

**ID: 48561562**

**Infectious Diseases - Host Site Description**  
**Massachusetts Department of Public Health**

**Assignment Location:** Boston, US-MA  
Massachusetts Department of Public Health  
Bureau of Health Care Safety & Quality

**Primary Mentor:** Katherine T. Fillo, Ph.D., MPH, RN-BC  
Deputy Bureau Director of Clinical & Health Care System Quality  
Bureau of Health Care Safety & Quality, Division of Quality Improvement

**Secondary Mentor:** Chiara S. Moore, MPH  
Supervisory Health Systems Epidemiologist  
Bureau of Health Care Safety & Quality, Division of Quality Improvement

**Work Environment**

Hybrid

**Assignment Description**

The fellow will be a member of the health care facility data team, in which Mrs. Moore works and Dr. Fillo supervises. The health care facility data team is part of the Division of Quality Improvement (DQI) in the Bureau of Health Care Safety and Quality. The fellow will also work closely with the Office of Preparedness and Emergency Management staff. BHCSQ Administration and Finance will process all administrative and financial documents and funds related to the CSTE AEF fellowship. BHCSQ leadership provides guidance to guides all staff regarding telework, office space, and required training. Dr. Fillo will work with BHCSQ and DQI supervisors to facilitate the onboarding process. DQI staff will facilitate providing the fellow with a laptop computer, iPhone, and access to MA DPH email, VPN, Microsoft TEAMS, the cloud-based SAS Enterprise System, and other necessary software, servers, and appropriate data sources.

The fellow will work with their mentors to create a schedule and timeline for the main projects. The fellow's weekly schedule will include dedicated time to focus on fellowship projects, attend regularly scheduled meetings within MA DPH and with external partners, and protected professional development time.

The fellow will meet weekly with their mentors throughout the fellowship. The fellow will also actively participate in routine ongoing meetings such as our hospital capacity weekly check-ins, weekly analysts meetings, monthly Facility Master File quality improvement meetings, weekly Division update meetings, biweekly DQI and OPEM collaborative meetings, monthly meetings on hospital data modernization, and more. Externally, the fellow will attend meetings with our regional Health and Medical Coordinating Coalitions (HMCC) and other stakeholders described in the partnerships section as appropriate. The fellow will be invited to attend bi-monthly in-person Division meetings and virtual Bureau and MA DPH all-staff meetings. The weekly analyst meeting serves as a more informal professional development group for all of the epidemiologists with DQI. Additional virtual and in-person chats foster community development in the hybrid work environment. Based on their interests, the fellow may also attend additional meetings with internal and external partners, as described above in the Descriptions of Partnerships and Collaborative Efforts.

This position will have different daily responsibilities based on needs. The expectation is for them to be the Primary owner responsible for Facility Master File Data licensure, bed, and services, to be filled in further and include all details. One publicly available resource built on this data is the Health Care Facilities in Massachusetts tool. This Population Health Information Tool (PHIT) dataset provides information on health care facilities in Massachusetts that are licensed or certified by the Department of Public Health. This dashboard shares selected data on health care facilities in Massachusetts including facility name, street address, contact phone number, number of beds, whether or not inpatient facility, and specialized services provided. Data in this dashboard is updated on a quarterly basis.

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

SAS Enterprise and Tableau, this fellow will uniquely connect many data sets at the facility level to represent health system capacity and utilization in real time. The fellow will use the Facility Master File as their primary source to build additional data connections. Hospital data will be connected from WebEOC through the MA ACORN . Nursing home data can be connected from CDC's National Healthcare Safety Network, CMS's Minimum Data Set, and associated reports. Ambulance data can be connected from eLX (ambulance licensure) and the Massachusetts Ambulance Trip Record Information System. Additional data from Massachusetts Syndromic Surveillance, hospital claims data, Emergency Department boarding, and the MA trauma registry may be available.

The fellow will be provided with an account to use the cloud-based SAS Enterprise system. MA DPH offers several SAS training courses (for example, SAS Programming 2: Data Manipulation Techniques, SAS Macro Language 1: Essentials, and Multivariate Statistics for understanding complex data) on an ongoing basis. Besides Microsoft 365, software the fellow will have access to Tableau, PowerBI, and ArcGIS. MA DPH has several resource groups that the fellow will have access to, including a Community of Practice (CoP) for epidemiologists, a SAS Users group, and a GIS Users group. Additionally, DQI hosts a weekly analyst meeting to offer peer support and peer learning within our team. There is a Boston area SAS users group we often attend their quarterly meetings.

Team Culture: incredibly supportive in collaborating and troubleshooting code together and we have epis at multiple levels from entry-level to senior epi. With our team, different people can provide various levels of support throughout the career scope of epi.

**Projects**

**Surveillance Activity Title: Syndromic Surveillance to Inform Health System Staffing**

*Surveillance Activity Description:*

The fellow will monitor hospital utilization using near real-time data from syndromic surveillance and WebEOC. Syndromic surveillance will inform why patients seek care in the ED and the percentage admitted for inpatient care. Real-time monitoring is crucial in respiratory illness season to monitor the impact of virus circulation on care-seeking in the Commonwealth. WebEOC data includes staffed and occupied beds by service line. Analyzing these two sources together will support recommendations for load balancing throughout health service regions and allocating supportive staffing resources to utilize existing licensed physical space fully. The fellow will develop methodology proposals as to how syndromic surveillance can be used as a leading indicator of hospital utilization and support the development of respiratory illness planning and response (such as developing criteria for recommending outpatient management centers that can be co-located at hospitals to prevent ED overcrowding and support home-based symptom management as appropriate).

*Surveillance Activity Objectives:*

- Objective: Using near real-time data to develop recommendations for and implement acute care hospital surveillance during respiratory illness surges.
- Deliverables: The fellow will report every week throughout respiratory illness season on ED utilization patterns and changes, as well as hospital staffing and availability by service line. These (reports, data or findings) will be presented internally at the DPH health system capacity meeting. The fellow will also recommend criteria for implementing additional outpatient management, deployment of supplemental staffing resources, and waiver of prior authorization for discharge to post-acute settings to ameliorate prior observed strains on hospital capacity.

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*Surveillance Activity Impact:*

This project will support the statewide response to respiratory illness surges. This project will facilitate hospital resource management so that hospitals are not overburdened and overcrowded during respiratory illness surges, and can continue to provide critical care.

**Surveillance System Evaluation Title: Evaluation of Accuracy and Timeliness of Facility Master File Updates**

*Surveillance System Evaluation Description:*

The fellow will develop and execute a plan to evaluate the accuracy and completeness of the Facility Master File, our dataset for health facility licensure. Based on their findings, the fellow will prepare recommendations for improvements to the data system and existing workflows.

*Surveillance System Objectives:*

- Objective: Evaluate and recommend improvements to BHCSQ's Facility Master File.
- Deliverables: The fellow will prepare a report on their evaluation of the accuracy and completeness of the Facility Master File. This report will include a section on recommendations for improvement.

*Surveillance System Impact:*

This project will allow the state to evaluate the current maximum physical health care capacity at a given moment and improve the process for documenting and sharing updates with multiple partners and agencies.

**Major Project Title: Dynamic Dashboard for Monitoring of Hospital Occupancy, Capacity, and Staffing by Region**

*Major Project Description:*

The fellow will develop a dashboard using Tableau that ingests data from the Facility Master File (facility licensure), Syndromic Surveillance (ED utilization), and WebEOC (hospital staffing and occupancy) to provide real-time analytics for internal and hospital use to support load balancing and identify any outliers/major shifts in reasons for care so that Massachusetts can activate appropriate supports as needed. The creation of this dashboard will require significant data cleaning, linkage across data systems, and an understanding of internal DPH and external hospital data use cases.

*Major Project Objectives:*

- Objective: Develop a tool that provides real-time analytics for internal and hospital management use to support load balancing and identify any outliers/major shifts in reasons for care.
- Deliverables: Develop data linkage across three data systems: Facility Master File, Syndromic Surveillance, and WebEOC. Conduct stakeholder interviews with internal stakeholders and a sample of hospital management to identify the most pressing needs. Design, develop, pilot, and launch a dynamic dashboard that meets stakeholder needs.

*Major Project Impact:*

This project will enable a dynamic and responsive hospital health system in Massachusetts. Additionally, this project will support the Commonwealth identifying and responding to emerging issues in real-time so that we can activate appropriate support as needed.

**Additional Project #1 Title: Infection Control Assessment and Response (ICAR)**

**Project #1 Type: Surveillance Activity**

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*Project #1 Description:*

The fellow will go onsite to a skilled nursing facility or other healthcare facility with a public health nurse and epidemiologist. They will observe infection control practices in the facility, guided by a standardized CDC assessment tool. They will observe things like hand hygiene, PPE use, environmental cleaning and disinfection, wound care, point of care (POC) blood glucose testing, vaccine storage, sink hygiene, etc. and provide feedback and coaching to the facility staff. They will review with administrators and facility infection preventionists the facility's infection prevention and control policies and practices. They will collaboratively prepare a comprehensive report to provide to facility leadership with resources and recommendations for improvement.

*Project #1 Objectives and Expected Deliverables:*

- Objective: By participating in an ICAR, the fellow will gain real life experience in infection control and prevention.  
Deliverable: The fellow will collaboratively develop a comprehensive report for facility leadership, which includes resources and recommendations for improvement

*Project #1 Impact:*

Through this project the fellow will support DPH in their prevention of healthcare associated infection 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 be co-mentored by the Office of Preparedness and Emergency Management (OPEM), and as such, emergency preparedness and response will be a key part of their role. The major project will support hospitals to respond more dynamically to surges in patient volume whether due to an emergency event or a surge in respiratory illness. Additionally, the major project would be used as a planning and preparedness tool for significant events such as the Boston Marathon, in which OPEM plays a key role.

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

Within DQI, we have a team of public health nurses who closely collaborate with our Healthcare Associated Infection team. They investigate clusters and outbreaks within healthcare settings. The fellow will have the opportunity to learn and lead at least one investigation. This can include data entry and phone follow up with facility administrators or infection preventionists, as well as on-site investigations if the fellow is available. Through the major project, we hope that the fellow can also link data systems to proactively identify community outbreaks where care is sought within an ED. They will be a core team member as part of the respiratory illness season monitoring and response team.

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

The major project would facilitate monitoring hospital inpatient and emergency department visits increasing due to COVID-19 and other respiratory illnesses. The fellow will also develop recommendations for an agile response to respiratory illness surges.

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

This dashboard will be launched around the same time as the expansion and formalization of doula services in the Commonwealth. If the fellow is interested, we would support the exploration of the application of this tool to monitoring maternal service surges (for example, around full moons and in busier months such as September) and the credentialing and use of midwives and doulas as policies such as reimbursement and pay parity are implemented.