Infectious Diseases- HAI

Assignment Description:
The Virginia Department of Health's Office of Epidemiology is responsible for a broad range of disease surveillance and control activities in Virginia. The Fellow would work mainly within the Office's Division of Surveillance and Investigation (DSI). Responsibilities of the division include investigating or providing consultation on communicable disease outbreaks; developing and implementing disease database and surveillance systems; developing guidelines for communicable disease management; and supporting statewide epidemiologic infrastructure and capacity by maintaining grants, regulations, and policies and by providing training.

The Fellow will become a member of the DSI team of epidemiologists. DSI is very focused on applied public health epidemiology, and some of the assignment will involve doing or supporting field epidemiology work through interacting with district health department epidemiologists. Some of the projects will be focused on surveillance, others will involve conducting investigations, and some projects will illustrate the complementary nature of surveillance and investigation activities. Nearly half of the outbreaks reported in the state occur in healthcare facilities including hospitals, long-term care facilities, and assisted living facilities, so there will be ample opportunity to support these investigations of respiratory or gastrointestinal illness, invasive infections, or bloodborne pathogens. Opportunities also exist to work on zoonotic or vaccine-preventable illnesses and to participate in emergency preparedness exercises and activities.

Day-to-Day Activities:
The Fellow's day-to-day activities will involve active participation as a team member within the Healthcare-Associated Infections (HAI) Program and the Division of Surveillance and Investigation (DSI). With support from VDH DSI staff, the Fellow will work on projects related to detecting, monitoring, and responding to communicable diseases of public health importance in Virginia. This may include collecting and analyzing epidemiologic data and reporting findings, working to improve surveillance systems or the use of existing systems, creating information for the public and healthcare providers and guidance for health departments, and giving presentations on public health topics. Outbreak investigations involve collecting information and designing and implementing an analytic approach to identify the source of the outbreak and developing recommendations to prevent further spread of disease. The Fellow will participate in weekly division staff meetings, where current outbreaks, investigations, and special projects are discussed, as well as monthly statewide epidemiology conference calls and semi-annual communicable disease training events.

Potential Projects:
The Fellow will have substantial input in determining the projects that are pursued. Activities will include work on analytic projects, outbreak investigations, and planning and policy related activities.

The Fellow will select one or more long-term projects to work on during the fellowship. Examples that may be considered include: conducting a descriptive analysis of meningococcal infection data, reviewing multiple years of Virginia data and assessing factors such as age, fatality status, clinical manifestation and seasonality; designing a statewide surveillance system for carbapenem-resistant Enterobacteriaceae infections; and developing infection prevention resources for correctional facilities.

In addition, DSI participates in a wide variety of statewide and national outbreak investigations each year. Through participation in the outbreaks, the Fellow would gain experience in all aspects of outbreak investigations, including formulating hypotheses, designing and administering questionnaires, entering and analyzing data, and generating reports.

The Fellow will also work on program and surveillance system evaluations. One option would be to evaluate the current outbreak reporting database, focusing on healthcare-associated infections outbreaks, according to CDC criteria of timeliness, usefulness, etc. Validation of facility location is needed to assure that outbreaks are classified in the appropriate setting. Information learned from the evaluation will be used to describe ways to best identify facility-based outbreaks when cases of illness are reported individually and create documentation to aid in accurate and consistent analyses among users of the system. Another option would be to evaluate the current system for surveillance of invasive Group A Streptococcus. Group A strep data reported from hospitals and laboratories are imported and evaluated in VEDSS, Virginia's current data system for reportable disease surveillance. The evaluation would focus on reviewing the usefulness, timeliness, and specificity of the data in the surveillance system.

Other data analysis opportunities include: analysis of the central line-associated bloodstream infections (CLABSI) data, as well as any additional HAI measures that may be mandated by legislation, gathered through the National Healthcare Safety Network (NHSN); evaluation of teaching status and patient locations among facilities reporting to NHSN; and analysis of healthcare-associated outbreak data reported to VDH by facilities.

The DSI HAI Fellow would also be able to work on a variety of interdisciplinary teams that include: participation in the Virginia HAI Advisory Committee, a group that includes the state hospital association, quality improvement association, infection preventionists, healthcare consumers, administrators, hospital epidemiologists, and providers across the continuum of healthcare; partnership with the Mid-Atlantic Renal Coalition on infection prevention initiatives in the dialysis setting; engaging with the VDH hepatitis B workgroup to prevent the spread of bloodborne pathogens in assisted living facilities through regulation and education; and working with the state chapter of the Association for Professionals in Infection Control and Epidemiology (APIC-VA) to review training needs and coordinate implementation of educational initiatives via webinar, conference call, or in-person meeting for hospitals or long-term care facilities.

Other activities that the Fellow may participate in include: participation in discussion and development of future Virginia HAI regulations and policies; developing reference documents for local health department staff, long-term care facilities and hospitals addressing HAI issues such as Clostridium difficile, vancomycin-intermediate/resistant Staphylococcus aureus, and carbapenem-resistant Enterobacteriaceae; participating as a member of the leadership team of a statewide Clostridium difficile prevention collaborative run by VDH and the state quality improvement organization.

Opportunities will also exist for the Fellow to work on projects with other divisions within the Office of Epidemiology. Within the Division of Environmental Epidemiology (DEE) there are opportunities to work with staff on the surveillance and investigation of zoonotic diseases, including rabies and vector-borne diseases (e.g., West Nile virus). In addition, there are opportunities to work with the Division of Immunization on vaccine-preventable diseases, such as pertussis, measles, and varicella. Such opportunities will provide the Fellow with extensive practical experience and skills, a good

understanding of the roles and responsibilities of state and local health departments, and access to significant projects related to the Fellow's interests and career goals.

Overall, it is expected that the Fellow will acquire a range of practical public health skills and experiences useful in a wide variety of career paths. These activities may also lead to presentations, conference abstracts, and/or peer-reviewed publications. We expect that the Fellow will have the time and autonomy to develop projects of interest, while participation in the Office of Epidemiology's many activities will provide opportunities to acquire a broad range of skills and experiences.

Preparedness Role:

The Office of Epidemiology plays a prominent role in emergency preparedness and response activities. Staff work closely with the VDH Office of Emergency Preparedness to conduct a wide range of activities, which the Fellow will have an opportunity to participate in, including: emergency preparedness exercises and drills, developing emergency response plans, creating educational resources and materials (e.g., fact sheets and provider guidance) for biological, chemical and radiological emergencies, and responding to public health emergencies. The Fellow may also choose to join a local chapter of the Medical Reserve Corps, which will provide for additional exposure to emergency preparedness trainings and exercises.

Assignment Location:	Richmond, VA
Primary Mentor:	Margaret Tipple, MD Medical Epidemiologist Virginia Department of Health
Secondary Mentor:	Andrea Alvarez, MPH Healthcare-Associated Infections Program Coordinator Virginia Department of Health