DxF Health and Social Data Exchange Reference Architecture

TASC Social Data Exchange Focus Group

Last Updated April 1, 2025

CalHHS

CENTER FOR DATA INSIGHTS AND INNOVATION

Description of Current Approaches

Starting from a County perspective, there appear to be different drivers and initial approaches to support care coordination activities.

1. County Services Driven

Here we provide examples of where counties began with aggregating county/public program information to understand and manage programs and populations. In the case of Sonoma County, care coordination capabilities are built into the same platform where data is aggregated, in the case of Los Angeles, light care coordination, including 360 views, are supported via mobile app. In the cases described here, data continues to reside in their original systems of record, maintained and managed by their governing departments/agencies. In Los Angeles, data, or data subsets, are physically stored in a common cloud platform to support more efficient data sharing and analytics once agreements are in place. Care coordination is supported via applications (desktop and/or mobile) that support 360 data views with client consent, for specific use cases/care coordination staff.

- Sonoma County
- Los Angeles County

2. Social-Health Information Exchange/Community Health Information Exchange

Purpose-built platforms for care coordination that maintain a longitudinal client record. Alameda's contains both clinical and social data elements and is used primarily for CalAIM whole person care coordination. San Diego's is purpose-built to support care coordination across CBOs (via a longitudinal social service record) and partners with the San Diego HIE (San Diego Health Connect) for access to health information. Built to support multi-disciplinary teams, they each maintain strong user and role-based access management.

- Alameda County Health Care Services' Social Health Information Exchange
- Community Information Exchange San Diego + San Diego Health Connect

3. Health Services Driven

Riverside University Health System included social service programs under their HIPAA umbrella to enable care coordination capabilities for a broader set of users. A module extension of their Epic EHR system is the care coordination application used by multidisciplinary teams across health and social service providers (county staff or contracted). A limited set of social service data elements (risk assessment) is maintained in the EHR system, while non-sensitive data will be maintained in a shared data lake.

- Riverside University Health System

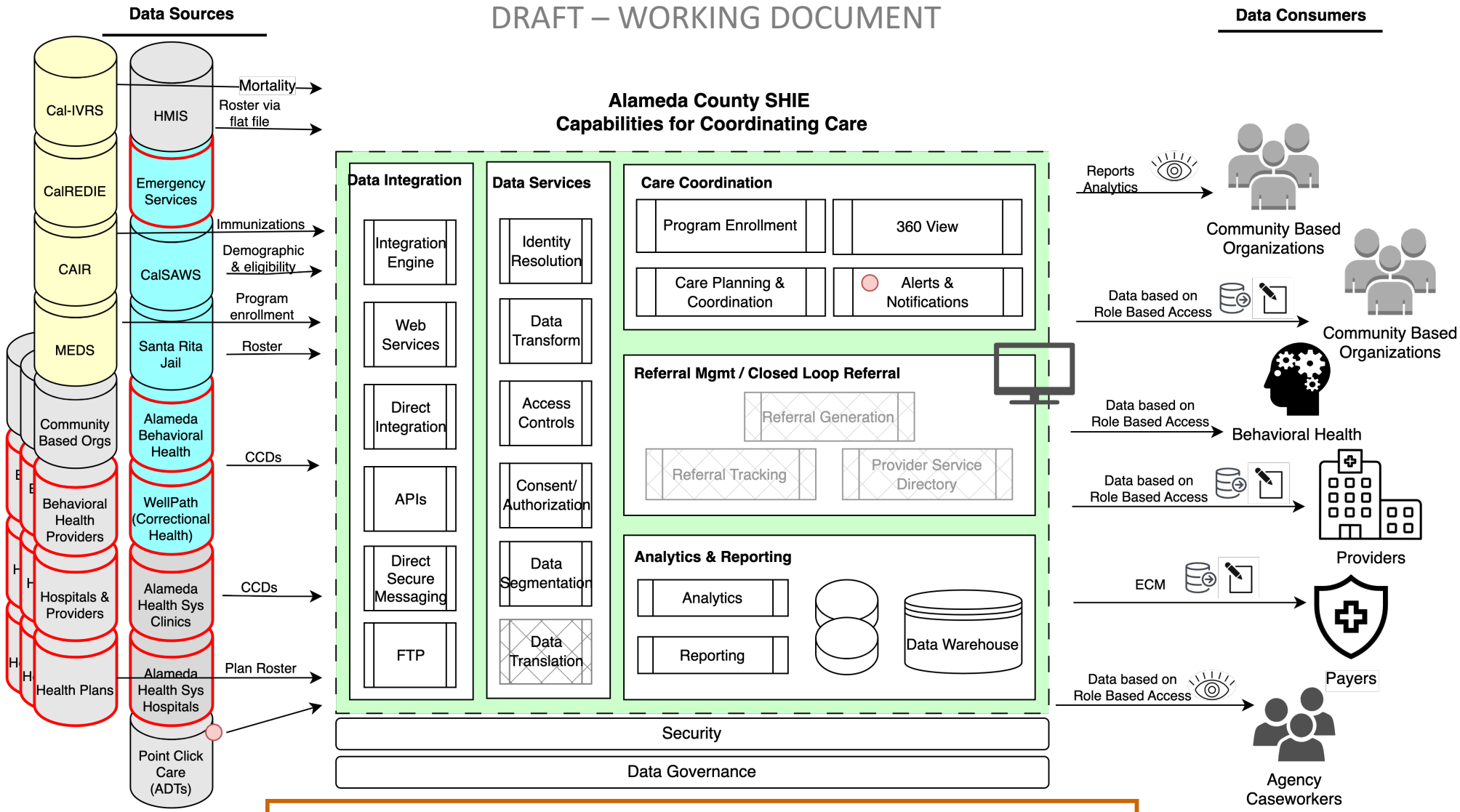
Local County Architectures and Highlights

The series of local county architectures and highlights are meant to demonstrate the different capabilities in production now, describing the range of existing data connections and end user access. These are the implementations that have informed the Reference Architecture as we seek to learn more about key capabilities and how they can fit together to create a sustainable ecosystem of health and social data sharing.

Note that current implementations were driven by local leadership which took the time to forge new relationships and align their goals. They took advantage of modern technical capabilities to move data and information and solve key challenges--whether managing high-cost complex populations or responding to a crisis.

Data sharing environments are increasingly using master data management approaches that enable client matching or linking across different data systems, so records can be pulled when needed, rather than relying on traditional centralized data stores. Similarly, shared data are more secure and customizable based on defined user/role access management, organizational data sharing agreements and client consent.

Please note: *Models represent known integrations and capabilities for each county. They are not intended to be comprehensive, but rather to provide viewers a high-level understanding of care coordination capabilities as they related to other counties.*



Legend

Behavioral Health Providers - Bonita House, Fred Finch, Telecare
Health Plans - Alameda Alliance for Health, Health PAC
Hospitals & Providers - St Rose, Washington, Sutter & Eden
Blue - County
Gray - Community-based Organization
Yellow - State

Red Outline - HIPAA Organization
Green Outline - Area of Focus
Gray Cross Hatch - Not included
Colored Dot - Service Provided by external organization

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DATA EXCHANGE FRAMEWORK

Description of Figure on Prior Slide

The model depicts the data sources, data consumers and capabilities supported by Alameda SHIE for care coordination across health and social care. Data sources include; Bonita House, Fred Finch, Telecare, Alameda Alliance for Health, Health PAC, St Rose, Washington, Sutter & Eden, Housing Information Management System, Emergency Services, Santa Rita Jail, CalSAWs, Cal-IVRS, CalREDIE, CAIR, MEDS, Alameda Behavioral Health, WellPath (Correctional Health), Alameda Health System Clinics, Alameda Health System Hospitals, Point Click Care, and Community Based Organizations.

Capabilities include; Data Integration services; Integration Engine, Web Services, Direct integration, APIs, Direct Secure Messaging, and FTPs. Data Services such as Identity Resolution, Data Transformation, Access Controls, Consent / Authorization, and Data Segmentation. Care Coordination capabilities include; Program Enrollment, Care Planning & Coordination, 360 View, and Alerts & Notification. Data Analytics and Reporting services including data warehouse. Referral Management services are not supported. Underlying the capabilities is Security and Data Governance.

Data Consumers include; Community Based Organizations, Behavioral Health Providers, Healthcare Providers, Health plans, and Agency workers.

Alameda Highlights (Pop 1,622,188)

Purpose built social and health information exchange platform to support whole-person care for Medicaid recipients. Focused on care coordination with case managers as primary users to obtain a 360 view of client and support care team communication. The SHIE acts as the HIE for the Alameda Health Systems and FQHCs in the county.

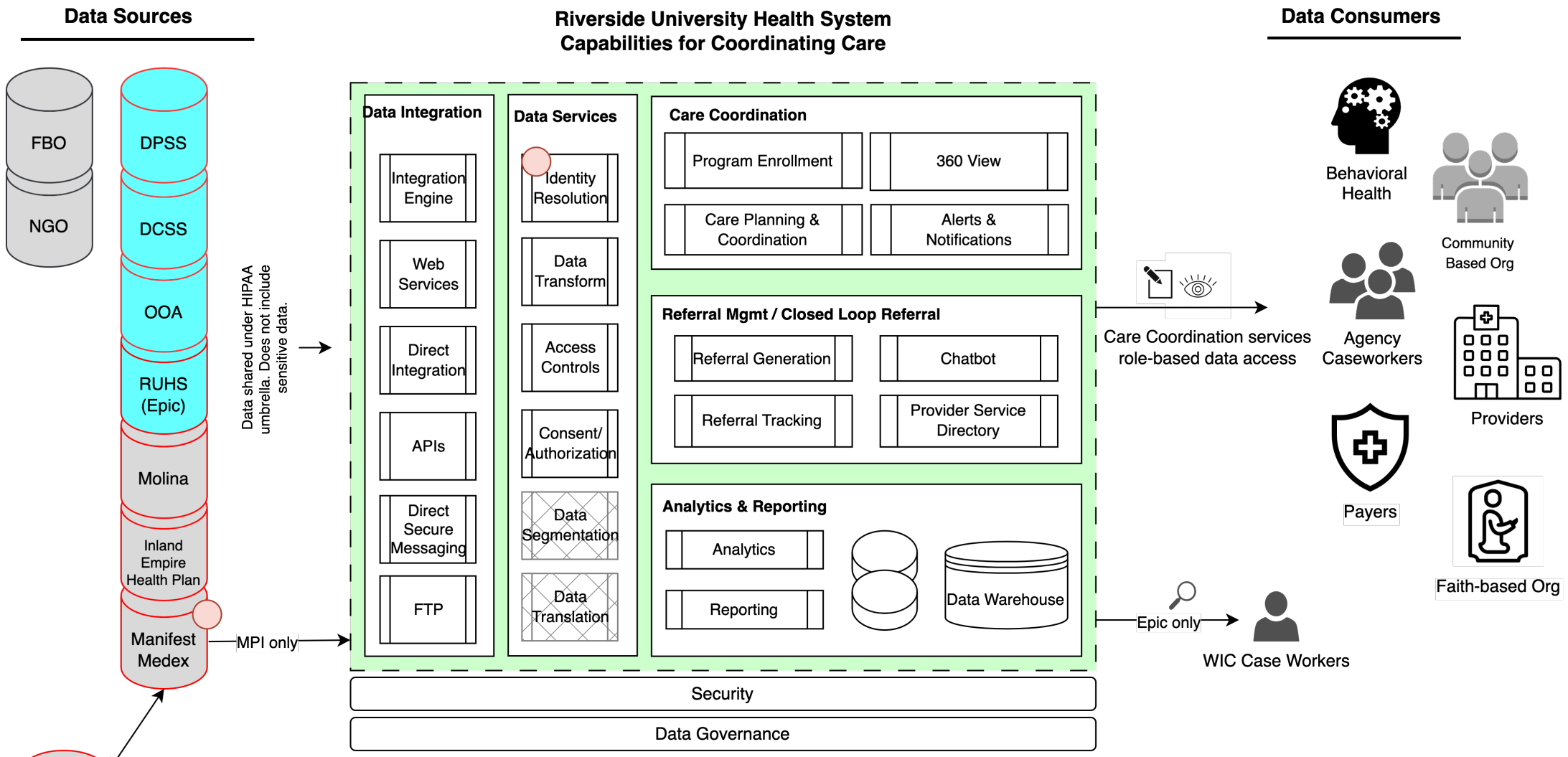
- System built and managed by Alameda County Health --with funding initially seeded as a Whole Person Care pilot. With ongoing participation/funding by local Medi-Cal plans (Alameda Alliance, Anthem—now out of market, Kaiser).
- SHIE platform migration underway for better scaling and master data management.
- Integrates data across over twenty source systems to create a client record (including health care consolidated clinical documents). Includes public health information for immunizations and vital records.
- Interfaces to obtain County behavioral health (with limited org/role-based access), some corrections data and Medi-Cal status (via health plan rosters).
- Pulls CCDAs from connected health system providers on a query/response basis.
- County social service program information from CalSAWS is very limited and challenged by person matching (receive eligibility info only and minimal PII to enable match).
- Significant time and effort spent to align data controls with defined data sets (and/or elements) based on user roles (based on contracts and data sharing agreements). Work to align consent, person matching, access controls and identity resolution has been a significant service lift.
- Maintains its own EMPI/identity matching service.
- ADT access and alerts supported by third party vendor.
- Emphasis on care teams, enabled by a community health record, communication channels, and event alerts (starting with hospital/ED admission/discharge).
- CBO participation based on contracts for Medi-Cal funded services.
- Users are primarily care coordinators with record access limited to those clients on their roster. Consent for data sharing captured by care coordinators and input to be granted access.
- Orgs with existing care coordination systems can ingest data from SHIE into their existing workflows.
- Currently care coordinators do not have a full 360 view of what other services their clients are receiving (on roadmap).
- EMS is a new County partner.

Primary Social/Health Data Sharing Use Cases:

- CalAIM initiatives, including Enhanced Care Management

=> Next Step Opportunities:

- Data sharing with local justice systems
- Changing data system platform and moving off of shared flat files to API integrations
- Enhanced relationship with local 211 system



Legend

FBO - Faith Based Organizations
NGO - Non Government Organizations
DPSS - Department of Social Services
DCSS - Department of Child Support Services
OOA - Office of Aging

RUHS - Riverside University Health System
Manifest Medex - Health Information Exchange
IEHP - Inland Empire Health Plan
Molina - Health Plan
WICWise - Supplemental Nutrition Program for Women Infants and Children

Blue - County
Gray - Community-based Organization
Yellow - State
Red Outline - HIPAA Organization
Colored Dot - Capability supported by Data Source

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Data Exchange
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DATA EX… FRAMEWORK

Description of Figure on Prior Slide

The model depicts the data sources, data consumers and capabilities supported by Riverside University Health System supporting care coordination across health and social care. Data sources include; Department of Public Social Services, Department of Child Support Services, Office of Aging, Riverside University Health System, Molina, Inland Empire Health System, Faith-based organizations, non-government organizations and Manifest Medex which provides the Master Person Index to support Identity Resolution.

Capabilities include; Data Integration services; Integration Engine, Web Services, Direct integration, APIs, Direct Secure Messaging, and FTPs. Data Services such as Identity Resolution, Data Transformation, Access Controls, Consent / Authorization. Care Coordination capabilities include; Program Enrollment, Care Planning & Coordination, 360 View, and Alerts & Notification. Data Analytics and Reporting services including data warehouse. Referral Management services include; Referral Generation, Referral Tracking, Chatbot, and Provider Directory. Underlying the capabilities is Security and Data Governance.

Data Consumers include; Community Based Organizations, Behavioral Health Providers, Healthcare Providers, Health plans, faith-based organizations and Agency workers.

Riverside expanded their HIPAA umbrella to encompass Department of Public Social Services, Department of Child Support Services and Office of Aging. They were not able to include WIC, so Riverside provides WIC a limited view into the EHR to verify clinical data needed for member eligibility.

Riverside Highlights (Pop 2,492,442)

County Board of Supervisors instituted a 'no wrong door' policy to County services and funded supported for enhanced data sharing capabilities. County expanded HIPAA umbrella to include human services and partnered with Riverside University Health System for Data Governance. With RUHS as their major county medical service provider, expanded Epic tools to support care coordination. The region is served by Inland Empire HIO/Manifest Medex QHIO.

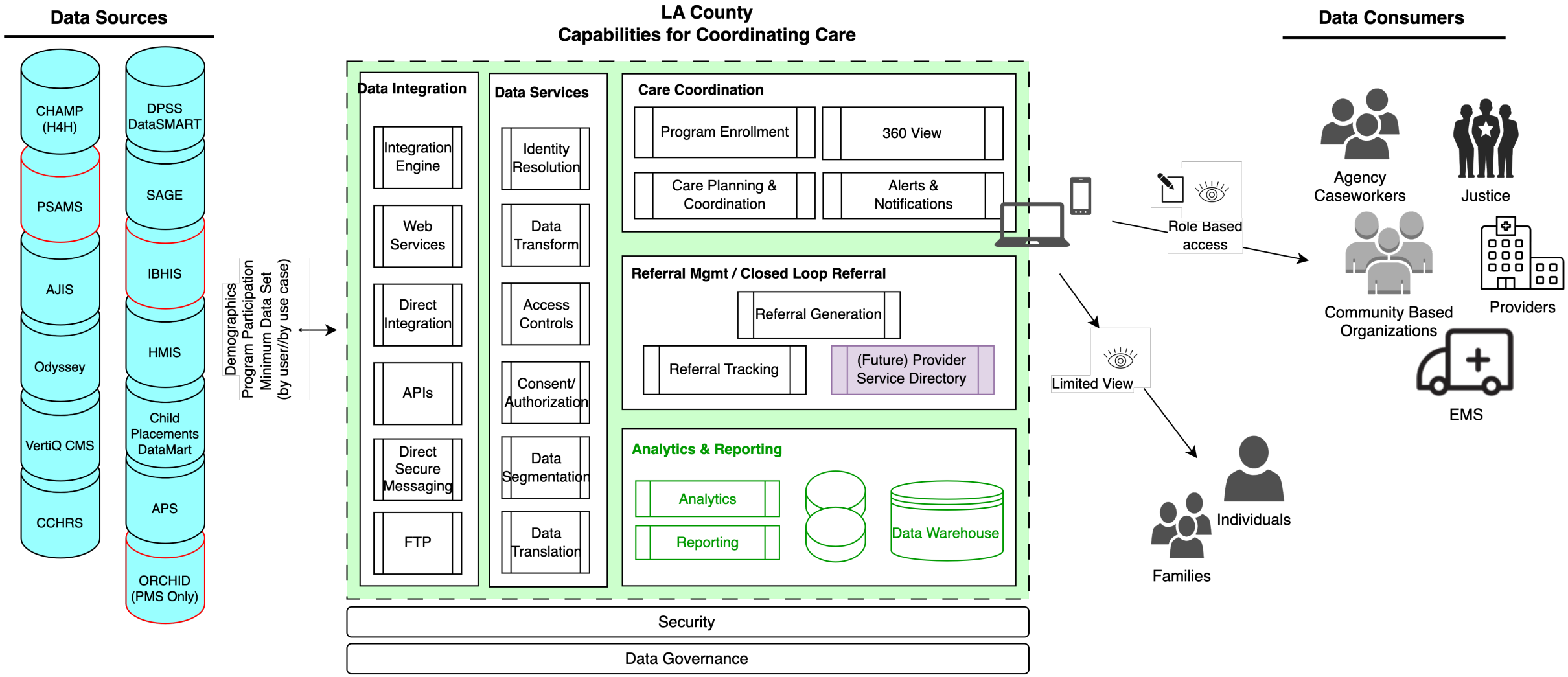
- "RivCo One" launched to support Integrated Service Delivery (ISD) launched starting with: Protocol for sharing de-identified data, then PII/PHI Data Sharing, with Countywide Policy Amendment to broaden scope. Data sharing agreement signed by County of Riverside Health and Human Service Department Heads. Master data lake infrastructure is county funded and owned.
- County Board of Supervisors designated the County as a hybrid entity under HIPAA, expanding their HIPAA umbrella to cover a broader range of service providers: Child Protective Services, Adult Protective Services and Behavioral Health. Expanded further in 2023 to including Human Services and Department of Probation.
- Addressed immediate data sharing challenges by Use of a common Whole Person Health Scoring System (28 questions, 6 domains)
- Consent (Uniform Consent for Release of Information) collected at time of intake into County program participating in ISD.
- Uses MPI capabilities of local HIE (Manifest MedEx) to obtain and use a master Client ID.
- Providing care coordination support across County providers using Riverside University Health System's Epic tools (including RUHS community health centers).
- Does not support closed loop referral capabilities.
- Data sharing with WIC could not be completely resolved via expanding the HIPAA umbrella. The county's work around is to give WIC access to Epic and a list of patients. If they see the patients they are able to make an appointment. Health Systems can see how many patients overlap at a population level, but not at a person level.
- Building more robust analytics and reporting capabilities through AWS (and using its data integration capabilities).
- Sensitive data will not be included in the planned datalake. Those use cases will be addressed using multidisciplinary teams.
- Manifest MedEx provides access to most provider data in the county. Adoption high with plan pay-for-performance incentive which include participation in MX as part of the evaluation.

Primary Social/Health Data Sharing Use Cases:

- Housing & Health
- WIC

=> Next Step Opportunities:

- Building analytic data store (lake? Warehouse?)



Legend

DPSS Data SMART - Data Extract from Department of Public Social Services
SAGE - Public Health Substance Use Disorder Case Management
CCHRS - Consolidated Criminal History Reporting System
HMIS - Housing Information Management System for Los Angeles Housing Services Authority (LAHSA) and 4 county housing continuums of care COCs
DataMart - Child Placements Data Mart
IBHIS - Behavioral Health

CHAMP Housing 4 Health - Eccovia
ORCHID - Health Services Patient Management System
AJIS - Jail Inmate Management System
APS - Adult Protective Services
PSAMS - Pretrial Services Management System
VertiQ - Medical Examiner Case Management System
Odyssey - Courts Case Management System

Blue - County
Gray - Community-based Organization
Red Outline - HIPAA Organization
Purple - Future Functionality
Green Outline - Area of Focus
Colored Dot - Capability supported by Data Source

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Description of Figure on Prior Slide

The model depicts the data sources, data consumers and capabilities supported by LA County for care coordination across health and social care. Data sources include; CHAMP Housing 4 Health; ORCHID Health Services Patient Management System; , DPSS Data SMART - Data Extract from Department of Public Social ServicesSAGE - Public Health Substance Use Disorder Case Management, CCHRS - Consolidated Criminal History Reporting System, HMIS - Housing Information Management System for Los Angeles Housing, Services Authority (LAHSA) and 4 county housing continuums of care COCs, DataMart - Child Placements Data Mart, IBHIS - Behavioral Health CHAMP Housing 4 Health – Eccovia, ORCHID - Health Services Patient Management System, AJIS - Jail Inmate Management System, APS - Adult Protective Services, PSAMS - Pretrial Services Management System, VertiQ - Medical Examiner Case Management System, Odyssey - Courts Case Management System

Capabilities include; Data Integration services; Integration Engine, Web Services, Direct integration, APIs, Direct Secure Messaging, and FTPs. Data Services such as Identity Resolution, Data Transformation, Access Controls, Consent / Authorization, Data Segmentation and Data Translation. Care Coordination capabilities include; Program Enrollment, Care Planning & Coordination, 360 View, and Alerts & Notification. Data Analytics and Reporting services including data warehouse. Referral Management services including; Referral Generation, Referral Tracking and Provider Directory is aspiration. Underlying the capabilities is Security and Data Governance.

Data Consumers include; Community Based Organizations, Behavioral Health Providers, Healthcare Providers, Health plans, Agency case workers, Emergency Services. Families and Individuals have view only access.

Los Angeles Highlights (County Pop 9,663,345)

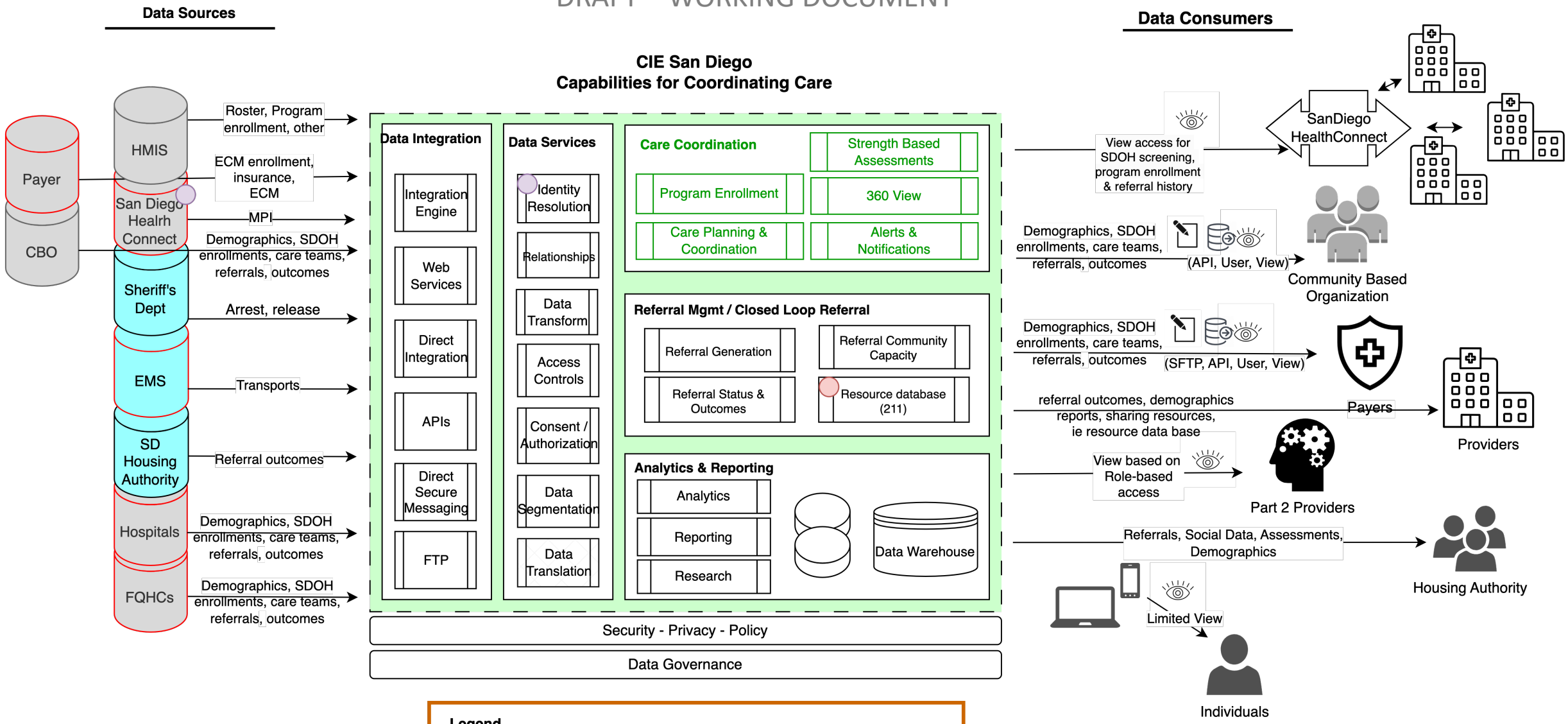
Effort led by County CIO, purpose built to link client data for analytics and insights across multiple domains of County Services, enabled by legislation allowing expanded access to data for Child Welfare and Adults/Families experiencing homelessness (AB210). System is governed and funded by the County Board of Supervisors. Los Angeles County does not a have a single HIE serving the county population.

- Pulls client history and program participation information from a range of systems of record into their ecosystem and can act as a record locator across its connected source systems.
- Remarkable for its breadth of data sources, ranging from county provider EHR extracts (medical and BH) to case management systems, to contracted CoC HMIS systems.
- Well-positioned to identify client touches across County services, no health plan or HIE data sharing. Limited health information from EHR (diagnoses and medications) used by County providers.
- Access to County program Eligibility information via DPSS (which has a feed from CalSAWS).
- MPI is tiered (semi-federated), using the same software (but different algorithms) to master within domains (justice vs child welfare) and then across them (master of masters).
- Maintain data in their original data context, not maintaining mapping to standard terminologies.
- LA County provides the analytics ecosystem where County Departments/agencies can reposit and analyze their data in correlation to other department data. That same platform is used to pull data for analysis via data use agreements, minimizing the physical movement and duplication of datasets.
- Care coordination capabilities via a connected app is in early stages of implementation. Aside from apps, no standard care coordination platform being used across County systems.
- Specific use cases provide care managers access to client-specific 360 data views (user/role specific access to limited data elements).
- Consent for sharing/viewing of identified “360” information is captured via a Care Manager app at the time of providing client services.
- Challenged by mastering service provider data. Planning to procure a Provider Registry late 2025/2026 with vision of including county-contracted community-based organizations in their ecosystem. No connection to LA 211.
- Currently does not support referral management.
- Access to data repository is mostly for analysts. LA County passed two Assembly Bills enabling cross organizational data sharing and establishing a minimal data set for Child Safety (AB and Adults and Families Experiencing Homelessness (AB210).

Primary Social/Health Data Sharing Use Cases:

- Child Safety – provides key data elements about adults in the home to inform Child Welfare investigators’ decisions in the field + behavioral health info.
- Housing & Homelessness
- Justice Involved

=> Next Step Opportunities: In ongoing conversations with LANES to enhance health data sharing.



Legend

Blue - County
Gray - Community-based Organization
Red Outline - HIPAA Organization
Green Outline - Area of Focus
Colored Dot - Capability supported by Data Source

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DATA EXCHANGE FRAMEWORK

Description of Figure on Prior Slide

The model depicts the data sources, data consumers and capabilities supported by Community Information Exchange San Diego for care coordination across health and social care. Data sources include; San Diego Health Connect which provides the service for Identity Resolution, Payers, 211 which provides the Referral Registry, Homeless Information Management System, San Diego Housing Authority and Community Based Organizations.

Capabilities include; Data Integration services; Integration Engine, Web Services, Direct integration, APIs, Direct Secure Messaging, and FTPs. Data Services such as Identity Resolution supported by San Diego Health Connect, Data Transformation, Access Controls, Consent/ Authorization, Data Segmentation and Data Translation. Care Coordination capabilities include; Program Enrollment, Care Planning & Coordination, 360 View, and Alerts & Notification. Data Analytics and Reporting services including data warehouse. Referral Management services include Referral Generation, Referral status and Outcomes, Referral Community Capacity, and Referral Registry supported by 211. Underlying the capabilities is Security and Data Governance.

Data Consumers include; Data is shared with Community Based Organizations, Hospitals, FQHCs, San Diego Housing Authority, Payers, and view only access for Behavioral Health part 2 providers. Families and individuals have limited view access view a portal or mobile application. Hospitals and health care providers have view access for social determinants of health screening, program enrollment and referral history view San Diego Health Connect.

San Diego Highlights (County Pop 3,269,973)

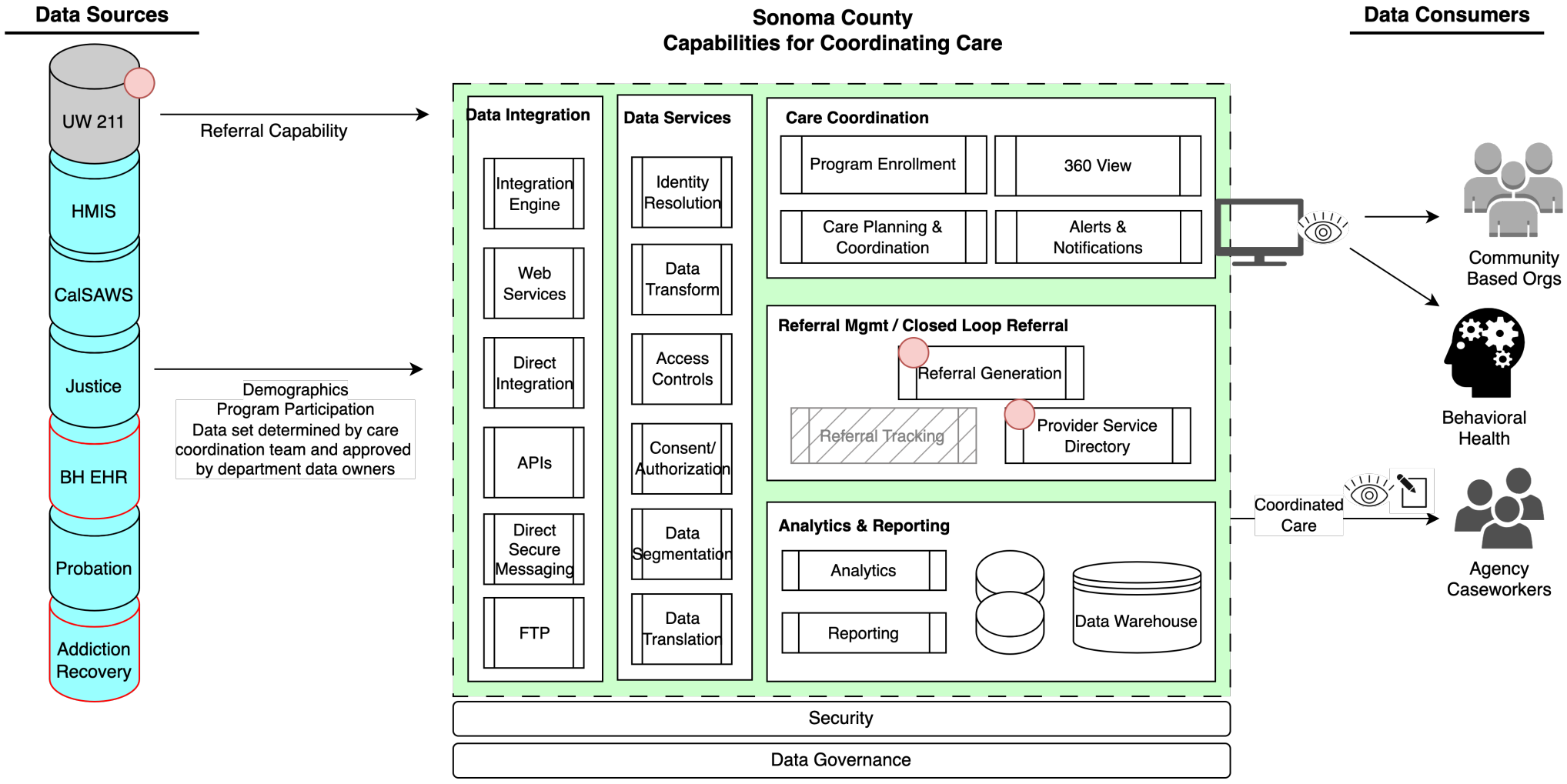
Purpose built for care coordination by San Diego 211 across human service providers. The effort is led by 211 with a cross-sector advisory board and supported by partners across local government, community-based organizations, health plans, hospitals, FQHCs and independent physician offices. San Diego CIE now also governs the local health information exchange (San Diego Health Connect HIE/QHIO) and supports limited data sharing across health and human services. Initially built in response to County contract requirements for CBOs to coordinate services and document services and outcomes.

- Community Information Exchange (CIE) supports backend data flows to create and maintain a longitudinal client record of program services.
- Longstanding unidirectional sharing of data from HMIS/CoCs (CoC to CIE).
- County data systems include; San Diego Housing Authority (in process), EMS, and Sheriff's Department.
- Health plan participation includes roster sharing (list of members) and direct use of CIE care coordination platform.
- CIE is adept at building customized APIs for community-based organizations, reducing the barrier to interoperability.
- Relies on 211 as provider/service directory as well as caller/client user support.
- Clients opt-in to the CIE system and are assessed via a common tool to determine need/acuity as part of a longitudinal client record.
- Consent to share information with their CIE closed network (which can include health care partners) is managed as part of the opt-in process and can be taken in verbally at the call center or captured from any of the participating service providers.
- Strong role and organizational-based data access (views and sharing), includes rules-based views of needed information (e.g., eligibility yes/no vs. granular eligibility criterion met).
- Multi-disciplinary team members working with client can 'see' one another and communicate directly or via referrals. Can also be alerted to status change (e.g., hospitalization).
- Closed loop referral part of the care coordination platform is informed by service delivery capabilities and capacity of the service providers. [note about Unite Us integration]
- Supports analytics for participating organizations on their activities and client outcomes.
- CIE platform flows data into care/case management tools used by larger organizations and CIE's CRM provides the frontend workflow tool for many organizations.
- CRM provides common view of client needs/acuity and status across domains. Includes care team members (not clinical).
- Client/individual access portal live.

Primary Social/Health Data Sharing Use Cases:

- Housing
- Justice Involved

=>Next Step Opportunities (Active): Adding views of select clinical data elements (or flags) to confirm eligibility or need for specific human services, e.g., special meals.



DATA EXCHANGE FRAMEWORK

Description of Figure on Prior Page

The model depicts the data sources, data consumers and capabilities supported by Sonoma County for care coordination across health and social care. Data sources include; United Way 211, and Homelessness Information Management System, CalSAWS, Justice, Behavioral Health, Probation, and Addiction Recovery which are county systems. United Way 211 provides the referral capabilities.

Capabilities include; Data Integration services; Integration Engine, Web Services, Direct integration, APIs, Direct Secure Messaging, and FTPs. Data Services such as Identity Resolution, Data Transformation, Access Controls, Consent/ Authorization, Data Segmentation and Data Translation. Care Coordination capabilities include; Program Enrollment, Care Planning & Coordination, 360 View, and Alerts & Notification. Data Analytics and Reporting services including data warehouse. Referral Management services include Referral Generation and Provider Service Directory supported by United Way 211. Referral Tracking is not supported. Underlying the capabilities is Security and Data Governance.

Data Consumers include; Community Based Organizations, Behavioral Health Providers and Agency workers.

Sonoma Highlights (Pop 480,955)

County data system—intentional build of a modern platform led by County Innovation team to drive outcomes of person-centered whole person services. No county-focused HIE.

- Data sharing collaboration had been underway across County services, platform adoption accelerated in response to homelessness exacerbated by severe wildfire event.
- Fully API-driven hybrid cloud-based technology using open architecture scalable across a broad diverse ecosystem.
- ACCESS Sonoma as a primary use case to address homelessness driven by county leaders across health services, human services, community development, justice and child support services.
- Created virtual client record across Health services, clinics, human services, shelters, SUD, HMIS/HUD, Child Welfare and Justice.
- Worked on serial cohorts: COVID-19 vulnerable, Homeless encampments, mental health diversion, high ED utilizers, high-needs homeless and emergency rapid response (to local fires).
- Includes resource management for providers (e.g., emergency shelter bed capacity).
- United Way 211 provides telephonic referrals via contract with County Human Services (current implementation is not closed loop)
- Consent is captured at the time of care coordination engagement.
- Multidisciplinary care team (including care coordinators across ~50 CBOs).
- Users have a full view of clients on a single page and can receive alerts to new events via its care coordination (Connect360) application.
- Includes data from county-based behavioral health EHR
- Currently no hospital or clinic connections in place
- Access to data is based on RBAC (Role Based Access Controls) and ABAC (Attribute Based Access Controls).

Primary Social/Health Data Sharing Use Cases:

- Reduce homelessness
- Support justice involved persons

=> Next Step Opportunities: Transitional Age Youth and Justice