ID: 60510368
Maternal and Child Health, Birth Defects and NAS - Host Site Description
Southern Nevada Health District

Assignment Location: Las Vegas, US-NV
Southern Nevada Health District
Division of Disease Surveillance & Control

Primary Mentor: Ying Zhang, PhD, MPH
Senior Scientist
Southern Nevada Health District

Secondary Mentor: Sfurti Rathi, MPH, MBBS
Epidemiologist
Southern Nevada Health District

Work Environment
Hybrid

Assignment Description

The Fellow will work within the Office of Informatics and Epidemiology (OIE) in the Division of Disease Surveillance & Control. OIE staff are responsible for all surveillance strategies and work closely with disease investigators, health educators and social workers from other SNHD offices and programs. The epidemiology program was established at the Southern Nevada Health District (SNHD) in August 1998. It conducts surveillance and research of various communicable or non-communicable diseases and conditions that have the most impact on the health and well-being of southern Nevada residents and visitors, including communicable diseases, foodborne illness outbreaks, chronic illnesses, health risk behaviors, injuries, and biological threats to the public health. The OIE also supports the medical community by giving recommendations for the prevention and control of communicable diseases, educate the public, and provide support to other health district programs and external community partners.

The Fellow will have opportunities to interact and collaborate with other divisions, offices, and programs at the SNHD. For example, the Fellow can work with the EMS/Trauma System to rebuild and enhance Clark County's trauma registry. He/she can also work with the Office of Chronic Disease Prevention and Health Promotion (OCDPHP) to identify, implement, and evaluate evidence-based prevention programs to mitigate the burden due to chronic diseases, injuries, and risky behaviors.

The Fellow will have access to a number of robust databases that are frequently used at OIE, including Nevada BRFSS, birth and death certificates, hospitalization and emergency department visit data, coroner's data, as well as locally maintained databases: reportable disease (including tuberculosis, HIV/AIDS, and STDs), immunization, and vector (mosquito) surveillance data.

Both the primary and secondary mentors have extensive knowledge and skills to help the Fellow develop his/her competencies. The two mentors combined knowledge covers major social and medical science fields, including medicine, psychology, education, and statistics. In addition, the two mentors will also offer trainings to the Fellow in commonly used software, such as SAS, R, and ArcGIS.

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

In addition to the two mentors, the support team for the Fellow consists of about 20 senior epidemiologists, epidemiologists, biostatisticians, and informaticians. All team members have advanced degrees (MD, PhD, MPH, MS) in

their specialized areas, and will provide support for the Fellow in statistics, informatics, medicine, and scientific writing/editing. The Fellow will have access to a number of robust databases that are frequently used at OIE, including Nevada BRFSS, vital records (birth and death data), hospitalization and emergency department visit data, coroner's data, as well as locally maintained databases: reportable disease (including tuberculosis, HIV/AIDS, and STDs), immunization, and vector (mosquito) surveillance data.

Projects

Surveillance Activity Title: Enhancing Stillbirth Surveillance through Multisource Data Integration

Surveillance Activity Description:
This project aims to establish a comprehensive stillbirth surveillance system for Clark County. Leveraging innovative data linkage techniques, the project will integrate information from vital records, hospital discharge data, and electronic health records to accurately identify and analyze stillbirth cases. The fellow will conduct in-depth temporal and geospatial analyses, identifying trends and clusters, and develop a real-time surveillance system with predefined alert thresholds. Deliverables include a comprehensive surveillance protocol, a data linkage algorithm, a report on temporal and geospatial patterns, a real-time surveillance dashboard, and recommendations for improving data quality. This project aligns with the goal of advancing public health efforts to prevent stillbirths and enhance maternal and child health outcomes in Clark County.

Surveillance Activity Objectives:
1) Develop a detailed protocol outlining the procedures for data collection, linkage, and analysis. Include guidelines for maintaining data privacy, confidentiality, and security.
2) Document and share a data linkage algorithm that outlines the methods used to integrate information from different sources while ensuring accuracy and confidentiality.

Surveillance Activity Impact:
The development of a detailed protocol and a data linkage algorithm will not only enhance the understanding of stillbirth patterns but also provide valuable insights for public health interventions and policies aimed at preventing stillbirths and improving maternal and child health outcomes. Ultimately, the project's outcomes have the potential to influence targeted strategies, resource allocation, and preventive measures to address the public health challenge of stillbirths in Clark County.

Surveillance System Evaluation Title: Evaluation of Stillbirth Surveillance System in Clark County, Nevada

Surveillance System Evaluation Description:
This focused initiative aims to conduct a thorough assessment of the existing stillbirth surveillance system, evaluating its data quality, timeliness, completeness, and overall efficiency. Employing a comprehensive approach that includes stakeholder interviews, data validation exercises, and system performance analyses, the project seeks to identify strengths and areas for improvement within the stillbirth surveillance infrastructure. The outcomes of this evaluation will generate targeted recommendations for optimizing the stillbirth surveillance system, contributing to enhanced public health interventions and better outcomes for maternal and child health in Clark County.

Surveillance System Objectives:
1) Develop a detailed report summarizing the findings of the stillbirth surveillance system evaluation, including an analysis of data quality, timeliness, and system efficiency.
2) Outline a plan to enhance the timeliness of data reporting and dissemination within the stillbirth surveillance system.

3) Provide recommendations and strategies for improving the overall efficiency of the stillbirth surveillance system, addressing identified operational inefficiencies.

Surveillance System Impact:
The evaluation of the stillbirth surveillance system in Clark County is anticipated to result in a more robust and effective system, improving the accuracy and timeliness of data. Ultimately, these enhancements will contribute to informed public health interventions, better resource allocation, and improved outcomes for maternal and child health in the community.

Major Project Title: Analyzing Risk Factors and Predictive Modeling for Stillbirth in Clark County, Nevada

Major Project Description:
This analytical project aims to investigate and identify key risk factors associated with stillbirth occurrences in Clark County, Nevada. Leveraging data from vital records, hospital discharge records, and other relevant sources, the project will employ advanced statistical analyses and predictive modeling techniques to discern patterns and correlations among various factors contributing to stillbirth. The findings will provide crucial insights into the determinants of stillbirth in the local population, facilitating the development of targeted interventions and preventive measures. Through a comprehensive examination of demographic, medical, and lifestyle factors, this project seeks to enhance the understanding of stillbirth risk in the community and contribute to evidence-based strategies for improving maternal and child health outcomes.

Major Project Objectives:
1) Analyze existing data to identify and assess potential risk factors associated with stillbirth in Clark County, considering demographic, medical, and lifestyle variables.
2) Employ advanced statistical modeling techniques to develop predictive models that can anticipate the likelihood of stillbirth based on identified risk factors.
3) Provide actionable recommendations based on the analysis, outlining potential interventions and preventive strategies to mitigate the identified risk factors and reduce the incidence of stillbirth.

Major Project Impact:
By identifying and understanding the specific risk factors contributing to stillbirth, public health efforts can be tailored to address the unique needs of the local population. This targeted approach has the potential to improve overall maternal and child health outcomes, enhance resource allocation, and contribute to evidence-based policymaking. Ultimately, the project's findings and recommendations aim to have a positive impact on community health, promoting healthier pregnancies and reducing the burden of stillbirth in the region.

Additional Project #1 Title: Comprehensive Surveillance and Analysis of Neonatal Abstinence Syndrome (NAS) in Clark County, Nevada
Project #1 Type: Major Project

Project #1 Description:
This project aims to conduct a multifaceted examination of Neonatal Abstinence Syndrome (NAS) within Clark County, Nevada, integrating surveillance, system evaluation, and analytical methodologies. The surveillance component will involve the systematic collection and analysis of data related to NAS cases, including maternal substance use, birth outcomes, and long-term impacts on infants. The system evaluation will assess the existing NAS surveillance system's efficiency, accuracy, and data linkage capabilities. The analytical phase will delve into identifying risk factors contributing to NAS, exploring trends, and assessing the effectiveness of existing prevention and intervention strategies. Through this comprehensive approach, the project seeks to inform targeted public health initiatives, improve NAS case identification,

and contribute valuable insights to enhance maternal and child health outcomes in Clark County. The findings will be shared through regular reports, data dashboards, and collaborative efforts with local partners to guide evidence-based interventions and support affected individuals effectively.

Project #1 Objectives and Expected Deliverables:
1) Improve the identification, documentation, and reporting of NAS cases by refining surveillance methodologies and data collection processes.
2) Investigate and analyze the maternal and environmental risk factors contributing to NAS, exploring trends, patterns, and disparities.

Project #1 Impact:
By evaluating and strengthening the NAS surveillance system, the project aims to provide timely and reliable data for public health interventions and resource allocation. The analysis of maternal and environmental risk factors will contribute valuable insights into the prevention and management of NAS, guiding targeted strategies to support affected individuals and communities. The development of robust data linkage protocols will foster improved collaboration among healthcare providers and stakeholders, facilitating a coordinated approach to NAS prevention and intervention. Ultimately, the project strives to reduce NAS incidence, address disparities, and enhance the overall well-being of infants and families in Clark County.

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

Routine activities at the OIE will enable the Fellow to develop skills in disease investigation and response and offer the opportunity to participate in and later to lead outbreak investigations. Outbreak and other major investigations or events are performed under the structure of the Incident Command System (ICS), which will give the Fellow first-hand experience in the operation of emergency preparedness activities. The Fellow will also have the opportunity to be trained and become a member of the Rapid Response Team, to receive other Public Health Preparedness (PHP) training, and to participate on mass casualty exercises and other events related to PHP. We expect the Fellow to spend 4-6 weeks during the two-year training on preparedness and response efforts.

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

The Fellow will play a pivotal role in assisting with cluster and outbreak investigations, engaging in various activities and dedicating time to this critical aspect of public health. Responsibilities will include developing data collection instruments, utilizing diverse methods such as patient and healthcare provider interviews, medical record abstraction, surveys, and environmental assessments (if applicable). The Fellow will then analyze the collected data and contribute to the preparation of comprehensive investigation reports, participating in after-action reviews and collaborating with multiple partners involved in the investigative process. The Fellow's involvement in outbreak investigations will be substantial, with opportunities to lead and/or assist in cases such as the approximately 4-7 foodborne illness outbreaks occurring annually in southern Nevada. Additionally, the Fellow will contribute to lead poisoning investigations, conducting interviews with cases to gather primary data and identify potential sources of exposure. We are dedicated to providing the Fellow with leadership opportunities in investigations, supporting their participation in emergency response deployments arranged by CSTE. Anticipated time allocation for the Fellow's engagement in cluster and outbreak investigations is expected to be 4 weeks over the two-year training period, ensuring a robust and impactful experience in this crucial public health domain.