

## **Infectious Diseases, Infectious Diseases**

### **Virginia Department of Health, Division of Disease Prevention**

Richmond, Virginia

#### **Assignment Description**

The Virginia Department of Health's (VDH), 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 Disease Prevention (DDP). Responsibilities of the division include investigating or providing consultation on HIV/STD disease outbreaks; developing and implementing infectious disease database and surveillance systems; developing guidelines for HIV care and prevention; collaborating on data analyses; and supporting statewide epidemiological infrastructure and capacity by maintaining grants, regulations, and policies and by providing training.

The Fellow will become a member of the DDP team of epidemiologists. DDP is focused on applied public health epidemiology, and much of the assignment will involve analysis of HIV and STD data, including disease surveillance and care to determine trends and the focus of interventions. The National HIV/AIDS Strategy (NHAS) focuses on ensuring access to HIV care for those infected and ensuring that persons living with HIV are given adequate resources to be diagnosed. The fellow would help analyze data within DDP to determine the effectiveness of the NHAS and, in particular, interventions implemented in Virginia to increase HIV awareness, linkage to care, retention in care, and viral suppression rates.

#### **Day-to-Day Activities**

The Fellow's day-to-day activities will involve active participation as a team member within DDP. With support from VDH DDP staff, the Fellow will work on projects related to investigating, monitoring, and responding to infectious diseases of public health importance in Virginia. This may include collecting and analyzing epidemiological data and reporting findings, working to improve surveillance systems and 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 investigations of clusters of HIV disease identified through the analysis of genetic sequencing data.

## **Potential Projects**

### **Surveillance      HIV outbreak investigation and Molecular HIV surveillance Activity**

VDH DDP is refining a protocol to identify and investigate potential HIV outbreaks, and to identify and evaluate potential HIV transmission clusters. Outbreak and cluster investigations involve collecting data, designing and implementing an analytic approach to identify the source of the outbreak and/or cluster, and developing recommendations to prevent further spread of disease.

The VDH DDP defines an HIV outbreak as an increase in HIV disease incidence above what is expected based on previous time points among persons in a geographic area, demographic group, or particular transmission risk group (e.g. persons who inject drugs). VDH DDP will employ a series of monthly reports and monthly data review meetings to recognize increases in HIV disease incidence that could potentially trigger a rapid response.

Clusters of recent and ongoing HIV transmission can be identified using molecular HIV data. Following transmission of HIV, the genetic sequence of the HIV strain in the newly infected person is nearly identical to the transmitting person. Cases with extremely similar genotypes are grouped together and identified as a molecular cluster. Molecular clusters will be reviewed by the data review committee and appropriate prevention activities will be implemented depending on cluster characteristics.

The Fellow will participate in investigations of HIV outbreaks and transmission clusters of HIV disease identified through the analysis of HIV incidence and HIV genetic sequencing data. In addition, the Fellow will serve on the team that implements the HIV Outbreak Rapid Response Plan.

### **Surveillance      Evaluating the Care Markers database Evaluation**

The Care Markers database is a comprehensive database created by VDH DDP, which contains data on persons living with HIV from several sources, including HIV surveillance, Ryan White, Medicaid, the Medical Monitoring Project, and HIV testing. Data are imported into the Care Markers database on a regular basis (monthly, quarterly, annually, dependent on data source). Data from the Care Markers database are utilized for grant reporting, data request fulfillment, and program evaluation. Ongoing evaluation is needed to assess the completeness and quality of data in the Care Markers database.

The Fellow will evaluate the database and information learned from the evaluation will frame future directions for the database.

## **Major Project    Analyses using supplemental HIV surveillance program data**

Another opportunity for the Fellow would be to perform analyses utilizing data from supplemental HIV surveillance programs, such as the Medical Monitoring Project (MMP) and National HIV Behavioral Surveillance (NHBS).

MMP assesses clinical and behavioral characteristics of HIV-infected adults receiving care in the United States between 2009 and 2014. To improve the usefulness of MMP data, in 2015 MMP was expanded to include people living with HIV who are not receiving medical care. Data collection activities include structured interviews and medical record abstractions.

NHBS conducts behavioral surveillance among persons considered to be at high risk for HIV infection: men who have sex with men, people who inject drugs, and high risk heterosexual persons. Standardized anonymous surveys are administered and HIV testing is offered to all participants.

Because MMP and NHBS contribute data beyond what is collected for case surveillance programs, these data enhance our understanding of the HIV-positive and at-risk populations in Virginia. This information can be used to guide policy and funding decisions aimed at increasing engagement in care and improving quality of care for people living with HIV.

The Fellow will design a minimum of one data analysis project from these supplemental HIV surveillance programs. Examples of data analysis include exploring factors associated with various clinical outcomes for persons living with HIV; or testing behaviors of persons considered to be at high risk of HIV infection.

## **Surveillance    Evaluating HIV care data systems Evaluation**

Another surveillance evaluation option would be to evaluate the current system for collection of HIV care data under the Ryan White funding streams to determine how the Affordable Care Act (or potential future national healthcare coverage programs) will affect DDP's ability to collect important medical information for those living with HIV, as many Ryan White clients are covered by insurance. Currently, Ryan White data are reported from medical providers, health departments, and community-based organizations who utilize e2Virginia, the combined HIV care and prevention data system for Virginia.

The Fellow will evaluate the HIV care data systems, focusing on reviewing the usefulness, timeliness, and completeness of the data in the Ryan White system.

**Additional Project**      **Other options**

There are several other opportunities for the Fellow to contribute to VDH DDP programmatic and analytical activities. Examples that may be considered include: conducting analyses of the HIV continuum of care data across subpopulations, including linkage, retention, and viral suppression rates over time; assessing the impact of cross-jurisdictional data sharing on the accuracy, completeness, and timeliness of HIV surveillance data; and assisting with the molecular HIV surveillance program in Virginia, which includes monitoring and evaluating genetic sequencing data from laboratories. In addition, DDP participates in a number of statewide and national initiatives related to improving HIV surveillance data and its utilization.

**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. For example, the Fellow may work to bolster state and district plans for public health response to chemical emergencies.

**Additional Activities**

The Fellow will have substantial input in determining the projects that are pursued. We expect that the Fellow will have the time and autonomy to develop projects of interest; and participation in the Office of Epidemiology's many activities will provide opportunities to acquire a broad range of skills and experiences.

**Mentors**

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| <b>Primary</b>   | Jennifer Kienzle MS, PHD<br>Epidemiologist                             |
| <b>Secondary</b> | Anne Rhodes MS, PHD<br>Deputy Director, Division of Disease Prevention |