Infectious Diseases, Chronic Diseases

District of Columbia Department of Health, Center for Policy, Planning & Evaluation
Washington, District Of Columbia

Assignment Description

The District of Columbia Department of Health, Center for Policy, Planning and Evaluation (CPPE) is interested in recruiting a CSTE Fellow to participate in a variety of activities on infectious disease and some aspects of chronic diseases. The Fellow will be located in the Division of Epidemiology-Disease Surveillance and Investigation (DE-DSI) within CPPE and will perform duties assigned to DE-DSI.

The DE-DSI is responsible for surveillance, investigation, and control of reportable diseases within the District, with the exception of sexually transmitted illnesses, hepatitis, HIV/AIDS, and tuberculosis. The program collects, analyzes, interprets, and disseminates data, and provides expertise and information on disease management. Data collected by DE-DSI are reported to the Centers for Disease Control and Prevention (CDC) through the National Electronic Disease Surveillance System (NEDSS)-Base System (NBS). Case reports are received from physicians, laboratories, and infection control practitioners in hospitals. Cases are investigated and specimens are collected for analysis and diagnosis. Epidemiological data are monitored routinely to detect increases in the frequency of disease and potential outbreaks. The program is also actively engaged in syndromic surveillance activities that are now being expanded to include other non-traditional surveillance activities including non-bioterrorism-related activities.

Day-to-Day Activities

The Fellow will join a team of data analysts, epidemiologists and statisticians in data collection, analysis and production of statistical reports for program development, evaluation and policy development. He/she will participate in office meetings and will have the opportunity to collaborate with other team members on new and existing projects. He/she will review journal articles and lead discussions at the CPPE monthly epidemiology grandrounds, and assist with development of health messages. He/she will meet frequently with mentors to discuss issues and priorities, as well as problems encountered while carrying out his/her assignments.

CPPE has special relationships with Howard, George Washington and Georgetown Universities and federal agencies abound in the area, which offer the possibilities of collaboration. The Fellow will have the opportunity to present to programs within DCDOH, national meetings, and publish project work in peer-reviewed journals including the CDC MMWR.
Specific activities include the following:

- Performs activities associated with the collection, management, analysis and dissemination of surveillance and survey data.
- Performs statistical analysis of large complex and local datasets.
- Evaluates and analyzes data to make recommendations for public health policies, promotion, and disease prevention.
- Conducts epidemiological research.
- Conducts syndromic surveillance and reports findings to various stakeholders.
- Enter infectious case reports into the DC NEDSS-Base system.
- Conducts data collection and tracking of persons who have been to Ebola affected countries.
- Coordinates data collection for individual cases and infectious disease outbreak investigation including questionnaire design and interviewing of both cases and controls.
- Prepares a weekly record that includes surveillance data, completed investigations, and the status of ongoing investigations.
- Writes reports and disseminate information on investigated outbreaks and surveillance data.

**Potential Projects**

**Surveillance Activity**

Expanding and maintaining surveillance of reportable diseases, syndromic surveillance for bioterrorism, and veterinary diseases in the U.S. Capital.

The fellow will assist with investigating reportable disease outbreaks in the District of Columbia. This includes vector borne diseases, foodborne illnesses, zoonotic diseases, active monitoring for Ebola virus disease, and various other infections: excluding sexually transmitted infections and tuberculous. This includes conducting patient interviews, managing large datasets, conducting statistical analysis, and reporting cases to the CDC utilizing the National Electronic Disease Surveillance System (NEDSS) Base System (NBS).

Additionally, during National Special Security Events held in the District the fellow will assist with daily syndromic surveillance for bioterrorism events, utilizing the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE). This includes real-time surveillance of medical aid stations set up on event grounds, and working closely with emergency management personnel. The primary event during the fellow’s appointment will be the 2017 presidential inauguration.

Lastly, in the fall of 2015 an animal disease surveillance system was established in the District of Columbia. The system currently tracks rates of canine influenza, canine leptospirosis, canine parvovirus, antibiotic resistant infections and various syndromic indicators of disease. This is one of the only systems in the U.S. of this scale and can serve as a model for other U.S. cities and states. The fellow will maintain the system and manage increased surveillance efforts during special security events (i.e. presidential inaugurations). This involves working closely with veterinary and animal facilities within the District. As the system progresses, there is the potential to expand it to include other zoonotic diseases of interest.
Surveillance Evaluation of the National Capital Regions (NCR) use of the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE)

Over the past few decades syndromic surveillance has emerged as an essential tool in the early detection of bioterrorism events and naturally occurring infectious disease epidemics. ESSENCE is a syndromic disease surveillance system utilized in the Washington D.C. metropolitan area developed by Johns Hopkins University Applied Physics Laboratory (JHU/APL) and the Division of Preventive Medicine at the Walter Reed Army Institute of Research.

ESSENCE captures ambulatory transport data, emergency department (ED) chief-complaint records, school-absenteeism data, as well as over-the-counter (OTC) and prescription medication sales. This allows for real-time surveillance, creating daily rates for diseases and events of interest. During special security events (i.e. presidential inauguration, 2015 Papal visit, etc.) held in the NCR, daily syndromic disease surveillance is conducted among all stakeholders in the District of Columbia, Maryland, and Virginia. These increased surveillance periods start before and continue after events to account for the incubation periods of bioterrorism agents. An evaluation of ESSENCE and the increased surveillance protocols will ensure that it continues to function as efficiently as possible into the future.

Major Project Food Safety Knowledge and Practices among District of Columbia Residents

Understanding food safety practices in the community is helpful in reducing food-borne illness. To date, no such study has previously been conducted by the District of Columbia Department of Health to understand food safety practices in the community. The aim of this study is to determine the factors that are responsible for the spread of foodborne diseases in the District of Columbia, identify research gaps and make recommendations for future research.

A survey will be conducted covering questions pertaining to the frequency of food preparation, sources of food safety information, consumer confidence and assigned food safety responsibility, awareness of food safety, knowledge of high-risk groups and high-risk foods, knowledge food safety practices, and personal experience with food-borne illness. The results of the study will contribute to our understanding of areas requiring targeted consumer food safety education such as increasing thermometer use when cooking meats, raising awareness of high-risk populations and knowledge of high-risk foods, and expanding messaging to the internet and social media. Future research could include observational studies to validate results from self-reported food safety practices, and provide more accurate information on food handling practices.
Additional Project

Factors Affecting Influenza Vaccine Coverage in the District of Columbia

The "Flu season" in the U.S. can begin as early as October and end as late as May. The influenza vaccine protects against three or four influenza viruses that have been determined to be the most common during the upcoming season. During a regular flu season, about 90 percent of deaths occur in people aged 65 years or older. In 2013, 61.5% of District adults did not have a flu shot/spray in the past 12 months. District adults who were less likely to have had a flu shot/spray in the past 12 months were, male aged 18-39 years, African American, persons with some college education, those with household income of $25,000-$34,999 and persons who reside in Ward 7.

District adults aged 65 years or older saw a steady decrease among residents who did not take the flu shot/spray compared nationwide where rates have fluctuated from 2011-2013. Substantial improvement in annual influenza vaccination of recommended groups is needed to reduce the health effects of influenza and reach Healthy People 2020 targets. No single data source provides season-specific estimates of influenza vaccination coverage and related information in place of influenza vaccination and concerns related to influenza and influenza vaccination.

Vaccinations are recommended throughout life to prevent vaccine-preventable diseases and their sequelae. Adult vaccination coverage, however, remains low for most routinely recommended vaccines and below Healthy People 2020 targets. This study is designed to assess vaccination coverage among adults aged >18 years and factors influencing influenza vaccine intake using the District of Columbia Behavioral Risk Factor Surveillance System.

Risk Factors for Delay in Age-Appropriate Vaccinations Among School Children in the District of Columbia

Immunization protects against serious diseases, which can cause disability and death. These diseases used to strike thousands of children each year. During the 5-year period examined, 2008-2012, there were a total of 382 confirmed or probable cases of vaccine preventable diseases among residents of the District of Columbia. Among these diseases, the five most common in the District of Columbia were: Haemophilus influenzae Type B, Mumps, Pertussis, Shingles, and Varicella. Today there are relatively few cases, but outbreaks still occur each year because some babies are not immunized.

Vaccination has been shown to reduce mortality and morbidity due to vaccine-preventable diseases. However, The District of Columbia Department of Health still receives several reports of vaccine preventable diseases every year. This may be due to low vaccine coverage or delay in receipt of age-appropriate vaccines. The objective of this study is to determine the timeliness of routine vaccinations among children aged 5-17 years. Data from the DC Immunization Registry will be used for this study. A cross-sectional survey will be conducted. Vaccination dates will be obtained from the Registry and timeliness assessed based on the recommended age ranges for vaccinations in the US. Risk factors for delay in age-appropriate vaccinations will be determined using logistic regression.
**Preparedness Role**
The CSTE fellow will participate in emergency response training, exercises, and actual events based on the State Emergency Preparedness plan. He/she will also participate in emergency preparedness activities, disease surveillance and investigation. The Fellow will conduct regular syndromic surveillance and produce reports.

The fellow will also participate in health surveillance activities during Nation Special Security Events when they occur, for example, the Presidential Inauguration. These activities will be performed in collaboration with the DCDOH Health Emergency Preparedness and Response Administration (HEPRA).

**Additional Activities**
The fellow may be involved in data analysis, especially the use of the BRFSS and hospital discharge data to provide information or reports on any of the following:
- Burden of chronic diseases and risk behaviors
- Smoking duration, respiratory symptoms, and COPD in adults aged >45 years with a smoking history
- Body mass index, respiratory conditions, asthma, and chronic obstructive pulmonary disease
- Trends in major risk factors for cardiovascular disease among adults

**Mentors**

**Primary**
John Davies-Cole, PhD, MPH  
State Epidemiologist

**Secondary**
Sasha McGee, PhD, MPH  
Senior Infectious Disease Epidemiologist