Lab-Oratory

NC Department of Health and Human Services
State Laboratory of Public Health
http://slph.ncpublichealth.com

SUMMER & FALL 2019

NCSLPH Welcomes New Assistant Lab Director for Infectious Diseases

Dr. William A. Glover II joined the NC State Laboratory of Public Health in April 2019 as an Assistant Laboratory Director overseeing the Infectious Disease Units, which include Microbiology, Molecular Epidemiology, and Virology/Serology. This position was newly created.

Dr. Glover is a Diplomate of the American Board of Medical Microbiology (ABMM) and has worked in research, clinical, and public health laboratories. He has 20 years of combined experience in clinical and public health microbiology as well as applied infectious disease research.

Dr. Glover worked as a certified clinical microbiologist at Duke University Medical Center performing routine and molecular diagnostic microbiology from 1999-2002. During his time as a APHL/CDC EID training fellow under the mentorship of Drs. Shermalyn Greene and Leslie Wolf at the NC State Laboratory of Public Health, his projects included examining the genetic diversity of Salmonella enterica serovars Typhi and Paratyphi A in Nepal using PFGE, creating a Bordetella pertussis Assay, and implementing norovirus testing.

Dr. Glover completed his PhD in Molecular Microbiology and Immunology at the Johns Hopkins Bloomberg School of Public Health in 2010 in the laboratory of Dr. Ying Zhang where he studied the relationship between antibiotic resistance and persistence to bacterial morphology. Following graduate school, he completed an ASM CPEP Postdoctoral Fellowship at the University of Washington in Clinical and Public Health Microbiology Laboratory Directorship in 2012. From 2012-2019, Dr. Glover had roles as a Research Scientist, Supervisor, and Director of Science & Technology (CLIA Director) at the Washington State Public Health Laboratories, where he helped establish the laboratory as the West Coast Regional Laboratory for Antimicrobial Resistance, a member of the CDC's ARLN Network. Dr. Glover has written a variety of publications and coauthored a book chapter in the 2019 edition of ASM's Manual of Clinical Microbiology. Throughout his scientific career Dr. Glover has been involved in teaching and mentoring. He has trained and/or mentored medical residents, fellows, undergraduate, graduate, and postdoctoral students. He has served on career panels, and volunteered his time to mentor ASM, EIS, APHL, and CDC fellows.

Dr. William A. Glover

Currently, he serves on several national committees which include ASM's Clinical and Public Health Microbiology Mentoring subcommittee, Committee for Postgraduate Educational Programs (CPEP), APHL's STD subcommittee and Infectious Disease committee. Dr. Glover looks forward to contributing his knowledge, experiences, and leadership to strengthening the Infectious Disease Unit's relationships with local, state, and federal partners as well as improving the delivery and variety of services provided.

Submitted by Brienne Sykes on behalf of Dr. William A. Glover

INSIDE THIS ISSUE

Everything You Wanted to Know About Hepatitis A and B Testing at the State Lab

The NC State Laboratory of Public Health recently updated its Hepatitis Serology form, with changes taking effect June 3, 2019. The Virology/Serology unit performs about 200,000 hepatitis B tests per year, targeting both antigen and antibodies to hepatitis B virus. Our unit also performs antibody testing for hepatitis A.

What is viral hepatitis?

Viral hepatitis is inflammation of the liver commonly caused by hepatitis viruses A, B, C, D, or E. While the symptoms they cause are similar, the viruses themselves are each unique, and are not closely related to each other. Hepatitis B virus (HBV) consists of a lipid envelope surrounding a protein core that contains a double-stranded DNA genome. The hepatitis A virus (HAV) by contrast is an RNA virus with a simple yet durable protein capsid.

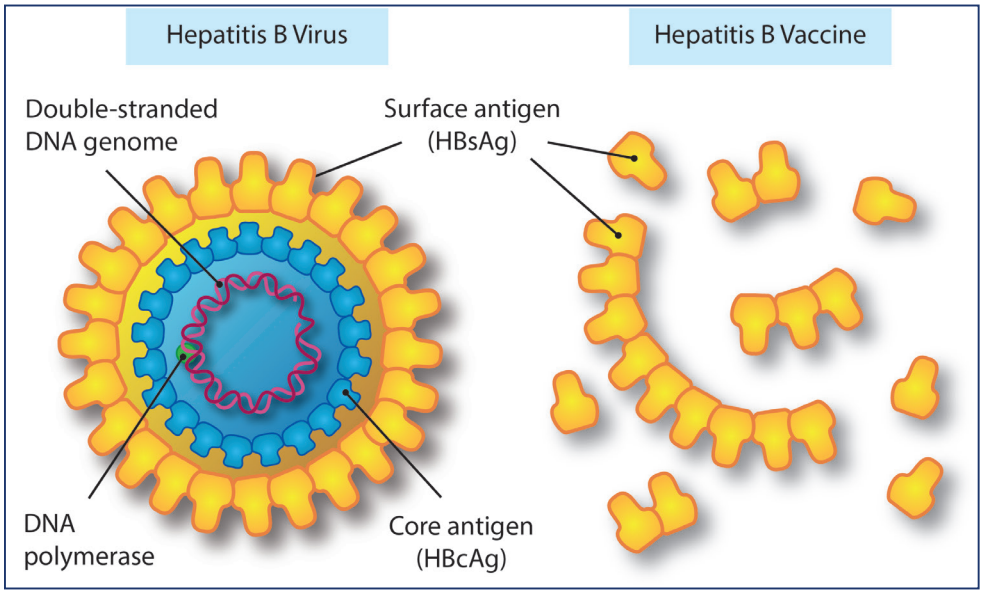
Symptoms of acute viral hepatitis include nausea, vomiting, anorexia, fever, joint pain, dark urine or clay-colored stool, jaundice, and pain in upper right quadrant of the abdomen. Patients will have elevated bilirubin and abnormal liver function test levels. Time between contact with the virus and appearance of symptoms varies with each virus; the incubation period for hepatitis A is 15-50 days, while for hepatitis B it is 45-160 days. The symptoms of hepatitis B will usually resolve over a 3-6 month period. Chronic hepatitis B may be asymptomatic or include symptoms such as poor appetite, fatigue, low-grade fever and upper abdominal discomfort.

Who is at risk for hepatitis A and B?

Hepatitis A is transmitted primarily by the fecal/oral route, while hepatitis B is primarily bloodborne. Both viruses can be sexually transmitted. There are also areas of the world where the viruses are endemic, or more commonly found. For these reasons, refugees, unvaccinated individuals who use drugs (past or present) or who are sexual partners of drug users, people with HIV, men who have sex with men, people with close contact to known infected individuals, and infants born to infected mothers are all at an increased risk for infection with hepatitis A and/or B viruses and should be tested.

Serologic testing

Hepatitis test ordering can be complicated due to the long incubation period for these viruses, and because the different markers we rely on rise and fall in the patient at different times in the course of the disease. A single serum sample is therefore a snapshot in time but can yield important clues. We use combinations of antibody and antigen-focused testing that can suggest whether a patient is currently infected, recently infected, has an acute or chronic infection, or has been vaccinated.



Comparison of the antigens of diagnostic importance that are present on hepatitis B virus and in the recombinant HBV vaccine. Image produced by the NCSLPH.

How does the NCSLPH test for viral hepatitis?

Serum specimens are tested using chemiluminescent microparticle immunoassay (CMIA), in which a chemiluminescent label binds to the target antibody or antigen then produces light when combined with a substrate. Serum markers detected by CMIA are: HBV surface antigen (HBsAg), antibody to hepatitis B surface antigen (anti-HBs), antibody to hepatitis B core antigen (anti-HBc), IgM antibody to Hepatitis B core antigen (anti-HBcIgM), and IgM antibody to hepatitis A virus (anti-HAVIgM).

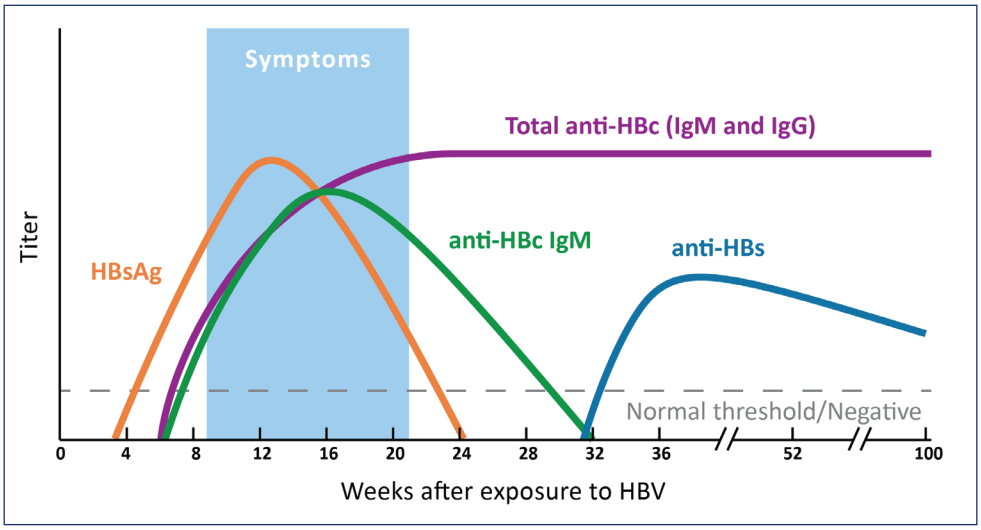
Decoding the alphabet soup

The hepatitis B vaccine does not actually contain the hepatitis B virus, only its surface protein (HBsAg). Therefore, when we detect antibodies to this protein in a patient sample (anti-HBsAg), an important first question is whether they have ever received the vaccine*? To answer that question we look for antibodies to the core proteins hidden deeper inside the actual virus but missing from the vaccine (anti-HBc, either in general or the more specific anti-HBc IgM antibodies that suggest recent infection with the real virus).

For people who have antibodies to the actual HBV virus, the next question is whether they are acutely infected (and therefore contagious), recovered from their disease (not contagious, which happens in most cases), or chronically infected (and contagious over a long period of time)? This is where we start to look for IgM antibodies to the surface and core proteins of the virus (anti-HBsIgM and anti-HBcIgM). IgM

ORDER ONE	PANEL/POPULATION	MARKER				
		HBsAg[1]	Anti-HBcIgM[2]	Anti-HBs[3]	Anti-HBc[4]	Anti-HAVIgM[5]
☐	HBV Prenatal; Refugee<18; Contact; Other (not listed) reason for testing	X	X if HBsAg (+)			
☐	Hepatitis Symptomatic	X	X			X
☐	HBV Risk Based	X	X if HBsAg (+)	X if HBsAg (-)		
☐	HBV Previous Positive	X		X	X	
☐	HBV Refugee ≥18 years (absent overseas documentation); Previous Positive, Acute	X	X if HBsAg (+)	X	X	
☐	HBV Infant Follow-up	X		X		
☐	HBV Infant Follow-up + Refugee<18	X	X if HBsAg (+)	X		
☐	HBV Occupational Exposure (vaccinated healthcare worker)			X		
☐	HAV Outbreak or Confirmation					X

New ordering section of the DHHS #3722 form.



Expected antibody and antigen levels in an average HBV patient. Image adapted from training materials produced by the CDC at https://www.cdc.gov/hepatitis/resources/professionals/training/serology/training.htm.

antibodies start being made about the time the patient starts feeling better, and only last for six to nine months after infection, so their presence suggests a recent infection.

In general, if we see anti-HBs antibodies but none of the actual viral antigen (HBsAg) in a patient's blood, we tend to think the patient has cleared the virus and is not infectious. By contrast, if we see consistently high anti-HBc and high HBsAg, the patient is likely chronically infected.

*There is a slight chance of detecting HBsAg in the blood of a recently-vaccinated patient because it is the protein used in the vaccine, but that is very rare (and pat yourself on the back if that happens).

Why did the State Lab's form change?

The old forms listed panel descriptions on the second page and included some redundant panels. As a result, the ordering process was less clear, which made for some headaches for submitters and the lab, and in turn slowed turnaround times. The new form, Form DHHS #3722 (https://slph.ncpublichealth.com/Forms/3722-HepatitisSerology.pdf), provides hepatitis testing panels and corresponding markers so the provider can more easily determine which panel to order. In addition, panels to test refugees have been divided based on patient age, following guidelines from the CDC. The unit has also recently migrated to StarLIMS v11 and the new form matches the StarLIMS terminology.

In addition to the expanded risk-based testing implemented in October, the new form should help clarify the ordering and testing process.

I'm used to the old form. Which test should I order on the new form?

If the patient is symptomatic and could be infected with hepatitis A or B, providers should order the Hepatitis Symptomatic Panel, which tests for both HAV and HBV. The HBV Risk Based Panel should be marked for patients who have needle-sharing, household, or sexual contact with a known infected person. The HBV Previous Positive Panel should be used for follow-up

testing or for patients with a history of HBV. However, these guidelines are not intended to limit the diagnostic workup, and it is important to choose the markers that best fit with the patient's clinical signs and history, regardless of the panel title on the form.

Please note that specimens may reflex to further testing depending on patient risk and reactivity to HBsAg.

Each specimen must be labeled with the patient's full first and last name and either SSN, date of birth (or other unique identifier), submitter information, and collection date. These identifiers must match the accompanying requisition. Relevant risk factors, vaccination status, reason for testing, and desired Panel must also be marked. In the event of a HAV outbreak, arrangements must be made with the State Lab prior to submitting specimens.

How should I interpret test results?

The presence of anti-HAVIgM indicates a current or recent hepatitis A infection.

Interpretation of Hepatitis B results is summarized on a handout produced by the CDC (https://www.cdc.gov/hepatitis/hbv/pdfs/serologicchartv8.pdf).

We hope this information is helpful. If you have more questions about viral hepatitis testing at the State Lab, please call us at 919-733-3937.

Authors: Sarah D'Arcy, Liz Bradshaw, and Rebecca Pelc

HBsAg **anti-HBc** **anti-HBs**	negative negative negative	Susceptible
HBsAg **anti-HBc** **anti-HBs**	negative positive positive	Immune due to natural infection
HBsAg **anti-HBc** **anti-HBs**	negative negative positive	Immune due to hepatitis B vaccination
HBsAg **anti-HBc** **IgM anti-HBc** **anti-HBs**	positive positive positive negative	Acutely infected
HBsAg **anti-HBc** **IgM anti-HBc** **anti-HBs**	positive positive negative negative	Chronically infected
HBsAg **anti-HBc** **anti-HBs**	negative positive negative	Interpretation unclear; four possibilities: 1. Resolved infection (most common) 2. False-positive anti-HBc, thus susceptible 3. "Low level" chronic infection 4. Resolving acute infection

Adapted from: A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. Part I: Immunization of Infants, Children, and Adolescents. MMWR 2005;54(No. RR-16).

A Special Visitor to the State Lab

Fawn naps near a wall of windows on the back side of the lab

The State Lab got a surprise guest at the end of May – a fawn that was, maybe a week old. It is thought to have come up to the back patio around 7:30 a.m. and it slept beneath a chair until lunchtime. Folks in the know said a bird spooked the fawn awake and it began to walk around. Shortly after, it started heading toward the grass and once in the field it ran into the woods, presumably toward its mother. A doe was spotted a few hours later at the nearby retention pond.

The Natural History of Fawns

Most fawns are born in May and June. First-year does will have one fawn and may have multiples up to triplets thereafter. Fawns stay close to their moms for a year, losing their white camouflage spots about the same time they are weaned at four months. In North Carolina, deer are more common in the Piedmont and Coastal Plain than in the Mountains.

Fawns weigh 4-8 pounds at birth and double their weight in two weeks from drinking their mother's milk. At that point their digestive system starts changing so they can accept plants, and they begin to nibble greenery.

Fawns are able to stand within about 30 minutes of being born, but they are wobbly on their feet for the first few weeks and can't keep up with their long-legged mothers. Particularly in the first week, a fawn's natural instinct is to get a hearty breakfast from mom early in the morning and then find a hiding place to sleep for most of the day. The doe will be with the fawn for brief moments to feed them, sometimes only in the morning and the evening. Staying away from each other keeps the does's scent from getting on the fawn, which could attract predators. Granted, where an animal chooses to nap may not always the safest choice. Fawns have been known to "hide" on people's porches, under cars, and even in parking lots.

During the day mom is busy finding food and staying within hearing range in case the fawn gets into trouble and starts calling. A dry, quiet, resting fawn is usually a healthy fawn to be left alone. According to the NC Wildlife Resources Commission, if a fawn is still in the same place after 24 hours, that's when it is best to call a wildlife rehabilitator (unless you know something has happened to the mom, or the fawn is hurt or is likely to get hurt). In North Carolina, you must obtain a special permit to be able to raise fawns, and they are much harder to care for than other infant wildlife.

Submitted by Liz Bradshaw, DVM MPH
Laboratory Outreach Coordinator

Biosafety Corner

Importance of Proper Glove Doffing

Have you considered that how you remove your gloves is just as important for preventing lab acquired infections as the fact that you put them on in the first place? For most laboratorians asking you to think about glove removal may seem like I'm asking you if you stop and think about how you take a breath. However, the process of glove removal – also called "doffing" – is a vital part of keeping you safe in the laboratory, protecting those around you, and minimizing environmental contamination.

When properly utilized, gloves protect you from hazards in the lab, prevent you from carrying hazards away from the lab, and provide partial containment of hazardous substances as the gloves are being removed. When gloves are improperly doffed, you risk spreading a contaminant to your bare skin or the surfaces around you which puts yourself and others at risk. When doffing gloves, it's all about being mindful of where you touch the gloves.

WHAT TO DO

There are several recommended protocols for proper doffing of gloves with both the **CDC** and **Safer Behaviors (Sean Kaufman)** offering excellent instructions. Here are some important highlights common to all glove doffing procedures for laboratorians in biological labs:

- Never touch the outside of a potentially contaminated glove with bare skin.
- Dispose of gloves inside out to contain potential contaminants and prevent bare skin from touching the potentially contaminated glove surface
- Gloves should be disposed of as biohazardous waste and never in the regular trash
- Always wash your hands immediately after removing gloves

WHAT NOT TO DO

Now it's time for you to test your glove doffing knowledge! In the pictures to the right, how many glove doffing errors can you identify? What if I told you that the red mark on the laboratorians finger was a small, open wound? Can you see how improper doffing could result in a lab acquired infection?

Check your answers on the SLPH Biosafety website in the Guidance Documents section!

Submitted by: Kristin Long, NCSLPH Biosafety Officer

STAR PARTNER AWARD

Goes to NCSLPH Microbiology Supervisor

Joanne Touchberry (center) is recognized by NC CDB partners Susan Sullivan and Justin Albertson

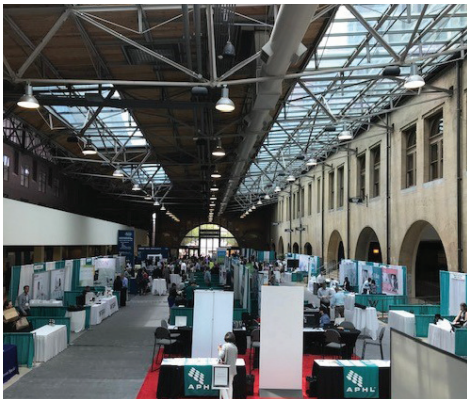
Microbiology group Supervisor Joanne Touchberry was presented with a "Star Partner" award from the North Carolina Communicable Disease Branch (NC CDB) for her collaboration within a 2019 meningococcal disease event in Macon County. Joanne rapidly typed the isolate on the index case which allowed the local health department to prepare for a vaccination clinic, and best mitigate a potential outbreak scenario. Joanne greatly assisted the NC CDB in getting the appropriate specimens routed to various laboratories for confirmatory testing by communicating directly with the local labs. With assistance from Caitlyn Daron from the SLPH Bacteriology group, Joanne also went above and beyond in helping the NC CDB retrieve daily updates for preliminary and final results for a series of related complex cases. Congratulations, Joanne!

Submitted by Tom Lawson
Microbiology Unit Manager

APHL Conference Offers Something for All!

Barbie Page preparing to represent NCSLPH at roundtable discussion

Historic Union Station



Over 60 vendors displayed the latest in technology and other products.

Healthcare professionals from across the country recently converged on St. Louis, Missouri from June 3-6 to attend the annual meeting of the Association of Public Health Laboratories (APHL). This year's event was titled "Where Laboratory Science and Public Health Meet." The North Carolina State Laboratory of Public Health (NCSLPH) sent six employees: Dr. Dee Pettit, Dr. William Glover and Dr. Lou Turner attended on behalf of the lab's administrative team; Kate Koehler, Barbie Page and Kristi Jenkins represented the lab's preparedness and biosafety sections.

The conference provided many topics that engaged all attendees, whether their work focused on clinical, environmental, or other public health testing. Dr. Glover was especially interested in a session that compared in-house, web-based and commercial bioinformatics analysis platforms. Attendees gained a deeper understanding of how each of these options can be incorporated into the infrastructure for data analysis as next generation sequencing is introduced into public health laboratories. North Carolina has no shortage of tick-borne diseases, so Dr. Glover and Dr. Turner both appreciated a session on this topic titled "Creepy Crawlies – Emerging Tick-borne Diseases." Another popular session solicited audience involvement in solving challenging case studies and was titled "Weird Science: Unusual Cases in Infectious Diseases." Kate Koehler, our Chemical Terrorism and Threat Unit Manager especially enjoyed a talk by Dr. Mona Hanna-Attisha, the pediatrician who first researched and revealed the Flint, Mich., water crisis caused by lead contamination. Dr. Hanna-Attisha authored a book about her findings, "What the Eyes Don't See," and was available to sign copies provided by APHL.

Barbie Page found the session, "20 Years of the Laboratory Response Network: Past, Present and Future" very informative. Along with Kristi Jenkins, Barbie serves as an outreach consultant for the Bioterrorism and Emerging Pathogens Unit at SLPH. She found it interesting to hear about the activities of the Laboratory Response Networks (LRNs) in other states, the current challenges the system faces and the future of the LRN. Barbie also participated as a speaker in the roundtable titled "Preparing Sentinel Clinical Laboratories: Safety, Biological Risk Assessments and Other Biosafety Issues." She described the duties of the Biosafety Officer at NCSLPH, both within the State Lab and with partners across the state. As

outreach consultants, Barbie shared how she and Kristi provide materials and trainings through in-person visits and workshops at the State Lab, and how, as a result of their interactive outreach practices, they have noted an increase in labs reaching out with questions.

Dr. Turner also mentioned two sessions she found very beneficial that were centered around workforce topics. "Marketing Your Mission" discussed how public health labs can attract and retain top talent. A roundtable session focused on the Knowledge Retention Toolkit, an APHL tool to aid in the transfer of knowledge from departing personnel to new personnel. She also thoroughly enjoyed the "Poster Speed Dating Presentations." This was a clever concept that allowed time for short presentations describing almost half of the over 60 posters on display at the conference.

Attendance at conferences such as this one provides an excellent opportunity for public health laboratory staff from across the country to network with each other and to communicate with APHL staff and leadership. The sharing of information among laboratories about new methods and technology along with opportunities to visit with vendors displaying new products is invaluable. Policy impacts and management topics can be discussed during breakout and roundtable sessions so that ideas can be freely shared. The APHL annual meeting provides an exceptional opportunity to have a large number of individuals interested in the work of public health laboratories gathered in one location.

St. Louis proved to be an interesting location for the NCSLPH attendees. The conference was held at the historic Union Station Hotel. Serving rail traffic from 1894-1978, the station was once one of the largest and busiest passenger rail terminals in the world. The grand architecture of the building has now been reopened to house a mixture of shops, restaurants, and a beautifully renovated hotel. This year's APHL annual meeting truly offered something for everyone!

Submitted by Patty Atwood
Lab Improvement Coordinator

NCSLPH Regulatory Compliance

The role of the North Carolina State Laboratory of Public Health (NCSLPH) is to provide certain medical and environmental laboratory testing services that ultimately help to protect, promote, and assure the health of North Carolinians. Specific to medical laboratory testing, the NCSLPH is required to adhere to federal regulations cited under the Clinical Laboratory Improvement Amendments of 1988 (CLIA '88) statute, an amendment to the Public Health Services Act. The regulations were enacted to establish and enforce quality standards for laboratories that perform testing on human specimens for the purpose of diagnosis, prevention, and treatment of diseases. The fundamental goal of these regulations is to protect patients from harm that could result from inaccurate laboratory testing. The Centers for Medicare & Medicaid Services (CMS), in consultation with the CDC, provides oversight and administration of the CLIA program.

CLIA '88 imposes standards for laboratory personnel, test management, proficiency testing, quality control, and quality assurance for all clinical laboratory testing. Laboratories that fall under CLIA '88 regulatory oversight must undergo biennial inspections that are conducted by CMS or a private accreditation organization approved by CMS.

NCSLPH successfully completed its biennial CLIA inspection in March 2019. The four-person inspection team consisted of CLIA assessors from the Region IV CLIA offices out of Atlanta, Ga. The assessors were on site for five days and conducted assessments in all clinical testing units within the State Lab. The assessors reviewed documents (related to all phases of testing from test requisitions through test reports, personnel qualifications, quality control and assurance), interviewed personnel on lab policies and procedures, and spent time in each lab assessing testing practices, safety, and support services. The current CLIA certificate was received in June and has been posted on our website **(link to NCSLPH CLIA certificate)**.

Submitted by Caitlyn Daron, M.S.
Infectious Diseases Laboratory Fellow - APHL/ CDC

Symposium Advocates a Solid Foundation for NBS

Radish Persaud and Kimberly Blake champion newborn screening in North Carolina.

The 2019 Newborn Screening and Genetic Testing Symposium was held April 7-10 in Chicago, Ill. The symposium, sponsored by the Association of Public Health Laboratories (APHL), connects professionals with various roles in newborn screening (NBS). Over the four-day conference healthcare providers, manufacturers, technologists, and leaders in public health laboratories met to share their perspectives. The theme of the 2019 symposium was "Strong Foundations Lead to New Heights." That idea was ever-present in the many presentations focused on how much NBS has grown, and the opportunities for advancement that remain.

NBS programs across the country aim to screen for the list of disorders on the Recommended Uniform Screening Panel (RUSP) set forth by the Department of Health and Human Services. Conditions are added to the RUSP based on treatment availability, detection capabilities, and public health impact. Many states are also exploring second-tier testing strategies to provide greater support to follow-up programs. The addition of new screening methodologies is an extensive scientific process involving planning with multiple stakeholders, evaluation of testing platforms, analytical validation, and implementation of testing. As such, NBS programs going through these processes presented their experiences and reflected on lessons learned, allowing others to grow in their knowledge as they work to enhance their respective NBS programs.

Attendees from the NC State Lab of Public Health included NBS Supervisor and Acting Manager, Radish Persaud and Kimberly Blake. North Carolina was also represented by Dr. Ellen Stevens, who presented "North Carolina Cystic Fibrosis Newborn Screening Genotype Spectrum" at the poster session. NCSLPH colleagues from RTI International, Drs. Don Bailey, Jennifer Taylor, and Scott Shone, also presented at the symposium. Dr. Taylor presented two posters with data from the NCSLPH/RTI pilot study collaborations on mucopolysaccharidosis type I (MPS-I) and X-linked adrenoleukodystrophy (X-ALD). Dr. Shone's poster, "Potential Use of Unmanned Aerial Systems to Transport Newborn Screening Specimens," discussed the possibility of using drones to transport specimens to improve timeliness or during natural weather phenomena like hurricanes. Dr. Bailey provided an oral presentation on Early Check, a state-wide consent-based pilot study collaboration between NCSLPH, UNC Chapel Hill, Duke, Wake Forest, and RTI looking at new disorders.

Chicago was a beautiful backdrop for a meeting focused on such a vital public health service. One can see in a short walk around town that its unique architecture is a perfect mix of history and modern development. Much like NBS programs that continue to provide important screening tests since the 1960s, expansion is occurring and welcomed. Of all the presentations during the week, testimonies from families personally affected by conditions detected through NBS provided a reminder of the impact that NBS has on the lives of others. Regardless of one's role in NBS that brought them to the symposium, one common purpose was evident - support for the newborn screening system and the solid foundation on which it grows.

Submitted by Kimberly Blake
NBS Tandem Mass Spectrometry Supervisor

2019

CLINICAL LAB DAY

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https://ncpha.memberclicks.net/clinical-lab-day

New Additions, Retirements and Kudos!

NEW EMPLOYEES

The State Laboratory extends a warm welcome to the following new employees:

- **Administration** - William Glover, Donna Lindsay, Stephanie Sellers, Steve Szymczyk
- **CTAT/Hemachemistry** - Abigail Oakes
- **Environmental Sciences** - Marc Komlos, Cille Tutherow, Tyler Best, Sarah Gymburch, Krystal Plemmons
- **Lab Improvement** - Liz Bradshaw, Martha Richardson
- **Microbiology** – Leticia "Tish" Barton, Rola Abdelraheim, Tiffany Doran
- **Molecular Epidemiology** - Kitty Chase
- **Newborn Screening** - Jimmy Chen, Monika Howard, Kimberly Blake, LaToya Campbell, Eleanor Penley, Eddie Pietryk, Lovely Jose, Harsukh Gevariya, Norma Benitez Villegas, Kay Chao
- **Operations** – Josh Norman, Tafeika Williams, Fernando Paez
- **Pre-Analytical** – Shana Fryar, Nicole Marple
- **Virology-Serology** – Abbey Kates, Grace Tucci, Carla Whiting, Scott Harrison, Rebecca Ball

Kudos to our EMPLOYEES OF THE QUARTER

for outstanding service and contributions!

Rebecca Wall - Microbiology
Rebecca is being recognized for her service excellence in Quarter 2. She began working at the NCSLPH as a temporary employee assisting multiple labs through the STARLIMS migration process. She was hired late last year into the Microbiology Unit as a laboratory assistant. She continues to be an invaluable resource to those seeking assistance with troubleshooting STARLIMS and has developed numerous resources for those in need, regardless of unit. She also helped rewrite several SOPs for Microbiology. Her nominees were quick to acknowledge her team player attitude. Her commitment to timely and efficient technical assistance is commended and appreciated. Thank you, Rebecca!

Danielle Biggs - Virology/Serology
Danielle is being recognized in Quarter 1 for her service excellence during CT/GC's transition to STARLIMS V11. Danielle has worked diligently to identify and rectify problems with regards to specimen entry, testing, and reporting. Her good judgement in troubleshooting minimizes negative impact on our customers. Her commitment to quality is commended and appreciated. Thank you, Danielle!

Quarters 1 and 2 employee recognitions: Rebecca Wall and Danielle Biggs

RETIREMENT NEWS

Congratulations are extended to the following employees on their retirement:

Kathy Carlton retired in March after 28 years with the state of NC, spending her last 9 years at NCSLPH. Kathy worked in the operations unit and served as the manager for the mailroom, warehouse and accounting sections. One of Kathy's fondest memories was going back to school at age 47 and graduating with her BS degree at 50! She plans to give more time to God and allow him to guide her through her retirement years. She is eagerly looking forward to her next chapter in her life.

Susan Beasley retired after almost 35 years of service with NCSLPH at the end of June. Susan started in Environmental Microbiology as a technologist and worked her way up to Water and Milk Microbiology Supervisor. One of her most memorable times was when Hurricane Fran hit the state and the volume of water samples wound around all the work benches while the lab was still at the Bath Building. Susan stated she'd never seen so many samples at one time. Susan plans to enjoy time with her family and work outside in her gardens and around the house.

Cindy Price retired at the end of June with 21 ½ years of service at NCSLPH. Cindy worked in the private sector for 19 years and has spent the rest of her career at NCSLPH working in the in Environmental Sciences Unit. Cindy has served as the Environmental Sciences Unit Manager for the last 9 years. Cindy plans to travel and spend time with her family during her retirement.

2019 TEAM OF THE YEAR

The Mycobacteriology Lab from the Microbiology Unit was recognized as the 2019 Team of the Year! The group was commended for its diligence and teamwork as they dealt with lab relocations and renovations. They consistently worked together to prepare for lab repairs while maintaining turn-around times for testing.

Submitted by Angie Bradley
Lab Improvement

Team of the Year members Vilma Gonzalez, Brandon Skinner, Ashleigh DaGrosa, Steven Bowen, Robin O'Brien and Tom Lawson

Summer/Fall 2019
LABORATORY IMPROVEMENT

September – December 2019 Workshop Schedule

DATE	TITLE	APPLICATION DEADLINE
Sept. 5	2019 Packaging and Shipping Regulations	Aug. 5, 2019
Sept. 19	Bioterrorism Preparedness for Clinical Laboratories	Aug. 19, 2019
Sept. 25-26	Lab Methods in the Diagnosis of Gonorrhea	Aug. 26, 2019
Oct. 9	2019 Packaging and Shipping Regulations	Sept. 9, 2019
Oct. 16	Microscopy: Viewing and Reviewing	Sept. 16, 2019
Oct. 17	Examination of a Vaginal Wet Mount	Sept. 17, 2019
Nov. 6-8	Bacteriological Methods for the Analysis of Drinking Water	Oct. 8, 2019
Nov. 14	2019 Packaging and Shipping Regulations	Oct. 14, 2019
Nov. 21	Evaluation of a Stat Male Smear	Oct. 21, 2019
Dec. 5	Bioterrorism Preparedness for Clinical Laboratories	Nov. 5, 2019
Dec. 11-12	Basic Clinical Microbiology	Nov. 12, 2019

Disclaimer: These Workshops are not intended to replace formal education but to enhance skills and promote use of recommended standard techniques. For more information, consult our website or contact Lab Improvement at 919-733-7186 or http://slph.ncpublichealth.com.

MISSION STATEMENT

The State Laboratory of Public Health provides certain medical and environmental laboratory services (testing, consultation and training) to public and private health provider organizations responsible for the promotion, protection and assurance of the health of North Carolina citizens.