

**ID: 43810616**

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

**Marin County Health & Human Services**

**Assignment Location:** San Rafael, US-CA  
Marin County Health & Human Services  
Public Health

**Primary Mentor:** Matthew Willis, MD, MPH  
Public Health Officer  
County of Marin

**Secondary Mentor:** Karina Arambula, MPH  
Epidemiologist  
County of Marin Department of Health and and Human Services

**Work Environment**

Hybrid

**Assignment Description**

The Fellow will be located in the Epidemiology Program of the Marin County Department of Health and Human Services (HHS) located in the San Francisco Bay Area. We are a generalist epidemiology program with both communicable and non-communicable disease epidemiologists who function within dynamic local public health jurisdiction. Since the COVID-19 pandemic, much of the work in the epidemiology program has shifted towards surveillance of COVID-19 cases, hospitalizations and deaths, in addition to providing data support for HHS programs that provide assistance to those affected communities.

The epidemiology team meets twice weekly, currently on virtual basis, with occasional in-person meetings as necessary. Monday weekly meetings with the Public Health Officer set the tone for the week with a weekly check-in of priorities and emerging public health and epidemiology priorities. An additional staff meeting takes place on Thursday mornings where epidemiology team members share weekly status updates on various projects and use this time to discuss any issues, challenges. Additionally team members meet routinely to work on ongoing projects. The Fellow will work with colleagues in the epidemiology team as well as others in HHS, and will meet routinely based on ongoing projects. Some of the groups that have worked with fellows in the past include the Communicable Disease team, the Community Health & Disease Prevention Team, Behavioral Health, Suicide Prevention, Healthy Eating Active Living, and Division of Aging. The fellow will have routine meetings with mentors to discuss projects, receive support and feedback, and address any challenges. The cadence of these meetings will start weekly, and may change depending on Fellow and project needs.

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

The Fellow will have project-specific access to multiple databases including death, birth, Emergency Department, hospital discharge, Emergency Medical Services (911), state based reportable communicable disease registry, Vaccination Registry, CoDA (our Local COVID-19 database), Wastewater surveillance, California Health Interview Survey (CHIS), California Health Kids Survey (CHKS), and California Prescription Drug Monitoring Program data. Available software includes SAS, Stata and R, though Stata is predominately used. Socrata and Tableau are used for data visualization and data translation for policymakers and public. G Suite for Business (Google Drive) is used for secure file sharing with partners and internally.

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## **Projects**

### **Surveillance Activity Title: Develop and Expand a Surveillance System that Assesses Cancer Incidence and Prevalence**

#### *Surveillance Activity Description:*

Marin County has had an interesting history with cancer surveillance, and at one point was considered among the highest California counties for both breast cancer incidence and prevalence. The Marin County population has also seen elevated levels of other cancers among its population. Cancer has been the second leading cause of death among Marin residents and first among decedents less than 75 years old in recent years (2017-2021). Surveillance of all types of cancer has been limited during the COVID-19 pandemic and the fellow will be asked to develop a surveillance system that will track cancer incidence and prevalence in the county. Findings will be explored by cancer type, different demographic strata, including but not limited to race/ethnicity, geography and or employment. The Fellow will be asked to identify specific cancers which are at higher than expected levels and that need to be flagged for additional investigation. Follow-up action steps will be identified, and the Fellow may be asked to present findings to stakeholders.

#### *Surveillance Activity Objectives:*

The Fellow will create a surveillance system and protocol for maintaining and updating surveillance system at routine intervals. Where possible, the Fellow will work with the Information Services and Technology team to automate processes for maintenance. The Fellow will also present action steps for further investigation, if needed. Findings will be presented to leadership and colleagues in Epidemiology teams, and any relevant findings will be presented to community stakeholders.

#### *Surveillance Activity Impact:*

Given Marin County's history with higher than expected breast cancer incidence, it is imperative that we continue to evaluate for any other cancer concerns. A better understanding of cancer and communities most affected can lead to more effective prevention policies and improved access to care for those most affected.

### **Surveillance System Evaluation Title: Evaluation of Hepatitis C Surveillance System**

#### *Surveillance System Evaluation Description:*

The hepatitis C surveillance system is under development using various existing data systems in response to a public health need to more accurately track the prevalence and incidence of hepatitis C in the local community to better inform outreach, screening, treatment, and prevention efforts. The system will also include sharing hepatitis C data and goals publicly through a dashboard. Using the CDC Surveillance System Evaluation guidelines, the AEF Fellow will work with current epidemiology staff, communicable disease prevention team (including nurses, and other local providers), to assess the effectiveness and success of the surveillance system. The Fellow may also work to improve internal and external dashboards.

#### *Surveillance System Objectives:*

The Fellow will produce a report that will describe how the surveillance system has been an effective and successful at tracking the prevalence and incidence of disease in the community, identify strengths, and opportunities for improvement. The findings will be presented internally to leadership, and community stakeholders. Findings can also be presented externally at conferences.

#### *Surveillance System Impact:*

With a more effective hepatitis C surveillance system, public health policy makers can better partner with community providers to provide more informed intervention and prevention strategies, particularly among vulnerable communities such as people experiencing homelessness and those who are incarcerated in a jail or prison.

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**Major Project Title: Tracking the Health Outcomes of Chronic Alcohol Use**

*Major Project Description:*

While Marin consistently fares well when it comes to many health outcomes and metrics, the county tends to fare poorly for any substance-related metrics, and more specifically, alcohol-related metrics. Historically, a high proportion of adult Marin residents have reported high levels of binge drinking and Marin youth have reported easy access to alcohol. While we have seen relatively low levels of acute alcohol toxicity in mortality outcomes, we need to better track health outcomes associated with chronic alcohol use. Our current Fellow adapted the CDC's alcohol-related disease index (ARDI) measure for our county population. Our goal is to better assess how chronic alcohol use has contributed to mortality, and we would like to build on that effort.

The fellow will be asked to review Emergency Department (ED), Emergency Medical Services (EMS) and hospitalization records to review for alcohol related outcomes. Additionally, the fellow will be asked to look at factors that contribute to increased alcohol-related outcomes, in many sectors, including the built environment, like mapping out alcohol outlet density in our community.

*Major Project Objectives:*

The Fellow will build on the work of the previous fellow and produce what will initially be an internal countywide dashboard with notable alcohol-related health outcomes, stratified by various demographic characteristics (i.e.. sex, age category, race/ethnicity, geography). The Fellow will track indicators using emergency department, emergency medical services (from 911 calls), and mortality data. Applicable findings can be shared with HHS colleagues and leadership to help inform local policies. As this is a newer effort, the fellow will work with the Epidemiology team to create a protocol for updating and maintaining these data going forward.

*Major Project Impact:*

The downstream goal of this effort will be to reduce the the number of alcohol-related health outcomes among Marin residents. However, this work could have greater upstream efforts, such as informing local prevention policies. Marin County's proximity to the region known as wine country has influenced a culture of permissiveness when it comes alcohol sales and consumption. A better understanding of the public health impacts of chronic alcohol use will lead to better informed decisions among community leaders at all levels. HHS and community partners will be better able to target their prevention efforts, and work with community members most affected.

**Additional Project #1 Title: Enhanced Surveillance Program for Vaccination Coverage**

**Project #1 Type: Major Project/Surveillance Activity**

*Project #1 Description:*

Following recent California legislation (AB 1797), California now has a complete registry of vaccines administered within the state, and local health departments now have access to registry data. AB 1797 requires entry of demographic data on vaccinees including race/ethnicity, improving the capability for data-informed vaccine equity efforts. The fellow will be asked to develop a vaccination surveillance system for vaccination coverage within Marin County. The system will build on the success of the local COVID-19 vaccination monitoring system for other vaccine-preventable diseases. The Fellow's work will include analyzing California Immunization Registry (CAIR) data and sub-county demographic data to determine vaccination coverage for influenza, COVID-19, and childhood vaccines. Analysis and visualizations of vaccination coverage will inform strategies to ensure vaccine equity county-wide. The fellow will be working with colleagues from the epidemiology program, communicable disease program, media team and the county Information Technology team.

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*Project #1 Objectives and Expected Deliverables:*

Deliverables will include an enhanced surveillance system that can be accessed to provide information on vaccine coverage by various demographic strata, including race/ethnicity, age, and geography. The fellow will create an internal dashboard that will be used by colleagues to help inform outreach and policy decisions. Dashboard will include maps that can be shared internally. The fellow will create SOPs for how to update and modify data. This project lends itself to a potential secondary analysis, correlating rates of vaccines preventable diseases with areas or groups with reduced vaccine uptake.

*Project #1 Impact:*

Marin County has an interesting history with vaccine coverage, and at one point had the highest personal belief exemption rate for childhood vaccinations in the Bay Area, and one of the highest in California. While there has been considerable success in increasing vaccine coverage, limited sub-county data has hampered efforts to see gaps in vaccine uptake to inform outreach. This will allow us to identify gaps in coverage and address barriers affecting communities inequitably. The data will inform priority vaccination activities, such as placement of supplemental vaccine clinics, support community pediatricians and vaccine providers, and communication and outreach efforts.

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

Given pandemic conditions, the fellow will become an integral part of the COVID-19 response team with monitoring of COVID-19 cases, hospitalizations and deaths. Additionally, the fellow will work with colleagues in helping to define and inform localized outbreaks in local communities through monitoring and analysis of local data. In a typical year, the Fellow would take ICS online or in-person training to be able to support the Marin County Public Health Preparedness Program in developing and conducting community events for emergency response to disasters. The Fellow would routinely participate in tabletop and functional exercises, conducted at the Emergency Operations Center, in which the role of the epidemiologist is drilled in a variety of scenarios. Together with epidemiology team, the fellow will support data collection and monitoring associated with future COVID-19 vaccination. Recent local wildfires and associated Public Safety Power Shutoffs (PSPS) have led to mass displacements into shelters and have increased the need for shelter based outbreak detection and response. In a real disaster, all staff are considered disaster relief staff. Much like his or her colleagues, the Fellow will be invited to actively participate in the response, as appropriate. The Fellow will have the opportunity to participate in the development of enhanced surveillance related to large scale emergencies, including outbreak detection systems and CASPER-type needs assessments.

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

AEF Fellows at our host site have been involved in investigating and leading outbreak investigations. Their role will largely depend on the type of outbreak. At our agency, epidemiologists lead foodborne outbreak investigations, and the fellow may be asked to lead or co-lead this type of investigation. For investigations of outbreaks at facilities, schools and other group living situations, the fellow will work closely with the communicable disease team to identify the extent of the outbreak and to gather and analyze data to help inform future prevention efforts.

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

Like all members of Epidemiology Program, the fellow will be cross-trained to provide epidemiological support to the Public Health COVID-19 response. These activities may involve, maintaining and updating weekly COVID-19 County dashboard; responding to COVID-19 data requests; collaborating with local health care partners to share local data for policy maker; and working with state public health departments.

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

Our county has consistently ranked as one of the healthiest according to the Robert Wood Johnson annual county rankings, and yet has also ranked among the worst in terms of racial equity. Our epidemiology program is regularly tasked with providing data about our most vulnerable communities to better inform policy makers regarding these inequities. Our epidemiology team is always exploring ways to better characterize populations affected by various health outcomes, to ensure that the right data is being collected and that information is being shared out to the policy makers and community stakeholders. The Fellow will be an integral part of that effort, and may be asked to explore different ways of collecting both quantitative and qualitative data in Marin that better serve all our communities.