Infectious Diseases

Assignment Description:
Dr. Shelley Zansky will be the primary mentor for the CSTE Applied Epidemiology Fellow, and is the Director of the New York State Department of Health (NYSDOH) Emerging Infections Program (EIP) within the Bureau of Communicable Disease Control (BCDC). Dr. Eidson will be the secondary mentor for the CSTE Applied Epidemiology Fellow, and is a Research Scientist within the Office of Public Health Practice, as well as co-Principal Investigator of a three-year climate change grant from the Centers for Disease Control and Prevention (CDC) for Assessment and Planning to Develop Climate Change Programs.

The NYSDOH EIP has many exciting opportunities for an Applied Epidemiology Fellow. EIP is a population-based network that includes 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 NYSDOH 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, hepatitis, MRSA, and Clostridium difficile; vaccine efficacy studies for influenza, Streptoccocus pneumonia, and Neisseria meningitides; and case-control or cohort studies for a number of enteric pathogens. More recently, in partnership with CDC and the other EIP sites, New York State (NYS) instituted enhanced surveillance and laboratory specimen submission for Legionella and pertussis. In addition, the EIPs 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. NYS EIP is also modeling the costs associated with hospitalization due to specific infectious diseases utilizing healthcare cost and utilization project (HCUP) data. EIP staff also collaborates 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, CSTE Applied Epidemiology fellows 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 give presentations to groups, including the Zoonoses course provided by Dr. Eidson to the SPH. 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 a scientific journal publication for the major investigation.

Day-to-Day Activities:
The CSTE Fellow will be fully integrated into the NYSDOH EIP and Department of Epidemiolgy daily activities. The flexible structure and staffing of the EIP facilitates the Fellow's close collaboration and leadership. The CSTE 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 EIP website and newsletter
- Preparing scientific and public presentations and posters, including for conferences
- Working with CSTE Fellowship Primary Mentor and Secondary Mentor on most work days, with scheduled biweekly meetings to review progress
- 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 with other scientists on climate change and EIP diseases
- Working with the public and health/environmental/community organization stakeholders on climate change and implementation of adaptation activities to reduct health impacts of climate change
- 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
- Directing University at Albany School of Public Health (SPH) graduate student work to assist in CSTE Fellow projects
- Providing lectures for SPH graduate courses
- Working with local health departments, hospitals, the Clinical Laboratory Information Management System (CLIMS), the Communicable Disease Electronic Surveillance System (CDESS), and hospital discharge data to assess their utility in EIP climate change surveillance systems
- Developing research papers for submission to peer-reviewed journals

Potential Projects:

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/managing databases, using statistical software (e.g., SAS), interpreting findings from epidemiologic studies, recommending control measures and prevention programs, communication through written field investigation and surveillance reports, preparing a manuscript for peer-reviewed publication, giving oral presentations, developing risk communication, understanding public health law and HIPAA, obtaining IRB training and certification, implementing essential public health functions (including these functions as applicable to climate change), appreciating the diversity of how epidemiology is used in different program areas, and effectively negotiating cultural sensitivity issues.

Dr. Zansky serves on a nationwide EIP committee to determine the need for future EIP-specific studies related to climate change. Drs. Zansky and Eidson developed an initial summary for this committee of anticipated climate change impacts on EIP diseases in New York State (NYS). Dr. Eidson is the co-Principal Investigator and direct supervisor for the Project Coordinator on a three-year CDC grant for Assessment and Planning to Develop Climate Change Programs. As part of the grant, NYSDOH has conducted needs assessments and evaluation of current health surveillance systems for detecting impacts of climate change. The CSTE Fellow can take the lead on evaluating existing surveillance systems for one or more emerging diseases for detecting increases related to climate change. Dr. Eidson, BCDC,

and the Division of Epidemiology's Statistical Unit have prior experience in developing syndromic surveillance systems and real-time indicators of disease risk. The Fellow could play a key role in researching the associations between climate change indicators and changes in the EIP diseases, and developing meaningful summaries of this research for various professional and public audiences. Current emphases include health risk assessment, projection per multiple existing climate models, and adaptation for vulnerable populations in specific areas of NYS, including geographic information system (GIS) analyses.

Climate change planning is well underway in NYS, with the NYS Department of Environmental Conservation as the lead agency. New York has a NYS Climate Action Council (http://nyclimatechange.us/), but with limited focus on health issues to date. Dr. Eidson recently provided content for a web page containing links related to climate change and health, hosted by NYSDEC (http://www.dec.ny.gov/energy/68917.html).The CSTE Fellow can assist in developing expanded content, designed specifically for the NYSDOH website. The CSTE Fellow can play a key role in integrating work on EIP and climate change with the NYSDOH CEH climate change work funded by another CDC grant on Climate Variability/Change and the Risks for Under-Studied Adverse Health Outcomes. These efforts are part of the NYSDOH Environmental Public Health Tracking (EPHT) effort, which is part of a larger national EPHT Network for public health education, planning, prevention, and control. Many of the EIP diseases have environmental health implications in regard to food, water, and vectors.

There are six specific goals of Dr. Eidson's CDC climate change grant. The CSTE Fellow will have the opportunity to participate in research, surveillance, planning, and education for any of the following goals, and related objectives, that the Fellow is interested in:

1. Conduct a cross-functional, department-wide needs assessment/gaps analysis to identify priority areas to address public health impacts of climate change;
2. Educate opinion leaders regarding the health costs associated with inaction or inadequate action on climate change issues;
3. Enlist support of key climate change collaborators whose stakeholders are most vulnerable to climate change to assist with strategic planning;
4. Develop a comprehensive strategic plan that will outline the steps needed to raise awareness of climate change issues at senior leadership levels and be used as a guide to coordinate and optimize department-wide initiatives to mitigate and adapt to the public health impacts of climate change;
5. Assess existing health/disease surveillance systems and available climate-health indicators for the long-term goal of monitoring for public health impacts of climate change, inform policy makers and partners, and measure the effectiveness of climate change adaptation planning; and,
6. Transfer knowledge of best practices and lessons learned resulting from New York State initiatives to mitigate and adapt to the public health impacts of climate change.

<u>Preparedness Role</u>

Dr. Zansky works closely within the NYSDOH Bureau of Communicable Disease Control (BCDC) with the Public Health Emergency Epidemiology Program on emergency preparedness, and Dr. Eidson, within the Office of Public Health Practice (OPHP) works closely with the Office of Health Emergency Preparedness, part of the Office of Public Health (see organizational chart). Dr. Eidson works with Health Emergency Preparedness to update the State's extreme weather strategic plan to address climate change risks. Through the University at Albany School of Public Health (SPH), both Drs. Zansky and Eidson also have connections with the SPH Center for Public Health Preparedness. Through all of these affiliations, the CSTE Fellow will have the opportunity for training and assisting with preparedness projects. The CSTE

Fellow will have the opportunity to participate in FEMA study courses on the Incident Command System and participate in drills and exercises that occur periodically throughout the NYS.

Assignment Location:	Albany, NY
Primary Mentor:	Shelley Zansky, PhD, MA Director, Emerging Infections Program New York State Department of Health
Secondary Mentor:	Millicent Eidson, DVM, MA Research Scientist New York State Department of Health