

ID: 84342524

Maternal and Child Health, Infectious Diseases - Host Site Description
Colorado Department of Public Health and Environment

Assignment Location: Denver, US-CO
Colorado Department of Public Health and Environment
Disease Control and Public Health Response

Primary Mentor: Alexis Burakoff, MD, MPH
Deputy State Epidemiologist and Medical Epidemiology Unit Supervisor
Colorado Department of Public Health and Environment

Secondary Mentor: Justin Tarr, BS in Physiology, MPH, PhD Candidate
Deputy Director, Office of STI/HIV/Viral Hepatitis
Colorado Department of Public Health and Environment

Work Environment

Hybrid

Assignment Description

The Fellow will be placed in the Medical Epidemiology Unit (MEU). The Medical Epidemiology Unit is a cross-cutting unit within the Disease Control and Public Health Response (DCPHR) Division. The Unit reports directly to the DCPHR Medical Director/State Epidemiologist, and provides clinical, environmental toxicological and epidemiological subject matter expertise to offices and branches within CDPHE. The Unit is responsible for crafting guidance and communication materials to a variety of public health partners including clinicians and local public health agencies; advises DCPHR, Department, and state leadership on routine and emerging issues including communicable diseases and environmental exposures; and investigates and responds to emerging communicable disease, environmental exposures, and other threats to human health. The Unit also houses the SET-NET program, which conducts longitudinal surveillance on cases of congenital cytomegalovirus (cCMV). The MEU team members include the Deputy State Epidemiologist/Unit Supervisor, three medical epidemiologists, an environmental epidemiology and toxicology consultant, the SET-NET Coordinator, and a CDC EIS Officer.

The Fellow will be assigned to work within the MEU but the secondary mentor will be the Deputy Director of the OSHV. The MEU will facilitate training on surveillance and investigation of cCMV. With the OSHV, the Fellow will learn about syphilis and congenital syphilis. The MEU will also facilitate opportunities for the Fellow to work with various communicable disease teams when possible which 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; this may include opportunities to work on outbreaks of these diseases. The combined work within these programs will provide the opportunity for the 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. The Fellow will have the opportunity to work on additional maternal and child health related projects with staff within the Health Statistics and Evaluation Branch (HSEB) of Center for Health and Environmental Data (CHED). This Branch works collaboratively to provide epidemiology, surveillance data, and evaluation services to the programs in the Prevention Services Division (PSD). As a result, the Fellow will have the opportunity to work with epidemiologists, evaluators, and data systems in CHED as well as maternal and child health program staff within PSD. CHED and PSD are divisions that collaborate often with the MEU.

On a day-to-day basis, the Fellow will attend daily office meetings to review and discuss current projects they are working on. Other activities will depend significantly on the program and project they are currently working on or involved with. The Fellow will be able to participate in responses to specific disease outbreaks within the CDB as they arise and activities could include surveillance and review of incoming cases, interviewing, collaboration with local public

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health agencies (LPHA), participation in CDC calls, case abstraction and other response activities. Duties for specific outbreaks will depend on what is needed for the response.

This Fellow will not be responsible for a normal workload, they will be providing extra capacity to work on special projects.

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

CDPHE staff utilize multiple databases for tracking and investigation of various conditions including:

- EpiTrax is Colorado’s state electronic database used to house and manage information regarding individual cases of notifiable conditions and outbreaks.
- Contexture is a comprehensive health information exchange used for medical record abstraction.
- Colorado Immunization Information System (CIIS).
- Birth certificate records.
- Hospital discharge data.
- CDPHE utilizes REDCap for data collection and surveillance and Tableau and ArcGIS for data visualizations and interactive webpages.
- CDPHE also has many staff skilled in data management using SAS, R, and SQL who can share their knowledge with trainees.
- Population based surveys: BFRSS, Baby & You, PRAMS, National Survey of Children’s Health, Healthy Kids Colorado.

Projects

Surveillance Activity Title: An evaluation of the impact of congenital syphilis on adverse outcomes for newborns

Surveillance Activity Description:

From 2019 to 2024, Colorado experienced a 127% increase in syphilis cases and a 520% rise in congenital cases. In response, CDPHE issued a Public Health Order in April 2024 requiring syphilis testing at multiple stages during pregnancy, and in January 2025, testing during the 3rd trimester and at delivery became a part of the Board of Health rule in Colorado. With the change to the rule, Colorado is prioritizing syphilis cases in pregnant people and working to ensure they are quickly navigated into necessary care and treatment. Even with our efforts, there were 63 cases of congenital syphilis in 2024, and preliminary data indicate that there will be 56 cases of congenital syphilis in 2025. Up to this point, much of the surveillance activities in Colorado around congenital syphilis have been focused on the mother and the mother’s outcomes, as the capacity to follow up with the congenital cases (newborns) themselves has been limited. Current surveillance activities focus on outcomes at time of delivery, however, we are limited in our ability to follow-up on infants aged 3-6 months. This proposed surveillance activity would increase the capacity in Colorado to evaluate outcomes among the newborns who acquired syphilis congenitally.

Surveillance Activity Objectives:

Objectives:

- To create an evaluation plan that will allow for the evaluation of the impact of congenital syphilis on newborns in Colorado.
- To determine and describe the necessary data and variables needed to describe the population of infants identified with a congenital syphilis diagnosis.
- To communicate the necessary evaluation plan along with the data needs to OSHV leadership, including any necessary modifications needed for EpiTrax.

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Deliverables:

- A surveillance plan with any additional variables defined.
- Data collection instruments.
- Description of any modification needed in the EpiTrax.
- Report developed using Data Lakehouse or other query tool.

Surveillance Activity Impact:

Establishing an evaluation plan, along with identifying the necessary data elements, would allow for better tracking of adverse outcomes in congenital syphilis cases. This improved evaluation would also provide better understanding of social/demographic covariates that are correlated with adverse outcomes for congenital syphilis cases. Better evaluation plans and data would allow for a better understanding of potential public health interventions and education.

Surveillance System Evaluation Title: An evaluation of the impact of targeted CMV testing of the newborn dried blood spot (DBS)

Surveillance System Evaluation Description:

In March 2024, the Colorado Board of Health approved targeted CMV testing of the newborn DBS for newborns meeting the following criteria: failed the newborn hearing screening, birth weight at or below the 10th percentile, or no hearing result within 10 days of birth. The Colorado State Public Health Laboratory will be adding this targeted testing of CMV to the newborn DBS starting in February 2026. The addition of this targeted testing will likely increase cCMV case finding in Colorado. An evaluation of the impact of targeted CMV testing of the newborn DBS will help us determine whether adding targeted testing helps identify more infants with cCMV than before implementing testing and offers the opportunity to describe the population of infants identified by newborn screening and the test characteristics of DBS screening.

Surveillance System Objectives:

Objectives:

- To evaluate the impact of targeted CMV testing via newborn DBS on cCMV rates in Colorado.
- To describe the population of infants identified by newborn screening and test characteristics of DBS screening.
- To communicate evaluation findings to stakeholders including the SET-NET team and Newborn Screening program.

Deliverables:

- Report with findings of evaluation.
- Presentation of findings for internal and external stakeholders.

Surveillance System Impact:

Evaluating the impact of adding CMV to the newborn DBS and providing that data to stakeholders will help us determine where to target SET-NET outreach about the importance of screening babies who meet certain clinical criteria for CMV at birth to ensure they receive access to early intervention services.

Major Project Title: Exploration of parental attitudes and approaches to childhood vaccinations with Baby & You Survey data

Major Project Description:

Colorado's Baby & You Survey is an online, longitudinal maternal and child health data collection system that draws a sample of postpartum people from recent live birth certificates, with a focus on surveying a greater number of people from historically underrepresented populations. Participants are recruited by mail to join an online survey platform

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through which they receive four, 10-minute surveys from shortly after giving birth up to their new baby's third birthday. The legislation that funds the Baby & You Survey requires data collection on a few specific content areas, including childhood vaccinations. The Baby & You Survey includes questions on the first two surveys (at 3-4 months and 1 year postpartum) assessing parental approach to vaccinating their children and reasons for delaying or skipping immunizations.

Major Project Objectives:

With support from the Baby & You Survey team, the Fellow will develop a report that explores parental approaches and perspectives on childhood vaccines and what factors are associated with and influence these decisions. The Fellow will be involved in all steps of the report creation, including working with internal and external partners to identify data needs, analyzing Baby & You data, and writing the report. The Fellow will have the opportunity to expand this analysis to incorporate specific areas of interest (i.e. exploring linkages between Baby & You data and the Colorado Immunization Information System, conducting qualitative analysis of Baby & You free text data, etc).

Major Project Impact:

Childhood vaccination rates have been declining nationally and in Colorado, and recent federal guidance around childhood vaccination schedules has changed. This report will be used by CDPHE programs and partners to understand what factors are associated with differing parental approaches to vaccinating children, and where efforts could be focused to impact vaccination rates.

**Additional Project #1 Title: Expansion of the Maternal and Child Health Dashboard to support broader audiences
Project #1 Type: Other**

Project #1 Description:

The Colorado Department of Public Health is launching a pilot Maternal and Child Health Dashboard in the spring of 2026. This interactive Tableau dashboard incorporates over twenty key maternal, infant, child, and youth indicators from a variety of sources including the Pregnancy Risk Assessment Monitoring System (PRAMS), Baby & You Survey, the National Survey of Children's Health (NSCH), maternal mortality, and newborn hearing screening. This pilot version of the dashboard prioritized meeting the needs of internal maternal and child health program staff, but work is planned to begin in the fall of 2026 on improving and updating the dashboard to ensure its utility for a broader audience and to incorporate more indicators, new data sources, and additional years of data.

Project #1 Objectives and Expected Deliverables:

The Fellow will support the Maternal and Child Health Epidemiologist in developing an updated version of the piloted dashboard. To do this, the Fellow will work with internal and external program partners and community organizations to evaluate the existing dashboard and determine what improvements and additional indicators are needed to support their work. The Fellow will then gather the new data and will have the opportunity, if interested, to work directly in Tableau to improve and update the dashboard.

Project #1 Impact:

Data from the Maternal and Child Health Dashboard will be easily accessible to internal and external partners for use in needs assessments and data-driven program development to support the maternal and child population across the state.

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

Within the division, the Office of Emergency Preparedness and Response (OEPR) leads these activities. There will be opportunities for the Fellow to engage with OEPR and the Fellow will be encouraged to collaborate on disaster planning (including concurrent disaster planning) with OEPR and take emergency preparedness trainings offered by CDPHE. The Fellow will have the opportunity to contribute to the development of preparedness exercises. Time allocated for preparedness and response work will vary depending on the needs of OEPR.

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

The Fellow will be provided opportunities to work with programs in the OSHV to help with an outbreak investigation should one occur. In addition there are likely to be opportunities in the Communicable Disease Branch (CDB) to support outbreaks, which could include healthcare associated infections, vaccine preventable diseases such as measles, foodborne outbreaks, or other responses. The Fellow will have the opportunity to contribute to new, emerging responses if one should occur. Past Fellows have contributed to mpox, highly pathogenic avian influenza, and measles to name a few. Time allocated for Cluster and Outbreak Investigations will vary depending on the pathogen, size, and duties needed to be fulfilled by a response.