

# Carequality Query Workgroup All-Day Meeting – Slides Updated During Working Session

Accelerating seamless, interoperable health information exchange

December 8, 2014

9:00 AM – 5:00 PM EST



# Work Group & Participant Introductions

| #  | Representative          | Organization                   | Representative Group             |
|----|-------------------------|--------------------------------|----------------------------------|
| 1  | <b>Marty Prah</b>       | SSA                            | Governmental                     |
| 2  | <b>Seth Selkow*</b>     | Kaiser Permanente              | Healthcare provider organization |
| 3  | <b>Sean Turner</b>      | Dignity Health                 |                                  |
| 4  | <b>Tara Dragert</b>     | Surescripts                    | Network                          |
| 5  | <b>Justin Stauffer</b>  | Epic                           | Vendor                           |
| 6  | <b>Hans Buitendijk*</b> | Siemens                        |                                  |
| 7  | <b>Tone Southerland</b> | Ready Computing                |                                  |
| 8  | <b>David Schramm</b>    | Mirth                          |                                  |
| 9  | <b>Adam Rabinowitz</b>  | ManTech                        |                                  |
| 10 | <b>John Donnelly</b>    | Interoperability Domain Expert | Subject Matter Expert            |
| 11 | <b>Eric Heflin</b>      | Healtheway                     |                                  |
| 12 | <b>Joe Lamy</b>         | Aegis                          |                                  |
| 13 | <b>David Tao</b>        | ICSA                           |                                  |
| 14 | <b>Bob Robke</b>        | CommonWell Health Alliance     |                                  |

## \* Co-Chair

In addition to the representatives noted above, representatives from the Commonwell Health Alliance, eHealth Exchange, and EHR- HIE Interoperability Work Group (IWG) shall be invited to participate in the Workgroup in a non-voting capacity.

Workgroup Co-Chairs have the discretion to engage other stakeholders and subject matter experts as the co-chairs deem necessary.

| Time                                                     | Item                                                                              | Responsible Party                                                 |
|----------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------|
| <b>Introductions—8:30 to 9:30 am</b>                     |                                                                                   |                                                                   |
| 8:30 am – 9:00 am                                        | Breakfast                                                                         | All                                                               |
| 9:00 am – 9:15 am                                        | Introductions and Call to Order                                                   | Hans Buitendijk, Seth Selkow, Mariann Yeager                      |
| 9:15 am – 9:25 am                                        | Review the Agenda                                                                 | Hans Buitendijk and Seth Selkow                                   |
| 9:25 am – 9:30 am                                        | Review Meeting Minutes                                                            | All                                                               |
| <b>Survey Wrap-Up—9:30 to 11:00 am</b>                   |                                                                                   |                                                                   |
| 9:30 am – 10:30 am                                       | Review Survey Responses                                                           | Hans Buitendijk and Seth Selkow                                   |
| 10:30 am – 11:00 am                                      | FHIR Profiles for HIE – Update, Roadmap, Gaps                                     | Eric Heflin, Others TBD                                           |
| 11:00 am – 11:30 am                                      | Security and Access Control Requirements                                          | Group Discussion – facilitated by Hans Buitendijk and Seth Selkow |
| 11:30 am – 12:15 pm                                      | <b>Lunch</b>                                                                      |                                                                   |
| <b>Recommendations &amp; Deep Dives—12:15 to 2:00 pm</b> |                                                                                   |                                                                   |
| 12:15 pm – 1:15 pm                                       | Message Orchestration                                                             | Hans Buitendijk and Seth Selkow                                   |
| 1:15 pm – 2:15 pm                                        | Review Proposed Protocols and Set Recommendations                                 | Hans Buitendijk and Seth Selkow                                   |
| 2:15 pm – 2:25 pm                                        | <b>Break</b>                                                                      |                                                                   |
| <b>Planning for Connectivity</b>                         |                                                                                   |                                                                   |
| 2:25 pm – 3:35 pm                                        | Work plan development (Identify SMEs, technical needs, opening up networks, etc.) | Hans Buitendijk and Seth Selkow                                   |
| 3:35 pm – 4:35 pm                                        | Securing Pilot Participants                                                       | Hans Buitendijk and Seth Selkow                                   |
| <b>Closing Remarks</b>                                   |                                                                                   |                                                                   |
| 4:35 pm - 5:00 pm                                        | Next Steps                                                                        | Hans Buitendijk and Seth Selkow                                   |
| <b>Adjourn</b>                                           |                                                                                   |                                                                   |

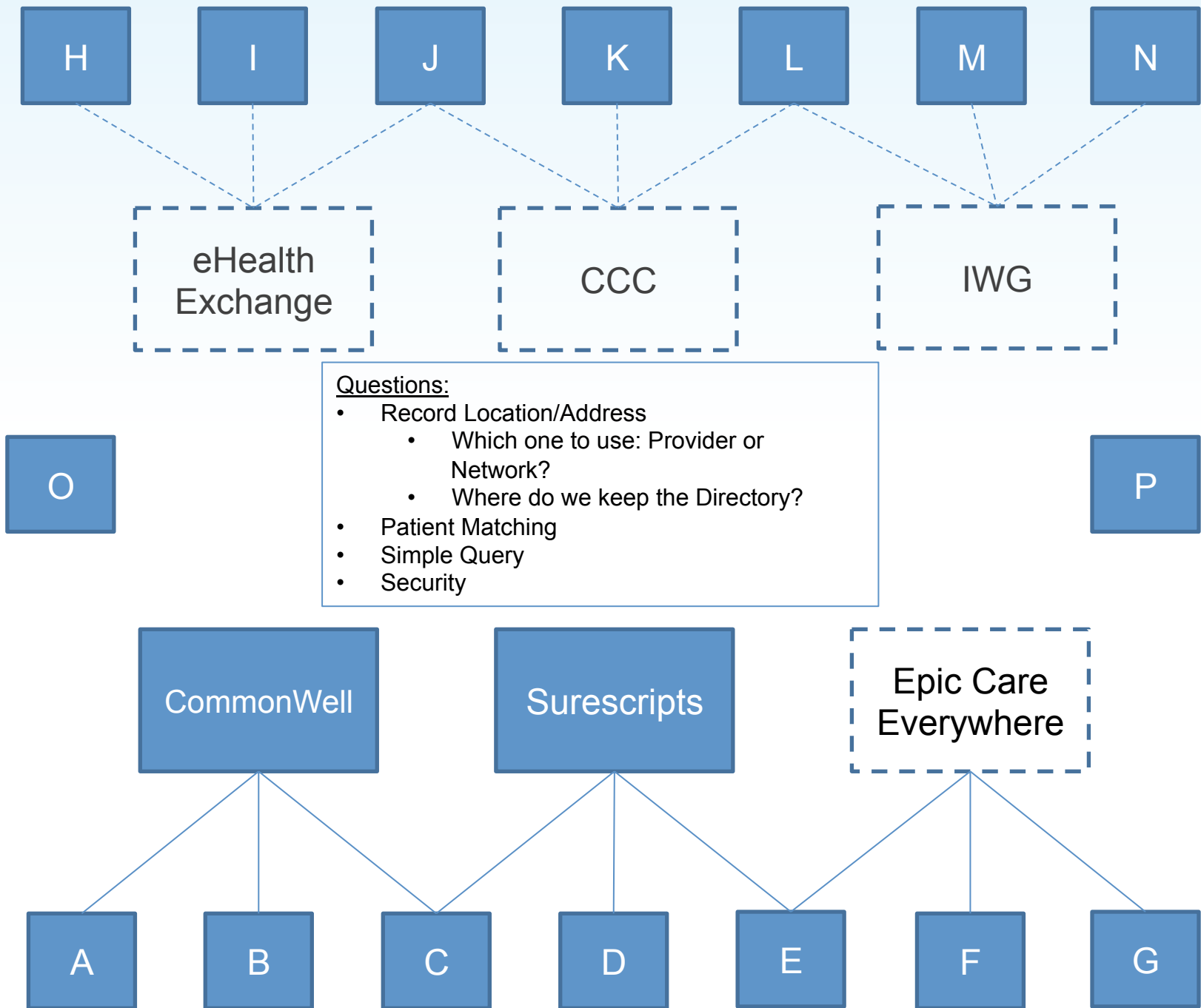
# Objectives for Today

- Prepare and Set Path for Patient Discovery, Query, Retrieve Implementation Guide Draft by End of January
- Set Course for Connectivity Across Networks
  - Review Protocols
  - Review Data Elements
  - Draft Approach for Patient Matching
  - Analyze Commonalities and Variances Across Networks
  - Discuss “Virtual Connectathon” Approach and Set Goals for Upcoming Weeks
  - Confirm Participants for “Virtual Connectathon”
- Plan
  - Content
  - Business Side (Demonstration, Production)
  - Testing ?

***To prepare for HIMSS Demonstrations***

# Content Focus

- Content
  - Already issue with push of documents with content. Can we rely on that being resolved?
  - Decision: Focus on metadata definitions, e.g., filtering options, not on the actual document content.
    - Basic, any document (e.g., c-cda, pdf, ccr, etc.)
    - Metadata Filtering (e.g., document types, date range, access control, etc.)
      - Perhaps staging.
      - Establish value sets, progressing from simple to harmonize to more difficult.
      - But at least list value sets content for each network that then can be used.
    - Content Filtering (e.g., sections, presence of diagnosis/problems, etc.)
      - Can we do this, or does it violate document conformance?
      - Does this represent data element level query? No, need to deal with large documents and have a roadmap.
      - Leave this to local filtering by the recipient.
      - Decision: Roadmap and becomes use case specific. Acknowledge in table of content.
- Behavior inventory
  - Document at least what one receives based on network given a particular query.



# Additional Items to Consider (from Survey)

- State HIE members deploy either a single HIO for the entire state or are a multi-HIO state and then use the IWG specifications for connectivity for their respective members. Typically in the multi-HIO model, the use of the same peer-to-peer exchange standards as are used by the eHealth Exchange, i.e. XCPD & XCA. Some recent deployments have chosen a hybrid model of a single state-wide PIX mstr / EMPI combined with XCA for clinical document exchange.
- Standardization of transmissions and payloads is essential to financial sustainability as well unified test patients and systems. Currently validation is labor intensive and custom programming is extensive to make up for the lake of agreed upon standards for exchange.
- When worked as prescribed far less issues. E.g., TLS as prescribed, missing metadata, complete different formats. Mostly lack of implementation experience that causes the problems. If eHealth Exchange onboarded or Connectathon, the least issues.
- More examples in implementation guides would help.
- XDS is used by some vendors, as is XCA, but when an EMR vendor chooses XCA, it leaves us in a difficult situation. How do the XDS participants get to the XCA documents? We have addressed this through software, but this causes other downstream effects on performance and timeouts. Timeouts are a particular issue, and because timeouts are not standardized, there is no way to know what response time will cause an end-user to fail to find records. We believe a common timeout/SLA for interactions is important.
- We also feel that the user experience in the EMR should be better-considered when adopting standards (how will the user find and obtain relevant patient data?)
- The biggest issue I'm seeing in the eHealth Exchange is most partners are combining large narrative C62 notes embedded in the narrative section of a C32 or CCDA patient summary. This is causing all sorts of rendering challenges and it doesn't seem appropriate. However, there appears to be a movement by most vendor to only support the patient summary class code and stuff the entire chart into the one document type instead of supporting C62 document exchange.

# Exchange Protocols In Use

12. Which of the following exchange protocols and implementation statuses are applicable to your network for RLS and query across networks? (Check all that apply)

| Answer Options                           | Currently Supported /In Use | Preferred | Planned | Not Planned | Response Count |
|------------------------------------------|-----------------------------|-----------|---------|-------------|----------------|
| PIX/PDQ MLLP                             | 10                          | 5         | 1       | 4           | 16             |
| PIX/PDQ SOAP                             | 14                          | 4         | 1       | 2           | 18             |
| XCPD                                     | 13                          | 9         | 1       | 3           | 18             |
| XCA                                      | 14                          | 9         | 1       | 1           | 17             |
| XDS.b                                    | 16                          | 9         | 1       | 1           | 18             |
| Other                                    | 6                           | 2         | 1       | 1           | 8              |
| Please describe if "Other" was selected. |                             |           |         |             | 9              |

Other Comments - Summary:

- Respondents using Direct for push, with multiple respondents citing Direct+XDR, SOAP+XDR
- FHIR for use in bridging standards and extending the playing field of exchange. In use by some, multiple respondents evaluating as a potential future protocol.

# Potential Query Workgroup Focus Areas

- Query/Response
  - **XCA/XCPD (Current Focus)**
  - MHD (FHIR)
- Pub/Sub
  - Future potential
- Edge
  - Direct for Query – Future potential

# Patient Matching

| Answer Options                                                                 | Required | Optional | Not Used |
|--------------------------------------------------------------------------------|----------|----------|----------|
| Patient Name                                                                   | 19       | 2        | 0        |
| Alias/Previous Name                                                            | 0        | 8        | 6        |
| Administrative Gender                                                          | 16       | 5        | 0        |
| Date of Birth                                                                  | 19       | 2        | 0        |
| Address                                                                        | 8        | 14       | 2        |
| Local ID (e.g, MRN, Account No.)                                               | 4        | 11       | 4        |
| Birth Place Address                                                            | 0        | 9        | 9        |
| Birth Place Name (e.g., hospital name)                                         | 0        | 9        | 9        |
| Mother's Maiden Name                                                           | 1        | 11       | 7        |
| Telephone and/or Email Address                                                 | 6        | 14       | 3        |
| Principal Care Provider                                                        | 1        | 7        | 10       |
| Social Security Number - SSN Full                                              | 9        | 13       | 2        |
| Social Security Number - SSN Partial                                           | 2        | 8        | 9        |
| State ID/Driver's License                                                      | 2        | 7        | 9        |
| Health Plan/Insurance ID                                                       | 2        | 7        | 9        |
| Other Identifier (Please clarify in comment box below)                         | 1        | 3        | 7        |
| Please indicate other parameters used in patient matching not described above. |          |          |          |

# Patient Matching - Comments

- first name, last name, and **middle name or middle initial**
- Note: Attributes that are "required if known", aka R2 in IHE terms, have been checked as both Required and Optional in the list.
- We all follow eHealth specs.
- Our exchange can utilize other parameters although they are not currently required.
- Surescripts using **zip code**. I checked "address" as closest option.
- Birth Order
- "Address - At least **Zip** required
- (Gender and Address) or SSN required"
- "We use a **weighted matching** algorithm so no single attribute is required but in order to find a match, we must have enough matching attributes to reach a high-confidence threshold.
- We're always working on improvements to patient matching so attributes are being added to this list."
- We allow all patient traits allowed by IHE XCPD. In addition, we require those noted above.
- **Next of Kin (name and relationship), Previous address,**

# Security and Access Control

- Do we want the recipient of the receiver want to make access control decisions?
- Gap in exchange today to on how to respond to provide access or not.
- Have not defined how identifiers are used.
- Do we need to trust fabric, certifications, authentication, etc.
- Do we need a single CA? Network model?
- Decision: Stub it out and run it parallel.
  - Need technical framework and policy.
- Progressively flesh out models from “none” to .....
- Target: if onboarded to Node A, then onboarded to Carequality.
- Two aspects:
  - Underlying security (authentication, encryption, etc.) – Start with two CAs as multiple CAs are most likely; cross-certified with Federal Bridge; level of assurance; two FBC CAs can do these; Entrust, Digicert.
  - Access Control: Eric to provide overview as starting point.

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# Directory

- Which one to use: Provider or Network?
- Where do we keep the Directory?

# Patient Discovery

- We Know That....
  - PIX, PDQ is supported and in use by multiple networks
  - Respondents did not indicate any specific constraints or extensions
  - Biometrics not in use yet
- What Should Be the Matching Approach?
  - Required Elements
  - Optional Elements
  - Confidence Level
  - Human Intervention

# Patient Matching

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| Social Security Number - SSN Full                                              | 9        | 13       | 2        |
| Social Security Number - SSN Partial                                           | 2        | 8        | 9        |
| State ID/Driver's License                                                      | 2        | 7        | 9        |
| Health Plan/Insurance ID                                                       | 2        | 7        | 9        |
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# Patient Matching - Comments

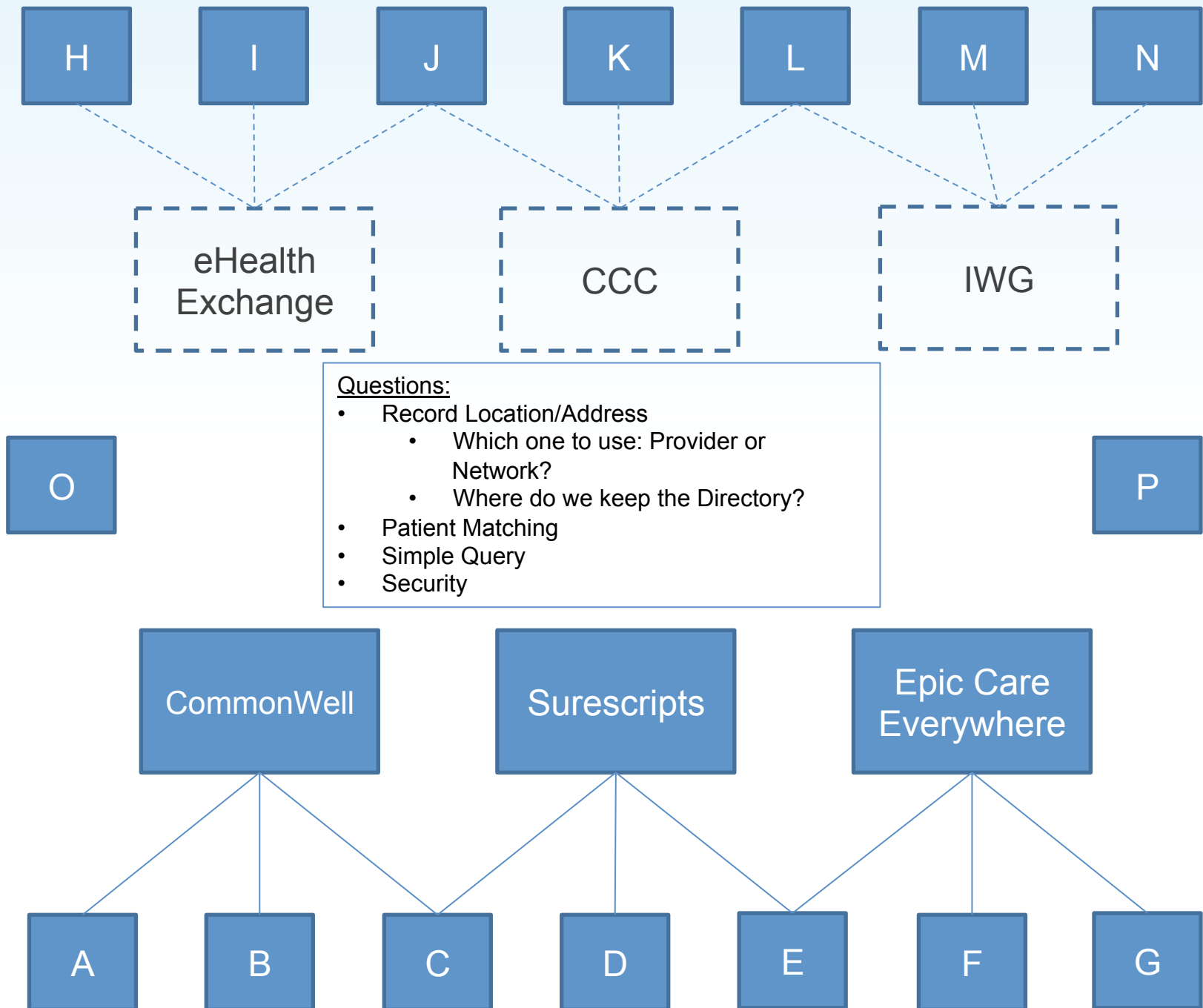
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# Approach for When There is Not a High Degree of Confidence

- **only single matches** given an internal confidence threshold are processed
- Set by deployment policy of HIO.
- < 100% respond with no match, can be configured to 80/20 rules.
- **Only confident** matches are processed
- If a unique, above threshold match is not found, XCPD returns a "no match" response.
- **Only 100%** matches are processed.
- The system responds with a generic message indicating the Patient Not Found. This is returned for patients that don't exist or have opted out. If more than one possible patient might exist, then no patient is found, so only 100% matches are processed currently to reduce risk.
- "The result of an MPI search is one or more patient records, each with a score which exceeds a Surescripts-defined proprietary probability threshold, or a Patient Not Found.
- Surescripts only goes forward with providing additional information if we exceed the score for a single patient."
- In the case of a patient registration, if there is not a match to the client specified threshold, then a new Global ID is created for the patient in question. In the case of a patient query, matches below the client specified threshold return a "Patient Not Found". For intra-HIE queries, requests matching multiple patients return multiple patients. For inter-HIE queries, multiple matches return an error requesting more criteria.
- **only 100% matches** are processed
- If not **100% exact match** on demographic, no return. Response based on spec accordingly.
- Matches are returned to the person conducting the enrollment flow and are validated with the patient.
- **Only 100%** matches are processed
- If a high confidence match is not found, then no patient information is returned and no indication of the patients' presence at the responding organization is revealed.
- The **Responder determines if a match is of sufficient quality** and then returns the result. The Initiator can then accept the match, or not, since the response includes the matching demographics and identifiers.
- The algorithm produces a weighted number. Over a certain weight is matched automatically, between two weighted numbers is matched manually, below a certain weight is not matched.
- A Patient Not Found is sent if one individual patient cannot be matched.
- When performing XCPD/PDQ queries, "below mutually agreed to confidence level" is applied. Response will be patient not found.
- If it is not a 100% match, then there is a **manual reconciliation** of the request.
- There is a **third party patient identity system** we use to support this. However, we will respond with a "No Patient Found" if there is no match
- Presents **10 possible matches** and lets **human** determine

# Query/Retrieve

- We Know That....
  - IHE protocols in use and supported
  - Some tighter constraints applied to XCPD, XCA
    - Related to requirement support for SAML assertion - eHEX
    - Extension of XCPD (the specific service is not part of the current eHealth XCPD WSDL) – CCC
    - Surescripts:
      - Extended PLQ (XCPD - ITI-55 ) when the RLE is acting as a bridge to direct vendors.
      - Participants are able to select the option for RLE to function as a 'black box' and hide the detail of direct vendors behind the RLE (PLQ broadcast option)
      - Participants are able to select the option for RLE to expose each direct vendor in the PLQ response to allow their users to select individual locations to request records
      - Extended XCA to allow the inclusion of patient consent contained within a SAML assertion following XUA standards.
      - RLE acting as a bridge to direct vendors maps the electronic attestation included in the XCA SAML assertion to a BPPC CDA when sending a pull request to a direct vendor
      - Extended the capabilities of RLE to bridge IHE query to direct vendors supporting the push of a signed consent form as a document attachment in a clinical message
      - Extended the RLE responding gateway query to direct vendors. Direct vendors may send a query (pull request) for documents to the RLE and receive documents from other Direct vendors.
  - Epic will use additional SAML attribute values between Epic organizations (compared to the base eHealth Exchange spec SAML requirements)
  - Constrained profiles to make them more interoperable and testable. One example is to define the SAML 2.0 attributes for PurposeOfUse, Role, organization IDs, etc.
  - We found in practice that support for BPPC is poor, and we had to implement our own patient privacy constraints at the hub. XACML is very complex, and we would recommend a simpler standard. We also support a slimmed-down SAML implementation, for the purposes of logging user/organization information on queries and requests. What we mean by "slimmed down" is that we don't require the complex signature and validation processes; we simply capture the user information in the SAML request. We have already authorized the system to connect to us, and so we think the signature requirements on SAML are overkill for the purposes we use it in general RLS exchange. However, in the case of eHX, we do support the full standard, and feel that SAML provides far more than it does in an XDS community. We would not recommend change here other than perhaps finding a simpler standard for relaying organization attributes on queries.



# Participants

- Volunteers:
  - Mariann checking with Commonwell
  - Surescripts
    - RLS
    - Checking on HPD
  - Epic / Kaiser
  - Hans working with Siemens on eHealth Exchange party
- Ask for 2 per category.

# Approach

- Scope:
  - XCA - minimum
  - XCPD
  - HPD and/or XCPD for RLS
- Presentations
- Virtual Connectathon
  - Healtheway can help facilitate the infrastructure.



**care**quality