Infectious Disease

Assignment Description

The CSTE Fellow would be assigned to support the Disease Investigation Branch, primarily in the area of respiratory disease surveillance to evaluate such, enhance existing systems including developing and/or improving questionnaires, and analyze and interpret data collected. Support to this area, however, entails an overlap with other areas within the Disease Outbreak Control Division, and the fellow would have the opportunity to participate in other areas of interest (e.g. investigations of angiostrongyliasis, participation in the annual school flu vaccination program, assessments of antimicrobial resistance) as long as his/her primary project was progressing as agreed upon with his/her mentors. In addition, the Fellow would be expected to gain experience in managing and addressing public inquiries through occasionally being assigned to be the duty officer of the day; this responsibility would lead to sometimes investigating individual cases of infectious disease and potentially even being the lead investigator for a disease outbreak.

Day-to- Day Activities

The Fellow's primary project would be his/her main focus. In addition, depending on the fellow's initiative, efficiency, and interest, he/she may engage in other activities (e.g. minor involvement in a major project or another smaller project or investigation). The daily schedule would include time for background research and documentation. As part of the Fellow's project, some days may include meetings with other staff and/or with outside stakeholders. Regarding formal meeting requirements, initially the Fellow would meet with the mentors twice per week to discuss and review plans, project(s)/activities status, steps for progression, etc.; gradually, as the Fellow gained more confidence and experience and demonstrated steady progress in his/her activities, the number of formal meetings with the mentors would be expected to decrease. Other formal meetings the Fellow would be expected to attend include the weekly meetings of the Field Investigators, monthly DIB meetings, and quarterly DOCD meetings.

Potential Projects

Primary project – air traveler screening The CSTE Fellow's primary project will focus on developing, establishing, and assessing a screening program primarily for arriving domestic but also international air passengers at the Honolulu International Airport by utilizing an in-flight health questionnaire. Hawai'i is a major travel destination and hub. The risk that a communicable disease could spread easily from an endemic area to Hawai'i is high, which was most clearly demonstrated during the H1N1 pandemic. Since 2005, the Disease Outbreak Control Division (DOCD) Disease Investigation Branch (DIB) has maintained a passive surveillance program to attempt to detect influenza-like illness (ILI) among international air travelers and determine what flu strains may be entering the state. This ongoing passive surveillance takes advantage of the requirement for international air crews to notify the airport of any ill passengers. Any passengers who fulfill ILI criteria are assessed by the local Centers for Disease Control & Prevention (CDC) Quarantine Station staff and swabbed for a respiratory specimen for influenza testing. In 2008 and early 2009, DIB was able to conduct active screening of arriving international air travelers on three separate flights. In contrast to the passive surveillance program, all passengers on the selected flights were required to complete a questionnaire while in-flight and then pass through a primary health screen station on arrival before clearing Customs & Border Protection. Any who reported or were assessed to have symptoms suggestive of ILI were directed to a secondary medical screen. While we continue to

gather data from the passive surveillance system and have completed the active screening program, many questions still remain. What is the baseline prevalence of ill travelers? Would travelers comply with travel restrictions and requirements during a public health emergency? What factors impact whether a person would travel ill or not? Also, from our H1N1 pandemic experience as well as other interpandemic experiences, we recognize that there needs to be more focus and evaluation of domestic travelers as they are just as likely, if not more so, to bring a communicable disease into our state. The CSTE Fellow would be expected to help develop a brief health questionnaire that could be administered to primarily arriving domestic travelers while still in-flight. Close coordination with airport and airline partners to negotiate performing this screening will be required to develop and agree upon the details of the logistics/methods. The Fellow would clean, analyze, and interpret the data collected through this screening project with the intent that findings would facilitate preparedness planning, better understanding of the basic epidemiology of ill travelers, and future policy making with regard to potential travel restrictions as well as any screening that might or might not occur during a public health emergency.

Examples of other potential projects – as time permits Antimicrobial Susceptibility Test Result Data Analysis The State of Hawai‘i Antimicrobial Resistance Project (SHARP) Data System is the repository for the majority of antimicrobial susceptibility test (AST) data collected from major clinical laboratories in Hawai‘i. Statewide data are available from 2005. Since comprehensive organism data are received from all participating data providers, the SHARP Data System is a rich resource for antimicrobial resistance data analysis and reporting. Given the current concerns regarding antimicrobial resistance (e.g., gram negative or enterobacteriaceae, methicillin resistant Staphylococcus aureus, and drug resistant Streptococcus pneumoniae), we would have ample data and resources should the CSTE Fellow want to develop a focused project with his/her mentors to, for example, assess and describe the epidemiology of such in Hawai‘i. Angiostrongyliasis Surveillance Eosinophilic meningitis and angiostrongyliasis have been reportable in the State of Hawai‘i since January, 2005 in response to reports of several cases with eosinophilic meninigits and complicated neurological outcomes, all likely the result of angiostrongyliasis. Angiostrongylus cantonensis, a parasitic nematode, has been documented in various snail and slug species in Hawai‘i since at least the 1960’s, but the frequency of human infection has not been well characterized, especially given the lack of a definitive diagnostic test. Since 2005, when DIB began investigating all laboratory reported cases with CSF specimens yielding eosinophils, 25 probable and confirmed angiostrongyliasis cases have been identified. Collected data and preliminary epidemiological assessments suggest that there may be an increased risk for Angiostrongylus infection, especially on the island of Hawai‘i. DOCD/DIB is collaborating with colleagues at CDC, the University of Hawai‘i, and the US Department of Agriculture-Pacific Basin Agricultural Research Center to better define the epidemiology of angiostrongyliasis in Hawai‘i with the objective of better understanding risk factors and therefore implement more specific public health interventions. The CSTE Fellow would have the opportunity to become involved in the case investigations as well as in developing a focused public health assessment to better determine why the disease seems to be more prevalent on the Big Island when infected mollusks can be found statewide.

Preparedness Role

DOCD includes the Public Health Emergency Preparedness Branch, which plans preparedness exercises and often recruits participants from elsewhere in the Department as well as outside stakeholders. The CSTE Fellow would be welcome and encouraged to participate in these exercises. Times of increased surveillance, such as in monitoring for the 2009 influenza A (H1N1) virus, require assistance from

everyone division-wide. At critical times such as this, the CSTE Fellow would be expected to lend his/her full support to the division.

Assignment Location:	Honolulu, HI
Primary Mentor:	Sarah Park, MD State Epidemiologist; Chief, Disease Outbreak Control Division Hawaii Department of Health
Secondary Mentor:	Joe Elm, MA Epidemiologic Specialist V; Supervisor, Field Investigation Section Hawaii Department of Health