

Infectious Diseases-HAI

Hawaii Department of Health, Disease Outbreak Control Division

Honolulu, Hawaii

Assignment Description

The CSTE Fellow would be assigned to DOCD under the mentorship of Dr. Park and Mr. Chisty, primarily in the area of healthcare associated infection and infection control and prevention, including multi-drug resistant organism (MDRO) or HAI surveillance to evaluate such, enhance existing systems including developing and/or improving questionnaires, and analyze and interpret data collected. The Fellow would have the opportunity to participate in other areas of interest (e.g. participation in the annual school-located flu vaccination program, public health emergency preparedness activities) covered by the Disease Outbreak Control Division (DOCD) as long as his/her projects were progressing as agreed upon with his/her mentors. The Fellow would be required to develop working relations with healthcare facilities, infection preventionists, commercial laboratories, and physicians to work collaboratively to conduct surveillance and reduce HAIs and MDROs. 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, especially for an HAI outbreak.

The mentors will meet regularly with the Fellow to introduce and integrate him/her into DOCD and ensure that the environment is and remains conducive to optimal professional development. Together, the mentors will commit to working closely with the Fellow and meeting with him/her as often as needed initially to help develop the Fellow's plan and facilitate progress on his/her primary project as well as review data and questions related to other activities. Eventually, less frequent formal meetings will be established to evaluate progress and ensure that activities are appropriate and realistic with respect to achieving the Fellow's broader goals. The mentors and relevant staff will also be available for consultation as needed.

The primary mentor will provide broad general guidance to the Fellow including regular overall review of the Fellow's projects and activities to help guide their direction. She will offer advice and assistance to the Fellow with respect to his/her study approach and recommended training, provide assistance with respect to professional network development, and provide advice and support regarding the Fellow's long term career plans. As the primary mentor regularly attends the annual CSTE conference, she would be available to support the Fellow at the conference as needed. The secondary mentor will work more closely with the Fellow on a regular basis and provide detailed guidance as needed.

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 weekly 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 HAI Advisory Committee Meeting, the HAI Steering Committee, weekly meetings of the Field Investigators, and quarterly DOCD division meetings.

Potential Projects

Surveillance Statewide Antibigram Project Activity

HDOH has been creating a statewide antibiogram since 2013, in collaboration with the state public health laboratory (State Laboratories Division), the major clinical laboratories, and some private hospitals. The antimicrobial susceptibility test data from each laboratory and private hospital are aggregated to create the antibiogram, in accordance with national standards. The Fellow would be responsible for coordinating data collection from each laboratory, including compiling and aggregating the data in a standard format. In addition to ensuring the accuracy and completeness of submitted data, the Fellow will also need to examine the aggregated data for concerning findings and analyze data longitudinally from prior years through the current year to evaluate for trends over time. [<http://health.hawaii.gov/docd/dib/antimicrobial-resistance/antibiogram/>]

Surveillance Validation of MDRO Data Evaluation

Validation of data submitted to NHSN on lab events, such as *Clostridium difficile* infections (CDI) and methicillin-resistant *Staphylococcus aureus* (MRSA) bacteremia, assures surveillance data are of high quality and appropriate in quantifying current HAI burden in a facility. Validation also ensures standards of reporting are consistent across facilities and data presented to the public are both accurate and credible.

Using the tools developed by CDC the Fellow will create a plan to validate CDI and MRSA bacteremia data entered into NHSN. Working with his/her mentors the Fellow will have to develop a sampling frame, potentially conduct site visits, and disseminate results of validation findings.

Alternatively, the Fellow could conduct an evaluation on Hawaii's electronic laboratory surveillance system for reportable infectious conditions in the state (MAVEN) includes select drug-resistant organisms, including vancomycin resistant enterococcus (VRE). There are insufficient resources for our disease investigators to follow-up on each received VRE report. Although data are submitted from the laboratories, the potential utility of these data depend on the completeness and the quality of the data. The CSTE HAI fellow would evaluate electronic laboratory surveillance for VRE and determine what, if any, epidemiologic conclusions or trends can be drawn from available data.

Major Project Analyzing Dialysis HAI Data

Hemodialysis patients are at a high risk for infection because the process of hemodialysis requires frequent use of catheters or insertion of needles to access the bloodstream. The current burden of HAIs in the dialysis settings in Hawaii is unknown.

Through a state mandate DOCD has access to HAI data specific to dialysis settings. The Fellow will be required to familiarize themselves with the Dialysis Component in NHSN, and HAI reporting and data

presentation. Then working with his/her mentors the Fellow will conduct the first thorough epidemiological analysis of this data, looking for trends over times and facilities that could be targeted for interventions. Working with partners and his/her mentors, the Fellow will use the data analyzed to create the first Dialysis HAI report for Hawaii.

Major Project Evaluating outpatient antibiotic prescribing data

Another potential Major project:

Emerging antibiotic resistance is a growing problem in the United States, and Hawaii is no exception. The overuse of antibiotics is one of the leading factors leading to antibiotic resistance. Since 2015 HDOH has been working with Hawaii's healthcare facilities, but only recently started working with the long-term care and the outpatient settings.

Working with his/her mentors, the Fellow will obtain outpatient prescribing data. Then conduct an epidemiologic analysis to determine prescribing habits of providers, regional variances, and variances by specialty. The Fellow could then work with his/her mentors, and other stakeholders to develop education and other outreach tools.

Additional Healthcare personnel vaccinations Project

In 2013, facilities were required to report their healthcare personnel (HCP) influenza vaccination rates to NHSN for the first time, and vaccination rates in Hawaii's facilities were lower than anticipated (overall rate 67% for the 2013/2014 influenza season). In 2015, a previous CSTE HAI fellow conducted a survey assessment that identified knowledge, attitudes, and behaviors regarding influenza vaccination in healthcare facility employees in two Hawaii acute care facilities. Questions included a query regarding their feelings on mandatory influenza vaccination. The new Fellow would repeat the survey assessment (potentially subtracting/adding questions as needed) to trend attitudes and perceptions with regards to influenza vaccination and mandatory vaccination policies over time.

Alternatively, depending on the Fellow's interests and time the fellow could work on a different aspect of HCP vaccinations. The Fellow could conduct an assessment of hospital vaccination policy adherence to national guidelines and develop a roadmap of hospital vaccination policies.

Findings from either of these projects would help to improve healthcare workers vaccination rates in Hawaii.

Preparedness Role

DOCD includes the Public Health 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 (e.g., monitoring for the influenza A [H1N1] virus during the 2009 pandemic), responding to statewide disease outbreaks, or preparing the state to respond to the threat of a potential emerging pathogen (e.g., Ebola virus disease response) 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.

Additional Activities

The CDC’s National Healthcare Safety Network (NHSN) is the national database used by healthcare facilities to track specific HAIs. As part of routine surveillance, the fellow would assist the HAI Coordinator in performing quarterly data completion checks and in providing technical assistance to facilities when needed. The fellow would also participate in preparation of the Annual State HAI Report, specific to acute care facilities.

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, especially for an HAI outbreak.

Mentors

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| Primary | Sarah Park MD, FAAP

Deputy State Epidemiologist; Deputy Chief, Disease Outbreak Control Division (DOCD) |
| Secondary | Zeshan Chisty MPH

HAI Collaborative Coordinator |