Agency: Weld County Department of Public Health and Environment

Project Title:
Geospatial Analysis of COVID-19 Public Health Assessment Survey, Communicable Disease Registry (eCR), Laboratory (ELR), and Immunization Registry Data to Plan and Prioritize for Future Resource Needs in Northern Colorado

Project Description:

Problem statement: Sound and actionable public health data are critical for public health agencies as well as their partners in order to respond promptly and efficiently to diverse emerging health threats, such as COVID-19. As of October 2022, over 100,000 confirmed and probable COVID-19 cases have been reported in Weld County, however, the burden of COVID-19 was not spread equally among county residents. For example, the gap between age-adjusted death rates for COVID-19 was nearly three-and-a-half times higher for Hispanic/Latino residents compared to non-Hispanic/Latino residents in 2020 (221.8 per 100,000 vs. 61.0 per 100,000 residents), representing an immense burden for this community.

As a medium-size Public Health Accreditation Board (PHAB) accredited local public health agency (LPHA), we strive for excellence, however, during the current COVID-19 pandemic, we learned that our data management and analyses capabilities were strained. We added epidemiology, data, and support staff, acquired new data and analytic tools, consulted with our state public health department, and networked with other LPHAs, but we still have a substantial need to expand our capabilities regarding geospatial analyses and incorporating data across various sources, especially with COVID-19 data.

Proposed methods: This project will conduct geospatial analyses of multiple datasets. SAS software will be used to analyze complex, weighted public health assessment survey data to assess the attitudes and beliefs of residents regarding COVID-19 testing, vaccination and perceptions. We will examine all data by various factors, including gender, age, race, ethnicity, education level, income level, and region within Weld County since our complex survey data allows for a high degree of granularity. Then, we will incorporate eCR, ELR and immunization registry data analyses including case rates, outbreaks, testing rates, positive test rates and immunization rates to our survey data. We will produce basic descriptive statistics and conduct appropriate statistical and geospatial analyses to examine associations in GIS software.

Expected outcomes: At the local level, our project touches on all the DMI priorities but for the purpose of this application we have narrowed it down focus on the Priority 2 activity “Accelerating Data to Action.” Specifically, this project would focus on objective 2b and objective 2e.

Participating in DSTT will greatly support the data science capacity at our agency. This support would foster the skills and abilities to examine multiple data sources, produce maps, and consider geospatial analyses like this for future public health emergencies.