

Maternal and Child Health, Substance Abuse

Georgia Department of Public Health, Division of Health Protection/Epidemiology Section

Atlanta, Georgia

Assignment Description

The CSTE Fellow will be part of the Maternal and Child Health Epidemiology Unit (MCH EPI) in the Epidemiology Section. Dr. Bryan is the Director of MCH EPI, while the Georgia State Epidemiologist, Dr. Cherie Drenzek, oversees all epidemiology activities. MCH EPI is one of 6 Epidemiology Section units; the others are Acute Disease Epidemiology, Chronic Disease, Healthy Behaviors, and Injury Epidemiology, HIV/AIDS Epidemiology, Sexually Transmitted Diseases Epidemiology, and the Tuberculosis Epidemiology Unit. The mission of MCH EPI is to optimize the health of Georgians by preventing and mitigating negative maternal and child health outcomes, including maternal and infant morbidity and mortality. MCH EPI is dedicated to fulfill its mission by using epidemiologic methods to:

- Conduct surveillance of numerous maternal and child health-related topics (with an opportunity to engage in related work in other subject areas as well):
 - Maternal mortality (in collaboration with Georgia's Maternal Mortality Review Committee).
 - Severe maternal morbidity (in collaboration with the Georgia Perinatal Quality Collaborative).
 - Infant mortality.
 - Infant morbidity, including projects with Newborn Screening and Early Hearing Detection and Intervention.
 - Birth defects, including Zika-associated birth defects and general birth defects.
 - Neonatal Abstinence Syndrome.
- Implement and analyze statewide surveys, including the Pregnancy Risk Assessment Monitoring System (PRAMS), 3rd Grade Oral Health Screening Survey, the Head Start Oral Health Screening Survey, and the Behavioral Risk Factor Surveillance Survey (BRFSS).
- Identify birth defects and promote early intervention.
- Publish and disseminate public health information: statistical reports (e.g. Georgia Epidemiology Report), data summaries on topics pertinent to programs, annual data summaries, and educational materials.

Day-to-Day Activities

MCH EPI is comprised of several surveillance teams, including the PRAMS and Oral Health Epidemiology, Perinatal Health, Birth Defects, and Newborn Screening. The CSTE Fellow will have the opportunity to work on a range of projects in these areas:

- 1) Contribute to the ongoing development of the Georgia Birth Defects Registry. This effort will help validate the use of multiple data sources for birth defect case ascertainment, including fetal death certificates, death certificates, and electronic birth certificate flags and free text fields. There is the potential to perform unique analyses on data stemming from what was a recent public health emergency - Zika-related birth defects.
- 2) Assist in surveillance and epidemiologic analyses of Newborn Screening and Early Hearing Detection and Intervention data. These data sources come from mature surveillance systems, but have not been effectively summarized using basic epidemiology principles (e.g., distribution of morbidity in the population). We seek to create an overall profile of infant health in Georgia using these data sources.
- 3) Participate in statewide survey efforts, particularly as they involve implementation and analysis of Pregnancy Risk Assessment and Monitoring System (PRAMS) and oral health surveillance data, and enhance the surveillance of Neonatal Abstinence Syndrome in Georgia. PRAMS focuses on preconception, pregnancy, and postpartum health behaviors, knowledge, and exposures of interest. There is ample and wide-ranging opportunity for developing subject-specific reports in collaboration with the DPH MCH Title V team staff.
- 4) Enhance public health surveillance of Neonatal Abstinence Syndrome in Georgia. Existing surveillance efforts rely on health provider reporting, which is likely underreported. This project aims to evaluate complementary data sources as a means of enhancing NAS surveillance for Georgia.
- 5) Develop a Severe Maternal Morbidity Surveillance System. Currently, there is an effort to begin the development of a rapid response surveillance system for severe maternal morbidity. The CSTE Fellow could aid and/or lead the development of this surveillance system by focusing on specific morbidity areas of interest, like hypertension and hemorrhage.

Potential Projects

Surveillance Severe Maternal Morbidity Activity

Performing surveillance on Severe Maternal Morbidity (SMM) is an emerging topic of importance at DPH. The Georgia Perinatal Quality Collaborative (GaPQC) has as its mission to "establish and maintain a robust statewide perinatal data and quality improvement system that engages stakeholders in evidence-based practices to improve health outcomes for mothers and babies throughout Georgia." Specifically, the CSTE Fellow would be responsible for assisting in the development of a rapid-response perinatal surveillance system that collects, analyzes, validates, and distributes severe maternal morbidity data using hospital discharge data on a monthly basis. An important component of this surveillance will be to assess the effect of implementing Alliance for Innovation on Maternal Health (AIM) bundles on relevant SMM health outcomes.

Surveillance Georgia Birth Defects Registry Evaluation Evaluation

While active birth defects surveillance has been ongoing in the metropolitan Atlanta area for nearly four decades, there is no current way to estimate statewide incidence or prevalence of birth defects - a notifiable condition - in Georgia. To overcome this gap in surveillance, DPH epidemiologists and related IT staff have been developing a Birth Defects Registry since August 2016. A passive surveillance system with active case follow up should be completed by early 2018. A key part of this Registry is having flexibility in the case of emerging infections resulting in birth defects as has been the case with the Zika virus. The CSTE Fellow would complete a surveillance evaluation of the Birth Defects Registry and provide feedback and assistance in improving the surveillance systems for sustainable use. The CSTE Fellow may also be involved in response efforts for Zika or a similar situation, depending on the landscape of the response at the time of assignment.

Other possible evaluation projects include evaluation of one of the following surveillance systems: 1) Evaluate the newly developed opioid overdose-related morbidity and mortality surveillance system; 2) Evaluate either the 3rd Grade or Head Start Oral Health Survey and offer recommendations for improvement for the next cycle; 3) Evaluate the Pregnancy Risk Assessment Monitoring System and identify points to increase data quality and/or response rate; 4) Evaluate the Maternal Mortality Review Committee data and/or process of data collection; or 5) Evaluate either the Newborn Screening or Early Hearing Detection and Intervention surveillance systems.

Major Project Maternal and/or Infant Health Profiles

A broad-based profile of maternal and infant health does not currently exist from the Georgia Department of Public Health. The Fellow will produce a report profiling maternal or infant health. MCH EPI has access to numerous data sources that can inform Maternal and Infant morbidity and mortality, including data from Vital Records (Birth and Death Certificates, Fetal Death Certificates), Hospital Discharge Data, the Maternal Mortality Review Committee, Opioid Surveillance, Prescription Drug Monitoring Program, Immunization (GRITS), Hospital Acquired Infections (HAI), the Birth Defects Registry, Neonatal Abstinence Syndrome Surveillance System, other Notifiable Disease Surveillance Systems, HIV/AIDS surveillance data, and the Newborn Screening and Early Hearing Detection and Intervention surveillance systems. The Fellow will analyze these data sources and amalgamate into a coherent profile of either maternal or infant health.

This report will be provided to internal and external stakeholders at the Georgia Department of Public Health to help guide the direction and prioritization of maternal and child health programs. This profile of maternal or infant health will help provide DPH with a framework to communicate and understand the health burden, disparate health outcomes among populations, potential target populations and/or diseases for improving infant and maternal health.

Additional Linkage of data sources Project

MCH EPI provides epidemiologic support the Title V program. A component of this support is to perform unique dataset linkages to answer novel research questions of particular import to the Title V program and to provide recommendations based on these analyses. The Fellow will be responsible for linking multiple datasets to answer at least one of the novel questions identified. As part of this data linkage process, the Fellow will work with DPH Title V program staff to agree upon the particular dataset linkage to perform and the subsequent analyses that would best inform programmatic efforts. The Fellow will have the opportunity to disseminate the results in several formats: presentations to the Title V program, conference presentations and/or posters, data summaries, and manuscript(s).

Examples of potential data linkages that may be of programmatic interest would be:

- 1) Linking the Neonatal Abstinence Syndrome data with Birth Defects Registry to answer questions about the relationship between infants with NAS and the likelihood of having a birth defect; and
- 2) Linking Pregnancy Risk Assessment Monitoring System data with the Birth Defects Registry data to assess the relationship between maternal behaviors and potential exposures with the likelihood of having a child born with a birth defect.

We have the resources to help guide the fellow through a linkage to answer one of the identified research questions of interest.

Surveillance Enhancement of Neonatal Abstinence Syndrome Surveillance Activity

Georgia's Neonatal Abstinence Syndrome (NAS) Surveillance System is a statewide effort to identify and collect information on all infants born with NAS in Georgia. Data collected from the NAS Surveillance System is used to help identify populations of disproportionately high burden in order to better target interventions. The existing NAS Surveillance System is likely underreporting NAS cases as it relies on passive health provider reporting with active case follow up.

For this activity, the Fellow will evaluate the use of complementary data sources as a means of enhancing surveillance of NAS throughout the state. Data sources of interest are Vital Records (Birth Certificate and Death Certificate), Hospital Discharge Data, and children's medical services data. The CSTE Fellow will apply the concepts of validity and reliability to determine the extent to which the identified data sources are able to capture unique NAS cases and confirm existing cases. This project should result in conference abstract presentations and/or poster(s), manuscript submissions, and presentations to internal stakeholders.

Preparedness Role

There are many opportunities for involvement with epidemiologic preparedness, including: participating in emergency responses; developing a plan to implement the ICS command structure for disease outbreak investigations; developing a plan for DPH first responder pre-deployment and just-in-time training, using a newly developed responder tracking system, as well as deployment and post-deployment health and safety monitoring; developing standard operating procedures for responding to zoonotic disease outbreaks that affect the human and veterinary community; analyzing shelter surveillance data and barriers to reporting during recent hurricanes.

Additional Activities

Our goal is to give the CSTE Fellow the richest experience possible. They will have the opportunity to participate in a wide-range of maternal and child health investigations. Within DPH, Maternal and Child Health has a good deal of visibility and, as such, receives a number of data requests from legislators, program partners, and other stakeholders. The CSTE Fellow will have the opportunity to not only work as an epidemiologist in wide array of subject areas, but also to get involved with using epidemiology to make real changes to programs that have an impact across Georgia. We will seek to tailor the experience based on their interests and will be flexible in doing so, while providing mentorship and guidance on both epidemiology in particular and professional development in general. Further, we will encourage the CSTE Fellow to disseminate their work via a number of avenues, whether through fact sheets, data summaries, manuscripts, or conference presentations.

Mentors

Primary Michael Bryan MPH, PhD

Director, Maternal and Child Health Epidemiology

Secondary

Cherie Drenzek MS, DVM

State Epidemiologist, Deputy Commissioner, Director Epidemiology Section