**Infectious Diseases**

**New York State Department of Health, Division of Epidemiology and Emerging Infections Program**
Albany, New York

**Assignment Description**

Dr. Elizabeth Dufort will be the primary mentor for the Applied Epidemiology Fellow and is the Medical Director in the Division of Epidemiology at the NYSDOH. Dr. Shelley Zansky, the secondary mentor for the Applied Epidemiology Fellow, is the Director of the EIP within the Bureau of Communicable Disease Control (BCDC).

Within the Division of Epidemiology is the Bureaus of Communicable Disease Control, Immunizations, Tuberculosis Control (including the Refugee Health Program), and Healthcare Associated Infections, along with an overarching Statistical Unit (see organization chart). Additionally, the Division of Epidemiology and Dr. Dufort are leading the statewide NYS Antimicrobial Resistance Prevention and Control Task Force. The fellow will work extensively on AR surveillance and evaluation projects in conjunction with this multidisciplinary team.

The fellow will be placed within the Division of Epidemiology office and will be available to attend meetings, and become involved in PH data analysis, research, and evaluation projects related to outbreaks, antimicrobial resistance work, as well as within the population based surveillance work of the NYS EIP.

The NYS EIP has many exciting opportunities for an Applied Epidemiology Fellow. EIP is a population-based network that includes the CDC and ten state health departments, working with academic partners and other collaborators to assess the public health impact of emerging infections and evaluate methods for their prevention and control. The NYS EIP was launched in the seven-county Rochester region in mid-1997. By 2004, some components of EIP activities had expanded to 34 counties with a population base in excess of 4.3 million. One core activity is active, laboratory-based surveillance for five invasive Active Bacterial Core pathogens (ABCs), which include Group A streptococcus, Group B streptococcus, Haemophilus influenzae, Neisseria meningitidis, and Streptococcus pneumoniae. A second core activity is active laboratory-based surveillance for nine bacterial/parasitic foodborne pathogens through FoodNet, including Campylobacter, Cryptosporidium, Cyclospora, Escherichia coli O157:H7 and other STECS, Listeria, Salmonella, Shigella, Vibrio, and Yersinia. The EIP also conducts studies and enhanced surveillance on hospitalized cases of influenza, MRSA, and Clostridium difficile; vaccine efficacy studies for influenza, Streptococcus pneumoniae, and Neisseria meningitides; and case-control or cohort studies for a number of enteric pathogens. NYS EIP has also been active in enhanced surveillance and laboratory specimen submission for legionella and pertussis projects, in partnership with CDC and the other EIP sites. NYS EIP initiated a case-control study to assess the effectiveness of Tdap cocooning strategy in preventing pertussis infection in infants less than one year of age and has been engaged in modeling the costs associated with hospitalization due to specific infectious diseases utilizing healthcare cost and utilization project (HCUP) data. EIP staff also collaborate with BCDC and the Food Protection Program (Bureau of Community Environmental Health and Food Protection) in outbreak investigations.

With the wide range of issues and diseases addressed by the EIP, a CSTE Applied Epidemiology fellow will have numerous options to evaluate a surveillance system, design an epidemiologic study to address a health problem, participate in bioterrorism and emergency preparedness activities, and respond to a disease cluster/outbreak. The fellow will be able to attend training sessions, seminars,
conferences, and collaborative meetings. The fellowship will emphasize enhancement of writing and presentation skills.

There will be opportunities for the fellow to develop and present findings to professional organizations. The fellow will write a field investigation report and a surveillance report, and will be supported in developing an oral presentation for a national conference and at least one scientific journal publication based upon their major project.

**Day-to-Day Activities**

The Applied Epidemiology Fellow will be fully integrated into the Division of Epidemiology, EIP, and the Department’s daily activities. That includes a 7.5 hour work day (37.5 hrs/week) with generous vacation, personal, and sick leave. The close working relationship with the Division of Epidemiology Medical Director and Director of EIP facilitates the Fellow’s close collaboration and leadership. The Fellow’s anticipated day-to-day activities may include (depending on Fellow interest and projects chosen):

- Surveillance assessment
- Statistical data analysis
- Writing scientific papers, fact sheets, brochures, and AR website
- Preparing scientific and public presentations and posters, including for conferences
- Working with Fellowship Primary Mentor and Secondary Mentor on most work days, with scheduled meetings to review progress at least biweekly
- Attending scientific conferences within NYS, the region, and nationally, including the annual Northeast Epidemiology Conference, the CSTE Annual Conference, International Conference on Emerging Infectious Diseases, and IDWeek.
- Participating on conference calls and collaborating on infectious disease outbreaks and response, antimicrobial resistance, and EIP surveillance and study activities
- Working with the public and external stakeholders on antimicrobial resistance prevention and control in NYS
- Leading the investigation of a disease outbreak caused by an EIP organism
- Attending training classes on public health emergency preparedness
- Attending training classes on Project Management and statistical packages
- Working with local health departments, hospitals, the Clinical Laboratory Information Management System (CLIMS), the Communicable Disease Electronic Surveillance System (CDESS), Electronic Clinical Laboratory Reporting System (ECLRS) and hospital discharge data
- Developing research papers for submission to scientific journals

**Potential Projects**

**Surveillance Activity**

**Evaluation of trends in antimicrobial resistance within the NYS Emerging Infections Program**

Utilize Emerging Infections Program data (EIP) to create a ten year analysis of AR trends, including Active Bacterial Core (ABC) and National Antimicrobial Resistance Monitoring System for Enterics (NARMS) data, at a minimum.
**Surveillance Evaluation**

NYSDOH antimicrobial resistance surveillance evaluation

The fellow will evaluate the characteristics of current NYSDOH AR surveillance through the use of our reportable disease surveillance systems Communicable Disease Electronic Surveillance System (CDESS) and Electronic Clinical Laboratory Reporting System (ECLRS). The fellow will assess the surveillance system and identify gaps in AR surveillance, exploring the use of NYS hospital discharge data for comparison of overlap.

**Major Project**  
**Antimicrobial resistance surveillance project**

A major project will build on the work of the AR surveillance activity and surveillance system evaluation in the realm of AR. Considerations would be to identify resources available and explore the creation of a data collection system to capture AR information not currently systematically collected. Additionally, the fellow will join the NYS AR Prevention and Control Task Force lead team and will head a specific AR collaborative effort that grows out of the task force recommendations.

Additionally, the fellow may explore the literature behind the utility of regional antibiograms, and consider multiple approaches or models to the development of regional antibiograms and begin a process towards development of NYS regional antibiograms.

**Additional Project**  
**NYS EIP Project**

The Emerging Infections Program has numerous opportunities for Fellow involvement in special projects, surveillance evaluation, and data analysis work. These activities may include vaccine effectiveness studies and case exposure ascertainment for enteric diseases.

**Additional Project**  
**Refugee Health Outcomes and Healthcare System Utilization**

The NYS Refugee Health Program has a large refugee population and a robust database of refugee health assessment data and linked Medicaid administrative data. This provides a unique opportunity to evaluate refugee health conditions, outcomes, and healthcare system utilization. This will be an excellent project for an Applied Epidemiology fellow who wishes to expand their biostatistics skills on an important issue.

**Preparedness Role**

Dr. Dufort has worked extensively with the NYSDOH Office of Health Emergency Preparedness (OHEP) on both Ebola preparedness and the Zika response. Additionally, she has worked with OHEP on after action work of Ebola, Zika, and on other preparedness projects. Dr. Zansky works closely within BCDC with the Public Health Emergency Epidemiology Program on emergency preparedness. Through the UAlbany SPH, both Drs. Dufort and Zansky have connections with the SPH Center for Public Health Preparedness and the new, first in the nation, University at Albany College of Emergency Preparedness, Homeland Security, and Cybersecurity. Through all of these affiliations, the Fellow will
have the opportunity for training and assisting with preparedness projects. The Fellow will have the opportunity to complete FEMA study courses on the Incident Command System and participate in drills and exercises that occur periodically throughout the state. Additionally, the Fellow can participate in outbreak response activities with Division of Epidemiology and the Office of Health Emergency Preparedness, or evaluate prior response activities.

**Additional Activities**

There are multiple possible Zika data analysis, research or evaluations projects. In particular, NYS has a unique approach to Zika testing, and many aspects of testing and outcomes are valuable data analysis projects.

Finally, the Fellow will work on other communicable disease outbreaks and emerging diseases, as appropriate for the Fellow and the Division.

The potential projects will include opportunities to fulfill all of the CSTE Fellow assignment deliverables, including surveillance system evaluation, conducting an outbreak investigation, bioterrorism/emergency preparedness and response, designing an epidemiologic study to address a health problem, designing a questionnaire or other data collection tool, creating databases, using statistical software, interpreting findings from epidemiologic studies, recommending control measures and prevention programs, communication through written field investigation and surveillance reports, preparing a manuscript for publication, oral presentations, risk communication, understanding public health law and HIPAA, obtaining IRB training and certification, learning the essential public health functions, appreciating the diversity of how epidemiology is used in different program areas, and effectively negotiating cultural sensitivity issues.

**Mentors**

**Primary**
Elizabeth Dufort, MD, FAAP  
Medical Director, Division of Epidemiology

**Secondary**
Shelley Zansky, MA, PhD  
Director, Emerging Infections Program and Statewide Surveillance, Bureau of Communicable Dis Control