

Essential Elements of QTF: A Technical Overview

August 18, 2021



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This project is supported by the Office of the National Coordinator for Health Information Technology (ONC) of the U.S. Department of Health and Human Services (HHS) under 90AX0026/01-00 Trusted Exchange Framework and Common Agreement (TEFCA) Recognized Coordinating Entity (RCE) Cooperative Agreement. This information or content and conclusions are those of the author and should not be construed as the official position or policy of, nor should any endorsements be inferred by ONC, HHS or the U.S. Government.

Agenda

- Welcome
- Timeline
- QTF Technical Review
 - Workflows
 - Functions and Technology to Support Exchange
- Public Input Opportunities
- Questions & Answers

Meet the RCE Team



Mariann Yeager
CEO
The Sequoia Project



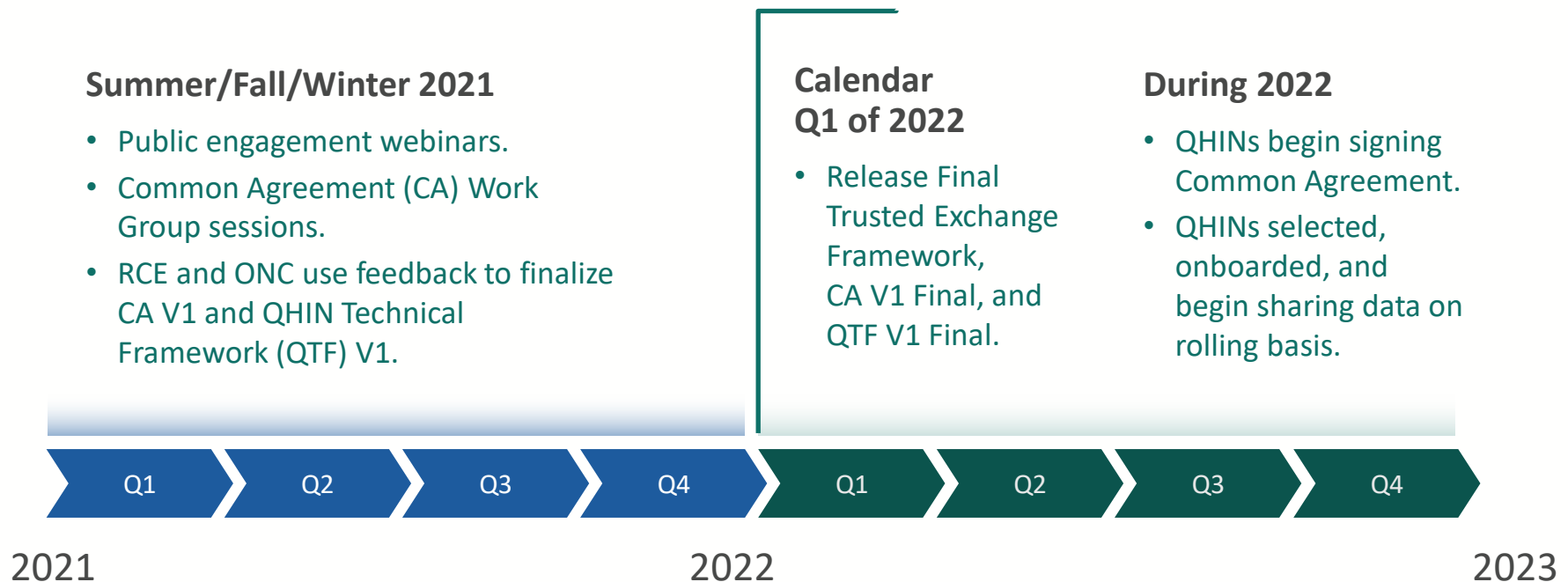
Alan Swenson
Executive Director,
Carequality



David Pyke
Subject Matter Expert,
Audacious Inquiry

Timeline

Timeline to Operationalize TEFCA



TEFCA Elements



Common
Agreement



Standard
Operating
Procedures



QHIN
Technical
Framework



QHIN
Onboarding



Metrics



Governance

QHIN Technical Framework (QTF) Overview

Elements of the QHIN Technical Framework

Supported Information Flows:

- Patient Discovery
- Document Query & Retrieve
- Message Delivery

Functions and Technology to Support Exchange:

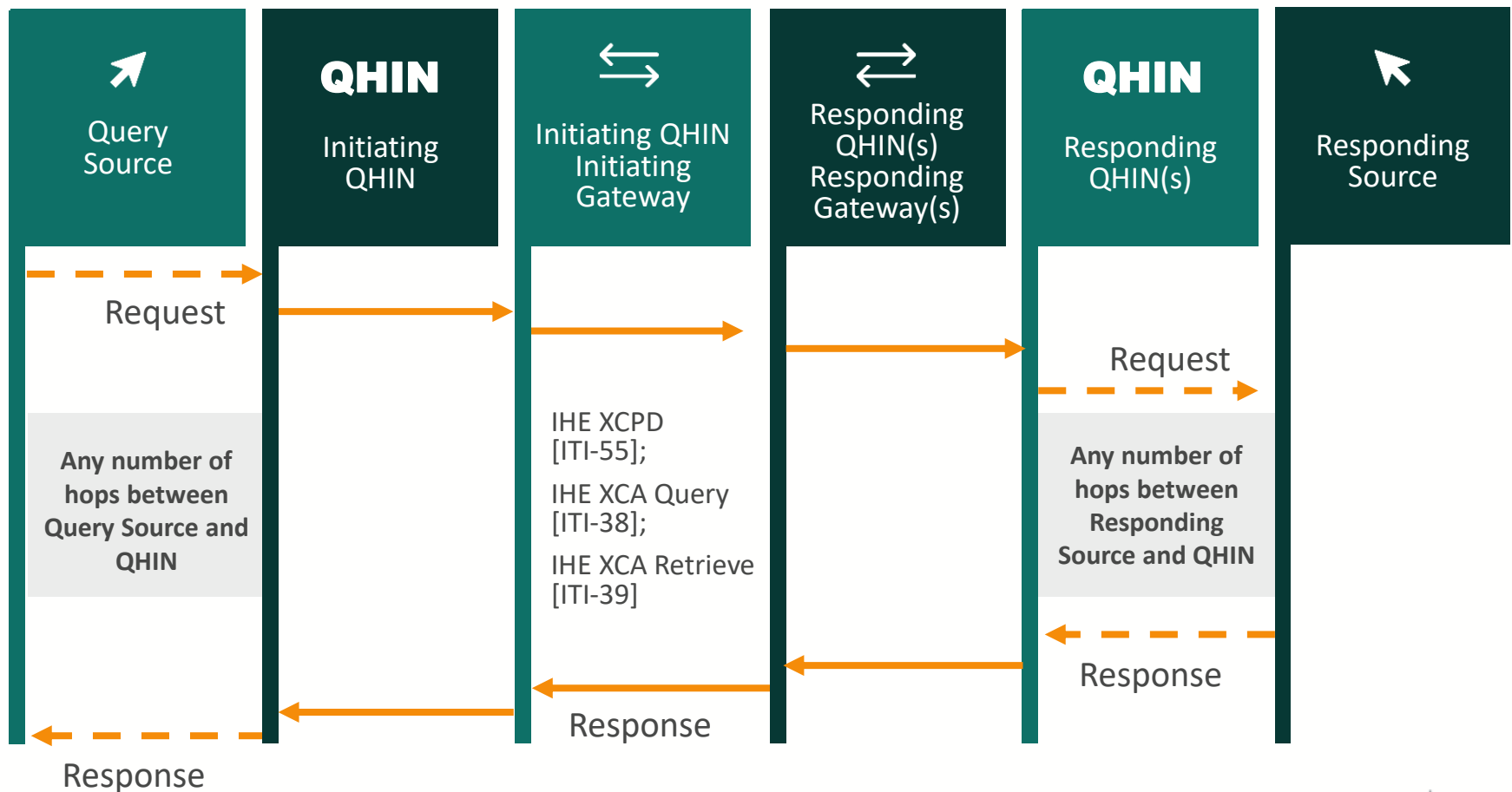
- Certificate Policy
- Secure Channel
- Mutual QHIN Server Authentication
- User Authentication
- Authorization and Exchange Purpose
- Patient Identity Resolution

Approach:

- Build from current capabilities
 - Deploy known standards
 - Keep an eye toward future approaches
-
- Individual Privacy Preferences
 - Directory Services
 - Auditing
 - Error Handling
 - Onboarding and Testing

Workflows

Document Query & Retrieve Workflow



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
- Responses aggregated by Initiating QHIN back to Query Source
- 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 normalized to USPS Publication 28

Alternates:

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

Document Query & Retrieve

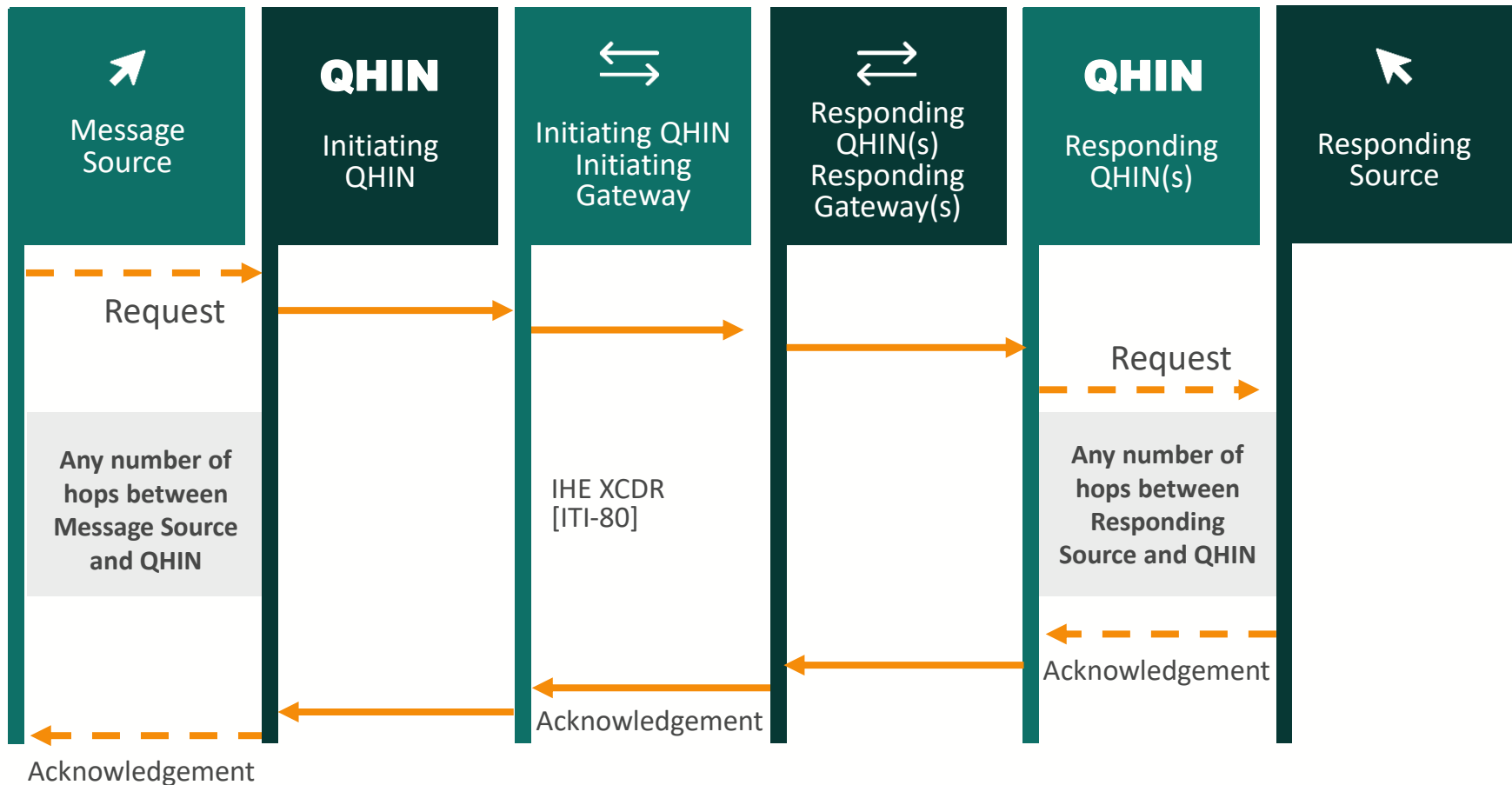
Query:

- 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
- Responses aggregated for Query Source by QHINs

Retrieve

- Query Source selects documents for retrieval and sends Query
- Initiating QHIN sends ITI-39 to appropriate Responding QHINs
- Responding sources send documents requested.
- Responses aggregated by QHINs
- Query Source has all requested documents or has error conditions why some or all not available.

Message Delivery Workflow



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 Technologies 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 or Participant, a QHIN MUST be using TLS protocol version 1.2 or above.
- 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

Authorization and Exchange Purpose

Table 7. Exchange Purpose Accepted Codes	
Exchange Purpose	Code
Treatment	TREAT
Payment	HPAYMT
Operations	HOPERAT
Public Health	PUBHLTH
Individual Access Services	PATRQT
Benefits Determination	COVERAGE

Patient Discovery and Record Location

- Must be able to respond within SLA requirements (to be determined)

Directory Services

- QHINs Must have a local copy
 - Updated no more often than once per hour or less than once per day
- QHINs must add/update information at least 48 hours in advance of activation

Auditing

- Follows IHE ATNA standards for QHINs with addition of:
 - Information on patient resolution, including patient identity
 - Originating organization (i.e., Query Source or Message Source)
 - Originating user
 - Destination HCID
 - Sending QHIN
 - Sending Participant (if auditor is Initiating QHIN)
 - Receiving QHIN
 - Receiving Participant (if auditor is Responding QHIN).
- 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 Participants and Subparticipants

- 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

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
urn:oid: 2.16.840.1.113883.3.7204.1.1.1.1.2.0	(I)ACP Document contains access consent in a format that requires manual inspection



When Will TEFCA Have FHIR?

- FHIR roadmap planned for release with the final QTF Version 1.
- Value of FHIR based exchange when using certified health IT
- Need to address concerns based on QHIN-to-QHIN exchange model:
 - Security model with multi-hop.
 - OAuth not designed for multi-hop.
 - Originating user unknown to responder.
 - Routing RESTful transactions over multi-hop
- We are asking for feedback on how to support FHIR-based exchange in the future.



Discussion

Request for Feedback:

Should QTF include QHIN Message Delivery?

- Option 1: **Require** “QHIN Message Delivery” modality in QTF using the Integrating the Health Care Enterprise (IHE) Cross-Community Document Reliable Interchange (XCDR) profile with a future transition to FHIR; or
- Option 2: **Defer** “QHIN Message Delivery” from QTF until a FHIR based solution is readily available; or
- Option 3: **Include** “QHIN Message Delivery” using XCDR as ***optional*** in QTF until a FHIR based solution is readily available.

Public Input Opportunities

Submit Your Feedback by September 17, 2021

QTF Feedback Form on the RCE Website

- <https://rce.sequoiaproject.org/ghin-technical-framework-feedback/>



Sign up for webinars at:
<https://rce.sequoiaproject.org/>



Questions?
Email us at rce@sequoiaproject.org

The screenshot shows the top navigation bar of the RCE website with the logo, menu items (TEFCA, RCE, Community Engagement, Contact), and a 'Subscribe to RCE news' link. Below the navigation bar is a green header with the title 'QHIN Technical Framework (QTF) Feedback Form'. The main content area contains a paragraph stating: 'The RCE is seeking public input on the draft Qualified Health Information Network (QHIN) Technical Framework (QTF) published July 28, 2021. In addition to engaging the RCE through the public, virtual events, you may choose to submit written feedback using the below form until September 17, 2021.' Below this text are three required form fields: 'Name (Required)' with sub-fields for 'First' and 'Last', 'Email (Required)', and 'Organization (Required)'.



Questions & Answers