Infectious Diseases- HAI
Kentucky Department for Public Health, Division of Epidemiology and Health Planning
Frankfort, Kentucky

Assignment Description

The CSTE Fellow will be working at the Kentucky Department for Public Health (KDPH) located in Frankfort, Kentucky. Frankfort is the capital of Kentucky and is approximately 30 minutes from Lexington and 60 minutes from Louisville. The Fellow will serve under the Division Director’s Office of the Division of Epidemiology and Health Planning but will most likely physically sit within the Infectious Disease Branch.

The CSTE Fellow will work primarily as an infectious disease epidemiologist and can expect to have a multifaceted experience in a state health department. The fellow will have the opportunity to choose from a variety of epidemiologic activities, spanning the gamut of infectious disease outbreaks to surveillance activities to preparedness to vital statistics. Beyond involvement in the healthcare-associated infections (HAI) program and with outbreaks as they occur, several defined infectious disease projects, and a number of non-infectious disease projects are available. The fellow is encouraged to develop additional projects in their own particular areas of interest during their assignment in Kentucky. We have identified a menu of key initiatives from which the fellow can select projects to give the widest exposure to applied public health and epidemiology (see the Potential Fellow Projects description boxes below) but also match the fellow’s areas of interest and career goals.

We want to promote maximum flexibility for the fellow in choosing projects, and which projects to engage in more deeply. We believe this flexibility with projects facilitates epidemiology competency development that will be competitive for future employment in applied public health roles. All of the primary activities and projects for the CSTE Fellow would entail “hands-on” public health activities involving KDPH, other public health agencies, hospitals, and other external partners. Activities and projects will include the full spectrum of program planning, organization, administration, and reporting of these activities or projects. The effective CSTE Fellow in this position will carry parts or all of initiatives and projects from the idea stage through the planning process to the implementation phase, have the opportunity for evaluation, and finally, work on reporting of results depending on the timing of the project and the fellow’s tenure in Kentucky.

Day-to-Day Activities

The CSTE Fellow’s day-to-day activities will vary with each project but will generally be related to KDPH ongoing work and CSTE Fellow projects related to infectious disease surveillance, reporting, and investigation of outbreaks. A typical day could involve meeting with mentors, meeting with KDPH or other state and local staff individually or in groups, responding to urgent public health issues, or interacting with Regional Epidemiologists or other staff at Local Health Departments, hospital infection preventionists, or external partners. Interactions outside of KDPH could be via telephone, email, videoconference, Webinars, or in-person meetings. Daily activities will also include analyzing data, participating in field investigations, preparing surveys or reports, and preparing findings for conference presentations or manuscript publication. We have had numerous public health responses in the past years, so involvement in department incident command structure will likely be a part of this experience.
Potential Projects

Surveillance  Healthcare Associated Infections Validation Process
Activity
KDPH has a strong healthcare associated infections (HAI) program and is making in-roads in collecting data from hospitals about HAI’s through passage of a new regulation making HAI’s officially reportable in Kentucky starting in 2016. Creation of a healthcare facility “validation process” for HAI data being collected and submitted to the National Healthcare Safety Network (NHSN) - a national database at the CDC for the reporting and collection of HAI data - would be a useful tool for KDPH to assess the accuracy and completeness of data being submitted nationally and could improve the surveillance process, giving higher quality data for epidemiologic analysis and prevention activities. The Fellow is coming in at an ideal time with the introduction of mandatory HAI reporting and the need for KDPH to create, maintain, and analyze this new source of data.

Surveillance  Immunization Registry Surveillance Evaluation
Evaluation
Kentucky is implementing a comprehensive immunization registry for use by both the private and public sector statewide by early 2015. A CSTE Applied Epi Fellow would have the opportunity to evaluate the implementation of the registry and compare the new registry to the previous registry that was only used essentially by local health departments. It is anticipated that this new data tool will provide the fellow with ample opportunity for additional data abstraction and study as well. Evaluating the effectiveness of the interface between the immunization registry, the Kentucky Health Information Exchange (KHIE), a new electronic health record system (eClinicalWorks) just implemented in all local health departments, and clinical providers for data completeness, accuracy, and timeliness is an additional avenue the fellow could pursue.

Major Project  Viral Hepatitis Analysis and Prevention Activities
In Kentucky, cases of acute hepatitis C have dramatically increased in both rural and urban communities giving Kentucky the highest rate of acute HCV in the nation. Between 2009 and 2013 reported rates of acute hepatitis C increased by 240%. Kentucky also ranks number two for acute Hepatitis B infection. The CSTE fellow will work with the KY DPH Adult Viral Hepatitis Coordinator, Kathy Sanders, to strategize ways to improve surveillance, evaluate current surveillance processes, and improve and target prevention activities. This includes establishing baseline epidemiological data for viral hepatitis cases by Kentucky county in the last decade of the 20th Century and the first decade of the 21st Century and could involve geo-mapping related to incidence. Additional opportunities include perinatal HCV surveillance and epidemiological data evaluation, establishing HCV training, education, and screening with local health departments interested in working with drug courts and the legal system, foster families, and school health programs, and working with the KY Maternal and Child Health Neonatal Absence Syndrome reporting system data.

Major Project  Drug Overdose Analysis
Kentucky’s rate of drug overdose deaths has increased four-fold in the past decade from 5.9 per 100,000 in 2000 to 23.7 per 100,000 in 2013. According to data from the National Center for Health Statistics (NCHS), Kentucky had the second highest drug overdose death rate in the U.S. in 2013 due to overdoses of prescription drugs, heroin, and other illicit drugs. The research fellow assigned to Kentucky will gain valuable experience working side-by-side with the expert biostatisticians and epidemiologists at the Kentucky Injury Prevention and Research Center (KIPRC), a bona fide agent of the state, to analyze data related to drug abuse deaths and hospitalizations.
The fellow will analyze the Kentucky All-Schedule Prescription Reporting System (KASPER) data (KY’s statewide controlled substance prescription database) and relate that information back to data on drug abuse deaths and hospitalizations. There will also be an opportunity to examine drug overdose deaths by ICD-10 code and categorize those deaths into single, dual, or polypharmacy categories. All of these analyses would be beneficial for public health professionals, law enforcement, medical providers, and legislators. Kentucky, through KIPRC, is one of only 16 states that received the CDC Prescription Drug Overdose Prevention for States grant. KIPRC has taken a nationally-recognized leadership role in the analysis of drug overdose mortality and morbidity data.

**Additional Epidemiology of Infectious Diseases in Appalachian Communities Project**

Rural Appalachia is one of the poorest areas in the United States and tops the list of negative public health outcomes in many areas. The Division of Epidemiology is working to form a coalition workgroup including all the state agencies and offices that deal with substance abuse issues, such as HIV/AIDS, STDs, viral hepatitis, our controlled substance monitoring program, KY Injury Prevention Research Center, etc. With the nearby explosive outbreak of HIV among injection drug users in Austin, Indiana, this issue has taken on an added element of urgency. A project of interest to KDPH would be to look at the epidemiology (e.g., the risk factors, distribution, high-risk groups within the population) of cases of several infectious diseases and compare those to non-Appalachian areas. This could reveal some particular groups to target for intervention and prevention strategies and could help reduce the rates of diseases in these highly-endemic areas.

**Preparedness Role**

Incoming fellows will engage in preparedness projects and activities throughout the tenure of their fellowship and are encouraged to participate in emergency public health response activities. In recent history, Kentucky has experienced several large-scale natural disasters and outbreak investigations requiring public health response, ebola most recently. Previous fellows have been integrated into all aspects of emergency public health response ranging from pre-event planning to training to fulfilling Emergency Operations Center roles to field data collection during actual responses (e.g., 2009 KY Ice Storm), planned mass gatherings (e.g., 2010 World Equestrian Games and annual NASCAR Sprint Cup events), and training exercises (e.g., USPHS Training Missions in 2010). The CSTE fellow may also participate with local health department preparedness operations for annually-scheduled large scale events (e.g., the Kentucky Derby in Louisville). The Fellow’s role in emergency preparedness can be as large or as small as the fellow desires.

**Additional Activities**

There are a myriad of proposed projects that the fellow could engage in, including things like: Deployment to hospitals or long-term care facilities to assist with and later coordinate HAI outbreak investigations in healthcare facilities; Evaluation of human papillomavirus (HPV) vaccine administration in Kentucky counties with the highest incidence of cervical cancer versus HPV vaccine administration in counties with the lowest incidence of cervical cancer; Comparison of the epidemiology of cases of Sexually Transmitted Diseases (STDs) in Kentucky over the past two decades; or Epidemiology of the syndemics (two or more diseases that, in combination, interact to exacerbate negative health effects of one or more of the diseases) of STDs, TB, HIV, viral hepatitis, and drug/alcohol abuse in Kentucky. The fellow is encouraged to explore the many possibilities for projects of interest in Kentucky and focus on opportunities that most engage the fellow and move them toward their career goals.
| Mentors | Douglas Thoroughman, PhD, MS  
CDC Career Epidemiology Field Officer, Deputy State Epidemiologist |
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| Secondary | Robert Brawley, MD, MPH, FSHEA  
Infectious Disease Branch Chief |