

**ID: 34228431**

**Infectious Diseases, One Health - Host Site Description**  
**Colorado Department of Public Health and Environment**

**Assignment Location:** Denver, US-CO  
Colorado Department of Public Health and Environment  
Communicable Diseases Branch

**Primary Mentor:** Natalie Marzec, MD, MPH  
Zoonoses and One Health Program Manager  
Colorado Department of Public Health and Environment

**Secondary Mentor:** Rachel Jervis, MPH  
Foodborne, Enteric, Waterborne, + Wastewater Diseases Program Manager  
Colorado Department of Public Health and Environment

**Work Environment**  
Hybrid

**Assignment Description**

The Communicable Disease Branch (CDB) at the Colorado Department of Public Health and Environment (CDPHE) includes respiratory diseases (COVID-19, RSV, and influenza), foodborne/enteric illness (including Hepatitis A), vaccine preventable disease, healthcare-associated infections, tuberculosis, emerging infections, zoonotic, and vectorborne diseases. CDB staff provide guidance and technical assistance to local health departments, hospitals, and health care providers.

The Fellow will be assigned to two programs within CDB: Zoonosis and One Health (ZOH) and Foodborne, Enteric, Waterborne, and Wastewater Diseases (FEWWD). ZOH will facilitate training on the epidemiology and investigation of over 20 zoonotic and vector-borne pathogens. With FEWWD, the fellow will participate in enteric disease surveillance and routinely investigate disease clusters and outbreaks. The combined work within these two program areas will provide ample opportunity for a CSTE Fellow to develop core skills and meet the required competencies of the program including elements of epidemiologic methods, communication, and public health practice, policy, and legal issues.

Day-to-day activities of the Fellow will vary greatly based on the disease control issues occurring in Colorado at the time. The fellow will participate in responses to specific disease cases and outbreaks in the FEWWD and ZOH programs. The fellow will have the opportunity to work with other CDB programs, including responding to novel and emerging public health threats. Work will include case interviews, discussion with local public health agencies, participation in CDC and other national calls, calling health care providers, conducting reviews of medical records and site investigations and environmental assessments.

As the Fellow is a trainee, he or she could be asked to work on unique CDB investigations including vaccine preventable diseases and healthcare associated events as time allows. Most recently our AEF assisted with CDB's measles response, conducted HPAI preparedness activities, and investigated several legionella outbreaks in healthcare facilities. The Fellow will participate in weekly staff meetings which will keep them involved in current activities and policies within the department. The Fellow, with training, will be allowed to take "epi call" with other epidemiologists on a rotating schedule. This allows for exposures to a broad range of topics that epidemiologists in CDB assist with.

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**Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow**

CDPHE staff utilize multiple databases for various conditions including:

- EpiTrax houses information regarding individual cases of notifiable conditions including animal cases of rabies, tularemia and plague; EpiTrax also serves as CDPHE's outbreak database.
- Colorado contributes data to CDC databases via the 1CDP platform. This includes human and animal arboviral surveillance data, and animal rabies surveillance data.
- Data Lakehouse contains current and historical Colorado surveillance and investigation data as well as arthropod surveillance data.

Within our branch we have staff who are skilled in data management using SAS, R, and SQL and are happy to share their knowledge with trainees. We utilize REDCap for data collection and surveillance and Tableau and ArcGIS for data visualizations and interactive webpages.

**Projects**

**Surveillance Activity Title: Chagas disease - eCR case surveillance vs ELR alone**

*Surveillance Activity Description:*

Electronic case reporting (eCR) is a surveillance method that is in its early stages of implementation at CDPHE. Chagas disease has been one of the more common eCR reported conditions to our Zoonoses and One Health team. We would like to compare eCR reporting to ELR reporting alone for Chagas and whether we can learn any lessons about eCR that may help us going forward.

*Surveillance Activity Objectives:*

A summary of Chagas case reporting from 2025 including ELR, provider, and eCR reports with a description of challenges and benefits of eCR reporting and suggestions for improvements.

*Surveillance Activity Impact:*

eCR reporting is a new surveillance tool at CDPHE and this activity could influence how it continues to be used.

**Surveillance System Evaluation Title: Evaluation of the adoption of VectorSurv**

*Surveillance System Evaluation Description:*

CDPHE began transitioning to VectorSurv for all vector surveillance data in 2025. An evaluation of the transition and the utility of VectorSurv from the perspective of our various partners is needed to inform next steps.

*Surveillance System Objectives:*

1. Using the "Updated Guidelines for Evaluating Public Health Surveillance Systems" conduct a surveillance system evaluation of VectorSurv as it is used by CDPHE's vector surveillance partners.
2. Complete a surveillance evaluation write up
3. Present on surveillance evaluation at a team meeting
4. Submit conference abstract on surveillance evaluation

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*Surveillance System Impact:*

This will improve our capacity for vector surveillance and strengthen communication between CDPHE and vector surveillance partners.

**Major Project Title: Foodborne, Enteric, and Waterborne Disease outbreak response**

*Major Project Description:*

Foodborne outbreaks are a cornerstone of epidemiology. The outbreak investigation and analysis skills gained investigating foodborne outbreaks can be applied to other disease groups and work.

*Major Project Objectives:*

Objectives:

1. Shadow two or more outbreak investigators on outbreaks'
2. Become familiar with foodborne, enteric, and waterborne disease surveillance in Colorado
  - Learn to use EpiTrax (Colorado's public health surveillance system)
  - Become familiar with Whole Genome Sequencing and learn how it is used to detect and investigate outbreaks
  - Participate in weekly lab-epi meetings about Whole Genome Sequencing
  - Become familiar with Colorado's Outbreak Database
3. Lead outbreak investigations:
  - Complaint-based outbreaks (typically local outbreaks such as a wedding or church picnic)
  - Surveillance-based outbreaks (typically multi-state and associated with a widely distributed product)
  - Follow the steps in an outbreak investigation
    - a. Detection
    - b. Case definition
    - c. Forming a team
    - d. Develop hypothesis
    - e. Conducting an epidemiologic study
    - f. Environmental health assessment: fellow will join EH professionals on environmental assessments
    - g. Laboratory testing: the fellow will use laboratory results
    - h. Disease control measures
    - i. Outbreak reporting
4. Collaborate with local public health agencies

Deliverables

- Outbreak documentation (linelists, summaries, etc)
- Outbreak data entered into outbreak database.
- Present outbreak updates on staff meetings

*Major Project Impact:*

Prompt and thorough investigation of foodborne, enteric, and waterborne disease outbreaks are essential to reducing the number of illnesses in a single outbreak and preventing future outbreaks.

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**Additional Project #1 Title: Waterborne disease surveillance**

**Project #1 Type: Major Project**

*Project #1 Description:*

Participate in surveillance, investigation, and reporting of waterborne illnesses (including cryptosporidiosis, vibriosis, Cholera, cyclospora, and Legionnaires' Disease).

*Project #1 Objectives and Expected Deliverables:*

**Objectives:**

1. Become familiar with waterborne pathogens by reading CDPHE Communicable Disease Manual chapters and CDC website
2. Become familiar with case data in EpiTrax (surveillance system)
3. Detect, investigate, and report cases and outbreaks of waterborne illnesses. This may include:
  - Case interviews
  - Environmental assessments
  - Environmental sampling
  - Reviewing water management plans
  - Make disease control recommendations
  - Document remediation plans

**Deliverables:**

- Data entered into EpiTrax and submitted to CDC
- Presentation(s) on calls with local public health agencies

*Project #1 Impact:*

Prompt and thorough case surveillance, investigation, and reporting contribute to increasing information known about these pathogens, providing disease control to prevent additional illnesses, and preventing/responding to outbreaks.

**Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)**

The fellow will be encouraged to collaborate on disaster planning (including concurrent disaster planning) with CDPHE's Office of Emergency Preparedness and Response and take emergency preparedness trainings offered by CDPHE. The fellow will have the opportunity to contribute to the development of preparedness exercises.

**Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)**

The fellow will conduct outbreak investigation as part of the major activity and participate in outbreak investigations of other pathogens and non-communicable diseases. The fellow will have the opportunity to contribute to new, emerging responses. Past fellows have contributed to mpox, highly pathogenic avian influenza, measles response, non-tuberculous mycobacteria, Brucella RB51 infection in a dairy cow.