OeHI
Office of eHealth Innovation

EHEALTH COMMISSION MEETING

VIRTUAL CONFERENCE

April 10, 2024

OeHI

Office of eHealth Innovation

NOTE:

NEW ZOOM WEBINAR LINK

DIAL IN BY PHONE:

US: +1 719 359 4580

OR: +1 669 900 6833

WEBINAR ID: 834 3429 8716

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Amanda Malloy: 440-796-8957

April Agenda

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Title	Start	Duration
Call to Order • Roll Call and Introductions • Approval of March Meeting Minutes • April Agenda and Objectives *Rachel Dixon, Vice Chair*	12:00	5 mins
Announcements • OeHI Updates-eHealth Commission Updates • Decision Items & Action Items *Karen Shimamoto, Deputy Director, Office of eHealth Innovation (OeHI)* *eHealth Commission Members*	12:05	5 mins
eHealth Commission Spotlight: Colorado Department of Public Health & Environment **Public Health Data Systems and Modernization** *Krystal Morwood, Manager, Health Information Systems Branch* *Center for Health and Environmental Data, et al.* *Andrew Putnam, Business Technology Product Director Administration Division*	12:10	90 mins
Public Comment Period	1:40	5 mins
Closing Items • Closing Remarks • Open Discussion • Recap Action Items • Adjourn Public Meeting *Rachel Dixon, Vice Chair*	1:45	10 mins

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OeHI and eHealth Commission Updates

- OeHI Team Updates
- Commissioner Updates?

Note: If you are experiencing audio or presentation difficulties during this meeting, please text 440-796-8957

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eHealth Commission Spotlight: Colorado Department of Public Health & Environment Public Health Data Systems and Modernization

Krystal Morwood, Manager, Health Information Systems Branch
Center for Health and Environmental Data, et al.

Public Health Data: Systems and Modernization

eHealth Commission Spotlight - Colorado Department of Public Health & Environment

Overview & Introductions

Strengthening U.S. Public Health Infrastructure, Workforce, and Data Systems: Data Modernization	Andrew Putnam Business Technology Product Director Administration Division	
Epitrax and Data Lakehouse	Aleis Malouf	Keegan McCaffrey
	Technology & Product Administration Manager	Communicable Disease Technology - Epidemiology Informaticist
	Disease Control and Public Health Response Division	
Health Information Data Systems Portal	Kelsey Minor, MPH Public Health Informatics Program Manager Center for Health and Environmental Data	
Air Pollution Data Modernization & Visualization	Adam Wozniak Business Product Owner Air Pollution Control Division	

CDPHE at a Glance

Environmental Health

- Air Pollution Control Division (APCD)
- Division of Health and Environmental Sustainability (DEHS)
- Hazardous Materials and Waste Management Division (HMWMD)
- Water Quality Control Division (WQCD)

Cross-Agency

- Administration Division (ADMIN)
- Office of Health Equity (OHE)
- Office of Public Health Practice, Planning and Local Partnerships

Public Health

- Center for Health and Environmental Data (CHED)
- Disease Control and Public Health Response (DCPHR)
- Health Facilities and Emergency Management Services Division (HFEMSD)
- Office of STI/HIV/VH
- Prevention Services Division (PSD)

Strengthening U.S. Public Health Infrastructure, Workforce, and Data Systems: Data Modernization

Andrew Putnam
Business Technology Product Director
Administration Division

Public Health Data Modernization

Public Health Infrastructure Grant

- A3: Data Modernization
  - CORE-Yearly funding for 5 years to evaluate our systems and develop a plan for modernization.
  - Acceleration-5 Year block of funding for system modernization
  - Laboratory Data Exchange-5 Year block of funding for system modernization specific to the Lab

Data Modernization - CORE

Work includes

- Implement a Steering Committee
- Document the current State of the Systems (73 systems)
- Develop a future state for the department's health systems as a whole
- Develop implementation plans for each system
- Prioritize the work

Proposed Future State

- Cloud Implementation
- Data lakehouse for data access and evaluation
- API interfaces for data ingestion and data access
- Standard visualization tools
- Low to No Code solutions

Steering Committee Composition

- CDPHE Chief Medical Officer
- CDPHE Data Modernization Director
- Leadership representatives for the various health programs
- Central IT Representation
- Representation from other State Agencies such as the Office of eHealth Innovation
- Representation from the Local Public Health Agencies

Systems to be evaluated

Encompasses Systems from 5 Divisions/Offices

	Office/Division	# of Systems
1	Center for Health and Environmental Data (CHED)	16
2	Disease Control and Public Health Response (DCPHR) Division	37
3	Health Facilities and Emergency Medical Services Division (HFEMSD)	4
4	Prevention Services Division (PSD)	8
5	Office of Sexually Transmitted Infections/Human Immunodeficiency Virus/Viral Hepatitis (STI/HIV/VH)	8

Data Governance

North Star Architecture

- Specified under PHIG
- Not yet available

Governor’s Data Advisory Board (GDAB)

- Data Governance Subcommittee
  - Work is available in draft form
  - Will be available in 1 - 3 months

CDPHE internal Data Governance Committee

- Will align with North Star and GDAB
- Will be available / active 1 - 5 years

Current & Upcoming Projects

- Health Data Lakehouse
  - Target May - June 2024
- EpiTrax-Disease Surveillance
  - Target May - June 2024
- HIDS Portal 2.0 - Cloud Modernization
  - Target July 2026
- Colorado Immunization Information System
  - Went into production in December
- Birth and Death System
  - Went into production in January
- WIC Modernization
  - Planning Phases
- Health Facilities Modernization
  - Planning Phases

Epitrax & Data Lakehouse

Aleis Malouf
Technology & Product Administration Manager

Keegan McCaffrey
Communicable Disease Technology- Epidemiology Informaticist

Disease Control and Public Health Response Division

Disease Surveillance System Modernization (DSSM)

Focused on:

- Siloed systems breaking.
- Duplicate data sets.
- Inability to support large volumes of data.

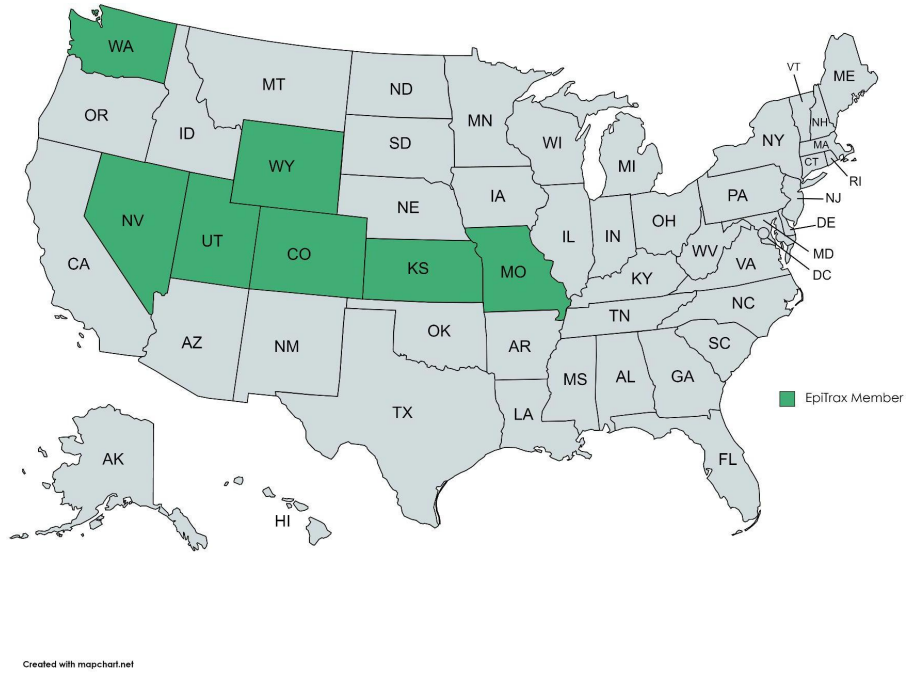
Recommendations:

1. Bring all surveillance systems together in one application: Epitrax
2. Elevate CDPHE's data storage and analytics environment to allow for informed decision-making: Data Lakehouse

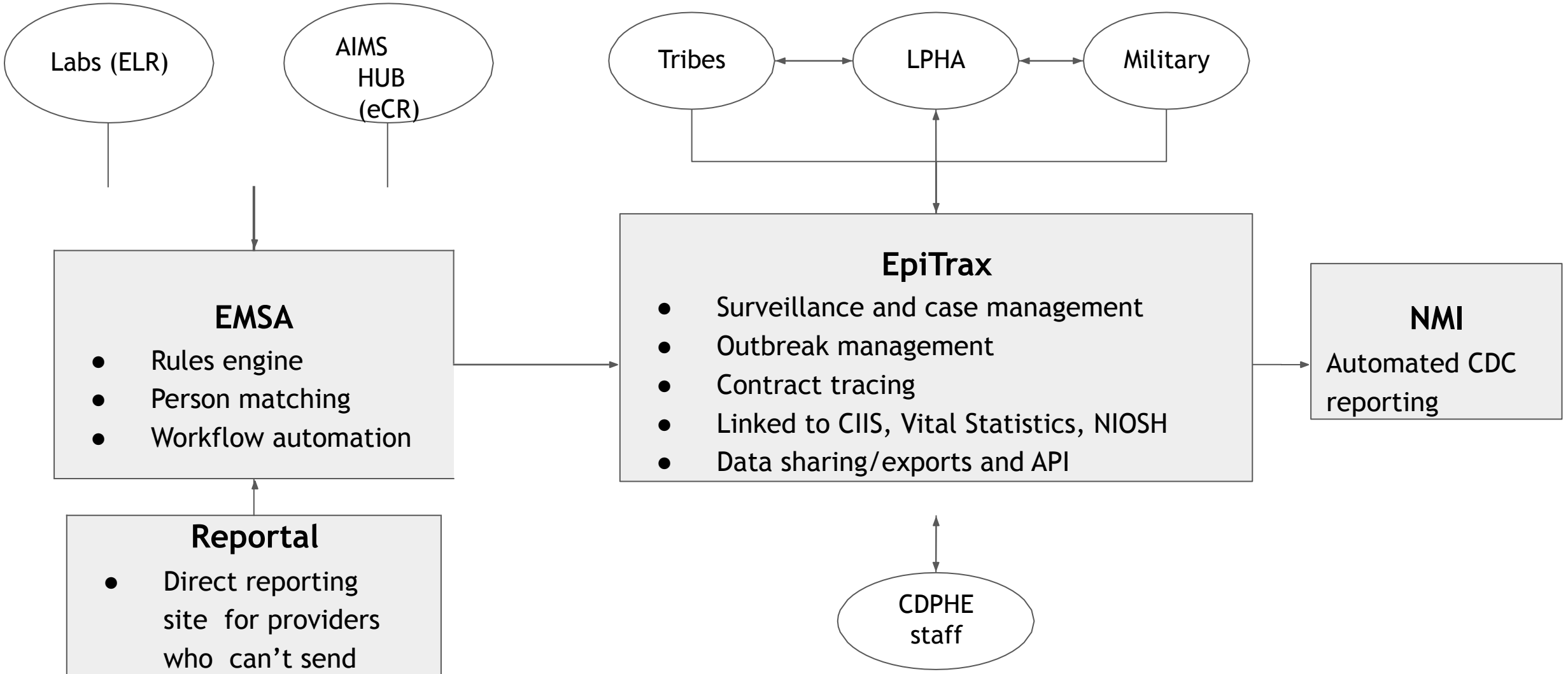
Epitrax: Overview

Open source disease surveillance system built by the **Epitrax Consortium:** Group of state and local public health jurisdictions combined resources to create and improve EpiTrax

- Designed for public health by public health.
- Share enhancements



Overview


Labs (ELR)
AIMS HUB (eCR)
Tribes
LPHA
Military
EMSA
Rules engine
Person matching
Workflow automation
EpiTrax
Surveillance and case management
Outbreak management
Contract tracing
Linked to CIIS, Vital Statistics, NIOSH
Data sharing/exports and API
NMI
Automated CDC reporting
Reportal
Direct reporting site for providers who can't send ELR, eCR
Manual + bulk upload
CDPHE staff

Systems moving to EpiTrax

- CEDRS
- REDCap Outbreak Database
- Zoonotic Disease Database
- Tuberculosis (TBDB)
- Electronic Lab Reporting (ELR)
- Electronic Case Reporting (eCR)
- Dr. Justina (COVID Database)
- Lead (PbDB)
- Perinatal Hep B
- PRISM (STI/HIV Database)

Why EpiTrax?

- Single platform for disease surveillance
- Security and reliability
- Configurable by design
- Automated lab and case reporting (ELR, eCR)
- Improved data sharing and access for LPHAs
- Workflows for public health action
  - Active monitoring
  - Contact tracing
  - Outbreaks
- Integrations with CIIS and Vital Statistics

EpiTrax

Timeline

December 2022	Now	May 10-13, 2024	End of 2024
Work began on EpiTrax in Colorado	**Preparing for launch** UAT Environment is available for practice with ELR and migrated data. Trainings and webinars are available for users.	**Round 1 Epirax Launch** CEDRS, ELR, Outbreak DB, Dr. Justina, and Zoonotic Disease DB transitioned to Epitrax. EpiTrax is main system for CDPHE and LPHA reportable disease investigations.	**Round 2 Epitrax Launch** PRISM (STIs), Tuberculosis DB, and eCR transitioned to Epitrax.

Data Lakehouse Overview

CDPHE Public Health Data Lakehouse will provide an improved data management and analytics environment to benefit stakeholders.

Automation potential

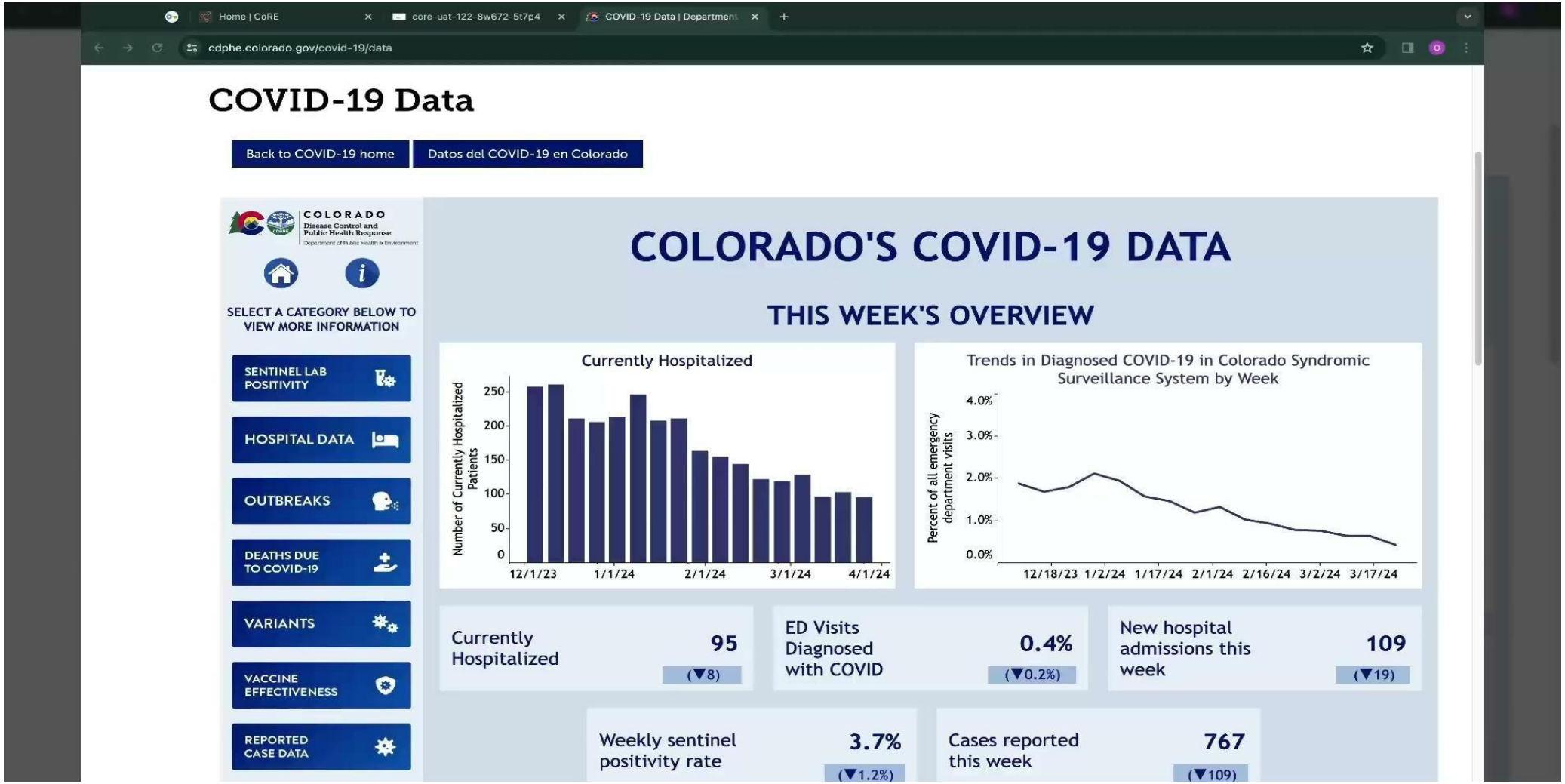
Improved access

Centralized data storage

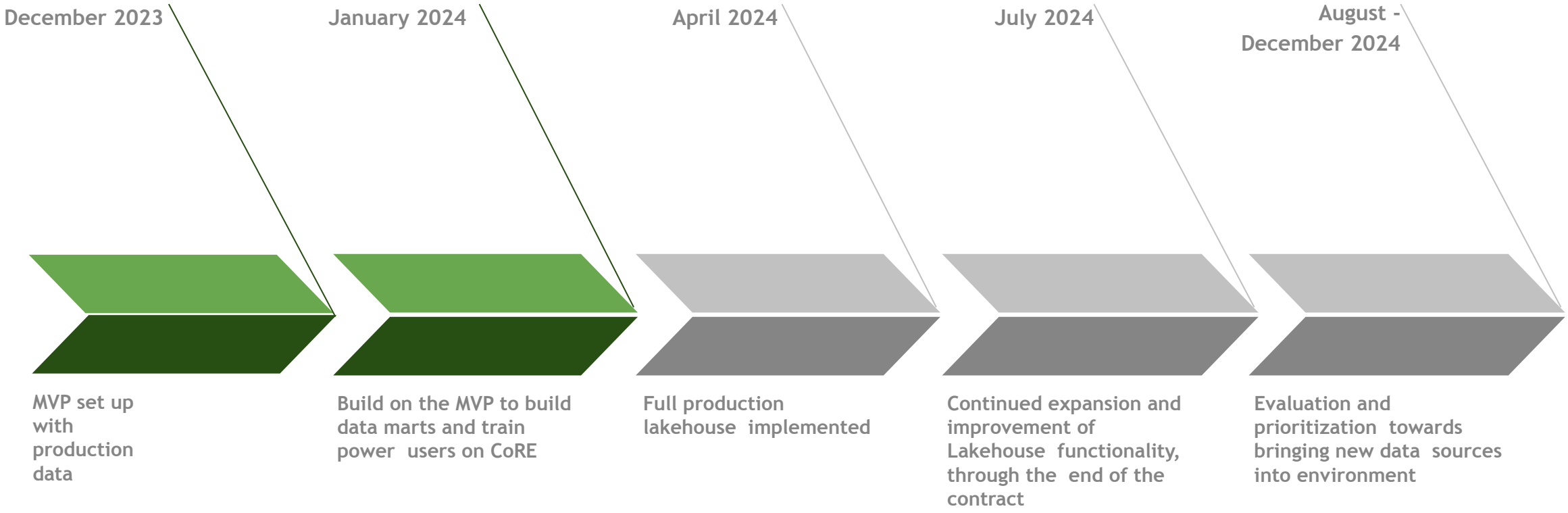
Improved data sharing capacity

Security and Data Governance

Demo Video


Home | CoRE
core-uat-122-8w672-5t7p4
COVID-19 Data | Department
cdphe.colorado.gov/covid-19/data
COVID-19 Data
Back to COVID-19 home
Datos del COVID-19 en Colorado
COLORADO
Disease Control and Public Health Response
SELECT A CATEGORY BELOW TO VIEW MORE INFORMATION
SENTINEL LAB POSITIVITY
HOSPITAL DATA
OUTBREAKS
DEATHS DUE TO COVID-19
VARIANTS
VACCINE EFFECTIVENESS
REPORTED CASE DATA
COLORADO'S COVID-19 DATA
THIS WEEK'S OVERVIEW
Currently Hospitalized
Number of Currently Hospitalized Patients
250
200
150
100
50
0
12/1/23
1/1/24
2/1/24
3/1/24
4/1/24
Trends in Diagnosed COVID-19 in Colorado Syndromic Surveillance System by Week
Percent of all emergency department visits
4.0%
3.0%
2.0%
1.0%
0.0%
12/18/23
1/2/24
1/17/24
2/1/24
2/16/24
3/2/24
3/17/24
Currently Hospitalized
95
(▼8)
ED Visits Diagnosed with COVID
0.4%
(▼0.2%)
New hospital admissions this week
109
(▼19)
Weekly sentinel positivity rate
3.7%
(▼1.2%)
Cases reported this week
767
(▼109)

Data Lakehouse Timeline



Health Information Data Systems Portal

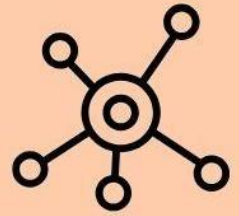
Kelsey Minor, MPH
Public Health Informatics Program Manager
Health Information Systems Branch
Center for Health and Environmental Data

Health Information Data Portal

1. DATA ENTRY

HIDS is a secure data portal that uses role based access to allow partners & stakeholders the ability to provide data thru numerous modalities:

- Manual data entry via customized application solutions built in-house
- Automatic data upload via secure data transfer methods
- Public facing web collection tools (when appropriate)



2. DATA MANAGEMENT

HIDS is managed by a data management team who

- Maintain the the portal
- Maintain the custom application solutions that live within the portal
- Ensure that data is collected to program/funder specifications
- Analyze and report data sets to partners & funders as requested or required

3. DATA VISUALIZATIONS & ACCESSIBILITY

The data management team is responsible for ensuring that the data collected within HIDS is accessible to funders, partners & the public as necessary or required via

- Privately published data dashboards that use role based access to limit data sets based on user permissions
- Publicly published data dashboards

HIDS

Collect non-communicable data for public health initiatives that target Coloradans across the lifespan, focusing on vulnerable populations

FAMILY PLANNING SERVICES FREE OR REDUCED COST BIRTH CONTROL	Low-cost, confidential family planning and preventive health services to any Colorado resident.
WIC BENEFITS	Colorado women who are Pregnant, Breastfeeding, Postpartum, or has a baby or child under 5
INDUCED TERMINATION OF PREGNANCY DATA	Colorado women who have induced terminations of pregnancy and the medical practices related to pregnancy termination.
NEWBORN HEARING	Colorado newborns 1 month or younger
DATA REGISTRY OF COLORADO CHILDREN WITH SPECIAL NEEDS	Colorado children ages 0-5 with qualifying ICD-10 diagnosis
CARE COORDINATION OF CHILDREN & YOUTH WITH SPECIAL HEALTH CARE NEEDS	Colorado children and youth with special health care needs, ages 0-21
SCHOOL & CHILD CARE IMMUNIZATION DATA	Immunization and exemption data for public, private and parochial schools, grades K - 12, as well as child care centers, preschools and Head Start programs.
MARRIAGE & DISSOLUTION DATA	Colorado Marriage & Dissolution data verification
BREAST & CERVICAL CANCER SCREENINGS	Colorado women ages 21-64 with no health insurance or limited insurance who are also on a limited income
CARDIOVASCULAR SCREENINGS	Colorado women ages 35 to 64 with no health insurance or limited insurance who are also on a limited income
EMERGENCY MEDICAL & TRAUMA SERVICES WAIVERS	Colorado EMTS waiver program data

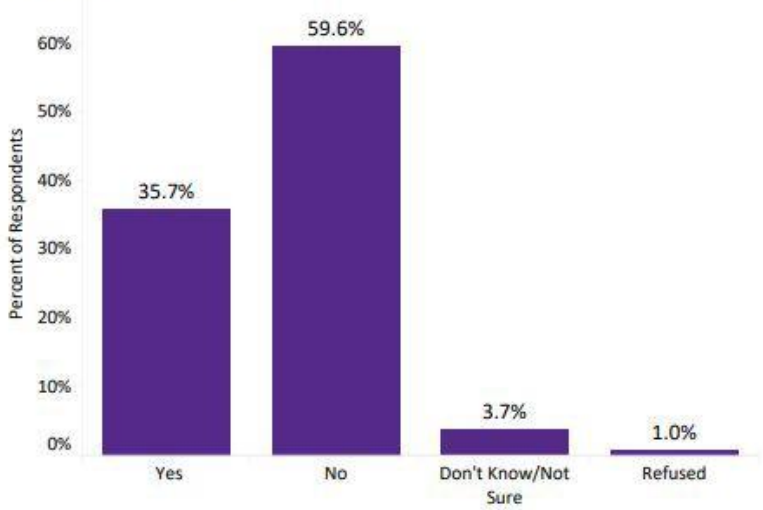
HIDS

Data Accessibility

HDS uses role based security to restrict data & to ensure that all data visualizations are securely accessible to partners, stakeholders & the public.

Total Number of Respondents: 548

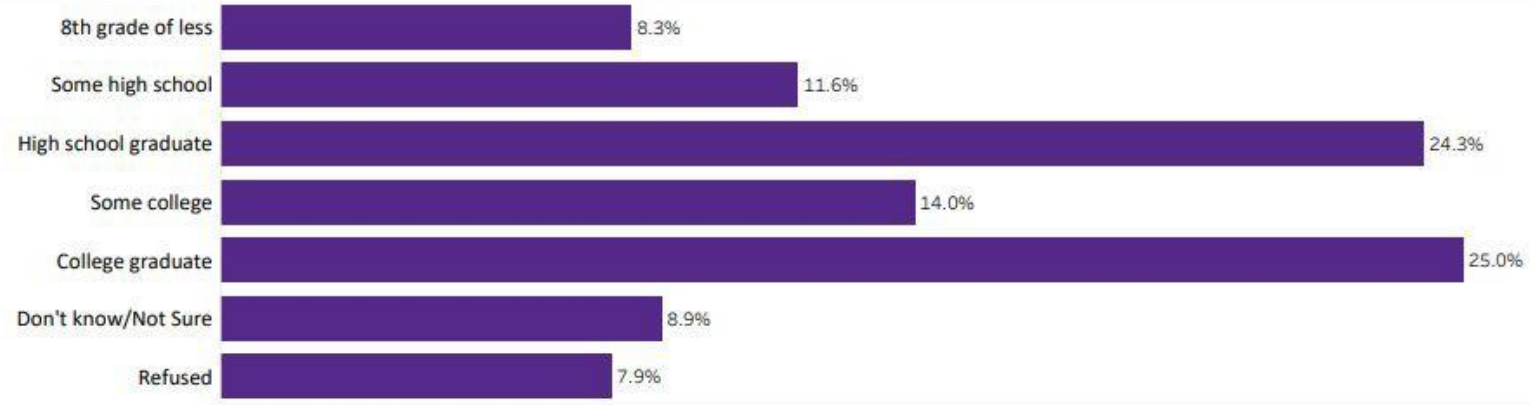
Single parent household: Total Number of Respondents: 76



Number of persons in [child/youth]'s household:

1	7	1.5%
2	50	10.7%
3	112	24.0%
4	130	27.8%
5	82	17.6%
6	46	9.9%
7	31	6.6%
8 or more	3	0.6%
Don't Know	19	4.1%
Refused	5	1.1%
Number of Respondents	467	100.0%

Highest education level in household: Total Number of Respondents: 507



HIDS

Data Visualizations & Accessibility

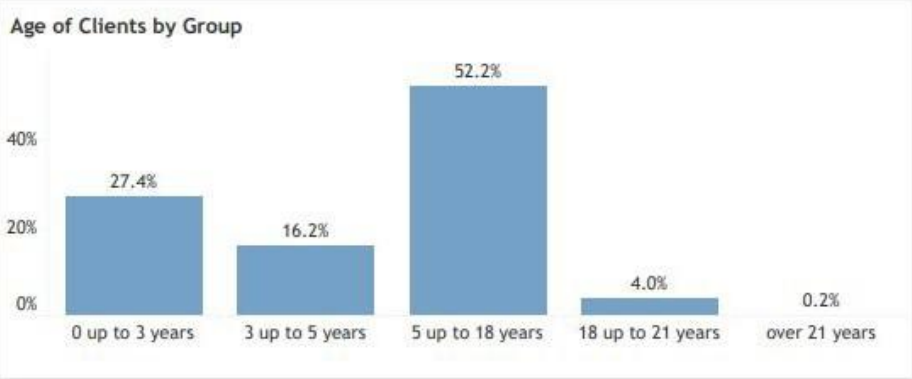
HCP

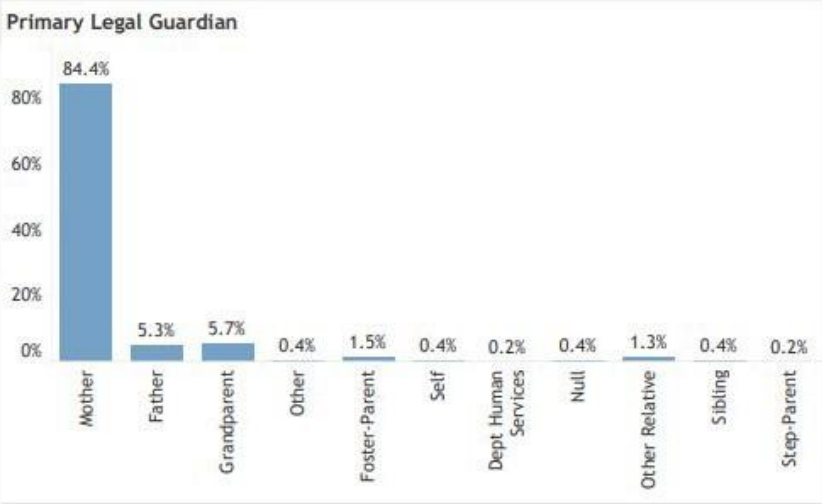
Report 026 - Client Demographics (State Summary)

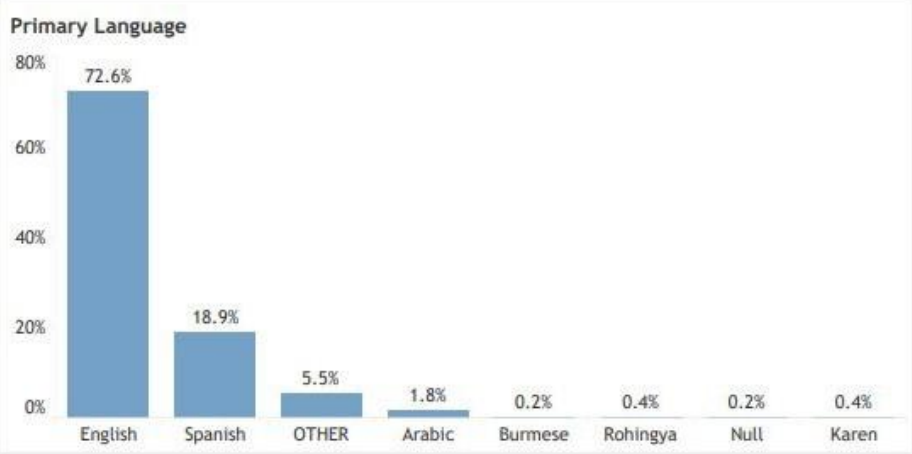
Date: 10/1/2022 12:00:00 AM - 4/4/2024 12:00:00 AM

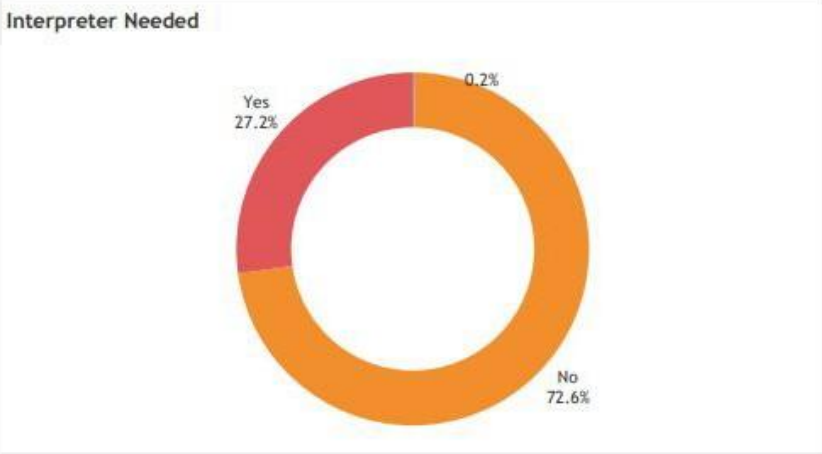
COLORADO Department of Public Health & Environment

Total # of Clients Served	544.0
Average Age of Clients (years)	6.9
Average Length Of Service (days)	447.9



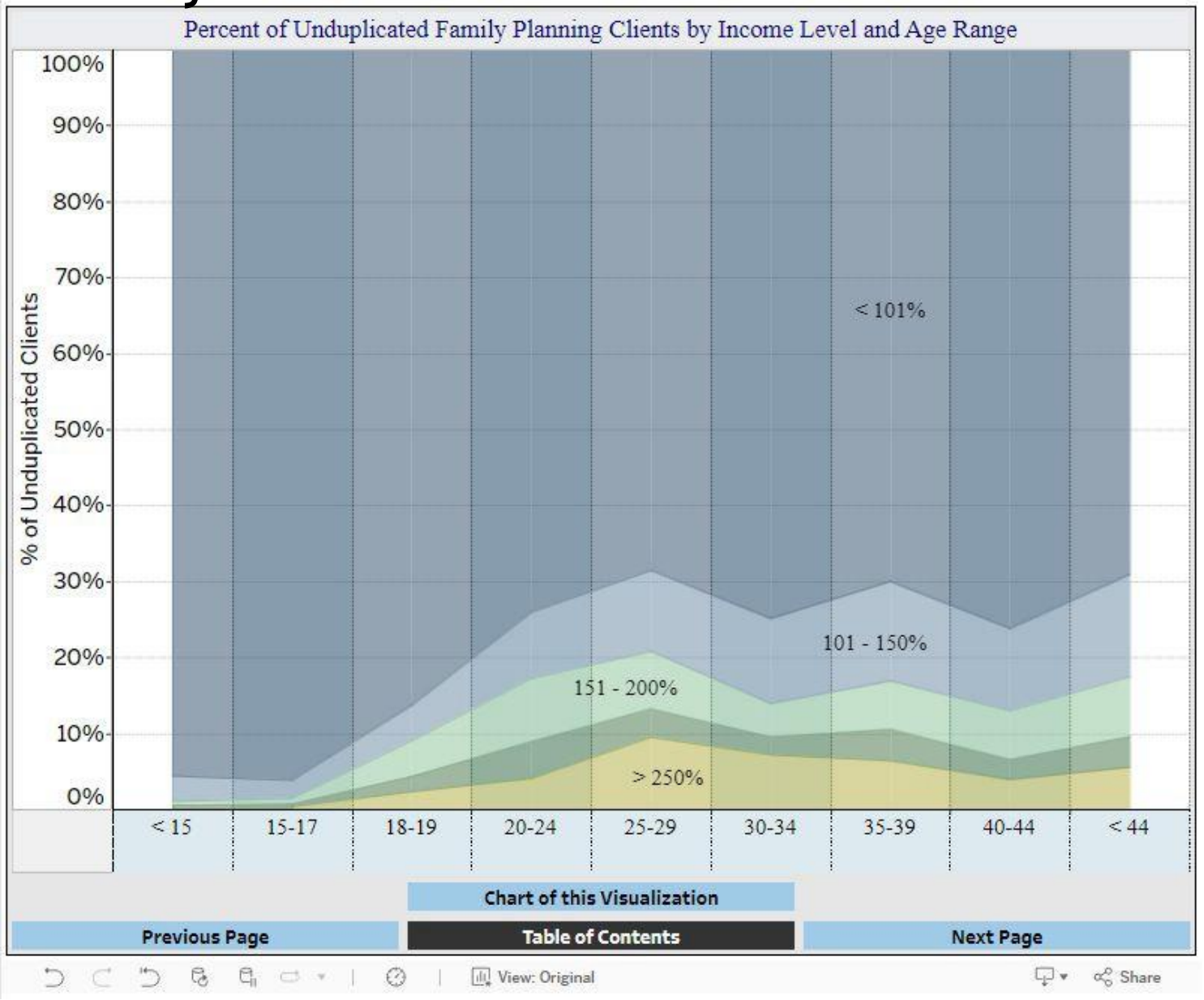






HIDS

Data Visualizations & Accessibility



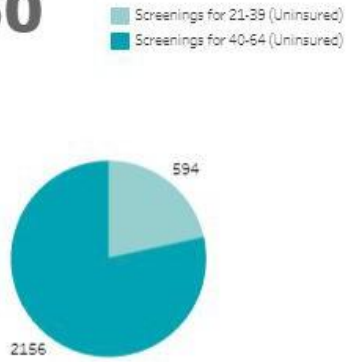
HIDS

Data Visualizations & Accessibility

Women Screened - Uninsured

Total # of Women Screened YTD

2,750



All Women

Target # of women to be screened	2398
Total # of women screened YTD	2750
% of target	114.7%

Age 21-39

Target # of women to be screened	340
Total # of women screened YTD	594
% of target	174.7%

Age 40-64

Target # of women to be screened	2058
Total # of women screened YTD	2156
% of target	104.8%

WWC Performance Measures Report

Fiscal Year: 20232

COLORADO Department of Public Health & Environment

Filtering Options:

Reimbursed
- [x] (All)
- [x] Yes

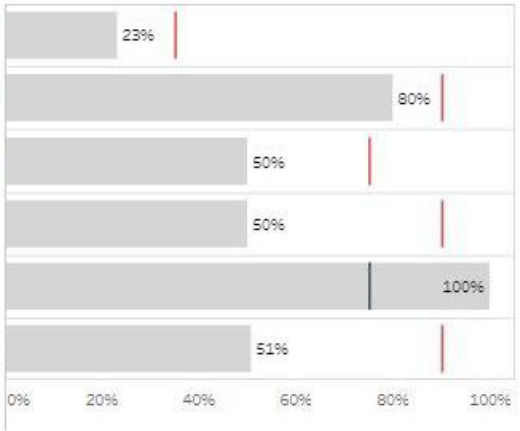
Insurance
- [x] (All)
- [x] Insured
- [x] Uninsured

Race
- [x] (All)
- [x] Alaska Native
- [x] American Indian
- [x] Asian
- [x] Black, African American
- [x] Latina-Hispanic
- [x] MultipleRace
- [x] Native Hawaiian
- [x] Pacific Islander
- [x] White
- [x] Other
- [x] Client not asked
- [x] Client refused to answer
- [x] Am. Ind, Esk., Aleut Isl.(3.0 data...

Ethnicity
- [x] (All)
- [x] Hispanic
- [x] Not Hispanic
- [x] Not Sure
- [x] Client not asked or refused

Measure	Meeting the Standard	Total
Rarely/Never Screened Pap or HPV	3	13
Breast Diagnostic Work-up Completeness	4	5
Breast Diagnostic Work-up Timeliness	2	4
Cervical (All) Diagnostic Work-up Completeness	1	2
Cervical (All) Diagnostic Work-up Timeliness	1	1
Data Entry Timeliness	75	148

Performance & Standard

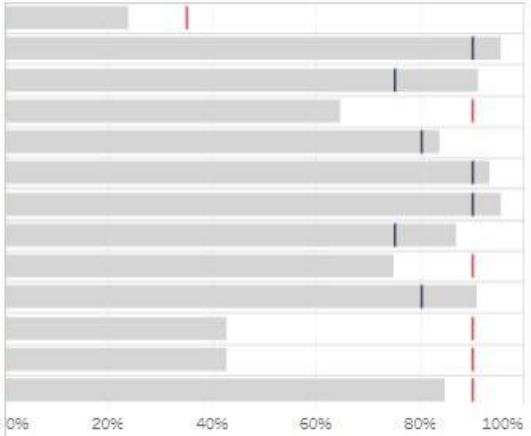


SAMPLE DATA

State Results

Measure	Meeting the Standard	Total
Rarely/Never Screened Pap or HPV	444	1,865
Breast Diagnostic Work-up Completeness	1,267	1,327
Breast Diagnostic Work-up Timeliness	1,156	1,267
Breast Cancer Treatment Started	31	48
Breast Cancer Treatment Timeliness	26	31
Cervical (All) Diagnostic Work-up Completeness	382	409
Cervical Severe Abnormal Diagnostic Work-up Completeness	42	44
Cervical (All) Diagnostic Work-up Timeliness	332	382
Cervical Cancer Treatment Started	33	44
Cervical Cancer Treatment Timeliness	30	33
BCCP Initiation Timeliness	3	7
BCCP Completion Timeliness	3	7
Data Entry Timeliness	17,252	20,333

Performance & Standard

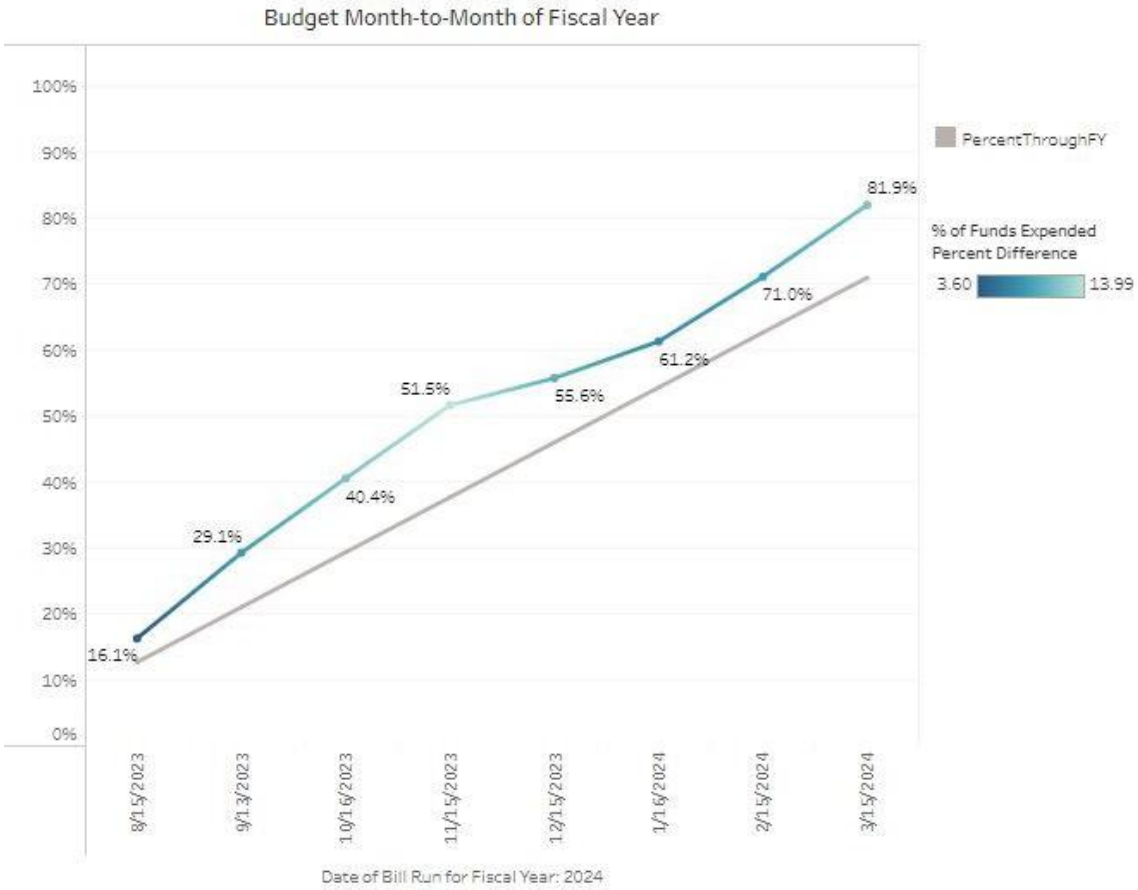


HIDS

Data Visualizations & Accessibility

Budget (Most Recent Bill Run Date)

	March 15, 2024
% of FY Complete	70.8%
% of Funds Expended	81.9%
% Difference	11.0%
Total Budget	$943,689
Total Spent	$772,545



HIDS

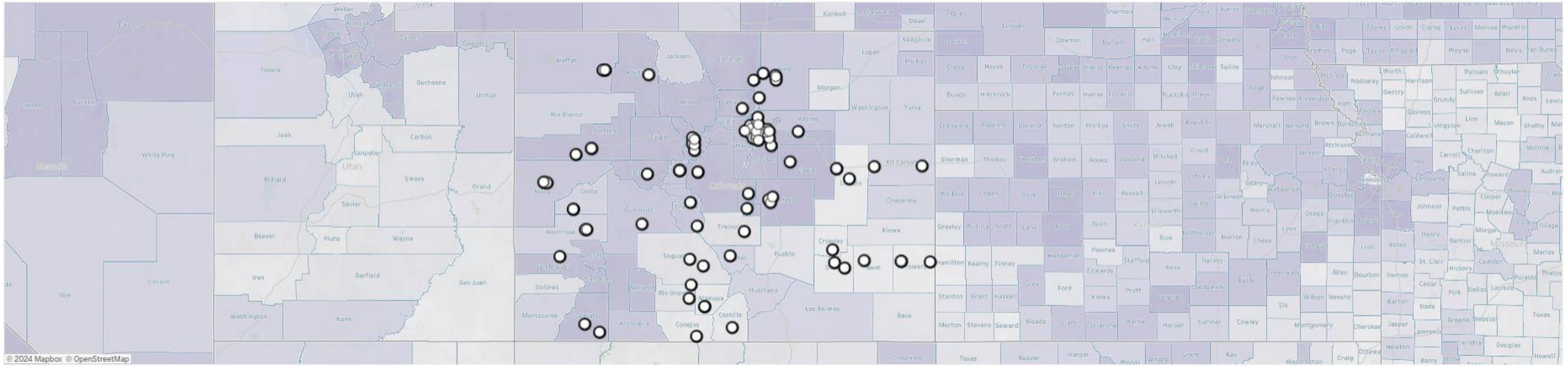
Data Visualizations & Accessibility

Locations

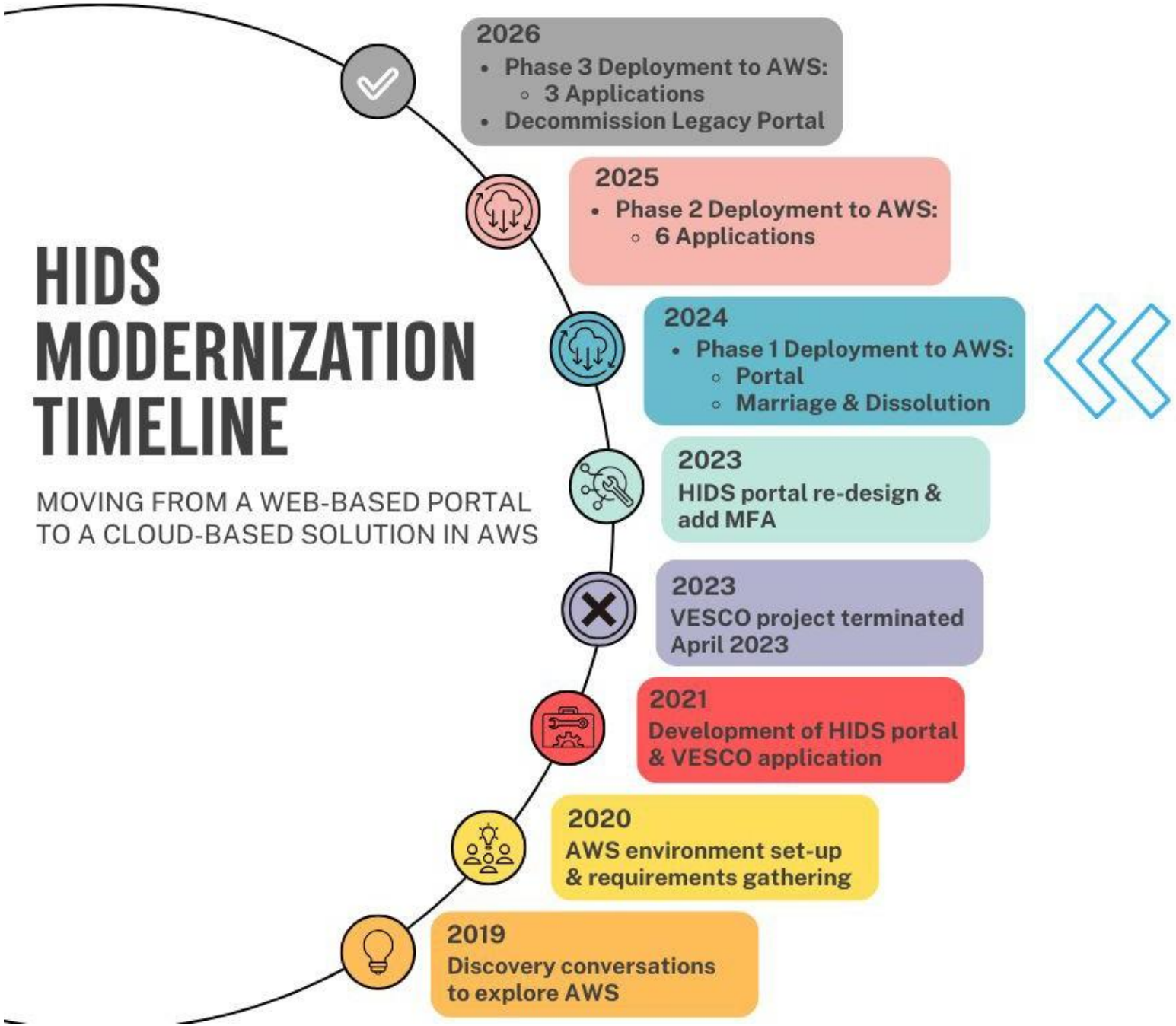
Women's Wellness Connection / WISEWOMAN Clinic Locations

Tool Bar:
- Use the "magnifying glass" icon to search for a City/County - To navigate the map use the "+" and "-" feature or explore other functions using the "triangle"

Note: If a single point is on the map, click on the map to populate the rest of the clinics.



HIDS


HIDS MODERNIZATION TIMELINE
MOVING FROM A WEB-BASED PORTAL TO A CLOUD-BASED SOLUTION IN AWS
2026
• Phase 3 Deployment to AWS:
◦ 3 Applications
• Decommission Legacy Portal
2025
• Phase 2 Deployment to AWS:
◦ 6 Applications
2024
• Phase 1 Deployment to AWS:
◦ Portal
◦ Marriage & Dissolution
2023
HIDS portal re-design & add MFA
2023
VESCO project terminated April 2023
2021
Development of HIDS portal & VESCO application
2020
AWS environment set-up & requirements gathering
2019
Discovery conversations to explore AWS

Air Pollution Data Modernization

Adam Wozniak
Business Product Owner
Air Pollution Control Division

Project Summary

- ## Electronic Data Receipt and Processing

  All current processes are paper based. Our front-end modernization will allow us to receive all applications, reports and other submissions electronically. These documents will also be processed electronically.

- ## Data Lake Construction

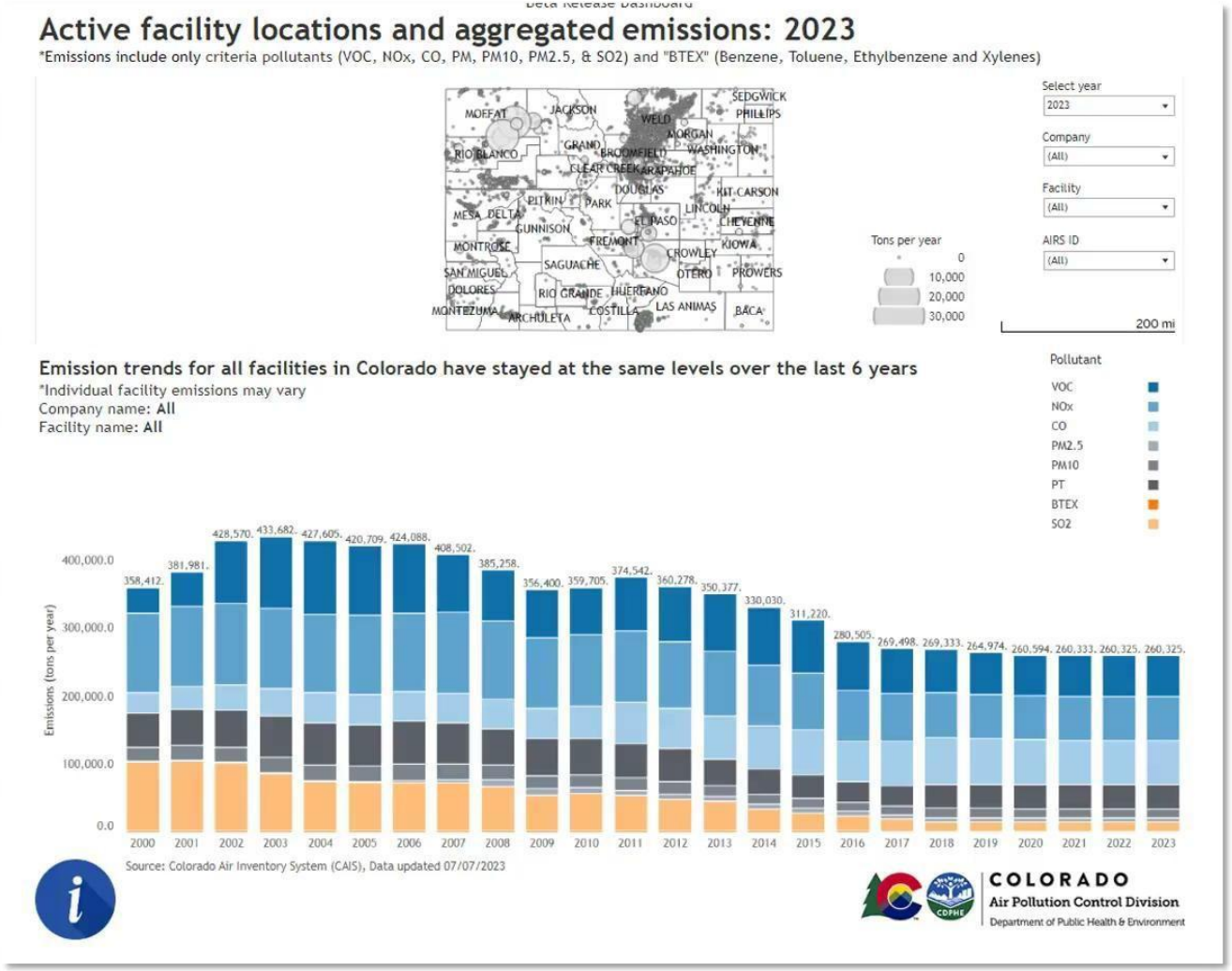
  Storing our data in a cloud environment will allow us to make data more available to interested parties, including the public. We will also be able to house structured data (tables, rows and columns) with unstructured data (video files, large text files, etc).

- ## Data Visualization, Transparency and Citizen Engagement

  Our first data visualization tool was created and modified based on input received from the public. We continue to engage with the public to modify this tool or create new tools.

Data Visualization Demonstration

Platform Demonstration



Wrap-up and Q&A

THANK YOU!

Please reach out to any of the presenters, or connect with our eHealth Commissioner representative, Krystal Morwood (krystal.morwood@state.co.us), should you have additional/future questions about this, or other related CDPHE efforts.

Systems for Evaluation: CHED

- Cancer Registry Web Plus
- eMaRC / Pathlab database
- RMCDS - Rocky Mountain Cancer Data Systems
- CoHID - Colorado Health Information Dataset (Tableau)
- HIDS - Health Informatics Data System Portal: *(CRCSN - Colorado Responds to Children with Special Needs (a.k.a. Birth Defects Registry); NBHS - Newborn Hearing Screening, iCare Application for Family Planning Services; CDS - Child and Youth with Special Health Care Needs Data System; SCCIDR - School and Childcare Immunization Reporting System; Marriage and Dissolution Application; WIC eReferral; eCaST - Electronic Cancer Surveillance and Tracking Application)*
- MMRS - Medical Marijuana Registry System (Tyler Technologies)
- COVIS - Colorado Vital Information System (Genesis System)
- EDRS - Electronic Death Registration System (Genesis System)
- Vital Records Solution, Records Management (CDPHE, Hyland)

Systems for Evaluation: DCPHR

- BioNumerics / Biowatch (CDC, Homeland Security)
- DCPHR Portal (FluVac-Influenza Vaccination Tracking Tool, Colorado Refugee Database a.k.a Newcomer Health, Refugee Clinic, CDPHE COVID-19 Immunization data, Center of Excellence in Newcomer Health (COE), Refugee COE Data Exchange (RefEx), LPHA Data Exchange (HIEX))
- TBDB - Tuberculosis Database
- Zoonosis
- CNS - Colorado Notification System (Juvare), CVM - Colorado Volunteer Mobilizer (Juvare), EMResource - Emergency Medical Resources (EMSuites, Juvare)
- Spills Database
- EBAT - Electronic Breathalyzer Testing (COBRA DB)
- CEDRS III - Colorado Electronic Disease Reporting System, Auto Importer (aka Automapper, Auto Lab Matcher, Automatcher), ELR - Electronic Laboratory Reporting System, Manual Matcher
- PHinMS - Public Health Information Network Messaging System
- Rhapsody (CDPHE)
- CIG2 - Colorado Immunization Gateway, CIIS - Colorado Immunization Information System, CIIS Data

Systems for Evaluation: DCPHR, *continued*

- ISIIS Vision
- LIMS - Laboratory Information Management System (a.k.a. Chemware by Horizon)
- MTL Air Filter Database
- NBMS - Newborn Metabolic Screening (a.k.a. NBS-LIMS)
- iPassport
- C Diff - Clostridioides Difficile (CDC)
- Mugsi CDS - Case Detection System
- Peri-Natal Hepatitis System
- NME Review Tool
- REDCap (CDPHE)
- COE database
- COE newcomer health Warehouse
- IDRP Reporting Staging Database

Systems for Evaluation: HFEMSD

- ACO - Aspen Central Office
- ACTS - ASPEN Complaint Tracking System
- COHFI - Colorado Health Facilities Interactive
- EMTS-ImageTrend

Systems for Evaluation: PSD

- MMRIA - Maternal Mortality Review Information Application
- CoHealthResources.org (Pica9)
- Smart Mouths Smart Kids data collection tool
- Colorado Health Systems Directory (a.k.a. Provider Directory)
- Health Navigator Registry
- Second Chance Tobacco (RMC Vendor)
- CNP - Colorado Nutrition Portal
- WIC -Women, Infants & Children (aka Compass)

Systems for Evaluation: STI/HIV/VH

- CD4 Viral Load
- DCPHR Portal (CHADS, COHEART - Colorado HIV Evaluation and Response Treatment, STI Treatment)
- eHARS - Enhanced HIV\AIDS Reporting System
- eHARS All Image Viewer
- PRISM - Patient Reporting Investigation Surveillance Management
- PRISM-Denver STI Import Process

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Public Comment Period

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Closing Remarks