

ID: 45388214

Substance Use/Mental Health, Injury - Host Site Description

North Carolina Department of Health and Human Services

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

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

Secondary Mentor: Katie McDaniel, MPH
Injury 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 by engaging in both narrowly focused and cross-cutting projects in substance use and 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).

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Mentors are very willing to work 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.

The Fellow will be afforded all the necessary equipment and software to support working from home or in-office, whichever best suits the work and the Fellow. This includes VPN to ensure access to all secured files and data sources, SharePoint, Microsoft Teams, external microphone and/or camera, etc.

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 (NC-VDRS) and the NC State Unintentional Drug Overdose Reporting System (NC-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: Analyzing Behavioral Risk Factor Surveillance System Data for Injury and Violence Prevention: A Focus on Firearms

Surveillance Activity Description:

North Carolina has recognized firearms as a leading mechanism of injury and death. In 2023, through state executive order, the North Carolina Department of Public Safety (NCDPS) Office of Violence Prevention was established with a focus on reducing violence and firearm misuse in the state. That same year, NCDPS launched the NC S.A.F.E. (Secure All Firearms Effectively) public awareness campaign to promote firearm secure storage. To help understand firearm storage practices, the North Carolina Behavioral Risk Factor and Surveillance System (BRFSS) included elements from the firearm safety module for the first time in 2024 since 2021.

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These data will provide insight to the impact of NC S.A.F.E. and other firearm injury prevention strategies implemented across the state. 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, the reactions to race module was continued in 2022 to understand how racism directly impacts different populations.

For this project, the Fellow will analyze BRFSS survey results from the firearm safety module to assess the prevalence of firearm storage practices in the state. The comparison of survey results from 2021 and 2024 can assess the impact of NC S.A.F.E. and other firearm injury prevention initiatives across the state. Analyses can also explore the relationship of firearm storage practices with various other health behaviors and outcomes associated with those experiencing racism, chronic pain, mental health challenges, 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.

Surveillance Activity 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.

Surveillance Activity 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.

Surveillance System Evaluation Title: Comparison of Syndromic Surveillance and ED Billing Data

Surveillance System Evaluation Description:

Historically, IVPB has utilized syndromic surveillance data available through NC DETECT as the source for surveillance of emergency department visits due to substance use, mental health, and/or injuries. ICD10-CM diagnostic codes are assigned within two weeks of the visit and these codes, along with other demographic and free text variables available in the file, are used in multiple public dashboards and surveillance reports. These codes are not considered final and after a longer period of time a finalized ED billing dataset is compiled. IVPB recently obtained the final ED billing file going back to 2018 and will continue to receive quarterly updates of this file. This project will work with the many partners involved to help better understand the differences in the two ED visit files, including the variables available in each, timeliness, and any differences in assigned ICD10-CM codes and the extent to which those differences impact our historical counts of injury in NC. 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.

Surveillance System Objectives:

This project will aim to evaluate the newly available ED billing files with the goal of understanding any differences in this file and the syndromic surveillance ED file. Key deliverables will include updated data dictionaries, a final summary report of findings, and recommendations for future surveillance efforts.

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Surveillance System Impact:

This project will help explore the differences between syndromic surveillance and final ED billing data. Analysis of these data will help to better understand any considerations that should be made in our utilization of the more timely syndromic data files.

Major Project Title: Understanding the Public Health Impacts of Intoxicating Cannabis Products

Major Project Description:

In an effort to legalize hemp production, the 2018 federal Farm Bill legalized CBD derived from hemp (defined by the Farm Bill as cannabis containing less than 0.3% delta-9 THC). Certain language in the Farm Bill led to an explosion of THC products, including delta-9 products with high levels of THC. These products are now widely available for purchase in North Carolina and other states, including online. As the Farm Bill is yet to address the legal status of any form of THC besides delta-9, semi-synthetic THC forms (like delta-8, delta-10, and many others) have become commercially available and may present safety concerns, especially for children. States that have legalized THC products (states with medical marijuana and/or adult use marijuana programs) regulate these products and often create safety guardrails, such as limits for the amount of THC that can be present in a serving and in a package. By contrast, there is no regulation of products containing THC either on the federal level or in North Carolina. This poses specific dangers because their purity, safety, and strength cannot be guaranteed. Adverse effects from these products can include hallucinations, anxiety, loss of consciousness, and even death. There is also currently no minimum age of sale for THC products in North Carolina, anyone of any age can purchase these products.

As an emerging issue in our state, current surveillance efforts are minimal, though growing. The Fellow would utilize newly developed cannabis indicators, incorporating those into ongoing behavioral and mental health surveillance; they 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.

Major Project Objectives:

The project will focus on evaluating definitions to monitor the effects of cannabis use using Emergency Department visits, hospitalizations, poison control center calls, and other data sources. This work may result in new surveillance case definitions that can be implemented for ongoing surveillance. The project may also result in a plan for ongoing surveillance and new data products using the newly developed cannabis indicators.

Major Project 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.

Additional Project #1 Title: Place Matters - Exploring Location of Injury and the Built Environment

Project #1 Type: Surveillance Activity

Project #1 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. Surveillance efforts also frequently utilize county of residence, though many injuries may occur far from the home;

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NC's death certificate data now includes information on where the death occurred. The ESI Unit geocodes provisional death certificate data on a monthly basis (both residency information and location of death), 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.

A separate project is underway to develop a geocoded list of cannabis retailers in the state. Cannabis retailers do not register with the state so the number of retailers, locations, and products sold is currently unknown. Work is happening within IVPB to utilize existing (though likely incomplete/outdated) tobacco and alcohol retailer lists to create a list of cannabis retailers. The Fellow, as part of this "place matters" work, may incorporate these measures of cannabis retailer density as well as already calculated alcohol outlet density measures in order to better understand the impacts of the built environment on public health.

Project #1 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, shared risk and protective factors, and built environment into ongoing surveillance activities, including dashboards and other public facing data products.

Project #1 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 #2 Title: Suicide Data Dashboard Expansion

Project #2 Type: Surveillance Activity

Project #2 Description:

North Carolina Division of Public Health is one of 24 state health departments funded through CDC's Division of Injury Prevention to implement a Comprehensive Suicide Prevention (CSP) program. This program utilizes data to track trends in suicide death and suicidal behavior, identify disproportionately affected populations with increased risk of suicide, and understand contributors to suicide and suicidal behaviors. The North Carolina Violent Death Reporting System (NC-VDRS), the gold standard for violent death data, has a data dashboard that displays basic trends and demographics for violent deaths, including suicide. The Fellow will develop an expansion to the NC-VDRS data dashboard, using Tableau or Power BI, to include additional suicide metrics focusing on veteran and rural populations. The expanded dashboard will serve as a tool to inform suicide prevention efforts among disproportionately affected populations.

Project #2 Objectives and Expected Deliverables:

The primary objective of the project is to develop data processing procedures and an expansion of the existing NC-VDRS data dashboard to improve the ability to monitor, interpret, and act on suicide surveillance data. Intermediate deliverables would include a restructuring of the existing database that feeds the dashboard, data visualizations for the dashboard for disproportionately affected populations (veteran and rural), and then a final data dashboard.

Project #2 Impact:

This project would result in a tool to improve suicide surveillance among disproportionately affected populations. The expanded dashboard will help to better understand and monitor the burden of suicide in NC and serve as a tool to observe the impact of state efforts around the CSP program.

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 led 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 Diamond Shrooms) and other disaster events. The past 11 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; Ty Lautenschlager assisted with developing an internal Tableau dashboard to facilitate data sharing as part of the NC Monkeypox response; Maria Del Mar Blanes Garcia led NC's response to the 2024 Diamond Shrooms outbreak; and currently Fellows Maria Del Mar Blanes Garcia and Hyunwoo Do played critical roles in monitoring injuries in Western NC after hurricane Helene hit in September 2024.

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 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. Mary Beth and Katie have been actively involved in Department efforts to establish a framework to respond to overdose and suicide clusters, as well as 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

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injury and that they will be given the time needed to work on their identified projects in addition to participating in COVID response.