

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description**

**NC Department of Health and Human Services**

**Assignment Location:** Raleigh, US-NC  
NC Department of Health and Human Services  
Division of Public Health, Chronic Disease and Injury Section

**Primary Mentor:** Shana Geary, MPH  
Epidemiologist  
NC DHHS, Division of Public Health

**Secondary Mentor:** Mary Beth Cox, MPH  
Substance Use Epidemiologist  
NC DHHS, Division of Public Health

**Work Environment**

Hybrid

**Assignment Description**

Chronic diseases and injuries are responsible for approximately two-thirds of all deaths in North Carolina. The NC DPH's Chronic Disease and Injury Section, along with local health departments and other partners, works to reduce death and disabilities related to chronic disease and injury. This is accomplished through policy development and environmental changes that support healthy behavior and improvements in systems of care as well as through education, screening, direct medical service, and community engagement. The goal of the Section is to help North Carolina develop healthy and safe communities and health systems to prevent and control chronic diseases and injury, and to eliminate health inequities. This assignment will allow a Fellow to develop applied epidemiology competencies under the guidance of experienced mentors (one who was a former Applied Epidemiology Fellow) by engaging in both narrowly focused and cross-cutting projects in injury epidemiology, with opportunities to gain experience in communicable disease, chronic disease epidemiology, maternal and child health, environmental public health, and public health preparedness.

The CDI Section is committed to providing an exceptional, well-rounded experience for a CSTE Applied Epidemiology Fellow. As a national leader in chronic disease & injury prevention and control, we have a strong history of hosting CDC Prevention Specialists, UNC-Chapel Hill public health students, student interns, and Applied Epidemiology Fellows. All staff in the CDI Section as well as staff from the State Center for Health Statistics will be available for program orientation, technical assistance, and resource provision. The Fellow will be placed in the Injury and Violence Prevention Branch's (IVPB) Epidemiology Surveillance and Informatics (ESI) Unit within the Section and will have some limited administrative support from the Branch Program Assistant. The Fellow will be located in close proximity to colleagues in the Section and will have the opportunity to interact and communicate on a regular basis.

The Fellow will work on a series of projects including surveillance evaluations, data quality and improvement, and other special data studies, and will work on procedures for cleaning, managing, linking, and analyzing major sources of data related to injury and violence. The Fellow will assist in developing and evaluating case definitions, generating descriptive statistics, and communicating surveillance data to inform public health action. Mentors will work with the Fellow to choose projects that fit with the Fellow's interests, fulfill the competency areas, and provide solid broad-based experience in applied injury or chronic disease epidemiology. These projects will involve the Fellow with staff across the Section, DPH, the Department, and from other states and CDC. Projects provide opportunities to present at national/state conferences and submit manuscripts to peer-reviewed journals. The Fellow will have opportunities to present to a wide range of audiences, learn how to communicate data/public health information effectively to different audiences, improve public speaking skills and present work to state advisory boards. The Fellow will also be mentored in handling data/technical assistance requests (e.g., from public, legislators, and media). Mentors are very willing to work

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description**  
**NC Department of Health and Human Services**

with fellows to develop projects within Fellows' specific areas of interest or to help facilitate relationships with other partners/colleagues that will lead to these types of projects. Mentors will also assist in pointing out aspects of current or proposed public health policies for which epidemiologic and other surveillance data can help drive/support these policies.

Day-to-day activities will primarily depend on the nature of the project the fellow is currently working on, experience and maturation of the Fellow. Initially, day-to-day activities will be strongly linked to one or more of the mentors as the Fellow gets oriented and acquainted to the programs and projects. As the Fellow develops capacity, more independent oriented activities will be expected. If new areas or projects are started, the mentors will work with the Fellow to get oriented and will check in to ensure progress toward reaching competencies is made. Communicating with past Fellows might illuminate anticipated daily activities over the course of two years. We would encourage potential applicants to reach out and speak with them about their NC AEF experience.

Within the current context of COVID-19, staff have been slowly transitioning back into the office, though many are still working from home. The Fellow will be afforded all the necessary equipment and software to support working from home if that is required at the start of the fellowship. This includes VPN to ensure access to all secured files and data sources, SharePoint, Microsoft Teams, external microphone and/or camera, etc. Precautions have also been implemented to support a socially distanced workspace for those in the office and to promote a safe and clean workplace.

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

In addition to data from the NC Violent Death Reporting System and the NC State Unintentional Drug Overdose Reporting System (SUDORS), which are housed within IVPB, the Fellow will have access to major public health databases through the State Center for Health Statistics (SCHS), to other data within the Division (e.g., Women's and Child's Health), and from partners (e.g., Department of Public Instruction, Division of Medical Assistance, Division of Mental Health/Substance Abuse/Developmental Disability). These databases include BRFSS, YRBS, CHAMP (Child Health Assessment and Monitoring Program), Youth Tobacco Survey, NC-NPASS (North Carolina Nutrition and Physical Activity Surveillance System), hospital discharge data, mortality data, NC Violent Death Reporting System, NC Opioid and Substance Use Action Plan metrics and local actions data, NC's Controlled Substances Reporting System CSRS (state-mandated prescription drug monitoring program), NC-DETECT (emergency department data), NC EMS system, NC Department of Transportation (DOT) alcohol and fatal crash data, and the cancer and stroke registries. Access to GIS expertise and services is also available through the SCHS. IT Support personnel for the Division are housed on the campus. SAS, R, Epi Info, Tableau and ArcGIS along with MS Office suite are available for Fellows to use and there are user groups that the Fellow will have the opportunity to join to gain additional support with some of these software packages. Additionally, the Branch employs an injury informatician who would be available to provide direct guidance on SAS coding and analysis questions.

**Projects**

**Surveillance Activity Title: Internal Injury Trends Data Dashboard Development**

*Surveillance Activity Description:*

The IVPB ESI Unit monitors a variety of injury and violence related topics, including unintentional falls, motor vehicle injuries, overdose, firearm injuries and other forms of violence, to name a few. There is a need more for timely access to data across injury topics to monitor trends of injury morbidity and mortality and act in a timely manner to changes in injury burden. As part of this project, the Fellow would develop an internal data dashboard using Tableau to monitor

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description  
NC Department of Health and Human Services**

trends in injury and violence morbidity and mortality in North Carolina. This would be extremely useful when identifying significant increases or decreases in injury trends by topic, year, county, and among specific populations. The dashboard would serve as a tool to make surveillance data accessible and easy to share with Department leadership and other partners to inform prevention and intervention activities. Depending on the Fellow's interest, this could serve as a major project or a surveillance activity.

*Surveillance Activity Objectives:*

The primary objective of the project is to develop data processing procedures and an internal data dashboard to serve as a tool to improve the ability to monitor, interpret, and act on injury surveillance data. Intermediate deliverables would include databases structured to feed a dashboard, data visualizations for the dashboard for various injury topics and populations, and then a final internal data dashboard.

*Surveillance Activity Impact:*

This project would result in a tool to improve the timeliness and transparency of injury surveillance data across injury topics and injury data sources. The tool would allow IVPB to easily share injury trend data with DPH leadership to support data informed decision and the ability to act on data.

**Surveillance System Evaluation Title: Expanding Surveillance of Sexual Violence in North Carolina**

*Surveillance System Evaluation Description:*

This project will focus on understanding the burden of sexual violence in the state, describing populations impacted by sexual violence. Questions related to sexual violence were included in the 2018 and 2019 NC Behavioral Risk Factor Surveillance System (BRFSS) Survey for the first time since 2010 and will be included again in the 2023 survey. This has been the primary source of data for surveillance of sexual violence used in IVPB. For this project, the Fellow will complete an evaluation of the Rape Crisis Center data for use in ongoing surveillance of sexual violence in the state. The Fellow will obtain access to these data and establish an ongoing analysis plan for incorporating these data into surveillance efforts, if the evaluation finds them to be accessible and useful in expanding the surveillance of the burden of sexual violence in NC. The Fellow will work closely with partners at universities across the state through programs like Raise the Bar, an outreach and education initiative to local bars on alcohol and other drug facilitated sexual assault prevention. Based on interest, the Fellow will have the opportunity to also explore connections between alcohol outlet density and sexual violence in NC, as alcohol outlet density has been shown to be associated with increased risk of sexual violence, especially near college campuses. In addition, the Fellow will have access to the North Carolina Violent Death Reporting System (NC-VDRS) data, which captures violent deaths related to intimate partner violence, as well as other circumstances surrounding those deaths. The project will also involve updating the BRFSS data products that already exist using the sexual violence module data, as well as creating or expanding products to incorporate additional data sources. The Fellow will work closely with the program manager of the Rape Prevention Education program housed in the IVPB to design and produce materials to distribute findings from the analysis. These results will be distributed to partners working in sexual violence prevention across the state to inform and focus prevention efforts.

*Surveillance System Objectives:*

The primary objectives of this project will be to obtain access to data from the NC Rape Crisis Center, orient to the data, and evaluate the source for acceptability for use in ongoing surveillance of sexual violence. Based on findings from the evaluation, indicators from the Rape Crisis Center data will be incorporated into injury surveillance activities and be used to develop dissemination products.

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description**

**NC Department of Health and Human Services**

*Surveillance System Impact:*

Through this project, IVPB will gain a better understanding of the scope and scale of sexual violence in NC, as well as populations impacted, to inform prevention. The project will strengthen capacity for ongoing surveillance of sexual violence.

**Major Project Title: Analyzing Behavioral Risk Factor Surveillance System Data for Injury and Violence Prevention: A Focus on Equity**

*Major Project Description:*

North Carolina has recognized racism as a determinant of health and the need to eliminate health disparities and achieve health equity among all racial and ethnic minorities and other underserved populations in the state. To help with moving from describing racial disparities to understanding how racism directly impacts different populations, the North Carolina Behavioral Risk Factor and Surveillance System (BRFSS) included elements from the reactions to race module for the first time in the 2021 survey since 2004. These data will be crucial to understand how North Carolinians' experiences with racism impact risk behaviors as well as their overall health and well-being. BRFSS also includes many other elements related to injury and violence. In 2018, a question was added to the NC BRFSS to understand types of alcohol consumption, and a module was added to the 2021 survey related to binge drinking. Questions on chronic pain and alternative pain therapies were included which listed using alcohol or other non-prescription drugs (like marijuana) to manage chronic pain. In addition, a firearm module was included in the 2020 and 2021 surveys containing questions on safe firearm storage practices.

For this project, the Fellow will analyze BRFSS survey results from these and other survey modules to assess the prevalence of these topics in the state. Survey results could be combined for questions asked across multiple years to carry out more in-depth analysis into subgroups most impacted as well as to assess relationships with various health outcomes associated with those experiencing racism, chronic pain, and other factors related to injury in North Carolina. Findings from BRFSS analysis will be used to update and expand public facing IVPB data products using the BRSS data. The Fellow will compile and analyze trend data and disseminate this information to community partners in the form of factsheets, presentations, and/or a Tableau dashboard to visualize these data. The Fellow will also have the opportunity to expand existing injury dashboards, such as the violent death, overdose, and alcohol dashboards, to incorporate behavioral information from BRFSS to help tell a more complete story of injury and violence in NC. Depending on the Fellow's interest, this could serve as a major project or a surveillance activity.

*Major Project Objectives:*

The objective of this project is to leverage the existing data on behavioral and health outcomes related to injury that are available in BRFSS. Deliverables of the project will include updated dissemination products as well as incorporating BRFSS indicator metrics in existing and new data dashboards.

*Major Project Impact:*

Inclusion of data on health behavior alongside health outcomes data will provide a more complete story of the burden of injury and populations most impacted. This context is useful with understanding and acting to improve health inequities, a primary goal of the ESI unit and NC DHHS more broadly.

**Additional Project #1 Title: Expanding NC's Violent Death Reporting System and State Unintentional Drug Overdose Reporting System**

**Project #1 Type: Surveillance Activity**

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description**

**NC Department of Health and Human Services**

*Project #1 Description:*

NC-VDRS is a CDC funded, statewide surveillance system that captures detailed information on violent deaths, including homicides, suicides, firearm-related deaths, and other violent deaths occurring in NC. NC-VDRS has been compiling violent death data from vital records, law enforcement and medical examiners since 2004. In 2013, the CDC launched a new web-based system to replace the state-based system and migrated all state data to the new system. The web-based system is in its infancy and states and CDC have been working to fix system bugs and other issues related to system operation. With attention still focused on operations, little time has been available to conduct comparability studies from the old to the new system. Numerous old SAS programs will need to be updated or created anew to enable our program to provide timely data, reports, and fact sheets. There is a need to harmonize the state-based and web-based systems, establish detailed data documentation and tools like code books, SAS programs, and format libraries. Additionally, similar needs are present for the State Unintentional Drug Overdose Reporting System (SUDORS), which has been built into the broader VDRS system, and the Fellow would have the opportunity to play a key role in establishing and routinizing the data processing and data dissemination for NC-SUDORS.

In addition, NC-VDRS and NC-SUDORS capture a substantial amount of information on the circumstances surrounding violent death and overdoses, from circumstances of suicide and mental health to intimate partner violence and involvement of alcohol and other drugs. There have been many new fields added to the systems that have yet to be incorporated to existing data products. As part of this project, the Fellow can analyze these newer fields to expand the use of these data sources and continue to explore opportunities for focused intervention and prevention efforts. With additional attention on firearm injury, suicide, and broader mental health crises in the state, there is increasing need for actionable and easily digestible data around injury and violence. Based on the focus of the project and the Fellow's interest, this project could serve as a surveillance evaluation or surveillance project.

*Project #1 Objectives and Expected Deliverables:*

The objective of this project will be to harmonize the CDC and NC versions of the VDRS and SUDORS data, including updating data documentation, SAS programming, and dissemination products, as well as expanding analysis of collected data.

*Project #1 Impact:*

This project will streamline data processing, resulting in improved timeliness and access to data for external partners. The project will result in improved efficiency and allow staff time to be reallocated to other Departmental priorities.

**Additional Project #2 Title: Place Matters: Exploring Injury Data and Shared Risk and Protective Factors**

**Project #2 Type: Surveillance Activity**

*Project #2 Description:*

Place has been an important aspect of community health since John Snow first mapped London's cholera outbreak in the 1850s. People living just a few blocks apart may have vastly different health outcomes and life expectancy based on where they live. Traditionally, injury surveillance has focused on the injury burden at the state and county level, and there is a need to expand analysis of injuries across lower geographic areas. The ESI Unit geocodes provisional death certificate data on a monthly basis, however due to capacity, most analysis of the geocoded data have been for special projects rather than ongoing surveillance of injury at these lower levels. This project would focus on analyzing those geocoded death certificate data across injury types. Additionally, the project will link indicators identified from the US Census data and other sources to help understand shared risk and protective factors and other social determinants of health across various types of injuries. This project will help implement a routine and/or automated process analyzing data at these lower geographic levels and establishing processes for disseminating information to support a place-based public health response to increases in injury burden.

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description**

**NC Department of Health and Human Services**

*Project #2 Objectives and Expected Deliverables:*

The primary objective of this project is to expand the capacity of the ESI Unit to conduct injury surveillance activities at the sub-county level. The Fellow will help to establish processes for incorporating data on social determinants and shared risk and protective factors into ongoing surveillance activities, including dashboards and other public facing data products.

*Project #2 Impact:*

This project will help build on place-based analyses within the Unit to better inform evidence-based prevention strategies across the state as well as a more focused public health response. The project will also expand the Branch's ability to provide a more equitable interpretation of surveillance data.

**Additional Project #3 Title: Monitoring Child Maltreatment through Syndromic Surveillance**

**Project #3 Type: Surveillance Activity**

*Project #3 Description:*

The North Carolina Division of Public Health is one of five state health departments funded through CDC's Division of Violence Prevention to implement the Essentials for Childhood Framework. Child maltreatment is notoriously difficult to measure. This project will work with the many partners involved to help improve surveillance around child maltreatment. The ICD-10-CM has expanded the number of diagnosis codes to capture the incidence of child abuse and neglect that are severe enough to result in an emergency department visit. Work has been done in NC to develop a case definition around child maltreatment for syndromic surveillance that considers additional ICD-10-CM diagnosis codes that are not specific to but are indicative of child maltreatment. For this project, the Fellow would collaborate with partners at NC DETECT, the syndromic surveillance system in North Carolina, to finalize and evaluate this definition and its effectiveness in quantifying instances of child maltreatment in the state. Based on the Fellow's interest, this project could be expanded to include a linkage of the NC DETECT emergency department visit data to data on Child Protective Services (CPS) Reports to further validate the NC DETECT definition of suspected maltreatment. Depending on the interest, focus of the project, and abilities of the Fellow, this project could also serve as a surveillance system evaluation or surveillance activity.

*Project #3 Objectives and Expected Deliverables:*

This project will aim to evaluate a new expanded surveillance definition for child maltreatment with the goal of more accurately describing the burden of child maltreatment in North Carolina. Key deliverables will include implementing an expanded definition against NC DETECT ED visit data. Additionally, obtaining access to and linking CPS data to further validate the case definition. A final summary report or fact sheet will be produced from the findings of the analysis.

*Project #3 Impact:*

This project will help explore the usefulness of a syndromic surveillance definition for child maltreatment. Analysis of these data will help to better understand and monitor the burden of child maltreatment in NC and serve as a tool to observe the impact of state efforts around the Essentials for Childhood Framework

**Additional Project #4 Title: Understanding Vaping of Delta 8 Cannabinoids Using Syndromic Surveillance**

**Project #4 Type: Surveillance Activity**

*Project #4 Description:*

In North Carolina, cannabis use is not legal; however, the cannabinoid Delta 8 has not been regulated, and can be obtained where tobacco and nicotine products are sold. There are known health risks associated with vaping. This project would explore the possibility of utilizing emergency department visit data from NC DETECT, the state's syndromic surveillance system, to understand the impacts of vaping delta 8 products, and determine populations

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description  
NC Department of Health and Human Services**

effected by these vaping products. The Fellow would partner with NC DETECT and others to develop cannabis indicators, including those for delta 8, and incorporating those into ongoing behavioral and mental health surveillance. There have also been recent attempts at legislation to move towards a medical and/or recreational marijuana system in the State. Results from the project would provide an important baseline to understand the implications if such legislation were to pass in the future. The Fellow would explore the Substance Abuse and Mental Health Services Administration (SAMSHA) data, as well as BRFSS and YRBS data to produce data products on the burden on cannabis and cannabinoids among North Carolinians. Findings will be incorporated to existing data products like the Opioid and Substance Use Action Plan and Alcohol and Public Health data dashboards, fact sheets, and other reports. Depending on the interest, focus of the project, and abilities of the Fellow, this project could also serve as a surveillance system evaluation or surveillance activity.

*Project #4 Objectives and Expected Deliverables:*

The project will focus on evaluating definitions to monitor the effects of cannabinoid use in the emergency department setting and will result in new surveillance case definitions that can be implemented for ongoing surveillance. The project may also result in new data products using the newly developed cannabis indicators.

*Project #4 Impact:*

The project allows for continued timely communication of trends in substance use and related harms. It will also enhance capacity in overdose and substance use surveillance. This is necessary to build a baseline body of evidence on the impact of cannabis use in advance of possible legislative changes in NC.

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

Like all NC Public Health employees, the Fellow will be trained on Incident Command using the federal FEMA curriculum. If the Public Health Command Center is opened, based on need, requests will be made throughout DPH for volunteers to help manage the situation. Staff with specialized skills might be sought to help provide expertise for specific operations. The Fellow will take the DPH-required public health preparedness classes. Some potential public health preparedness projects include analyzing data from post-hurricane community assessments to identify effects on acute injuries and chronic disease, and opportunities for involvement in response to emergency events like hurricanes. The Branch and the Chronic Disease and Injury Section maintain a strong relationship with the Office of Public Health Preparedness and Response with the Epidemiology Section, who are leading the State's COVID-19 response and other response efforts and will help ensure the Fellow will be afforded an opportunity to engage in response efforts.

Section epidemiologists, including CSTE fellows, have helped during hurricanes, floods, H1N1, food-borne outbreaks, injury outbreaks (contaminated heroin) and other disaster events. The past 10 NC CSTE Fellows have all worked short-term details and had positive experiences. In fact, Nicole (Standberry) Lee was detailed to help with H1N1 for a brief period in spring 2008, which led to a full-time position after her Fellowship. More recently, Dana Dandeneau and Molly Hoffman helped monitor the aftermath from hurricanes Florence and Michael in 2018 and both played significant roles in the state's response to E-cigarette or Vaping Use-Associated Lung Injury (EVALI) in 2019; Kendell Knuth was deployed for COVID-19 response and served as the lead on several activities, including the development of protocols, reporting templates, guidance for contact tracers, and communications materials for facilities and staff engaging in patient follow; and the current AEF fellow assisted with developing an internal Tableau dashboard to facilitate data sharing as part of the NC Monkeypox response.

Roles, tasks, and length of detail will be negotiated with the Fellow and mentors. We will ensure that while the Fellow has the opportunity to gain experience from and contribute to important response efforts that serve as a once in a

**ID: 45388214**

**Injury, Injury - Drug Overdose - Host Site Description  
NC Department of Health and Human Services**

career opportunity, that their primary focus is on injury and that they will be given the time needed to work on their identified projects in addition to participating in response efforts.

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

Leadership within the Branch and Section maintain a strong relationship with the Epidemiology Section and will ensure the Fellow will engage in at least one field investigation with the Communicable Disease Branch. Other opportunities for cluster and outbreak investigations will also be explored. Previous fellows have helped to review data on potential overdose clusters using NC DETECT syndromic surveillance data. Shana Geary, primary mentor, and Scott Proescholdbell, the IVPB Epidemiology, Surveillance, and Informatics Unit Manager have been actively involved in Department efforts to establish a framework to respond to suicide clusters and other types of injury events. Formal training in outbreak investigation is also available.

Roles, tasks and length of detail will be negotiated with the Fellow and mentors. We will ensure that while the fellow has the opportunity to gain experience from and contribute to important response efforts that serve as a once in a career opportunity, that their primary focus is on injury and that they will be given the time needed to work on their identified projects in addition to participating in COVID response.

**Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation**

Although it is not anticipated that the Fellow would play an active role in ongoing COVID-19 response efforts, the Fellow could be afforded an opportunity to engage in COVID-19 response based on interest and need and could potentially be used to meet the outbreak response learning requirements of the fellowship.

**Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work**

The IVPB ESI Unit recognizes that injury and violence surveillance data provide the epidemiologic foundation for effective, data-driven injury and violence prevention and intervention planning, and that health equity is a key component of this. In 2020, the ESI Unit expanded its goals of monitoring the injury landscape, assuring and improving data quality, expanding injury surveillance, disseminating data and acting for injury prevention, to also include assessing and acting for equity. The ESI Unit assesses and acts to improve our data products, training, and surveillance practices to better incorporate equity considerations, including but not limited to the surveillance of health disparities and centering the needs of marginalized populations and various sociodemographic groups.

The Fellow will be encouraged to apply a health equity lens to all of their projects. They will have the opportunity to engage in a variety of efforts to promote health equity and advance diversity, equity, and inclusion efforts across the Branch, the Section, and more broadly. The current CSTE Fellow serves as the ESI Unit representative on the Branch's Diversity Equity and Inclusion Work Group. Fellows have also taken an active role in the Section-wide Health Equity Community of Practice and participated in Groundwater Training through the Racial Equity Institute, provided by the Section.