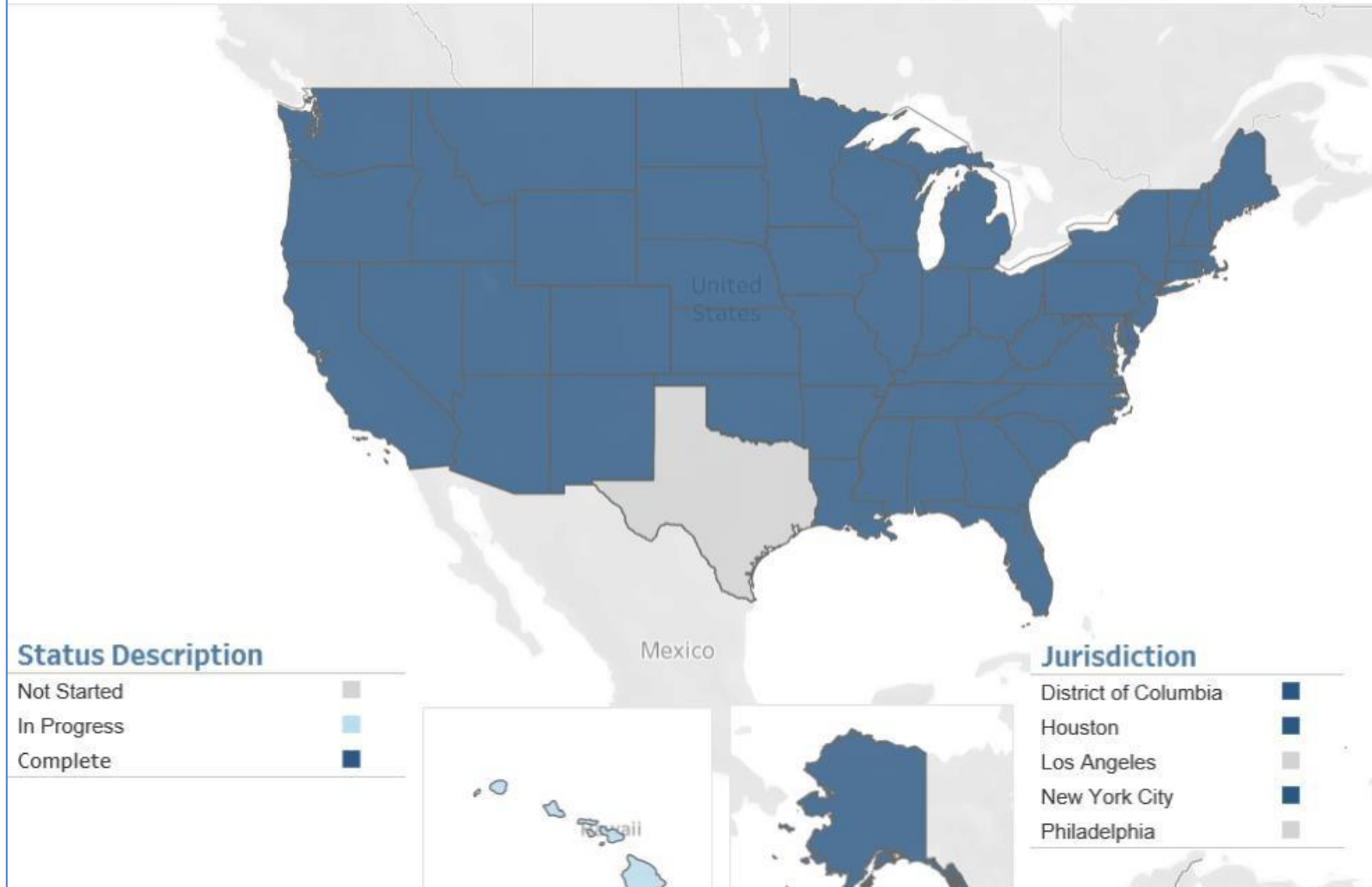
Policy agreements
- eHealth Exchange participation, APHL participation agreement, and Carequality coming

HL7 Standards
- Electronic Initial Case Report (eICR) CDA v1.1
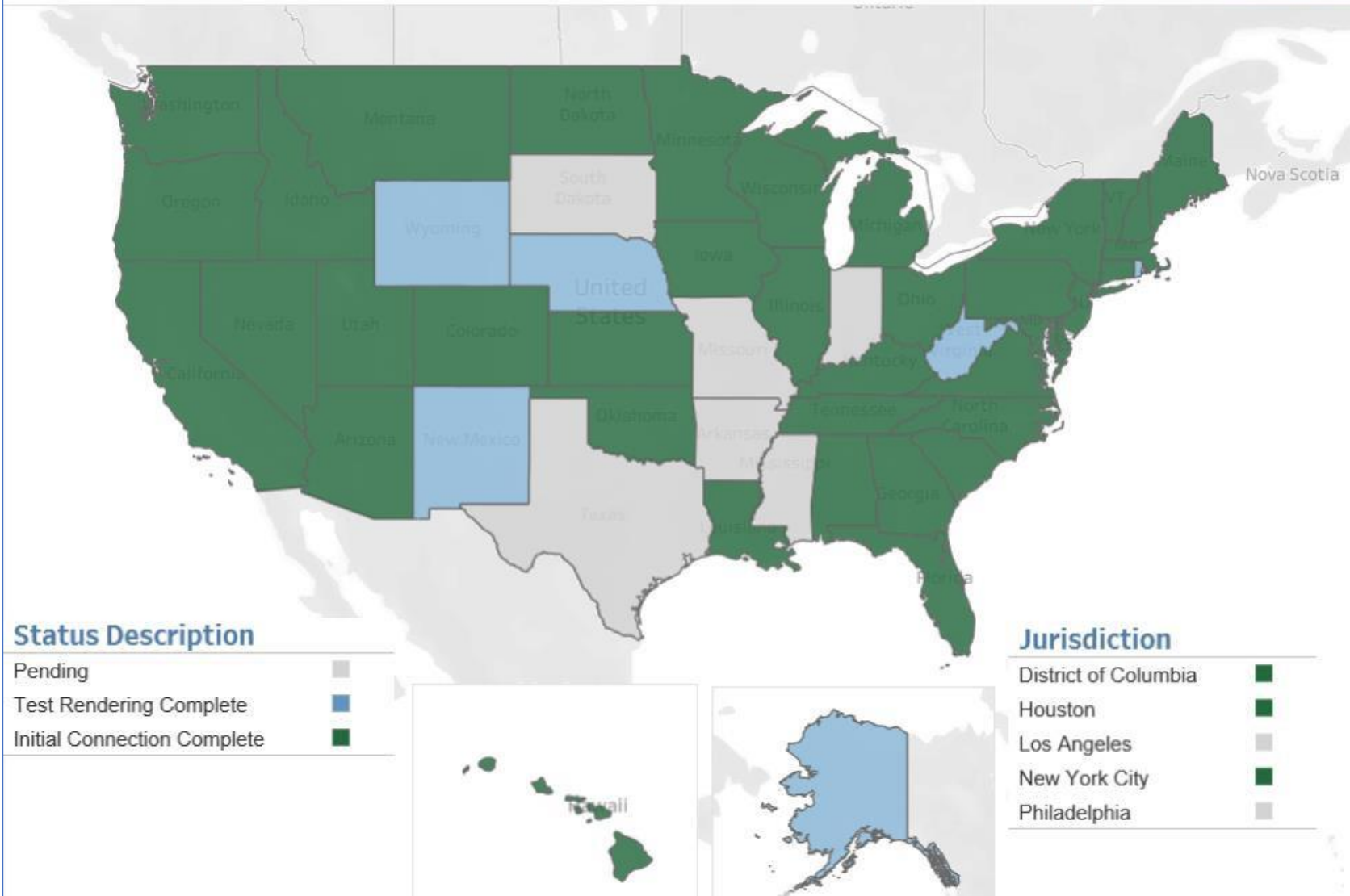- Reportability Response (RR) CDA v1.0

Coronavirus Authoring Status

Updated as of 04/13/2020

Status Description

Not Started	⬜
In Progress	🟦
Complete	⬛

Jurisdiction

District of Columbia	⬛
Houston	⬛
Los Angeles	⬜
New York City	⬛
Philadelphia	⬜

Initial Connectivity Status

Updated as of 04/13/2020

Status Description

Pending	⬜
Test Rendering Complete	🟦
Initial Connection Complete	🟩

Jurisdiction

District of Columbia	🟩
Houston	🟩
Los Angeles	⬜
New York City	🟩
Philadelphia	⬜

Discussion

Upcoming MedMorph Meetings

Next Full TEP Meeting

Tue 5/19/2020 @ 3-4pm ET / 2-3pm CT / 1-2pm MT / 12-1pm PT

Technical Workgroups (Weekly)

Reference Architecture/Authorities/Policies (starting 3/25/2020):

Wednesdays @ 1-2pm ET / 12-1pm CT / 11am-12pm MT / 10-11am PT

Contacts

CDC Team
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- Jamie Parker: jamie.parker@carradora.com
- Kishore Bashyam: kishore.bashyam@drajer.com
- Mike Flanigan: mike.flanigan@carradora.com

Technical SME
- Brett Marquard: brett@waveoneassociates.com

Appendix A: MedMorph General Information

Making EHR Data More Available for Research and Public Health

Technical Expert Panel:
End Users, Data Recipients, Stakeholders – Including representatives of additional use cases

Foundation of standards supported by health IT certification (CCDS/USCDI, APIs, FHIR)

Fully Modeled Use Cases
Hepatitis C, Cancer, Healthcare Surveys

Implementation Guides
For general use and for each use case

Technological Strategies
To develop scalable and extensible architecture

CCDS: Core Clinical Data Set
USCDI: US Core Data for Interoperability
APIs: Application Programming Interfaces
FHIR: Fast Healthcare Interoperability Resources

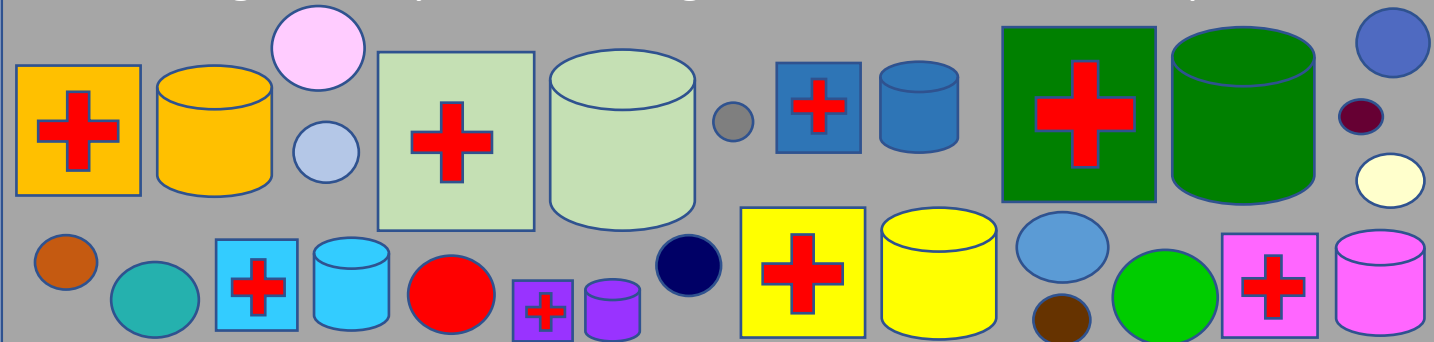**Agile Development: Iterative Design-Build-Test Cycles (test case: Hepatitis C)**

National Test Collaborative
Including a variety of clinical organizations and their EHR platforms

Software

Clinical organization

EHR platform

Other testing partners (e.g., public health departments, registries, health IT developers, etc.)

Evaluation Planning

Measure and Evaluate

PRODUCTS: Reference Architecture, Reference Implementation (Open Source Software) & Balloted Implementation Guides, Roadmap for Scalability and Sustainability

Evaluation WG

- **Short-term evaluation**: focused on Hep C pilot
- **Long-term evaluation**: focused on broader impacts to research and public health

Appendix B: HL7 FHIR Resources

Helpful FHIR Links

- FHIR Home Page & Summary:
  - https://hl7.org/fhir/
  - https://hl7.org/fhir/summary.html
- FHIR Overview by user type:
  - General: https://www.hl7.org/fhir/overview.html
  - Developer: https://www.hl7.org/fhir/overview-dev.html
  - Clinical: https://www.hl7.org/fhir/overview-clinical.html
  - Architects: https://www.hl7.org/fhir/overview-arch.html
- FHIR Implementation Guide Publishing:
  https://confluence.hl7.org/display/FHIR/IG+Publisher+Documentation
- FHIR Implementation Guide Process Flow:
  https://confluence.hl7.org/display/FHIR/FHIR+Implementation+Guide+Process+Flow