NATIONAL ASSOCIATION OF Community Health Centers®

UDS+: Modernizing HRSA's UDS to Address Knowledge Gaps and Improve Quality Outcomes

Wednesday, November 16 |

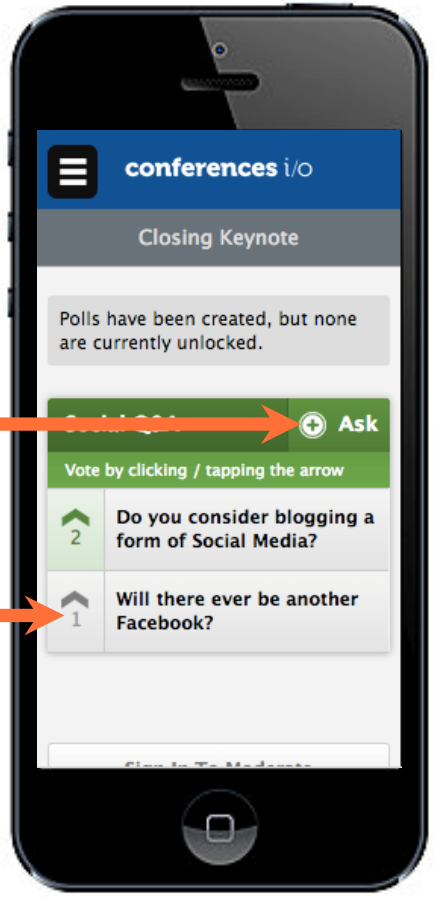
8:15am – 9:45am

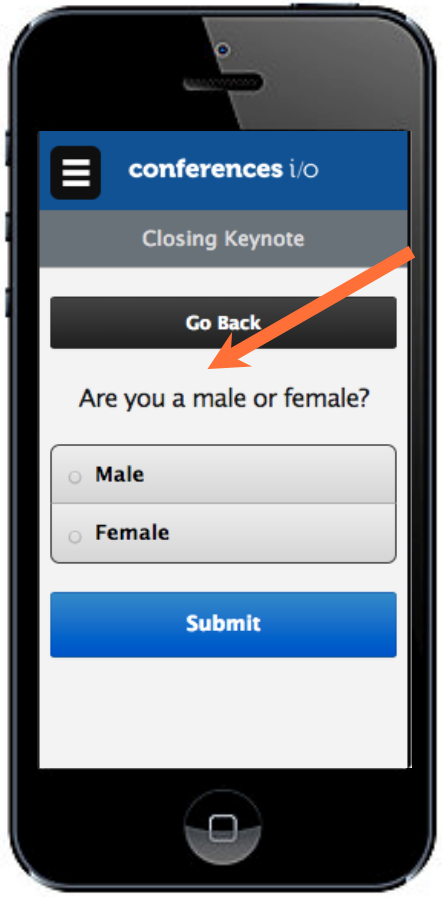
Atlantic 1-2, Westin Ft. Lauderdale

In-Person Participants

Give us Feedback

Up-Vote a Comment





Click on question and then Respond to Polls when they appear

Vote / Give Feedback/ Respond to Polls

OBJECTIVES

30%

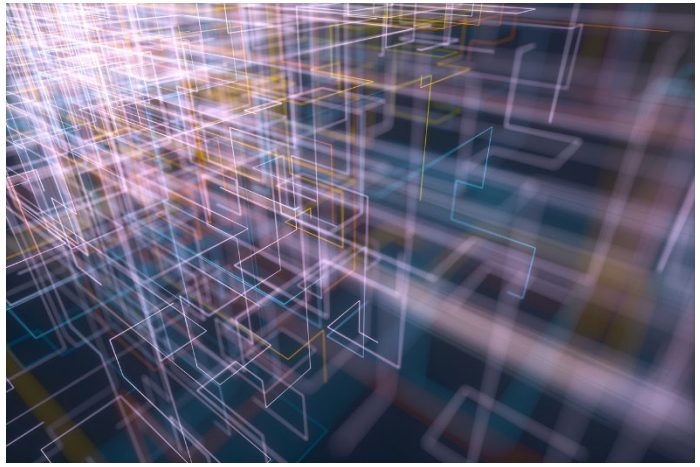
Learn about the development and deployment of the UDS+

Consider the opportunity to become involved early in UDS+ testing and feedback

Create a plan for your organization to move towards UDS+

UDS Modernization: UDS+

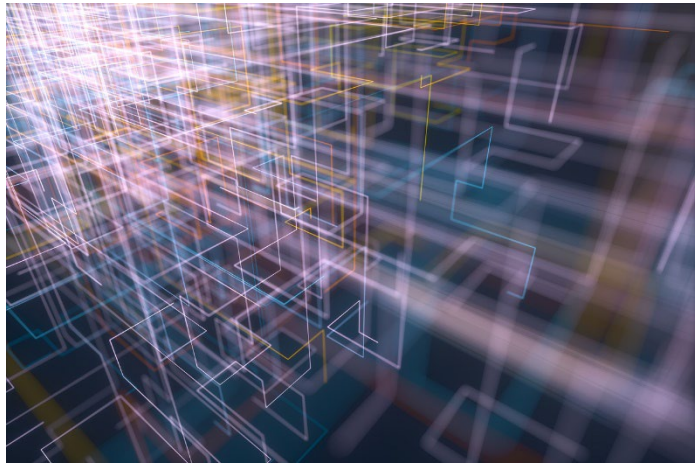
Moving towards EHR Data Reuse and Reducing Burden



- To build a learning health system, data capture should be focused on that which adds value to the delivery of care and the achievement of wellness
- All other activities should flow from the reuse of this data
- HRSA is proposing to move towards evaluation of CHCs via data reuse
- This data reuse relies on shared health IT (HIT) standards and their implementation across the industry

UDS Modernization: UDS+

Moving towards EHR Data Reuse and Reducing Burden



- The ultimate payoff of UDS+ should be:
  - Automation of reporting to HRSA and elimination of manual reporting activities
  - Ability to identify and dashboard UDS patients and measures within the EHR, Data HIT product and/or Data Warehouse
  - Improved validity and completeness of UDS metrics

Panelists

Alek Sripipatana
Director, Division of Data and Evaluation, BPHC
HRSA

Andrew Hamilton
CIO
AllianceChicago

Jason Greer
CEO
Colorado Community Managed Care Network

HRSA
Health Resources & Services Administration

UDS Modernization Initiative

[Meeting Title]

Month Day, Year

Alek Sripipatana
Director, Division of Data and Evaluation, BPHC
Health Resources & Services Administration

There are speaking notes for most slides.

Vision: Healthy Communities, Healthy People

Disclosures

The presenters have no relevant financial or non-financial interests to disclose.

Overview and Learning Objectives

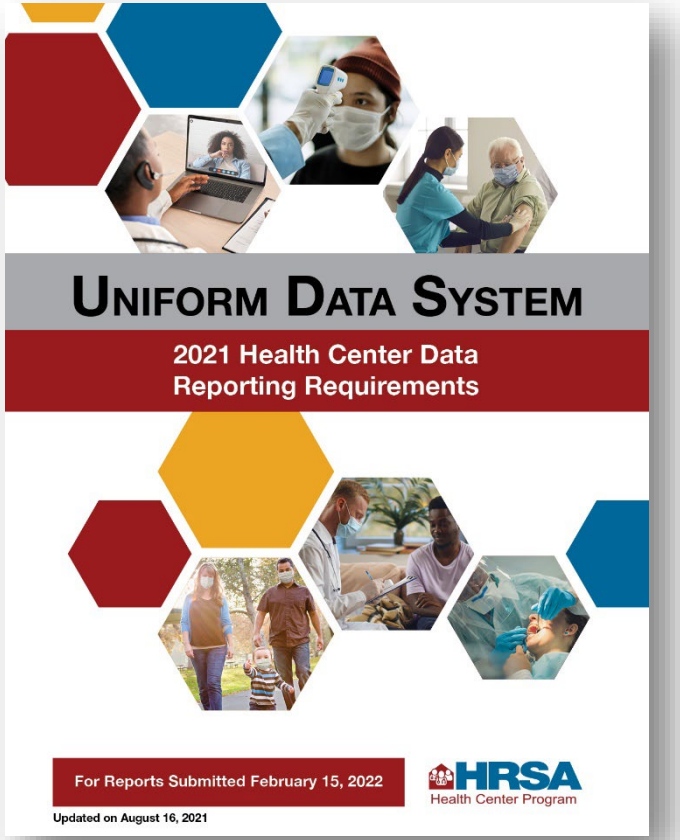
Session Overview:

- Uniform Data System patient-level submission (UDS+) Overview
- Fast Healthcare Interoperability Resources (FHIR) Review
- Participant Q&A
- Resources

Learning Objectives:

- Understand what UDS+ is, its purpose, UDS+ reporting formats, and submission expectations
- Understand the history of FHIR and how United States Core Data for Interoperability (USCDI) standards can help revolutionize Health Center Program data
- Improve Health Center Program recipients' understanding of FHIR policy standards
- Review UDS Test Cooperative and how to participate in UDS+ proof of concept testing and other UDS Modernization efforts

What is the UDS?



- The Uniform Data System (UDS) is a standard data set that is reported annually and provides consistent information about health centers, including:
  - Patient characteristics
  - Services provided
  - Clinical processes and health outcomes
  - Patients' use of services
  - Staffing
  - Costs and revenues

UDS Data Elements

What does it capture?

Data Element Category	Tables and Forms
Demographics	• Patients by ZIP Code Table • Table 3A: Patients by Age and Sex assigned at birth • Table 3B: Race/Ethnicity and Sexual Orientation and Gender Identity (SOGI) • Table 4: Income (% FPG), Insurance Status, Special Populations (Ag. works, Homeless, Veteran, etc.)
Staffing	• Table 5: FTE type (Physicians, Mental Health, Dental, etc.), Visits, and Patients • Table 5: Service Detail Addendum
Clinical	• Table 6A: Diagnoses and Services Rendered • Table 6B: Clinical Quality Measures (Process) • Table 7: Clinical Quality Measures (Outcome)
Financial	• Tables 8A: Financial Costs • Table 9D: Patient Related Revenue • Table 9E: Other Revenue (Including grant/contract revenue, H80)
Other	• Appendix D: Health Information Technology (HIT) • Appendix E: Other Data Elements – MAT • Appendix F: Workforce

For more information, read the UDS General Information Fact Sheet and the 2021 UDS Manual (pg. 12-13)

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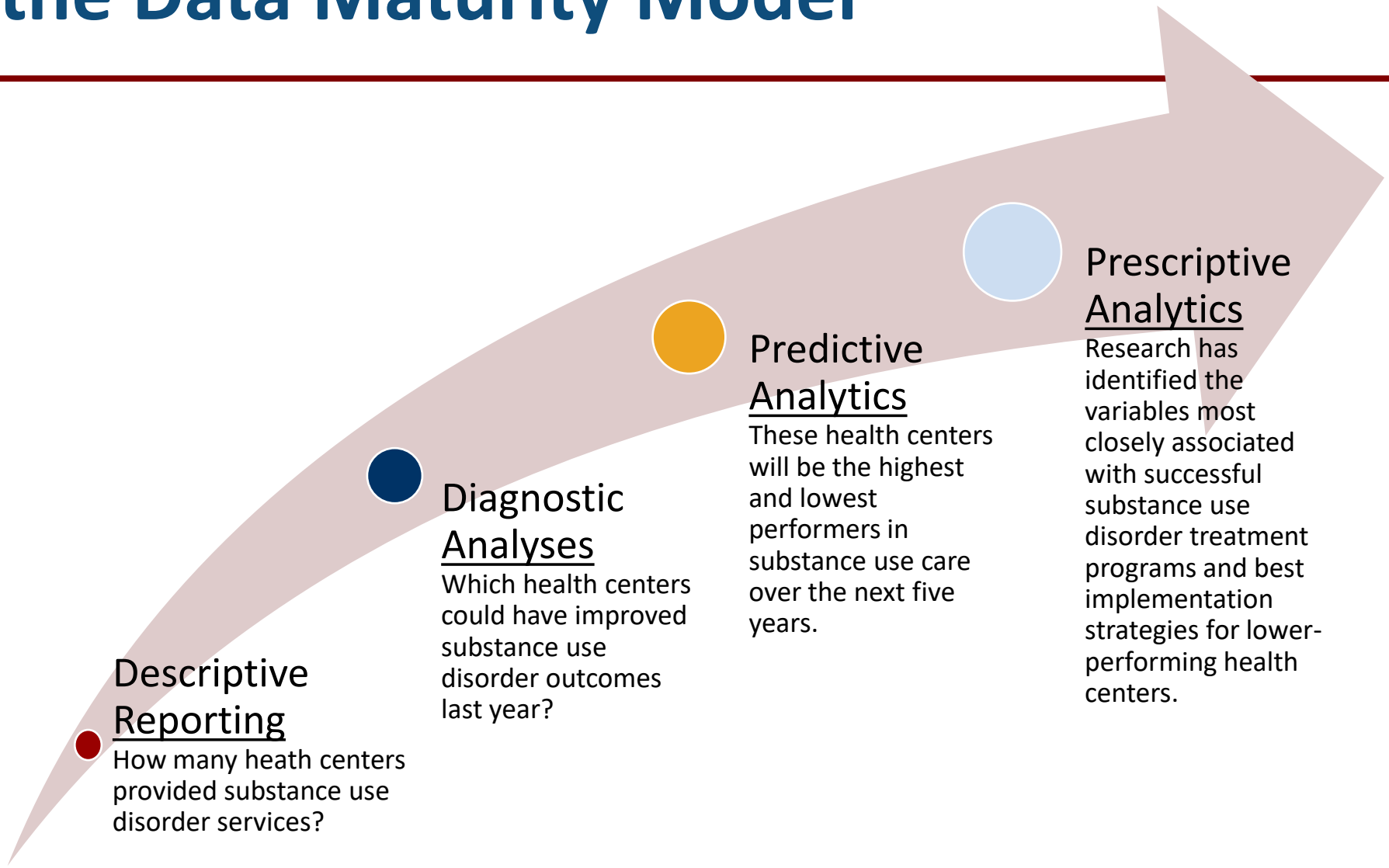
Advancing the Data Maturity Model

Current State

Available Uniform Data System (UDS) data are *aggregated* and *retrospective* which leaves many questions unanswered and does not fully utilize the predictive power of data for decision making



UDS Modernization Initiative

Reduce Reporting Burden

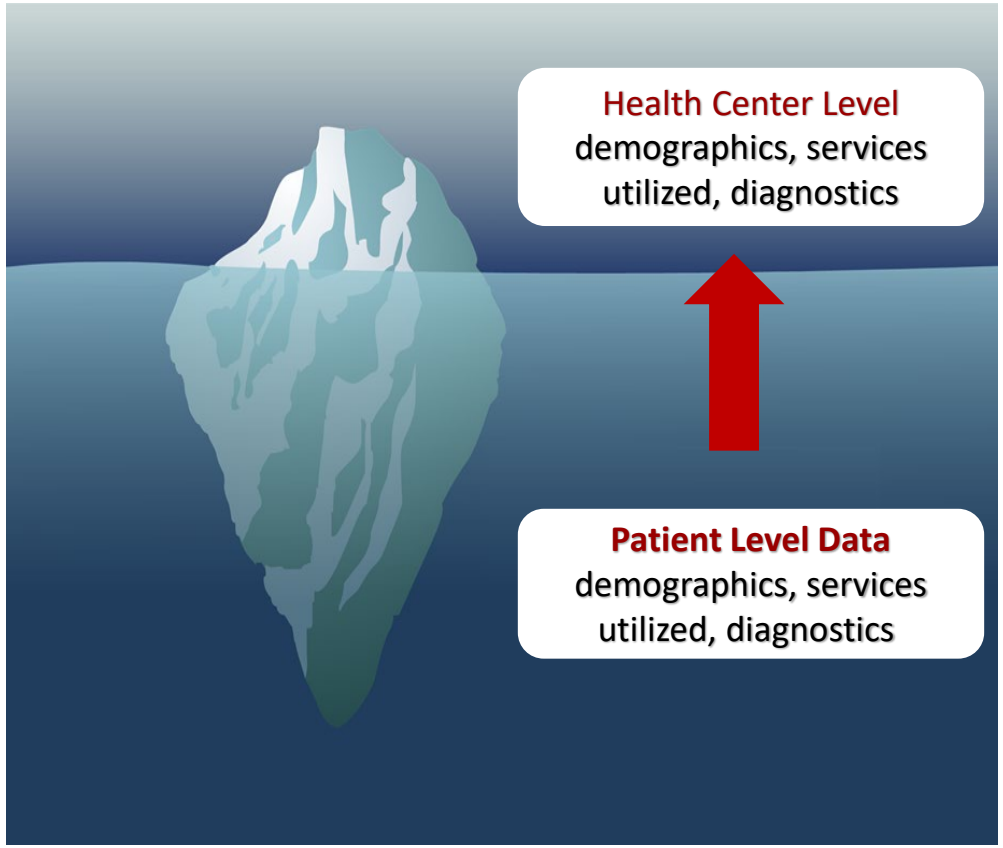
Automate data submission, provide enhanced UDS reporting capabilities, promote transparency and integrate stakeholder feedback.

Better Measure Impact

Improve the quality of UDS data to reflect improvements in patient-centered care and an evolving primary health care setting.

Promote Transparency

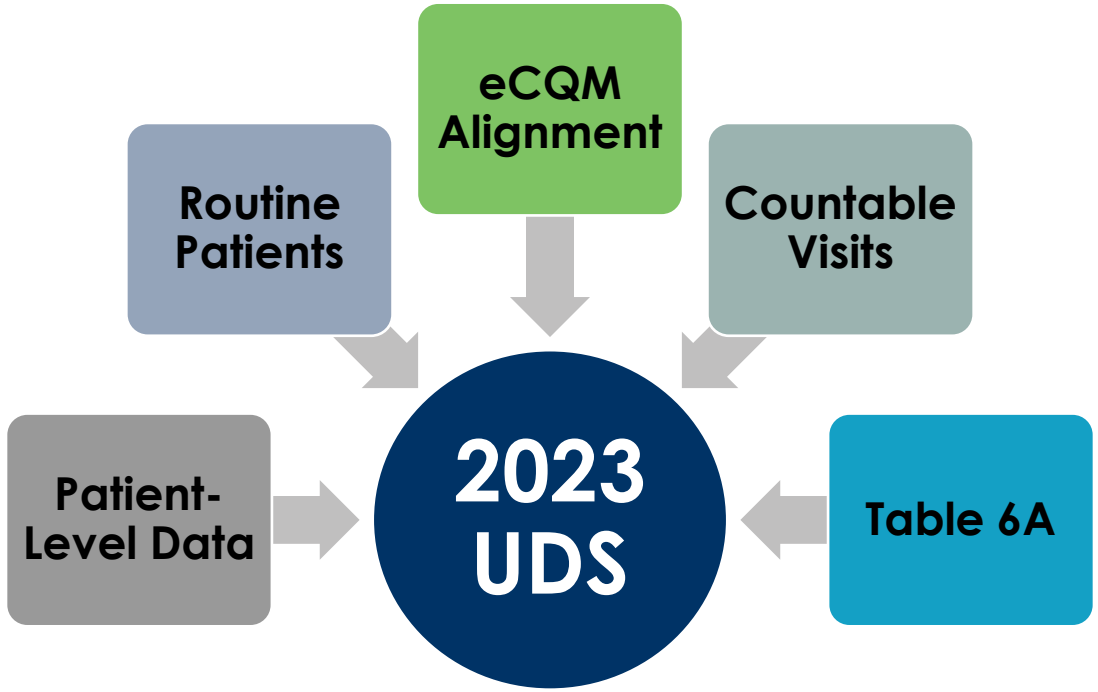
Provide an open transparent decision-making process on UDS changes such as measure selection, information technology, and reporting improvements.



2023 UDS: Implementing Modernization Efforts

The 2023 UDS will include

- Patient-level data submission (UDS+)
- "Routine Patient" indicators
- Full alignment of eCQMs
- Countable visits using electronic standards
- Alignment of data elements pulled from Table 6A with NLM value sets where possible



UDS+ Implementation Timeline

May 23, 2022: ARP-UDS+ Funding

ARP UDS+ supplemental funding opportunity is released to support health centers and look-a-likes build capacity for patient level reporting

September 2022: UDS+ FHIR Implementation Guide *(in progress)*

Draft UDS+ Implementation Guide available to UTC for input

Q4 2022: UTC IG Technical Review

UDS+ proof of concept with UDS Test Cooperative (UTC) using synthetic data

Q1-Q2 2023: Pilot Testing

Identify pilots for iterative testing using both synthetic and live health center data

Q3 2023: Publication

Publish Final UDS+ FHIR Implementation Guide & reporting options

February 15, 2024

Health centers submit patient-level data for CY 2023 UDS reporting

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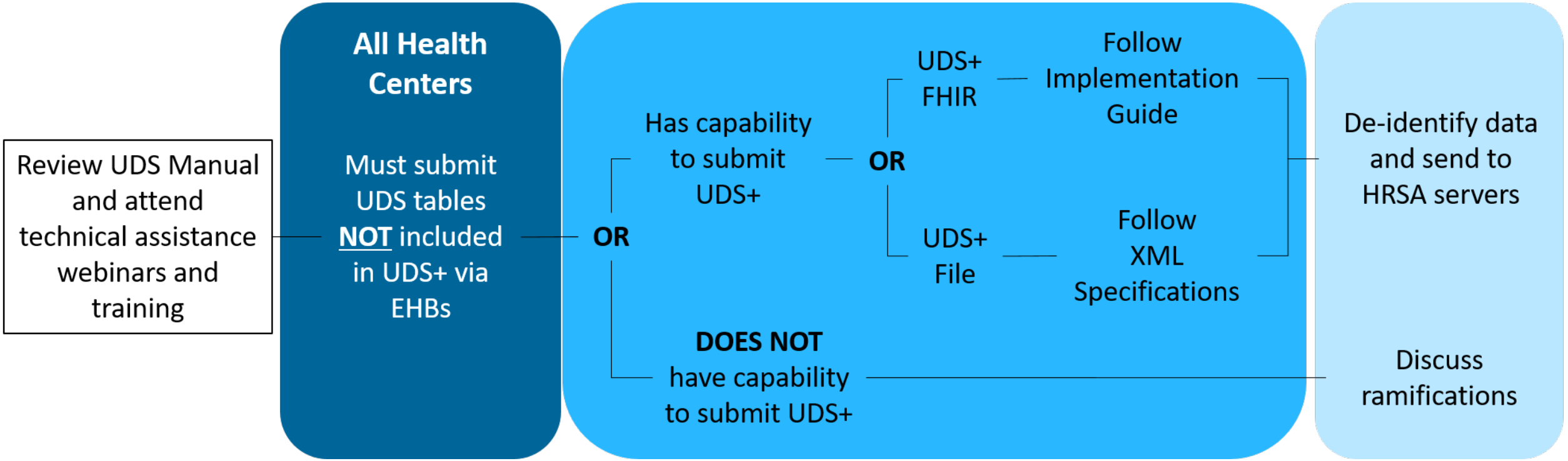
UDS+ Reporting Structure



BPHC is seeking volunteers for development and testing of proposed systems.
Please indicate your interest via the BPHC Contact Form.

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Draft UDS+ FHIR Implementation Guide

- FHIR Implementation Guide Definition
  - A FHIR implementation guide (IG) is a set of rules about how resources are used (or should be used) to solve a particular problem, with associated documentation to support and clarify the usage.
- The UDS+ Draft FHIR IG is currently being modified based on feedback provided during the readiness assessment; it will be publicly available once finalized.
- UTC Proof of Concept Participants will have access to draft versions and are actively providing input.
- The UDS+ FHIR IG will align with ONC and CMS regulations to the extent possible
  - Alignment will increase over time and as the ONC HRSA work progresses.

Move to Fast Healthcare Interoperability Resources (FHIR) based Health Information Exchange (1 of 2)

2009-2014 Meaningful Use (MU)

- American Recovery and Reinvestment Act (ARRA)
- Health Information Technology for Economic and Clinical Health (HITECH Act)
- Terminology Requirements
- Consolidated Clinical Document Architecture (C-CDA) Transitions of Care
- Patient Portal, Electronic Clinical Quality Measures (eCQMs), Registry, Security

2015 Medicare Access and CHIP Reauthorization Act (MACRA)

- 2015 Edition of Certification
- Application Programming Interface (API) Requirement
- Initial Common Data Elements (CDEs): Vital Signs, Date of Birth
- Unique Device Identification (UDI) for Medical Devices, Health Concerns, Goals

2016-2019 21st Century Cures

- Migration of MU Common Clinical Data Set to United States Core Data for Interoperability (USCDI)
- Removing barriers to data sharing for clinical use
- Information Blocking regulatory authority
- Creation of Interoperability Standards Advisory

Move to Fast Healthcare Interoperability Resources (FHIR) based Health Information Exchange (2 of 2)

2020-2021 Implementation

- United States Core Data for Interoperability (USCDI) version 2
- Federal Health Information Technology Strategic Plan
- Patient Access Expansion
- Payer Exchange Requirements
- FHIR Application Programming Interface (API) Requirement

2025

- Centers for Medicare and Medicaid Services (CMS) moves to digital quality measures

Move to Fast Healthcare Interoperability Resources (FHIR) based Health Information Exchange (combined)

Meaningful Use (MU)

- American Recovery and Reinvestment Act (ARRA)
- Health Information Technology for Economic and Clinical Health (HITECH Act)
- Consolidated Clinical Document Architecture (C-CDA) Transitions of Care
- Patient Portal, Electronic Clinical Quality Measures (eCQMs), Registry, Security

Medicare Access and CHIP Reauthorization Act (MACRA)

- 2015 Edition of Certification
- Application Programming Interface (API) Requirement
- Initial Common Data Elements (CDEs): Vital Signs, Date of Birth
- Unique Device Identification (UDI) for Medical Devices, Health Concerns, Goals

21st Century Cures

- Federal Health Information Technology Strategic Plan
- Migration of MU Common Clinical Data Set to United States Core Data for Interoperability (USCDI)
- Removing barriers to data sharing for clinical use
- EHR Vendors Required to Implement FHIR (by the of 2022)

2022 and Beyond Future

- Centers for Medicare and Medicaid Services (CMS) moves to digital quality measures
- United States Core Data for Interoperability (USCDI) version 2 & 3
- United States Core Data for Interoperability Plus (USCDI+)

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ONC 21st Century Cures Act Final Rule

Purpose

- To give patients and their healthcare providers secure access to health information
- To increase innovation and competition by fostering an ecosystem of new applications to provide patients with more choices in their healthcare

Requirements

- Application Programming Interface (API) certification criterion for health information technology will require the use of Health Level 7 (HL7®) Fast Healthcare Interoperability Resources (FHIR®) Release 4

Learn more about the final rule on the Office of the National Coordinator for Health Information Technology (ONC) and Center for Medicare and Medicaid Services (CMS) websites and the Federal Register.

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ONC and the 21st Century Cures Act

- **ONC is charged with formulating the federal government's health IT strategy to advance national goals for better and safer health care through an interoperable nationwide health IT infrastructure**

Laying the foundation of EHRs across the industry

- $40B CMS investment to subsidize EHRs for hospitals and ambulatory providers
- ONC certification of EHR systems to support CMS and CDC programs

Leveraging EHRs to drive value

- Prohibits providers, technology developers, and health information networks from "information blocking" ("preventing, discouraging, or interfering with access, exchange, or use of information")
- Requires access to information through APIs "without special effort"
- Requires nationwide governance for health information exchange networks – Trusted Exchange Framework and Common Agreement

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FHIR API Requirements

- **Open "application programming interfaces" (APIs) and apps are what make it easy to check your bank account or buy stocks or order meal delivery on your smartphone**
  - We want providers and patients to have that same experience the health care system
- **21st Century Cures Act requires availability of APIs that can be accessed "without special effort"**
  - ONC rule takes steps to prevent business and technical barriers to information-sharing
- **By December 31, 2022, all certified technology developers required to deploy a standard FHIR API across their entire customer base**
  - Will create a climate for innovation as apps can now be developed that will work across all EHR systems

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What are Fast Healthcare Interoperability Resources (FHIR)?

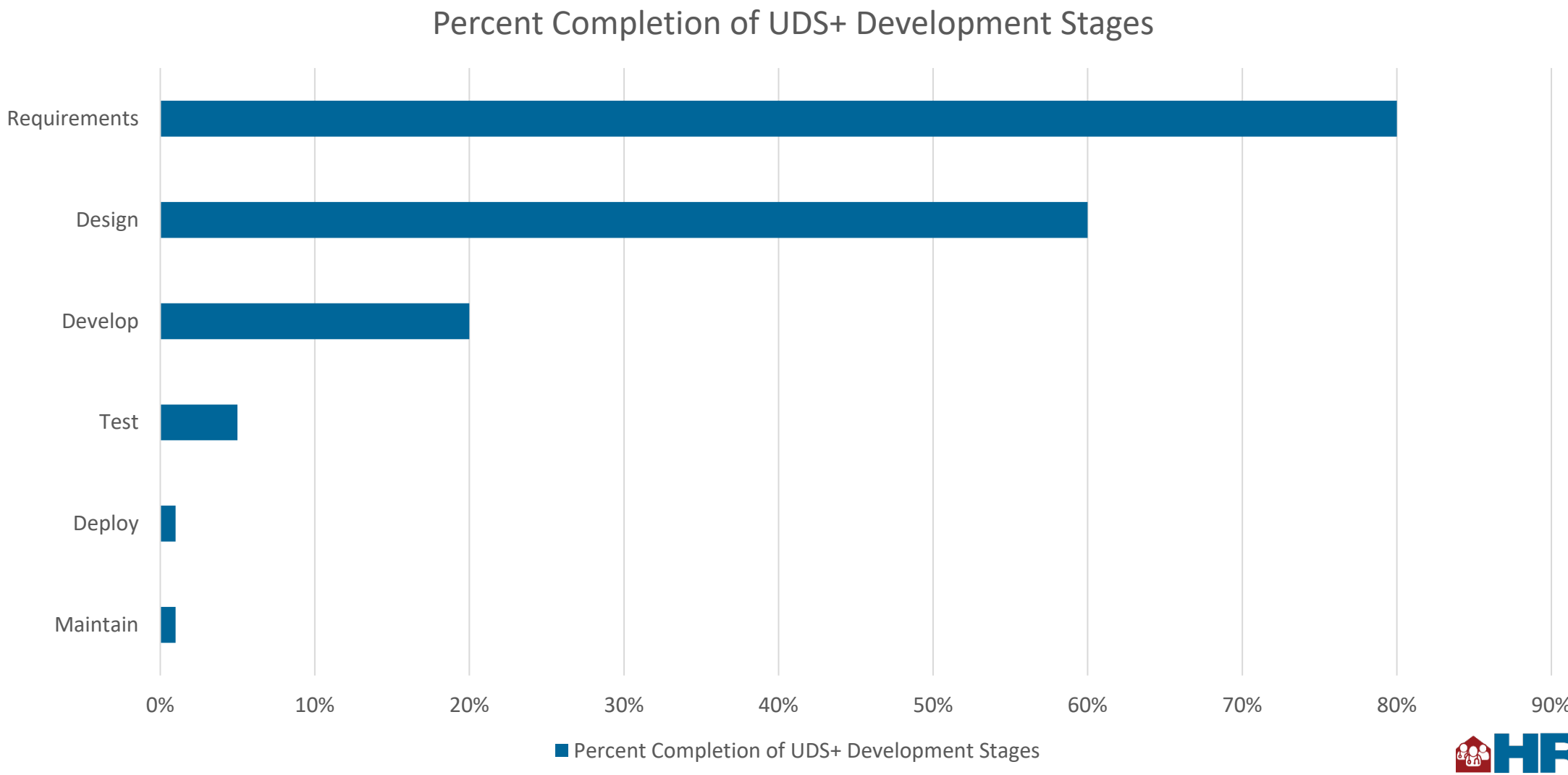
- Standards that define how healthcare information can be exchanged between different computer systems regardless of how it is stored in those systems
- Next generation of Health Level 7 (HL7) Standards
- Built from a set of modular components called “resources”
- The “resources” can be bundled into any combination to support many uses for data sharing

For a summary definition and most current FHIR version, visit the HL7 website.

USCDI vs USCDI+

USCDI	USCDI+
Comprises a core set of data needed to support **patient care** and **facilitate patient access** using health IT	Comprises a core set of data needed to specifically **support the needs of the agency's partners**
Establishes a consistent baseline of data elements that can be **broadly reused across use cases**, including those outside of patient care and patient access	Establishes a consistent baseline of data elements that are **tailored to specific, high-priority, agency use cases**
Expands incrementally over time via a weighing both anticipated benefits and **industry-wide impact**	Expands rapidly over time via weighing federal **agencies and agency partners' priorities and high impact** use cases

HRSA Progress on UDS+ to Date



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UDS Test Cooperative (UTC)

A forum for representative stakeholders to provide feedback on potential UDS changes.

HRSA/BPHC	Identify UDS requirements
	Analyze feedback and make decisions
	Publish new UDS requirements
PCA/HCCN	Identify test participants (health centers)
	Coordinate with health center conducting tests
Health Centers	Engage and participate in the tests
Health Centers	Set up testing infrastructure to support tests, when applicable
NTTAPs	Engage and participate in the tests
HRSA/BPHC	Research, design, and manage UTC tests
	Analyze results and provide objective recommendations to HRSA based on test evidence and participant feedback
	Convene UTC and facilitate communications with the UTC steering committee

To join the UTC, please communicate your interest to HRSA using the BPHC Contact Form.

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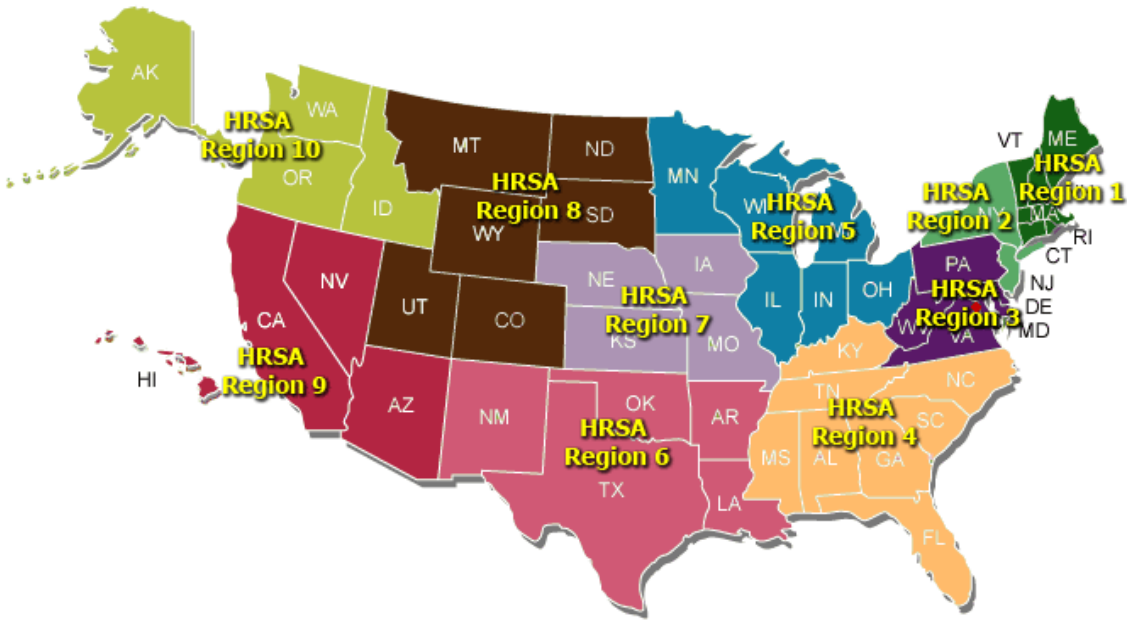
Steering Committee Selections



Region	Organization Type	Organization
1	HCCN	Ohio Shared Information Services, Inc.
2	Health Center	Open Door Family Medical Center
3	Health Center	Delaware Valley Community Health, Inc.
4	Health Center	Coastal Family Health Center
5	HCCN	Alliance Chicago
6	Health Center	Presbyterian Medical Services Health Center
7	PCA	Center for Health Care Quality
8	HCCN	Colorado Community Managed Care
9	HCCN	Oregon Community Health Information Network
10	Health Center	Tanana Chiefs Conference

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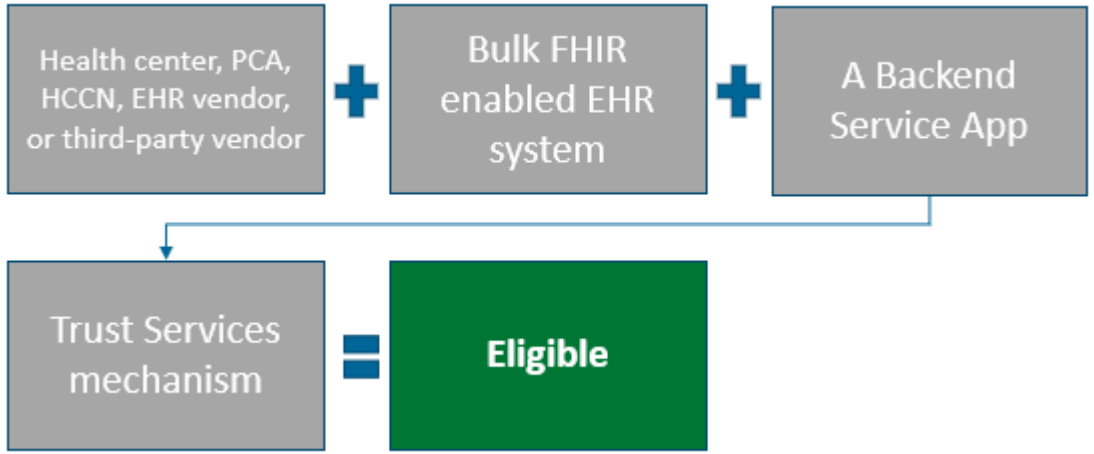
UTC Eligibility for UDS+ PoC

Eligible Stakeholders:

- Health centers, Primary Care Associations (PCAs), Health Center Controlled Networks (HCCNs), EHR vendors, third party vendors

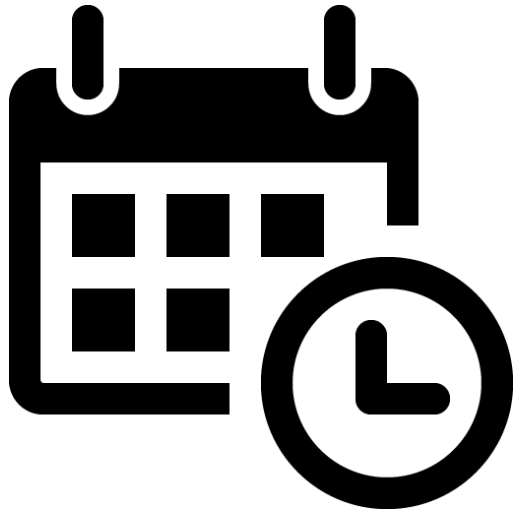
Technology Required:

- Bulk-FHIR enabled EHR system
- A Backend Service App (BSA)
- Trust Services mechanism
- Be able to generate or download and utilize synthetic data (file can be provided)



UTC Expected Timeline Commitment for UDS+ PoC

- UTC participation is expected to span from June 2022 to April 2023 (approximately 11 months)
- UTC members will attend meetings at least once per month, but the time commitment will vary
- Participants selected to conduct approximately 1-2 tests per year



Leveraging the UTC to Test UDS Innovations

Completed 2019

eCQM Alignment

Standardize reporting across federal qualified health centers by aligning eCQMs to reduce manual calculation and reporting burden

Completed 2020

Routine Patients

Define and calculate CQM performance for routine patients to improve the accuracy and usefulness of health center CQM reporting

Countable Visits

Collect and report UDS countable visits by using electronic standards to increase data reliability and reduce variability

Table 6A

Align diagnoses and services in Table 6A with national value sets and use electronic standards to improve consistency and accuracy

Testing 2023

UDS+ FHIR IG

Validating that FHIR servers accurately adhere to UDS FHIR specifications

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UTC 2019 Test Results – CQM Alignment

Purpose

1. Understand how UDS CQMs and CMS eCQMs differ for the same measures
2. Gather feedback on the burden and feasibility of transitioning to CMS eCQM specifications

Test Results

- Perfect alignment would add value and lessen burden
- Change unlikely to result in significant challenges

Test Participants

19 health centers

60 health center sites

9 CMS regions

Impact

- **Consistent Format**: health centers are able to use the same measure to report CQMs to UDS and CMS
- **More Accurate Data**: data reflects program services and outcomes with greater accuracy
- **Less Burden**: gathered electronically with less manual data entry reduces health center burden
- **Rate Change**: differences between CMS and UDS rates will be addresses to minimize impacts

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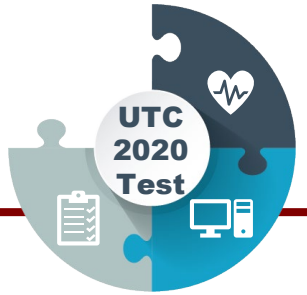
UTC 2020 Test Results

Routine Patients, Countable Visits, and Table 6A (1 of 2)



Purpose

1. Transform the current UDS state from a *narrative environment* to an **electronically empowered environment** (e-specifications)

Test Results

- Routine Patients test showed a meaningful difference in CQM performance by separating routine and non-routine patients
- Countable Visits and Table 6A tests demonstrated that it is feasible to use electronic standards to accurately represent UDS data

Test Participants

18 health centers

3 health center controlled networks

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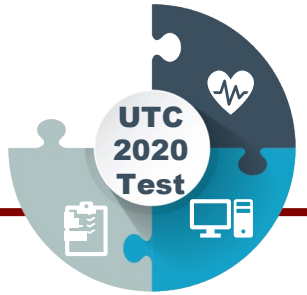
UTC 2020 Test Results
Routine Patients, Countable Visits, and Table 6A (2 of 2)



Impact

- **More Impactful Reporting:** Use of Routine Patient on a select group of CQMs or health centers can improve usefulness of CQM reporting
- **Reduced Burden**: Use of value sets reduces health center burden for identifying and collecting health data
- **More Accurate Reporting**: Use of value sets provides a way to improve CQM reporting accuracy and consistency
- **Streamlined Process**: Use of value sets streamlines the process for identifying and collecting health data

UTC Test Results Summary

Test Results

- Routine Patients test showed a meaningful difference in CQM performance by separating routine and non-routine patients
- Countable Visits and Table 6A tests demonstrated that it is feasible to use electronic standards to accurately represent UDS data

Impact

- **More Impactful Reporting:** Use of Routine Patient on a select group of CQMs or health centers can improve usefulness of CQM reporting
- **Reduced Burden**: Use of value sets and alignment with CMS reduces health center burden for identifying and collecting health data
- **More Accurate Reporting**: Use of value sets provides a way to improve CQM reporting accuracy and consistency
- **Streamlined Process**: Use of value sets streamlines the process for identifying and collecting health data

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Resources

To support your transition to patient level reporting:

- View informational webpages: UDS Modernization Overview, UDS Modernization FAQs, UDS Test Cooperative
- Subscribe: Primary Care Digest

Provide feedback:

- HRSA's Proposed Information Collection Request for UDS contains information about UDS+ and is available for review on the Federal Register through December 20, 2022.
- BPHC Contact Form (select UDS Modernization)

Thank You!

Office of Quality Improvement (OQI)

Bureau of Primary Health Care (BPHC)

Health Resources and Services Administration (HRSA)

Send inquiries via the BPHC Contact Form *(select UDS Modernization)*.

bphc.hrsa.gov

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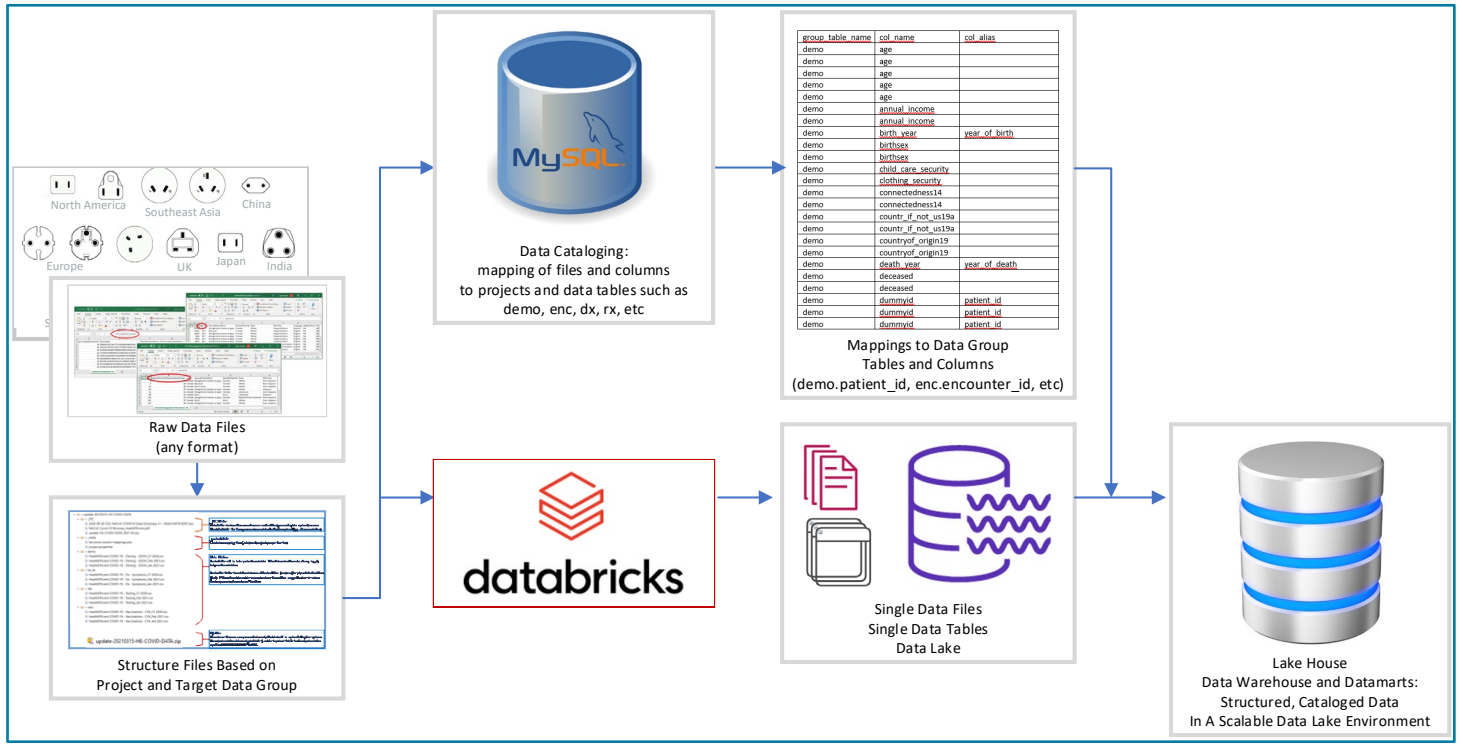
NACHC is on FHIR:

How We Implement FHIR-based Standards for Health Data

NACHC's Master Data Management Strategy

Use of FHIR and OHDSI/OMOP to completely automate and streamline data exchange

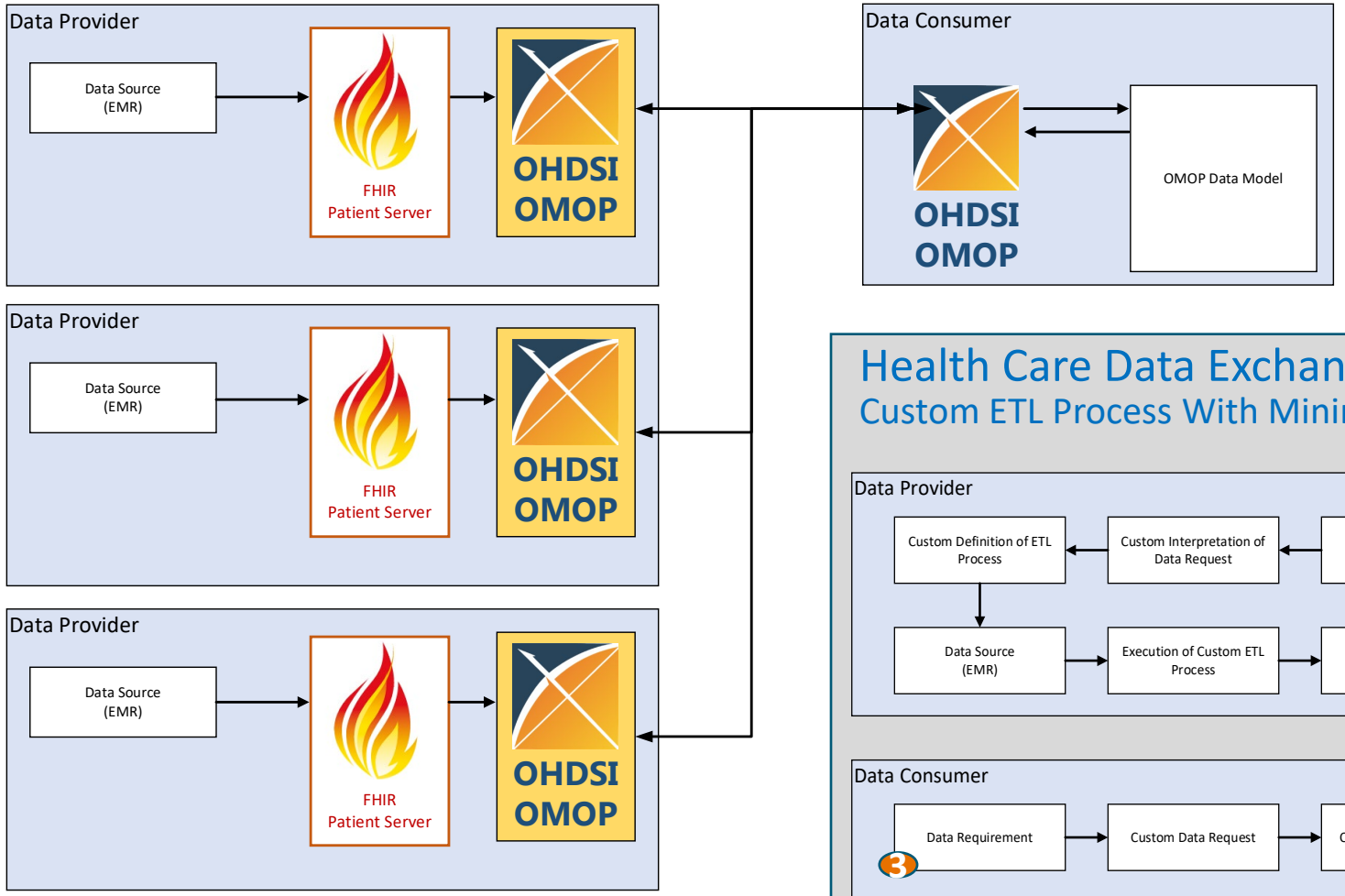
Current State NACHC Architecture



Opportunity: A Wealth of Information and a Plethora of Formats

- Manage and Leverage the Current State
  - Develop expertise and efficiency in using the data available as it is today
  - We have a highly scalable and agile solution for the use and management of highly complex data and an amazing and diverse team of clinicians, engineers, and scientists
- Be the Architects of the Future State
  - Develop common reproducible solutions for the data available today
  - Drive partners and collaborators towards common reproducible solutions
  - Contribute and collaborate with the community to develop tools, techniques, standards, etc. to manage the data available toda
  - Participate in the community to drive towards the effective implementation and use of standards that are modernizing interoperability (FHIR, OMOP, Terminologies, etc.)

Future State With FHIR and OHDSI OMOP

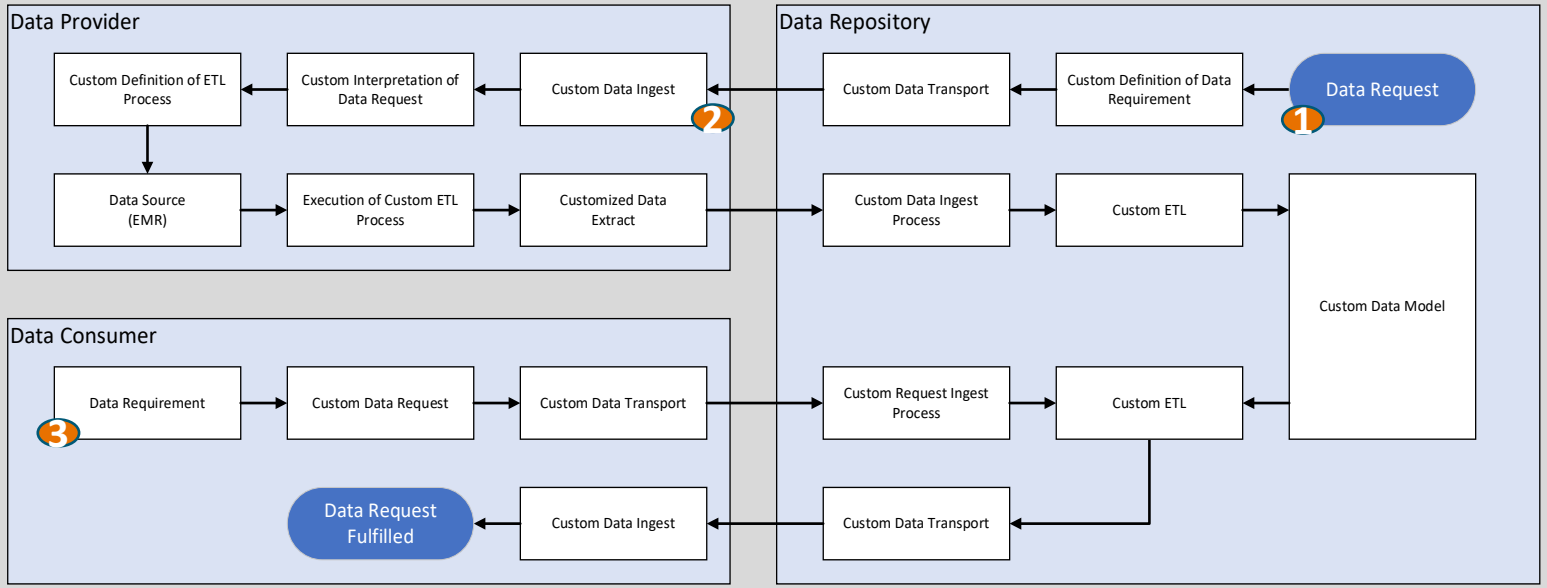


For each data request

- All ETL processes are encapsulated in the FHIR to OMOP conversion

Health Care Data Exchange Current State:

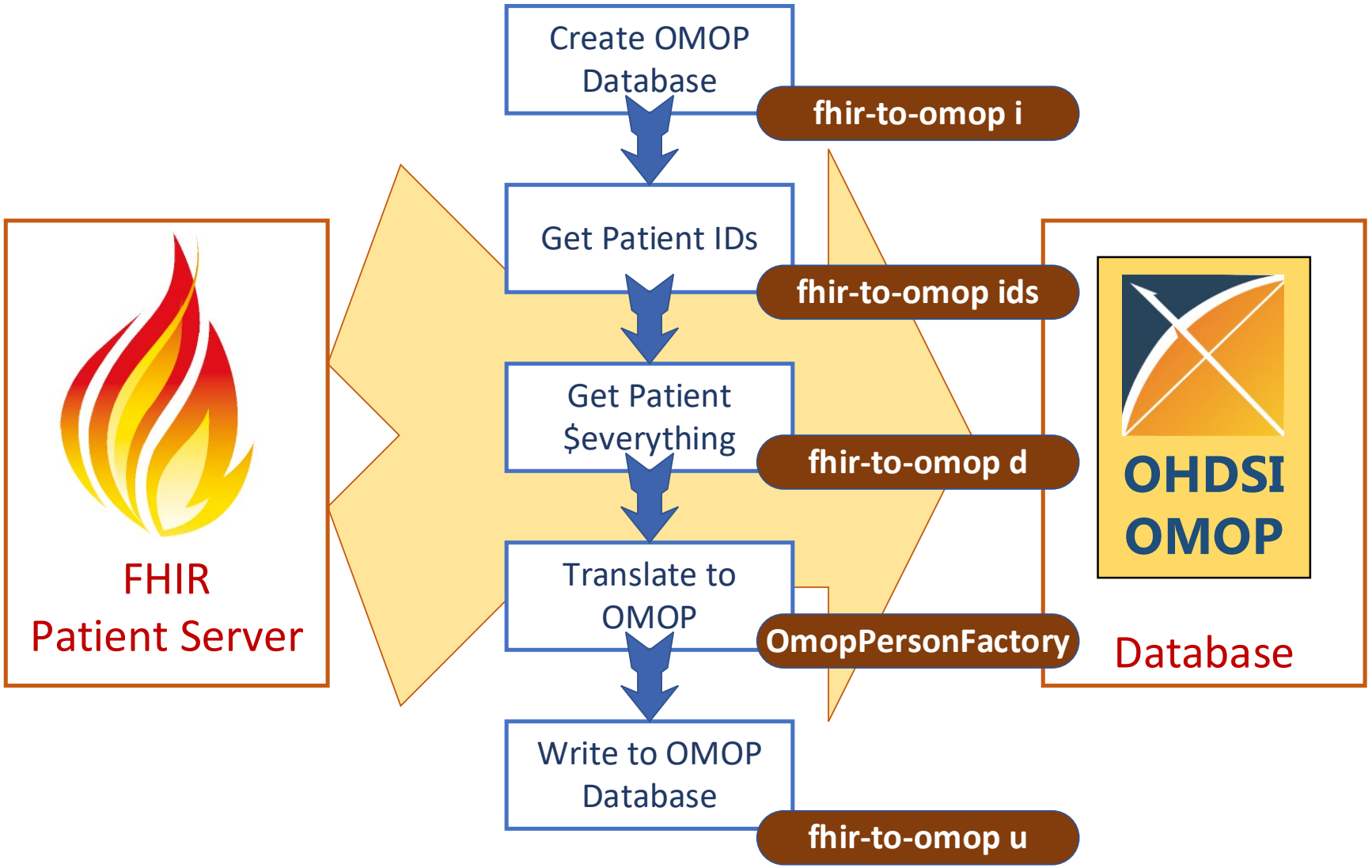
Custom ETL Process With Minimal Reuse



1. The data consumer creates a custom data request and forwards it to the data provider. The data provider creates a custom ETL process to extract the data from their data repository.
2. The data repository executes the custom ETL processs and forwards the data to the data consumer. The data repository creates a custom ETL process to ingest the data.
3. A consumer of the data repository creates a request that is in a format specific to the repository. The repository maintains a custom ETL process to fulfill the request.

NACHC fhir-to-omop

https://nachc-cad.github.io/fhir-to-omop/index.html

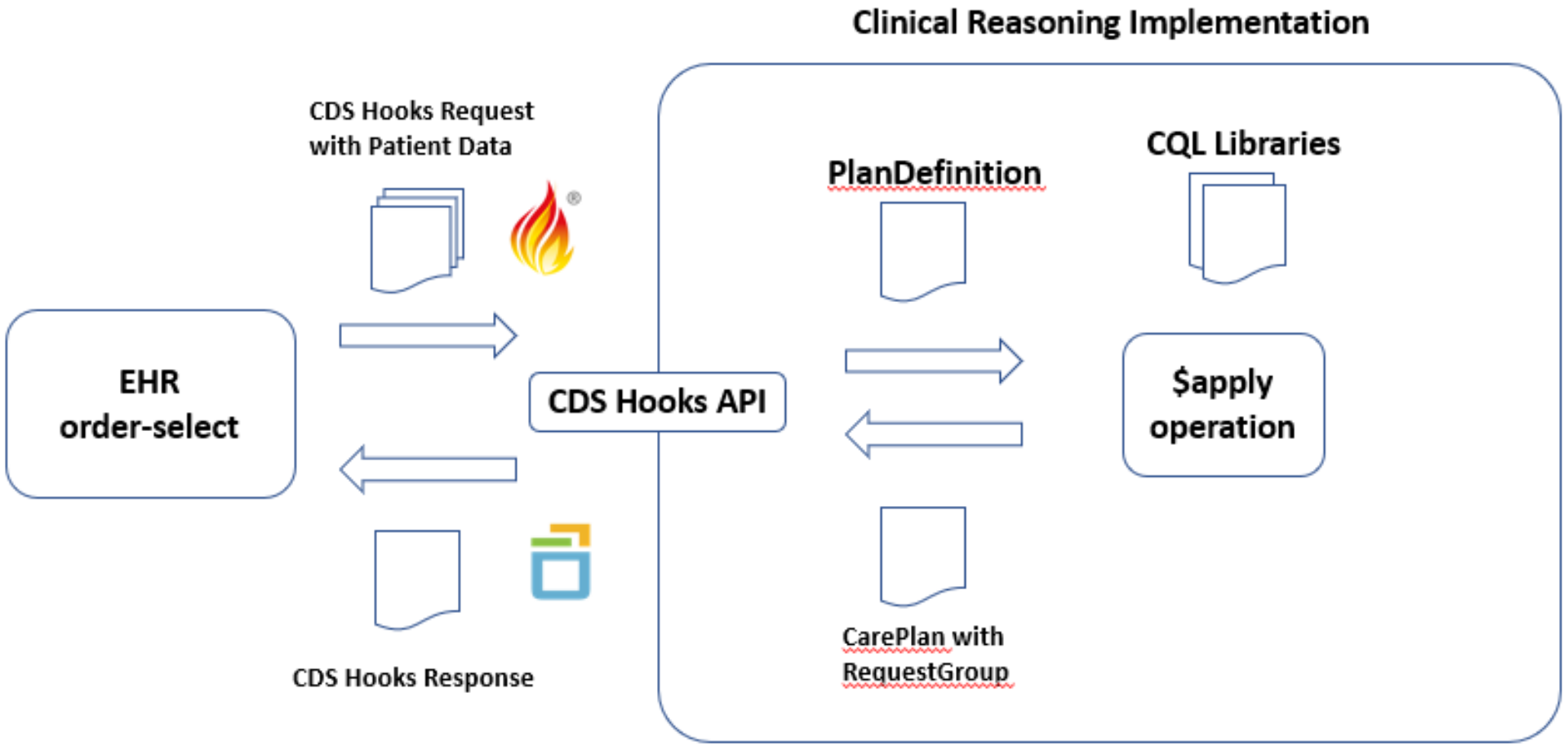


Accomplishments so far

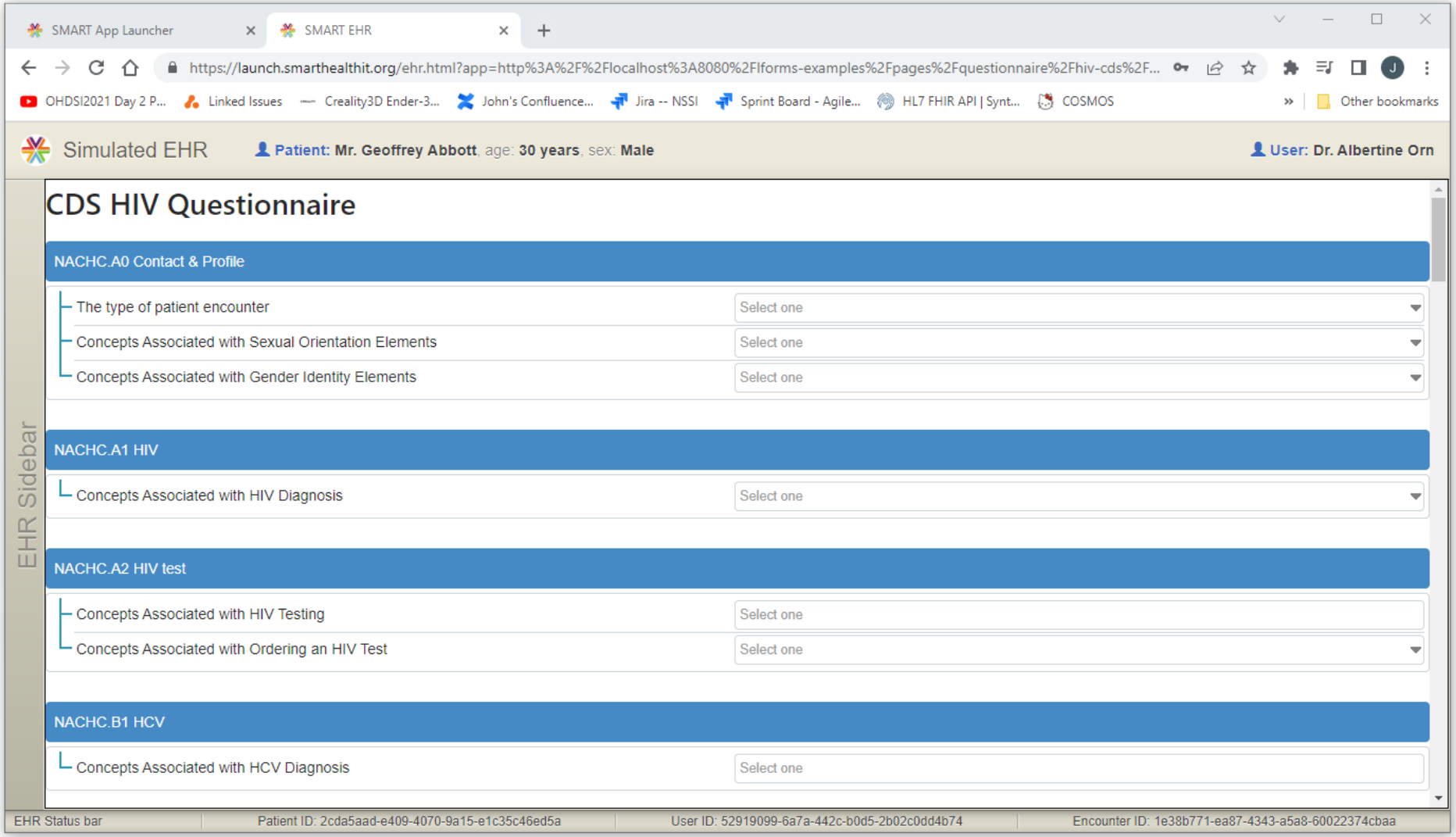
- **Component based architecture**: Tools can be used out of the box and custom implementations can be created by using individual components
- Extensive testing including integration and unit testing using JUnit as well as integration with OHDSI Data Quality Dashboard (DQD), Achilles, Atlas, and other OHDSI tools
- Implementation of solution for FHIR system to OMOP vocabulary_id
- Implementation of solution for FHIR to OMOP race/ethnicity mappings
- Implementation of **solution for download of Patient/[id]/$everything resources** including solution for paged resources
- **Implementation of advanced threading model**
- Testing and validation tools can be extended to not only validate our system but to **validate FHIR patient data sources** as well as other FHIR to OMOP implementations
- Using SyntheticMass as a representative data provider
- Solved issues of scalability:
  - Download rates of approximately 1 million patients in 24 hours (limited by FHIR server source)
  - **Parse and upload rates of approximately 1.5 million patients in 2 hours** (~100 patients per second)
- Automation of installation of **OMOP Common Data Model database and OHDSI tools including Achilles and Atlas**

SMART on FHIR Architecture: Write once and reuse

from: https://build.fhir.org/ig/cqframework/hiv-cds/architecture.html



NACHC SMART on FHIR Questionnaire and Clinical Decision Support: CDC guidelines for HIV testing



Next Steps

- Ongoing extension to our implementation of the FHIR-to-OMOP data that includes only the resources we needed for our current efforts. Mapping of additional resources and refinements of the mappings will continue.
- Integration of existing and other FHIR to OMOP mappings: The FHIR-to-OMOP project contains a suite of resources that enable scalability including a threading model that allows for very rapid uploads and extensive JUnit testing. These tools can be applied to other implementations of FHIR to OMOP mapping.
- Working with HL7 Connectathons, in standards development and finding other testing partners and content
- Evaluating and testing the UDS+ IG internally with SyntheticMass
- Building new and updating existing SMART on FHIR applications for use by health center partners

Useful Resources towards FHIR-enabled Data Architecture

- Specific FHIR Implementation Guides (IGs) such as the one for the hiv-cds project at https://build.fhir.org/ig/cqframework/hiv-cds/index.html
- HL7 Connectathons and Dev Days
  - A great opportunity to meet and work directly with the top people working in FHIR
  - https://www.devdays.com/
  - https://www.hl7.org/events/fhir-connectathon/
- OHDSI/OMOP Web pages and meetings
  - https://ohdsi.org/
  - The OHDSI Community holds regular working group and general interest meetings
    - https://ohdsi.org/this-week-in-ohdsi/
    - https://www.ohdsi.org/ohdsi-community-calls-2021/
    - Sign up for OHDSI Workgroups: https://forms.office.com/Pages/ResponsePage.aspx?id=lAAPoyCRq0q6TOVQkCOy1ZyG6Ud_r2tKuS0HcGnqiQZUOVJFUzBFWE1aSVlLN0ozR01MUVQ4T0RGNyQlQCN0PWcu

How to Achieve FHIR and UDS+ Readiness

- Join the UTC!
- Designate team members to evaluate UDS+ Readiness
- Contact your vendor to take advantage of coming capabilities and tools
- Attend or join HL7 meetings
- Consider participating in FHIR Connectathons
- Create a UDS Mapping Plan
- Create a UDS Testing Plan
- Join NACHC-lead and other UDS+ and FHIR community events
  - Informatics@nachc.com or jskapik@nachc.com

THANK YOU!

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Appendix

Data Table – Percent Completion of UDS+ Development Stages

UDS+ Development Stages	Percent Completion of UDS+ Development Stages
Maintain	1%
Deploy	1%
Test	5%
Develop	20%
Design	60%
Requirements	80%