Host site: Missouri Department of Health and Senior Services Division of Community and Public Health

Assignment Location: Jefferson City, MO

Primary Mentor: Venkata Garikapaty, MSc, MS, PhD, MPH

Secondary Mentor: Rachael Hahn, MPH

Agency Description:
The Missouri Department of Health and Senior Services provides direct safety net services, vital records services, and public health essential function support to local agencies within a decentralized state public health system. The mission of the Department is to protect health and keep people safe. The Section of Epidemiology for Public Health Practice, where both mentors on this application hold positions, provides epidemiologic support to a vast array of public health programs and partners, including Federally Qualified Health Centers, local public health agencies, healthcare systems, and others. This includes providing evaluation services to internal and external programs, public presentations, and data visualizations. The office culture in the Section strives to be inclusive and foster a collaborative and friendly environment for all staff.

Assignment Description:
The APHIF Fellow will work on a variety of projects to improve the efficiency of statewide surveillance activities. The Missouri Department of Health and Senior Services is currently evaluating its disease registry that houses communicable diseases and some chemical exposure-induced conditions. Many reports are manually submitted through confidential fax. In some instances, this is due to insufficient internet connectivity and in others it’s due to a lack of resources within the Department or in healthcare provider agencies to onboard providers to electronic submission of case and laboratory reports. The Fellow will have the opportunity to impact this process at its outset and greatly improve services to Missourians.

The assignment will also involve improvement of several ongoing early detection/forecasting efforts that are currently in place for syndromic surveillance and COVID-19 modeling. For example, Missouri has a well-developed, statewide sewershed testing program in place for COVID-19 detection in wastewater that is not currently utilized in modeling. The fellow would have the opportunity to integrate sewershed data into the current model parameters and evaluate the models’ predictive capabilities.

Preferred Background & Skills:
Preferred skills for a Fellow matched to Missouri Department of Health and Senior Services include:
Master of Public Health with an emphasis in Epidemiology or Biostatistics Experience with data science
Experience with public health or healthcare informatics Experience with a statistical package (SPSS, SAS,
R, or STATA) Highly developed collaboration and customer service skills

What can the fellow expect to gain from 2 years at this host site?

At the end of the fellowship, the Fellow will have in-depth knowledge of public health surveillance
systems and highly developed skills in public health informatics process improvement, data quality
assurance, analysis, and visualization. The Fellow will also develop a large network of healthcare and
public health contacts in Missouri to help open up career opportunities once the fellowship has
concluded.

Potential Projects include:

Host sites have listed up to 5 projects

Project 1: Business analysis of current Missouri Department of Health and Senior Services data systems.

Objective: Determine the best disease registry, immunization information system, vital records, and
public health laboratory data integration systems possible. Deliverable: written business analysis of all
data systems used to conduct public health surveillance in the State of Missouri. The expected public
health impact of this project is that data systems chosen for implementation, if any changes are
recommended, will result in more efficient and interoperable surveillance processes that require less
manual intervention. Faster communication of public health trends will allow earlier and more effective
interventions for Missourians.

Project 2: ESSENCE onboarding and QA for providers

Objective 1: Increase the percent of hospitals with Emergency Departments (EDs) submitting data to
Missouri’s syndromic surveillance system, ESSENCE. Objective 2: Increase the accuracy and timeliness of
data submitted to ESSENCE through provider training, IT collaboration, and quality assurance analysis.
Deliverable 1: 5% increase in the percent of hospitals with an ED submitting data to ESSENCE (baseline-
66%, covering 77% of total ED visits). Deliverable 2: Increase in data quality submitted to ESSENCE to aid
in early detection of possible public health emergencies. The public health impact of this project is that
syndromic surveillance coverage will reach 80% of Missouri ED visits. Additionally, misclassifications or
other errors in syndromic surveillance data will decrease. This means that the likelihood of detecting
possible public health emergency events prior to laboratory reports will increase, and allow for earlier,
more effective interventions.
Project 3: Evaluate, revise, and adapt forecasting models developed for COVID-19 response to other common respiratory illnesses

The Missouri Department of Health and Senior Services partnered with Washington University in St. Louis to develop short-term forecasting models for COVID-19. The model focused on hospitalization data as the main input, as this was expected to remain relatively constant in terms of the percent of cases that required medical intervention. As time went on and the diagnosis became more common, it’s possible that individuals were less likely to seek testing when they suspect COVID and do not need a work excuse, making confirmed cases subject to selection bias. Objective 1: Evaluate the accuracy of the COVID-19 model at its current state. Objective 2: Evaluate the model fit for additional variables, including case data and sewershed testing data. Deliverable: Written report on the accuracy of the COVID-19 forecasting model, including recommendations for additional variables to increase its predictive power. The public health impact of this project will be to increase the coverage for syndromic surveillance and early detection of public health emergency events.

Project 4: Reportable Disease Result Reporting Process Improvement

Objective 1: Increase the number of laboratories, hospitals, and providers submitting communicable reportable disease results to Missouri’s reportable disease surveillance system, WebSurv, and Missouri’s COVID surveillance system, EpiTrax. Objective 2: Increase the accuracy and timeliness of data submitted to WebSurv and EpiTrax through quality assurance analysis and reporter education. Deliverable 1: Increase in the number of laboratories, hospitals, and providers submitting communicable reportable disease results to WebSurv and/or EpiTrax (baseline-25,672 reporters). Deliverable 2: Increase in data quality submitted to WebSurv and EpiTrax to aid in public health investigations. Communicable disease result reporting is the catalyst to public health investigation and is critical in the planning and evaluation of disease control and prevention. Without timely and accurate information from reporters, public health investigators cannot identify and respond to outbreaks and initiate appropriate treatment and other prevention methods to help mitigate the spread of disease.

Project 5: Communicable and Sexually Transmitted Disease Data Dissemination

Objective: Design workflow for integrating communicable and sexually transmitted disease data into the Missouri Public Health Information Management System (MOPHIMS) platform. MOPHIMS displays simple incidence and prevalence tables that can be parsed by demographic factors and mapped. Deliverable: Integration of all STDs and the five most commonly reported communicable diseases into the MOPHIMS platform. The impact of this project would be greater transparency and usability of data for the public and other audiences.

Additional information about the placement:

No additional information provided.