

Infectious Diseases-HAI

Assignment Description:

The fellow will work as an epidemiologist in the Healthcare Associated Infections (HAI) Program. He or she will define and develop a primary epidemiologic project based on his/her interests. He or she will also participate in and potentially lead investigations of HAI outbreaks with support and guidance from the HAI Program staff. Investigations have included both fungal meningitis and fungal endophthalmitis outbreaks from contaminated product originating in compounding pharmacies, multidrug resistant *Acinetobacter baumannii* infections in a nursing home, hepatitis C in an outpatient hemodialysis center, *Candida* spp. Central line-associated bloodstream infections (CLABSIs) in a hospital. Investigations within the HAI program usually consist of an epidemiologic component as well as an infection control assessment. The fellow will be actively involved with all aspects of these investigations including site visits when required.

In addition, the fellow will collect, analyze and present data for the California Antibioqram Project which accumulates antimicrobial susceptibility data annually from hospital laboratories statewide. The analysis of these data will allow the fellow to use multivariate modeling such as logistic regression and consider extant data sources for additional risk factor analysis. The current CSTE HAI fellow based in Los Angeles is analyzing 2008-2010 antibiogram data from approximately 85 hospital laboratories and presented preliminary findings at ID Week 2012 in San Diego. Refer to:

<http://www.cdph.ca.gov/programs/hai/Pages/CaliforniaAntibiogramProject.aspx>

Based on the fellow's interests, he or she may also choose to assist with the California Antimicrobial Stewardship Program Initiative, the HAI public reporting program or with other aspects of the HAI Program such as health education and advocacy.

Day-to-Day Activities:

With the support of mentors and HAI program staff, the fellow will work as an epidemiologist alongside other HAI Program personnel. The fellow will participate in HAI program activities with a goal of developing an individual public health epidemiologic project with major statewide significance. The fellow will also participate in day-to-day HAI Program activities such as weekly CDPH Division of Communicable Disease Control laboratory and epidemiology meetings as well as HAI Program staff meetings. The work will involve discussions with subject matter experts (at CDC and elsewhere) and facility infection control personnel to gather and analyze data and make prevention and control recommendations.

The fellow will be given ample time to complete projects that are required as part of the fellowship. He or she will have access to UC Berkeley's public health library to perform literature reviews and will have the opportunity for training on how to maximize literature reviews with Pubmed and utilize reference programs such as Reference Manager.

The office atmosphere is congenial and supportive. Richmond is in the Bay Area and is within minutes by car of Berkeley, Oakland and San Francisco. The office is within minutes by foot of the East Bay Trail which offers breath-taking views of the Bay including San Francisco.

Potential Projects:

Analysis of California Antibioqram Project data:

- Revise data collection tool and encourage maximal laboratory participation,
- Analyze aggregated susceptibility data and perform risk factor analysis using extant data sources as appropriate,
- Present findings to participating laboratories and academic partners, and
- Assist in website design of results and recommendations.

Prevalence of carbapenem-resistant *Enterobacteriaceae* (CRE):

- Develop a surveillance tool to assess the prevalence of CRE infections in California hospital laboratories and nursing homes; and
- Implement the new tool, analyze results and present findings to CDC and other stakeholders.

Participation in investigations of HAI outbreaks. Recent investigations have included:

- Fungal meningitis from contaminated product originating in a compounding pharmacy,
- Fungal endophthalmitis from contaminated product originating in a different compounding pharmacy,
- Multidrug resistant *Acinetobacter baumannii* infections in a nursing home including an interventional study on the effect of enhanced infection control measures on the prevalence of the organism,
- *Clostridium difficile* infections in a nursing home,
- CLABSIs from a single hemodialysis provider including a cohort study comparing specific periods of exposure,
- Hepatitis C in an outpatient hemodialysis center, and
- *Candida* spp. CLABSIs in an acute care hospital.

Participation in investigations of transmission of bloodborne pathogens or infection control breaches related to injection safety. Recent investigations have included:

- Hepatitis B in an ambulatory surgical center,
- Hepatitis C in a vein center, and
- Infection control breaches in a variety of healthcare settings.

Analysis of CDC's National Healthcare Safety Network (NHSN) data for selected conditions, examining the potential for the use of risk adjustment methodologies as alternatives or supplemental to NHSN generated standardized infection ratios (SIRs):

- Surgical site infections, especially risk factors for infection, incorporating data from extant data sources such as California's Hospital Discharge database, and/or using multivariate modeling such as logistic regression to perform risk adjustment using only California data; and
- Hospital-onset *Clostridium difficile* infections using extant databases to adjust for factors such as age not available within NHSN.

Assistance with the California Antimicrobial Stewardship Program Initiative:

- Develop surveillance system obtaining antimicrobial utilization data from pilot hospitals across the state,
- Analyze utilization data to provide benchmarks to participating hospitals, and
- Assess utility of surveillance system for hospitals and CDPH to consider expansion to all hospitals.

Preparedness Role:

Depending on the fellow's interests, he or she may participate in healthcare facility-related preparedness activities that occur during the fellowship, such as pandemic influenza planning and development of guidelines for facilities. The HAI Program assumes primary responsibility for any event impacting healthcare facilities, such as fungal meningitis and H1N1.

Assignment Location: Richmond, California

Primary Mentor: Kavita K. Trivedi, MD
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