ID: 58749581
Chronic Disease, Infectious Diseases - Host Site Description
Maricopa County Department of Public Health

Assignment Location: Phoenix, US-AZ
Maricopa County Department of Public Health
Division of Epidemiology and Informatics

Primary Mentor: Ariella Dale, PhD, MPH
Public Health Scientist
Maricopa County Department of Public Health

Secondary Mentor: Sharif Mohr, MPH, PhD
Senior Epidemiologist
Maricopa County Department of Public Health

Work Environment
Hybrid

Assignment Description

The CSTE AE fellow would be placed within the Division of Epidemiology and Informatics as a part of the Public Health Science Branch. This branch is co-led by the primary supervisor, Dr. Ariella Dale, and Nikki Jarrett as Public Health Scientists. Dr. Dale and Ms. Jarrett serve as subject matter experts across the division to support our staff when projects are extending beyond routine surveillance and evaluation. Dr. Dale and Ms. Jarrett ensure appropriate project design, management, statistical testing, and guide the production of scientific products such as abstracts or peer-reviewed manuscripts. The CSTE AE fellow would report directly to Dr. Dale in addition to the CDC Epidemic Intelligence Service Officer within this branch. A Senior Epidemiologist, Dr. Britney Green, also works within the Public Health Science Branch and reports to Ms. Jarrett. In addition to Dr. Dale as primary supervisor, Dr. Mohr is a Senior Epidemiologist in the Office of Community Health Data in the Division of Epidemiology and Informatics and will serve as a secondary supervisor. Physically located one floor above Dr. Dale's office and the CSTE AE fellow's co-shared office with the Epidemic Intelligence Service Officer, Dr. Mohr works on a variety of projects including the Community Health Needs Assessment. Dr. Mohr is leading the development of our survey instrument, pilot testing, implementation, and eventual analysis for the Community Health Needs Assessment.

The CSTE AE fellow will work alongside Dr. Mohr and Dr. Dale on the Community Health Needs Assessment (CHNA). This is a multiyear, large internal and external partner driven project that has many components. The CSTE AE fellow will be assigned leadership opportunities and collaborator roles within the CHNA planning, development, execution, analysis, and write up as driven by their interests across the portfolio of work. This includes three main products: 1) results of survey responses from Maricopa County residents (usually greater than 15,000 participants), 2) a community health status report based upon analysis of secondary data sources such as hospital discharge, death certificates, and census data, and 3) creation of a prioritization matrix to guide internal planning efforts in response to CHNA findings. The CSTE AE fellow will be embedded within the entire lifecycle of the CHNA (2025-2027) and its products. In addition to the focus on the CHNA, the CSTE AE fellow will have opportunities to work with data related to infectious diseases, injuries, and chronic diseases. We will ensure a diverse experience tailored to the CSTE AE fellow's interests and look forward to discussing those areas further with the applicants. Day to day will include meetings with internal and external collaborators, dedicated training time for data set access and statistical software as appropriate, attendance and embedding into routine Division structure and meetings including our weekly briefings, one on one meetings, and more. Certainly, as outbreaks arise or acute responses, there will be opportunities identified for the CSTE AE fellow to engage in field experiences as available.

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

Analytical support is available from numerous doctoral and masters-level epidemiologists. Computers, county iPhone, appropriate software, and IT services will be made available. Software routinely used by MCDPH include but are not limited to: SAS, R, R Studio, REDCap, ArcGIS, Power BI, Microsoft Suite, Endnote, and Zotero. There are many data subject matter experts available within MCDPH across public health interest areas including infectious disease, chronic disease, maternal and child health, environmental disease, injury, and more. We also have strong academic partnerships to support projects outside of the expertise of our agencies. Additionally, other current EIS officers and EIS alumni are located in Arizona throughout public health including state, local, tribal, healthcare, university, and nonprofit partners. We also have alumni of the CSTE applied epidemiology fellowship currently employed at our state health agency that we are happy to connect fellows to in addition to our previous fellow.

Projects

Surveillance Activity Title: Evaluation of Maternal Child Health Profile Data using Pregnancy Risk Assessment Monitoring System Data - Maricopa County, AZ

Surveillance Activity Description:
The Fellow will evaluate MCDPH maternal child health profile data using Pregnancy Risk Assessment Monitoring System (PRAMS) data to prioritize intervention strategies and populations to reduce morbidity and mortality among high-risk groups. This data has not been previously analyzed.

Surveillance Activity Objectives:
- Review maternal child health profile data available within the Pregnancy Risk Assessment Monitoring System (PRAMS) for the last five years
- Report inventory of what data is available including completeness and quality using SAS or R
- Analyze and describe trends across the last five years using SAS or R
- Write a report describing the findings from analysis
- Make recommendations for future surveillance efforts

Surveillance Activity Impact:
This will establish our first county specific analysis of PRAMS data, empowering our prevention and maternal/child health teams to take data to action.

Surveillance System Evaluation Title: Industry and Occupation Data Availabilty for Infectious Diseases in Maricopa County, Arizona

Surveillance System Evaluation Description:
The CSTE AE fellow could evaluate industry and occupation information within preexisting investigation data for a subset of reportable conditions (e.g., coccidioidomycosis, West Nile Virus, etc.) in Maricopa County from MEDSIS, the statewide communicable disease database. There is a national initiative to improve standardized collection of industry/occupation data within public health investigations because information about a person's work can help determine if hazards, injuries, or illnesses are higher among certain industries and occupations. The EISO can use secondary datasets, such as hospital discharge or death data, to evaluate data quality and completeness in MEDSIS and comparatively evaluate pre-/post- merge industry/occupation surveillance data.

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Surveillance System Objectives:

- Assess surveillance system according to MMWR criteria for surveillance evaluations
- Evaluate the performance of MEDSIS and a selected second surveillance system by using SAS or R to review data completeness and quality
- Write a surveillance evaluation report
- Identify opportunities for improving industry and occupation data for the selected reportable condition
- Make recommendations for enhancement of collection of occupation and industry data
- Develop a SMART goal to measure performance of occupation and industry data capture in MEDSIS compared to the selected second surveillance system

Surveillance System Impact:
Using their findings, the CSTE AE fellow can make recommendations for improvements in industry/occupation data collection for prospective use. This will improve our case and outbreak investigations through standardization of data capture as well as robust information to determine if occupation or industry is contributing to the condition of interest.

Major Project Title: 2026 Maricopa County Community Health Needs Assessment

Major Project Description:
The CSTE AE Fellow will support this large, multi-division effort to assess the needs of our community through a Community Health Needs Assessment (CHNA). MCDPH executes CHNAs following the Mobilizing for Action through Planning and Partnerships framework developed by the National Association of County and City Health Officials (NACCHO). The MCDPH team has presented our strategy and findings at many national conferences including the NACCHO 360 Annual Conference as recently as 2024. CHNAs help to identify and prioritize health problems to facilitate planning and actions to address these problems within Maricopa County. The findings also inform our community health improvement plan, the actions of our healthcare partners, and empower our community-based organizations. Previous CHNAs have addressed issue such as: 1) risk factors for disease, illness, and mortality, 2) community conditions that impact health such as education, housing, income, and 3) quality of life. You can learn more about our previous CHNAs at our website: https://www.maricopa.gov/4980/Current-CHNA-CHIP-Data-and-Reports#CHNA

Major Project Objectives:
The Fellow will embed within the larger CHNA epidemiology team, supporting the Community Survey. The Fellow will lead certain subtasks and participate as a contributor for others depending on skillset and desired growth opportunities:

1) Community Survey Instrument

- Join team to develop survey instrument
- Refine and pilot with internal and external partner input
- Define and describe sampling strategy, including limitations of the chosen strategy
- Finalize sample size calculations
- Develop survey instrument in REDCap for data collection
- Draft and execute a data monitoring plan to identify progress towards sampling goal for the county and identified sub-populations including regions and cities
- Analyze data following completion of community-wide advertising campaign and sampling in SAS or R
- Write reports and develop dashboards to report findings

The Fellow will also have awareness and learn about the companion Population Data Report. Specific tasks and responsibilities related to this report are open for discussion depending on interest and capacity. Opportunities include learning about surveillance data sources available at the local, state, and national levels;

analyzing data to determine population trends across multiple years; and developing a report to present these findings. The Population Data Report is the second arm of an important body of work for the CHNA to develop the community health improvement plan. Additionally, the Fellow will have exposure to other methodologies employed as part of our larger CHNA strategy including focus groups and key informant interviews.

Major Project Impact:
Our CHNA results drive the creation of our Community Health Improvement Plan in collaboration with community partners and the Health Improvement Partnership of Maricopa County (HIPMC). This report details goals to determine priorities, what community agencies are supporting, and more. This is critical to our work as a local health agency and to support our local partners. This project will have major and far-reaching impacts for years to come after the Fellow has graduated from the CSTE Applied Epidemiology program.

Additional Project #1 Title: Norovirus reporting by laboratory providers in Maricopa County
Project #1 Type: Surveillance Activity

Project #1 Description:
Norovirus, a group of viruses that cause vomiting and diarrhea, causes a highly contagious gastrointestinal illness particularly in the winter months. Currently norovirus testing results are a laboratory reportable according to Arizona statute, but given the rapid onset and resolution of symptoms for most persons testing burden is limited. Therefore, to better understand the burden of norovirus in Maricopa County, this project will focus on identifying the number of norovirus diagnoses across five years (2019-2024) in hospital discharge data.

Project #1 Objectives and Expected Deliverables:
Through this project a fellow will:

- Learn about hospital discharge data (HDD) related to norovirus including what is reported, how the information is collected, and how to analyze the information
- Code in SAS or R to understand the data quality and completeness
- Produce a descriptive analysis of HDD including the number of unique norovirus diagnoses by year, with sub analyses by age, sex, and occupation
- Additional stratified analyses could include by region or city as appropriate
- Learn about MEDSIS data related to norovirus including what is reported, how the information is collect, and how to analyze the information
- Code in SAS or R to understand MEDSIS data quality and completeness
- Produce a descriptive analysis of the number of unique norovirus diagnoses by year, with sub analyses by age, sex, and occupation
- Compare counts and demographic characteristics of cases identified in HDD versus MEDSIS
- Write a report describing the project objective, methodology, results, and recommendations

Project #1 Impact:
Recent news headlines have highlighted the individual impacts of norovirus on our community. This analysis will guide updating of our public health recommendations and outreach strategies to our local partners. This also presents the first instance that hospital discharge data will be examined for norovirus for reporting as compared to our statewide disease surveillance system (MEDSIS).

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

The CSTE AE Fellow would support response activities as outbreaks arise that require more than our routine staff for response. Should an incident command system be activated, the Fellow will be offered opportunities to participate in various roles. Recent examples by our EISOs include leading of a unit within a measles response to identify and follow up with potentially exposed individuals in healthcare facilities. The EISO (which could be the CSTE AE Fellow) organized the data received, guided the team on how to assess risk and vaccination status, coordinated outreach to all individuals on the line list, and ensured data documentation for the investigation team's follow up should a potentially symptomatic person be identified. A second example would be joining a field team during our recent locally acquired dengue response. Field teams went door-to-door interviewing households surrounding the case's residential address using a standardized survey and script. A Fellow could have joined this team in door to door outreach, conducting interviews and offering dengue serological testing. Our supervisors have experience identifying opportunities early and often within outbreak and cluster responses for public health fellows based on their training background and skills to offer growth opportunities.

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

MCDPH has a dedicated Outbreak team, focused on the epidemiology of outbreaks and data analysis. A Fellow can join this team to be trained as a member, shadowing current epidemiologists within the Outbreak team to learn the standard operating procedure. After training and shadowing, the Fellow will join the Outbreak team rotation and will have the opportunity to be a secondary lead then the primary lead of outbreak responses. Examples of recent outbreaks (by year); 2024: highly-pathogenic avian influenza, norovirus and oyster consumption, Diamond Shruumz poisonings; 2023: measles, cyclospora, fungal meningitis in medical tourists; 2022: first detection of healthcare-associated Candida auris, mpox, measles, dengue, syphilis in a tribal community; 2021: West Nile virus in Maricopa County; 2020: COVID-19 in sports tournaments; 2018: imported seafood-related hepatitis A, CRE in a long-term care facility, hepatitis A among people who use drugs or are experiencing homelessness, congenital syphilis; 2017: B. cepacia complex in a hospital, MDR-TB in a detention center.