MODERNIZING PUBLIC HEALTH DATA INFRASTRUCTURE FOR THE FUTURE: LESSONS LEARNED FROM THE FIELD

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CHEAC Annual Meeting

October 4, 2023

The Future is Clear: Data Is Essential Public Health Infrastructure

- DMI Strategic Implementation Plan (cdc.gov)
- Public Health 3.0: A Call to Action to Create a 21st Century Public Health Infrastructure (naccho.org)
- Future of Public Health Work Group Memo - September 2021 (ca.gov)

Modernizing Public Health Data Infrastructure for the Future: Lessons Learned from the Field

Laura Young | Executive Director
San Diego Health Connect

Meet the Presenter

Laura Young

Executive Director

San Diego Health Connect

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San Diego Health Connect HIE

- San Diego Health Connect began as the San Diego Beacon Community—an effort to improve healthcare in the San Diego community spearheaded by the University of California.
- In 2013, San Diego Health Connect became an independent non-profit organization serving San Diego and Imperial Counties.
- In 2022, San Diego Health Connect officially affiliated with 211 San Diego, with 211 San Diego acting as the parent organization to the HIE.
- The HIE maintains its own leadership and board governance.

SAN DIEGO HEALTH CONNECT

Introductions: CIE and HIE

Health Information Exchange: Primarily health information, and used for sharing information across healthcare systems, including hospitals, pharmacies, emergency services and government. For the purposes of better continuity of care, diagnostics, treatment, and health outcomes.

Community Information Exchange: Primarily captures social drivers of health information that is used to coordinate care across health and social services. Enables care coordination activities such as, bi-directional closed-loop referrals, creating a communitywide care plan with other service providers, and empowers a community with data analytics to better understand disparities in the system of care and how to address them.

211 SAN DIEGO

Community Information Exchange

211 San Diego and CIE

211 SAN DIEGO/IMPERIAL Services

GENERAL LINE

- 24/7 contact center
- 10-minute information and referral
- 300+ languages
- Use CIE to document all interactions with callers and consent into CIE
- CRM integrated with CIE platform

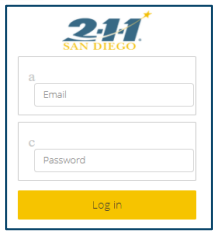
CARE COORDINATION

- Specialty line with case management
- Contracted partnerships with Managed Care Plans (MCPs)
- In-depth assessment and coordinated referrals via the CIE
- CRM integrated with CIE platform

Community Information Exchange

Connect to 133+ organizations through direct system access and leveraging data integration between systems

CIE Network Partners



Individual User Access

- Secure login
- Individual level PII & CIE profile, Screenings, Assessments, Comprehensive Social Continuum Assessment (CSCA)
- Electronic Referrals

System to System Integration

- Secure member matching
- API connections
- Eligibility prioritization

Community Information Exchange CIE

A CIE is an **ecosystem** comprised of multidisciplinary network partners that use a shared language, a resource database, and an **interoperable** technology platform to **deliver enhanced community care planning**. Care planning tools enable partners to integrate key SDOH data from multiple sources, make bi-directional referrals, and create a shared longitudinal record that enables informed care. By focusing on these core components, a CIE enables communities to shift away from a reactive approach to providing care toward proactive, holistic, person-centered care.

Network Partners

Collective approach with standard Participation Agreement, Business Associates Agreement and participant consent with shared partner governance, ongoing engagement, and support.

Shared Language (SDoH)

Setting a Framework of shared measures and outcomes through 14 Social Drivers of Health Assessments and a Risk Rating Scale: Crisis, Critical, Vulnerable, Stable, Safe Thriving

Bidirectional Closed Loop Referrals

Updated resource database of community, health, and social service providers. Ability to accept/return referrals and to provide outcomes and program enrollment.

Technology Platform and Data Integration

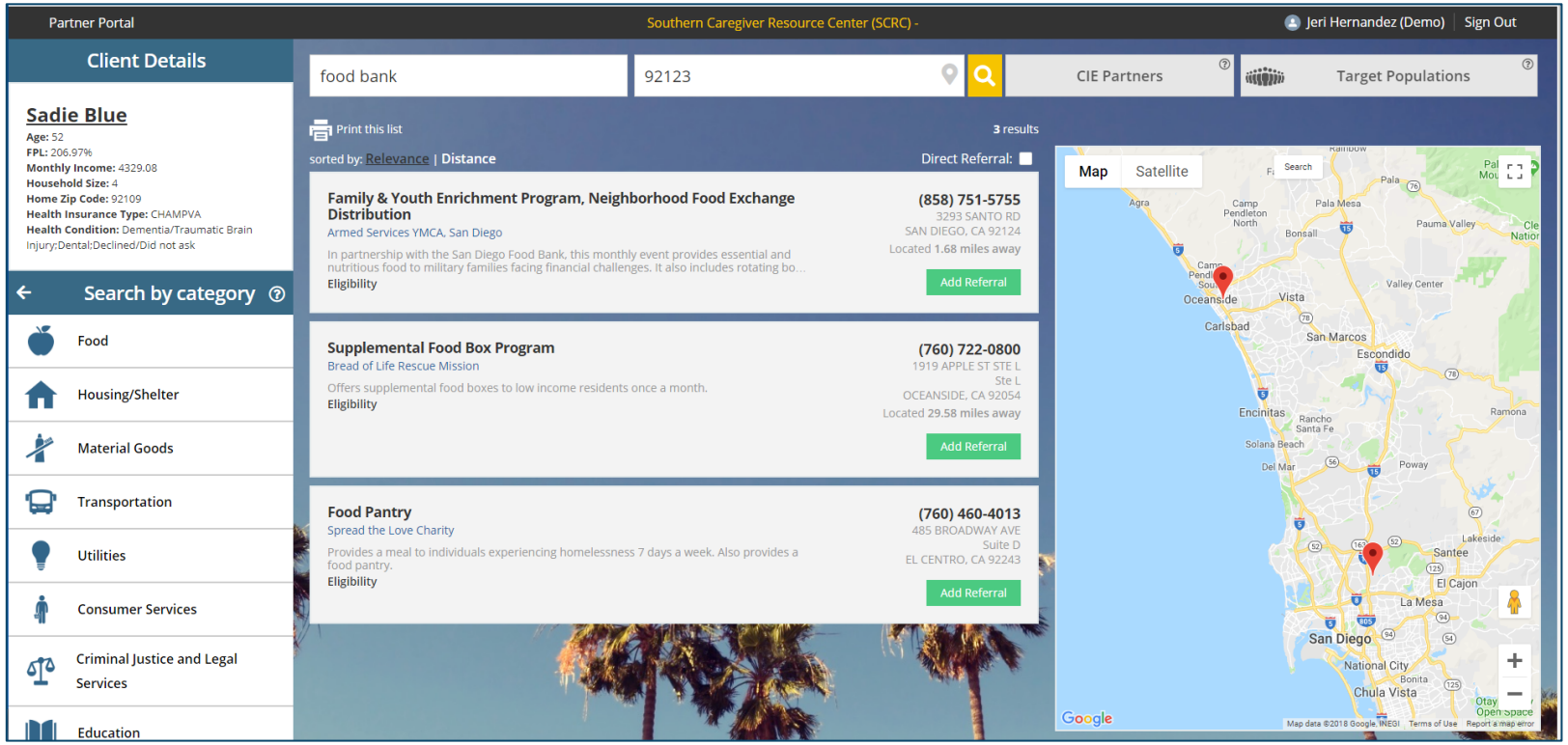
Technology software that integrates with other platforms to populate an individual record and shapes the care plan. System features include care team communication feeds, status change alerts, data source auto-history and predictive analytics.

Community Care Planning

Longitudinal record with a unified community care plan that promotes cross-sector collaboration and a holistic approach.

Resource Database and Bi-directional Referrals

A hub for social and health sites and providers



- Shared taxonomy language for referrals (AIRS)
- Dedicated resource staff
- Standards to listings and requirements
- Inclusion/Exclusion Criteria
- Linked to health conditions
- Tracks resource availability and unmet needs

Person Centered Care

What's the difference between a CIE and HIE?

PHI by **source** not because of content (data coming from a covered entity); authorization converts PHI to PII

CIE: Care Coordination

Comprised of social data and when it is medica, for the purposes of eligibility/care coordination (e.g. Where is your medical home or # of hospitalizations in the last 12 months [don't really need to know specifics of hospitalization])

The Healthcare component is related to:

1. Who are the specific care providers? (Health plan, PCP, Medical home, Health Navigator, etc.)
2. Health Information as it impacts social needs and access (that you are disabled or have cancer, but not medical information like what's person's cancer treatment plan or tests that have been run)

PHI by **content** (medically-related information)

HIE: Continuity of Medical Care

Comprised of Medical data for medical providers to use to inform diagnosis and treatment. Moving towards also having some social data that shapes treatment plans (e.g. do you have transportation to get to your post-op follow up?)

Needs to include data captured by a Dr. or other healthcare providers (diagnosis, medications, test, blood work, etc.).

What's the difference between a CIE and HIE?

	Community Information Exchange (community-focused)	**Health Information Exchange** (health care professional & patient focus)
MISSION & PURPOSE	Care Coordination An ecosystem of multidisciplinary network partners that use a shared language, a resource database, and an interoperable technology platform to deliver enhanced community care planning	Continuity of Medical Care
PARTNER ORGANIZATIONS	Cross-sector partners including: community-based organizations, health care, government	Health care partners
GOVERNANCE INFRASTRUCTURE	Community-led, centered, designed and governed	
CONSENT MODEL	Opt-in model Client Authorization required	Opt-out model
DATA FIELDS	• Longitudinal client record • PII: Personal Information (may incl. self-reported health) • 3rd Party Verified Information: Ex: Health Information released from HIPAA covered entity with an authorization (doctor/health plan) • Including: client profile, assessments, service history and success of referrals, current service plan, care team members, jail and ambulance alerts	• PHI: Health Information released from HIPAA covered entities • Including: Demographics, • Encounters, Problem Lists, Diagnosis Codes, • Allergies, Medications, Immunizations, Labs, Progress Notes, Discharge Summaries, Imaging Narratives Reports
RELATION TO PHI	HIPAA compliant, all data from a covered entity is shared with an authorization, does not necessarily include health-specific data	Data comes from covered entities and primarily includes health-specific data

Integration Efforts

- Adding CIE tab to the HIE clinical portal
- Implementing a shared Master Patient Index (MPI) between our two platforms
- Expanding referral opportunities

San Diego County/HIE Highlights

- SAFR is a new, innovative information exchange between pre-hospital providers and health systems.
- Provides paramedics clinical information for patients during 9-1-1 events and sends their care data into receiving hospital EMRs.
- Facilitates the automated return of patient outcome data back to County EMS providers for use in system analytics, quality assurance, and research.

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San Diego County Highlights

Upcoming areas of work include:

- EMS data surveillance and reporting for community health issues with county resources such as 2-1-1.
- Registries in support of county initiatives such as paramedic delivered buprenorphine and addiction referral for opioid use disorder populations.

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Stay In Touch

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211 SAN DIEGO

Community Information Exchange

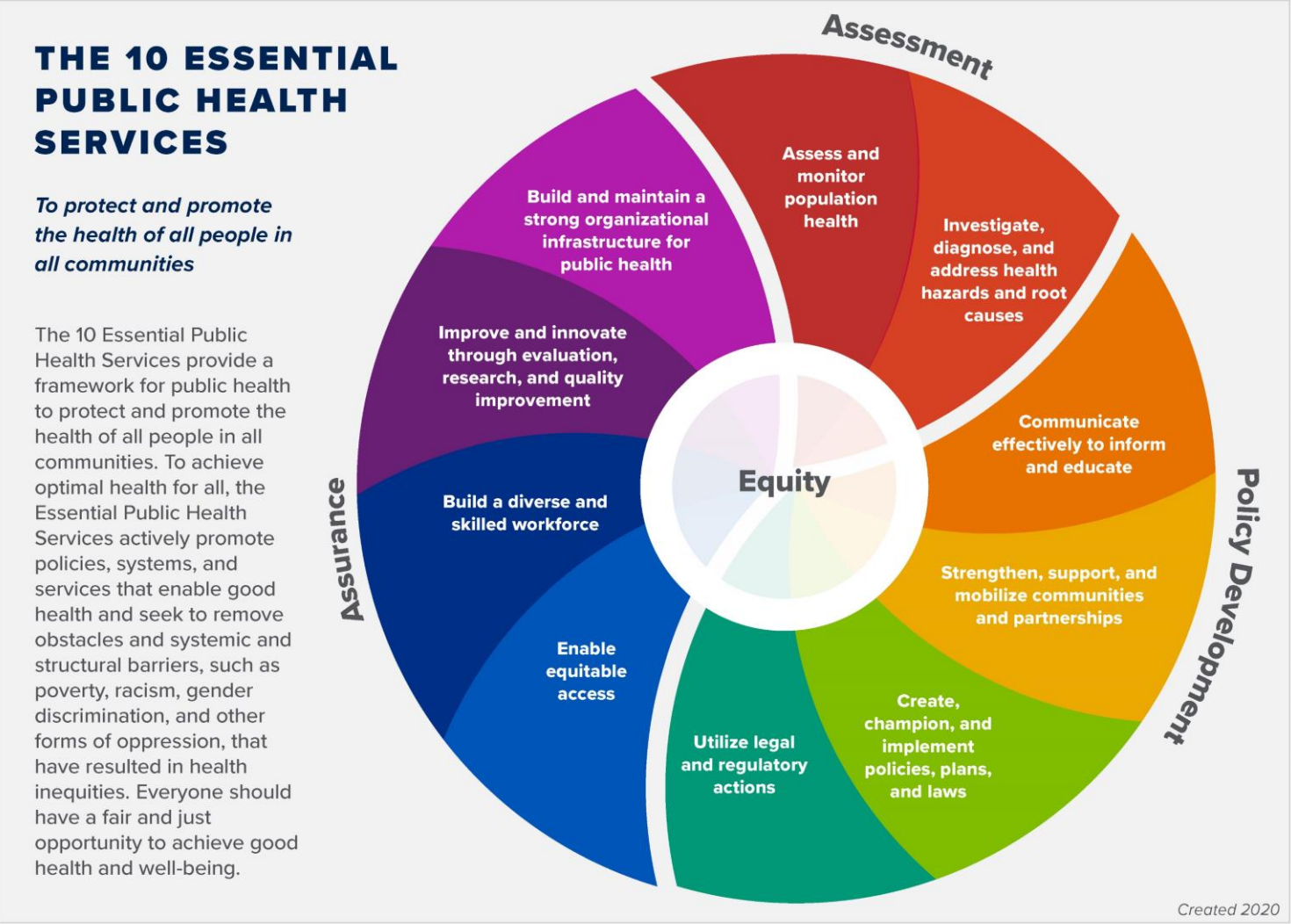
SAN DIEGO HEALTH CONNECT

Santa Clara County
PUBLIC HEALTH

Strengthening the Local Public Health Infrastructure

2023 COUNTY HEALTH EXECUTIVES ASSOCIATION ANNUAL MEETING

Ten Essential Public Health Services



For detailed information: https://www.cdc.gov/publichealthgateway/publichealthservices/essentialhealthservices.html

Public Health Department Strategic Priority Areas

Racial & Health Equity

Policy

Partnerships

Technology and Data

Workforce Development

For detailed information: https://publichealth.sccgov.org/about-us/strategic-plan-public-health-department

Technology & Data Objectives

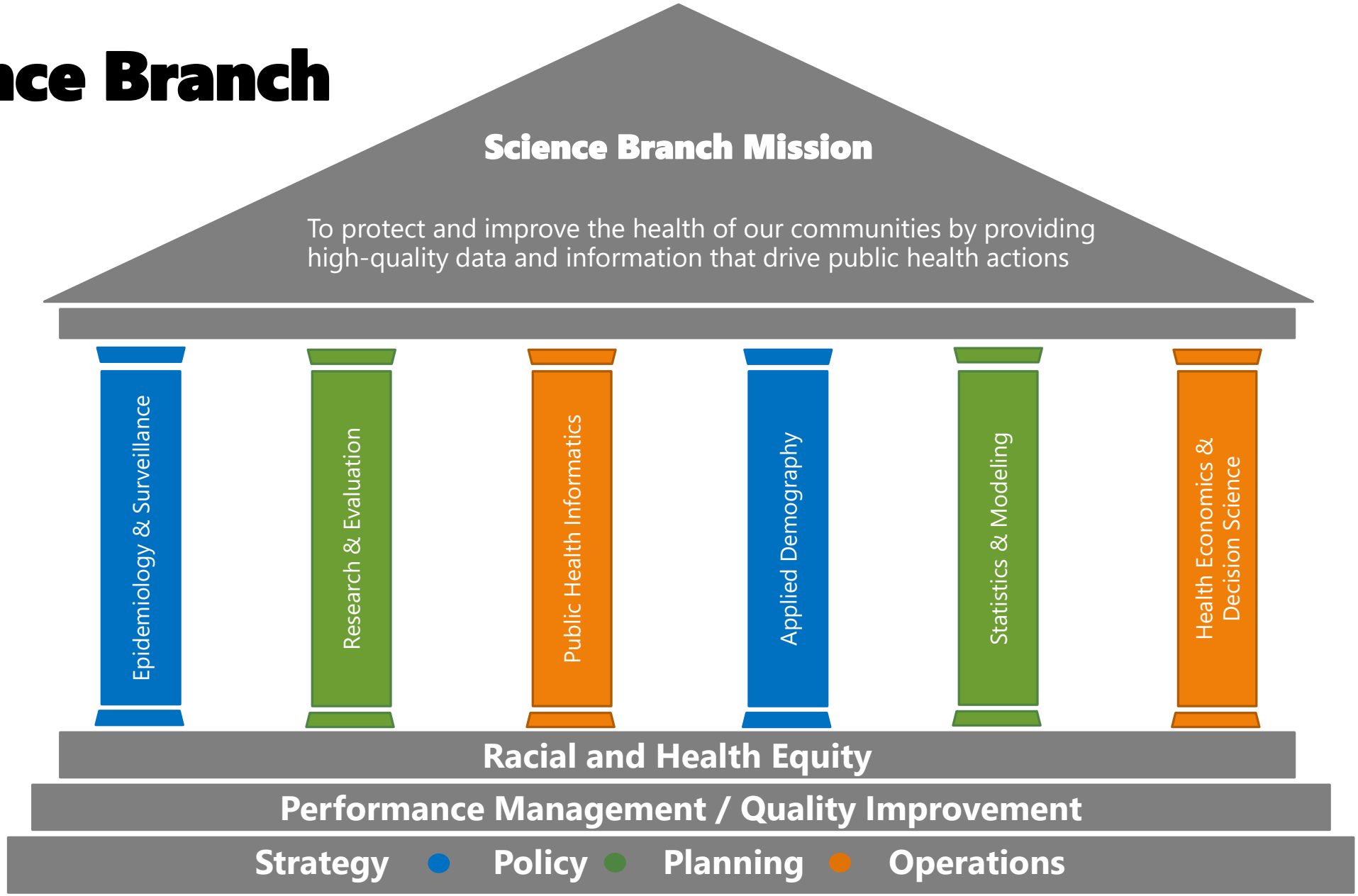
Goal: Invest in modern technology and improve data access to understand the health status in the county and inform public health actions.

Enhance data
- Breadth
- Accuracy
- Accessibility
- Transparency
- Privacy & Security

Develop staff capacity to use data
- Make decisions
- Improve performance
- Improve quality
- Improve population health

Increase the use of public health and environmental health data
- County partners
- Policymakers
- Members from other county agencies

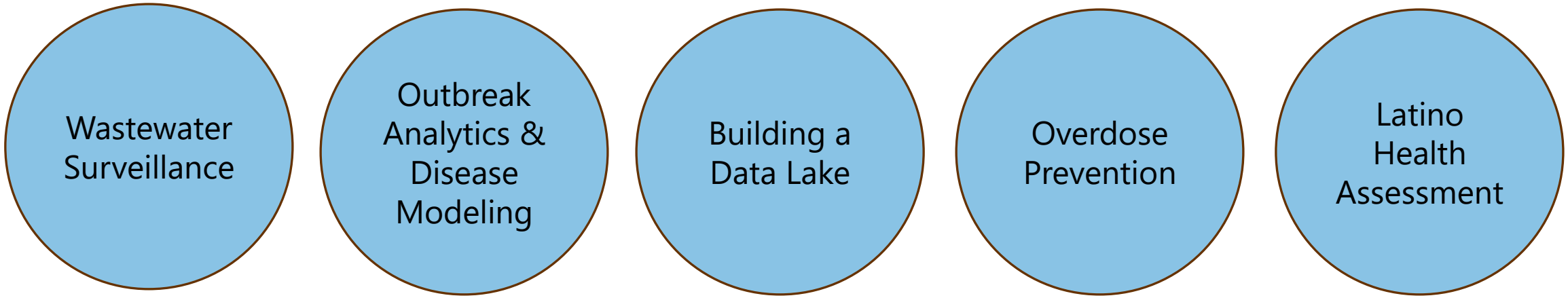
Science Branch



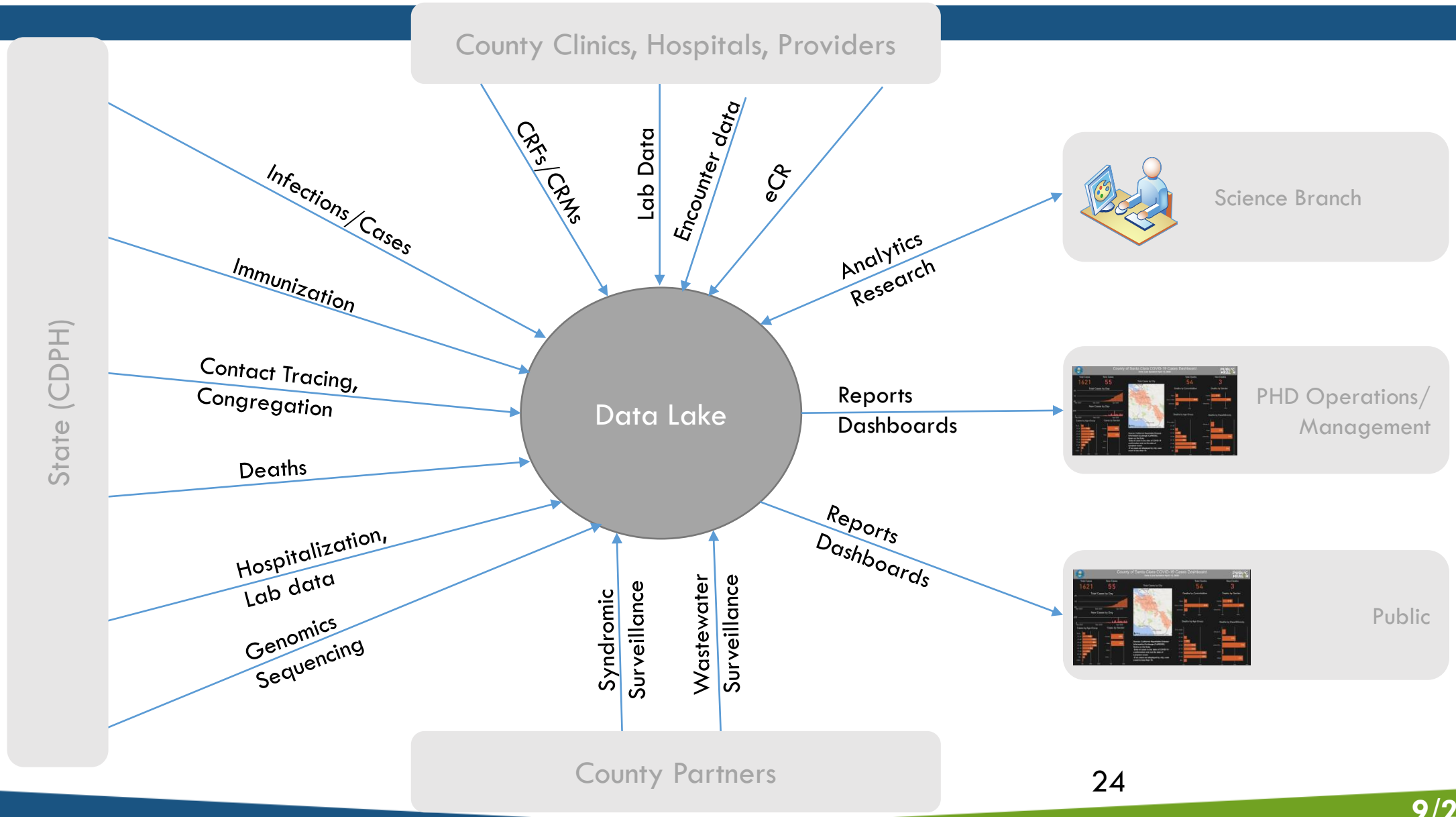
Branch created in October 2021

Data Governance

Key PHD Initiatives



Investing in New Technology: PHD Data Lake



Building a Data Lake to Support Data Science

Ingestion

- Processes to acquire and place data into the Data Lake
  - Expand computing capacity in a cloud environment
  - Ability to handle structured and unstructured data
  - Ingest electronic forms (typed and handwritten)
  - Add data sources or data elements to existing data

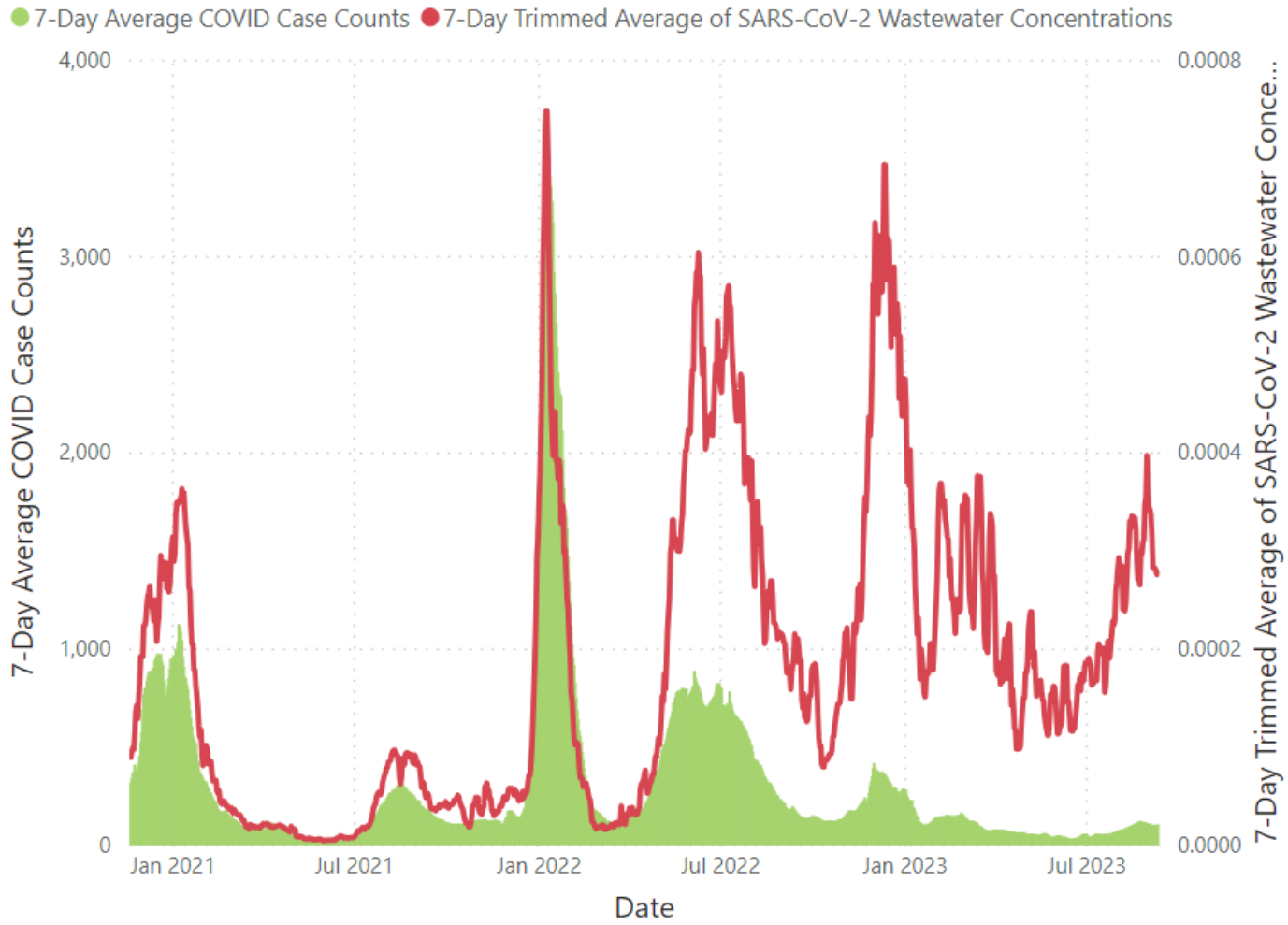
Curation

- Clean data to improve consistency and quality
  - Create "Golden Record" for individuals and conditions
  - De-duplicate incidents

Reporting

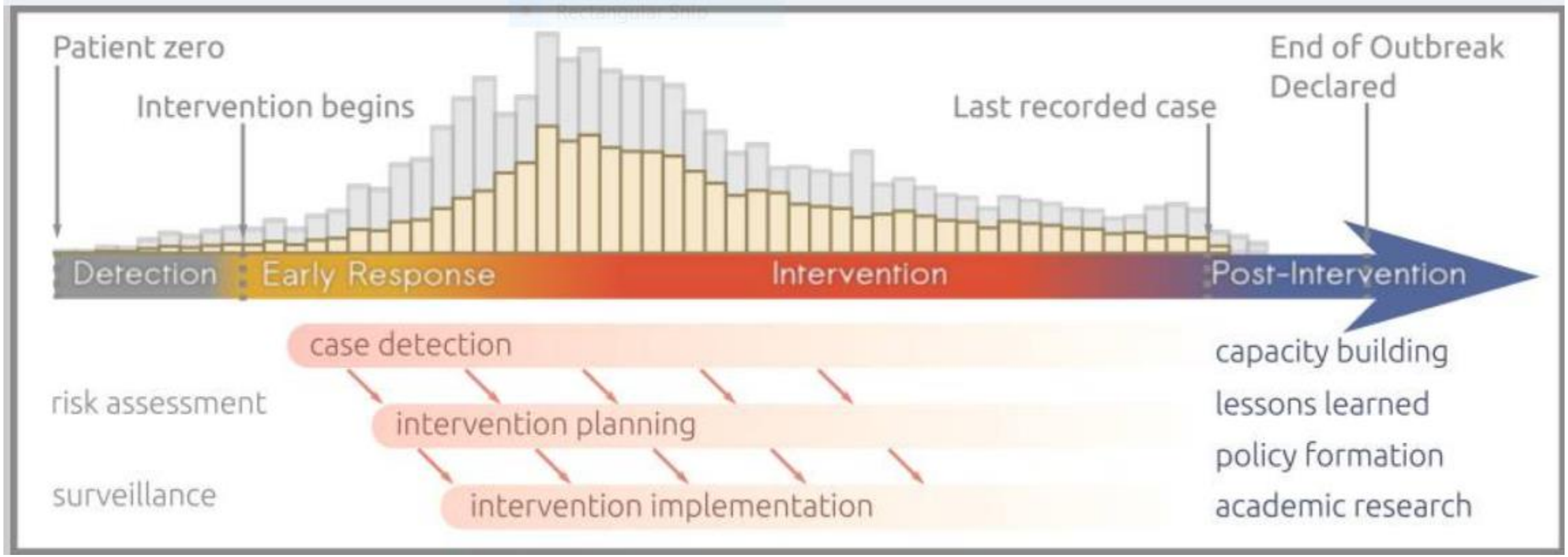
- Data modeled to optimize use for analysis and reporting
  - Ease of use for Public Health users
  - Variety of tools for analysis (R, Arc GIS, SQL, Power BI)
  - Automate routine reporting
  - Create ad hoc reports
  - Data export

Situational Awareness: Wastewater Surveillance in Santa Clara County



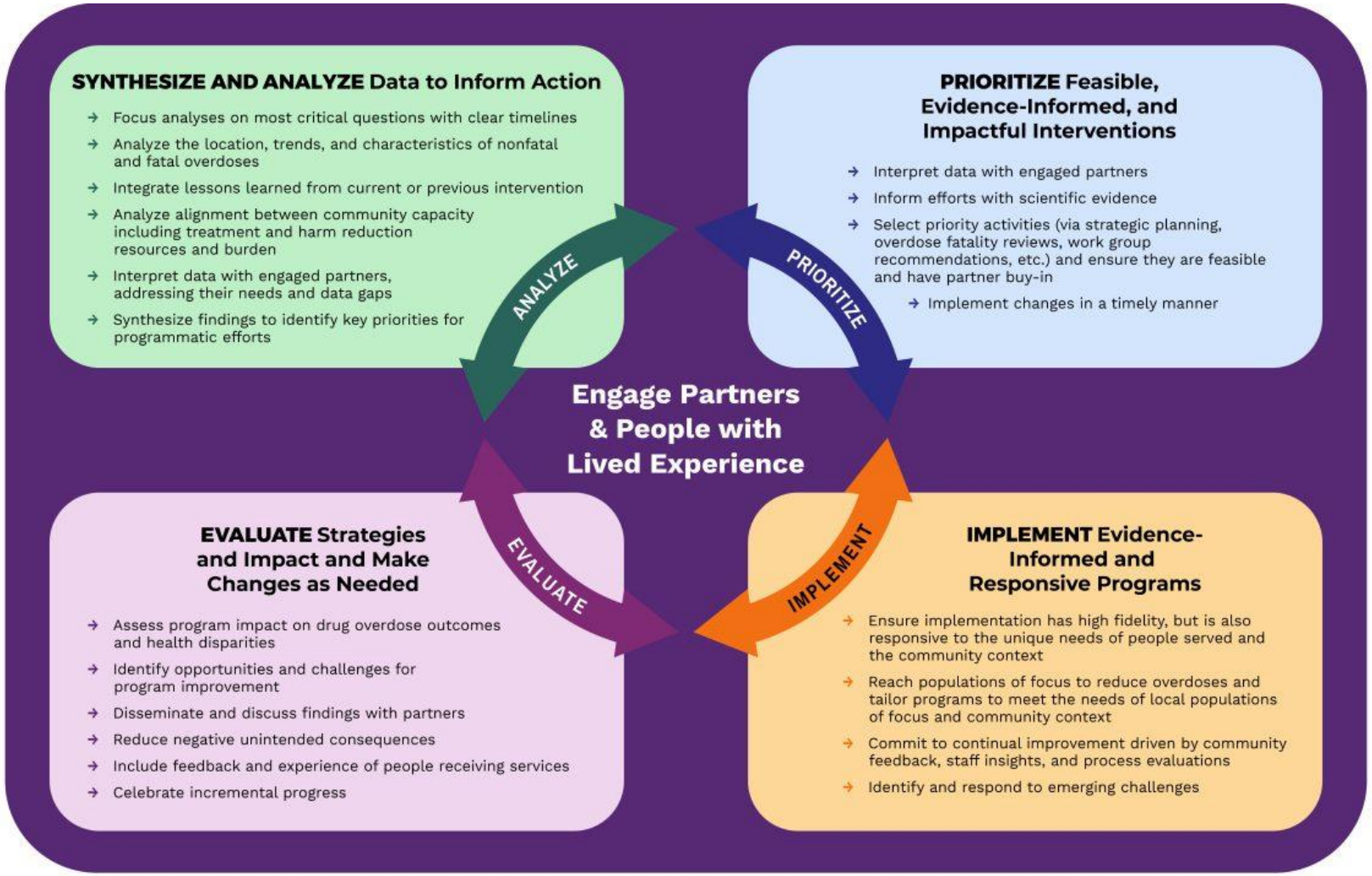
https://covid19.sccgov.org/covid-cases-wastewater

Advanced Planning:
Outbreak Analytics & Disease Modeling



Source: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6558557/

Data to Action: Overdose Prevention



Data from multiple sources are integrated and iteratively used to select, evaluate, improve, and scale drug overdose activities and partnerships centered on:

- Linkage to and retention in care
- Harm reduction
- Stigma reduction
- Clinical best practices
- Surveillance systems

Source: Overdose Data to Action Framework – Reducing Overdoses and Health Disparities. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control

Advancing Health Equity: Latino Health Assessment

Develop a multi-phase workplan for the Latino Health Assessment:

- Phase 1: By Binational Health Week in October 2023, share a report of preliminary findings on internal county system and service utilization among Latinos.
- Phase 2: Conduct a comprehensive health assessment of the Latin/o/x/e community.

Plan and conduct a Latino Health Conference: Conduct a Latino Health Conference focused on findings and recommendations

Challenges

- Data Privacy and Security Concerns
- Data Sharing Issues
- Building local public health infrastructure when there are system dependencies
- Emerging Diseases and Outbreaks
- Community Engagement and Building Trust
- Staying current with technological advancements
- Workforce recruitment and retention
- Funding – How do you sustain data modernization efforts with one time grant funds??

Contact Information

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Thank You!

Getting Upstream of Active TB

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Purpose:

- Understanding the importance of data modernization in relation to disease control- LTBI outreach

Data Timeline:

- Pilot: May through August 2022
- IGRA Outreach Program: September 2022 - August 2023

Data Sources:

- CalREDIE Electronic Lab Reports - IGRA Positive Reports
- PHS Outreach Data

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Overview of TB in San Joaquin County

- History of large, concurrent, multi-year TB outbreaks
- In 2022, lowest number of cases (33) on record
  - Range from 40 – 60 annually
- Estimated 49,000 people infected with TB

IGRA Positive Pilot Project

Received IGRA positive ELRs in CalREDIE

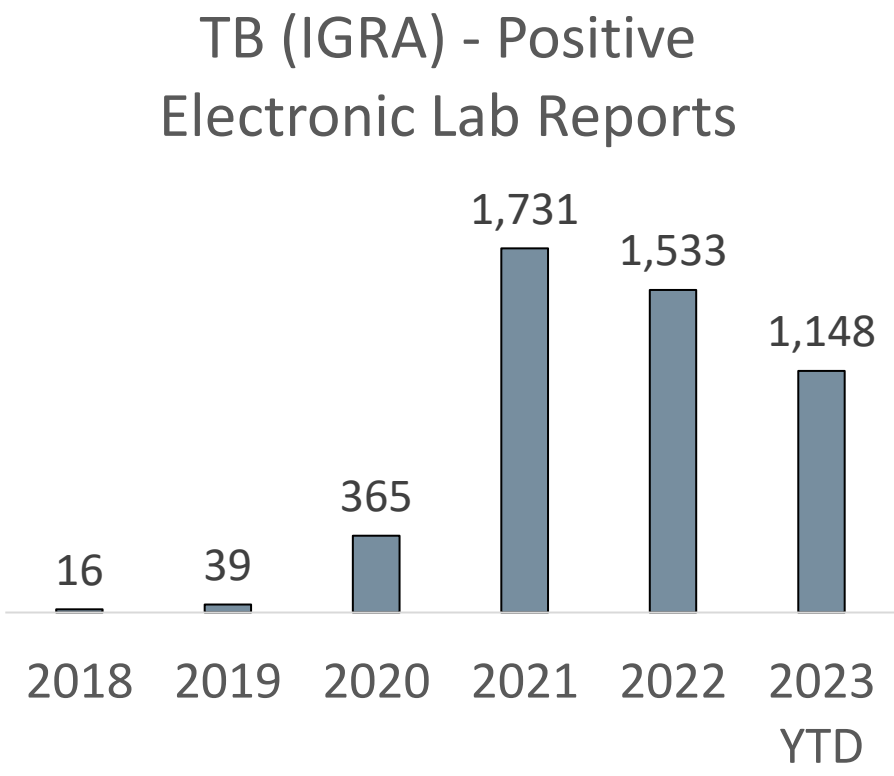
Piloted a project to call IGRA positive clients to determine the status of LTBI cascade of care

Early 2022

Fall of 2020

May–Aug. 2022

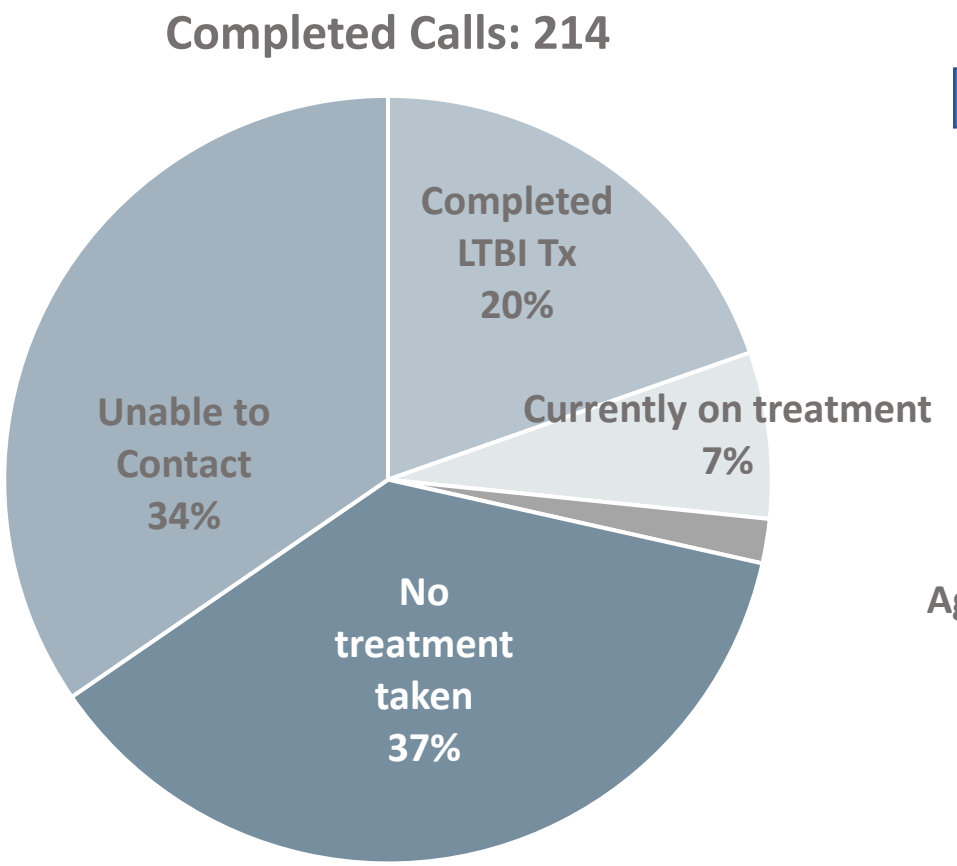
Brainstormed on how to address LTBI/ IGRA positive reports based on the TB Free California Elimination Plan



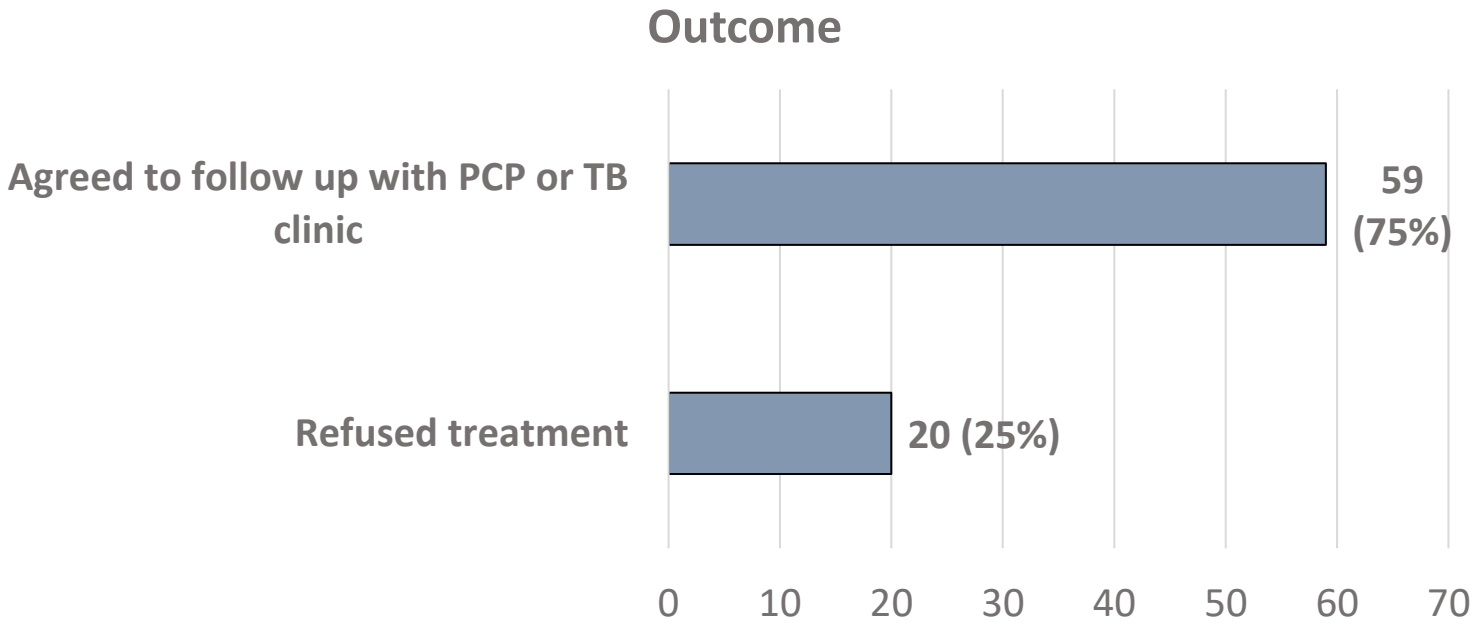
Pilot- Outreach Data Collection Form

		Current Status						PHN/CDI Interventions			Outcome			
Name	DOB	Completed LTBI Tx	Currently on treatment	Started tx but did not complete	Prescribed tx, but did not start	Tx never prescribed	LTFU (2 phone calls and letter)	Offered client education on LTBI	Referred client to Bret Harte	Referred client to other Provider	Refused tx	Agrees to f/u with PCP	Agrees to f/u with Bret Harte	Comments
Sample Patient					X			X	X				X	

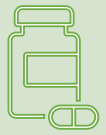
Outcome of 3-month Pilot



PHN/CDI Provided Patient Education on TB/LTBI to clients who did not take treatment



Lessons Learned from Pilot



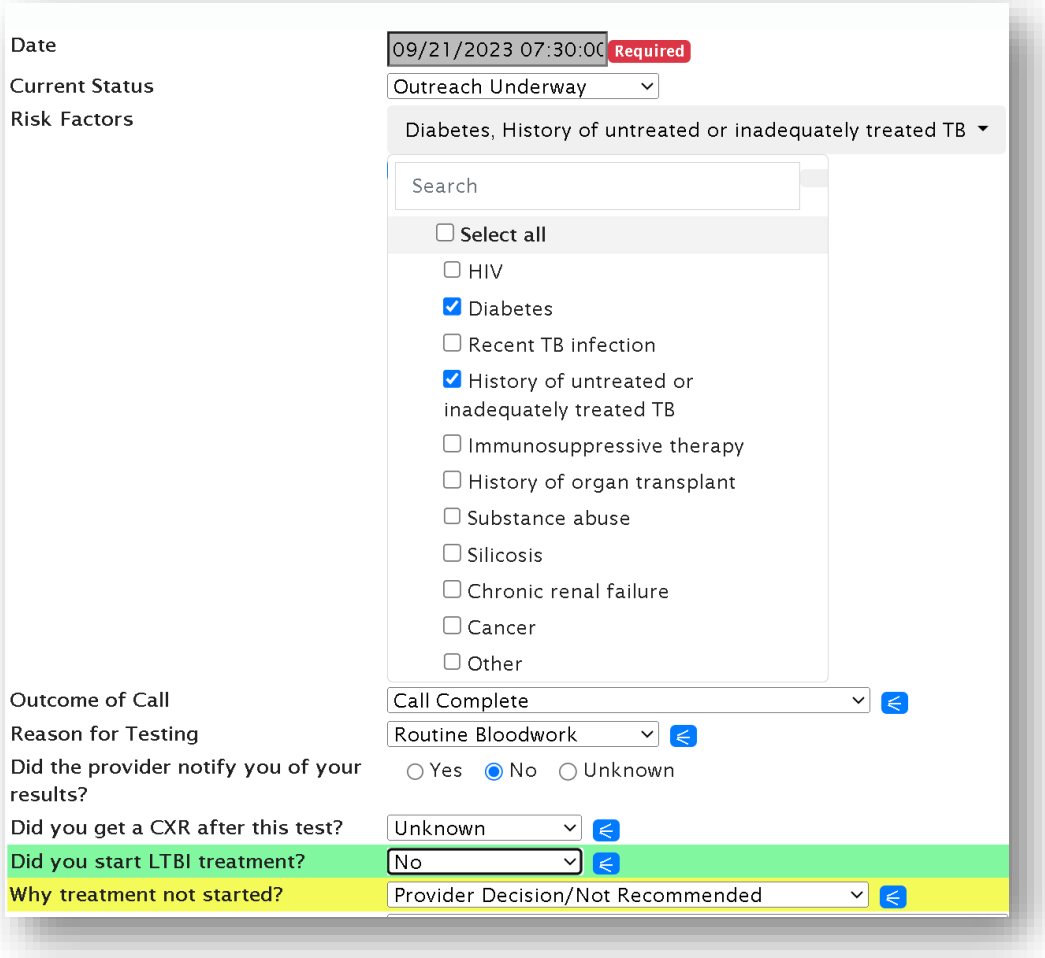
Establishing a LTBI outreach program could be a meaningful effort under TB control

Collaborating with Health Informatics and IT staff during the planning phase would modernize and improve data processing

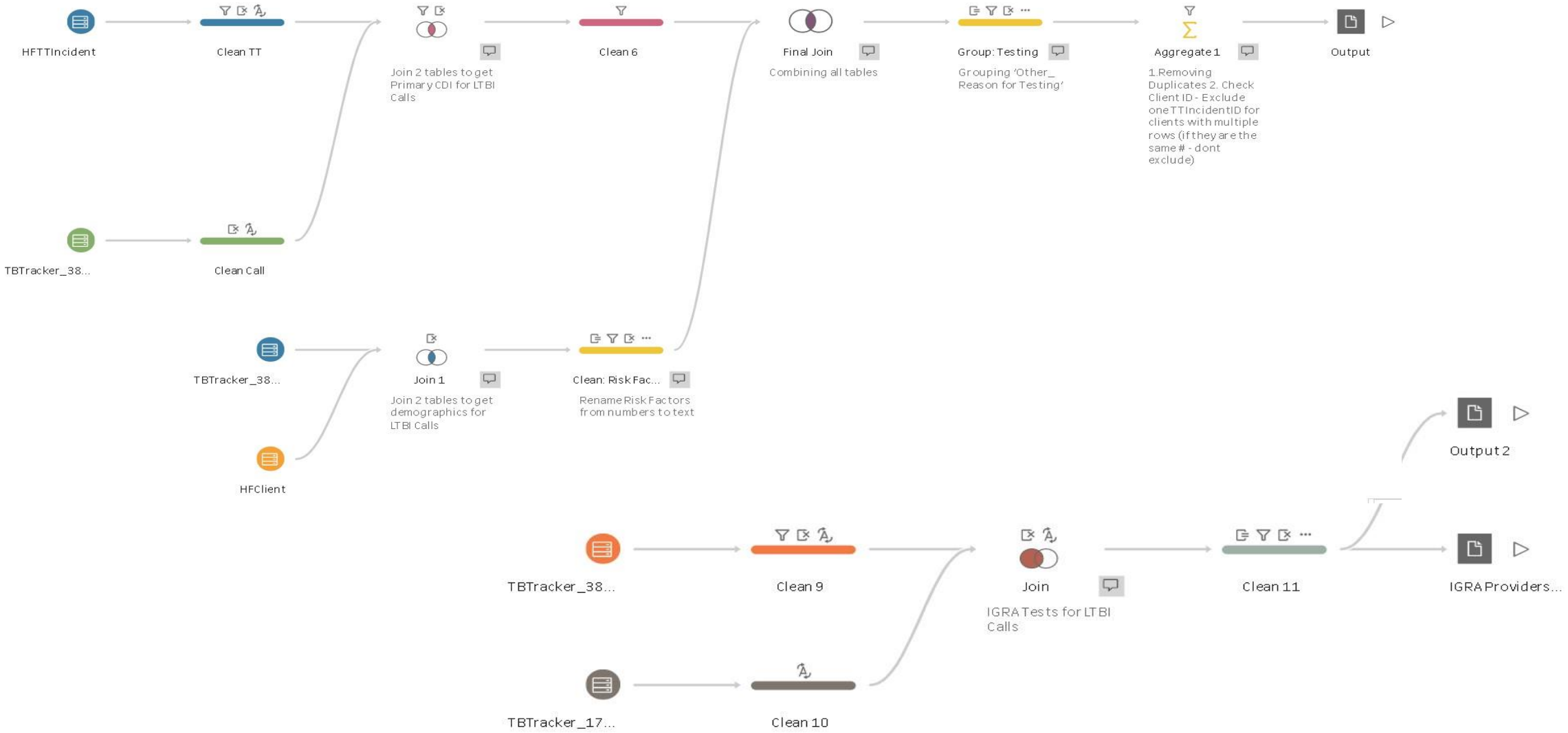
IGRA Outreach Program
Modernized Data Collection Form

On 8/25/22, a new form in local data platform went live

- Current status
- Outcome of call
- Risk factors
- Reason for testing
- Notification of results
- CXR
- Treatment status



Data Preparation Complexity



IGRA Program Outcomes

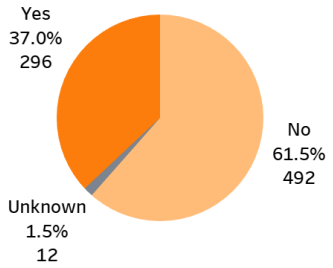
Multiple Dashboards were developed to be dynamic and interactive to address the following:

- Did the client start and/or complete treatment?
- What was the primary reason that the client did not start/complete treatment?
- Why did providers not notify the clients of their results or did not recommend treatment?
- Is there a difference in treatment based on risk factors, age, or reason for testing?

LTBI Treatment Outcomes

Calls Completed
800

Was LTBI Treatment Started or Treated Previously?



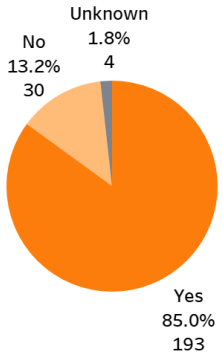
Why was LTBI not Started?

excludes: previously treated

	#	%
Provider Decision/Not Recommended	411	83.5%
Other	28	5.7%
Refused	19	3.9%
Undecided	12	2.4%
Medical appointment pending	11	2.2%
Provider recommends additional testing	6	1.2%
Moved	3	0.6%
Hx. Adverse Reaction	1	0.2%
Hx. Active TB	1	0.2%
Grand Total	492	100.0%

Was LTBI Treatment Completed?

excludes: still on treatment



Why was LTBI Treatment not Completed?

excludes: still on treatment

	#	%
Client chose to stop	14	48.3%
Other	7	24.1%
Adverse Reaction	5	17.2%
Provider Decision	2	6.9%
Moved	1	3.4%
Grand Total	29	100.0%

Interventions

- Established SJ County TB Elimination Plan
- Expanded targeted testing and treatment of people with TB infection- key to eliminating active TB
- Established regular engagement with private community providers, FQHCs, and Civil Surgeons
- Expanded outreach and follow up with high-risk IGRA positive clients to ensure they have received treatment

Next Steps

- Modify local data system to collect outcome data
  - Follow up with high risk IGRA positive/ unknown exposure clients to ensure they have received treatment
- Contact Investigations
  - Matching field data with CalREDIE IGRA reports to identify lost to follow-up contacts
  - Use local HIE to improve access to longitudinal health records
- Convert Health Informatics' program data to interactive dashboards
  - Extends accessibility for PHS programs to access LTBI data
  - Installing scheduler for automatic updates

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Future Goals

- Health Informatics Division
  - Data integration, curation, visualization, analysis
- Bidirectional Data Exchange
  - Receive/send patient risk factor and treatment data to/from local data systems, health plans, local hospitals
- Improve Health Outcomes
  - Disease monitoring, surveillance and communication
  - Response readiness
  - Understanding of status of social determinants of health

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Challenges

- Data sharing Challenges
  - State DxF and local HIE participation
  - Data safety and security concerns
- Sustainability
  - Grant limitations
  - Local and statewide investment
- LHD Infrastructure
  - Impacted by the local economy, capacity, politics
  - Talent acquisition and retention

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Acknowledgement

Special thanks to SJCPHS Health Informatics and TB Control team:

- Kelly Rose, Public Health Informatics Manager
- Theresa Fournier, Supervising Epidemiologist
- Arpinder Singh, Epidemiologist
- Denise Amarillas, Communicable Disease Investigator
- Rowena Durago, Communicable Disease Investigator

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SJC TB Control Team

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“Data are the building blocks for how we describe the health of the people in the communities they live – stories that emerge from data help the nation understand and contextualize what drives or impedes health and how structural factors like racism and other forms of discrimination influence one’s ability to live a healthy life.”

National Commission to Transform Public Health Data Systems

Questions for Panelists?

Thank you!

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