



Public Health Division: Population Health Branch

Bridging Disease Surveillance Gaps Through RHIO Partnerships

A Local Health Jurisdiction perspective on the value of utilizing the power of the HIE



Agenda

- Background
 - Agency Partnerships and Background
 - Disease Surveillance Operations
- Pandemic Challenges
 - Coming Together
- Small wins / Beginning to problem solve
 - Needs Assessment
- Building Infrastructure
 - Project Charter
 - Identifying Data Backbone and Defining Data Flow
 - Building Towards Robust Longitudinal Health Records
- Future Considerations
 - Public Health Use Cases
 - Lessons Learned

Partnership and Organizational Backgrounds



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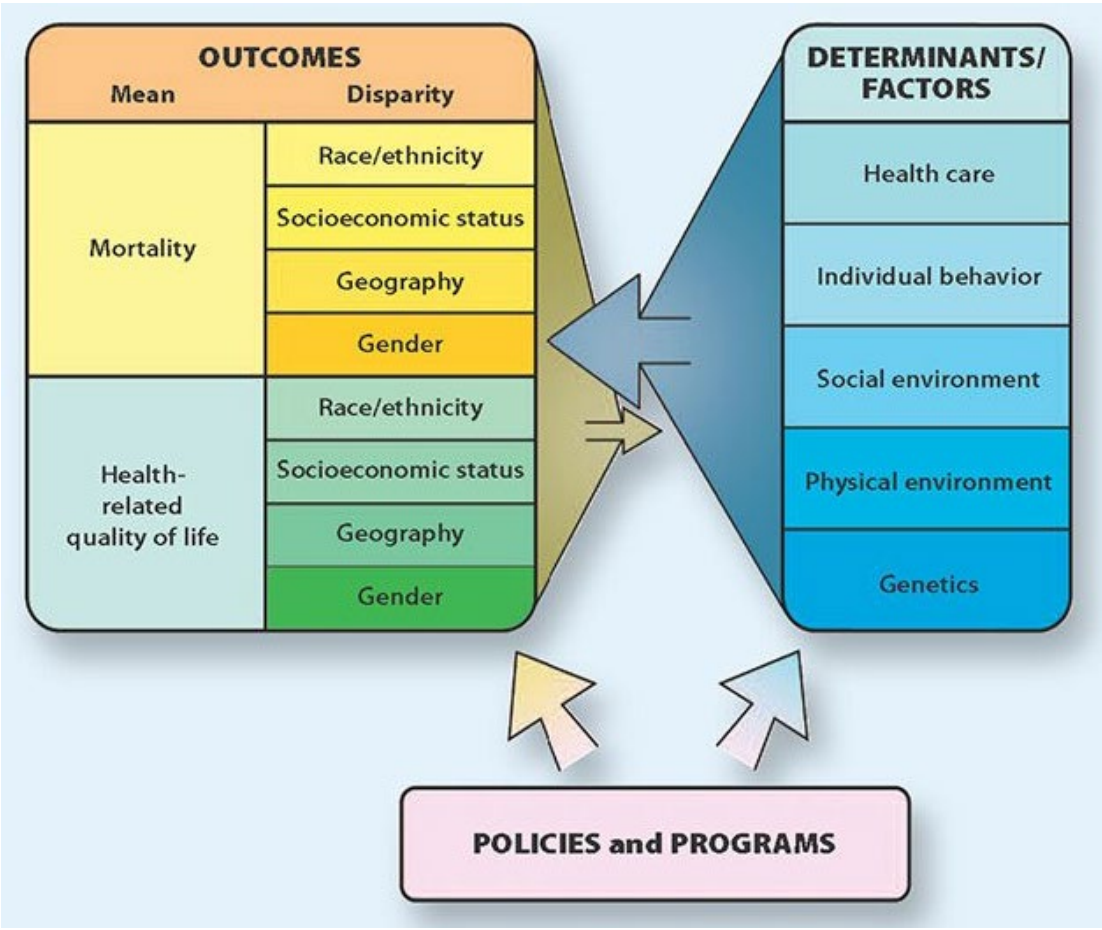
Dan Chavez
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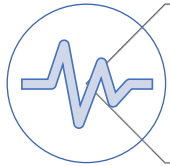
Santa Cruz Health Services Agency



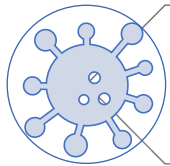
Reporting methods and the frequency of Title 17 conditions



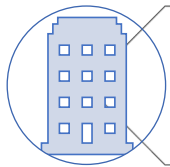
Established diseases and codes



Electronic lab reporting capabilities



Prevalence of clusters/outbreaks and PH intervention



Local jurisdictions and how they operate may differ from county to county

Serving Communities Health Information Organization (SCHIO)

- Founded in 1996 (one of the oldest HIOs)
- Repository with decades of information, bi-directional EHR integration, results delivery, alerts notifications, clinical electronic referral, portal access, payer reports, outcome reports for whole person care (WPC), community information exchange (CIE), and more
- Relationship with Public Health
 - Basic, minimal relationship with public health prior to pandemic – some reporting support, vitals info into HIO
 - Significantly stronger post pandemic

Solution Part 2: Health Data Utility

Access to Robust Longitudinal
Health Records

SCHIO Mission and Vision: *SCHIO will advance wellbeing for everyone in our community through disciplined, comprehensive information curation and sharing and SCHIO will be an exemplary trusted model for regional Health Data Utility (HDU) in the Country*

- One person, one record, common view, same sheet of paper
- Identity and consent concentration
- Create comprehensive data sets that can enable preparation, response, and critical improvements in health care, public and community health
- Automatically deliver information back to caregivers and institutions in support of care delivery, care coordination, and public health

Intrepid Ascent

Who we are: Intrepid Ascent is a California based consulting partner helping communities collaborate to deliver equitable whole person health. We guide whole person care initiatives across the country with our population health and cross-sector expertise, promoting the adoption of scalable technologies with a human-centered focus.

Our Impacts:

- Supporting more than 500 partners across the country
- Projects affect over 7 million people

Our Role: Identify ways to improve Santa Cruz Public Health's data enabled disease surveillance.

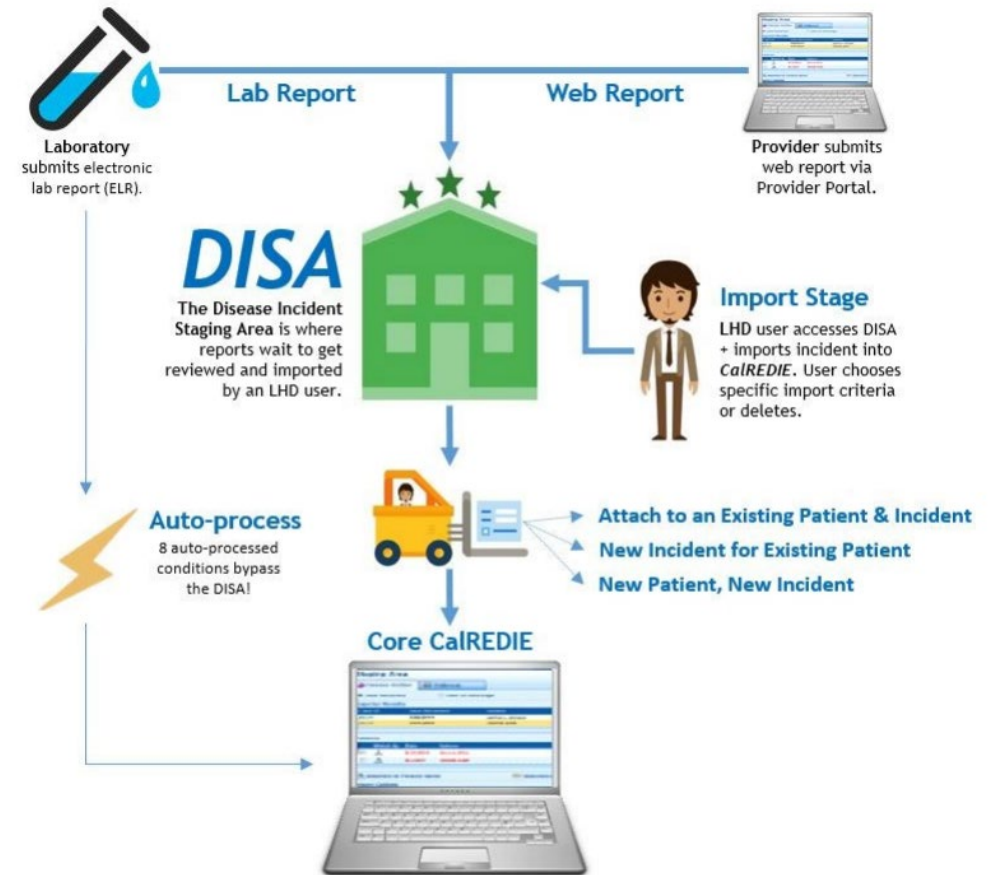
Disease Surveillance Operations

Public Health Operations

- LHD PHN / PHI (DIS) staff respond to Title 17 reportable conditions
- Utilizing existing infrastructure built into CalREDIE / Data Distribution Portal
- County Epidemiologists support communicable disease surveillance and outbreak analytics

Challenges

- Key demographic data missing in person records
- CalREDIE reporting often limited to positive lab reports



Pandemic Challenges

COVID reporting requirements were established early as an immediate notification, which were only recently updated in Title 17.

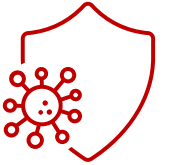
Multiple transitions of codes and ways to report COVID

Missing race and ethnicity data from CalREDIE / CalCONNECT. Required PH Staff person to manually look up missing fields in SCHIO and transcribe to CalREDIE

Lower clinical lab requirements due to staffing shortages and drive through testing increased the number of sites without PH health visibility

Major public health challenge receiving information from multiple sources using various data formats (Fax, email, ELR)

Health Department staffing a constant challenge – integrated response with SCHIO required ramp-up



Coming Together

Crisis Response & Leadership



County Public Health leadership came together with SCHIO to form a community Health IT committee



Committee representation included both clinical and nonclinical organizations across the county



Enabled SCHIO to step in to become reporting infrastructure for UCSC as a conduit to relay data to state & county and to onboard new labs



Intrepid augmented SCHIO and Public Health staff to outreach to new labs/testing sites



Committee provided a place to dynamically discuss and act on changing data needs



Early exploration of enhanced use cases to improve reporting during the pandemic



EMS and 911 information sharing an ongoing topic of discussion



Ongoing fire displaced people during the pandemic, which created additional congregate facilities in which testing was needed

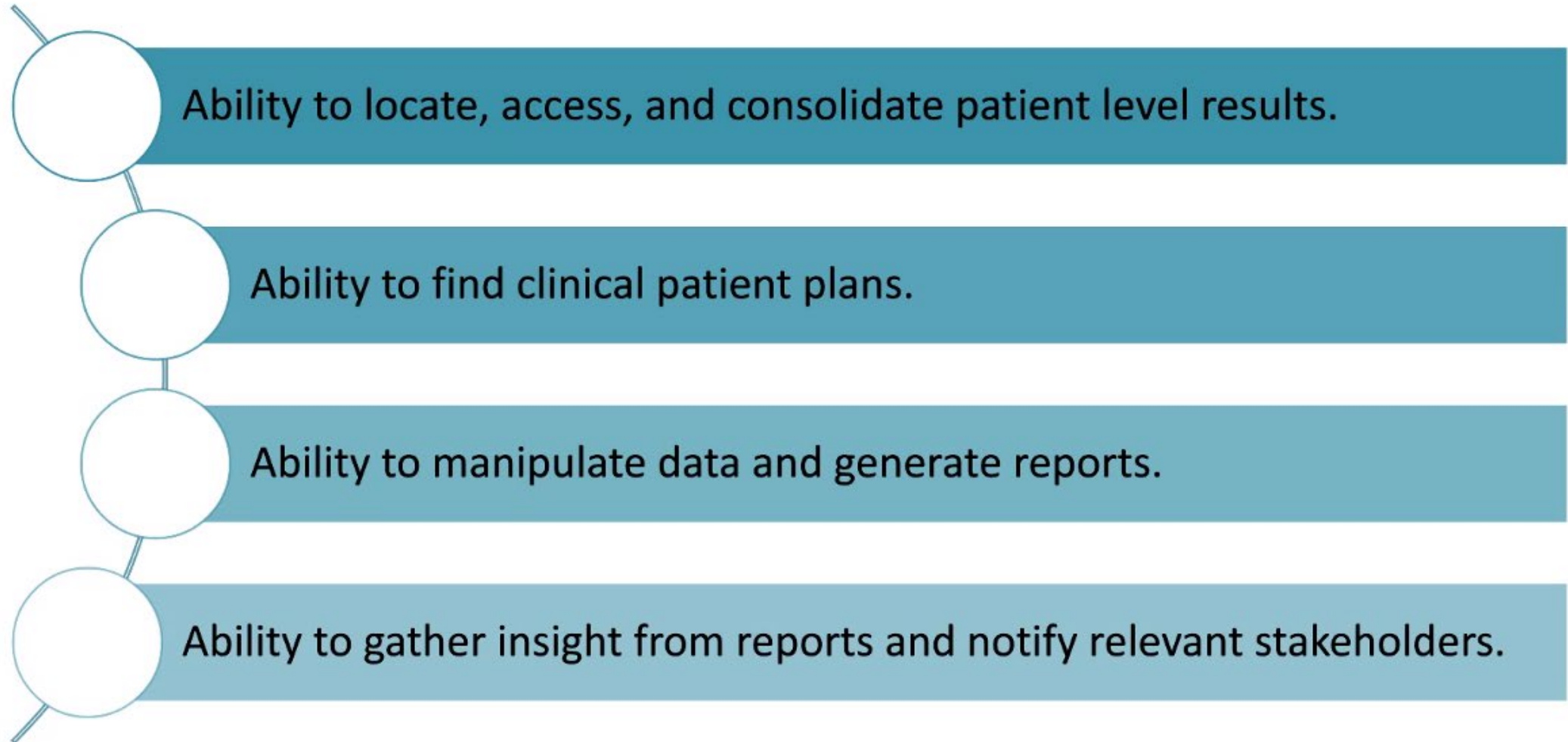
Needs assessment

Iterative interview process

Theme	Example
Lack of standardized processes	<ul style="list-style-type: none">• Protocol for using BioSense• Formal process for requesting reports, rely on email communication
HIE tool issues, missing information due to individual data entry	<ul style="list-style-type: none">• Clinics / providers are not all submitting data• Unclear where to start in SCHIO to query information (no web portal)• <i>Relying on individuals to submit data + not complete = don't trust the data</i>
Generating / requesting reports is difficult and takes a long time	<ul style="list-style-type: none">• Turnaround time 4 hours to 4 months• County could not create their own report of Watsonville Hospital COVID cases• Lack of automated downloads
Various data standards, systems not connected	<ul style="list-style-type: none">• No clear home base for trusted up to date information• Need to go to other platforms like Epic to find missing information• Epis left to do more data "management" than actual analysis
SCHIO's role – SCHIO and County not on the same page	<ul style="list-style-type: none">• Epis want to use SCHIO but do not view the data as objectively good• SCHIO fulfills requests that the County already has access to• SCHIO to be more proactive with communicating and sharing data

Needs assessment

Iterative interview process



Needs assessment

Iterative interview process

Ability to locate, access, and consolidate patient level results

- Use Case
 - SCPH needs to be able to identify where specific data is located within SCHIO, review it for relevancy and merge this data into consolidated tables.
 - For example, p

- Gaps
 - No understanding
 - No ability to merge
 - No integration w

- Recommendation
 - SCHIO implements sources.
 - SCHIO develops are stored.
 - Co-develop a pr

Ability to find clinical patient plans

- Use Case
 - SCPH needs to be able to look up a patient and retrieve clinical notes and prescription data in order to verify

- Gaps
 - Limited ability
 - No formal data
 - No ability to se

- Recommendation
 - SCHIO tagging the elements t
 - SCHIO willing

Ability to manipulate data and generate reports

- Use Case
 - SCPH needs to be able to manipulate formatted data into reports that can be uploaded in to an analytic

- Gaps
 - Report req
 - Ability to lin
 - On demand

- Recommendation
 - Co-develop
 - Data diction
 - SCHIO will

Ability to gather insight from reports to take action & notify stakeholders

- Use Case
 - SCPH needs to present public health leaders with meaningful data in order to drive policy decisions, track progress, and continue to show value to stakeholders.

- Gaps
 - Unknown data completeness and quality checks at SCHIO (Unaware of cleansing process and data ingest v. output)
 - Ability to analyze address-level data in support of public health tracing within a region.

- Recommendations
 - SCHIO shares the exception/rules for excluded data.
 - Co-develop process to contextually link data quality polices to include/exclude outputs within certain tolerance levels.
 - Co-develop an approach for sharing raw organizational data sets when requested.
 - Coordinate a campaign for gap filling of provider organizations or other data sources over an agreed to period of time.

Project Charter

- Stakeholders came together to outline a project charter
 - Break project into phases
 - Define outcomes and deliverables
 - Identify data sources
 - Set milestones

Project Charter			
Date Created: 11/11/2021		Date Revised:	
Project Name	Santa Cruz Epidemiology and Lab Capacity (ELC)		
Project Lead	Brian Dillon – Intrepid Ascent Ramy Hussein – SC Public Health Becky Shoemaker- SCHIO	Executive Sponsor(s)	Alex Horowitz – Intrepid Ascent Emily Chung – SC Public Health Dan Chavez- SCHIO

<p>Background/Reason</p> <p>The ELC Enhancing Detection allocation allows HSA to maintain and enhance the public health response to the COVID-19 pandemic. The activities from this funding will aid in decreasing the risk for COVID-19 transmission in the community; therefore, allowing less restrictions for non-essential businesses and activities, as defined by California's Blueprint for a Safer Economy.</p> <p>The scope will be expanded to be more inclusive of all epidemiological events and seek to improve the access and data flow within the county.</p>	<p>Purpose Statement</p> <p>To bolster patient information in SCHIO by integrating CalRedie & CAIR data and enhance reporting and query functions run by epidemiologists.</p>
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<p>Phases</p> <ul style="list-style-type: none"> • Kickoff <ul style="list-style-type: none"> ◦ Project charter ◦ Timeline ◦ Roles ◦ Meeting coordination • Discovery: <ul style="list-style-type: none"> ◦ Identifying external stakeholders and integration specifications. • Building: <ul style="list-style-type: none"> ◦ Sprints • Testing & Validating: <ul style="list-style-type: none"> ◦ Verify information and data sets are the same in SCHIO and DPP csv files. ◦ Compare outputs of PH and SCHIO reports ◦ • Go-Live <ul style="list-style-type: none"> ◦ Transition to new process • Onboarding and Training <ul style="list-style-type: none"> ◦ Use case matrix 	<p>Expected Deliverables/ Outcomes</p> <ul style="list-style-type: none"> • CalRedie integration complete • CAIR integration complete • Report functions <ul style="list-style-type: none"> ◦ CalRedie report ◦ CAIR report • Query Functions <ul style="list-style-type: none"> ◦ Disease Lookup complete (LOINC) ◦ SNOMED Lookup ◦ Rx Norm Lookup <p>Accountability Metrics</p> <ul style="list-style-type: none"> • Client data fields in DPP match corresponding fields in SCHIO. • Client data fields in CAIR match corresponding fields in SCHIO. • Reduction in epidemiologist hours for report building. • Reduction in time to generate reports and build different reports.
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<p>Milestones (What are the major milestones of the project approach and their planned completion dates?)</p> <table border="1"> <thead> <tr> <th>Milestones</th> <th>Dates</th> </tr> </thead> <tbody> <tr> <td>Kickoff</td> <td>October 2022</td> </tr> <tr> <td>Discovery Phase</td> <td>November 2022</td> </tr> <tr> <td>Building Phase</td> <td>December – January</td> </tr> <tr> <td>Testing & Validation Phase</td> <td>February 2023</td> </tr> <tr> <td>CalRedie integration complete</td> <td>February – March 2023</td> </tr> <tr> <td>CAIR integration complete</td> <td>February – March 2023</td> </tr> <tr> <td>Go-Live</td> <td>March 2023</td> </tr> <tr> <td>Report & query functions</td> <td>April 2023</td> </tr> <tr> <td>Onboarding and Training Phase</td> <td>April – June 2023</td> </tr> <tr> <td>Project Completion</td> <td>June 2023</td> </tr> </tbody> </table>	Milestones	Dates	Kickoff	October 2022	Discovery Phase	November 2022	Building Phase	December – January	Testing & Validation Phase	February 2023	CalRedie integration complete	February – March 2023	CAIR integration complete	February – March 2023	Go-Live	March 2023	Report & query functions	April 2023	Onboarding and Training Phase	April – June 2023	Project Completion	June 2023	<p>Risks</p> <ul style="list-style-type: none"> • External stakeholder dependency for integration timeline. • SCHIO capacity and limited Intrepid involvement during the building phase • Validation of data normalization process required before report validation.
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Discovery Phase	November 2022																						
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Data Fields Map

- Identify query functions needed to complete project scope
 - CalREDIE / CAIR Variables
 - LOINC Codes associated with the disease name
 - SNOWMED Code Lookup
 - Ensure data format interoperability

Description/Query	Data Fields Required	Requirement/Output	Additional Comments
CalRedie CSV ingestion	See Attachment_1_CalRedie/CAIR	<ul style="list-style-type: none"> Merge with existing records Allow report download per SCPH filters. 	
CAIR CSV ingestion	See Attachment_1_CalRedie/CAIR	<ul style="list-style-type: none"> Merge with existing records Allow report download per SCPH filters. 	
Title 17 reportable disease and conditions lookup	Attachment_3_LOINC	List of LOINC codes associated with short name disease.	CalRedie LOINC codes mapped to Title 17 diseases to look up by disease name.
LOINC Code Lookup	LOINC code (Exact match), Date range (Start-End, limit 15 days or define number of results), Organization (Optional entry)	Code matches, Result Date, Last Name, First Name, DOB, Organization	
SNOMED Lookup	SNOMED code (Exact match), Date range (Start-End, limit 15 days or define number of results), Organization (Optional entry)	Code matches, Result Date, Last Name, First Name, DOB, Organization	
RxNorm	RxNorm code (Exact match), Date range (Start-End, limit 15 days or define number of results), Organization (Optional entry)	Code matches, Prescription Date, Last Name, First Name, DOB, Organization	Key initial use-case for framing is Monkeypox use-case.

Data Backbone

- Dashboard filters mapped to existing de-duplication process
 - Using same format in CalREDIE and CAIR data cleaning
 - Ensured standardization in SCHIO Dashboard providing ability to filter by same demographics

Attachment_1_CalREDIE_CAIR_Extract.xlsx

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Clipboard Font Alignment Number Styles

CalRedie Data Field	CAIR Data Field	Filter	New PH Variable
Age	RECIP_AGE or "AGE_GROUP"	Age >= 0 & Age <= 4	0 to 4 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 5 & Age <= 9	5 to 9 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 10 & Age <= 14	10 to 14 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 15 & Age <= 19	15 to 19 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 20 & Age <= 24	20 to 24 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 25 & Age <= 34	25 to 34 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 35 & Age <= 44	35 to 44 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 45 & Age <= 54	45 to 54 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 55 & Age <= 59	55 to 59 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 60 & Age <= 64	60 to 64 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 65 & Age <= 74	65 to 74 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 75 & Age <= 84	75 to 84 years
Age	RECIP_AGE or "AGE_GROUP"	Age >= 85	85 and older
Gender	RECIP_SEX	F	Female
Gender	RECIP_SEX	M	Male
Gender	RECIP_SEX	"G" OR "I" OR "TF" OR "TM" OR "MTF" OR "FTM" OR "OTH"	Another gender
Gender	RECIP_SEX	"UNK" OR "U" OR "D"	Unknown
"Ethnicity" and "Race"			
Ethnicity	RECIP_RACE_ETH	Hispanic or Latino	Latinx
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Asian"	Asian
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Black or African American"	Black or African American
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Other"	Another Race/Ethnicity
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "American Indian or Alaska Native"	American Indian or Alaska Native
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Native Hawaiian or Other Pacific Islander"	Native Hawaiian or Other Pacific Islander
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Multiple Races"	Multiple Races
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "Unknown"	Unknown
Ethnicity & Race	RECIP_RACE_ETH	"Not Hispanic or Latino" AND "Unknown" AND Race "White"	White/Caucasian
Location Data (Zip)	RECIP_ADDRESS_ZIP	95060, 95065, 95067, 95066, 95018, 95033, 95006, 95007, 95005 95041, 95064, 95061, 95017, 95062, 95010	North-county
Location Data (Zip)	RECIP_ADDRESS_ZIP	95073, 95001, 95003	Mid-county
Location Data (Zip)	RECIP_ADDRESS_ZIP	95076, 95077, 95019, 95063	South-county
Location Data (City)	RECIP_ADDRESS_CITY	95001, 95003, Aptos, APTOS	Aptos
Location Data (City)	RECIP_ADDRESS_CITY	95005, Ben Lomond, BEN LOMOND	Ben Lomond
Location Data (City)	RECIP_ADDRESS_CITY	95006, Boulder Creek, BOULDER CREEK	Boulder Creek
Location Data (City)	RECIP_ADDRESS_CITY	95007, Brookdale	Brookdale
Location Data (City)	RECIP_ADDRESS_CITY	95010, Capitola, CAPITOLA	Capitola
Location Data (City)	RECIP_ADDRESS_CITY	95017, davenport, Davenport	Davenport
Location Data (City)	RECIP_ADDRESS_CITY	95018, Felton, FELTON	Felton

Data Backbone

- LOINC Codes
 - Title 17 Reportable Conditions were mapped in SCHIO by their respective LOINC Code structure
 - Diseases have multiple LOINC codes and needed to be group for easy lookup in the dashboard

Attachment_3_LOINC Codes SCDPH-07292022.xlsx

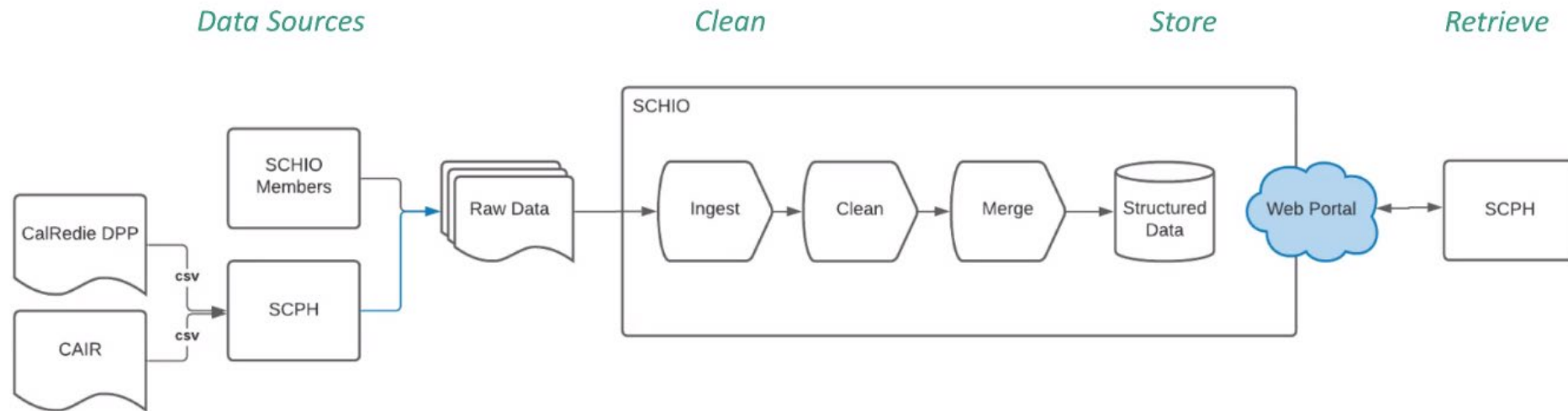
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Clipboard Font Alignment Number Styles

Carbapenem-resistant Enterobacteriaceae, Carbapenemase-producing

	M	N	P	R	T	U	V	Y	Z	AC	AD	AE	AF	AH	AI	AJ	AK	AL	AM			
1	Chlamydi	Cholera	Coccidioi	Cryptospor	Cysticerc	Dengue	Diphther	Ehrlichio	Encephal	Escherich	Flaviviru	Giardias	Gonococci	Haemopli	Hantavir	Hepatitis	Hepatitis	Hepatitis	Hepatitis	Human I		
2	96075-7	29887-7	406645005	20997-3	53602-9	31338-7	6596-1	77165-9	88455-1	53944-5	95719-1	27265-8	62865-1	49721-4	5046-8	42191-7	42191-7	92889-5	45159-1	92898-6	62882-6	
3	74241-1	23763-6	30209-1	40958-1	7850-1	22250-5	14482-4	91899-5	88456-9	20789-4	6406-3	34470-5	62864-4	58739-4	42503-3	55264-6	92889-5	42191-7	95141-8	35680-8	62881-8	
4	90763-4	31698-4	21209-2	98411-2	22238-0	31339-5	14479-0	93370-5	31383-3	20813-2	95657-3	5169-8	39225-8	69410-9	35393-8	53775-3	62871-9	62869-3	9526-5	31845-1	95184-8	
5	82957-2	5405-6	16634-8	31793-3	5120-1	22251-3	14483-2	87547-6	11608-7	43431-6	71699-3	31830-3	86660-8	40771-8	60264-9	22312-3	45159-1	62868-5	43281-5	31844-4	55277-8	
6	62865-1	31559-8	20768-8	21233-2	7845-1	31340-3	14481-6	13195-3	22370-1	43432-4	86857-0	97522-7	86661-6	7894-9	35392-0	95142-6	10397-8	55276-0	43280-7	95148-3	45251-6	
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10	45114-6	20935-3	42494-5	27907-5	7849-3	7855-0	5115-1	7877-4	22165-5	6576-3	80205-8	7891-5	91781-5	25432-6	94099-9	5184-7	22316-4	95206-9	35283-1	22321-4	47249-8	
11	45110-4	23342-9	26980-3	41487-0	88920-4	88188-8	32620-7	22284-4	22972-4	53945-2	6382-6	41154-6	5261-3	31833-7	13289-4	32018-4	16933-4	22325-5	95144-2	22320-6	45683-0	
12	31763-6	23348-6	62455-1	20781-1	16708-0	16736-1	22836-1	20810-8	31866-7	3277-5	22250-5	10670-8	697-3	31842-8	26650-2	5182-1	95145-9	22326-3	22330-5	5191-2	86663-0	
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17	31766-9	23349-4	13947-7	39534-3	35391-2	95673-0	34625-4	20810-8	31866-7	3277-5	22250-5	10670-8	697-3	31842-8	26650-2	5182-1	95145-9	22326-3	22330-5	5191-2	86663-0	
18	45101-3	23007-8	62459-3	566-0	25389-8	95688-8	26630-4	7878-2	22971-6	31825-3	31339-5	22305-7	22430-3	55266-1	7895-6	51661-7	22318-0	47441-1	5200-1	41151-2	45255-7	
19	5085-6	23002-9	7826-1	48064-0	7846-9	7854-3	22837-9	33609-9	20743-1	20815-7	22251-3	22306-5	31906-1	30938-5	7898-0	5179-7	22319-8	16936-7	51654-2	14211-7	45256-5	
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21	45132-8	15494-8	30208-3	6372-7	7848-5	7857-6	88584-8	31433-6	22974-0	20821-5	22252-1	6412-1	689-0	20486-7	22308-1	5183-9	95146-7	53376-0	9525-7	51798-7	45231-8	
22	31767-7	23341-1	16639-7	48063-2	9601-6	91064-6	16676-9	29856-2	91064-6	16676-9	31341-1	91676-7	30099-6	41495-3	23867-5	5181-3	95005-4	23824-8	34597-5	95207-7	48549-0	
23	45097-3	23343-7	48393-3	48059-0	9602-4	94837-2	5116-9	16809-6	22369-3	13329-8	22253-9	6413-9	688-2	24010-1	23868-3	51660-9	32686-8	95237-4	49775-0	95240-8	47243-1	
24	35721-0	23344-5	22210-9	51912-4	9603-2	88189-6	32569-6	31434-4	7934-3	45162-5	6383-4	31831-1	691-6	31836-0	97871-8	94539-4	11258-1	44831-6	35273-2	51653-4	47239-9	
25	35723-6	23347-8	13948-5	91675-9	9604-0	87438-8	31014-4	29857-0	99624-9	44087-5	33606-5	48060-6	694-0	31838-6	16928-4	92890-3	51658-3	82525-7	44826-6	58936-6	72182-9	
26	35725-1	23005-2	62458-5	49233-0	9605-7	77958-7	49189-4	46185-5	60531-1	53955-1	23958-2	40713-0	698-1	31839-4	22309-9	13950-1	51914-0	6422-0	44938-9	49776-6	45233-4	
27	35728-5	58440-9	7827-9	48061-6	9606-5	88203-5	30936-9	9783-2	23149-8	53946-0	29676-4	40714-8	31525-9	31840-2	86520-4	78444-7	5186-2	22328-9	85512-2	39006-2	45239-1	
28	22182-0	23003-7	33534-9	49232-2	100090-0	6382-6	22841-1	9784-0	81121-6	50028-0	23968-1	14210-9	53762-1	5006-2	86537-8	97106-9	77190-7	51657-5	7906-1	13954-3	45237-5	
29	25369-0	23006-0	33510-9	48062-4	9607-3	31798-2	15451-8	54035-1	26058-8	26800-3	25338-5	23744-6	6487-3	5178-9	7899-8	7904-6	5187-0	57006-9	85513-0	13953-5	45238-3	
30	29677-2	43327-6	20767-0	88927-9	100089-2	87441-2	58787-3	48872-6	26059-6	26789-8	6386-7	21302-5	6489-9	16927-6	86538-6	91070-3	21005-4	5198-7	72606-7	33463-1	45235-9	
31	5086-4	43326-8	4994-0	63564-9	49798-2	87440-4	47298-5	6404-8	69926-4	8124-3	31342-9	21303-3	39557-4	11256-5	91130-5	97523-5	13919-6	42506-6	80426-0	49693-5	45230-0	
32	21186-2	97314-9	48394-1	41433-4	56480-7	75377-2	47429-6	6403-0	26060-4	82303-9	40748-6	48064-0	33904-4	31837-8	86536-0	89373-5	10673-2	5199-5		75408-5	71127-5	
33	45102-1	92686-5	43224-5	41434-2	41462-3	7859-2	49188-6	29832-3	69923-1	44089-1	31343-7	51911-6	32198-4	31841-0	94101-3	75860-7	30937-7	51824-1		56513-5	48558-1	
34	558-7	82201-5	33379-9	94633-5	6374-3	16740-3	22838-7	32691-8	20744-9	10851-4	11608-7	9524-0	692-4	14321-4	94100-5	75540-5	72843-6	54914-7		83128-9	48559-9	
35	559-5	61371-1	43974-5	92688-1	35349-0	31799-0	22840-3	33608-1	15465-8	39019-5	22370-1	48063-2	695-7	31835-2	73654-6	75542-1	40725-4	73654-6		74007-7	45182-3	
36	35736-8	94611-1	49712-3	82205-6	88919-6	86865-3	48654-8	29833-1	22977-3	31381-7	16736-1	48059-0	693-2	21320-7	70059-1	29900-8	13952-7	73655-3		69577-5	72181-1	
37	35726-9	44273-1	33381-5	88928-7	24039-0	86864-6	89642-3	32692-4	49912-9	31382-5	16737-9	51912-4	42987-8	6414-7	21322-3	40459-0	47358-7	47365-2		60430-6	45253-2	
38	41482-1	23008-6	33402-9	60545-1	6373-5	86863-8	47297-7	33607-3	23145-6	87317-4	16738-7	91675-9	9568-7	31018-5	70055-9	48576-3	72846-9	51656-7		90460-7	45252-4	
39	62864-4	94625-1	33380-7	80681-0	24040-8	86862-0	48655-5	54034-4	63562-3	51940-5	7858-4	21300-9	6488-1	6599-5	70054-2	20442-0	72850-1	33462-3		91071-1	45232-6	
40	32002-8	82200-7	31153-0		88912-1	86861-2	22839-7	32679-3	96509-6	16739-5	51761-5	23908-7	11257-3	70052-6	42003-4	95236-6	56929-3			95156-6	33660-2	
41	45104-7	53942-9	46182-2		88911-3	94427-2	22842-9	7875-8	96535-0	35752-5	40515-9	6411-3	6491-5	47439-5	70058-3	29609-5	72849-3	23870-9		69961-1	71133-3	
42	31764-4	80680-2	27009-0		41156-1			59388-9	81150-5	53932-0	32678-5	81115-8	20811-6	55369-3	21301-7	5028-6	6418-8	21323-1		41996-0	49877-4	9608-1
43	6343-8	79384-4			6383-4	67561-1		6401-4	81111-7	28035-4	23991-3	49233-0	29311-8	6610-0	70056-7	42617-1	49878-2	9609-9		97152-3		

Data Flow Model




In this model, Santa Cruz Public Health facilitates the sharing of unprocessed CalREDIE and CAIR data files to SCHIO for cleaning, formatting, and merging into the SCHIO Data Warehouse.

SCHIO provides a web portal for Santa Cruz Public Health to request, access, and retrieve lab reports.

Improving Surveillance and Response

CONDITIONS Patient Search DOCUMENTATION

SCHIO EPIDEMIOLOGY LAB CAPACITY DATA



Conditions:

- Select all
- Babesiosis
- Brucellosis
- Chlamydia
- Cholera
- Coccidioidomycosis
- Cryptosporidiosis
- Cyclosporiasis
- Ehrlichiosis
- Escherichia_coli_shiga_toxin_producin
- Giardiasis
- Gonococcal_Infections
- Hepatitis A_acute_infection

Age Group:

- Select all
- 0 to 4 years
- 10 to 14 years
- 15 to 19 years
- 20 to 24 years
- 25 to 34 years
- 35 to 44 years
- 45 to 54 years
- 5 to 9 years
- 55 to 59 years
- 60 to 64 years
- 65 to 74 years
- 75 to 84 years

Gender:

- Select all
- Female
- Male
- Unknown

Ethnicity:

- Select all
- American Indian or Alaska Native
- Another Race/Ethnicity
- Asian
- Black or African American
- Native Hawaiian or Other Pacific Islander
- Unknown
- White

County:

- Select all
- Mid-county
- North-county
- Out of County
- South-county

City:

- Select all
- Aptos
- Area Not Listed
- Ben Lomond
- Boulder Creek
- Brookdale
- Capitola
- Davenport
- Felton
- Freedom
- Los Gatos
- Mount Hermon
- Santa Cruz

Start Date:

End Date:

Dataset Start: 01 Mar 2023
Dataset End: 10 May 2023

- Reduction in hours for epidemiology team to build and generate reports
- Client Data Fields in CAIR and DDP match corresponding fields in SCHIO
- The data within SCHIO is “fuller” than other resources such as CalREDIE CalCONNECT
- Patient health record provides the “whole picture” whereas other sources only provide a snapshot

Longitudinal Health Record

Search fields: Last, First, Patient ID (Enter value)

SCHIO logo

PATIENT

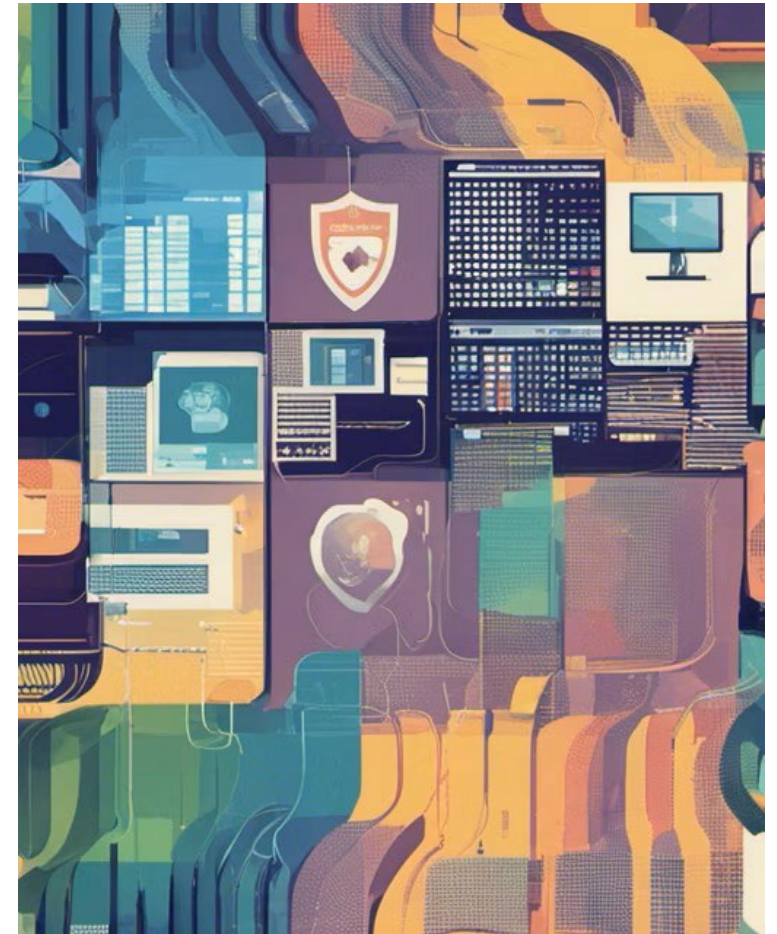
CODE	CODE DESCRIPTION	PATIENT ID	FIRST	LAST	CITY	ZIP	STATE	STREET	EUC-CITY	EUC-COUNTY	DOB	EUC-AGE	EUC-AGE GROUP	EUC-GI
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41304-5	Chlamydia						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							
41305-2	Gonorrheal_infections						CA							

What is it?

- A single complete patient record that combines data from a variety of sources throughout the healthcare system.
- Using complete patient matching logic wrapped in a permission management paradigm, the goal is to have one record per patient
- Integrating Data from CalREDIE DDP, CAIR, and native SCHIO environment
- Query functions supporting LOINC, SNOWMED

Public Health Use Cases

- Ability to easily filter data by multiple demographics
 - Geographic area
 - HCP
 - SOGI
 - Race/Ethnicity
- HCV, Syphilis
- Monitoring test frequency
- Comparing HIE Data with CalREDIE allows for data quality checks
- Locating missing contact info and demographic data not found in CR ELRs
- In development
 - Establishing two-way communication w/PCPs, flagging cases for follow up
 - ED Discharge Data
 - PHEP Reportable Alert



Future Considerations: Building Resiliency

Grant opportunities

- Federal and state level

Leveraging SCHIO as a data intermediary

- Reduces the need for PH system procurement.
- Normalizes, cleans, merges, and analyzes state data feeds with limited demographics and function
- Public Health use cases versus record lookup.

Challenges with coding and provider reporting

- Use case on Title 17 disease reporting requirements, which can have several associated ICD-10/LOINC codes
- User uptake can be challenging. Training may be required. UX may need additional revisions.

How do we translate into a more equitable response?

- USCDiv2+ fundamental to improving data equity.
- General to specific data sets that upconvert unknowns to specific demographics (e.g. Sex, Race/Ethnicity, SOGI) if available

Future partnership with SCHIO / QHIO

Continually Improve Real-Time Alerting

- Adding ability to outreach with healthcare system for high-risk cases, PHEP Reportable(s)

Health Information Management Infrastructure

- Patient Identify Management / de-duplication
- Consent Management
- Role based access for PHD staff to protected health information

Bi-directional Integration with Primary Care

- COVID-19 Lab Results, Vaccination Information, Paxlovid, RSV, Influenza
- Streamline case management of individuals interfacing with Public Health and Primary Care Provider

Cross Jurisdiction Partnership

- Facilitation of syndromic surveillance data reporting to CDC NSSP
- Working to bridge data and workflows with neighboring LHJs to fill gaps

Questions?

Thank You

Department
Logo

