

FOCUS ON FELLOWS

APHL–CDC LABORATORY FELLOWSHIP PROGRAMS 2017-2018



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PROGRAM DETAILS

About the APHL-CDC Laboratory Fellowship Programs

The Association of Public Health Laboratories (APHL) and the US Centers for Disease Control and Prevention (CDC) partner to offer a variety of laboratory fellowship programs to train and prepare scientists for careers in public health laboratories and support public health initiatives.

There are currently five APHL-CDC fellowship programs:

- Antimicrobial Resistance Fellowship Program,
- Bioinformatics Fellowship Program,
- Ronald H. Laessig Memorial Newborn Screening Fellowship Program,
- Infectious Diseases Laboratory Fellowship Program and
- Environmental Public Health Laboratory Fellowship Program (which did not place any fellows during 2017 and so is not included in this compilation).

Fellowships range from one to two years, depending on the fellowship and funding availability. While each has a specific focus, these experiential programs also offer a competency-based core curriculum.

LEARN ABOUT PREVIOUS FELLOWSHIP PROGRAMS:

Focus on Fellows 2014

Focus on Fellows 2013

Focus on Fellows 2012

Focus on Fellows 2011

LEARN MORE ABOUT APHL'S LABORATORY FELLOWSHIP PROGRAMS:

visit www.aphl.org/fellowships or email fellowships@aphl.org

CORE COMPETENCIES

Fellowship Programs Include Core Competency Training

In addition to laboratory-specific work, all APHL fellows participate in distance-based training and learning activities to achieve proficiency in select public health laboratory core competencies.

The competencies covered in the APHL-CDC fellowship program curriculum include:

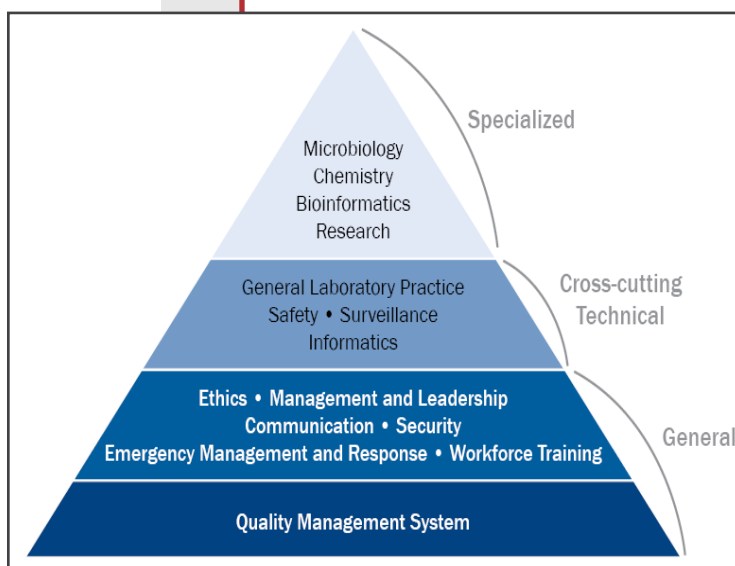
- Management and Leadership
- Communications
- General Laboratory Practice
- Research
- Surveillance
- Ethics
- Safety
- Emergency Management and Response
- Quality Management Systems

This curriculum provides a well-rounded introduction to public health laboratory science to all fellows, and provides them with the knowledge, skills and abilities to enter and advance in the public health laboratory workforce.

What Are Core Competencies?

The Public Health Laboratory Competencies outline the knowledge, skills and abilities necessary for public health laboratory professionals to deliver core services efficiently and effectively. As part of a two-year project co-sponsored by CDC and APHL, competencies were developed for 15 domain areas by a diverse group of over 170 experts, representing state and local public health laboratories, clinical laboratories, academic institutions, laboratory professional organizations, CDC and APHL.

View the complete document, *Competencies Guidelines for Public Health Laboratory Professionals*, to learn more.



**LEARN MORE ABOUT
CORE COMPETENCIES:**
www.aphl.org/Competencies.aspx

ANTIMICROBIAL RESISTANCE

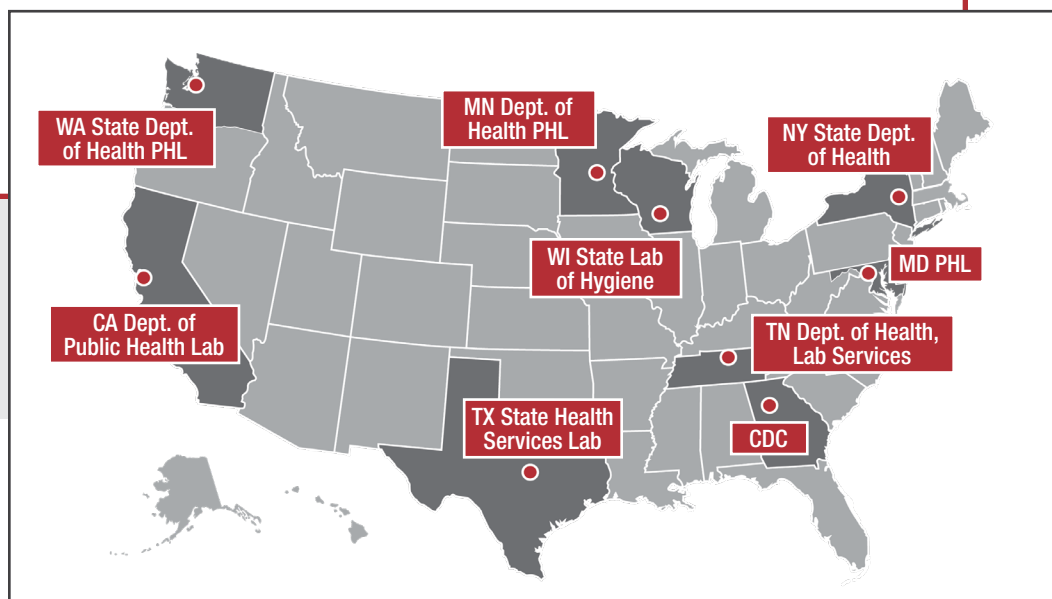


AR Fellows Visit CDC.

Antimicrobial Resistance (AR) Fellowship Program

AR testing in public health laboratories (PHLs) for nationwide capacity is new and, therefore, a new class of well-equipped and dedicated scientists is required to address this growing threat. The AR Fellowship provides training in AR laboratory activities—such as advanced molecular methodologies, surveillance and research—as well as communication and outreach. The program is open to master's- and doctoral-degree level scientists.

Right: Locations of the 2017-2018 AR Fellows



ANTIMICROBIAL RESISTANCE

Jennifer L. Dale

PhD (Microbiology and Molecular Genetics),
The University of Texas Health Science Center

WORKING WITH: Paula Snippes Vagone, MT(ASCP),
Minnesota Dept. of Health Public Health Laboratory

PROJECT: Develop experimental methods that enable reliable and efficient identification of carbapenemase-producing *Acinetobacter baumannii*, which is a growing clinical concern; investigate the impact of *A. baumannii* OXA genes in regard to antibiotic susceptibility to carbapenems and the potential for horizontal gene transfer. These projects will enable a better understanding of *A. baumannii* antibiotic resistance and will allow rapid identification of clinically important isolates.

I plan to...broaden my understanding of infectious disease and utilize my basic science research background to benefit the lab's overall goals of rapid and reliable detection methods.

I want to pursue further training in...public health microbiology and obtain certification from the American Board of Medical Microbiology (ABMM). In the future I hope to serve in leadership roles in public health microbiology.

Marisabel O. Etter

PhD (Molecular, Cell and Developmental Biology),
University of California—Los Angeles

WORKING WITH: Edward Desmond, PhD and Grace Lin, MS,
Microbial Diseases Laboratory, California Dept. of Public Health Laboratory

PROJECT: Use the BD mycobacterial growth indicator tube (MGIT) system to establish a culture-based drug susceptibility test for linezolid and determine the minimal inhibitory concentration range for ethambutol in susceptible and resistant strains of the *Mycobacterium tuberculosis* complex; participate in outreach projects with leaders of local laboratories to discuss proper use of molecular tests.

Kelsey Florek

PhD (Microbiology),
University of Wisconsin—Madison

WORKING WITH:

David Warshauer, PhD,
(ABMM), Wisconsin State
Laboratory of Hygiene

PROJECT: Develop and validate molecular assays to detect resistance mechanisms and enterotoxigenic *Escherichia coli*; construct a next generation sequencing data analysis pipeline to aid in the surveillance and discovery of antibiotic resistance mechanisms.

My past work has relied on the application of cross-disciplinary approaches to science and public health. In the future I hope to pull from these experiences in teaching and running a laboratory devoted to public health research.

All fellows are encouraged to attend APHL's Annual Meeting and submit posters on their projects.

ANTIMICROBIAL RESISTANCE

Lisa M. Leung

PhD (Microbiology),
University of Maryland—Baltimore

WORKING WITH: Robert A. Myers, PhD,
Maryland Public Health Laboratory

PROJECT: Use MALDI-TOF system to validate *Neisseria gonorrhoeae* and non-*Neisseria* species and elucidate drug resistance phenotypes; analyze proteins and other molecular biomarkers in *Candida auris* to determine underlying resistance mechanisms versus other *Candida* species; and research the multi-mechanistic resistance of *Pseudomonas aeruginosa* to colistin.

Ideally, I would undertake a second postdoc, in an academic setting this time, and these combined experiences would prepare me to be a lead researcher/scientist at an institution studying the environmental and public health impacts of antibiotic-resistant bacteria.

I would like to focus on disease prevention, surveillance and outbreak investigation.

Ayodele (Ayo) Ojebode

MPH, MLS(ASCP)^{CM}, Des Moines University

WORKING WITH: Sudha Chatuvedi, PhD,
Wadsworth Center, New York State Dept. of Health

PROJECT: Validate *Candida auris* (an emerging multi-drug resistant organism) rt-PCR assay in blood matrix. This assay, aimed at direct detection of *C. auris* in blood samples will considerably improve patient care and reduce the laboratory diagnosis turn-around-time.

Mimi R. Precit

PhD (Microbiology),
University of Washington

WORKING WITH:

William A. Glover II, PhD, D(ABMM),
MT(ASCP), Washington State Dept. of Health
Public Health Laboratories

PROJECT: Develop and improve molecular assays to better detect mechanisms of antibiotic resistance in Carbapenem-resistant Gram-negative bacteria; use next next-generation sequencing methods to conduct metagenomic identification of pathogenic organisms and characterize resistance mechanisms, particularly of *Neisseria gonorrhoeae*; and develop comprehensive reference databases combining microbiological, clinical, epidemiological and genomic or metagenomic data to create actionable data to aid in proper control practices and stop transmission.

I plan to complete a CPEP-accredited fellowship in clinical/medical microbiology. [Then I will] take the ABMM certification exam, with the ultimate career goal to direct a clinical or public health laboratory.

Eric Ransom

PhD (Microbiology), University of Iowa

WORKING WITH: Jean Patel, PhD, D(ABMM),
Antimicrobial Resistance Coordination and
Strategy Unit, Division of Healthcare Quality
Promotion, CDC

PROJECT: Develop and validate antibiotic resistance diagnostic methods; implement public health data to determine antibiotic susceptibility breakpoints; and utilize whole-genome sequencing to identify and combat antibiotic resistance threats.

I plan to work in a clinical or public health laboratory.

ANTIMICROBIAL RESISTANCE

Emily Snavelly

PhD (Molecular Genetics and Microbiology), Duke University

WORKING WITH: Kimberlee Musser, PhD, Wadsworth Center, New York State Dept. of Health

PROJECT: Contribute to Antibiotic Resistance Laboratory Network (ARLN) activities for the Northeast region and train in all antimicrobial resistance detection methods used at Wadsworth Center. Validate colonization culture methods for carbapenem-resistant organisms and develop, validate, and implement methods to detect emerging antimicrobial resistance mechanisms.

My goal is to direct a diagnostic or public health microbiology laboratory that fosters a collaborative environment between the laboratory, health care professionals and basic scientists.

I want to start a career in public health. My graduate research also focused on antibiotic resistance and infectious disease, and I hope to use the skills and knowledge that I've gained over the years to help protect the public.

Alesha Stewart

*PhD (Pharmaceutical Sciences),
The University of Texas—Austin*

WORKING WITH: Elizabeth Delamater, PhD, Texas Dept. of State Health Services Laboratory

PROJECT: Rotate through the different labs to gain experience working with the various organisms and testing methods of the ARLN project, complete MALDI validation for panels of carbapenemase-resistant *Enterobacteriaceae* (CRE) and GC isolates, use whole genome sequencing (WGS) to perform *Salmonella* serotype prediction and cluster analysis for foodborne and healthcare associated infectious disease outbreaks, and gain experience in bioinformatics while analyzing WGS data.

Victoria N. Stone

*PhD (Microbiology & Immunology),
Virginia Commonwealth University*

WORKING WITH: Xiaorong Qian, PhD, HCLD(ABB), Tennessee Dept. of Health: Laboratory Services

PROJECT: Validate next generation sequencing protocols for the detection of antibiotic resistance genes in *Neisseria gonorrhoeae*; construct a strategy for the utilization of MALDI-TOF as a potential tool for rapid, culture-independent antibiotic susceptibility profiling; and perform PCR validations for the detection of antibiotic resistance mechanisms in CRE and *Pseudomonas aeruginosa*.

I hope to further my training by completing a clinical laboratory program and becoming board certified for continued work in the public health field.

LEARN MORE ABOUT THE AR FELLOWSHIP:
www.aphl.org/fellowships/Pages/ARLNFellowship.aspx

BIOINFORMATICS



Bioinformatics Fellows at AMD Day 2017. (Left to Right) Dane Kania, Sara Zufan, Tiffany Hsu, Brian Mann, Julie Shay, Su Bin Park, Sarah Schmedes, Erik Van Roey, Logan Fink, Kevin Libuit, Sean Wang, and Thomas Stark (a Bioinformatics Fellowship alumni, '14). Not Pictured: Arunachalam Ramaiah.

The Bioinformatics Fellowship Program aims to train and prepare bioinformaticians to apply their expertise within public health and design tools to aid existing public health personnel in the use of bioinformatics. The program is a year-long, full-time working fellowship for master's- and doctoral-level bioinformaticians; some fellowships may be extended for an additional year, as funding allows. Fellows are placed in state, local and federal public health laboratories throughout the US.

SINCE THE PROGRAM'S INCEPTION
IN 2013, THERE HAVE BEEN

24 BIOINFORMATICS
FELLOWS

BIOINFORMATICS

2016-2018 FELLOWS

Dane Kania

MS (Molecular Medicine), University of Maryland—Baltimore

WORKING WITH: Michael Weigand, PhD,
Pertussis and Diphtheria Laboratory, CDC/OID/NCIRD/MVPDB

PROJECT: Develop whole genome Multi-Locus Sequence Typing (wgMLST) of infectious disease *Bordetella pertussis*; curate a wgMLST reference database to be used in tracking outbreak populations in the United States; create a bioinformatic approach to the traditional PCR-based *B. pertussis* MLVA typing scheme.

I plan to combine my degree in biology with the programming skills I have developed at this fellowship to tackle new challenges as a bioinformatician.

Brian Mann

PhD (Experimental Pathology),
University of Texas Medical Branch

WORKING WITH: John Barnes, PhD,
Influenza Genomics Team,
CDC/OID/NCIRD/ID/VSDB

PROJECT: Develop an automated, computational framework, integrating antigenic cartography to cross-reference antigenic data with genomic sequence and identify real-time shifts in the molecular determinants of antigenicity. Correlate detected phenotypic changes with specific nucleotide substitutions and further genotypic inferences.

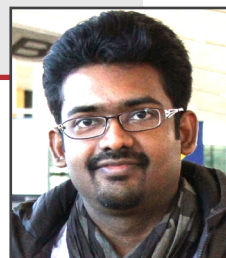
I intend to pursue a career in public health/policy and focus on collaborative data integration and analysis as a means to advance public health innovation and response to infectious disease.

Arunachalam Ramaiah

PhD (Bioinformatics),
jointly from Manonmaniam Sundaranar
University, Tirunelveli, India and
Abo Akademi University, Turku, Finland

WORKING WITH: Gregory A. Dasch, PhD,
Biotechnology Applications Laboratory,
Rickettsial Zoonoses Branch,
CDC/NCEZID/DVBD

PROJECT: Optimize pipelines for reference based and de novo assembly of genomes and plasmids of *Coxiella*, *Francisella*, and *Rickettsia* agents present in metagenomics sequence data from ticks obtained on several platforms. Conduct deep downstream physical and functional analyses and comparisons of these data with related sequences available at NCBI. Predict T-cell epitopes and deduce the evolution of surface antigens of *Rickettsia* and *Orientia*.



I hope to continue to work at the CDC or other institutions to promote public health...preventing and controlling infectious diseases by designing effective vaccines, diagnostic assays and drugs through high quality biomedical research.

BIOINFORMATICS

Julie Shay

MSc (Molecular Biology), Simon Fraser University, Burnaby, BC, Canada

WORKING WITH: Andrew Huang, PhD and Heather Carleton, PhD, MPH, Enteric Diseases Laboratory Branch, CDC/NCEZID

PROJECT: Test taxonomic binning methods using existing shotgun metagenomic data from *Salmonella* outbreaks in Colorado and Alabama and compare results with the outbreaks' corresponding epidemiological and isolate genomic data. Catalogue information about organisms found in healthy stool, creating in silico mock metagenomic data sets with the catalogue, and use these data sets to further test taxonomic binning methods.

I plan to continue working in public health. I may continue to work in my current branch, but I also plan to consider other positions and MPH programs.

Utilize cutting-edge technology and 'big data' concept to promote public health at all levels, including more comprehensive characterization of infectious pathogens, faster infectious disease outbreak identification and more accurate newborn screening.

Xiong (Sean) Wang

PhD (Virology and Bioinformatics), University of Minnesota—Twin Cities; DVM, Jilin University, Changchun, China

WORKING WITH: Dave Boxrud, MS, Minnesota Dept. of Health Public Health Laboratory

PROJECT: Build and maintain the bioinformatics infrastructure, implementing analyses pipelines (whole-genome SNP phylogeny, serotyping, antibiotic resistance prediction, etc.) for various pathogens. Standardize internal and regional bioinformatics training and analyses.

2017-2018 FELLOWS

Logan Fink

MS (Biological and Medical Informatics), South Dakota State University

WORKING WITH: Joel Sevinsky, PhD, Colorado Dept. of Public Health and Environment

PROJECT: Aid in the detection and classification of outbreaks of enteric disease, develop pipelines to help characterize the molecular profile of isolates, work on characterization of *Y. pestis* and *F. tularensis* strains endemic to Colorado.

I hope to continue on in the public health sector, as I have found the work diverse, exciting, challenging and rewarding.

BIOINFORMATICS

Tiffany Hsu

PhD (Biological and Biomedical Sciences), Harvard University

WORKING WITH: Sandra Smole, PhD, Massachusetts State Public Health Laboratory

PROJECT: Characterize pathogens in unexplained respiratory disease outbreaks by designing primers to amplify specific pathogens, such as the *Bordetella* species and enterovirus. Incorporate primers onto the Wafergen SmartChip™ for massively parallel target enrichment, sequenced on the Illumina MiSeq. Develop bioinformatics workflows for primer design, selected for specificity, limit of detection and taxonomic classification, using a k-mer approach.

I plan to continue research in microbial detection and ecology, as well as make bioinformatics more accessible to laboratorians. I have always been interested in how we interface with the microbes within us and around us, and I firmly believe that interdisciplinary work and collaboration will teach us the most.

I plan to continue a career in public health.

Kevin Libuit

*MS (Biology),
James Madison University*

WORKING WITH: Lauren Turner, PhD, Virginia Division of Consolidated Laboratories Services

PROJECT: Develop and implement bioinformatics quality control workflows to ensure accurate and actionable data are being provided to the lab's external partners on foodborne pathogen surveillance.

Su Bin Park

MS (Bioinformatics), Georgia Institute of Technology; MS (Medicine), Seoul National University, Korea

WORKING WITH: Brian Raphael, PhD, Pneumonia Response and Surveillance Laboratory, CDC/OID/NCIRD/DBD/RDB

PROJECT: Improve the whole genome MLST (wgMLST) for *L. pneumophila* allele database and develop bioinformatic workflows for automated analysis of wgMLST data.

[I plan to] keep improving my skills in bioinformatics by solving problems in public health. Also, I want to go back to [a] PhD program and get degree so that I can become a senior scientist, PI, or project director.

Bioinformatics fellows are encouraged to attend the annual Advance Molecular Detection (AMD) Day Conference. At AMD Day 2017, 13 fellows—both past and present—presented posters on their projects.

BIOINFORMATICS

I hope to pursue opportunities to continue bioinformatics research in public health, focusing on outbreak investigations and biosafety and biosecurity, and to pursue a path to leadership roles within the public health laboratory setting.

Sarah Schmedes

PhD (Biomedical Sciences—Molecular Genetics),
University of North Texas Health Science Center

WORKING WITH: Venkatachalam (Kumar) Udhayakumar, PhD, Malaria Genomics Laboratory, Laboratory Research and Development Unit, CDC/CGH/DPDM/MB

PROJECT: Focus on molecular surveillance for drug resistance and integrating population-based genetic markers for genotyping *Plasmodium falciparum* isolates to infer recrudescence versus new infections. Use next generation sequencing tools and bioinformatics analysis to investigate outbreaks, such as developing a bioinformatic pipeline and implementing machine learning techniques to generate prediction models to infer geographical origin of *Plasmodium* isolates.

Erik Van Roey

MS (Genetics, Genomics and Bioinformatics), University at Buffalo

WORKING WITH: Richard Bradbury, PhD, Parasite Reference Diagnostic Laboratories, CDC/CGH/DPDM/PDB

PROJECT: Provide bioinformatics support to PDB's attempt to create a genetic typing marker for *Cyclospora cayentensis* outbreak investigations; perform PCR-based sequencing on published genetic markers for *Strongyloides stercoralis*, establish their usefulness and evaluate the global variation of *S. stercoralis*.

I plan to continue working in bioinformatics, either in academia or a public health setting, and eventually return to school to get a PhD.

Sara Zufan

MPH (Environmental Health Sciences), Columbia University

WORKING WITH: Shannon Whitmer, PhD, Research Diagnostics and Development Team, CDC/OID/NCEZID/DHCCP/VSPB

PROJECT: Enhance and explore sample preparation methods for next generation sequencing; deep sequence archived clinical material to construct detailed phylogenies; and investigate bioinformatics methods to improve the pathogen detection pipeline and phylogenetic analysis with the purpose of enhancing the detection of high consequence pathogens and novel pathogens that cause viral hemorrhagic fever-like symptoms.

I plan to continue research at the intersection of molecular evolution and public health. Specifically, I am interested in the population genomics of zoonotic pathogens across space and time, and how that information can be applied to improve surveillance.

LEARN MORE ABOUT THE BIOINFORMATICS FELLOWSHIP:
www.aphl.org/fellowships/Pages/Bioinformatics.aspx

NEWBORN SCREENING

The Ronald H. Laessig Memorial Newborn Screening Fellowship Program prepares laboratory scientists for careers in newborn screening and/or genetics research while also strengthening local, state and federal public health infrastructures to support surveillance and implement prevention and control programs. The program is a two-year, full-time post-doctoral fellowship that accepts one applicant per fellowship cycle.

THE PREVIOUS **TWO** RONALD H. LAESSIG
MEMORIAL NEWBORN SCREENING FELLOWS

OBTAINED POSITIONS AT THEIR FELLOWSHIP LABS

AFTER THEIR FELLOWSHIP ENDED



Ellen V. Stevens

PhD (Pharmacology), University of North Carolina

WORKING WITH: Sara Beckloff, PhD,
North Carolina State Laboratory of Public Health

PROJECT: Optimize and implement the Illumina's MiSeqDx Cystic Fibrosis (CF) 139-Variant screening methodology to allow for the rapid detection of CF disease-causing mutations in North Carolina newborns during the routine screening process, and work collaboratively with partner agencies (CDC and RTI) to develop, optimize and implement novel molecular assays to detect mutations associated with lysosomal storage disorders in newborns.

[I plan] to continue to perform research that will ultimately improve the overall well-being of babies being born with life-threatening disorders by guiding earlier diagnosis and treatment options.

LEARN MORE ABOUT THE NEWBORN SCREENING FELLOWSHIP:
www.aphl.org/fellowships/Pages/PHL-NBS.aspx

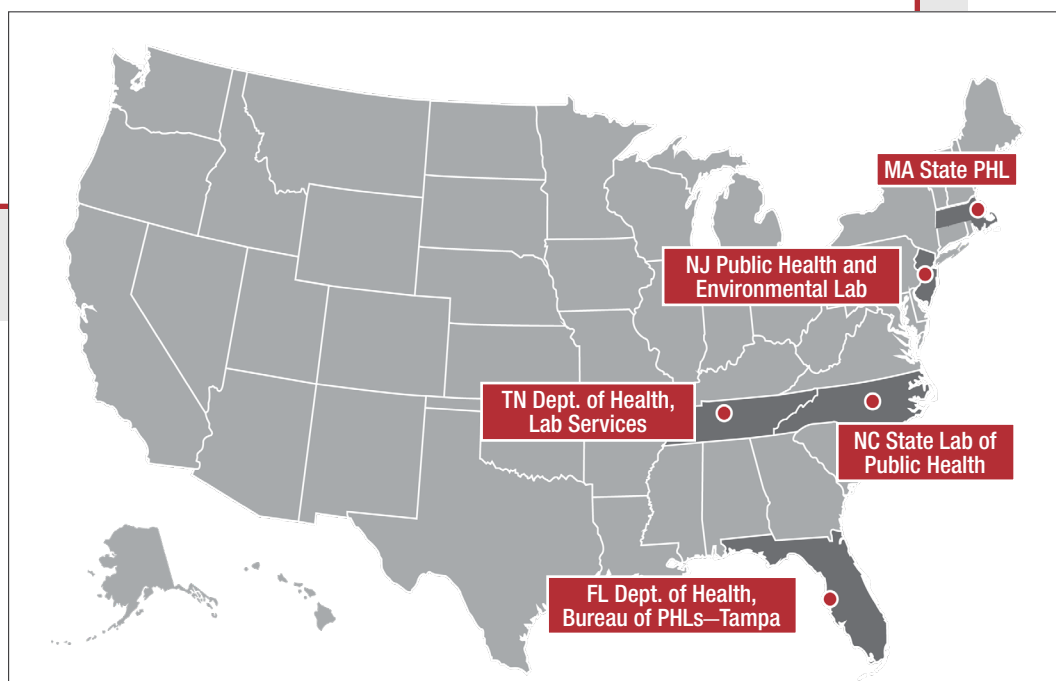
INFECTIOUS DISEASES



Infectious Disease Fellows visit CDC in Atlanta, GA. (Left to Right) Dana Woell, Thomas Moore, Caitlyn Daron, Mia Warlick, Michael Mash, and Chelsea Carman.

The Infectious Diseases Laboratory Fellowship Program is a year-long, full-time working fellowship for master's-degree level scientists. Fellows are placed in local and state public health laboratories (PHLs), where they receive training in bench-level laboratory skills and methods, and assist with high-priority infectious disease testing, surveillance and control measures.

Right: Locations of the 2017-2018 Infectious Diseases Fellows



INFECTIOUS DISEASES

Chelsea Carman

MPH, University of Vermont

WORKING WITH: Tracy Stiles, MS, Massachusetts State Public Health Laboratory

PROJECT: Develop, optimize, validate, and implement an assay to detect norovirus in oysters, and then develop an application to manage the data generated from testing.

I am using this year of fellowship to assist me in determining what I would like to do in the future: pursue a higher degree, secure a position in a public health laboratory, or return to more basic research to answer public health questions.

“

I spent three weeks training at the lab of a leading researcher in norovirus detection in oysters...at Ifremer in Nantes, France. Her lab is both a national reference lab and a research lab, so it was a great opportunity to learn about the ISO testing methods used for norovirus detection, as well as the direction of current research.

- Chelsea Carman, MPH

”

In the short-term I will continue to expand my knowledge, expertise and laboratory technical skills by pursuing career opportunities at a state public health laboratory or a clinical laboratory at a major hospital. My long-term goals include working at CDC and/or WHO to conduct infectious disease research and investigate and respond to disease outbreaks.

Caitlyn Daron

*MS (Microbiology),
North Carolina State University*

WORKING WITH: Susan Orton, PhD (ABMLI), North Carolina State Laboratory of Public Health

PROJECT: Use MALDI-TOF to identify/verify the presence of highly infectious and atypical organisms often associated with disease outbreak response; determine baseline levels of Cryptosporidium and Giardia parasites in stool specimens from migrant field workers in North Carolina in collaboration with the Brody School of Medicine at East Carolina University; and work with the biosafety/biosecurity officer on revising the infection control manual with an emphasis on biosafety and risk assessment of laboratory procedures.

Michael A. Mash

*MS (Biotechnology),
University of Nevada—Reno*

WORKING WITH: Denise Pettit, PhD, North Carolina State Laboratory of Public Health

PROJECT: Develop and implement a plaque reduction neutralization test protocol, optimized under BLS-3 conditions, to facilitate diagnoses of known and emerging viral pathogens; conduct rotations in virology/serology, reference microbiology and molecular epidemiology to obtain a comprehensive experience in public health laboratory practices.

My goal is to pursue a PhD focusing on arbovirology, the molecular mechanisms associated with pathogenesis, and characterization of hosts that transmit these pathogens to unsuspecting populations... I will pursue a career in the diagnosis, prevention and control of vector-borne diseases working in a state, national or international agency committed to protecting citizens from emerging and zoonotic infectious diseases.

INFECTIOUS DISEASES

Thomas Moore

MS (Global Health), Duke University

WORKING WITH: Abelardo Moncayo, PhD, Tennessee Dept. of Health, Laboratory Services

PROJECTS: Study Bourbon Virus and Heartland Virus Sero-prevalence among domestic and wild animals across Tennessee and molecular testing of human samples for Heartland Virus; develop and implement *Rickettsia* multiplex assay to determine true distribution of *Rickettsia* spp. pathogen across Tennessee; assist with Tennessee's West Nile Virus (WNV) surveillance system through weekly mosquito processing and molecular testing for WNV; and assist with the vector-borne disease epidemiologist with case investigation for Rocky Mountain Spotted Fever.

I plan to pursue a doctorate investigating infectious disease in the public health setting. My future goal is to work for the CDC where I can study vector-borne and zoonotic disease both nationally and globally.

I plan to pursue a career as an infectious disease epidemiologist... [focusing on] the molecular epidemiology of emerging viral infections... I hope to enhance my understanding of viral pathogenesis in order to develop better diagnostic tools and therapeutics for detecting and combating viral infections. My ultimate goal is to work for CDC.

Mia Warlick

MS (Biomedical Engineering), University of Florida

WORKING WITH: Lea A. Heberlein-Larson, MPH, Florida Dept. of Health, Bureau of Public Health Laboratories—Tampa

PROJECT: Research efforts on developing and validating an assay for detecting Zika nonstructural protein 1 (NS1) after rotations through the virology, bacteriology, serology, biological defense and epidemiology departments. The proposed assay seeks to address sensitivity and specificity limitations of current serologic tests, which detect antibodies against nonspecific-Zika structural proteins.

I plan to pursue a public health career in the public sector, focusing on emerging infectious diseases... I am interested in the interface of laboratory capacity building with public health program management, as well as emergency preparedness.

Dana Woell

MPH, University of Pittsburgh

WORKING WITH: Thomas Kirn, MD, PhD, New Jersey Division of Public Health and Environmental Laboratories

PROJECT: Improve performance in the mycobacteriology laboratory by focusing on turnaround time, data quality, and incorporating new technology into the lab to better support the NJ state tuberculosis (TB) control program; update and optimize laboratory testing algorithms to ensure timely provision of diagnostic data; coordinate with critical partners in clinical sites and local public health departments to better achieve the state's TB control goals.

LEARN MORE ABOUT THE INFECTIOUS DISEASE FELLOWSHIP:

www.aphl.org/fellowships/Pages/Infectious-Diseases-Laboratory-Fellowship-Program.aspx

ABOUT APHL & CDC

About APHL

APHL works to strengthen laboratory systems serving the public's health in the United States and globally. APHL represents state and local governmental health laboratories in the United States. Its members, known as "public health laboratories," monitor, detect and respond to health threats.

APHL works closely with federal agencies to develop and execute national health initiatives. During public health emergencies, it operates as a coordinating center for laboratory response. APHL also works internationally to build effective national laboratory systems and expand access to quality diagnostic testing services. With over 20 years' experience in 31 countries on five continents, APHL is recognized internationally as a leader in laboratory science and practice.

APHL's core membership is comprised of state, local and territorial laboratories and includes environmental, agricultural science and food safety laboratories. Representatives from federal agencies, nonprofit organizations, corporations and interested individuals also participate in the association. International participation is expanding in response to the globalization of disease and APHL's active global health program. Total APHL membership numbers over 800.

About CDC

CDC is one of the major operating components of the US Department of Health and Human Services. CDC works 24/7 to protect America from health, safety and security threats, both foreign and domestic. Whether diseases start at home or abroad, are chronic or acute, curable or preventable, human error or deliberate attack, CDC fights disease and supports communities and citizens to do the same.

CDC increases the health security of our nation. As the nation's health protection agency, CDC saves lives and protects people from health threats. To accomplish our mission, CDC conducts critical science and provides health information that protects our nation against expensive and dangerous health threats, and responds when these arise.



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