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 databases and surveillance systems; developing guidelines for communicable disease management; and supporting statewide epidemiologic infrastructure and capacity by providing training and maintaining grants, regulations, and policies.

The Fellow will become a member of the DSI team of epidemiologists and be exposed to a wide variety of projects in applied public health epidemiology. The Fellow will be responsible for special analyses and projects, but involvement in other projects going on in the division will be strongly encouraged to assure exposure to the full scope of general communicable disease program activities. The mentors will seek opportunities for the Fellow to also support field epidemiology work through interacting with district health department epidemiologists. Projects will focus on program evaluation, surveillance, and conducting investigations. Most of the outbreaks requiring investigation will be foodborne or healthcare-associated, the latter including respiratory or 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. The Fellow will also be expected to assist with the public health response to any emerging infectious disease challenge that arises during the assignment, such as Middle East Respiratory Syndrome.

Day-to-Day Activities

The Fellow's day-to-day activities will involve active participation as a team member within 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, designing and implementing an analytic approach to identify the source of the outbreak, conducting site visits, and developing recommendations to prevent further spread of disease. The Fellow will participate in weekly division staff meetings and Investigation Team 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

Surveillance | Expansion of Surveillance System to Capture Disease-Specific Information Activity

The Fellow will be a part of activities that are expected to expand fields in the Virginia Electronic Disease Surveillance System (VEDSS) to capture more disease-specific information. The system is currently limited in its ability to collect data on clinical presentations or exposure histories of persons reported to have reportable communicable diseases in Virginia. Following an upgrade to the next version of the system and the release by CDC of ‘message mapping guides’, the surveillance team in DSI has started to develop screens to capture additional data elements on reported cases of disease. The development process will involve reviewing what fields are available in the system, what data are collected on forms, what fields are included in the message mapping guides, and the needs and desires of practicing epidemiologists. Screens will be developed and will need to be tested and evaluated and changes made based on the findings of the evaluations. This project will introduce the Fellow to public health informatics and surveillance practice and will involve working with surveillance specialists in the Division as well as in other divisions and in the district health departments.

Surveillance | Evaluation of Surveillance for a Travel-Associated Disease in Virginia Evaluation

The Fellow will evaluate surveillance data for either typhoid fever or malaria using the Virginia Electronic Disease Surveillance System (VEDSS). The project will involve conducting descriptive epidemiology of trends and patterns in the data and reviewing case report forms submitted from individual investigations to assess exposure risks (such as travel history and specific exposures noted) and public health and preventive actions taken (such as if vaccine or chemoprophylaxis were received). For typhoid fever, risks for further spread, testing of contacts, and public health follow up can also be assessed. For malaria, the potential impact of screening travelers from Ebola-affected countries can be assessed. The project will introduce the Fellow to disease reporting procedures, how surveillance data are managed, the completeness of information received, and the disease control actions taken and documented by public health in response to receiving a disease report. Experience with the analysis and presentation of epidemiologic data and the application of surveillance case definitions will also be gained. Any gaps in information or challenges with surveillance that are identified will be used to update statewide policies and procedures for the surveillance and control of the disease selected for analysis.
Major Project  Analysis of the Use of Morbidity Report Forms for Disease Reporting

A large majority of disease reports are submitted in various ways by laboratories. A minority of reports come in from physicians and hospital staff who use a morbidity report form known as an ‘Epi-1’ form to submit information about a person who has a reportable condition. The Fellow will analyze a sample of Epi-1 forms in Virginia to determine the frequency with which the forms are submitted, for what conditions they are submitted, by what professionals, and whether these factors vary across the state. It will be interesting to evaluate how often hospital infection preventionists (IP) complete the form compared to how often they telephone the health department with a report and health department staff fill out the form. A goal of the project is not only to better understand the use of the Epi-1 form in Virginia but to identify areas where its use could be improved. If IPs can submit a report from the hospital lab and not complete an Epi-1, then recommendations from the project might lead to improvements in work efficiencies. The recommended change in practice would be developed by the Fellow, in conjunction with mentors and others within DSI and communicated to IPs across the state.

Additional Project  Pulsed-field Gel Electrophoresis (PFGE) cluster investigations

The Fellow will work directly with the Foodborne Disease Program and the state public health laboratory (DCLS) to investigate and track clusters of Salmonella and Shiga toxin-producing E.coli (STEC) infections within Virginia. This will give the fellow the opportunity to work with Districts by reviewing case report forms for common exposures, interviewing patients directly to collect additional data, and potentially conducting a full outbreak investigation from site visits to designing and conducting an epidemiologic analysis.

Additional Project  Case and Outbreak Investigations

The Fellow will have the opportunity to shadow regional and district epidemiologists when conducting case interviews and with site visits for outbreak investigations. The Fellow will be involved in various aspects of multiple outbreak investigations and will have the opportunity to lead an outbreak investigation from beginning to end.
**Preparedness Role**

The Office of Epidemiology plays a predominant 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. For example, past fellows have had the opportunity to research, develop, and lead tabletop exercises involving biological and chemical threats. These exercises were conducted with both internal and external partners including local and state police, FBI, and fire and school personnel.

**Additional Activities**

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., Zika virus, West Nile virus), as well as waterborne diseases. 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.

**Mentors**

**Primary**

Diane Woolard, PhD, MPH  
Director, Division of Surveillance and Investigation

**Secondary**

Dawn Saady, MS  
Senior Epidemiologist