ID: 45781332
Chronic Disease - Host Site Description
Solano County, CA

Assignment Location: Fairfiled, US-CA
Solano County
Department of Health and Social Services/Division of Public Health

Primary Mentor: Bela Matyas, MD, MSPH
Deputy Director/Public Health Officer
Solano Public Health

Secondary Mentor: Meileen Acosta, MPH
Senior Epidemiologist
Solano Public Health

Work Environment
Hybrid

Assignment Description

Solano County is part of the greater Bay Area region and is located midway between the cities of San Francisco and Sacramento. It has a population of <450,000 where more than one-third of the residents speak a language other than English. It is one of the most racially diverse counties in the nation.

Solano Public Health (SPH) is one of the Divisions in the Department of Health and Social Services (HSS). SPH offers a broad range of services such as conducting public health nurse home visits to moms and babies, advancing local ordinances that protect the health of the residents, investigating disease outbreaks, providing medical care in the clinics and preparing for public health emergencies. The fellow will be part of the Epidemiology Unit under the Public Health Administration. Also under Public Health Administration is the Public Information team, Research and Planning, Vital Statistics and Equity Coordinator. The fellow will be interacting and learning from these different teams throughout the fellowship.

The day-to-day activities of the fellow will be varied and will depend on what projects the fellow is working on at the time. It is possible that the fellow is at the analysis stage of the project and so they will be mainly focused on that for several days. Or maybe the fellow is at the evaluation stage of the project and they could be doing research online, speaking with partners or writing. Or they could be doing data collection at a community event or leading an outbreak investigation. Regardless of what the fellow is focused on on a given day, it is expected that, at the end of their 2-year fellowship, the fellow will have advanced their competencies in epidemiology, public health informatics, data science and critical thinking. They will also have had opportunities to work with different partners both within and outside Solano County. Also, at the end of the 2-year fellowship, they would have learned and practiced more about race and health equity and have helped advance the work in Public Health.

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

The following software are used by the epidemiology team and will be made available to the Fellow: SAS, R/R Studio, ArcGIS/ArcGIS Online and PowerBI. The Fellow will also be provided access to several state surveillance systems such as CalREDIE (the California disease reporting and surveillance system) and CAIR (the CA immunization registry).

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Projects

Surveillance Activity Title: Outpatient Public Health Encounters Data Discovery and Analysis

Surveillance Activity Description:
Solano Public Health receives public health encounter data from several clinics that operate in Solano County. The public health encounter data is a superset of syndrome surveillance data sent electronically through HL-7 messages. In addition to the syndrome surveillance dataset outlined under meaningful use, the public health encounter data contains other data collected routinely by providers but are not sent to health departments. These may include chronic medical conditions, blood pressure, temperature, height, weight, etc. These data, if combined with other data that the health department already receive or with other publicly-available data will provide a more complete picture of the health status of the community. In addition, these data will also be useful for the healthcare community and the general community.

Surveillance Activity Objectives:
This rich dataset has not been fully explored by the epidemiology team. The fellow will lead the exploration of the data and in understanding the dataset. They will also be responsible for the cleaning of the data, and in analyzing and interpreting them.

Surveillance Activity Impact:
It is unknown if any health department is receiving any form of public health encounter data from outpatient clinics; this may be one of very few projects attempting it. The public health encounter data can be added to other data that are being sent and analyzing by health departments and can be combined with other data to provide a richer and more robust data set for surveillance.

Surveillance System Evaluation Title: Feasibility of Incorporating Electronic Community Health Observation Data Captured in Non-healthcare Settings

Surveillance System Evaluation Description:
Healthy People 2030 identifies 358 core measurable objectives across five domains as well as development and research objectives. The five domains - health conditions, health behaviors, populations, settings and systems, and social determinants of health - are comprised of over 60 sub-objectives with multiple measures for each. Healthy People 2030 is an evolution and expansion of prior efforts under Health People 2010 and Health People 2020 and is focused on data collection in clinical healthcare settings. Resulting reports and studies have focused on the analysis of data collected to better understand and characterize the challenges in achieving population-wide health improvements.

The proposed project aims to expand data collection to include healthcare and non-healthcare settings to better characterize community health needs as they change over time; define potential public health campaigns and interventions to improve community health; and leverage prior Solano County efforts translate data to actionable information and provide timely feedback loops and metrics to monitor impact and effectives. Expanding data collection to non-healthcare settings is critical for capturing data between healthcare encounters; include those that don't have access to healthcare; and those that are reluctant, hesitant, or lacking trust in traditional healthcare.

This project is to assess the feasibility of obtaining Electronic Community Health Observation (eCHO) data in non-healthcare settings and incorporating the data to those obtained in clinical settings. The possible initial pilot sites are the public health programs that provide direct services County residents.

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Surveillance System Objectives:
There are five primary objectives for the proposed project:
1) build on Solano County's prior "Community Health and Wellness" project to gather, collate, and analyze prioritize community assessment data in healthcare and non-healthcare settings
2) to develop new analytic methods to provide actionable information county-wide, in communities, down to the census block group
3) develop a campaign to target the specific identified needs of multiple, related census block groups
4) identify and execute 1-2 pilot campaigns to address the needs
5) to gather feedback and timely campaign data to ascertain effectives and impact, enable campaign modifications to address gaps; and map to healthcare and public health metrics including healthcare HEDIS (Healthcare Effectiveness Data and Information Set) and Community Health Center UDS (Uniform Data System) measures

The expected deliverables are called out by each of the Project Objectives:
1) a documented plan built on the prior Solano County Community Health and Wellness project based on COVID impacted vaccination and wellness
2) the use of data and geospatial data to define project dashboards with geospatial temporal capacity, timely updates, and granularity appropriate for each audience
3) a real-time COVID "catch up" vaccination campaign definition that span healthcare and non-healthcare settings
4) a model project plan for the targeted proactive campaigns that can be adapted to other communities
5) summary of the feedback and resulting course corrections as well as an evaluation of the effectives and appropriateness of the dashboard, key performance indicators, and other tools to support the effort

The final deliverable "package" will be presented and shared with surrounding public health jurisdictions with a goal of extending project work to cover regions and address cross-juridictional challenges.

Surveillance System Impact:
Combining data from non-healthcare settings with healthcare settings will provide a much richer surveillance data that can be available to health departments for analyses; data that can be combined with multiple datasets and data sources to provide a more complete picture of the health status of the community and the downstream factors that impact health.

As well, Solano County expects public health to be improved by project work and building on the close relations built with community partners during the COVID pandemic. Specific improvements include better, targeted, and more timely data including from non-healthcare partners and between healthcare interactions; better collaboration and coordination with all community partners; building common understanding of the evolving needs of the community; and furthering Solano County Public Health's journey to be the proactive leader in improving the health, wellness, preparedness, and resilience of out communities while building trust.

Major Project Title: Utilizing Electronic Community Health Observations (eCHO) for Achieving Community Health

Major Project Description:
Solano Public Health is one of very few local health departments in California that developed a public health Health Information Exchange (HIE) and receives electronic immunization, laboratory, syndrome surveillance and communicable disease case report messages from all the hospital systems that operate in the county, the county clinics and the Napa-Solano-Yolo-Marin-Mendocino Public Health Laboratory. These messages are received at the individual level and offers a rich source of data. However, there are other data that are already currently being collected by health care that are not routinely reported or sent to local health departments such as height and weight (for calculating BMI), blood pressure,

chronic medical conditions, screening results, behavioral risk factors etc. In addition, data not routinely collected electronically that provide information and better understanding of the social factors that impact clients, such as Adverse Childhood Experiences (ACEs), PHQ-2/9 (Patient Health Questionnaire), abound but are not sent or reported to health departments. In addition, Solano, in partnership with clinic partners, developed the CORE questionnaire, which combined questions from the National Association of Community Health Center's Protocol for Responding to and Assessing Patient Assets, Risks and Experiences (PRAPARE) and the Civic Engine's Roots to Health Survey. The CORE questionnaire assesses the presence and severity of social and economic drivers of health.

These two groups of data sources are what Solano Public Health calls Electronic Community Health Observations (eCHO). eCHO can be combined with other primary and secondary data and provide a more complete picture of the health status of the community, help us better understand the social, economic and other drivers that impact health as well as reduce healthcare financial burden.

The eCHO project was started in 2019 and halted due to the pandemic. The fellows' main project is to re-start the initiative and pilot the project at Solano County's Family Health Services (FHS) clinics.

Major Project Objectives:
Several health clinics have tried to implement the use of social and economic drivers of health surveys and there are also several questionnaires that are either available for use or that clinic partners have used. For this project, the fellow will need to identify the healthcare partners that have piloted or implemented these surveys and learn about the results of the project, identify the different survey instruments that capture social, economic and other drivers or health and that have been utilized or can be utilized in outpatient clinics; identify healthcare partners that have utilized the survey and learn the successes and challenges; review the Solano-developed CORE questionnaire; and identify the best instrument that can be used for a pilot project at the Family Health Services (FHS) clinics.

The fellow will help pilot the survey at FHS and is the lead in understanding the data, as well as in data cleaning and analysis. The fellow will also identify how these data can be combined with the public health encounter data that Solano Public Health receives electronically. If time allows, the fellow will also help identify the trigger for referrals using the SolanoCares resource, how to best provide resource information to the client, and to determine how to obtain information on whether the client availed the referred service.

Major Project Impact:
The data available to public health departments across the country are rich and come from different sources. Some are available in electronically and in near-real time while others are yearly data available as a complete dataset. Though rich, there are gaps on data that are made available to health departments on the social and economic drivers of health as well as behavioral factors that influence health, especially at the individual level.

 The eCHO project enables health departments to develop a more robust surveillance system and combine with and analyze data from other sources, such as the US Census and other survey data, and provides a more complete picture of the health status of the community. It will also allow the early identification of outbreaks as well as disease precursors and diseases, leading to increased opportunity for prevention to delay the onset of illness or disease and to increased opportunity for interventions. Currently, it is difficult to ascertain the prevalence and incidence of chronic diseases and conditions in the community; eCHO can be used to better determine and track the prevalence and incidence of chronic conditions in the community and measure comorbid conditions. Also, eCHO data provide the health department and other partners timely access to information for targeted education, intervention and resource allocation, allowing decisions to be based on concrete data. Additionally, it allows the availability of data that helps health departments better understand barriers to accessing care and social, economic and other drivers of health and allows the availability

of, and access to, information that empowers the community to make improved decision and to advocate for their needs.

Additional Project #1 Title: Electronic Community Health Observation Visualization
Project #1 Type: Major Project

Project #1 Description:
The availability of timely data through a dashboard was one of the features of the COVID-19 pandemic. As the county, state and nation transition into a non-pandemic state, the general public as well as governmental agencies, including public health departments, expect some type of dashboard for different data, conditions and situations.

There are different ways to visualize data depending on the goal of the project and the type of data. For this project, the fellow will determine the best type of visualization in displaying eCHO as well as blended data.

Project #1 Objectives and Expected Deliverables:
Different data visualization displays elicit different responses from readers and also conveys different messages. For this project, the fellow will identify the different data visualization types and determine the best one to use to display eCHO data. Also, the fellow will determine if one visualization type is enough for use by different audiences such as the health department, healthcare partners, community-based organizations or general community? Based on findings, the fellow will develop a visualization display/s of eCHO and blended data and determine what to include in the visual as well as its appearance.

Project #1 Impact:
This project will provide a timely and easily-digestable data for those using it and that they can use for their own work for a data-driven response and action.

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

Solano County Public Health's Emergency Preparedness and Response (EPR) team coordinates the Solano Healthcare Coalition (HCC) and includes representatives from the hospital systems, emergency medical services, skilled nursing facilities, congregate residential care facilities who are responsible for emergency preparedness in their facilities. The fellow is invited to attend the meetings as well as participate in disaster planning activities such as planning and participating in table-top and full scale exercises as well as the evaluation of these activities.

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

The Epidemiology Unit is responsible for all outbreak investigations in the County. The fellow will be trained on county specific outbreak procedures and process and, after training, will be expected to participate in or lead investigations as needed. Most outbreak investigations that occur in Solano County are associated with long-term care and other congregate living facilities, schools and day care centers and include respiratory diseases (e.g. COVID-19, influenza, RSV) and gastrointestinal diseases (e.g. norovirus). Activities can include understanding the local and state guidance, determining if the occurrence meets outbreak definition, contacting the facility/organization to obtain additional information and provide guidance, determining if laboratory testing at the Solano Public Health Laboratory and coordinating with the lab as needed and regularly checking in with the facility. For foodborne disease outbreaks, the fellow may have to coordinate with other agencies outside the county during the investigation. Depending on the nature

of the outbreak and on the concurrent number of outbreaks, the fellow can spend between 5%-50% of their time for the duration of the outbreak.

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

The fellow will be involved in leading covid outbreak investigations at congregate living facilities, schools and day care and analyzing immunization and case report data used to update the covid dashboard. Depending on County covid-related activities, the fellow may be asked to assist in a vaccination clinic or identify areas with low vaccination rates for outreach.

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

The different projects described in this application looks at the social, economic and other drivers of health. As well, there are several race and health equity initiatives at the Department that the fellow can participate in such as the racial caucuses, organizational trauma-healing practice just to name a few. Solano Public Health is also one of the member-counties of the Bay Area Regional Health Inequities Initiative (BARHII), a coalition of the 11 San Francisco Bay Area public health departments whose mission is to transform public health practice in order to eliminate health inequities using a broad spectrum of approaches that create healthy communities.

As mentioned earlier, the Solano County community needs assessment process used three lenses: racial health inequities, social belonging/inclusion and trauma over the life course. The senior health assessment, performed by the Epidemiology Unit, also used the BARHII framework in the whole process, from survey development, focus group and key informant interviews, data analyses and presentation.