

**ID: 60499828**

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

**Assignment Location:** Lincoln, US-NE  
Nebraska Department of Health and Human Services  
Health and Human Services

**Primary Mentor:** Ming Qu, MD, MEd, PhD  
Senior epidemiologist/data scientist, Public Health Administrator II  
Nebraska Department of Health and Human Services

**Secondary Mentor:** David DeVries, MS  
Drug Overdose Epidemiologist  
Nebraska Department of Health and Human Services

**Work Environment**

Hybrid

**Assignment Description**

The Fellow will organizationally be located within the Division of Public Health - Office of Injury Surveillance. The Fellow will be protected from clerical and routine work and will be expected to remain highly focused on specific injury surveillance activities and projects.

The Fellow will be involved in the implementation of the Nebraska Overdose Data to Action in States (OD2A-S) grant from the CDC. There are several activities that are crucial to the success of the grant which the Fellow will be involved. The major project is assisting in creating a Drug Overdose Surveillance Strategic Plan. This project will study multiple data sources and data modernization projects at NE DHHS. Also, develop data metrics upon quantitative and qualitative sources and strategies to address knowledge and data gaps to meet surveillance needs and competencies of injury epidemiologists.

Nebraska stands out as one of the few states to have successfully secured both supplemental OD2A-S funding opportunities: the Bio-Surveillance and Data Linkage Data Science projects. The Fellow will have the opportunity to collaborate with two project teams, engaging in learning and potentially providing assistance throughout the process.

The data linkage project primarily employs Data Linkage software to merge Drug Overdose Death Certificate data with Hospital Discharge data, Emergency Medical Services data, and Prescription Drug Monitoring Program data, followed by geocoding. The resulting dataset serves as a comprehensive resource, providing a 'one-stop shop' for fatal and non-fatal drug overdoses (including drug overdose ED visits, hospitalizations, and deaths), associated comorbidities (such as chronic diseases and mental health issues), risk factors (related to drug use behaviors), and social determinants of health (including socioeconomic status and neighborhood information). The next phases will expand linkage to incorporate additional data sources, including the Nebraska Violent Death Reporting System (NVDRS), State Unintentional Drug Overdose Reporting System (SUDORS) data, and clinical data via the Health Information Exchange (HIE) when available.

Nebraska's Bio-surveillance project involves hospitals sending patient urine samples taken from suspected drug overdose cases for the State Public Health Laboratory testing and reporting. This will greatly improve non-fatal drug overdose surveillance to determine specific drugs that led to overdose and verify clinically diagnosed drug overdose cases.

Additionally, the Fellow will collaborate closely with epidemiologists, data scientists, and the drug overdose prevention team on a regular basis, participating in meetings, calls, and webinar education sessions. All team members will be

**ID: 60499828**

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

available to provide expertise in selected aspects of epidemiology and programmatic activities. The primary mentor will lead the Fellow's training and skill development. Together, the mentor and Fellow will create an orientation plan and outline the Fellow's career development path, addressing any knowledge, skills, and vision gaps along the way.

The Fellow's anticipated day-to-day activities will include:

- Participating in daily surveillance, data science, and operational tasks as a member of the Injury Surveillance Office.
- Attending both internal and external injury surveillance and prevention meetings, as determined by mentors.
- Developing a Nebraska Drug Overdose Surveillance Strategic Plan.
- Data linkage operation including processes, quality assessments, and summarizing reports.
- The state's Bio-Surveillance operations, protocols, data flow, and communication channels among medical facilities, laboratories, and the DHHS system.
- Data quality assessments, standardization, and editing before data linkage.
- The Emergency Medical System data-based overdose surveillance.
- The Opioid Fatality Review Teams' reviews and operations.
- Collaborating with the Epidemiology team to generate a Vulnerability Assessment of Opioids and Stimulants by county in Nebraska.
- Attending OD2A-S routine meetings and CDC calls to comprehend the processes and strategies supporting various prevention and program evaluation activities through data.
- Coordinating statewide drug overdose activities, meetings, and conferences involving local health departments, other state agencies, and various associations such as the Nebraska Medical Association and Pharmacy Association.

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

The Fellow will have access to all injury surveillance data sets as CSTE and CDC recommended, including but not limited to death certificate data, hospital discharge data, EMS, Syndromic Surveillance dataset, data from the Bio-Surveillance System, and many others such as CODES, TBI, NVDRS, and SURDOS. The agency has a wide array of statistical support software such as SAS, R, Python, and Tableau and can provide mentoring and consultation from doctoral-level statisticians when required. In addition, we have close relationships with the Dept. of Statistics at UNL and the Departments of Epidemiology and Biostatistics at the UNMC College of Public Health, Omaha, Nebraska.

**Projects**

**Surveillance Activity Title: Nebraska Data linkage project**

*Surveillance Activity Description:*

This project is to link Drug Overdose Death Certificate records with Hospital Discharge data, Emergency Medical Services data, and Prescription Drug Monitoring Program data, then geocode the linked file. The following phases will expand the linkage of additional data sources, including NeVDRS, SUDORS data, and clinical data via the Health Information Exchange (HIE) when available. The integrated dataset will be a rich data mine and provide information that an individual dataset is unable to furnish. It will serve as a 'one-stop shop' that includes fatal and non-fatal drug overdoses (drug overdose ED visits, hospitalizations, and deaths), associated comorbidities (chronic diseases, mental health issues), risk factors (drug use behaviors), and social determinants of health (socioeconomic status and neighborhood information).

**ID: 60499828**

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

*Surveillance Activity Objectives:*

Objective:

- Conduct the quality assessment of data linkage and generate a linkage summary report including linkage methods, processes, and final datasets
- Review and analyze the Linked data to produce at least one surveillance report to comprehensively describe drug overdose burdens and contributing factors including SDOH

Deliverables:

- Linkage report
- The surveillance report and other data products such factsheets based on the report. Potentially prepare a data set without PHI for research

*Surveillance Activity Impact:*

The integrated dataset will be a rich data mine and provide information that an individual dataset is unable to furnish. It will serve as a 'one-stop shop' that includes fatal and non-fatal drug overdoses (drug overdose ED visits, hospitalizations, and deaths), associated comorbidities (chronic diseases, mental health issues), risk factors (drug use behaviors), and social determinants of health (socioeconomic status and neighborhood information). Through careful analysis and interpretation, we are able to understand drug overdose better systematically and provide more comprehensive data to support prevention activities at the state and local levels.

**Surveillance System Evaluation Title: Nebraska Drug Overdose Bio Surveillance Initiative**

*Surveillance System Evaluation Description:*

Nebraska's Bio surveillance project involves hospitals sending patient urine samples taken from suspected drug overdose cases to the State Public Health Laboratory for testing and reporting. This will greatly improve non-fatal drug overdose surveillance to determine specific drugs that led to overdose and verify clinically diagnosed drug overdose cases. There are and will be more challenges we face for this project include facility on boarding, facility lacking capacity to extract, send, exchange information, building interface and receiving data in addition to data quality, standardization, data security, analysis, and interpretation. The fellow will primarily focus on data quality and appropriate utilization of the data based on the CDC guidelines for assessing the surveillance system, and also participate in the project team examination of all these concerns and come up with a strategic plan to improve surveillance.

*Surveillance System Objectives:*

Objective: Review and analyze Bio-surveillance data to examine the system following CDC guidelines.

Deliverable: Prepare a report summarizing the results of the surveillance assessment findings.

*Surveillance System Impact:*

Through assessment processes, we are able to address the gaps related to data collection, testing, and reporting, and continue to improve the system operation more specifically and strategically.

**Major Project Title: Develop Nebraska Drug Overdose Surveillance Strategic Plan**

*Major Project Description:*

The Strategic Plan serves as a comprehensive framework for guiding both current and future activities in drug overdose surveillance within Nebraska. It encompasses a spectrum of topics including defined goals and objectives, strategies for data collection from various sources, robust data management protocols, detailed processes for data analysis, and outlines for data utilization, reporting, and dissemination. Additionally, it incorporates provisions for data security,

**ID: 60499828**

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

ongoing surveillance evaluation, and opportunities for enhancement through the integration of new technologies, workforce development, and collaborative partnerships.

Aligned with the broader goals of public health surveillance modernization, the Plan addresses critical aspects such as information management, infrastructure enhancement, and workforce capacity building. Periodic review and updates ensure the Plan remains responsive to evolving surveillance needs and emerging trends in drug overdose incidents. For instance, the adoption of AI methodologies may be explored to harness both traditional and non-traditional data sources, facilitating the comprehensive assessment of drug overdose burdens on public health. Furthermore, the potential implementation of automated data processing and visualization tools, such as dashboards, aims to streamline reporting processes and enhance data accessibility.

Moreover, efforts will be directed toward strengthening the skill sets of epidemiologists and data scientists, ensuring their proficiency in advanced analytical techniques and methodologies. Timely provision of data will be prioritized to support proactive prevention measures and informed decision-making. Through these concerted endeavors, the Strategic Plan endeavors to optimize surveillance practices and effectively address the complex challenges posed by drug overdose incidents within Nebraska.

*Major Project Objectives:*

Objective: Develop the Nebraska Drug Overdose Surveillance Strategic Plan for guiding surveillance development and enhancement efforts to align with data modernization in surveillance.

Deliverable: The Nebraska Drug Overdose Surveillance Strategic Plan.

*Major Project Impact:*

This plan will be essential for Drug Overdose surveillance and prevention activities, addressing urgent public health challenges, data and knowledge gaps, and workforce development among many other issues. Ultimately, the Plan serves a critical framework for guiding effective and efficient prevention efforts.

**Additional Project #1 Title: Opioid Overdose Vulnerability Assessment of Nebraska**

**Project #1 Type: Major Project**

*Project #1 Description:*

This assessment will use a combination of multiple indicators including Opioid overdose-related morbidity and mortality, Social Determinants of Health (poverty, education level, and housing stability), and access to healthcare services to assess the region or population with increased risks of drug overdose and potential risk factors in Nebraska. This assessment may apply a modified regression weighted quintile rank model to estimate vulnerability to opioid overdose. This method follows the framework developed by Van Handel et al. to assess county vulnerability to Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) and later modified to look at Nebraska county opioid vulnerability.

*Project #1 Objectives and Expected Deliverables:*

Objective: Conduct an Opioid Vulnerability assessment to identify the region or groups with high risks of drug overdose mortalities for developing prevention activities.

Deliverables: Produce an assessment report detailing the factors contributing to the vulnerability of Nebraskans to opioid overdose and related morbidities and fatalities. Rank the vulnerability by county or region and disseminate the findings to Local Health Departments for their reference.

**ID: 60499828**

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

*Project #1 Impact:*

Understanding which counties are most at risk for Opioid deaths and what factors are most influential in those deaths is of vital concern to the Local Health Departments and Prevention Community. By conducting and disseminating a comprehensive opioid overdose vulnerability assessment, public health practitioners and policymakers can better understand the unique needs and challenges facing communities and develop evidence-based strategies to promote health equity and resilience.

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

We will give exposure to the Office of Emergency Preparedness to understand the PHEP response, protocols and operations related to emergency preparedness. The time allocation will be less than 10% of their time in order to give more time to learning about Nebraska's Drug Overdose Surveillance and complete the projects listed for the Fellow.

**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 involved in any investigation regarding outbreaks relevant to injury and specifically drug overdose. With the Bio-Surveillance Program we may acquire additional information related to outbreaks and our ability to investigate them. The time allocation will be less than 10% of their time in order to give more time to learning about Nebraska's Drug Overdose Surveillance and complete the projects listed for the Fellow.

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

This will not be applicable to this Fellowship unless there is a major outbreak of COVID-19 in which we would expect the Fellow to be involved in our Department's response to the outbreak. As such we don't anticipate any activities or time allocated to this.

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

Epidemiology Unit has had a longstanding collaboration with the Office of Health Disparities and Health Equity (OHDHE) to conduct health condition surveillance and generate a number of reports focusing on disparities. The Unit has provided epidemiological and data support to the OHDHE to establish its surveillance capacities. The OHDHE aims to raise awareness of health disparities by furnishing stakeholders with pertinent statistical data, fostering increased awareness of health equity, and evaluating the health status of racial and ethnic minorities, federally recognized tribes, immigrants, and refugees.

The Fellow will have the chance to engage with the OHDHE and the designated epidemiologist to explore methods of integrating diversity, equity, and inclusion considerations related to overdose issues into their collaborative efforts.