

# PUBLIC HEALTH LABORATORY NEWSLETTER

## Dr. Richard Steece, Public Health Lab Director, Announces Retirement

Dr. Richard Steece, Director of the Tennessee Public Health Laboratory, has announced his retirement effective April 1, 2022. Dr. Steece served as the Director of the Nashville Central and Knoxville Regional Laboratories since January of 2014. Dr. Steece has had many notable accomplishments throughout his career as a Registered Microbiologist and Specialist in Public Health and Medical Microbiology through the American Academy of Microbiology, and as a board-certified Laboratory Director and as a Diplomate of the American Board of Medical Microbiology.

Dr. Steece brought over 30 years of experience and expertise to the TN Public Health Laboratory upon assuming his role as Laboratory Director. His experience includes serving as the Assistant Section Chief of the Virus and Rickettsia Section and then Assistant Director at the Minnesota Public Health Lab, Supervisor of Virology and Serology for the New Mexico Public Health Lab, and the Laboratory Director of the South Dakota Public Health Lab.

He has been a champion of public health at the national and international levels serving as the National Chlamydia Laboratory Coordinator for the

CDC Infertility Prevention Project, as a laboratory consultant for the CDC Division of Sexually Transmitted Diseases and Prevention and as a Science Advisor on the APHL STD Subcommittee. He's been a subject matter expert working with device manufacturers and pharmaceutical companies. He has collaborated with state and local public health laboratories, STD and family planning programs across the country, the National Coalition of STD Directors, as well as many other programs coordinated by APHL, FDA, CMS and the Indian Health Service. He has worked with the U.S. Department of Interior on projects in Italy, France, Romania, Asia, numerous South Pacific Islands, Vietnam, Thailand and U.S. Territories of American Samoa, Guan and Saipan.

During his time as Director of the TN Public Health Lab, Dr. Steece has provided leadership through many outbreaks and led the laboratory's efforts through the COVID-19 pandemic. He has been pivotal in gaining approval to build a new public health laboratory to meet Tennessee's future public health needs. He has provided mentorship to numerous laboratory interns, fellows and students, as well as supported multiple members of



the TN Public Health Laboratory staff's participation in APHL's Emerging Leaders Program. Dr. Steece has been active within APHL, serving both as a representative from Tennessee and in 2018, was elected to the APHL Board of Directors for the Member-at-Large seat. He has served on multiple APHL committees and was also integral in the formation of the Southeast CoLABorative consortium in 2015 and served as the chair through 2017.

In his retirement, Dr. Steece is looking forward to spending time with his family, traveling and fishing. He will be greatly missed by all the staff at the TN Public Health Laboratories. Dr. Kara Levinson will be serving as the interim Laboratory Director until the Laboratory Director position is filled.

# Spotlight on Safety: Decontamination and Disinfection of Laboratory Surfaces

Submitted by: Tracy Minster, MLS(ASCP)<sup>CM</sup> | PH Laboratory Consultant 2, Assistant Safety Officer

The BMBL was initially published in 1984 and is a joint publication between the Centers for Disease Control and National Institutes of Health. Each revision has built upon advances in biomedical science and establishes performance-based guidelines. This guidance document is not regulatory, but very important as a reference and standard for best laboratory practices.

Appendix B of the BMBL 6<sup>th</sup> edition provides basic guidance for disinfection and decontamination of items in the laboratory, as well as ways to avoid possible transmission of pathogens to laboratory employees and the environment. The BMBL guidance can be found at: <https://www.cdc.gov/labs/BMBL.html>

In the United States, disinfectants are classified as pesticides and therefore are regulated by both the Environmental Protection Agency and the Federal Drug Administration. The EPA maintains a listing of 15 categories of antimicrobial products that are effective against common pathogens. For instance, List B is titled "Registered Tuberculocide Products Effective Against *Mycobacterium tuberculosis*" and includes products specific to *Mycobacterium tuberculosis*. The link below provides access to the EPA website for registered disinfectants.

<https://www.epa.gov/pesticide-registration/selected-epa-registered-disinfectants>

When discussing disinfectants and associated cleaning techniques, there are many terms that are often misused and/or misunderstood. Below are definitions for several terms that are frequently used incorrectly.

- **Cleaning**—The removal of gross contamination from a surface; used to remove microorganisms and contaminants from a surface by physical means.
- **Disinfection**—The elimination of nearly all recognized pathogenic microorganisms, but not necessarily all microbial forms (e.g., bacterial spores) present and is less lethal than sterilization. Several factors that affect disinfection:
  - Number and nature of microorganisms
  - Amount of organic matter present
  - Condition and type of surfaces
  - Temperature
  - Contact time
- **Sterilization**—The complete elimination or destruction of all forms of life (including spores and viruses) by a chemical or physical means.
- **Decontamination**—This process renders an area, device, item, or material safe to handle in the context of being reasonably free from a risk of disease transmission.

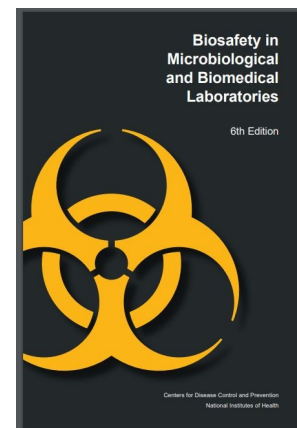
When using chemical agents for cleaning processes, laboratory staff should pay particular attention to the Safety Data Sheet instructions and ensure the appropriate precautions and protections are being used as indicated by the manufacturer.

Safe use of chemicals in the laboratory falls under the Occupational Safety and Health Administration. Laboratory safety guidance Washington (DC): U.S. Department of Labor; 2011.

## Training News

We are excited to announce the return of TN Public Health Lab sponsored workshops and trainings! Information about these training opportunities will be available soon on the TDH Laboratory Services Training and Workshops webpage:

<https://www.tn.gov/health/health-program-areas/lab/lab-education.html>



## Announcements

- **Restoration of rabies processing at the Nashville Central Laboratory effective February 14, 2022.** [https://www.tn.gov/content/dam/tn/health/program-areas/lab/announcements/Rabies\\_Processing\\_Restoration\\_2022.pdf](https://www.tn.gov/content/dam/tn/health/program-areas/lab/announcements/Rabies_Processing_Restoration_2022.pdf)
- **Due to delays in CLIA laboratory inspections, CLIA is currently issuing monthly extensions for the Nashville Central Laboratory. Current CLIA certificate information is posted on the TDH Laboratory Licensure webpage:** <https://www.tn.gov/health/health-program-areas/lab/lab-licensure.html>

Please visit the TDH Laboratory Services Webpage for more information and other announcements: <https://www.tn.gov/health/health-program-areas/lab.html>

## New Broth Microdilution Plates for Gram Negative Antimicrobial Susceptibility Testing

Submitted by: Nicole Braun West, PhD, PH Laboratory Scientist 3 | ARLN

Gram-negative bacteria are a common cause of healthcare-associated infections such as wound and surgical site infections, bloodstream infections, pneumonia and meningitis. Organisms responsible for these infections include *Klebsiella*, *Acinetobacter*, *Pseudomonas* and *E. coli*. Unfortunately, treatment and control of these pathogens is complicated by the increasing resistance of these organisms to multiple antibiotics. A common testing method utilized to measure antimicrobial susceptibility is broth microdilution. These results help guide accurate and effective therapy and play a vital role in monitoring the emergence of antibiotic resistance patterns. The TN Antibiotic Resistance Laboratory Network section

currently performs broth microdilution testing for antimicrobial susceptibility of Gram-negative bacteria using the Thermo Scientific™ Sensititre™ ARIS 2X ID/AST System and commercially available GNX2F plates, however, a new FDA-cleared broth microdilution plate has recently become available. This new Thermo Scientific™ Sensititre™ Gram-negative GN7F antimicrobial susceptibility testing plate includes 24 common first-line therapies, including ceftazidime/avibactam and ceftolozane/tazobactam, along with lower dilution ranges for ciprofloxacin and levofloxacin to better test susceptibilities of Enterobacteriaceae and *Pseudomonas aeruginosa*. The TN ARLN team is currently validating

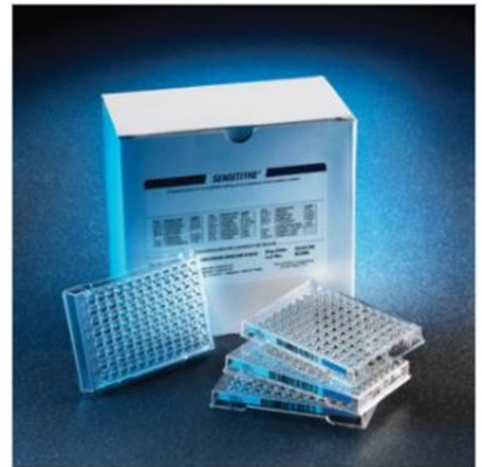


Photo credit: [www.thermofisher.com](http://www.thermofisher.com)

this new GN7F plate to replace the older GNX2F plate for multidrug resistant organisms. This will result in improved services by offering more up to date antibiotic profiles for these organisms.

### References:

- <https://www.cdc.gov/hai/organisms/gram-negative-bacteria.html>
- <https://www.thermofisher.com/order/catalog/product/GN7F?SID=srch-hj-gn7f>

# Environmental Microbiology: Activities and Importance

Submitted by: Kristin Dunaway | PH Laboratory Scientist 2, Environmental Microbiology

Environmental Microbiology is a section within the TN Public Health Laboratory that tests drinking water, private wells, and source water for total coliforms.

Drinking water is defined as any water provided by a city or county for consumption. Drinking water is monitored throughout the state based on EPA regulations. The laws surrounding drinking water state that there should be zero indication of coliforms in the water. When contamination is found in drinking water, action must be taken by the Public Water System immediately to correct the contamination issue. Private well water is not regulated by the state or EPA. The testing of well water is only required when buying or selling a home where the primary source of water for consumption is from a well. Well water can also be tested if there has been an outbreak or sickness and water contamination is suspected. When contamination is found in private well water it is up to the property owner to remediate the contamination issue.

Source water is a water source that is not potable and not considered safe for consumption. It comes from lakes, streams, rivers, etc. This water is tested for coliforms as a form of monitoring to ensure no purposeful or accidental contamination has occurred that could harm animals or humans. Coliforms are normally present in these water sources. The Department of Environment and Conservation monitors source water for an increase or lack of bacteria. Any abrupt change could indicate dumping of chemicals or other hazardous wastes and would need to be investigated.

The Nashville Central Laboratory and Knoxville Regional Laboratory collaborate with multiple state agencies including the Department of Health, Department of Environment and Conservation and Department of Agriculture, as well as Public Water Systems for testing. Both labs simultaneously test for the presence of coliforms and *E. coli* in drinking and well water samples. Both laboratories also produce

quantifiable results that can be used by customers to monitor source water.

Testing for these microorganisms in water is important for the state of Tennessee for reasons of health for both animals and humans. The Environmental Microbiology sections adhere to EPA regulations to produce verifiable testing results. The Nashville Central Laboratory has also received accreditation from A2LA further ensuring that the laboratory's testing meets international standards. A2LA accreditation is currently in progress for the Knoxville Regional Laboratory. Customers can expect fast and accurate results, that on average, are reported back to the submitter in less than 48 hours of sampling.

For further information on Drinking Water Regulations for the State of Tennessee, please reference the Revised Total Coliform Rule, which can be found on [epa.gov](http://epa.gov).

## Promising Prospects for Effective Antifungal Therapy

Submitted by: Natasha Lindahl, MT(ASCP)<sup>CM</sup> | PH Laboratory Manager 2 | Special Microbiology

The mycological world has seen breakthrough progress with the invention of several new drugs and novel drug classes. For many years, antifungals have crept behind their antimicrobial peers in both drug discovery and development. Limited availability of effective antifungals did not warrant performance of antifungal testing as many physicians would employ using the alternative, if the drug of choice performed less than desired. With the expansion of drug classes, the old excuses are no longer valid arguments and the need for expanded antifungal susceptibility testing is on the horizon.

The medical world has reached a paradox with resistance to available antifungals. The acquisition of resistance patterns, whether in the traditional clinical pattern such as Candidemia or the non-traditional environmental resistance patterns as seen by *Aspergillus fumigatus*, are evidence for antifungal resistance testing in organisms without predictable susceptibility patterns. With the hope that new antifungals are on their way and with several drugs in phase three trials, the need for expanded antifungal testing is necessary more than ever before.

Access to antifungals susceptibility testing is available at select reference laboratories and/or for compassionate use through manufacturers. The TN Antibiotic Resistance Laboratory Network section performs yeast susceptibilities for *Candida* species other than *C. albicans* and Azole screening for *Aspergillus fumigatus*. For more information or to discuss the submission guidance and shipping instructions, please contact the AR Lab Network Regional Laboratory at the TN Public Health Laboratory in Nashville: [ARLN.health@tn.gov](mailto:ARLN.health@tn.gov).

# Spotlight on APHL-CDC Fellows at the TN Public Health Lab

Submitted by: Victoria Stone, PhD, PH Laboratory Consultant 2 | ARLN

The Association of Public Health Laboratories, with support from the Centers for Disease Control and Prevention, has new fellowship opportunities open to post-graduate bachelor's, master's, and doctoral level laboratorians. These fellowships aim to train scientists from diverse educational backgrounds to support expanding public health needs. There are now several options, each with a different laboratory focus, including Newborn Screening, Bioinformatics, Infectious Disease and Quality Management.

To take full advantage of these programs, the TN Public Health Laboratory is now hosting several APHL fellows throughout the lab. While they are working on different projects based on their fellowship track, they are all making significant contributions.

- **Dr. Leandra Jones**, Infectious Disease Fellow with a focus on Molecular Biology. Dr. Jones joined the TN Public Health Laboratory at the end of February. She will assist in expanding the testing directory of our molecular department. She will take part in drafting validation/verification plans and implementing high-complexity surveillance assays against viral and parasitic pathogens.
- **Dr. Jillian Socea**, Infectious Disease Fellow with a focus on Antibiotic Resistance. Dr. Socea is working closely with our ARLN team to bring on new testing and evaluate new technologies and protocols such as whole-genome sequencing of *Candida auris*. She is also working on an independent, self-directed project to identify less common carbapenemase genes in carbapenemase-producing *Enterobacteriaceae* that are not detected by our standard real-time PCR screen.
- **Lucie Taylor**, Infectious Disease Fellow with a focus on Vector-borne Diseases. Ms. Taylor is working with the Vector-borne Diseases section to assist with screening tick and mosquito samples for human pathogens as part of the normal seasonal surveillance programs. She will also work to develop an individual project involving the use of digital PCR for detection of tickborne diseases.
- **Charles Lechner**, Newborn Screening Bioinformatics Fellow. As part of Newborn Screening, Mr. Lechner is working to develop an interactive Tableau dashboard that can analyze and visualize key performance indicators that are relevant to Tennessee Newborn Screening. This dashboard is intended to promote the analysis of program trends, identify areas needing quality improvement, and provide additional data transparency for the TN NBS program. The dashboard will be available publicly on the [TN.gov NBS website](https://www.tn.gov/nbs) once it is completed.

We are excited to continue to participate as a host lab and appreciate all our fellow's hard work!

For more information about the APHL-CDC Infectious Disease Fellowship and Internship Programs, please visit:

<https://www.aphl.org/fellowships/Pages/Infectious-Diseases-Laboratory-Fellowship-Program.aspx>

## Importance of AMD Expansion in State Public Health Laboratories

Submitted by: Robert Schell | PH Laboratory Scientist 1 | Molecular Biology

The area of public health epidemiology is continually evolving. As technology and scientific understanding advances, new and improved processes have been developed for the detection of pathogens in clinical specimens. The CDC's Advanced Molecular Detection program is helping to integrate the most powerful tools into public health laboratories across the nation. Having the infrastructure and expertise in place to handle these capabilities is something the TDH continues to address.

Next generation genomic sequencing and whole genome sequencing assays at the TN Public Health Laboratory have provided scientists with a massive amount of molecular data. Molecular epidemiologists and bioinformaticians will be critical in the analysis of this data as new pipelines are developed. Since the beginning of 2021, the Molecular and Whole Genome Sequencing departments have added two new assays, several scientists, and an in-house bioinformatician. There are plans to add additional trained professionals, as well as three new sequencing assays, over the next several months.

All of the above has been in addition to the continued improvement of existing platforms being utilized for diagnostics and surveillance. The addition of these resources will provide public health insights that were not previously attainable. These improvements will allow the laboratory to identify new outbreaks more quickly, relate pathogens to their original sources, as well as determine potential susceptibility to therapeutics. Epidemiologists at TDH will then be able to direct resources efficiently and effectively to better serve the people of Tennessee.

# EMPLOYEE NEWS

## Welcome New Employees!

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**Tiesha Hough**

*PH Laboratory Scientist 1  
Newborn Screening*

**Shcorey Shepard**

*PH Laboratory Scientist 2  
Serology*

**Claire Williams**

*PH Laboratory Technician 3  
Rabies*

**Nataile McClendon-Douglass**

*Administrative Services Assistant 3  
Administration/HR*

## Promotions

**Sarah Driskell**

*PH Laboratory Manager 1  
Radiochemistry*

**Jeremy Westbrook**

*PH Laboratory Scientist 2  
Special Microbiology*

**Maya Spann**

*PH Laboratory Manager 2  
Laboratory Support Services*

**Carrie Perry**

*PH Laboratory Manager 2  
Aquatic Biology*

**Sheri Roberts**

*PH Laboratory Manager 3  
Laboratory Support Services*

**Nathan Hayford**

*PH Laboratory Scientist 2  
Aquatic Biology*

## Retirements

**Mona Baggett**

*37 years of Service  
PH Laboratory Manager 3  
Laboratory Support Services*

**Carol King**

*8 years of Service  
PH Laboratory Scientist 3  
Enteric Bacteriology*

**Laurita Gaines**

*22 years of Service  
PH Laboratory Technician 1  
Laboratory Support Services*

**Patricia Alicea**

*30 years of Service  
PH Laboratory Manager 2  
Aquatic Biology*

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## Interested in a Public Health Lab Career?

Visit <https://www.tn.gov/health/health-program-areas/lab/lab-services-careers.html>  
for current employment opportunities!

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*The Mission of Laboratory Services is to provide quality testing services through innovation, collaboration, and education that protects and improves the health of all.*

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