Infectious Diseases

San Bernardino County Department of Public Health, Communicable Disease Section

San Bernardino, California

Assignment Description

The CSTE fellow will work directly with San Bernardino County Department of Public Health (SBC DPH) Communicable Disease Section (CDS) program to monitor infectious disease trends and develop a sustainable plan to address the burden of unique communicable diseases within the County, specifically focusing on addressing high priority areas including vaccine preventable diseases (VPDs) and Sexually Transmitted Diseases (STDs). CDS is responsible for tracking, monitoring, and assessing communicable diseases that arise throughout the county. CDS reduces the spread of communicable disease by investigating reported diseases, implementing control measures, tracking disease trends and identifying potential sources of disease outbreaks.

CDS nurses provide case management of active and suspect cases of tuberculosis (TB) and ensures completion of long-term medical management. Staff provides direct-observed therapy for TB patients throughout the county.

Additionally, CDS aims to reduce vaccine-preventable diseases by improving immunization practices in physician offices and clinics and by encouraging vaccinations across the lifespan and monitoring how well schools and childcare centers comply with immunization laws. CDS also works to reduce the spread of STDs by bringing partners together from various organizations to participate in the Community STD Task Force. Community engagement efforts assist in promoting awareness and education of preventable diseases, such as HIV and Congenital Syphilis.

Further, CDS collaborates closely with the Preparedness and Response Program (PRP) within DPH, preparing for natural and man-made disasters and disease threats. PRP works collaboratively with other emergency responders, healthcare facilities, and residents in order to serve the community. PRP focuses on planning the response to disease threats, such as influenza pandemics, bioterrorism, and health hazards associated with natural disasters. CDS also works in close collaboration with the Research, Assessment, and Planning (RAP) office for externally requested epidemiological analysis projects. The RAP unit is charged with carrying out research requests, evaluating program activities, assessing departmental plan goals and objectives, and documenting performance outcomes for measures defined by the state and federal agencies as well as the program leadership. Staff are trained to study patterns of frequency, as well as causes and effects of disease and social determinants of health within the community. Staff provide evidence-based decision-making support to program and executive leadership through the development of data collection mechanisms and the analysis and reporting of primary and secondary data sources. Data cleaning and preparation, creation of surveys, map making, and spatial analysis, reports preparation, and visualization development are all essential tasks of the team required to examine health issues, social factors that impact health, and program and community outcomes from services and policies of the health department.
**Day-to-Day Activities**

Day-to-day activities will vary depending on communicable disease reports received. Training on all infectious diseases will be segmented throughout the first year and will be conducted daily. Training topics will begin on proper investigation techniques and analysis, followed by STD and HIV training modules aimed to equip the fellow in conducting routine investigations. This module will be followed by a thorough training of vaccine-preventable diseases (VPDs). To fully train the fellow on communicable diseases, modules to follow will include enteric diseases, animal bites and rabies, outbreak investigations, vector-borne diseases, and respiratory illnesses. When there is a report of a healthcare-associated infection (HAI) or foodborne outbreak investigation (FBI), the fellow will lead planning and outreach efforts with close mentorship. Additional tasks will include the development of weekly reports that summarize communicable disease issues within our county. Weekly reports include vector-borne disease notifications for internal and external partners in order to provide direction for additional environmental sampling and surveillance. Weekly influenza-like-illness reports that summarize data through multiple channels will also be produced. Additionally, the fellow assist in developing monthly reports on communicable diseases and develop action plans based on findings. The fellow will also produce congenital syphilis case reports and abstract data from medical records for epidemiological review in collaboration with CDPH.

**Potential Projects**

**Surveillance Activity  Hepatitis A Cluster Analysis**

As ongoing outbreaks of hepatitis A virus (HAV) continue to emerge throughout the nation and adjacent counties, it is an important function of CDS to maintain thorough follow-up and assessment activities. Between January 1 and October 3, 2019, SBC DPH identified 25 HAV case-patients; as compared with three case-patients reported in 2018. San Bernardino has been identified as a priority area from CDPH for HAV response due to the persistent rise of cases. The fellow will conduct enhanced surveillance activities and assessments that include analysis on clinical and demographic data, risk factors, and produce recommendations on additional prevention and control measures. Additionally, it is expected that the fellow provides pertinent information to key stakeholders through presentations as needed. Analyzed data will be used for ongoing targeted vaccination campaigns among at-risk populations for the duration of the CSTE fellowship placement.

**Surveillance Evaluation  Syphilis Surveillance Reactor Triage System Evaluation**

All reports of syphilis are reported through the California State-wide Surveillance system known as CalREDIE. However, not all syphilis cases are investigated due to the implementation of the state-wide reactor triage system, which prioritizes case investigations based on RPR titers and age. Effectiveness of this triage system may vary between counties due to morbidity or other unknown variables. Currently, very little symptom and treatment information is obtained for individuals who are deemed lower priority cases. There is often no way to determine if the patient received the appropriate treatment recommended for the stage of infection without proper follow-up. The fellow will review medical record information to evaluate the effectiveness of using this triage system in a San Bernardino County, which is considered to be a high morbidity area.
Major Project  Congenital Syphilis Case Management System

CalREDIE is designed to be a surveillance system used to report and confirm infectious disease among resident populations. Cases of congenital syphilis are followed up until titers are non-reactive, which can be up to 12 months of age. With the rise in number of congenital syphilis cases, development of a system to manage information including titers, case notes, contact information, and provider interactions is needed.

Additional Project  Morbidity and Mortality Review Boards

The fellow will perform data abstraction from medical records, employ evidence-based methods to examine morbidity and mortality among congenital syphilis cases, and determine intervention areas. The fellow will be expected to lead a multi-disciplinary team to review case details from de-identified case summaries. The purpose of this project is to identify missed opportunities in testing, treatment and follow-up in order to learn from and apply findings to prevent additional cases.

Preparedness Role

The fellow will join in on functional exercises coordinated by the Preparedness and Response Program (PRP) within SBC DPH as well as lead a competency-based surge capacity training on emergent infectious diseases.

Additional Activities

The fellow will also be involved in preparing data and presentation materials for APIC, and Preventive Veterinary Medicine presentations.

Mentors

Primary  Erin Gustafson, MD, MPH
Medical Director/Assistant Health Officer

Secondary  Diana Ibrahim, MPH, BS
Program Coordinator