

ID: 46556640

**Infectious Diseases-HAI, Infectious Diseases - Host Site Description
Philadelphia Department of Public Health**

Assignment Location: Philadelphia, US-PA
Philadelphia Department of Public Health
Division of Disease Control/ HAI/AR Program

Primary Mentor: Jane Gould, M.D. FAAP, FPIDS
Medical Director, HAI/AR Program
Philadelphia Department of Public Health

Secondary Mentor: Tiina Peritz, MS, BSN, RN, CIC
HAI/AR Program Manager
Philadelphia Department of Public Health

Work Environment

Hybrid

Philadelphia Department of Public Health (PDPH) offices are located in a modern office building that is centrally located in downtown Philadelphia with excellent connections to multiple modes of public transportation. PDPH's current hybrid work model, which is likely to remain in place for the duration of the fellowship, requires employees to work onsite 2 days a week and allows employees to be remote up to 3 days a week. The Fellow will follow this or any subsequent PDPH policies on remote work.

Assignment Description

The fellow will be assigned to the HAI/AR Program within the DDC in the PDPH. The fellow will have opportunities to collaborate on projects with other Programs within DDC, including Acute Communicable Diseases, Hepatitis, Sexually Transmitted Disease Control, Tuberculosis Control, Immunization, and Bioterrorism and Public Health Preparedness. The fellow will also work closely with members of the Epidemiology Unit, who provide expert support to all DDC programs.

The fellow will be mentored by the Medical Director of the HAI/AR Program, Jane Gould, M.D., and the HAI/AR Program Manager, Tiina Peritz, MS, BSN, RN, CIC. The HAI/AR Program is a newer, well-funded program within PDPH with many exciting opportunities for projects. The HAI/AR Program, due to the nature of the work, collaborates closely with other DDC Programs and with Philadelphia healthcare facilities and academic centers on surveillance, outbreak investigation and response activities, preparedness, and applied public health research. The cross-cutting nature of the HAI/AR program will provide the fellow with opportunities to collaborate with many different programs in order to develop a broad understanding of how a large city health department functions, and how it collects and analyzes data to inform public health action through evidence-based interventions to prevent and control disease and implement effective policy. The HAI/AR Program also has unique access to the National Healthcare Safety Network (NHSN), the nation's largest and most widely used HAI tracking system, giving the Program a rich, population-based data source to conduct applied epidemiologic public health-focused research and to enhance surveillance and response efforts.

The city of Philadelphia is the sixth largest city in the United States, with over 1.5 million residents and the Health Department receives much of its funding directly from the CDC. The city has a rich medical environment, with numerous medical, public health, nursing, and pharmacy schools, and many universities and colleges in the metropolitan area. Outside of PDPH, there are many opportunities to attend lectures and network with the larger public health community. The PDPH HAI/AR Program also has a great collaborative and working relationship with the PADOH HAI team. This will allow for the fellow to participate in routine coordination that occurs between the local and state level and potentially collaborate on state-wide projects and initiatives.

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Day-to-Day Activities

In addition to focusing on their specific projects, the fellow will be fully immersed in the daily activities of the HAI/AR program, including joining calls from facilities regarding unusual cases and outbreaks; participating in site visits at healthcare facilities as part of the HAI/AR team to conduct infection control assessments and consultations; providing lectures and in-services to the healthcare community; and assisting with the planning of lectures, webinars, and meetings. Working closely with the MDRO Prevention Epidemiologist and Program Manager, the fellow will also be involved with routine HAI/AR surveillance activities, reports, and communication of surveillance data to PDPH stakeholders. The fellow will also serve as a key epidemiologic resource for the HAI/AR Program, conducting a variety of robust data analyses and assist various team members on different projects. In addition to participating in HAI/AR Program meetings, the fellow will have the opportunity to participate in monthly coordination meetings with the PADOH, and relevant meetings with the CDC, CSTE and/or NACCHO as appropriate, as well as cross-cutting PDPH meetings, lectures, and internal and external trainings to build skills and gain further exposure to the breadth of activities at PDPH.

Describe Statistical and Data Analysis Support, Such as Databases, Software, and Surveillance Systems Available to the Fellow

- National Healthcare Safety Network (NHSN)
- Philadelphia’s Communicable Disease Management System (data on carbapenem-resistant Enterobacterales (CRE), Candida auris, Pandrug-resistant organisms, VISA/VRSA, SARS-CoV-2)
- PA-NEDSS; Pennsylvania’s Electronic Disease Reporting System
- Admission, discharge and transfer (ADT) data from the regional healthcare exchange, HealthShare Exchange (HSX, pending contract completion)
- Pennsylvania Healthcare Cost Containment Council (PHC4) hospital discharge data
- Data from outbreak investigations and other special projects using tools such as REDCap
- CMS Part D data

Other Datasets used by other programs and the Epidemiology Unit (the Fellow may have access, depending on certain projects, activities, and opportunities that may arise during the course of their fellowship):

- Surveillance databases for Hepatitis, Tuberculosis, Acute Communicable Diseases, and STDs
- Immunization registry
- Syndromic surveillance data (chief complaints from more than 20 emergency departments)
- Vital statistics data (birth, death, cancer)
- Medical examiner data
- Diagnosis and treatment data from the City’s district health centers
- The fellow will have access to the following software:
- SAS, R, REDCap, Epi Info, Microsoft Office Suite (Word, Excel, Access, PowerPoint, Publisher), Adobe Acrobat Pro, ArcGIS, Tableau, CANVA and any other software housed in other divisions in PDPH, if specific projects warrant the use.

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Projects

Surveillance Activity Title: Monitor and Analyze Data from the National Healthcare Safety Network (NHSN)

Surveillance Activity Description:

The Fellow will become versed in NHSN, the nation's largest HAI tracking database, and will be able to conduct analyses that guide programmatic prevention and intervention efforts. The HAI/AR Program has access to NHSN, which includes patient-level data from all Philadelphia healthcare facilities that are required to report into the system. Being the sixth largest city in the nation with a population of over 1.5 million and a thriving medical community, this leads to a robust compilation of HAI and AR data. The Fellow will regularly run and maintain the existing SAS programs that create surveillance reports and will also have opportunities to create new surveillance reports based on specific interests and programmatic needs. The Fellow will also utilize a spatial and temporal statistics software such as ArcGIS, Tableau, or SaTScan, to regularly monitor and analyze NHSN data for outbreaks and clusters. The Fellow will then take part in our infection prevention and control efforts with healthcare facilities, based on these findings.

Surveillance Activity Objectives:

Become familiar with NHSN, data reported into the system, and NHSN analysis functions. Conduct analysis using NHSN analysis functions and SAS. Create and run surveillance reports using SAS.

Surveillance Activity Impact:

The Fellow's work will add to the PDPH's understanding of the burden of the condition being analyzed in Philadelphia healthcare facilities.

Surveillance System Evaluation Title: Evaluation of SARS-CoV-2 Reporting of LTCF-Associated Cases to the City of Philadelphia's Communicable Disease Management System (CDMS)

Surveillance System Evaluation Description:

In early 2020, Philadelphia's Board of Health passed a regulation requiring all identified cases of SARS-CoV-2 to be reported to the PDPH. The HAI/AR and ACD Programs are jointly responsible for following up on the cases that are associated with LTCFs. A comprehensive surveillance evaluation of our SARS-CoV-2 surveillance system for congregate healthcare setting associated cases will be an important part of understanding the system's merits and limitations, with the end goal of improving its utility. The Fellow will conduct a thorough evaluation of the seven surveillance system attributes (simplicity, flexibility, acceptability, sensitivity, predictive positive value, representativeness, and timeliness), using all available SARS-CoV-2 data in CDMS for LTCF-associated cases, as well as using NHSN to assess sensitivity of the City's surveillance system.

Surveillance System Objectives:

Perform comprehensive surveillance evaluation of PDPH's SARS-CoV-2 surveillance system for congregate healthcare setting associated cases. Conduct a thorough evaluation of the seven surveillance system attributes (simplicity, flexibility, acceptability, sensitivity, predictive positive value, representativeness, and timeliness), using all available SARS-CoV-2 data in PDPH's communicable disease management system for LTCF-associated cases, as well as using NHSN to assess sensitivity of the City's surveillance system. Assess and understand the system's merits and limitations, with the end goal of improving its utility.

Surveillance System Impact:

The Fellow's work will add to the PDPH's understanding of the burden of the SARS-CoV-2 in Philadelphia long-term care facilities. The outcomes of this evaluation will be used to enhance not only the reporting mechanisms of the surveillance system, but also the case flow used by key staff members of the congregate setting outbreak response team.

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Major Project Title: Assess Acute Care Hospital (ACH) Participation in the National Healthcare Safety Network (NHSN) Antibiotic Use and Resistance (AUR) Module and Analyze AUR Data Submitted by the Facilities

Major Project Description:

For many years ACHs have been encouraged to submit antibiotic use (AU) and resistance data to the AUR Module in the NHSN, however, participation in the AUR Module has remained low among Philadelphia ACHs. Beginning in calendar year 2024, Centers for Medicare & Medicaid Services (CMS) will require hospitals that participate in the Medicare Promoting Interoperability (PI) Program to attest to being in active engagement with NHSN to submit both AR and AU data under the public health and clinical data exchange objective (AUR surveillance measure), and to indicate their level of engagement. According to data posted by CMS, all 10 adult general acute care hospitals in Philadelphia met the criteria to receive payment from the PI Program as of October 2022.

The Fellow will assess the level of participation in/engagement with the NHSN AUR Module by Philadelphia ACHs, identifying participating ACHs and the types of data they submit. The Fellow will become familiar with NHSN analysis functions to assess group, facility, and unit level antimicrobial use patterns among the institutions that report into the system, using metrics and tools such as the Standardized Antimicrobial Administration Ratio (SAAR), rate tables, and the Targeted Assessment for Antimicrobial Stewardship (TAS) framework for quality improvement. The TAS can be used by health departments and other antibiotic stewardship entities focused on optimizing AU within groups. The Fellow will also explore the Pathogen-Specific Standardized Infection Ratio (pSIR) metric to compare facility-specific rates of hospital-onset culture-positive infections of specific pathogen to a national benchmark. Additionally, the Fellow will develop internal routine NHSN reports on AUR metrics for the HAI/AR Program using SAS Studio and/or Excel, as indicated by the findings of their assessment. For ACHs that are not yet submitting AUR data, or that are submitting limited data, into the AUR Module, the Fellow will assess barriers to implementation by a facility survey conducted in collaboration with the PADOH as a state-wide ACH survey.

Major Project Objectives:

Become familiar with the NHSN AUR Module, data reported into the module, and NHSN AUR analysis functions. Conduct analysis using NHSN analysis functions and SAS. Assess the level of participation in/engagement with the NHSN AUR Module by Philadelphia ACHs. Develop internal routine NHSN reports on AUR metrics for the HAI/AR Program. Collaborate with the PADOH on a state-wide survey to assess barriers to implementation of AUR data reporting.

Major Project Impact:

This analysis will add to the PDPH's understanding of antimicrobial use and the burden of drug-resistant organisms in Philadelphia acute care hospitals. The data can be used for action to inform targeted antibiotic stewardship activities. The survey results will help public health identify barriers to hospitals fully adopting the use of the AUR module and develop solutions to overcome those barriers.

Additional Project #1 Title: Develop a Hand Hygiene (HH) Improvement Project for LTCFs

Project #1 Type: Major Project

Project #1 Description:

Using data from PDPH LTCF infection control assessment (ICAR) reports, which identified hand hygiene (HH) as a common area for improvement in LTCF infection control programs, the Fellow will develop a HH improvement project for LTCFs, including: identifying existing HH tools and resources from PDPH, CDC and other organizations; developing additional resources; developing a HH improvement program for facilities using plan-do-study-act cycles; conducting leadership and staff trainings in facilities on use of HH tools and auditing; identifying barriers; and conducting a pilot hand hygiene collaborative with a small group of volunteer facilities.

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The Fellow will learn about how to conduct quality improvement activities in healthcare settings, and how to develop and implement a program. The Fellow will also present about the project on our monthly collaborative call with the LTCFs. Additionally, the Fellow will participate in ICAR assessments in various healthcare settings and learn to observe and audit other infection control practices.

Project #1 Objectives and Expected Deliverables:

Develop a HH improvement project for LTCFs: identify existing HH tools and resources from PDPH, CDC and other organizations and develop additional resources; develop a HH improvement program for facilities using plan-do-study-act cycles; conduct leadership and staff trainings in facilities on use of HH tools and auditing; conduct a pilot hand hygiene collaborative with a small group of volunteer facilities. Participate in ICAR assessments in various healthcare settings.

Project #1 Impact:

Hand hygiene compliance will improve in the participating LTCFs leading to a decrease in healthcare associated infections in those facilities.

Additional Project #2 Title: Network Analysis of Patient Sharing Among Healthcare Facilities

Project #2 Type: Surveillance Activity

Project #2 Description:

A potential project for the Fellow would be to identify networks of healthcare facilities that frequently share patients, including short- and long-term acute care hospitals, and LTCFs, using the ADT data from the HSX or Medicare data. The project would involve creating a plan for the analysis, including identifying the data sets to be used and data elements to be included. The network analysis data can then be used in conjunction with drug-resistant organism surveillance data in CDMS and NHSN, to examine the potential correlation between high degree of patient sharing and high drug-resistant organism rates, helping to identify candidate facilities for targeted surveillance and infection prevention interventions.

Project #2 Objectives and Expected Deliverables:

Identify networks of healthcare facilities that frequently share patients. Create a plan for the analysis, identify the data sets to be used and data elements to be included. Examine the potential correlation between high degree of patient sharing and high drug-resistant organism rates. Identify candidate facilities for targeted surveillance and infection prevention interventions.

Project #2 Impact:

This project will help improve PDPH's understanding of how patients are shared among healthcare facilities in Philadelphia with the ultimate goal of preventing the spread of MDROs and outbreaks.

Please Describe the Fellow's Anticipated Role in Preparedness and Response Efforts – Include Activities and Time Allocation (Required Competency of Fellowship)

The Fellow will assist in the setup and execution of vaccination clinics for influenza, SARS-CoV-2, or other diseases of public health interest, to Philadelphia first responders or the general public at numerous large-scale vaccination clinics throughout the City of Philadelphia. These are planned and executed through the DDC Bioterrorism and Public Health Preparedness (BT) Program. The fellow will assist with data collection and line duties at numerous walk-through and drive-through clinics. This will not only provide a vital service to the City's first responders, but it will serve as valuable, hands-on training regarding emergency preparedness and response for communicable disease epidemics.

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The BT Program in DDC created the PDPH Response Team that is comprised of a select number of people, from all nine DDC programs, who will continuously be trained in communication and medical reserve corps duties. In the event of an emergency, this team will transition into BT roles to aid in emergency management and response. The fellow will be a part of this team and will attend trainings (in-person and online) for the duration of the fellowship. This may also include participating in the BT Program's Point of Distribution trainings.

The Fellow will have the opportunity to complete trainings related to community outreach, incident command and emergency response offered by the Public Health Preparedness and Bioterrorism Program

Please Describe the Fellow's Anticipated Role in Cluster and Outbreak Investigations – Include Activities and Time Allocation (Required Competency of Fellowship)

The PDPH HAI/AR Program investigates cases and clusters of healthcare associated infections on a routine basis, including outbreaks of MDROs. Candida auris in particular has been increasing in prevalence in the Philadelphia area over the past few years and PDPH has investigated an increasing number of healthcare facility outbreaks each year. Additionally, the HAI/AR program has conducted responses as part of multi-jurisdictional investigations into contaminated medical products, or to other HAIs in Philadelphia facilities. The Fellow will have opportunities to participate in or lead some of these investigations during their fellowship.

Please Describe the Fellow's Anticipated Role in the COVID-19 Response – Include Activities and Time Allocation

The Fellow's proposed surveillance system evaluation focuses on SARS-CoV-2 in Philadelphia long-term care facilities. The outcomes of this evaluation will be used to enhance not only the reporting mechanisms of the surveillance system, but also the case flow used by key staff members of the congregate setting outbreak response team. Additionally, the fellow will participate in COVID-19 prevention and response work through participation in ICAR visits and onsite healthcare worker infection prevention and control education.

Please Describe Opportunities for Fellows to Work in Health Equity as well as Incorporating Diversity, Equity, and Inclusion into their Work

Health equity is being incorporated into all work that the HAI/AR Program does by using health equity data to target facilities and healthcare providers for additional IPC and antibiotic stewardship support. Philadelphia healthcare facility patients, residents and healthcare workers are a diverse population of different races, ethnicities, languages, and socioeconomic backgrounds.