

Infectious Diseases- Healthcare Associated Infections

Assignment Description

The Fellow would be assigned to support the Disease Investigation Branch (DIB), primarily in the area of 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) 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, commercial laboratories, and physicians to work collaboratively to conduct surveillance and reduce HAIs. 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.⁷

Day-to-Day Activities

The Fellow's potential projects 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. Additionally, the Fellow will be available to provide consultations and support for HAIs to healthcare facilities, quality improvement, and patient safety organizations. The Fellow will assist healthcare facilities with enrollment, data entry, and validation of NHSN.

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 regular DOCD-DIB meetings, HAI Advisory Committee meetings, HAI collaborative meetings, and Patient Safety/Quality Improvement meetings.

Potential Projects

1. Statewide Antibigram Project

HDOH is currently working with the commercial laboratories to obtain their antimicrobial susceptibility test (AST) data to create a statewide antibiogram. The fellow will help in aggregating institutional antibiograms with accordance with national standards. These data can be used to help

guide empiric therapy of infections and provide statewide drug resistance trends. This project will serve as introduction to multidrug resistant organisms, which is crucial to the next project.

2. Multidrug Resistant Organism Surveillance system

Emerging antibiotic resistance is a growing problem in the United States, and Hawaii is no exception. The HDOH currently does not have a reliable surveillance system for multidrug resistant organisms (MDROs). Only 4 of the 18 MDROs identified by CDC have mandatory reporting requirements in Hawaii, leaving many gaps in our understanding of the epidemiology of MDROs in Hawaii. Working with his/her mentors, the Fellow would develop a surveillance system to identify and track MDROs, including carbapenem-resistant Enterobacteriaceae (CRE), *Clostridium difficile*, extended spectrum β -lactamase producing Enterobacteriaceae (ESBLs), etc. CRE is of particular importance, as Hawaii is one of six states that have not had a confirmed isolate as yet. Additionally, using data collected from this surveillance system the Fellow may choose in coordination with his/her mentors to analyze either a select group or a variety of MDROs.

For this and the following activities, it would be helpful for the Fellow to have a background that includes bacteriology and even more advantageous if he/she were also knowledgeable regarding antimicrobial resistance. This endeavor is anticipated to familiarize the Fellow with antimicrobial resistance trends in Hawaii and potentially compare them with regional and/or national trends, create report products that may become established and annualized, and lead to the development of journal abstracts and papers that would contribute substantially to the epidemiology of antimicrobial resistance.

3. National Healthcare Safety Network

The CDC's National Healthcare Safety Network (NHSN) is the national database used by healthcare facilities to track specific HAIs. The data can be used by the Fellow to develop a focused project with his/her mentors. Examples of projects include:

- Data auditing and validation: Once familiar with the system, the fellow would conduct validation of data being transmitted to HDOH. Additionally, using CDC's validation resources the Fellow would conduct onsite auditing of patient records to ensure accuracy of data being entered into NHSN. This project may involve inter-island travel.
- The fellow will provide assistance to healthcare facilities using NHSN, including enrollment, data entry, and data analysis.
- In Hawaii, facilities are mandated to share their NHSN data with HDOH for public reporting. The Fellow would assist in analyzing data and compiling the annual state HAI report. The most current version of the report can be found here:
<http://health.hawaii.gov/docd/dib/healthcare-associated-infections-hais/>
- Data Driver project: Conduct an analysis of NHSN data to see which facilities increase or decrease the state standardized infection ratio (SIR). This would help implement targeted interventions.

4. Healthcare Personnel Influenza Vaccination Project:

In 2013, facilities were required to report their healthcare personnel influenza vaccination rates into NHSN. The fellow would use these data and potentially collaborate with DOCD-IMB staff to target facilities with low vaccination rates to assess reasons for objections to vaccinations.

5. Antibiotic Stewardship Programs

Some acute care facilities in Hawaii have developed or are in the process of developing an antibiotic stewardship program (ASP). ASPs are interventions designed to ensure the judicious use of antibiotics. The fellow would assess and evaluate ASP implemented in facilities across the state. For facilities that are in the process of developing or have not initiated an ASP, the Fellow would provide consultation and assistance.

Preparedness Role

DOCD includes the Public Health Preparedness Branch (PHP), the mission of which is to promote health and protect Hawaii from the effects of disaster. The Fellow would be welcomed and encouraged to participate in preparedness activities such planning meetings, training events, and exercises within PHP, especially those related to epidemiology and surveillance. For instance, PHP is in the process of developing deployable assessment and surveillance teams to gather and collect field-level situation data during and after a disaster. This particular project would expose the fellow to Incident Command System principles and the importance of epidemiology in a disaster response. In this case, the Fellow's assistance would be beneficial for both the project and the fellow's professional development.

Assignment Location: Hawaii State Department of Health
Honolulu, HI

Primary Mentor: Sarah Park, MD
State Epidemiologist and Chief of Disease Outbreak Control Division

Secondary Mentor: Melissa Viray, MD
Deputy State Epidemiologist