CommonWell Health Alliance Concepts

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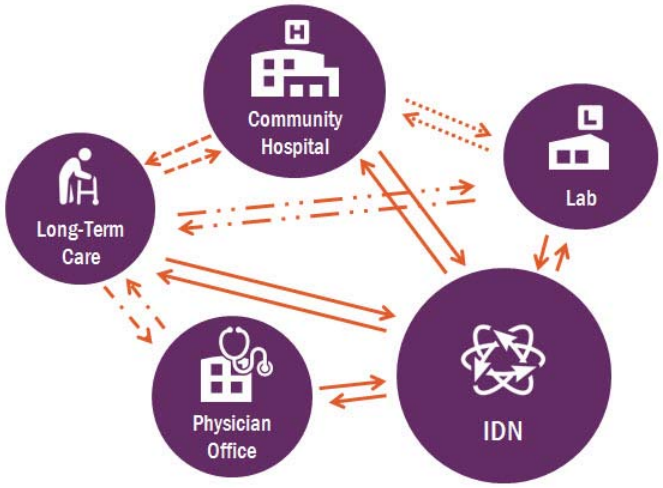
Why CommonWell Health Alliance and Why Now?

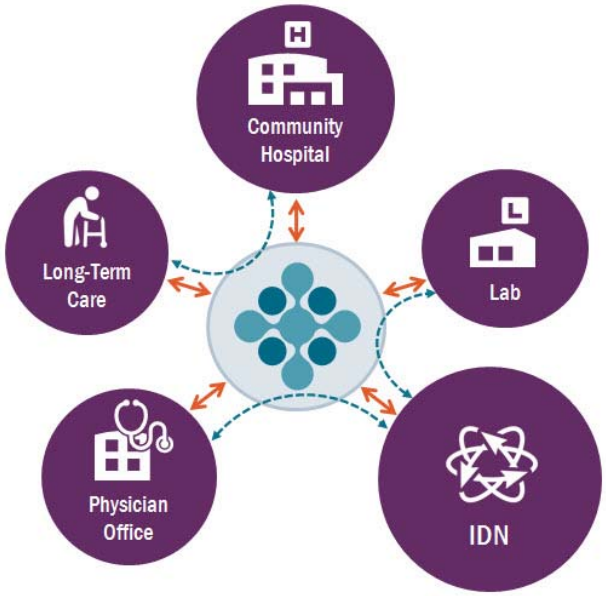
As medical providers evolve to become Accountable Care Organizations, they will encounter increasing pressures to cut costs without sacrificing their quality. These providers will be looking for innovative ways to continue practicing "defensive medicine" while becoming more efficient. This is an incredibly big challenge for providers.

After spending considerable time and money upgrading or deploying an Electronic Health Record (EHR) system and then traversing both Meaningful Use Stage 1 and 2, providers have deployment fatigue. They are not interested in adopting a new solution that will dramatically change their workflows yet again. In brief, they need a "bolt on" solution that extends the capabilities of their current EHR investment and does not require an expensive retraining effort for their clinical staff.

Integration and data exchange have always been a challenge within healthcare. Healthcare IT vendors have saturated the provider market with impressive solutions that can be customized to meet the providers' exact workflow needs. However the value of these closed systems ends when the patient leaves the premises. The result is that patients and providers are challenged with navigating islands of technology that are not able or willing to work together.



Before 2014, there was minimal value derived from integration of healthcare data across systems. The lack of common vocabularies and result coding meant that healthcare data from an external source could be easily misinterpreted and was deemed ineffective and unreliable. Then Meaningful Use drove the evolution of clinical document standards. New CCDA standards now empower healthcare IT vendors to parse clinical data from external systems and store it locally. This allows clinicians to review recent externally created data using their native systems and workflows.



Having secure data obtained from an external source prevents rework, which can contribute to driving healthcare costs. As patient Jennifer Smith traverses the healthcare system, she will likely have the same diagnostic tests ordered each step along the way. The results will not significantly change week to week so the value-add of the re-ordered tests is very low. What if Jennifer's providers could obtain the results of the last set of ordered tests from a trusted source? How could this change the overall cost of care for providers who are now facing declining insurance reimbursements and outcome-based payments?

Let's now explore the core concepts to see how CommonWell-enabled health IT solutions, known as Edge Systems, leverage CommonWell workflows to address today's interoperability challenges.

What components make up the CommonWell services?

Person Record

- The CommonWell record representing a human
- Each human should have only one Person record
- Contains demographic information and links to patient records

Meet Jennifer

Patient Record

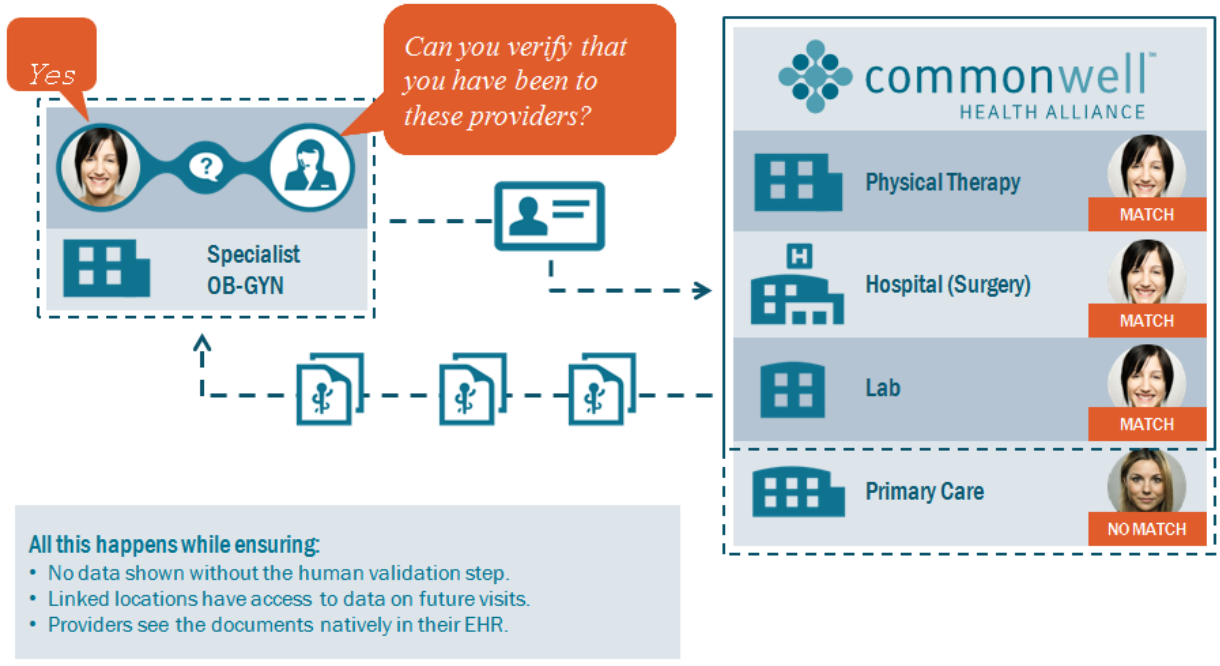
- A patient record is uploaded from an Edge System
- Contain demographics, identifiers, and encounter data
- Must be linked to a Person Record before providers can use the CommonWell record discovery and data location services for this patient

Patient Link

- Represents a relationship between a Person and a Patient Record
- Implies the existence of patient consent to establish the link
- *Example:* The link between Jennifer Smith and her OB-GYN in the picture below

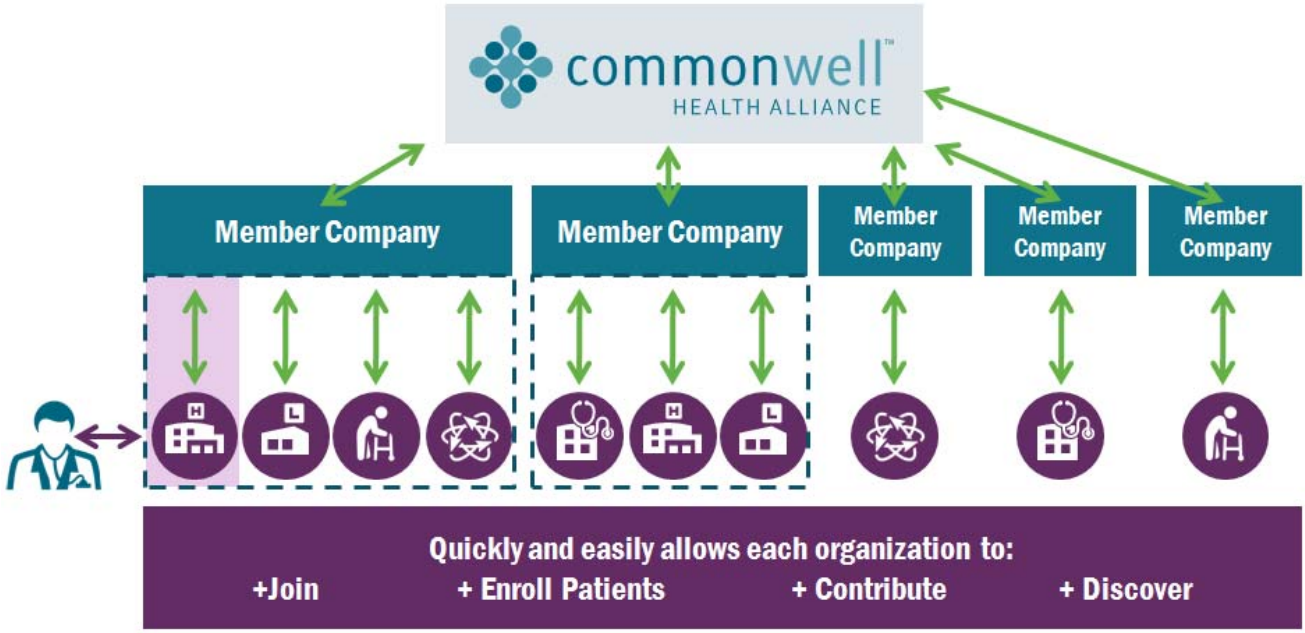
Network Link

- Represents a transitive relationship between Patient Records across organizations
- Discrete patient records reference the same Person within CommonWell
- *Example:* The links between Jennifer Smith's OB-GYN and the matched Patient Records in the picture below



Organization

- A healthcare system that interacts with the CommonWell services
- Provider of Patient Identity information
- Consumer of the CommonWell patient discovery and record location services
- Used interchangeably with the term *Community*
- Organization's Edge System acts as a source of Patient Record data to CommonWell
- May represent a single healthcare facility or a Health Information Exchange (HIE) entity
- Interacts with CommonWell through its own Edge System in the form of an Initiating Gateway and a Responding Gateway.



Edge System

- A system leveraging the CommonWell services
- Many are Electronic Health Record (EHR) systems but this term also includes systems used for lab, pharmacy, imaging, etc.

CommonWell Member

- A software development company for one or more Edge Systems
- Has a contractual relationship with the CommonWell Health Alliance
- Promotes interoperability for the common good

What are the key workflows of the CommonWell Health Alliance services?

In order to fully participate in the CommonWell Health Alliance network, a new Member must implement the following workflows. Each workflow adds value by enabling or accelerating the flow of data across organizations.

Patient Registration

Edge Systems, on behalf of providers, send patient identifiers, demographics, and encounter data regularly to CommonWell. This happens as a byproduct of existing registration workflows. Since CommonWell doesn't house patient documents, this flow of data is limited to Admit, Discharge, Transfer (ADT) and demographic changes only. The solution (known as a PIX feed) operates as a data pump which pre-populates CommonWell with potential patient matches known as Patient Records.

Enrollment, Matching, and Linking

Providers manually enroll individuals into CommonWell. Patient demographic data, along with consent, is used to define new Person Records. These Person Records are used to link Patients across multiple organizations. After enrollment, providers can search CommonWell for Patient matches across organizations and increase/decrease the trust level of the returned Patient matches.

Request clinical data & respond to requests

Edge Systems make clinical data available to the CommonWell network and have the ability to query the network on behalf of their providers who are participating in CommonWell. Acting as a broker of documents across organizations allows CommonWell to add value by accelerating the delivery of the data.

The CommonWell APIs are fully audited and are designed to securely retrieve clinical documents.

Queries against the patient registry capture additional metadata about the clinical documents that can assist in their retrieval. This metadata enables the Edge System to let the physician select the documents most relevant to them whether that's a CCDA document or a radiology image.

Retrieval of documents is brokered by the CommonWell service provider to simplify work required by Member systems. The documents themselves are securely escorted through the CommonWell network but are not stored there, and their contents are only accessible by the receiving system.

Link Management via Level of Link Assurance (LOLA)

LOLA refers to an integer value expressing CommonWell's level of confidence in a Network Link (the relationship between Patient Records across Organizational boundaries). These links carry a LOLA level of 0, 1, 2, or 3, and are used to govern the access to clinical documents and registry data.

LOLA 0

- Identifies a false-positive match between a Local Patient Record and a Remote Patient Record
- Can only be established by downgrading a higher LOLA
- The record is no longer presented as a probable match in any Edge System

LOLA 1

- Identifies a presumptive match between a Local Patient Record and a Remote Patient Record
- Cannot be used for document query and retrieval

LOLA 2

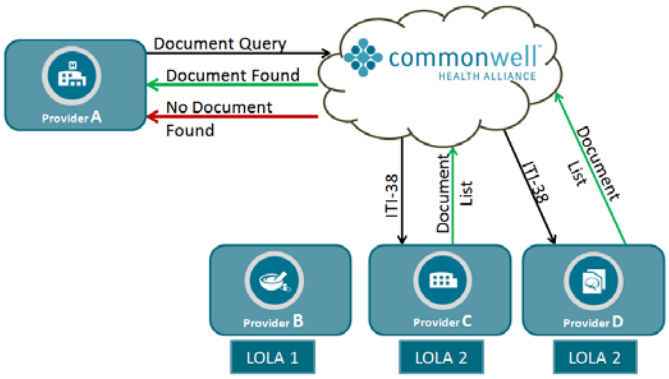
- A virtual, transitive link established from one Patient entity to another through a shared Person
- Identifies a network relationship between Patient Records
- Has been validated using demographic and encounter information
- Allows for query and retrieval of clinical documents from other organizations

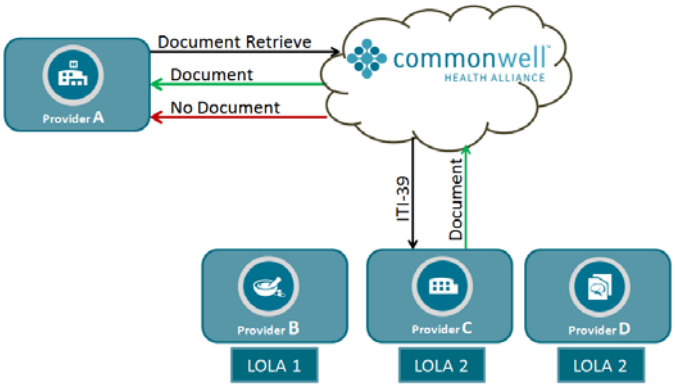
LOLA 3

- Identifies a network relationship between Patient Records validated using demographic information and an authoritative ID
- Can also be achieved by positive verification based on a person already known to an organization
- A virtual, transitive link established from one Patient entity to another through a shared Person
- Allows for query and retrieval of clinical documents from other organizations

The CommonWell Health Alliance Broker (CHA Broker)

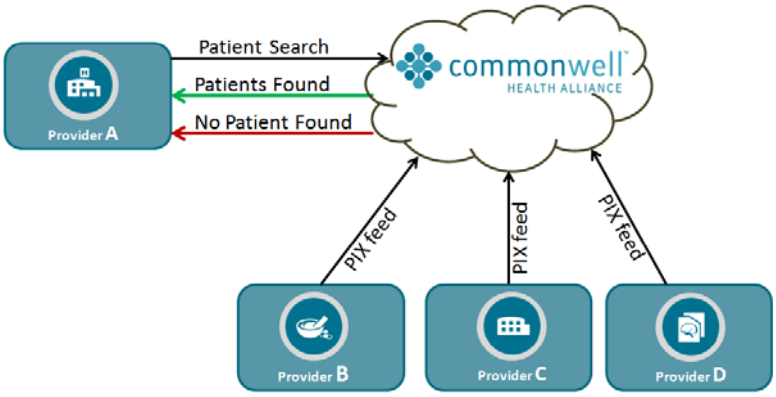
Document Query: The CommonWell Document Query transaction is built upon the IHE XCA profile. Responding Gateways from Edge Systems return the metadata about documents that live in their registries, and the broker aggregates all the results. CommonWell passes this metadata to the initiating system to help the user decide which documents to retrieve.





Document Retrieve: The Document Retrieve transaction is also built upon IHE XCA profiles and allows the initiating system to target a specific document set for retrieval. No clinical documents are stored within CommonWell itself.

Patient Registration and Search: Providers use local patient demographic data to search the CommonWell network for patient matches. The search runs against the enormous list of patient registrations that are aggregated from every Member organization. These search results are used by providers to drive the grading of patient links.



Further Reading

This document provides an introduction to the concepts, terms, and workflows used within CommonWell. For additional information on supported Use Cases, see the ***CommonWell Health Alliance Use Case Specification***. For technical detail about the CommonWell services and APIs, see the ***CommonWell Health Alliance Services Specification***.