WPC and Health Information Exchange (HIE)

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Introduction to Health Information Exchange (HIE)

Concepts, Use-Cases, and Technology

The Challenge

- Providers are under increasing pressure to enable data exchange to meet clinical and business goals
- EHRs often replicate paper data silos and dependence on faxing persists
- Population health initiatives such as WPC, as well as other value-based care pressures are driving health care enterprises toward capacity for analysis and intervention, with data liquidity as a clear prerequisite
- No silver bullet, but multiple options for connectivity

What is Health Information Exchange?

- **HIE (verb)** – Any exchange of health data between affiliated or unaffiliated health care organizations. This can include clinical as well as administrative data.

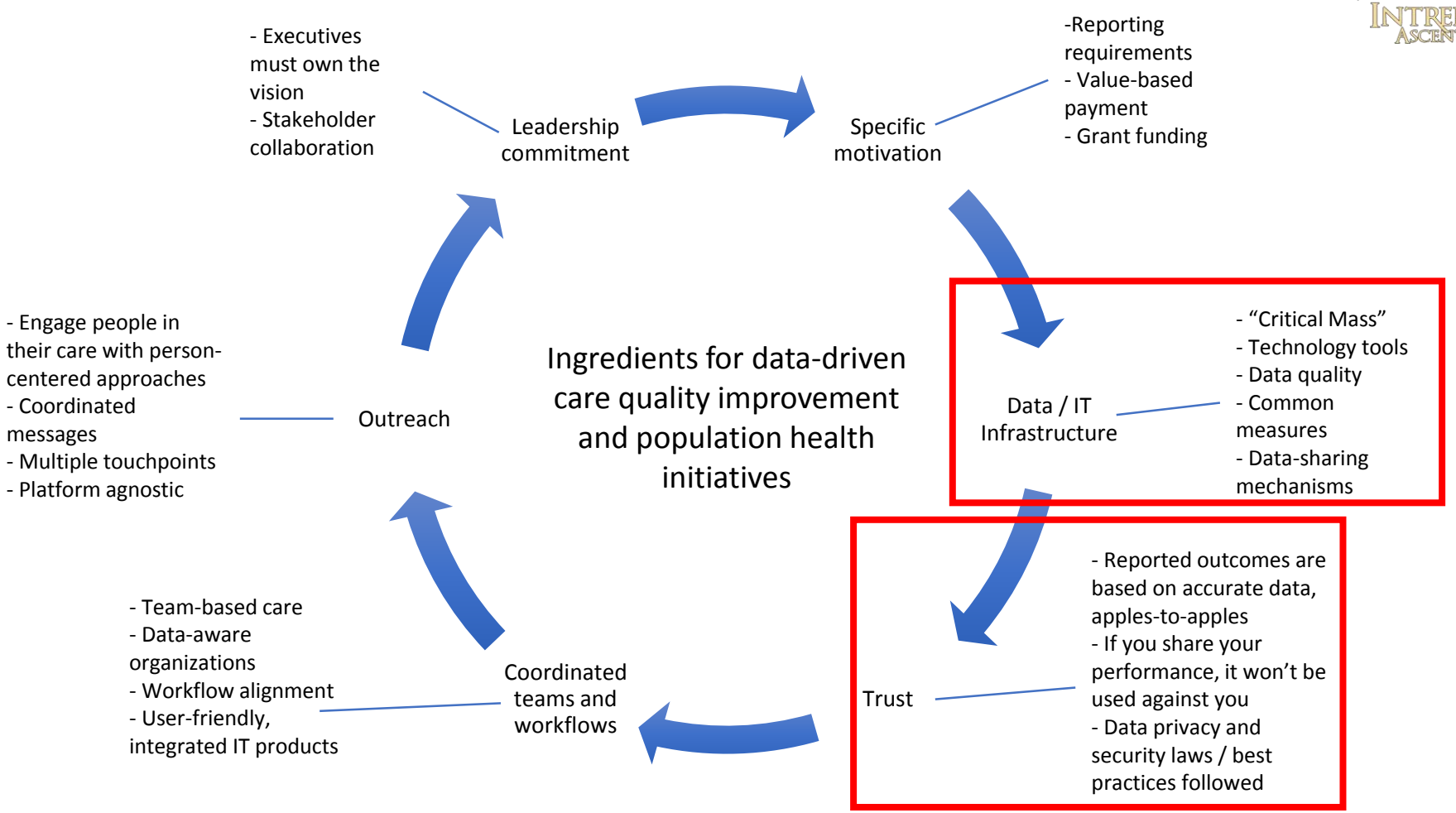
- **HIE / HIO / RHIO (noun)** – An organization that facilitates, oversees, and governs HIE activities (i.e. the movement of data) among a specific group of health care organizations.

- **Data Liquidity (noun)** – The "freeing" of data from their source systems for sharing within and between organizations.

Core Aspects of HIEs/HIOs

HIEs/HIOs Provide:

- Technical framework for enabling HIE activity between data silos
- Governance framework for mediating HIE activity among multiple stakeholders
- Administrative framework to ensure organizational stability


- Executives must own the vision
- Stakeholder collaboration
Leadership commitment
Specific motivation
-Reporting requirements
- Value-based payment
- Grant funding
Ingredients for data-driven care quality improvement and population health initiatives
Data / IT Infrastructure
- "Critical Mass"
- Technology tools
- Data quality
- Common measures
- Data-sharing mechanisms
Trust
- Reported outcomes are based on accurate data, apples-to-apples
- If you share your performance, it won't be used against you
- Data privacy and security laws / best practices followed
Coordinated teams and workflows
- Team-based care
- Data-aware organizations
- Workflow alignment
- User-friendly, integrated IT products
Outreach
- Engage people in their care with person-centered approaches
- Coordinated messages
- Multiple touchpoints
- Platform agnostic

Common HIE Use-Cases

- Providing care alerts for specific patient panels
  - Includes distributing hospital discharge summaries
  - Usually patient panels are centered around Medical Homes or identified PCPs
  - Some implementations use technologies like Direct, others might push data directly into EHRs
- Clinical results delivery
  - Lab and radiology are the most common
  - Often sent directly to specific EHRs, also driven by patient panels
  - May not be needed if reference labs are already providing this functionality
- Community longitudinal patient record queries
  - Often a key use-case for the ED or in ambulatory settings where there are not well-defined medical homes/highly mobile populations are present

Common HIE Use-Cases, cont.

- Enabling cross-organization provider-to-provider clinical messaging
  - Usually using known standards like Direct (therefore allowing providers to stay in their EHR)
  - The HIE can provide services like a community Provider Directory
- Reporting clinical quality measures
  - Data for programs such as HEDIS or other payer-driven programs can be done through HIE
  - Can make rolling-out new quality programs more efficient
  - Can empower communities to create their own local quality programs
- Data aggregation for analytics / population health use-cases

HIE Technical Frameworks

Generally, HIEs function in two non-mutually exclusive high-level technical models:

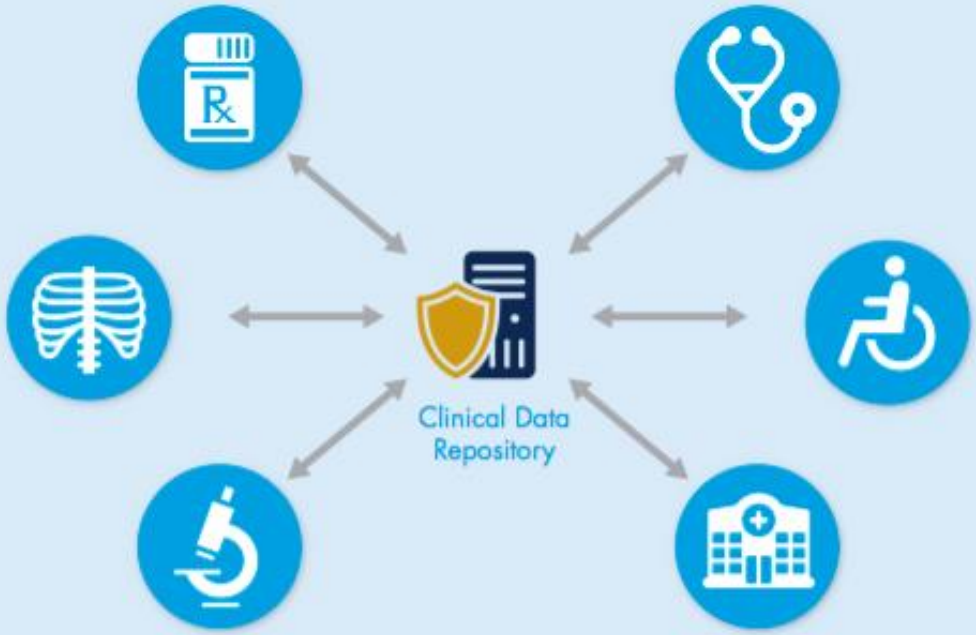
Directed Exchange ("Push")

- Any model where data is moved directly from Point A to Point B
- Generally, data does not "stop" anywhere en-route to the destination, and is often distributed automatically
- **Examples:** hospitals that automatically distribute discharge summaries, use of Direct messaging by provider organizations

Query-Based Exchange ("Pull")

- Any model where data resides in specific repositories that can be "asked" to produce data, usually on-demand by a specific user
- There are multiple technical approaches to enabling query-based exchange
- Most HIOs use a version of this model, although they may support specific use-cases that leverage Directed Exchange
- **Examples:** all of the New York RHIOs, the SHIN-NY, most mature HIOs throughout the country, some more advanced hospital systems

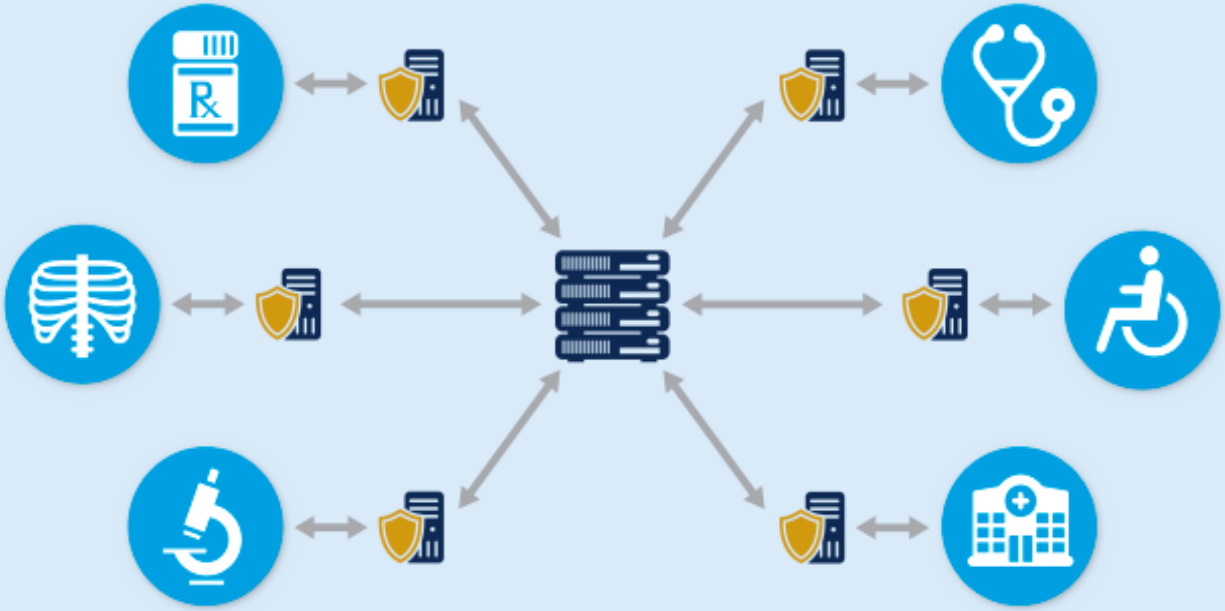
Centralized Model



A centralized model takes health data from several sources, and stores it in a single data repository as a patient-centric, consolidated, longitudinal health record comprising information generated across the community. Since all of the data is stored in one location, it is available for analytics to help understand health trends in the community, as well as to better manage chronic conditions with a patient.

Adapted from CalHIPSO Presentation: HIE 101: Foundation and Current State of HIE
Richard Swafford, PhD, Executive Director, Inland Empire Health Information Exchange, August 15, 2012

Federated Model



A federated model takes health data from several sources, but stores it in multiple data repositories associated with and under control of HIE participants that generated the data or for whom the data was generated (e.g., lab results transmitted to a provider). When requested, data is retrieved from all repositories to create a patient-centric, consolidated, longitudinal health record on demand.

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Hybrid Model

A hybrid model combines features from both centralized and federated models. It still produces a patient-centric, consolidated, longitudinal record on demand, and much of the data still resides in multiple repositories under the control of HIE participants. Selected data is also stored in a centralized repository to enable analytics on population or chronic disease management priorities of the community.

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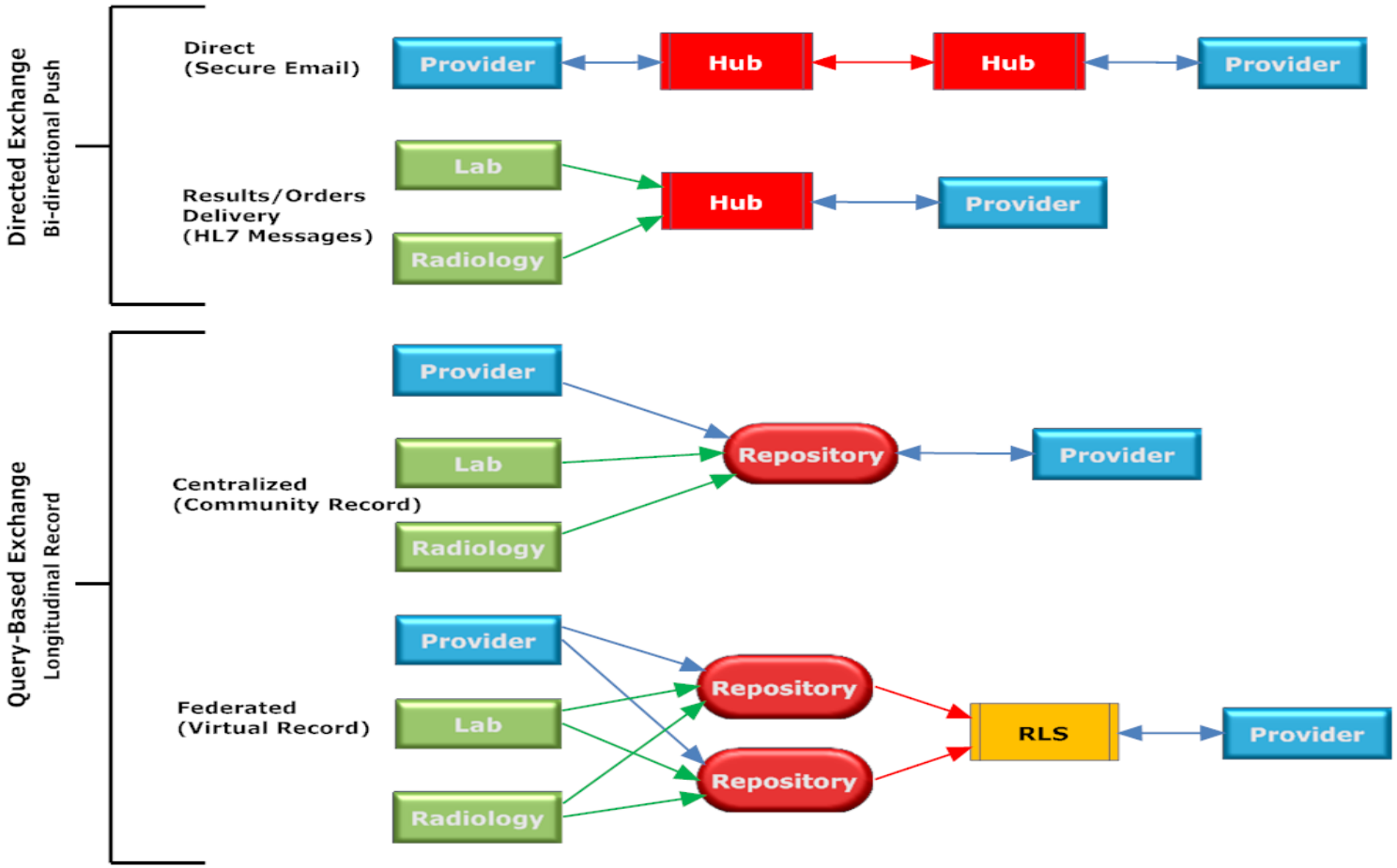
Directed vs Query-Based Exchange



Whole Person Care and HIE

The Case for Data Liquidity and Specific WPC Considerations

The Case for Data Liquidity

- While reporting and analytics on data contained in a single EHR system, or the EHR and related systems operated by a large healthcare enterprise, it will nearly always comprise an incomplete dataset
- The visits that generate data not found in health system EHRs are usually critical
  - Urgent Care
  - Specialist Visits
  - LTPAC / SNF
- More than one value-based care arrangement has failed due to a lack of access to these data, since CDS and other interventions could not be directed based on them

HIE can help normalize and consolidate disparate community data in a logical manner, avoiding costly point-to-point integrations to gather visit data into a single dataset

Population Health Management Progression

Data Liquidity

- Data format standardization (ie HL7, CCDA, EHRs etc.)
- Data transport (HIEs, point-to-point interfaces, etc.)
- Data consolidation and management (HIOs)

Pop Health Analytics

- Metrics development
- Data aggregation
- Data mapping (ie data dictionaries, groupers, etc.)
- Analytics tools development (dashboards, visual tools, UI)

Pop Health Interventions

- Clinical intervention programs and staffing
- Clinical decision support
- Care management
- Performance Improvement Cycle

Specific WPC Considerations

- WPC requires coordination of Mental Health, SDOH, and in most cases Housing data – all are new territory for most HIEs

- The combination of clinical and non-clinical partners is also new territory for HIEs, especially because SDOH and Housing data is not generally standardized

- HIEs need to be flexible to adapt to these new partners, not everyone will be able to turn their data into an HL7 or CCDA.

WPC Data Sharing Use Cases

- **Enrollment / eligibility**
  - Identification of target population clients and eligibility determination
  - Consent management
  - Coordinate hand-off to care teams and service providers
- **Care management tools for proactive care planning**
  - Shared comprehensive care plans
  - Electronic referrals including to non-clinical organizations such as housing services
- **Clinical data sharing for care coordination and treatment**
  - Event notifications (e.g. on hospital admit, discharge)
  - Query-based health information exchange
- **Analytics for program management and reporting**
  - Baseline data
  - Data normalization and data quality monitoring
  - Performance and outcomes monitoring (inform PDSA cycles; reporting)

San Joaquin / Marin Models

Centralized Approaches

Marin / San Joaquin Summary

- Both regions had existing HIE projects *prior to* WPC
  - Both using different flavors of centralized HIE models
  - County Mental Health was already a participant in both HIEs
  - Plan to leverage that infrastructure as a backbone for data exchange
  - County was a major stakeholder in both HIE efforts

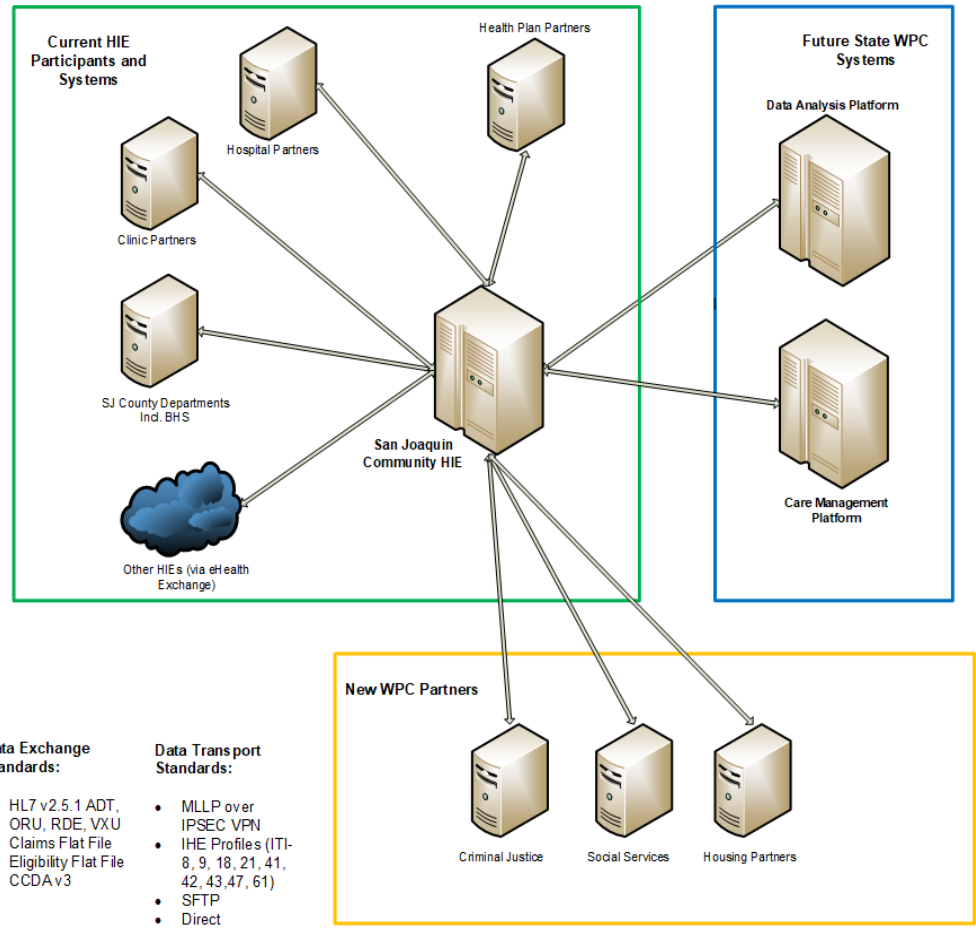
- Existing HIEs focused on providing alerting infrastructures, in addition to creating longitudinal community health records
  - Analytics was on the roadmap for both, but WPC has accelerated the need

- WPC presents an opportunity for both regions to develop methods to create and manage comprehensive care plans, and to include new data-sets outside of traditional healthcare

San Joaquin Model

Centralized Infrastructure

- All clinical data passes through a community HIE
- HIE is a community not-for-profit, affiliate of Manifest MedEx
- Built on an existing HIE infrastructure
- Heavy focus on use of national data standards, primarily HL7 v2.x
- County is an HIE stakeholder (with two board seats), but does not “Own” the HIE
- Specific focus on working with national networks (primarily eHealth Exchange)



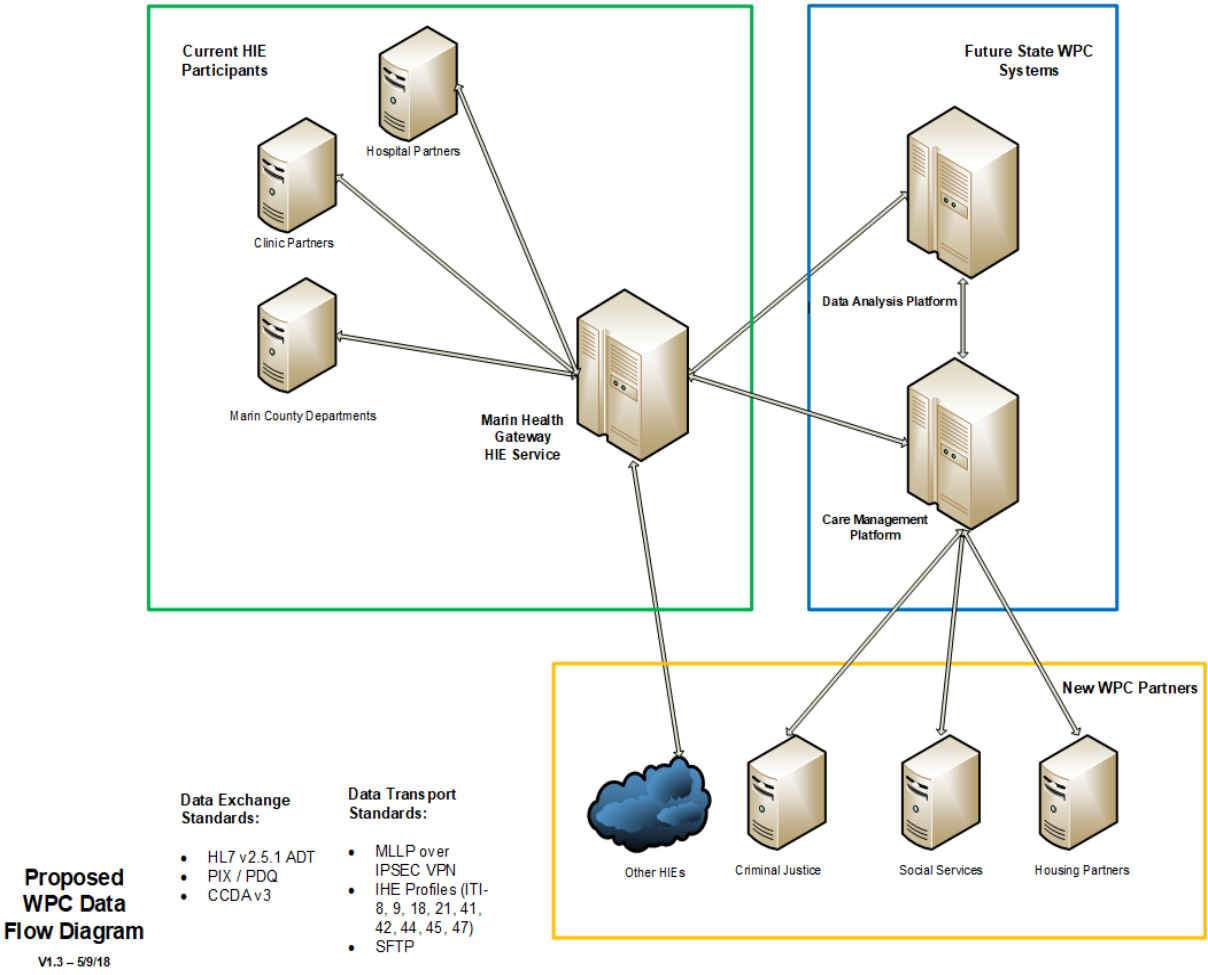
Proposed WPC Data Flow Diagram

V1.2 – 5/11/18

Marin Model

Hybrid-Centralized Infrastructur

- Two Primary HIE “Nodes” – Clinical and Social
- Built on an existing HIE infrastructure
- HIE “Owned” by the County
- Heavy focus on use of nationa data standards, including CDA
- Investigating use of national networks to connect with additional local partners



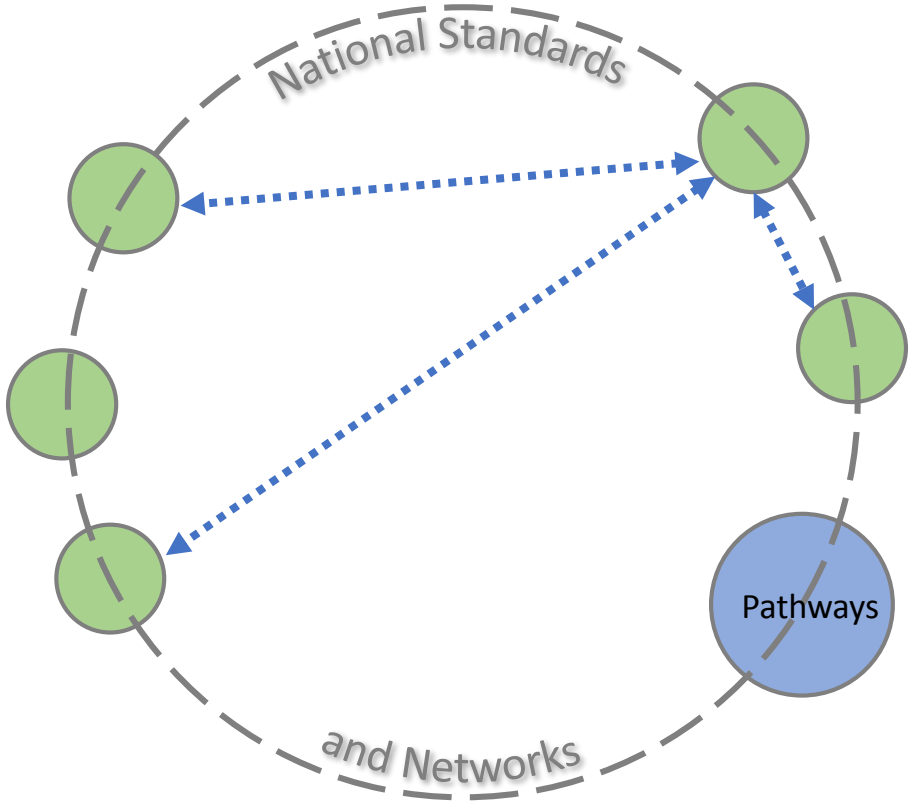
Sacramento Model

A Hybrid Approach

Sacramento Summary

- No existing community-wide HIE infrastructure prior to WPC
  - Historic resistance to the creation of a central HIE
  - City is the primary stakeholder, rather than the County
  - Heavy presence of large health systems and EHRs that are capable of working with national data exchange networks
- Implementing a hybrid approach, intended to be deployed quickly and address greatest needs of the WPC program first
- Heavy focus on driving standardized clinical alerting, leveraging national networks wherever possible, and creating a shared care plan
- Data analysis components are light -- tied to WPC reporting needs

Data Sharing Landscape - Current



Legend:

WPC Partners

Point-to-Point Interfaces

Objectives for Sac WPC (Pathways) Approach

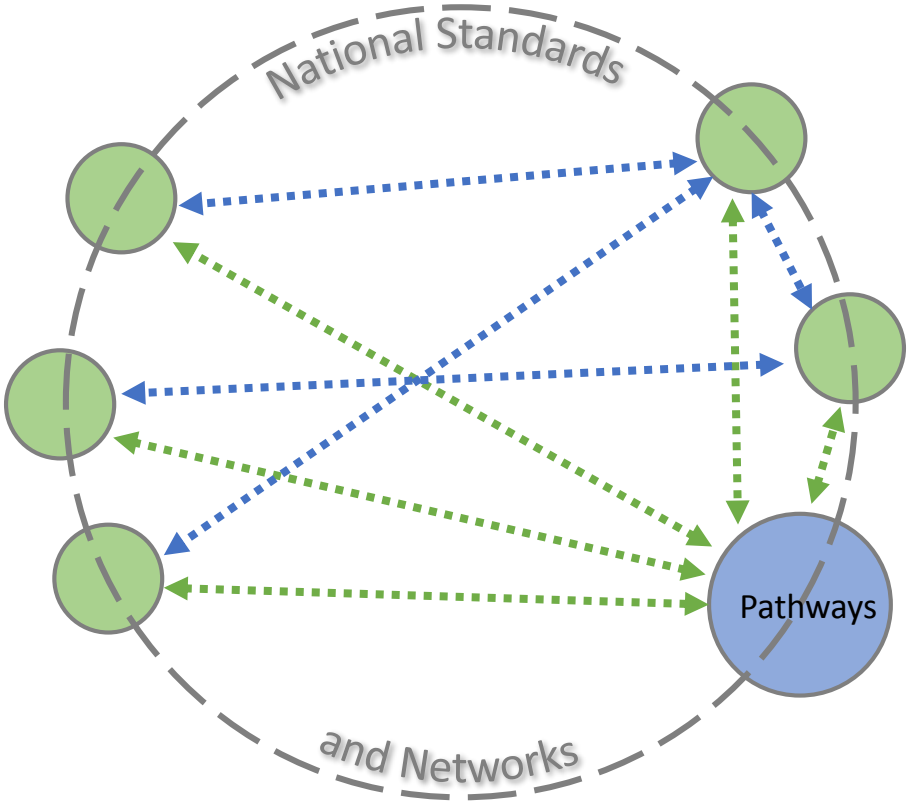
- Enable care coordination for Pathways clients across organizations to improve delivery of services and outcomes
- Build on existing capabilities for data sharing and management
- Establish a mechanism for monitoring community outcomes and reporting on results
- Create a framework for shared governance
- Provide a foundation for data sharing evolution based on future community needs and programs such as Health Homes

Data Sharing Landscape - Future

National Standards:

HL7 INTERNATIONAL®

FHIR



National Networks:

carequality

eHealth Exchange™

Pathways Hybrid IT Approach

- Centralized components of IT Approach
  - Pathways Care Teams use single care management platform
  - Coordinated approach for hospital event notifications
  - Centralized client enrollment and program reporting

- Decentralized components of IT Approach
  - Pathways Hub Entities' EHRs serve as clinical data hubs for Care Teams
  - Clinical data sharing using national / state standards and networks
  - Hospitals / plans use native systems for care management; interoperability with Pathways care management platform over time

Contact Information

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