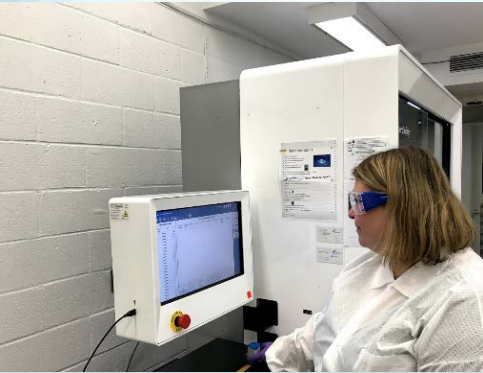


# Laboratory Leaders Up Close

## Cecilia Kretz, PhD



Dr. Cecilia Kretz is performing a validation study for chlamydia and gonorrhea testing in the New York City Public Health Laboratory.



I have always been intrigued by microbes (like bacteria) that cause disease, specifically how they evolve and adapt to their environment. I find it fascinating that there are more types of bacteria on Earth than stars in the universe!

In my graduate work at the University of California Irvine, I investigated the effect of environmental change on marine Cyanobacteria using metagenomics and bioinformatics tools. In my post-doctoral training at Georgia Institute of Technology, I used comparative genomic methods to understand the role of microbes in deep-sea sediments. As sequencing technologies advanced, I was drawn to CDC's work in this area and eager to have a direct impact on public health by applying new genomics methods to pathogens. For two years I worked as a contractor in CDC's Bacterial Meningitis Laboratory as a molecular microbiologist and bioinformatician where, for the first time, I could see the immediate impact of my work. I learned the value of collaboration between the lab, epidemiologists, and state partners. I fell in love with public health and realized that similar concepts—modes of transmission, genetic similarities, and comparative genomics during outbreak investigations and surveillance—could be applied to microbes.

I heard about the Laboratory Leadership Service (LLS) from lab colleagues who were alumni of the program. The LLS fellowship seemed like the perfect way to augment my training as a researcher. I was excited to be selected as one of the first LLS fellows to work in the field at a state/local public health laboratory—this was an opportunity I'd always wanted.

In August 2017, I began my assignment in the New York City Public Health Laboratory (NYC PHL), a very high-profile, high-volume testing facility. I served as a liaison between CDC and the NYC PHL and led studies to detect and characterize source and potable water microbiota using whole genome sequencing and metagenomics analyses. I developed both wet and dry lab bioinformatics analyses pipelines and helped refine methods for testing water samples. I also had an amazing opportunity to learn innovative techniques used by New York State's Wadsworth Center and CDC to support a *Legionella* cluster investigation. This hands-on training prepared me to lead CDC's first Lab-Aid response, which required coordination across four laboratories to implement *Legionella* testing at the Hawaii Department of Health and expand the laboratory's outbreak response capacity.

I was given an opportunity to take a leadership role in support of NYC's groundbreaking sexual health initiative "Ending the AIDS Epidemic." In this role, and in the busiest NYC Health Department Sexual Health Clinic, I led the design and implementation of an "express" laboratory that streamlines clinical testing to help diagnose asymptomatic sexual health issues in record time and enable prompt treatment. Read about this successful project in the NBC News article (June 2019) posted on the LLS [Fellows in the News web page](#).

LLS instilled the leadership, safety and quality training I lacked as a researcher, shaped me into a well-rounded public health scientist and provided me with valuable opportunities to make a real difference in public health. As the next step in my career, I've accepted a position as the Manager of Emerging and Zoonotic Diseases at the Association of Public Health Laboratories (APHL), where I oversee activities for Advanced Molecular Detection, Antibiotic Resistance and, Vector-Borne Diseases.

*"LLS fueled my personal and professional growth through experiences that I never would've gotten as a researcher. LLS gives opportunities you won't find elsewhere—it's game-changing!"*



Dr. Cecilia Kretz working in her field assignment at the New York City Public Health Laboratory.