Adams County Health Department Strategic Plan Goal: Data and Technology Oct 17, 2024



Data & Technology Strategic Plan Members

Health Data and GIS Program

Responsible for health and community analytics. Development of data dissemination products including presentations, reports, web-based data products. Development of data applications for facilitating program workflows.

People

4 FTE on the Data Team 3 FTE data related County GIS/IT Support Strategic Plan Members

2 Staff and 2 Directors

Software/Hardware

SQL **ESRI** • SQL Database **ArcGIS Pro/AGOL** • 35 Creators/15 Mobile Workers Health Department AGOL instance Webserver **ArcGIS Enterprise** https://phweb.adcogov.org/web/ 30 Creators/40 Mobile Workers • Internal only ArcGIS Knowledge FME 8 FME Desktop • FME Server

Goal: Data and Technology



Over the next 3-5 years, support the public health workforce and partner organizations by improving data skills and public health data infrastructure to make data more accessible and to drive programmatic decision-making.

Objectives

Develop and maintain health department Capacity so staff, academic institutions, and community-based partners can implement and use public health data/information.

Ensure health department program data collection and storage is streamlined to meet the needs across the health department. Develop the components of an

"Integrated Data System"

that will tie together data across the health department to support programmatic decision-making and objectives across the strategic plan. Ensure programs and the public have access to systems where they may access data and information to make better decisions for public health topics.

Position ACHD at the forefront of innovation, leveraging artificial intelligence (AI), machine learning (ML), and emerging technologies to transform operations, enhance client-centric services, and champion health equity across our county.



What is a health department integrated data system?

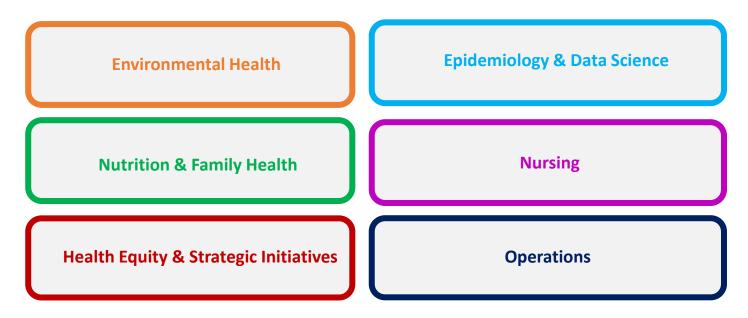


What is a health department integrated data system?

The Adams County health Department Integrated Data System is a system of governance and documentation for data/processes/outputs and that ties these pieces together across the health department to support programmatic decision-making and objectives as needed by users.

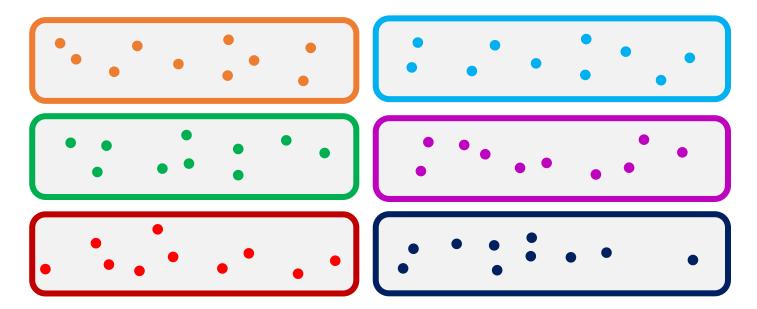


Adams County Health Department Divisions

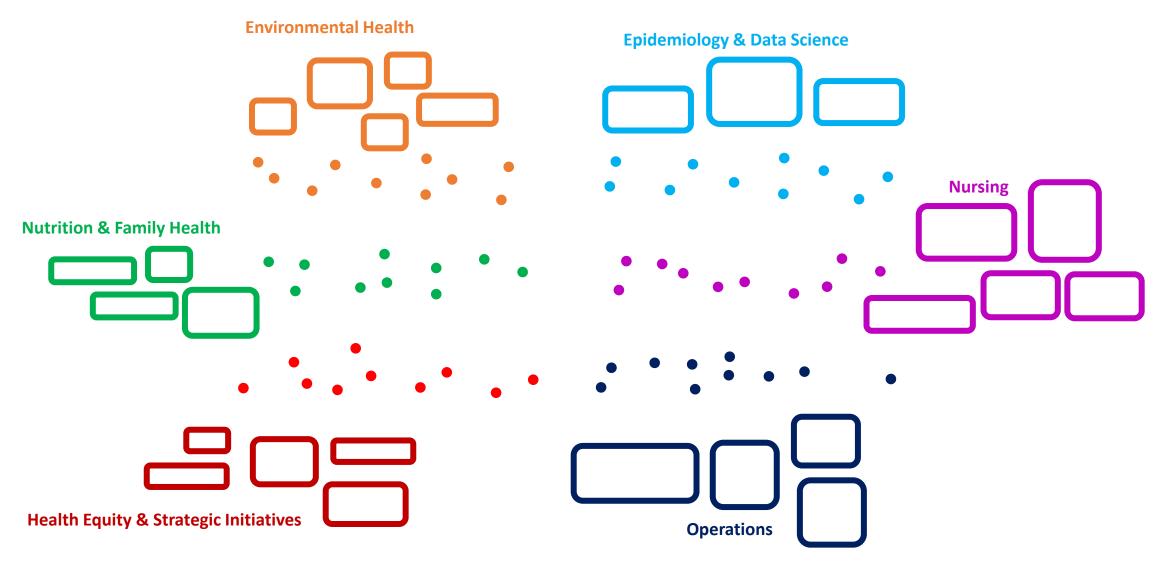




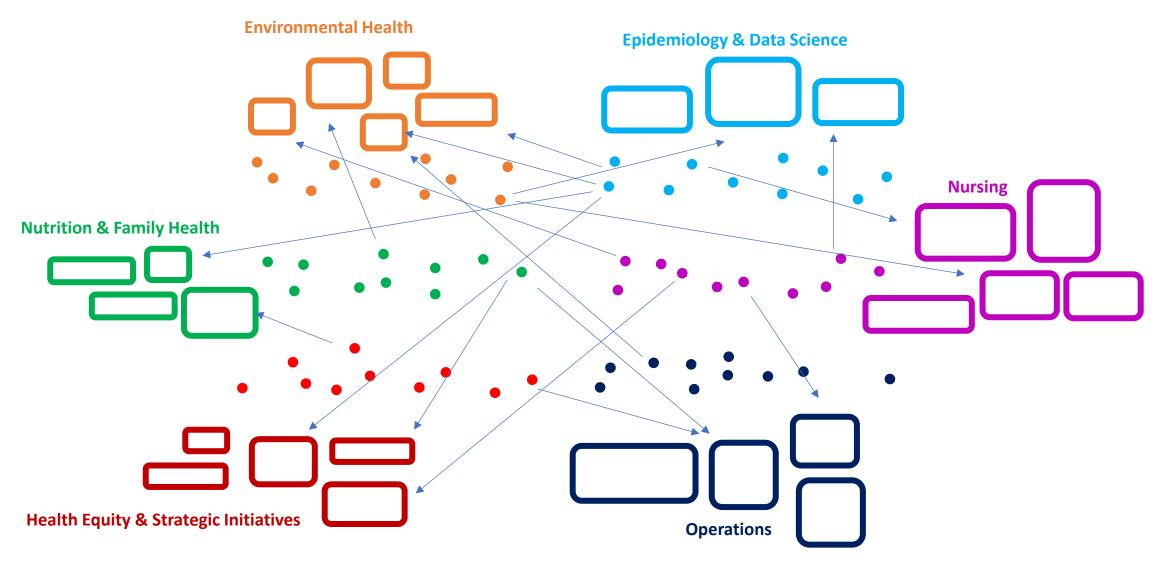
Adams County Health Department Divisions



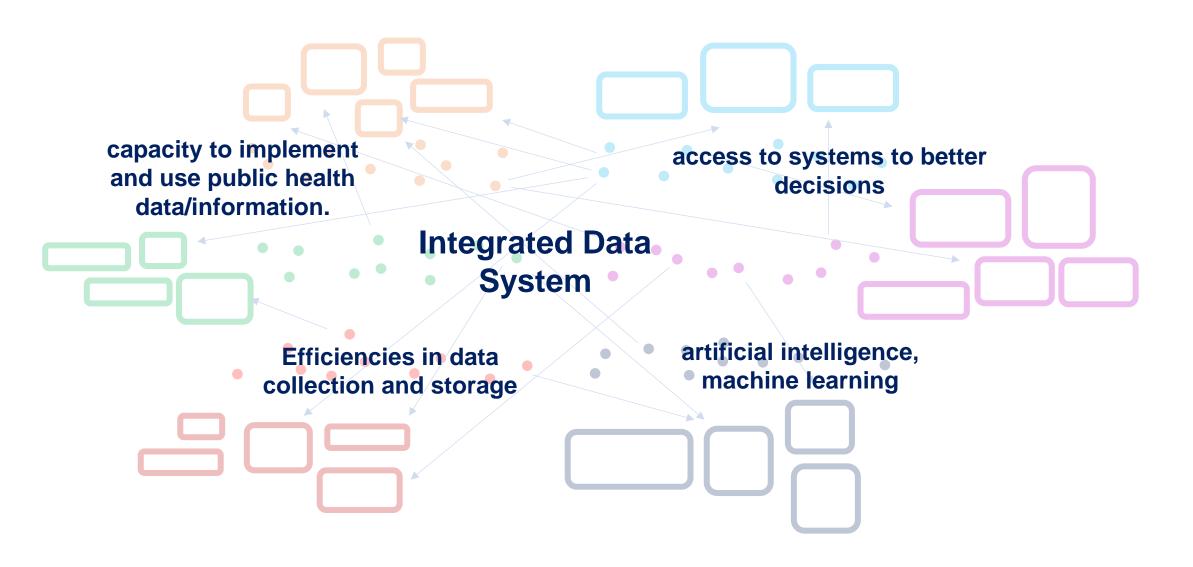










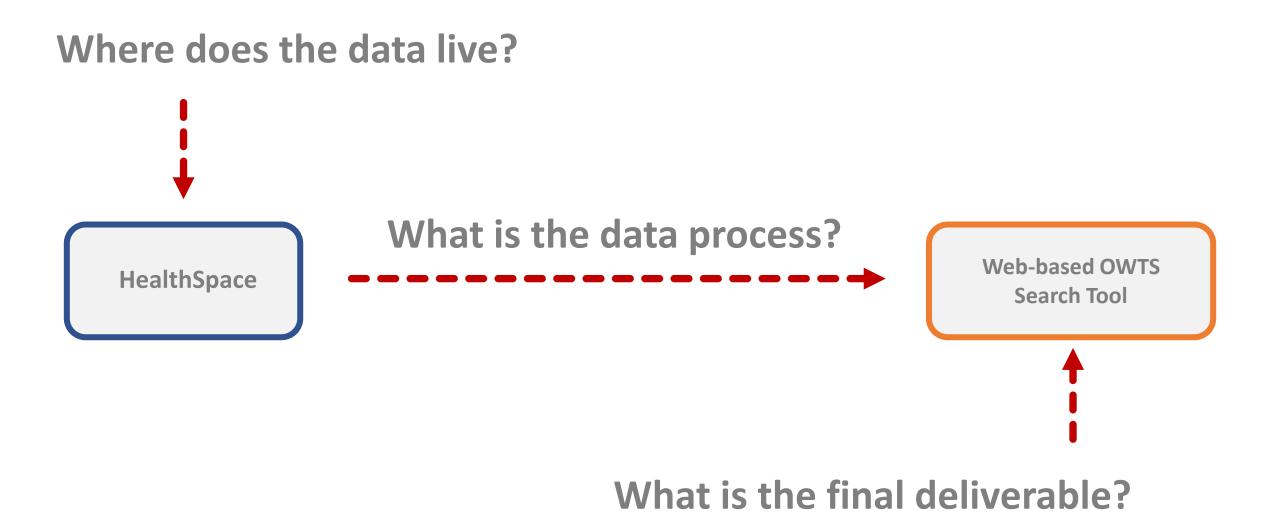




Use-Case 01

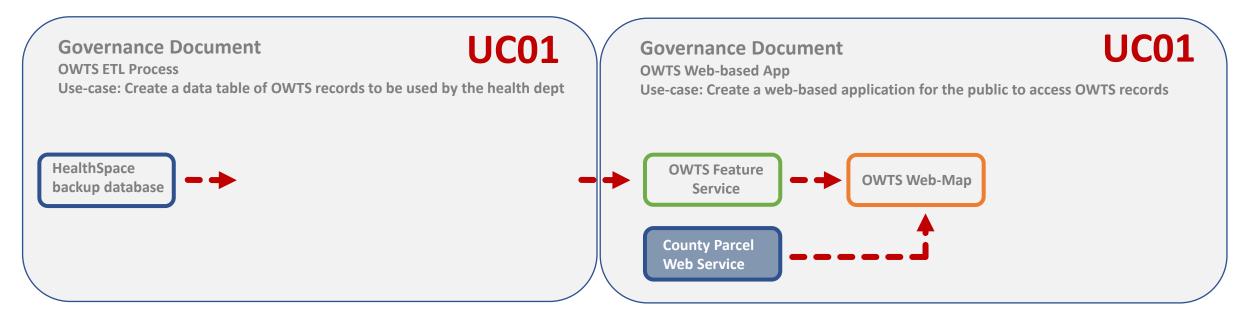
Create a web-based tool to allow anyone in the public to search for septic records permitted by Adams County.

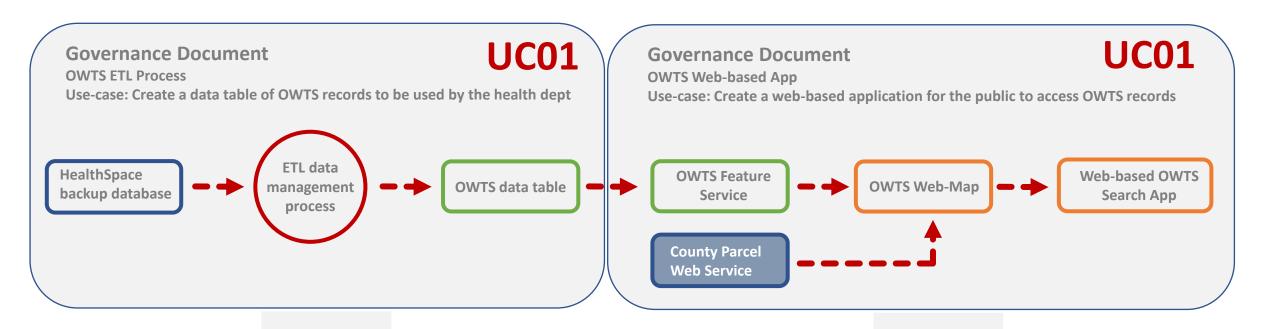












What Does Governance Documentation Mean?

Governance Document

OWTS ETL Process

Use-case: Create a data table of OWTS records to be used by the health dept

- Overview
- User Access
- Update Cycle
- File locations
- Data sources
- Data workflow map

- HealthSpace Documentation
 - Database tables
 - Data dictionary
- ETL documentation:
 - Data management steps
- Output Table
 - Data dictionary

Governance Document

OWTS Web-based App

Use-case: Create a web-based application for the public to access OWTS records

- Overview
- User Access
- Update Cycle
- File locations
- Data sources
- Data workflow map

- Feature Service(s)
 - Data dictionary, URL, Ownership
- Web-Map
 - Configuration, URL, Ownership
- Application
 - Configuration, URL, Ownership

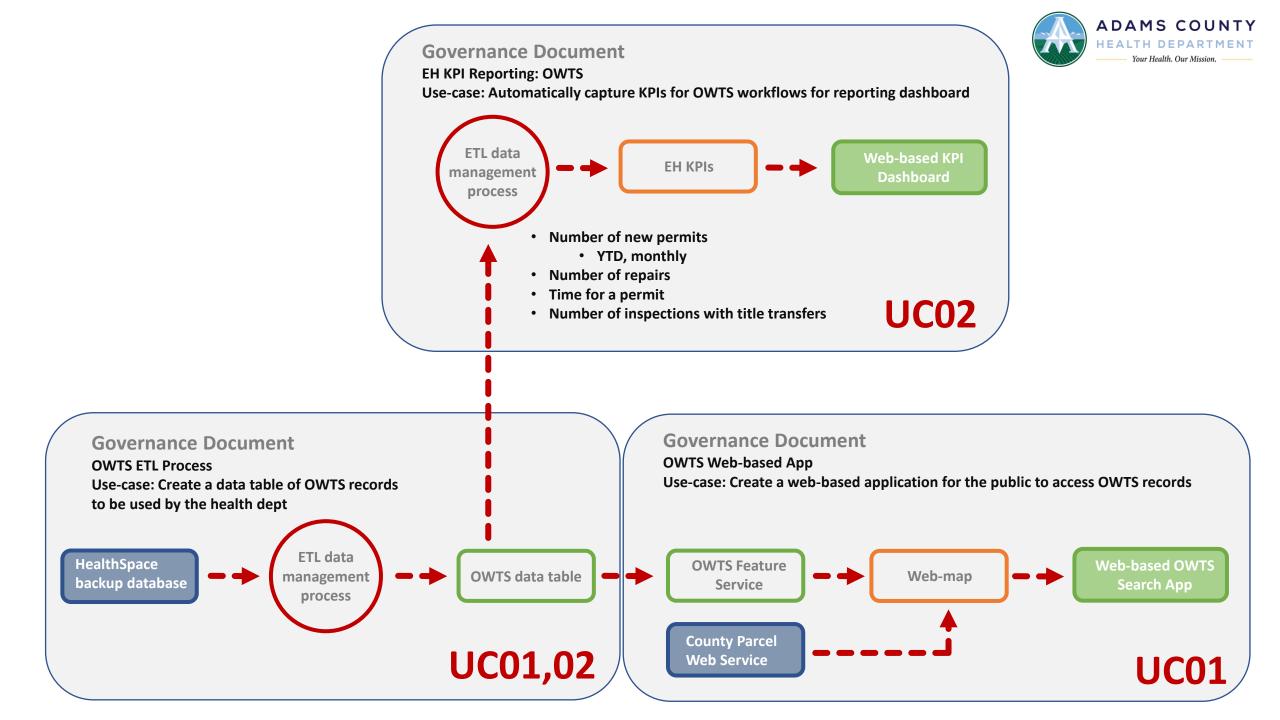


Use-Case 01

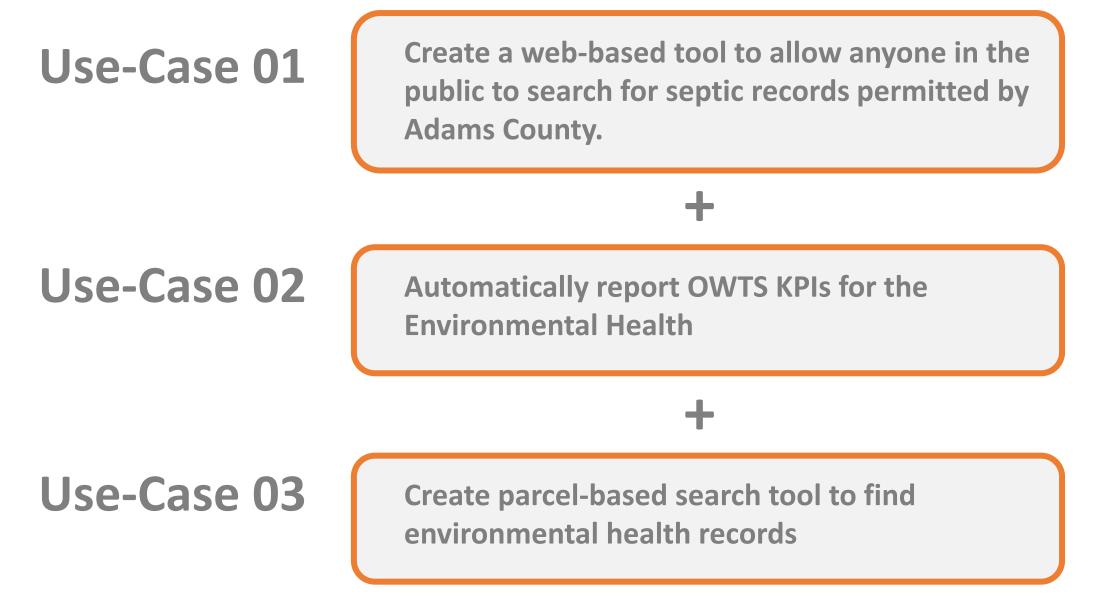
Create a web-based tool to allow anyone in the public to search for septic records permitted by Adams County.

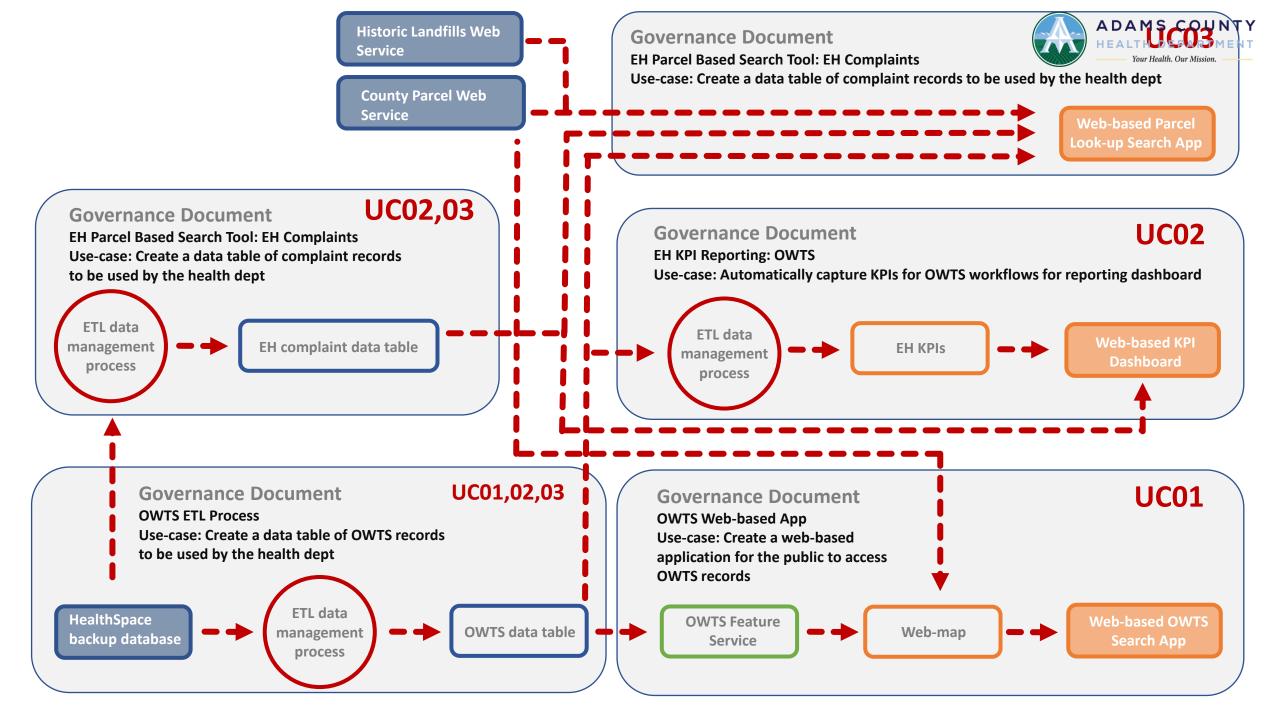
Use-Case 02

Automatically report OWTS KPIs for the Environmental Health









Environmental Health Use-Cases



Create search tool for the public to find septic system records

Create parcel-based search tool to find environmental health records

Create an elevated blood lead case management system

Create a process to capture retail food inspection records from HealthSpace

Create a process to capture childcare inspection records from HealthSpace

Create a process capture, store, manage, and provide access to climate data

Create a process to automate environmental health KPI reporting



Datasets Historic Landfill ----Septic -----Parcel Data ------**Parcel-Based Search** Lead Case Data Lead Case Management **Outbreak Reporting Retail Food** Climate Air Childcare Precipitation Climate Temperature **KPI Reporting** HealthSpace Database Septic **Retail Food** Childcare Complaint

Environmental Health Use-Cases

Immunization

Communicable Disease

Environmental Health Use-Cases



Create search tool for the public to find septic system records

Create parcel-based search tool to find environmental health records

Create an elevated blood lead case management system

Create a process to capture retail food inspection records from HealthSpace

Create a process to capture childcare inspection records from HealthSpace

Create a process capture, store, manage, and provide access to climate data

Create a process to automate environmental health KPI reporting

Communicable Disease Use-Cases

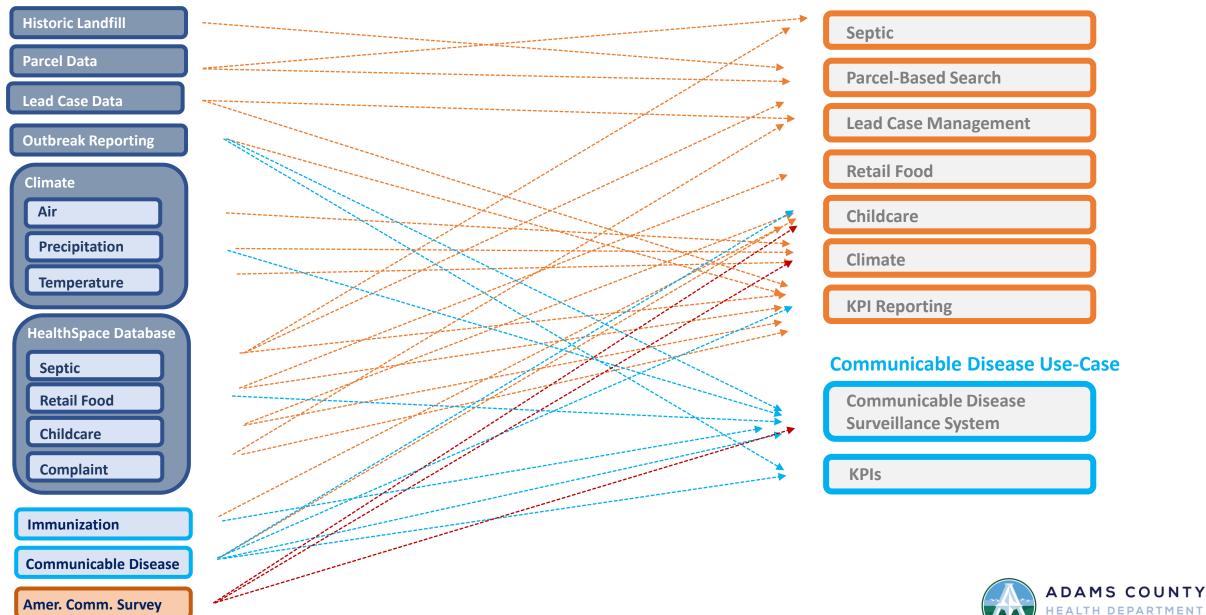
Create a communicable disease surveillance system

Create a process to automate communicable disease KPI reporting

Datasets

Environmental Health Use-Cases

Your Health. Our Missie



Health Department Data and Workflow Applications

| Environmental Health | Epidemiology & Data Science | Health Equity & Strat. Initiatives | Operations |
|---------------------------------------|---|------------------------------------|-------------------------------------|
| Septic Lookup tool | Communicable Disease Surveillance System | Health Data Hubs | Internal Client Referral System |
| Parcel-Based Search | EPR Situational Awareness | | Central Patient Safety Reporting |
| Lead Case Management | Internal Health Department | | Denulation Health Data Partal |
| Retail Food | Network and Workgroup Analysis | | Population Health Data Portal |
| Childcare | | | |
| Climate Surveillance System | COVID19 Resource Box Distribution System | | |
| | EPR Activation Communication System | | |
| Nutrition & Family Health | Nursing | | |
| Diabetes Education Case Management | Harm Reduction Data System | IZ Facility Connector | |
| | Health Enrollment Case | | |
| Farmers Market Participant | Management | | |
| Tracking and Site Selection | School IZ Tracking | | |

Goal: Data and Technology



Over the next 3-5 years, support the public health workforce and partner organizations by improving data skills and public health data infrastructure to make data more accessible and to drive programmatic decision-making.

Objectives

Develop and maintain health department Capacity so staff, academic institutions, and community-based partners can implement and use public health data/information.

Ensure health department program data collection and storage is streamlined to meet the needs across the health department. Develop the components of an

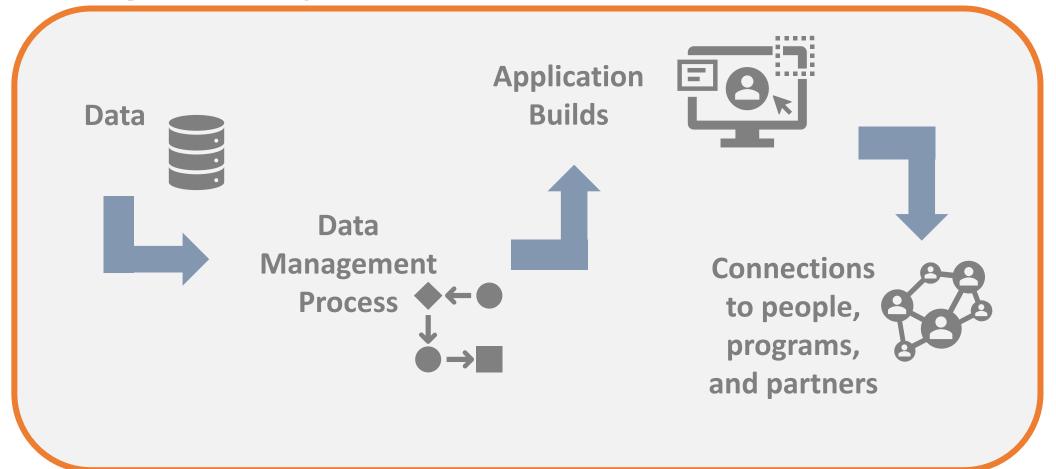
"Integrated Data System"

that will tie together data across the health department to support programmatic decision-making and objectives across the strategic plan. Ensure programs and the public have access to systems where they may access data and information to make better decisions for public health topics.

Position ACHD at the forefront of innovation, leveraging artificial intelligence (AI), machine learning (ML), and emerging technologies to transform operations, enhance client-centric services, and champion health equity across our county.

Integrated Data System

Integrated Data System



Adams County Health Department Strategic Plan Goal: Data and Technology Update Oct 2024



Objective 1: Develop and maintain health department capacity so staff, academic institutions, and community-based partners can implement and use public health data/information.

Actions/Tasks

Coordination with ITi to plan and initiate support

Ensure ITi staff are trained in the software and hardware necessary; acquisition of necessary software licensing, staff resource capacity

Develop staff skills and program capacity to improve data driven decisions

Communication plans and ACHD program outreach around their role in data; Develop a suite of data/systems oriented trainings; Evaluation of learning processes

Data Team Support

Ensure data team staff are trained and are skilled now/future in the data/software/hardware necessary to support obj.; update job descriptions; document all skills needed; request FTE Where are we at?

- Developing Data and Systems Learning Opportunities
 - All staff data trainings (6)
 - Reoccurring topic specific practicums and capstones (3)



Objective 2: Develop the components of an "Integrated Data System" that will tie together data across the health department to support programmatic decision-making and objectives across the strategic plan.

Actions/Tasks

Data Governance

Develop and templates and procedures for all data processes; systems for storing and managing data processes and governance; UX and Branding for web applications

Data Sources

Establish processes to access data from systems (EHR, Healthspace, EpiTrax); Manage all uses cases for data access; Manage all data dictionaries for all datasets

Hardware

Develop hardware governance; Finish ArcEnterprise buildout, Build out ACHD web-server; planning for all future hardware needs

Software

Develop software governance, inventory all software within ACHD and uses cases; determine and develop application for storing and managing all IDS governance and workflows

Where are we at?

- Coordination with County GIS
 - Build out of public facing web-server
 - Build out of internal ArcGIS Enterprise
- Creating a new data project management process to collect metadata specific to the needs of the Integrated Data System
- Data Sources
 - Developed internal system to capture all Healthspace (EH) data
 - Building process/system to capture Patagonia (Nursing) data.
 - Building a process/system to capture Epitrax (Communicable Diseases)
- Data Governance
 - Updating all data dictionaries

Objective 3: Ensure programs and the public have access to systems where they may access data and information to make better decisions for public health topics.

Actions/Tasks

Building Data Systems to Access Data Portals

Communicable disease surveillance system; School data portals; EH parcel lookup; SDoH data portals; Climate data portal; Lead case management; ACHD KPIs

Building Climate/Health Database Systems

30 years daily min/max temp; 30 years daily precip; daily air quality; other major regional climate events

SDoH Database Systems

Social determinants of health screening tools

Build Division/Program KPI Processes and Dashboards

Systems and processes to automatically pull and calculate program/division KPIs

Where are we at?

Building Data Systems to Access Data Portals

- Build out of CDE Outbreak portal
- Build out of EH Parcel Based search tool
- Build out of CDE and EH call log tracking
- Developing core public health data annual summaries for Birth, Death, Hospitalizations, BRFSS, and HKCS
- Building Climate/Health Database Systems
 - EJ data specific to the parcel-based search tool
- SDoH Database Systems
 - Revising all ACS indicator collection, data dictionaries, and processes
- Build Division/Program KPI Processes and Dashboards
 - Using EpiTrax data for CDE
 - Healthspace for EH
 - Patagonia for Nursing



Objective 4: Ensure health department program data collection and storage is streamlined to meet the needs across the health department.

Actions/Tasks

Program outreach to discuss data and data collection processes by program

Inventory all program data and processes; Prioritize programs for consultation for improving data collection processes

Evaluate and make recommendations for data collection and storage

Develop templates for data workflow/collection; Evaluation plan for process improvement; Ensure any data process consult results in auto generated KPIs

Ensure SDoH and community specific data is integrated into program data narrative

Develop process to integrate SDoH and community data in data workflows

Ensure program staff understand and can describe community level data related to their program

Where are we at?

- Program outreach to discuss data and data collection processes
 by program
 - Nursing: Harm Reduction, Sexual Health,
 - Ops: Compliance Reporting
 - Nutrition Family Health
 - EDS: Project Management, Communicable Disease call logs
 - EH: Call logs
- Evaluate and make recommendations for data collection and storage
 - EH: Healthspace, Call logs,
 - Nursing: Patagonia
- Ensure SDoH and community specific data is integrated into program data narrative
 - Core public health data annual summaries for Birth, Death, Hospitalizations, BRFSS, and HKCS
 - All data request



Objective 5: Position ACHD at the forefront of innovation, leveraging Artificial Intelligence (AI), machine learning (ML), and emerging technologies to transform operations, enhance client-centric services, and champion health equity across our county.

Actions/Tasks

Develop governance around the use of AI for local public health applications

Al Workgroup; Document use-cases; Guidance documents for uses

Administrative processes

Present at local and national conference on use of AI in local public health; Automate data processes where applicable within ACHD data systems

Where are we at?

- Develop governance around the use of AI for local public health applications
 - Developing a health department wide guidance and next steps for using AI in health department workflows.

Administrative processes

• Coordinated abstract submissions for 2025 conferences around data and informatics topics.

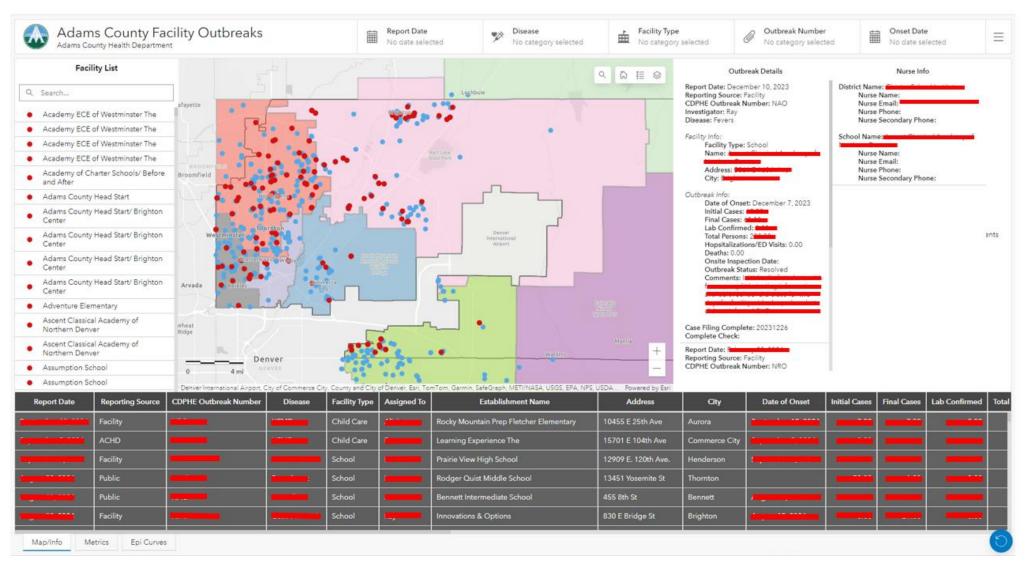


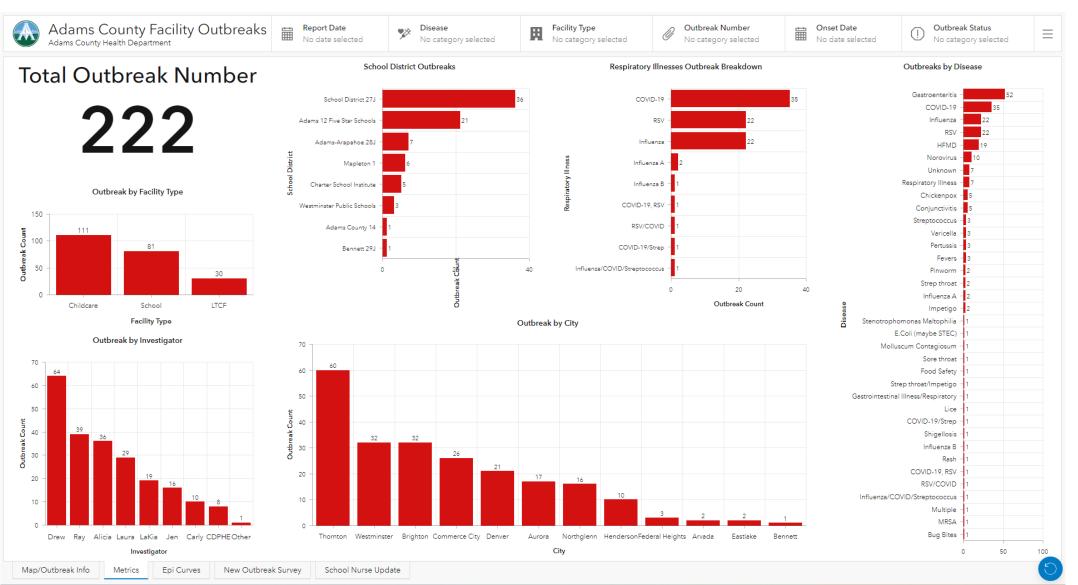
Health Department Data and Workflow Applications

| Environmental Health | Epidemiology & Data Science | Health Equity & Strat. Initiatives | Operations |
|--|---|------------------------------------|-------------------------------------|
| Septic Lookup tool | Communicable Disease Surveillance System | Health Data Hubs | Internal Client Referral System |
| Parcel-Based Search | EPR Situational Awareness | | Central Patient Safety Reporting |
| Lead Case Management | Internal Health Department | | Dopulation Health Data Portal |
| Retail Food | Network and Workgroup Analysis | | Population Health Data Portal |
| Childcare | COVID19 Resource Box | | |
| Climate Surveillance System | Distribution System | | |
| | EPR Activation Communication System | | |
| Nutrition & Family Health | Nursing | | |
| Diabetes Education Case Management Farmers Market Participant Tracking and Site Selection | Harm Reduction Data System | Patagonia Reporting | |
| | Health Enrollment Case | | |
| | Management | | |
| | School IZ Tracking | | |

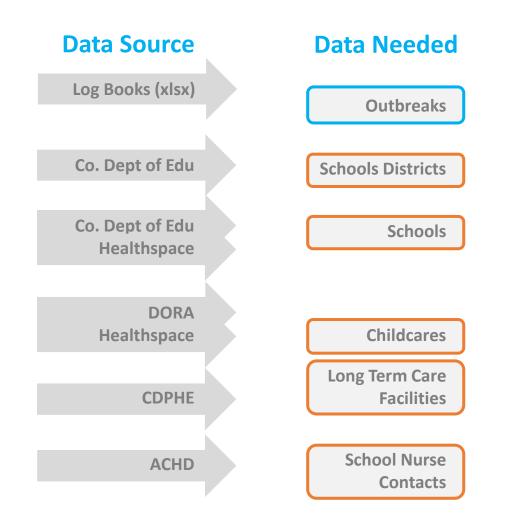
Use-Cases

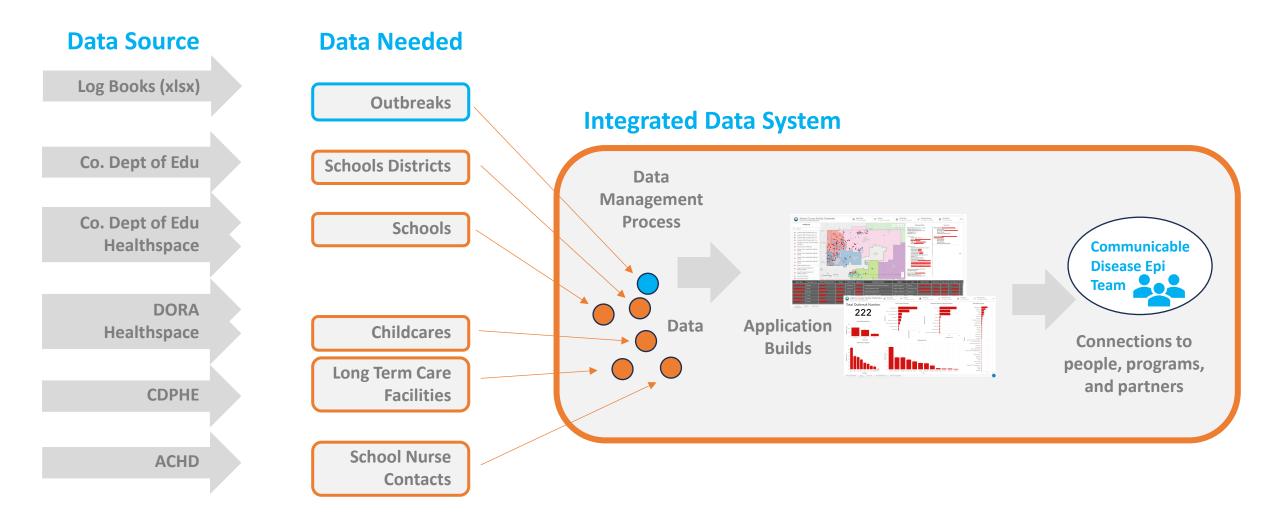
Communicable Disease Surveillance System: Outbreak Surveillance











Use-Cases

Parcel-Based Environmental Search Tool

A system that allows staff to easily find any documented environmental hazards, conditions, and/or complaints based on a property search.

Environmental Health Parcel-Based Environmental Search Tool

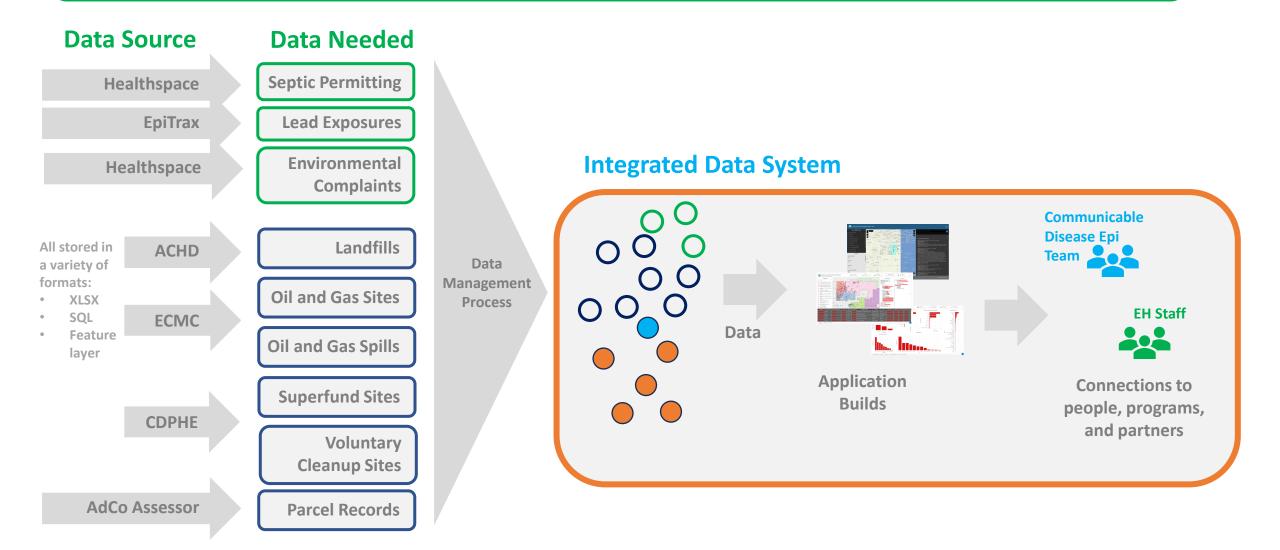
A system that allows staff to easily find any documented environmental hazards, conditions, and/or complaints based on a property search.

| EH Hazards Parcel-B | ased Search Tool | |
|--------------------------------|--|--|
| Layer Visibility Selector | 0182307106027 0182307106027 0182307106027 0182307106028 0182307104017 0182307102005 0182308211003 0182308212007 + 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 | |
| ✓ Water Wells (DWR) • | 30 | Search by parcel number or address |
| RCRA Sites | | |
| ✓ VCUP Sites • | ······································ | |
| ✓ Superfund Sites (CDPHE) • | ··· 0182307107012 Hemolica Park 018230219005 0182308219005 0182308219005 0182308219005 0182308217002 0182308217002 | Complaints (TCHD) |
| Septic Systems (ACHD) | 0182307106006 0182307102015 015220829008 | Address: 5524 E 60th Ave Unit 146, Commerce City, CO, 80022 |
| Septic Systems (TCHD) | | Date of Complaint: Dec 1, 2021 Program: Meth Lab |
| Spills (OEPR) | | Category: Complaint Meth Labs Complaint Details: Post & Preliminary received together from Century Environmental |
| ☑ Oil and Gas Spills (COGCC) . | | Hygiene, LLC. 02/20/18 LO Cleanup Contractor: All Star Environmental Services Inc Status: Closed on Feb 19, 2018 |
| ☑ Oil and Gas Wells (COGCC) | | Address: 5478 E 60th Ave, Commerce City, CO, 80022 |
| Complaints (ACHD) | | Date of Complaint: Oct 22, 2014 Program: Waste Water/Septic |
| Complaints (TCHD) | 0182307403018 0182307401004 0 0182307401004 0 0182307401005 0 018230740005 0 0182307400000000000000000000000000000000000 | Category: Complaint Waste Water - Sewage Spill Complaint Details: Complainant calling in stating that there is a sewage back up |
| Legend | 0182307403008 0182307401005 C 4/2002cm loop 1/2019 Outcar | every couple of months in her bathroom that will go all the way into her kids bedroom and living room sometimes. She ends up calling the manager and they |
| Water Wells (DWR) | 04 | send a plumber when he is available. Even thought the matter gets resolved with a plumber it keeps happening and complainant is getting tired of it. Complainant said |
| 0 | 0182307400066 0182307400012 0182308301001 | last time plumbers did not even clean up after they did to fix the problem, and sewage was left in the tub, bathroom floor and toilet. When this back up happens the |
| | E 58th Pl 0182307404007 0182307404008 0182308301003 018 | sewage comes up in her toilet and tub and so do a bunch of cock to aches. Complainant wants to know if there is anything we can do about this continuing to |
| RCRA Sites | | happen. Please call complainant with what you find out. The most recent back up just happened again a few days ago. |
| G | 2307400067 0182307400013 0182308301002 | Status: Closed on Nov 3, 2014 |
| VCUP Sites | 0182307400014 E 58th Ave V C C | Address: 5480 E 60th Ave Unit 110, Commerce City, CO, 80022 Date of Complaint: Dec 14, 2014 |
| Ø | 0182263302062 | Program: Industrial Hygiene Category: Complaint IH - Lead |
| | 0182308302082 | Complaint Details: This child has a confirmed elevated blood lead level. |
| Superfund Sites (CDPHE) | 0182307400019 | Consequently we did a home assessment for lead. Status: Closed on Dec 31, 2014 |
| | 0162203302002 | Address: 5460 E 60th Ave, Commerce City, CO, 80022 |
| Septic Systems (ACHD) | Esri Community Maps Control of Commerce City, County and City of Denver, © OpenStreetMap, Microsoft, Esri, TomTom, Garmin, SafeGraph;:::::::::::::::::::::::::::::::::::: | Date of Complaint: Dec 29, 2014 Program: Industrial Hygiene |
| | | |

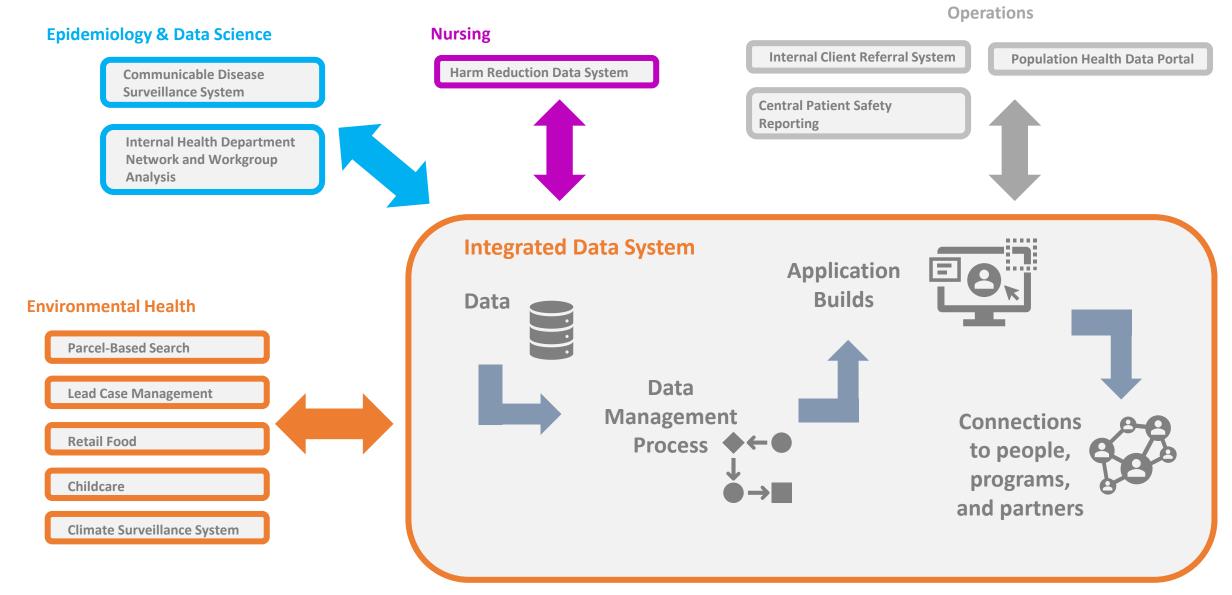


Parcel-Based Environmental Search Tool

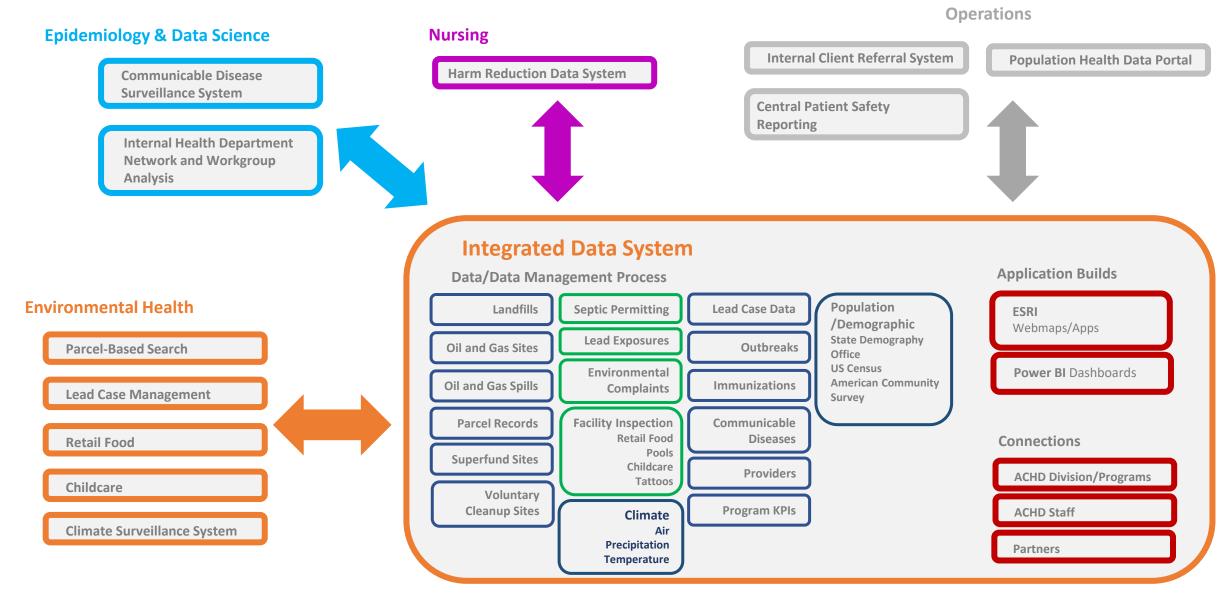
A system that allows staff to easily find any documented environmental hazards, conditions, and/or complaints based on a property search.



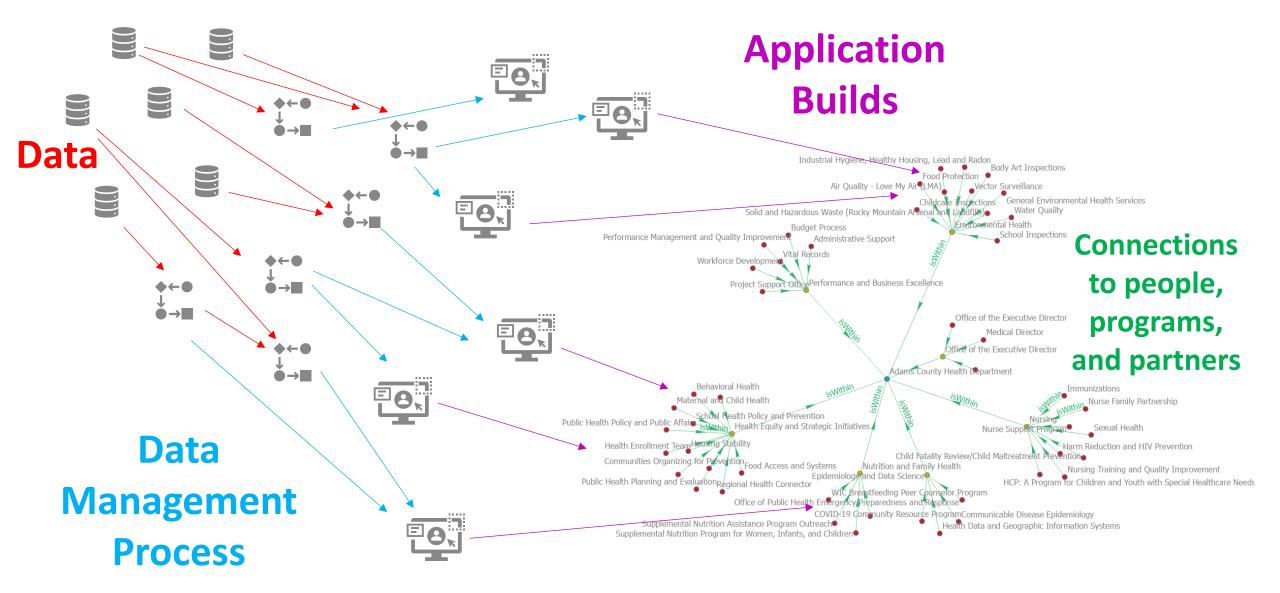
Integrated Data System



Integrated Data System



Integrated Data System Using ArcGIS Knowledge



A system to connect client to internal health department resources and programs to support their needs.

Elevated Blood Lead Investigations

A system for case management and investigation of kids with elevated blood lead levels. Also serves as a system for surveillance and reporting.

Sexual Health/Safe Drug Use Client Services Tracking and Reporting

A system to track client STI tests/results, demographics, and supplies. Also tracking community events and staffing, supply distribution, point in time syringe access distribution.

Population Health Data Portals

A system to develop community, health, and demographic insights to better drive programmatic work in the community.

Environmental Health Inspections

A system to track and monitor health department data, management processes, governance, and applications tying it to programs, people, and partners.

Mapping the Integrated Data System using ArcGIS Knowledge

A system to track and monitor health department data, management processes, governance, and applications tying it to programs, people, and partners.