



FOCUS ON FELLOWS

**APHL–CDC LABORATORY
FELLOWSHIP PROGRAMS
2021-2022**



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TABLE OF CONTENTS

Program Details	3
Core Competencies	4
Antimicrobial Resistance	5
COVID-19 Response	12
Infectious Diseases	14
Infectious Diseases Bioinformatics	15
Newborn Screening Bioinformatics	19
Newborn Screening	21
About APHL & CDC	23

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.

The five Fellowship programs that recruited Fellows for the 2021 cohort are:

- Antimicrobial Resistance Laboratory Fellowship Program
- Bioinformatics Fellowship Program
- Infectious Diseases Laboratory Fellowship Program
- Newborn Screening Bioinformatics and Data Analytics Fellowship Program
- Ronald H. Laessig Memorial Newborn Screening Fellowship Program

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 MORE ABOUT APHL'S
LABORATORY FELLOWSHIP PROGRAMS:**
visit aphl.org/fellowships or
email fellowships@aphl.org

CORE COMPETENCIES

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:

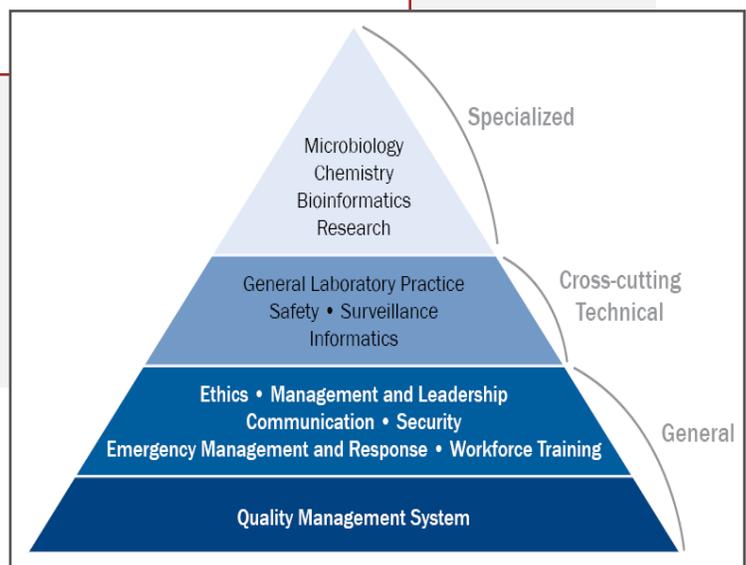
- Management and Leadership
- Communications
- General Laboratory Practice
- Research
- Surveillance
- Ethics
- Safety
- Emergency Management and Response
- Quality Management Systems

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.

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:
aphl.org/Competencies



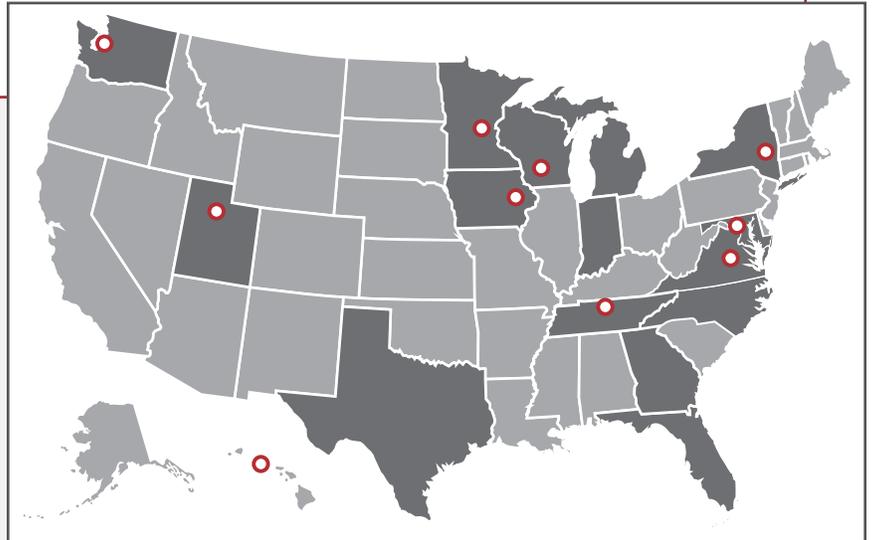
ANTIMICROBIAL RESISTANCE

Antimicrobial Resistance (AR) Laboratory Fellowship Program

AR testing in public health laboratories for nationwide capacity is an emerging field that requires a new class of well-equipped and dedicated scientists to address this growing threat. The AR Laboratory Fellowship Program provides training in AR laboratory activities—such as advanced molecular methodologies, surveillance and research—as well as communication and outreach.

Learn more at aphl.org/AR-fellows

Current and historical AR Lab Fellow host laboratory locations



2021–2022 FELLOWS



Jorge Chavez

MS (Microbiology and Immunology), 2021, Colorado State University

HOST LABORATORY: Utah Public Health Laboratory

PRIMARY MENTOR: Alessandro Rossi, PhD

FELLOWSHIP PROJECT:

- Design a method to screen Utah wastewater for CRE and yeasts using culture and molecular-based approaches to develop an endemicity map of isolates and their resistance genes.
- Determine if there is a correlation between community wastewater isolates and clinical isolates.
- Determine if my procedure could be used in long term care facilities as an early detection method for outbreaks.

FUTURE PLANS: In the future I will continue working in public health. My goal is to help slow the spread of antimicrobial resistance. Additionally, I am considering eventually pursuing a PhD in the field of microbiology.



Katelin Gali

MS (Medical Laboratory Science), 2021, University of Southern Mississippi

HOST LABORATORY: Virginia Department of Consolidated Laboratory Services

PRIMARY MENTOR: Emily Craig, MS

FELLOWSHIP PROJECT:

- Validate the Sensititre GN7F broth microdilution plate and AIM autoinoculation system to improve antimicrobial susceptibility testing for carbapenem-resistant organisms.
- Develop an effective data tracker for detection and enhanced surveillance of emerging AR threats using whole-genome sequencing data from Carbapenem-resistant organisms.

FUTURE PLANS: Through this fellowship, I have gained an increased knowledge of the work performed by public health laboratories. Moving forward, I plan to continue working and growing my skills in public health laboratory testing and surveillance. I want to contribute to the public health response to infectious diseases, including antimicrobial-resistant organisms.



Lauren Johnson

PhD (Microbiology), 2021, Ohio State University

HOST LABORATORY: Maryland Department of Health Laboratories

PRIMARY MENTOR: Robert Myers, PhD

FELLOWSHIP PROJECT:

- Develop a database of plasmids carrying resistance genes that are common to *A. baumannii* using Illumina whole genome sequencing data from select isolates for characterization.
- Use AR gene types (such as NDM, OXA and TEM genes) to group isolates into cohorts based on similarity of gene profile.
- Data will be used to determine if differing AR genetic profiles correlate with different plasmids and, if so, which markers can be used to rapidly identify plasmid presence in an isolate.

FUTURE PLANS: I hope to continue to study host-pathogen interactions and apply my expertise in microbiology with the public health experience I've gained as a part of this fellowship to pursue a career in leadership at a clinical or public health laboratory.



Geoffrey Lester

MS (Biotechnology), 2021, Fort Valley State University

HOST LABORATORY: State Hygienic Laboratory at The University of Iowa

PRIMARY MENTOR: Ryan Jepson, MPH

FELLOWSHIP PROJECT:

- Complete basic ARLN testing training competencies – mCIM, Xpert CARBAR, MALDI-TOF, broth microdilution susceptibility testing, specimen/isolate setup, media quality control, whole-genome sequencing.
- Complete membrane filtration training competency for detection of antibiotic resistant pathogens in water.
- Work with SHL bioinformatics team to develop a procedure for uploading CRE whole genome sequencing results to NCBI.

FUTURE PLANS: I would like to continue working in a laboratory/clinical setting and contributing to the field of public health. I think the best way to do this is by pursuing a tertiary degree. I want to become a medical doctor so that I can go out into the community and work hands on in treating and hopefully preventing these diseases.



Shannon Murphy

PhD (Microbiology), 2021, Cornell University

HOST LABORATORY: Wadsworth Center, New York State Department of Health

PRIMARY MENTOR: Kimberlee Musser, PhD

FELLOWSHIP PROJECT: Develop a targeted, next generation sequencing assay that can predict *Mycobacterium tuberculosis* (Mtb) antimicrobial resistance directly from patient sputa.

FUTURE PLANS: I plan to pursue additional clinical research project with the aim of improving our ability to detect and monitor antimicrobial resistance. My long-term career goal is to direct a public health laboratory and bridge collaborations between academic and public health researchers.



Priscilla Seabourn

PhD (Entomology, Microbiology, Biomedical Sciences, Virology), 2021, University of Hawaii at Manoa

HOST LABORATORY: Hawaii State Laboratory Division

PRIMARY MENTOR: Edward Desmond, PhD

FELLOWSHIP PROJECT:

- Expand routine AR testing, including RT-PCR for the detection of *C. auris*.
- Establish facility level surveillance for *Candida auris*.
- Establish wastewater detection for antimicrobial resistant genes.

FUTURE PLANS: After this fellowship, I plan on working for organizations that deal with public health issues, such as the Centers for Disease Control, World Health Organization or a local state public health agency. I would like to pursue a leadership role that helps to bridge applied laboratory science with public health and gain critical expertise that will assist federal and local public health laboratories and investigations.



Jillian Socea

PhD (Microbiology), 2021, University of Nevada

HOST LABORATORY: Tennessee State Department of Health

PRIMARY MENTOR: Victoria Stone, PhD

FELLOWSHIP PROJECT:

- Investigate the occurrence of mCIM+PCR-CRO isolates (carbapenemase production detected but not confirmed by PCF) as the Tennessee Department of Health. Carbapenem resistance genes that are not currently detected by PCR may be identified using bioinformatic screenings with the University of Florida's supercomputer.
- Validate new equipment and assays as they are added to ARLN at the TN DOH, including whole genome sequencing of *C. auris*.

FUTURE PLANS: This fellowship has focused my passion for working in public health. I am looking toward opportunities within public health/science policy with hopes of continuing to engage in areas that can make impacts on human life. I enjoy working on the complex issue of antimicrobial resistance and infectious disease, which I hope to help combat through policy and advocacy actions.

2020-2022 FELLOWS



Hannah K. Gray

PhD (Environmental Health and Engineering), 2020, Johns Hopkins University

HOST LABORATORY: Washington State Public Health Laboratory

PRIMARY MENTOR: Philip Dykema, PhD

FELLOWSHIP PROJECT:

- Streamline *C. auris* colonization surveillance screening efforts through validating and implementing an automated extraction platform, optimizing existing PCR assay and assessing swab performance.
- Validate a robust bioinformatics pipeline for analyzing diverse resistant bacterial species associated hospital-acquired infections (HAIs) to characterize organisms, track resistance determinants and improve epidemiological cluster identification and tracing.

FUTURE PLANS: Following the ARLN Fellowship, I will continue to the SM CPEP Medical and Public Health Laboratory Microbiology Fellowship as a pathway to a leadership position in Public Health Microbiology.



Logan Patterson

PhD (Experimental Pathology), 2020, University of Virginia—Charlottesville

HOST LABORATORY: Wisconsin State Laboratory of Hygiene

PRIMARY MENTOR: Ann Valley

FELLOWSHIP PROJECT:

- Evaluate and validate a new antibiotic susceptibility testing (AST) panel with the Centers for Disease Control (CDC) and other AR Regional Laboratories.
- Streamline AR whole genome sequencing (WGS) activities at Wisconsin State Laboratory of Hygiene (WSLH) and help validate a new bioinformatics pipeline for AR isolates.
- Improve and automate reporting processes for noteworthy AR isolates to the CDC and our partners.
- Lead the validation of *Candida auris* WGS at WSLH.

FUTURE PLANS: I will begin the Medical and Public Health Microbiology Fellowship Program at the University of North Carolina (UNC) in July 2022 to train for a career as a clinical microbiology laboratory director. As a director, I plan to offer physicians and patients the best tests available, while advocating for appropriate antibiotic use to prevent the further spread of resistance.



ELIOT STANTON

PhD (Microbiology), 2020, University of Wisconsin–Madison

HOST LABORATORY: Minnesota Department of Health Public Health Laboratory

PRIMARY MENTOR: Paula Snippes Vagone, MT(ASCP)

FELLOWSHIP PROJECT:

- Implement a standardized workflow for quality control/assurance of whole-genome sequencing (WGS) data and assemblies from healthcare-associated infections for upload to NCBI servers.
- Evaluate WGS-based detection of antibiotic resistance in *Streptococcus pneumoniae* isolates in conjunction with CDC collaborators. Assessed the concordance of antibiotic susceptibility testing and in silico predictions.
- Engage in the design and validation of an assay for molecular identification of dimorphic fungi (*Blastomyces dermatitidis*, *Blastomyces gilchristii* and *Histoplasma capsulatum*).

FUTURE PLANS: This fellowship has provided me with training in the functioning of a public health laboratory as a collaborative and multi-disciplinary environment. Going forward, I plan to leverage my experience from this fellowship and my background in research as a scientist in either a government or academic lab. I hope to focus on translating basic research into public health applications.

Infectious Diseases Bioinformatics Fellowship Program

Bioinformatics is revolutionizing the way the world tracks and detects infectious disease. In public health, the use of Next Generation Sequencing (NGS) technology has reshaped outbreak investigations and pathogen surveillance. Bioinformaticians are crucial for this transition to the use of NGS in public health. They develop pipelines and help interpret the data, identifying and characterizing pathogens; playing a vital role in the public health engine that keeps us all healthy. 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.

Learn more at aphl.org/bioinformatics-fellows

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

55 INFECTIOUS DISEASE
BIOINFORMATICS
FELLOWS

I AM A BIOINFORMATICIAN

I am a programmer, a teacher, an investigator and a translator. In addition to my programming skills, I must be able to communicate my work to a variety of different audiences.

MY BACKGROUND

Bioinformatics is the cross-section between computer science, biology and information technology. This multidisciplinary field calls upon knowledge of:

- Programming languages & data analytics
- Machine learning
- Cluster algorithms
- NGS analysis & pipeline developments
- Molecular Biology
- Genomic Microbiology
- Metagenomics
- Cloud Computing

2021-2022 FELLOWS



Tassy Joseph-S. Bazile

MS (Bioinformatics), 2020, Northeastern University

HOST LABORATORY: Florida Bureau of Public Health Laboratories, Jacksonville, Florida

PRIMARY MENTOR: Sarah E. Schemedes, PhD

FELLOWSHIP PROJECT:

- Utilize long-read data generated from Oxford Nanopore platforms to improve the characterization of bacterial isolates submitted for identification.
- Develop a bioinformatics pipeline, use of workflow languages with containerized programs, and assembly and characterization of complete genomes.

FUTURE PLANS: Following this fellowship, I plan to fulfill both my academic and professional goals. I want to pursue a doctorate degree in computational biology to contribute to the development of tools for genomic data analyses. I plan to remain in the public health field and apply the bioinformatic skills and experience I am acquiring to help in outbreak investigations and disease surveillance. I would like to work for any public health agency where bioinformatics expertise is needed at the national, state or local level.



Lynn Do-Trang

MS (Bioinformatics), 2020, University of Maryland, Global Campus

HOST LABORATORY: Virginia Division of Consolidated Laboratory Services (DCLS)

PRIMARY MENTOR: Logan Fink, MS and Lauren Turner, PhD

FELLOWSHIP PROJECT:

- Investigate and evaluate *Candida auris* analysis pipeline for use at DCLS.
- Develop a DCLS database for SARS-CoV-2 sequencing.
- Generate reference genomes for outbreak genome comparison.

FUTURE PLANS: I hope to continue developing my bioinformatics skill set so that I can best suit the needs of whichever institution will have me next! I am interested in remaining in the public health sphere and being of service to my community.



Alejandro Gener

PhD (Integrative Molecular and Biomedical Sciences Program), 20XX, Baylor College of Medicine

HOST LABORATORY: LA County Public Health Laboratory (LACPHL)

PRIMARY MENTOR: Peera Hemarajata, MD, PhD

FELLOWSHIP PROJECT:

- Serve as the primary person responsible for bioinformatics needs as LACPHL.
- Develop, implement and optimize tools, pipelines and automation for SARS-CoV2 sequencing workflows.
- Support development of next generation sequencing efforts for infectious diseases at LACPHL.
- Work with epidemiologists to establish data integration between NGS and clinical/epidemiological data.

FUTURE PLANS: Work with epidemiologists to establish data integration between NGS and clinical/epidemiological data.



Nick Johnson

PhD (Biological and Biomedical Sciences 2021, Emory University)

HOST LABORATORY: Biological Core Facility Branch of The Centers for Disease Control

PRIMARY MENTOR: Suryaprakash Sambhara, DVM, PhD and Jan Pohl, PhD

FELLOWSHIP PROJECT:

- Integrate multiple sequencing data types collected from children aged 5-17 years old and adults aged 18-22 years old, as part of a randomized controlled trial comparing two influenza vaccines (intranasal and intramuscular).
- Utilize sequencing data to investigate differences in immune response between the vaccine types.

FUTURE PLANS: In the future, I would like to continue working on multi-omics projects as a bioinformatician at the Centers for Disease Control and Prevention. In addition to data analysis, I would like to provide expertise regarding which sequencing platforms are best equipped to investigate the research questions we are interested in answering.



CHRISTOPHER "CJ" JOSSART

MPH (Epidemiology of Microbial Diseases), 2020, Yale School of Public Health

HOST LABORATORY: Wisconsin State Laboratory of Hygiene

PRIMARY MENTOR: Kelsey Flore, PhD

FELLOWSHIP PROJECT:

- Develop an automated workflow for submitting SARS-CoV-2 sequences and metadata to the Sequence Read Archive (SRA) and Biosample databases.
- Build a relational database to connect multiple data sources related to SARS-CoV-2 sequencing and epidemiological data.
- Assist with bioinformatics analyses for the implementation of *Candida auris* whole genome sequencing and the surveillance of antimicrobial resistance in *Streptococcus pneumoniae*.

FUTURE PLANS: This fellowship experience has solidified my passion for public health and my interest in bioinformatics. I hope to continue working as a public health bioinformatician at a state public health laboratory.



Krishnaveni Sompallae

PhD (Molecular Genetics), 2001, Rheinisch-Westfälische Technische Hochschule (RWTH), Aachen University, Germany

HOST LABORATORY: State Hygienic Laboratory (SHL), University of Iowa

PRIMARY MENTOR: Valerie Reeb, PhD

FELLOWSHIP PROJECT:

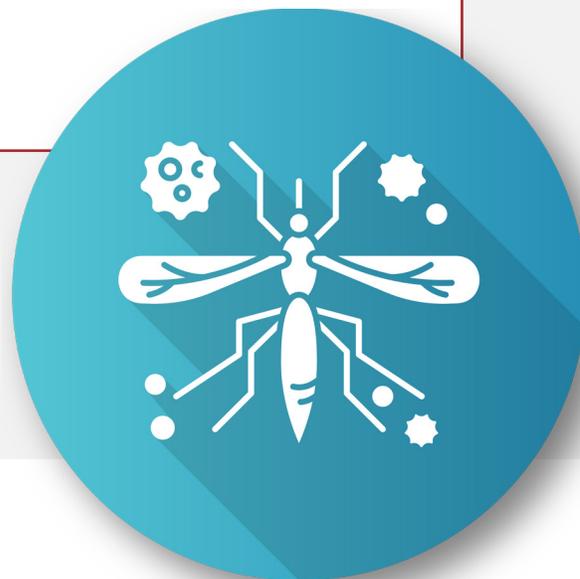
- Develop genome analysis workflows, visualization and reporting tools for healthcare-associated infections (HAI) organisms.
- Validate HAI bacteria sequencing assay and data analysis workflow for clinical reporting in alignment with CDC/FDA recommendations.
- Plan, design and develop wiki page with available bioinformatics pipelines and script in production at SHL. The in-house developed website will serve as an internal user guide to run bacterial and COVID-19 sequencing bioinformatics pipelines on High Performance Computing (HPC) Clusters at SHL.

FUTURE PLANS: Working at Iowa State Hygienic Lab as a bioinformatics fellow has provided me a broader overview of public health role in prevention and control of infectious diseases. This fellowship has expanded my skills in applying Next Generation Sequencing technology to outbreak monitoring and pathogen surveillance. I plan to learn and apply my computational genomics and bioinformatics data analytics skills to emerging public health related problems to improve over all human health and quality of life.

Infectious Diseases Laboratory Fellowship Program

The Infectious Diseases Laboratory Fellowship Program trains and prepares post-master's and post-doctoral scientists for careers in public health laboratories while supporting public health initiatives related to infectious diseases. Fellows receive training in critical bench-level laboratory skills and methods and assist with high-priority infectious disease testing, surveillance and control measures. Fellows may participate and receive training in disease-specific tracks, such as foodborne illnesses, vector-borne diseases, respiratory diseases and more.

Learn more at aphl.org/ID-fellows



2021-2022 FELLOWS



Nora Cleary

MPH (Epidemiology and Global Health), 2020, Colorado School of Public Health

HOST LABORATORY: Wadsworth Center, New York State Department of Health

PRIMARY MENTOR: Patrick Bryant, PhD

FELLOWSHIP PROJECT:

- Generate whole genome sequences of hepatitis A using a custom Ampliseq™ panel designed by ThermoFisher.
- Use phylogenetic trees to compare different genotyping assays for hepatitis A.

FUTURE PLANS: I would like pursue a career in the public health field with a focus in epidemiology and disease control. I applied to PhD programs epidemiology. Ultimately, I am interested in combining my laboratory and epidemiology knowledge to carry out global infectious disease research.



Sabrina Lynn

PhD (Biochemistry, Cell and Developmental Biology), 2021, Emory University

HOST LABORATORY: Zoonotic Virus Team – The Centers for Disease Control

PRIMARY MENTOR: Todd Davis, PhD

FELLOWSHIP PROJECT:

- Assess genetic relatedness of influenza viral genomes to existing vaccine viruses, propagation of viruses and antigenic characterization of virus isolates. Use data to make recommendations to the World Health Organization and other influenza collaborating centers, regarding the development of pre-pandemic vaccine viruses.
- Engage in training on propagation sequencing and antigenic characterization of SARS-CoV-2 virus and the development of standard operating procedures for team and branch.

FUTURE PLANS: I hope to continue working in the public health space, assisting in surveillance efforts of infectious diseases and leveraging research expertise in response to outbreaks.



Lauryn Massic

MS (Biotechnology), 2021, University of Nevada—Reno

HOST LABORATORY: Nevada State Public Health Laboratory

PRIMARY MENTOR: Mark Pandori, PhD and Andrew Gorzalski, PhD.

FELLOWSHIP PROJECT:

- Establish SARS-CoV-2 wastewater surveillance system across Northern Nevada.
- Develop and implement SARS-CoV-2 wastewater detection and quantification assay.
- Establish an in-house positive wastewater sequencing protocol and learn bioinformatics workflow for variant detection.

FUTURE PLANS: Going forward, I plan to pursue my PhD in molecular biology and continue researching infectious disease. Long term I aim for my research to aid in the understanding, treatment and prevention of infectious disease.



Crystal A. Mendoza

PhD (Biomedical Sciences, Virology and Gene Therapy), 2021, Mayo Clinic Graduate School of Biomedical Sciences

HOST LABORATORY: Massachusetts State Public Health Laboratory

PRIMARY MENTOR: Glen Gallagher, PhD

FELLOWSHIP PROJECT:

- Establish and develop a next-generation sequencing assay for respiratory pathogens for clinical samples that may come back negative for SARS CoV-2 or influenza virus (IAV/IBV).
- Optimize SARS CoV-2 amplicon sequencing workflows.
- Develop quantification assay for eastern equine encephalitis (EEEV) to measure neutralization activity of patient sera as confirmation of viral infection using either a fluorescent or luminescent reporter assay.
- Assist with implementation of new tests for other arboviral agents (Jamestown Canyon and Powassan virus).

FUTURE PLANS: The APHL Infectious Disease Fellowship will help me gain a foothold in the public health field. My long-term goal is to merge my background in virology and skills gained from my fellowship in next-generation sequencing at The CDC or state public health lab to identify and characterize emerging infectious diseases, which could impact pandemic and public health responses in the future.

Newborn Screening Bioinformatics and Data Analytics Fellowship Program

The Newborn Screening Bioinformatics and Data Analytics Fellowship Program places graduates of bioinformatics, epidemiology, genomics, biostatistics, public health or programs in newborn screening (NBS) public health laboratories, where they conduct specialized next-generation sequencing (NGS) and data analytics projects for newborn screening conditions.

Projects range from mining complex genetic data for biomarkers, developing and validating pipelines, gene panels and tools for NGS and Sanger analysis, comparing NBS results from unsatisfactory specimens to their matched satisfactory repeat specimens, and creating QA/QC tools for specimen pre-processing analysis.

Learn more at aphl.org/NBS-BIF

Newborn Screening Bioinformatics and Data Analytics fellows have presented on emerging NBS bioinformatics topics to the community five times within the past year, discussing topics ranging from bioinformatics overviews to cloud computing applications for NBS.

2021-2022 FELLOWS



Christian Alcorta

MS (Bioinformatics), 2020, Virginia Commonwealth University

HOST LABORATORY: Division of Consolidated Laboratory Services, Richmond, Virginia

PRIMARY MENTOR: Gretchen Cote, MS

FELLOWSHIP PROJECT:

- Investigate, build and validate a second or third-tier assay for cystic fibrosis newborn screening in Virginia that utilizes next-generation sequencing. Part of this will involve adapting the current bioinformatics pipeline to accommodate NGS data, simplifying the transition for future NGS newborn screening assays.
- Assist with current newborn screening bioinformatics procedures and help maintain current Sanger sequencing variant analysis pipeline.

FUTURE PLANS: I hope to continue utilizing my bioinformatics skills in support of public health for at least the next few years. My time at DCLS thus far has been eye-opening and invaluable. I am excited to continue the kind of work that I've been able to assist with here.



Charles Lechner

MS (Bioinformatics), 2021, John Hopkins University, Baltimore, Maryland

HOST LABORATORY: Tennessee Department of Health, Laboratory Sciences

PRIMARY MENTOR: Marc J. Rumpler, PhD, DABCC

FELLOWSHIP PROJECT:

- Develop and interactive dashboard to visualize and analyze data that is produced and utilized by the Tennessee Newborn Screening program. This data includes, but is not limited to, screening rate, unsatisfactory blood spot specimen rate, specimen timeliness and reporting timeliness.
- Use the dashboard internally and externally to supplement monthly reports the state currently releases.

FUTURE PLANS: Post-fellowship, I hope to use the skills and experience I've gained and apply them to a career that contributes to improving public health. I am particularly interested in contributing to efforts made to better understand the role of genetics and epigenetics in neurodevelopment disorders.

2020-2022 FELLOWS



Bryce Asay

PhD (Microbiology), 2020, Colorado State University

HOST LABORATORY: Utah Public Health Laboratory

PRIMARY MENTOR: Andreas Rohrwasser, PhD

FELLOWSHIP PROJECT:

- Propose, develop and test machine learning classification support algorithms for amino acid and acylcarnitine disorders.
- Engage in a multi-state project effort to produce broad adoption of the algorithmic decision or classification of support resources, that reduces or eliminates the need for data sharing and black-boxed algorithms that are proprietary and patent-protected.
- Utilize the proposed algorithm in a radically novel approach to reduce the need to share patient information with third parties and become an open source to the public.

FUTURE PLANS: Bryce is working as a machine learning data scientist at the Utah Public Health Laboratory.



Jessica C. Respress

MS (Biology), 2020, Georgia State University

HOST LABORATORY: Wadsworth Center, New York State Department of Health

PRIMARY MENTOR: Denise Kay, PhD

FELLOWSHIP PROJECT:

- Validate a new custom-55 gene ArcherDx VariantPlex assay for SCID on the Illumina MiSeq platform.
- Assess VariantPlex Panel accuracy and reproducibility by comparison to data via Sanger sequencing (the gold standard).
- Optimize and validate a new bioinformatics pipeline specific to ArcherDx technology.

FUTURE PLANS: I hope to work in the field of genetics as a bioinformatician and focus my skills on next generation sequencing technology.

2019-2021 FELLOW



Samantha Marcellus

MPH (Epidemiology), 2018, University of Iowa, College of Public Health

HOST LABORATORY: Texas DSHS Public Health Lab

PRIMARY MENTOR: Rachel Lee, PhD, HCLD

FELLOWSHIP PROJECT:

- Develop, standardize and refine tools and infrastructure to efficiently and accurately analyze Severe Combined Immunodeficiency Disorder (SCID) NGS data, including sequencing alignment, variant calling and interpretation.
- Establish and pilot the use of NGS analysis pipelines for SCID screening.
- Aid in COVID-19 DNA sequencing efforts

FUTURE PLANS: Sam Marcellus is now working as a bioinformatician/molecular biologist for the Texas Department of State Health Services.

NEWBORN SCREENING

Ronald H. Laessig Newborn Screening Fellowship Program

The Ronald H. Laessig Memorial Newborn Screening (NBS) Fellowship Program prepares laboratory scientists for leadership careers in newborn screening research while also strengthening “local, state and federal public health infrastructures to support surveillance and implement prevention and control programs,” as stated in the CDC prevention strategy goal. The fellowship honors Ronald H. Laessig, the former director of the Wisconsin State Laboratory of Hygiene and a national leader in NBS. Its mission is to provide a high-quality training and leadership experience for the fellow while providing workforce capacity to the public health laboratory community.

Learn more at aphl.org/NBS-Fellows

This year, the Ronald Laessig Newborn Screening Fellowship is recruiting new fellows who will start their fellowships in 2022 as part of the Workforce Pipeline Project.

2020–2022 FELLOW



Scott J. Riley II

PhD (Chemistry), 2020 University of Maryland Baltimore County

HOST LABORATORY: Division of Newborn & Childhood Screening at the Maryland Department of Health

PRIMARY MENTOR: Fizza Gulamali-Majid, PhD

FELLOWSHIP PROJECT:

- Design and implement a first-tier screening method for X-linked Adrenoleukodystrophy.
- Optimize the Biotinidase Assay by reducing the incubation time of samples and developing a semi-quantitative method for sample analysis.
- Improve turnaround time for the SCID/Spinal Muscular Atrophy assay by introducing new qPCR instruments and enhanced Biomek processing.

FUTURE PLANS: Scott Riley is now an Instructor in Pharmaceutical Sciences at the University of Maryland.

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.

