FOCUS ON FELLOWS 2012

Emerging Infectious Diseases Laboratory Fellowship

APHL ASSOCIATION OF PUBLIC HEALTH LABORATORIES

CDC CENTER FOR DISEASE CONTROL AND PREVENTION
“I wanted to see what a public health lab was all about.”
- John Feltner, Class 16 Training Fellow, Hawaii State Department of Health

“This program allowed me to expand upon my previous research experience and gave me opportunities to learn new skills in and outside of the laboratory. My previous experience was in an academic research environment, but this program has allowed me to work on public health applied research projects.”
- Kathy Seiber, Class 16 Training Fellow, CDC Division of Foodborne, Waterborne & Environmental Disease, currently participating in CDC Public Health Prevention Services (PHPS)

“The EID Fellowship was an invaluable experience that provided me with the foundation needed for a successful career in public health. The fellowship not only expanded my knowledge of local, state and federal public health infrastructure, but also provided me with the appropriate skills needed to work in the field.”
- Brenda Saldivar, Class 8 Training Fellow, State Hygienic Laboratory at the University of Iowa

“In addition to allowing me to participate in public health related research, working in the HIV drug resistance unit has taught the importance of quality control, which is an essential part of being a public health laboratory scientist.”
- Erin Rottinghaus, Class 15 Research Fellow, CDC Division of Global HIV/AIDS

“This program exceeded my training and research objectives. I was able to learn many new skills and get a sense of the inner workings of a public health laboratory, as well as work on an individual project that was extremely interesting. I got to present a poster at a national conference, and interact with professionals at all levels of public health.”
- Margot Stuchin, Class 17 Training Fellow, Colorado Department of Public Health and Environment
The Emerging Infectious Diseases (EID) Laboratory Fellowship Programs train and prepare scientists for careers in public health laboratories and support public health initiatives related to infectious diseases. The Centers for Disease Control and Prevention (CDC) and the Association of Public Health Laboratories (APHL) are pleased to present the 2012 EID Fellows associated with the Emerging Infectious Diseases (EID) Laboratory Fellowship.

**EID Advanced Laboratory Training Fellowship**

This is a one-year program designed for bachelor’s and master’s level scientists, with emphasis on the practical application of technologies, methodologies, and practices related to emerging infectious diseases. Fellows participate in an orientation session at CDC in Atlanta to gain a general understanding of the public health laboratory system and how it relates to infectious disease surveillance, prevention, research, and control. Fellows are placed in local, state, and federal (CDC) public health laboratories and receive advanced infectious disease laboratory-related training. The training is customized for each fellow based upon areas of infectious disease interest, high priority laboratory personnel needs, and host laboratory capabilities.

A specific objective-based curriculum is developed for each fellow focusing on areas such as: vaccine-preventable diseases, drug-resistant pathogens, molecular methods, vector-borne or zoonotic diseases, foodborne and waterborne illnesses, sexually transmitted diseases, imported infections, computer and systems support, applications of vector or animal control, and diagnostic testing methods and instrumentation.

**EID Postdoctoral Laboratory Research Fellowship**

This is a two-year program designed for doctoral level (PhD, MD, or DVM) scientists with an emphasis on research of infectious diseases. Fellows participate in an orientation session at CDC in Atlanta to gain a general understanding of the public health laboratory system and how it relates to infectious disease surveillance, prevention, research, and control. Fellows are placed in local, state, and federal (CDC) public health laboratories to conduct approved research. Fellows conduct applied research in areas relevant to public health including, but not limited to, development and evaluation of diagnostic and subtyping techniques, antimicrobial sensitivity and assessment of mechanisms of resistance, principles of vector or animal control, and improved methodologies for environmental sampling, testing, and evaluation.

For more information about the EID Laboratory Fellowship Programs, see [www.aphl.org/fellowships](http://www.aphl.org/fellowships) or email [fellowships@aphl.org](mailto:fellowships@aphl.org).
About APHL

The Association of Public Health Laboratories (APHL) is a national nonprofit dedicated to working with its members to strengthen governmental laboratories with a public health mandate. APHL’s mission is “To promote the role of public health laboratories in shaping national and global health objectives, and to promote policies, programs and technologies that assure continuous improvement in the quality of laboratory practice and health outcomes.”

APHL’s core membership is comprised of public health, environmental and agricultural laboratories. Representatives from federal agencies, nonprofit organizations, corporations and interested individuals also participate in the association. APHL is a nonprofit, 501(c)(3) organization with a history of more than 50 years.

APHL works collaboratively with a diverse array of national, international, public and private partners to formulate and advocate for sound public health and environmental policies. APHL offers training and fellowship programs designed to prepare future leaders in public health laboratory practice. APHL is recognized nationally and internationally for excellence in cost-effective training and continuing education programs offered through its National Laboratory Training Network, a collaborative effort with the CDC.

About CDC

The Centers for Disease Control and Prevention (CDC), located in Atlanta, Georgia, is an agency of the US Department of Health and Human Services. It promotes health and quality of life by preventing and controlling disease, injury, and disability.

CDC’s mission is “To collaborate to create the expertise, information, and tools that people and communities need to protect their health—through health promotion, prevention of disease, injury and disability, and preparedness for new health threats.”

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EID Laboratory Training Fellows

Samantha Case

Highest Degree:
BS, Microbiology, University of Vermont, Burlington, VT

Host Laboratory:
Arctic Investigations Program, Division of Preparedness and Emerging Infections, National Center for Emerging and Zoonotic Infectious Diseases, CDC, Anchorage, AK

Primary Mentor: Karen Rudolph, PhD

Fellowship Project: Learn techniques in confirmation, serotyping, and susceptibility of surveillance isolates including S. pneumoniae, H. influenzae, and H. pylori.

Study the population genetics of S. pneumoniae by performing multi-locus sequence testing of isolates that cause invasive pneumococcal disease.

Assist with field investigations in rural villages involving MRSA & S. pneumoniae carriage.

Participate in laboratory assignments at the Alaska State Public Health Laboratory, Alaska State Virology Laboratory, and Alaska Native Tribal Health Consortium.

Future Plans: “After my fellowship, I plan on obtaining an advanced degree in public health. I am confident that the EID Fellowship will give me the knowledge and experience necessary to succeed in a graduate program, as well as my goal to pursue a lifelong career in public health, specifically related to infectious diseases.”

Karla Feeser

Highest Degree:
BS, Biology, Towson University, Towson, MD

Host Laboratory:
Division of Parasitic Diseases and Malaria, Center for Global Health, CDC, Atlanta, GA

Primary Mentor: Patrick Lammie, PhD

Fellowship Project: The Division of Parasitic Diseases and Malaria is developing multiplex assays to detect antibodies against multiple antigens (e.g., NTDs, such as lymphatic filariasis, trachoma, onchocerciasis, schistosomiasis, and hookworm). To increase the public health value of this assay, included are malaria and vaccine antigens, as well as bacterial antigens which play a role in secondary infections. The multiplex assay is being used as an added measure of program efficacy in a multi-site project designed to monitor the impact of integrated NTD programs. I will be involved with tool development in the lab and validation of surveillance methods in the field. Specific projects will include: exploring host responses to bacterial secondary infections as factors in the disease progression of lymphatic filariasis; and attempting to assess the ancillary benefits associated with mass drug administration programs for NTDs.

Future Plans: “This fellowship program has afforded me the time and opportunity to develop my career goals and to determine which course of action will ultimately help me achieve those goals. The exposure to field work will give me a better idea of what my next steps will be. I will continue a career in (and a passion for) the field of public health, and graduate school is on my radar. In the lab or in the field, I will focus on the global control and elimination of infectious diseases, especially those that disproportionately impact women, whether the burden is a physical, socio-economic, or cultural one.”
Kimberly Freyman

Highest Degree: MHS, Clinical Laboratory Science, Georgia Health Sciences University, Augusta, GA
Certifications: MLS (ASCP)
Host Laboratory: Vector-Borne Diseases Laboratory, Tennessee Department of Health, Nashville, TN

Primary Mentor: Abelardo Moncayo, PhD

Fellowship Project: My main project focuses on La Crosse encephalitis virus (LAC), a serious mosquito-borne illness affecting children in Tennessee. This study involves LAC identification in mosquitoes via RT-PCR, sequencing, and identification of risk factors associated with human infection. Field study and dispersal analysis will be done in collaboration with the University of Tennessee. My secondary project includes coordination of veterinary tick collection and PCR testing for Rickettsia species as probable causes of increased spotted fever cases in Tennessee.

Future Plans: “After the EID Fellowship, I will use the new skills and knowledge gained along with my clinical base to work in a public health laboratory. I plan on earning a doctoral degree specializing in vector-borne diseases allowing me to increase my participation in the field of public health.”

Andrea L. González

Highest Degree: BS, Cellular/Molecular Biology, University of Puerto Rico-Rio Piedras, San Juan, PR
Host Laboratory: Dengue Branch, Division of Vector-Borne Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC, San Juan, PR

Primary Mentor: Elizabeth Hunsperger, PhD

Fellowship Project: Maternal anti-DEnV IgG titers and subclass types among children less than 18 months of age hospitalized with laboratory-positive dengue in Puerto Rico from 1999 to 2011. Obtain a profile of maternally derived anti-dengue virus (DENV) immunoglobulin G (IgG) in children less than 18 months of age. Plaque reduction neutralization test (PRNT) will be run on IgG positive samples, showing the end-point titer of neutralizing antibodies against DENV, thus demonstrating immune protection against DENV. These samples will be tested for antibody dependent enhancement (ADE) by mixing serum samples with virus, incubating with K-562 cells and identifying infected cells through flow cytometry.

Future Plans: “I plan on expanding the knowledge and training acquired through this fellowship by attending graduate school and obtaining a PhD in microbiology. Following this, I plan on utilizing this training and education in my post-doctoral work in a public health laboratory.”
Nina Grossman

**Highest Degree:**
BA, Biology, Community Health, Tufts University, Medford, MA

**Host Laboratory:** Mycotic Diseases Branch, Division of Foodborne, Waterborne & Environmental Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC, Atlanta, GA

**Primary Mentor:** Shawn Lockhart, PhD

**Fellowship Project:** My work is focused on *Candida parapsilosis*, a species of yeast that causes hospital-acquired blood infections, and whose prevalence appears to be increasing in some areas. Right now, very little is known about what causes resistance in *C. parapsilosis*, so I will use DNA sequencing and RT-PCR to look for genes and gene expression that are unique to resistant strains.

**Future Plans:** “I hope to pursue a PhD in either biology or epidemiology within a year or two of finishing my fellowship.”

Kayleigh Jennings

**Highest Degree:**
BS, Microbiology, Ohio State University, Columbus, OH

**Host Laboratory:** Florida Department of Health Bureau of Public Health Laboratories, Tampa, FL

**Primary Mentor:** Lea Heberlein-Larson, MPH, SM(ASCP)

**Fellowship Project:** West Nile Virus is a zoonotic, vector-borne disease spread to humans through mosquitoes, and exhibited detrimental effects during the summer of 2012. My fellowship will provide me with many opportunities, one being Biosafety Level 3 testing using a serum neutralization protocol with live West Nile Virus, and an attenuated chimera virus in order to convert West Nile Virus into a BSL-2 agent. This method will provide much more versatile, safe and cost efficient experimentation.

**Future Plans:** “After completing my fellowship, I plan to stay in the field of public health to use the knowledge I gained to help the population and to advance my scientific skills. I aspire to obtain a master’s degree in public health, specializing in infectious disease management or epidemiology. My ultimate goal would be to work in a bioterrorism preparedness laboratory to progress the state of bio-preparedness in our nation.”
Melisa B. Kortan

Highest Degree:
MPH, University of California, Berkeley, CA

Host Laboratory:
Division of Parasitic Diseases and Malaria, Center for Global Health, CDC, Atlanta, GA

Primary Mentor: W. Evan Secor, PhD

Fellowship Project: My research objectives will focus on: 1) the investigation of the potential effects of schistosomiasis and soil-transmitted helminth (STH) infections in pregnant women on the immunological development of their newborns; and, 2) the evaluation of the impacts of various mass drug administration strategies with praziquantel on subtle morbidity outcomes of schistosomiasis in Kisumu, Kenya.

Future Plans: “As an aspiring infectious disease epidemiologist, I plan to use my extensive skills and training in laboratory techniques, data collection and analysis methods, epidemiological methods, and principles of infectious diseases to work towards bridging global health disparities. After the completion of my fellowship, I plan to pursue a PhD in epidemiology and to pursue my future career interests as an independent scientific investigator in global health.”

Elizabeth Libby

Highest Degree:
BS, Medical Laboratory Science, The University of Vermont, Burlington, VT

Certifications: MLS (ASCP)

Host Laboratory:
Wadsworth Center, New York State Department of Health, Albany, NY

Primary Mentor: Daryl Lamson

Fellowship Project: Very little is known about Human Herpesvirus 7 (HHV-7) pathogenesis and disease association. However, the virus has recently been implicated in cases of aseptic meningitis in pediatric patients who were also infected with a Human Enterovirus (HEV). Children who were coinfected with the two viral agents had a significantly longer hospital stay compared to children infected solely by an HEV. These results warrant further investigation of our sample population, determination of HHV-7 significance, and development and inclusion of an HHV-7 assay into routine encephalitis testing at the Wadsworth Center.

Future Plans: “The EID Fellowship has been an invaluable experience and has shown me the extensive opportunities that exist in the field of public health. After the fellowship, I plan to pursue a graduate degree in bioethics, and hope to focus in national and international public health issues.”
Laura Markey

Highest Degree:
BA, Biological Sciences, Northwestern University, Evanston, IL

Host Laboratory:
Massachusetts Department of Public Health, Hinton State Laboratory Institute, Jamaica Plain, MA

Primary Mentor: Tracy Stiles, MS, MLS(ASCP)

Fellowship Project: This foodborne disease surveillance project will survey unpasteurized milk from Massachusetts dairies for pathogenic bacteria Campylobacter sp., Listeria monocytogenes, and E. coli, in order to establish a baseline microbial load for unpasteurized milk. Additionally, any pathogens isolated will be analyzed using Pulsed-Field Gel Electrophoresis (PFGE), creating a library of genetic records of pathogens characteristic of unpasteurized milk, which can then be compared to local and national clinical PFGE databases.

Future Plans: “At the completion of this fellowship, I plan to attend graduate school and work towards a PhD in microbiology, studying infectious disease and human-microbe interactions.”

Karla M. Marrero-Santos

Highest Degree:
BS, Biology, Interamerican University of Puerto Rico, San Juan, Puerto Rico.

Host Laboratory: Rickettsial Zoonoses Branch, Division of Vector-Borne Diseases, National Center for Emerging and Zoonotic Infectious Diseases, CDC, Atlanta, GA

Primary Mentor: Gilbert Kersh, PhD

Fellowship Project: Q fever is caused by the highly infectious bacteria Coxiella burnetii. During my fellowship, I will establish in vitro and in vivo assays for antibiotic susceptibility to determine growth and survival of C. burnetii. This project will determine the extent of antibiotic resistance in circulating strains of C. burnetii and will suggest novel countermeasures for Q fever that could be used in cases of antibiotic resistance, and for patients where current treatment is contraindicated.

Future Plans: “Upon completion of the EID Fellowship, I plan to attend graduate school and pursue a master’s degree in public health focusing on infectious diseases. As a laboratory scientist, I want to continue to have a positive impact on the health of the community, and my ultimate aim is to contribute to the prevention and control of infectious diseases integrating public health with laboratory research.”
Lindsay Carol Morton

Highest Degree:
MPH, Epidemiology & Global Communicable Disease, University of South Florida, Tampa, FL

Host Laboratory: Malaria Branch, Division of Parasitic Diseases and Malaria, Center for Global Health, CDC, Atlanta, GA

Primary Mentor:
Venkatachalam (Kumar) Udhayakumar, PhD

Fellowship Project: Efficacy of artemisinin-based therapies for malaria continues to decline, especially in Southeast Asia. I will participate in characterizing molecular markers associated with ACT using blood specimens available from previous clinical trials conducted in Africa. I will also help evaluate a 24-SNP marker panel using parasite samples collected from South America. In the future, this barcoding tool can be used to monitor outbreak investigations and track the source of infection in surveillance programs following elimination.

Future Plans: “I plan to pursue higher education in infectious disease epidemiology and apply this training to a career in international disease surveillance and control. I am most interested in international public health laboratory and field epidemiology capacity building in the context of global elimination programs for malaria and other important infectious diseases.”

Duylinh Nguyen

Highest Degree:
MPH, University of California, Berkeley, CA

Host Laboratory:
San Francisco Department of Public Health, San Francisco, CA

Primary Mentor: Mark Pandori, PhD

Fellowship Project: The main project of the fellowship will be to continue a statewide surveillance project that will investigate the presence of cephalosporin drug-resistant isolates of Neisseria gonorrhoeae in the state of California using real-time PCR and multi-antigen strain typing.

Future Plans: “After the fellowship, I hope to pursue a doctoral degree doing infectious disease research. Obtaining training in laboratory sciences, I hope to pursue work in a public health laboratory and focus on the development and evaluation of new methods of rapid diagnoses of communicable diseases.”
Philip Niedzwiedz

Highest Degree:
BS, Microbiology, University of California, Davis, CA

Host Laboratory: Division of HIV and AIDS Prevention, National Center for HIV, Hepatitis, STD, and TB Prevention, CDC, Atlanta, GA

Primary Mentor: Kelly Curtis, PhD

Fellowship Project: I will focus on developing a next generation rapid HIV-1 diagnostic test using reverse-transcription, loop-mediated isothermal amplification (RT-LAMP). This technique, which is more sensitive than rapid antibody tests, requires little equipment and can be performed in a point-of-care setting. I will design and test RT-LAMP primers against common HIV-1 subtypes, optimizing reaction conditions, and improving clinical sample preparation methods by developing novel whole blood lysis techniques.

Future Plans: “Upon completion of the EID Fellowship, I plan to continue my education in microbiology and immunology as it relates to molecular diagnostics. It is my goal to continue with research in the public health field and develop new diagnostic tools to control and prevent the spread of disease.”

Karina Ray

Highest Degree:
BS, Microbiology, University of Washington, Seattle, WA

Host Laboratory: New York City Public Health Laboratory, New York, NY

Primary Mentor: Jie Fu, PhD

Fellowship Project: My fellowship assignment in the virology unit of the NYC Public Health Lab will focus on quality management improvement. I will complete validations of several molecular tests including dengue, vaccinia, and varicella-zoster, and write standards of procedure to help maintain the NYC PHL’s ability to test specimens obtained within the state and reduce erroneous diagnoses and inappropriate treatments. In addition, I will develop a dengue rapid diagnostic test to screen homogenized mosquitoes, the vectors of dengue.

Future Plans: “I will pursue a PhD in microbiology and continue research on infectious diseases following the EID Fellowship. I hope to work internationally on diseases of poverty to continue my career in global health.”

Jessica Trost

Highest Degree:
BS, Biology, University of Wisconsin, Madison, WI

Host Laboratory: Immunology and Pathogenesis Branch, Division of Influenza, National Center for Immunization and Respiratory Diseases, CDC, Atlanta, GA

Primary Mentor: Zhunan Li, PhD, MD

Fellowship Project: Seasonal epidemics and occasional pandemics of influenza generate a diverse antibody response in humans. Improved assays that detect either subtype specific or cross-reactive anti-hemagglutinin (HA) antibodies are needed to aid in diagnosis of influenza infection and development of “universal vaccines” to potentially pandemic subtypes. I will develop and optimize a novel fusion inhibition assay utilizing recombinant HA, to explore functional cross-subtype broadly neutralizing antibodies in human sera to facilitate future vaccine development and seroprevalence investigations.

Future Plans: “Following my EID Fellowship, I hope to pursue a graduate degree which will allow me to continue to participate in infectious disease research while maintaining an emphasis on public health application.”
Marjorie M. Williamson

Highest Degree:
BS, Medical and Research Technology, University of Maryland, Baltimore, MD
BS, Microbiology, University of Maryland, College Park, MD

Certifications: MLS (ASCP)

Host Laboratory: Virginia Division of Consolidated Laboratory Services, Richmond, VA

Primary Mentor: Denise M. Toney, PhD

Fellowship Project: During my fellowship, I will expand my skills by cross-training in the food microbiology, PFGE and molecular laboratories. I expect to gain an understanding of laboratory-epidemiology interaction by experiencing firsthand the epidemiologic processes used in foodborne outbreak investigations. My projects will include:

Validation of methods for detection of Botulinum neurotoxins using the MAGPIX instrument.

Performing a matrix extension study to evaluate methods for detection of non-O157 Shiga toxin-producing E. coli in foods.

Future Plans: “I intend to continue my education by pursuing a master’s degree in public health or a microbiology-related field. The EID Fellowship will help me determine whether my skills and interests are best suited for a career as a scientist and leader in a clinical or public health laboratory. Regardless of the path I choose, I expect to continue to make valuable contributions to community health. In the long-term, I hope to give back to the profession by recruiting and educating future generations of laboratory scientists in microbiology and epidemiology.”

Melissa A. Zahralban-Steele

Highest Degree:
MS, Clinical Laboratory Sciences, University of Massachusetts, Lowell, MA

Host Laboratory: Colorado Department of Public Health and Environment, Laboratory Services Division, Denver, CO

Primary Mentor: Hugh Maguire, PhD

Fellowship Project: My fellowship project will involve the development and validation of a molecular-based testing algorithm for the detection of rabies virus in animal populations. This algorithm will be used to test rabies specimens utilizing direct fluorescent antibody (DFA) testing, conventional RT-PCR, and strain typing of rabies virus in infected animals. The implementation of this testing algorithm will allow for Colorado’s rabies surveillance program to gain a comprehensive understanding of rabies virus strains present in the area. I will also focus on the phylogenetic analysis of skunk rabies which will allow for the identification of prevalent strains, migration patterns, and detection of new emerging strains.

Future Plans: “After completing my EID Fellowship, I plan to pursue a PhD that focuses on infectious diseases. This fellowship experience has strengthened my wish to pursue a career in the field of public health and research. I also plan on becoming involved in educating students at the college level after completing my doctoral program.”
R. Suzanne Beard

Highest Degree:
PhD, Virology,
Purdue University,
West Lafayette, IN

Host Laboratory: HIV Drug Resistance and Molecular Bioinformatics Team, Division of Global HIV/AIDS, Center for Global Health, CDC, Atlanta, GA

Primary Mentor: Chunfu Yang, DVM, PhD

Fellowship Project: My fellowship projects will involve detection and analysis of drug resistant strains of HIV in various countries in Africa. My first project will incorporate laboratory-based assays to survey transmitted HIV-1 drug resistance to report success of treatment and prevention programs in Swaziland. My second project is to determine the pattern of drug resistant HIV mutations in children with a detectable viral load who are participating in the Kenyan national anti-retroviral therapy (ART) program.

Future Plans: “Following my fellowship experience, my goal is to play a leading role in global policy projects that combine applied laboratory research and clinical work to impact public health in resource-limiting settings, both domestically and internationally. I will use the interactions and experiences I gain in the collaborative environment of the International Laboratory Branch as a stepping stone to work towards my goal.”

Nisha K. Duggal

Highest Degree: PhD, Molecular and Cell Biology, University of Washington, Seattle, WA

Host Laboratory: Division of Vector-Borne Diseases, National Center for Emerging Zoonotic Infectious Diseases, CDC, Fort Collins, CO

Primary Mentor: Aaron Brault, PhD

Fellowship Project: My project is to analyze West Nile Virus isolates from across the US. I will investigate the genetic fluctuations of the virus and assess the fitness effects of viral evolution in mosquito vectors and vertebrate hosts.

Future Plans: “I hope to direct a research group in a public health agency that studies global epidemics of RNA viruses. I’m interested in the dynamics of zoonotic viruses, which I hope to study using both epidemiology and experimental laboratory systems.”
SUMMARY OF EID FELLOWS

Since its inception in 1995, 479 scientists have participated in the EID Laboratory Fellowship Program, assigned to local, state, and CDC laboratories nationwide. Following is a profile of the fellows, including their background, assignments, highlights of activities and accomplishments.

SUMMARY STATISTICS
Fellow Laboratory Assignments

Of the 479 scientists who have participated in the EID Laboratory Fellowship Program:

- 263 (55%) were assigned to CDC laboratories (Atlanta, Georgia; Fort Collins, Colorado; Anchorage, Alaska; San Juan, Puerto Rico)
- 216 (45%) were assigned to local or state public health laboratories

FELLOWS ACTIVITIES
Fellows have participated in the following:

- 882 publications in journals including: Emerging Infectious Diseases; American Journal of Tropical Medicine and Hygiene; Clinical Infectious Diseases; Applied and Environmental Microbiology; Journal of Molecular Diagnostics; Journal of Bacteriology; Journal of Vector Ecology; Trends in Parasitology; Journal of Clinical Microbiology; Journal of Food Protection; Infection, Genetics and Evolution; Journal of Eukaryotic Microbiology; Journal of American Veterinary Medical Association; and Pediatric Infectious Disease Journal

- 197 outbreak investigations
- Domestic and international meetings including: American Society of Microbiology (ASM), American Society of Tropical Medicine and Hygiene (ASTMH), American Society of Virology (ASV), International Conference on Emerging Infectious Diseases (ICEID), International Association of Food Protection (IAFP), International Conference on Travel Medicine and Infectious Diseases, International Meeting of Rabies in the Americas (RITA), Ecology and Evolution of Infectious Diseases (EED), International Society of Infectious Diseases (ISID), International Conference on Human Retrovirology, American Water Works Association (AWWA), International Conference on Antimicrobial Agents and Chemotherapy (ICAAC), Infectious Diseases Society of America (IDSA), International Conference of Diseases in Nature Communicable to Man (INCDNCM), and the International Symposium on Avian Influenza
- Short-term international assignments in the countries of American Samoa, Bangladesh, Botswana, China, Egypt, Ghana, Guatemala, Guinea, Haiti, Honduras, India, Liberia, Kenya, Kyrgyzstan, Madagascar, Mexico, Mozambique, Peru, Singapore, Spain, Suriname, Tanzania, Uganda, Uzbekistan, and Vietnam
- Environmental Protection Agency (EPA) training courses
- National Laboratory Training Network (NLTN) Public Health Series Courses
**STATUS OF FELLOWSHIP PROGRAM PARTICIPANTS**
Past fellows who completed a 2012 survey identified their current positions as:

- 14% accepted temporary or permanent positions at a local or state public health laboratory or department
- 15% accepted temporary or permanent positions at a CDC laboratory
- 13% accepted positions in academia
- 3% accepted positions in private laboratories
- 13% accepted other federal employment positions
- 20% accepted positions in academic laboratories
- 8% accepted positions in public health organizations, including non-profits and health-related private industry
- 14% other

**EDUCATION LEVEL**
Of the 479 fellows, 377 (79%) were predoctoral fellows, and 102 (21%) were postdoctoral fellows.

**Predoctoral Fellows**
Of the 377 predoctoral fellows:
- Education: 257 (68%) had bachelor’s degrees
  120 (32%) had master’s degrees
- Assignment: 203 (54%) were assigned to CDC laboratories
  174 (46%) were assigned to local or state laboratories

**Postdoctoral Fellows**
Of the 102 postdoctoral fellows:
- Education: 93 (91%) had PhD degrees
  3 (3%) had MD degrees
  5 (5%) had DVM degrees
  1 (1%) had both DVM and PhD degrees
- Assignment: 60 (59%) were assigned to CDC laboratories
  42 (41%) were assigned to local or state laboratories
“My favorite part of the fellowship was being able to test samples that were collected from around the state; if a pathogen was isolated, I was then able to perform the molecular subtyping and see if the pathogens isolated from the food samples were connected to human cases. It was very rewarding to feel as though I was making a contribution to public health and possibly preventing foodborne illnesses by connecting a food source to a group of illnesses or even an outbreak.”

– Jade Braman, Class 17 Training Fellow, New York State Department of Agriculture & Markets. Braman currently works in the Ohio Department of Health Laboratory.

“The fellowship program served as an excellent entry point into the world of public health and clinical microbiology.”

– Sarah Buss, Class 15 Research Fellow, New York State Department of Health, Wadsworth Center

“I am planning on staying in public health now that my fellowship has come to an end, and the contacts that I have made during my fellowship are helping me to achieve that.”

– Jordan Estes, Class 16 Training Fellow, State Hygienic Laboratory at the University of Iowa. Estes currently works in the molecular virology department at the Delaware State Public Health Laboratory.

“As a recent graduate, I sought diverse yet in-depth research opportunities, and the freedom to associate with a laboratory that offers them is one of the best parts of the program.”

– Kelly Broussard, Class 16 Training Fellow, New York State Department of Health, Wadsworth Center

“I significantly improved my knowledge in the areas of virology and immunology since joining the program.”

– Juan De La Cruz, Class 16 Training Fellow, CDC Influenza Division