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Trusted Exchange Framework and Common Agreement – QHIN Technical Framework (QTF) Overview

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Visit www.RCE.SequoiaProject.org to view the Common Agreement Version 1 and the QTF Version 1.

Agenda

- What are the components of TEFCA?
- What are the technical aspects of TEFCA?
  - » Workflows
  - » Functions and Technology to Support Exchange
- How will TEFCA be operationalized?
- Questions & Answers

What are the components of TEFCA?

TEFCA Components

Focus of today's Webinar

Trusted Exchange Framework	Common Agreement	Standard Operating Procedures	QHIN Technical Framework	QHIN Onboarding	Metrics	Governing Approach

What is the QHIN Technical Framework?

The QHIN Technical Framework (QTF) outlines the technical specifications and other technical requirements necessary for QHINs to accomplish exchange.

The QTF primarily addresses QHIN-to-QHIN transactions, and is generally silent on how the necessary functional outcomes are achieved within a QHIN.

There are some requirements that must be enforced at the Participant and Subparticipant level.

The QTF is available at RCE.SequoiaProject.org

- TEFCA includes QHIN eligibility criteria that generally address:
  - » The ability to perform the required functions of a QHIN, per the QTF.
  - » The legal structure and governing approach for a QHIN.
  - » Demonstrated resources and infrastructure to support a reliable and trusted network.

- QHINs will be expected to provide ongoing reporting on metrics and other information needed to monitor performance over time.

- The RCE will conduct extensive education for candidate QHINs on the application and onboarding processes.

- Only the RCE designates QHINs.

Timeline to Operationalize TEFCA

2021
- Public engagement
- Common Agreement Work Group sessions
- RCE and ONC use feedback to finalize TEFCA

Q2 of 2022
- QHINs begin signing Common Agreement and applying for designation

2023
- Establish Governing Council
- Follow change management process to iterate Common Agreement, SOPs, and QTF, including to support FHIR-based exchange

2021	2022 – Q1	Q2	Q3	Q4	2023

Q1 of 2022
- Publish Common Agreement Version 1
- Publish QHIN Technical Framework (QTF) Version 1 and FHIR Roadmap
- Initiate work to enable FHIR-based exchange
- Public education and engagement

Q3 and Q4 of 2022
- Onboarding of initial QHINs
- Additional QHIN applications processed
- RCE establishes Transitional Council
- RCE begins designating QHINs to share data
- Prepare for TEFCA FHIR exchange pilots

What are the technical aspects of TEFCA?

Components of the QHIN Technical Framework

Supported Information Flows:
- Patient Discovery
- Document Query
- Message Delivery

Data Exchanged (Query):
- Available electronic health information in C-CDA 2.1, including the United States Core Data for Interoperability (USCDI) V1

Functions and Technology to Support Exchange:
- Certificate Policy
- Secure Channel
- Mutual QHIN Server Authentication
- User Authentication
- Authorization and Exchange Purpose
- Patient Identity Resolution
- Individual Privacy Preferences
- Directory Services
- Auditing
- Error Handling
- Onboarding and Testing

Approach:
- Build from current capabilities
- Deploy known standards
- Keep an eye toward future approaches
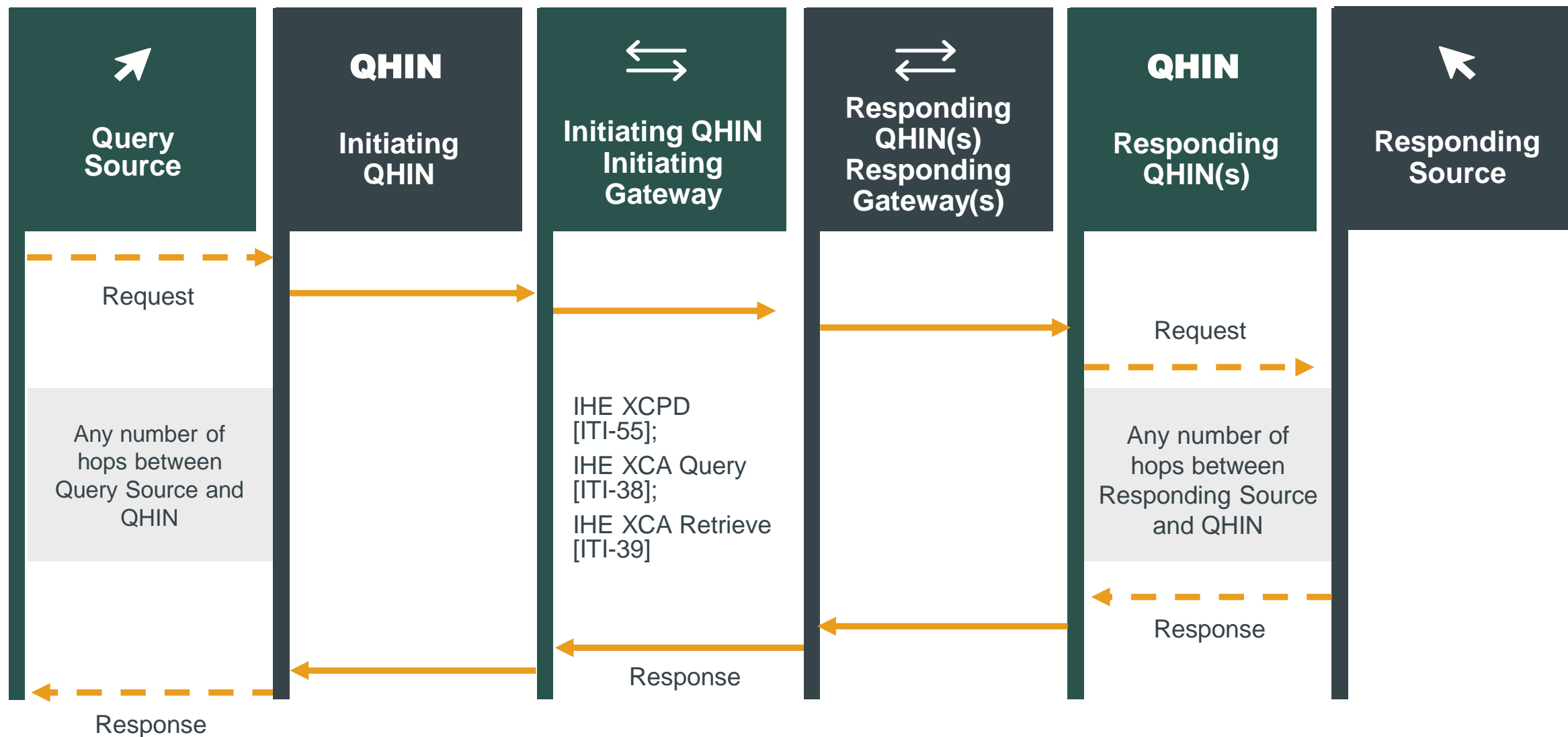
Exchange Modalities

Query
- o Patient Query
- o Document Query
- o Document Retrieve

Message Delivery

Note: Entities within a QHIN's network must respond to queries for Exchange Purposes in accordance with the Common Agreement and applicable law, but do not have to be able to receive data sent to them using message delivery.

Query – Technical Data Flow Diagram

Patient Discovery

Basic Flow:

- Demographics-based query with all available (USCDI V1) demographics
- Converted to XCPD query by Initiating QHIN, if not in that format
- Forwarded by Responding QHINs through network to Responding Sources
  - Converted from XCPD if necessary
- Patient Discovery responses MUST include the Responding Source's HomeCommunityID, Assigning Authority, and the patient identifier when a successful patient match is found
- Addresses must be converted, if needed to conform to Project US@ Technical Specifications

Alternates:

- Targeted queries to specific Responding Sources
- (I)ACP asserted
- QHIN has federated MPI/RLS

Document Query & Retrieve

Query:

- Query Source selects patient for document query
- Sends query to Initiating QHIN
- Initiating QHIN queries Responding QHINs for available documents via ITI-38 "FindDocuments"
- Responding QHINs lookup sources and forward queries as appropriate.
- Responding sources respond with document entries for available documents

Retrieve:

- Query Source selects documents for retrieval and sends Query
- Initiating QHIN sends ITI-39 to appropriate Responding QHINs
- Responding sources send documents requested.
- Responding QHINs MAY convert documents to C-CDA 2.1, when doing so MUST use defined templates from CDA R2 Implementation Guide
- Query Source has all requested documents or has error conditions why some or all not available.

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Message Delivery – Technical Data Flow Diagram
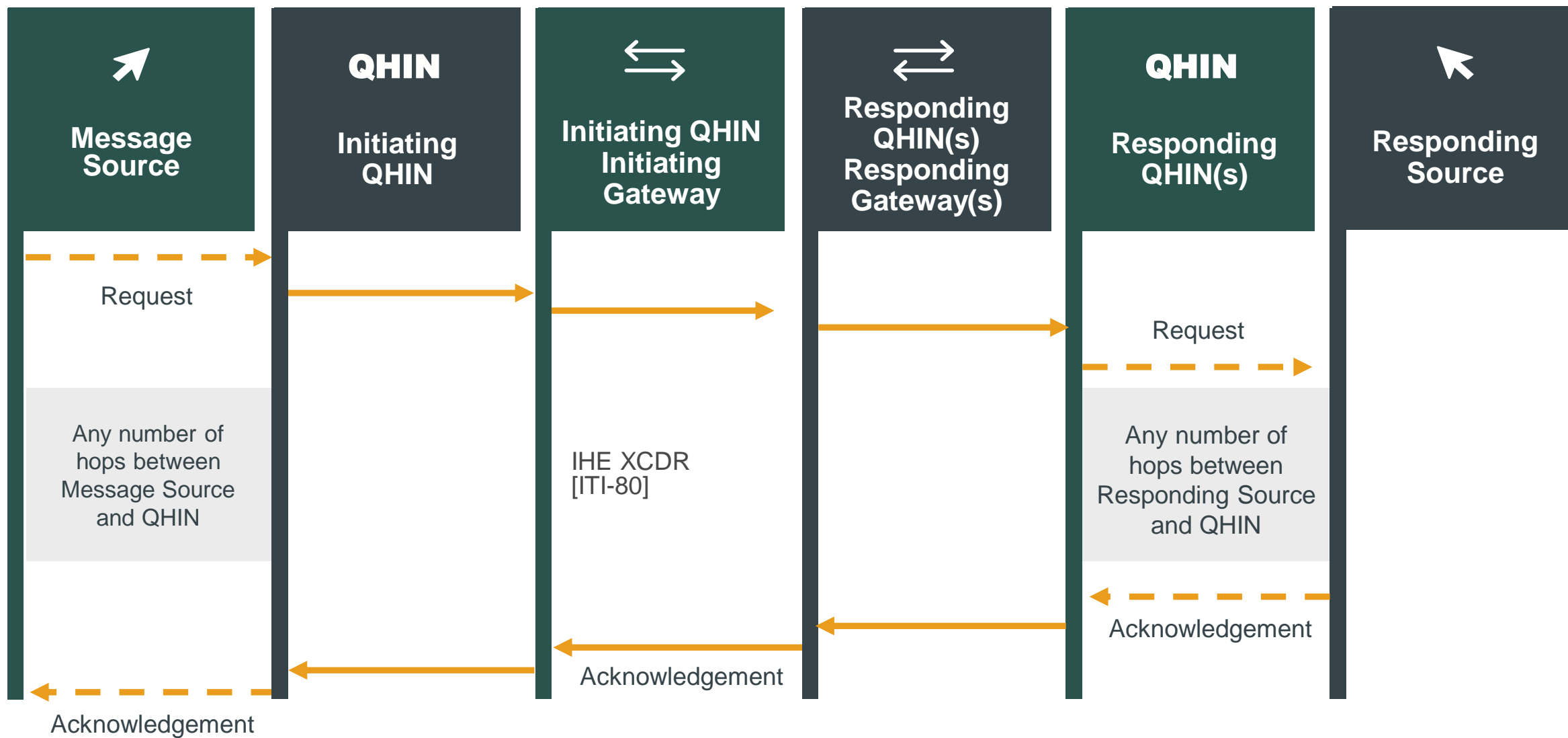
Message Delivery

- Message source requests destination HCID from Initiating QHIN or has HCID from previous query

- Sends message content through network to Initiating QHIN including demographics and/or known patient identifier(s) for patient matching

- Initiating QHIN converts to ITI-80, if needed, and sends to Responding QHIN

- Responding QHIN sends message to Destination via network

- Destination sends acknowledgement of receipt back through network, must be converted to ITI-80 response, if needed

- Destination has responsibility to dispense message to end user as per policy

- Error message may be returned from any part of the process if undeliverable

Functions and Technology to Support Exchange

Base Requirements

- All QHIN transactions are defined by the IHE IT Infrastructure Technical Framework, Rev. 17 or supplements
- All QHINs MUST be able to communicate successfully to all other QHINs or must address and resolve within the shortest feasible time (45 CFR 171.204 (1) and (3))
- All QHINs MUST be able to communicate successfully to all their participants or must address and resolve within the shortest feasible time (45 CFR 171.204 (1) and (3))

Certificate Policy

- All certs X.509 V3
    - 112 bits minimum
    - Public key 256 bits
    - Must be sourced from the RCE

- A cryptographic modules must be FIPS-140-2 or -3 compliant

Secure Channel & Mutual QHIN Server Authentication

- When interacting with another QHIN, a QHIN MUST be using TLS protocol version 1.2 or above.

- When interacting with its own Participants, QHINs MUST use TLS 1.2 or higher, or Oauth 2.0.

- Use of the TLS 1.2 protocol MUST be consistent with IETF BCP 195.

- Secure channel and authentication MUST conform to NIST Special Publication 800-52 Revision 2 with the exceptions of:
  - The following extensions MUST NOT be used:
    - TLS 1.2 Extension Client Certificate URL
    - TLS 1.3 Extension Early Data Indication
    - TLS 1.3 Zero Round Trip Time Resumption.

- Use of TLS 1.3 SHOULD be prioritized prior to January 2024 and MUST be prioritized by January 2024.

User Authentication

- Uses IHE XUA

- A QHIN MUST rewrite the SAML information and sign it using the QHIN SAML certificate. The new SAML assertion MUST persist the originating user and, as applicable, organization information.

- The SAML assertion MUST include:
  - User information including name, UserID, Subject-Role, and, if appropriate, National Provider Identifier (NPI).
  - Organization name and HomeCommunityID of the Participant or Subparticipant initiating the transaction (i.e., the Query or Message Source).
  - Patient Identifier, if known, and
  - The SAML assertion MAY include the Authz-Consent Option

Exchange Purposes

- The Exchange Purpose identifies the reason for which information could be requested or shared through QHIN-to-QHIN exchange.

- Only these six Exchange Purposes are authorized under the Common Agreement.

- A forthcoming SOP will specify that Treatment and Individual Access Services (IAS) require Responses.

- Eventually, the other four Exchange Purposes will require Responses in conformance with forthcoming implementation guides. These will be rolled out with adequate time for stakeholders to prepare.

- Additional Exchange Purposes may be added over time, including whether they require Responses.

Permitted Exchange Purposes

Treatment

Payment

Health Care Operations

Public Health

Government Benefits Determination

Individual Access Services

Patient Matching

- QHINs must be capable of accurately resolving requests to match patient demographic information with patient identities.

- QHINs, Participants, and Subparticipants can choose patient matching techniques that meet their business needs, if they satisfy the functional requirement to accurately match patients and locate their records. Examples include Enterprise Master Patient Index (eMPI), a Record Locator Service, or other means.

  » All techniques must meet SLA requirements, when determined.

- To help support accurate patient matching, the Query or Message Delivery source is required by the QTF to include all available demographic information to facilitate a positive match.

- Patient matching can be centralized (a QHIN function) or distributed (a Participant function).

- The RCE is actively participating in the national dialogue to improve patient matching work and will work with QHINs to develop matching recommendations and/or requirements in the future.

RCE Directory Service

- The RCE will maintain a RCE Directory Service to support exchange of information between and among QHINs, Participants, and Subparticipants.

- The Common Agreement identifies the rights and limits of use of the RCE Directory Service. For example, the information contained in the RCE Directory Service is prohibited from being used for marketing purposes unless that marketing is merely incidental to an effort to expand or improve connectivity via the Common Agreement.

- The QTF specifies expectations for QHINs to access and contribute to the RCE Directory Service.

Auditing

- Follows IHE ATNA standards for QHINs with addition of:

Data	Audit Record Location
Originating organization (i.e., Query Source or Message Source)	Originating Agent: ActiveParticipant with an extension for Organization Name
Originating user	Originating Agent: ActiveParticipant
Destination HCID(s)	Destination Agent: ActiveParticipant with an extension for HCID Information
Initiating QHIN	RoleIDCode is IQHIN Sending Agent: ActiveParticipant with an extension for QHIN HCID
Sending Participant (if auditor is Initiating QHIN)	Sending Agent: ActiveParticipant with an extension for Organization HCID
Responding QHIN	RoleIDCode is RQHIN Receiving Agent: ActiveParticipant with an extension for QHIN HCID
Receiving Participant (if auditor is Responding QHIN).	Receiving Agent: ActiveParticipant with an extension for Organization HCID

- All transactions between QHINs and Participants and/or Participants and Subparticipants MUST be represented in audit log entries that adhere to ASTM E2147-01 as a minimum requirement ASTM E2147 – 01 *Standard Specification for Audit and Disclosure Logs for Use in Health Information Systems* – available at https://www.astm.org/DATABASE.CART/HISTORICAL/E2147-01.htm

Constraints for Query or Message Source(s) and Responding Source(s)

- A Responding Source SHALL send only one identifier for a patient in response to a patient discovery query
- A Responding Actor SHOULD provide C-CDA 2.1 documents that follow recommendations as presented in Concise Consolidated CDA: Deploying Encounter Summary CDA Documents with Clinical Notes
- A Responding Source SHOULD NOT respond to a patient discovery query with a request for additional demographics.
- Must handle parsing of (I)ACPs

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OIDs to Declare the Format of the Consent Document

An (I)ACP document reference MUST be accompanied by one of the following OIDs to declare the format of the consent document:

OID	Representation
urn:oid: 2.16.840.1.113883.3.7204.1.1.1.1.2.1	(I)ACP Document contains access consent and is in scanned PDF format of a signed document
urn:oid: 2.16.840.1.113883.3.7204.1.1.1.1.2.2	(I)ACP Document contains access consent and is in XACML format
urn:oid: 2.16.840.1.113883.3.7204.1.1.1.1.2.3	(I)ACP Document contains access consent and is in FHIR® Consent resource format
urn:oid: 2.16.840.1.113883.3.7204.1.1.1.1.2.4	(I)ACP Document contains access consent and is in Kantara Consent Receipt format

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Three-Year FHIR Roadmap for TEFCA

- ONC and the RCE have published the "FHIR® Roadmap for TEFCA Exchange – Version 1."

- Evolving health IT landscape requires TEFCA to rapidly include approaches that support FHIR.

  » Approach leverages current state of FHIR today and allows TEFCA policy and technical infrastructure to accelerate FHIR adoption into the future.

  » In 2022, the RCE will launch working groups to initiate development of the use of FHIR for both QHIN-brokered and facilitated FHIR exchange.

Planned Stages of FHIR Availability in TEFCA:

Stage 1: FHIR Content Support
- FHIR exchange possible within QHINs' own networks
- IHE exchange of FHIR payloads between QHINs *is possible with "out-of-band" coordination*.

Stage 2: Network-Facilitated FHIR Exchange
- QHIN-facilitated FHIR-based exchange available as an *option* under TEFCA.

Stage 3: Network-Brokered FHIR Exchange
- QHIN-facilitated FHIR-based exchange *required* under TEFCA
- QHIN-brokered FHIR API exchange *optionally* available.
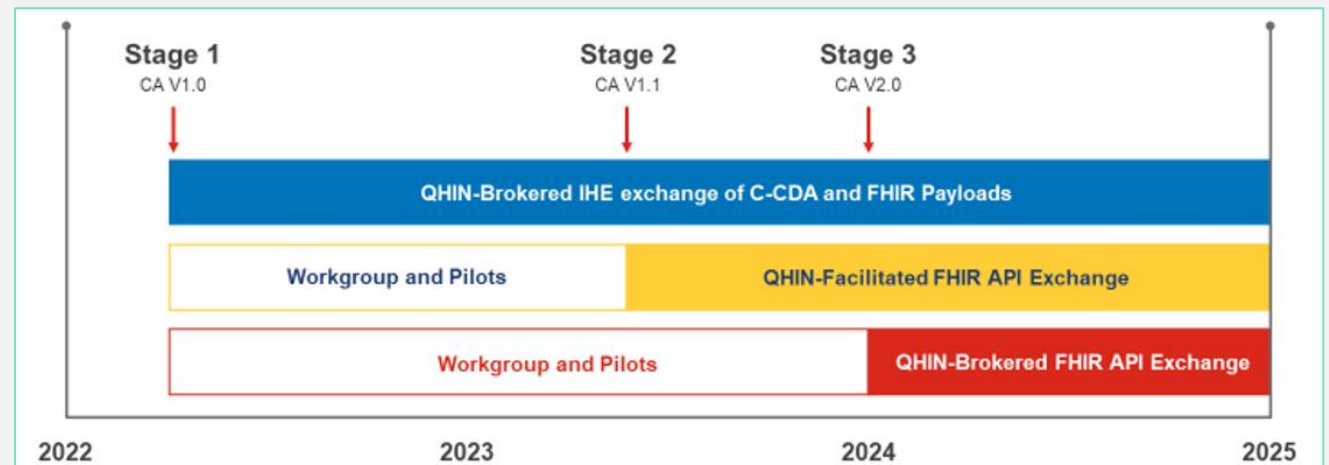
How will TEFCA be operationalized?

The RCE will support prospective QHINs:

- ❑ Educational opportunities

- ❑ Eligibility criteria in the Common Agreement

- ❑ Application

- ❑ QHIN Onboarding & Designation SOP

- ❑ Designated Point of Contact

For more information on the QHIN application process, visit: www.RCE.SequoiaProject.org.

QHIN Application Process

Pre-application Activities

QHIN onboarding

Prospective QHIN reviews the Common Agreement, QTF, and SOPs.

Prospective QHIN participates in educational sessions.

Prospective QHIN signs the Common Agreement and submits QHIN Application package.

The RCE makes an eligibility determination.

If application is accepted, prospective QHIN begins the QHIN onboarding process, including technical testing and production connectivity validation.

If all requirements are met, RCE counter-signs the Common Agreement and designates the applicant as a QHIN.

RCE provides written notice of QHIN Designation to both the applicant and ONC.

All relevant materials and resources will be available at www.RCE.SequoiaProject.org.

Resources

- Common Agreement v. 1
- QHIN Technical Framework
- FHIR® Roadmap for TEFCA
- Standard Operating Procedures
- User's Guide
- Benefits of TEFCA by Stakeholder Factsheets
- FAQs

https://rce.sequoiaproject.org/tefca-and-rce-resources/

Additional Resources:
https://www.healthit.gov/tefca

Events

- 1/26: Common Agreement Overview Webinar
- 2/2: QHIN Technical Framework (QTF) & FHIR® Roadmap Webinar
- 2/3: Common Agreement & Standard Operating Procedures (SOPs) Webinar
- 3/8: TEFCA Panel at ViVE
- 3/14: Morning Keynote at HIMSS Pre-Conference Symposium
- 3/15: TEFCA Education Session at HIMSS

https://rce.sequoiaproject.org/community-engagement/

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Questions & Answers

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