On Oct. 24, 2011, the Division of Public Health learned of four cases of shiga toxin producing *Escherichia coli* (STEC) in children in North Carolina, initially all the cases were in Wake County. Another case was reported on Oct. 25, and two cases had developed Hemolytic Uremic Syndrome (HUS), a severe complication that can occur with STEC infections. This notification began a busy three weeks for the Epidemiology Section, including the North Carolina State Laboratory of Public Health (NCSLPH), Communicable Disease Branch (CDB) and Public Health Preparedness and Response (PHP&R).

**Roles and Responsibilities**

In addition to providing sample collection kits to local health departments upon request, the role of NCSLPH was confirming cases of *Escherichia coli* O157:H7 (EC O157:H7) as clinical materials or reference cultures became available to the laboratory. The NCSLPH uses culture on selective and non-selective media, biochemical reactions, serological reactions, Pulsed-field Gel Electrophoresis (PFGE) and Multi-locus Variable Number Tandem Repeat Analysis (MLVA) to isolate, identify and DNA fingerprint *E. coli* O157:H7. DNA fingerprinting of isolates was critical to separate outbreak cases from sporadic or unrelated cases occurring during the same time period.

Initially, the role of epidemiologists in CDB was to provide support to local health department investigations and assistance in interviewing potential cases to elucidate...
Director’s Chair cont. from page 1

the source of exposure. As the number of cases expanded beyond Wake County, the epidemiologists in CDB assumed a larger role of coordinating the investigation. This included developing case definitions and a detailed questionnaire, interviewing cases to ensure consistency in the interviewing process, and conducting a matched case control study in which three controls were interviewed for every case.

The role of PHP&R was to provide structure to the investigation by opening the Public Health Coordination Center, filling key roles in the incident commands Structure including planning, logistics, finance and communications. Because of the hours spent investigating this outbreak – including weekend work – accounting for each staff person’s time was critical to making an accurate assessment of time and money spent on the investigation. As a part of logistics, PHP&R ensure staff working the weekend had lunch available and prepared the call center for possible use during the investigation. Documenting the incident action plan and daily situation reports were other key responsibilities.

NCSLPH Laboratory Methods

The enteric bacteriology laboratory isolates and identifies E. coli O157:H7 by plating a stool sample on selective media such as Sorbitol-MacConkey and Chromagar in order to identify sorbitol negative colonies. In addition, an enrichment broth is set up for subsequent shiga toxin testing; sorbitol negative colonies are then tested for reactivity with O157 and H7 antisera. Biochemical reactions on Triple Sugar Iron (TSI) and Lysine Iron Agar (LIA) plus others are used to confirm E. coli O157:H7 as well.

Suspect E. coli O157:H7 isolates are provided to the molecular epidemiology group for DNA fingerprinting. The gold standard method is PFGE that takes three days to complete the sample preparation, electrophoresis and banding pattern analysis. NCSLPH uses standard methods provided by CDC as part of PulseNet so that results from North Carolina bacterial isolates can be compared to isolates across the nation via electronic means. In this way, potential sources of foodborne illness can be rapidly identified. In addition to PFGE, NCSLPH uses another rapid method known as MLVA to provide additional information about the similarity of isolates. In this outbreak, both PFGE and MLVA demonstrated that cases had very similar DNA fingerprints.

Case Control Study

During this outbreak investigation, it became clear that all cases had visited the State Fair between Oct. 13th and Oct. 23rd based on interviews with 25 cases using a standard questionnaire. Close collaboration with partners in the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) during the entire investigation was critical in solving the puzzle regarding what exposure at the State Fair likely led to illness. NCDA&CS provided maps that indicated which events occurred on which days at each location on the fairgrounds. The Environmental Health Section in the Division of Public Health similarly provided maps showing locations of all the food vendors. With the help of NCDA&CS, over 31,000 email addresses from patrons who pre-purchased tickets online to the State Fair were provided to the public health investigation team. Randomly selected email addresses of 11,000 people were contacted to request participation. A link to a brief survey asked about their willingness to participate, age and dates of state fair attendance. Of more than 1,000 people who responded that they were willing to participate, 75 were randomly selected and matched to cases based on age and date of fair attendance. This unique approach greatly facilitated the rapid enrollment of three controls for each case, providing great statistical power for analyzing data gathered from all the questionnaires.

Outcomes

Thanks to the strong partnerships within the Epidemiology Section and with NCDA&CS and NCDENR, the outbreak investigation was concluded on Nov. 9. Results of the investigation were shared with all partners and a public announcement was made on Nov. 10, by NCDPH and NCDA&CS. Results of the investigation indicated that the exposure likely occurred in the Kelley Building during the 2011 State Fair. This building is a permanent structure and housed sheep, goats and pigs during the State Fair and was a livestock competition venue. State Epidemiologist Dr. Megan Davies explained that “We know that E. coli O157 is often found in the intestines of ruminant animals….These bacteria are shed in the animal’s feces, so if it is on the animal itself or surfaces around the animal that someone touches, the bacteria can be transmitted to that person.” NCDA&CS is committed to holding the safest State Fair possible and is working with NCDPH to identify ways to minimize the risk of future outbreaks based on lessons learned in 2011.

Submitted by:
Leslie A. Wolf, PhD, Laboratory Director,
NCSLPH
N.C. Public Health, 100 years ago...
Bulletin of the North Carolina State Board of Health
November 1911 Vol. XXVI No. 8

Attached to the Nov. 1911 Bulletin was the following PHYSICIAN'S PLEDGE OF CONCERTED WORK. This page was perforated and the pledge was to be mailed back to the N.C. Board of Health.

**PHYSICIAN'S PLEDGE OF CONCERTED WORK.**
To be binding one year from date

**First:** I pledge myself to be law-abiding with respect to health laws; that, being ever mindful of the imperfections of the majority of laws, I shall not expect sanitary laws to be satisfactory to all concerned; that on discovering serious defects in existing health laws, I will first call the attention of those administering such laws to the defects, in order to secure, if possible, some suitable remedy therefore; and, further, that until I have called official attention to a serious defect in the law I will not in any way, directly or indirectly, seek to impair individual or public respect for our health laws.

**Second:** I pledge myself to exert diligently my influence with those families in which there is a case of tuberculosis, typhoid fever, malaria or hookworm disease, for which my professional advice is sought, to induce them to write to the State Board of Health for their pamphlet on the disease with which the family is afflicted; I further pledge to familiarize myself with such pamphlets in order that I may question the members of the family on subsequent visits in such a way as to stimulate their interest and cause them to read the educational literature; and I further pledge myself to encourage my clientele to secure and read the BULLETIN of the State Board of Health.

**Third:** I pledge myself to do my utmost to either give or have given one lecture of address on public health or sanitation each year in some convenient place of assemblage in this township. It is understood in this third pledge that I am to be privileged to secure any one who will deliver such an address, and that I may call upon the State Board of Health if I find it necessary in order to keep this obligation.

I hereby certify that I have carefully read and seriously considered the obligation which my signature imposes upon me as an honorable man before having affixed my signature to this paper.

Date: __________________ Name: _______________________________________

Address: ______________________________________

Cont. on page 4
How Diphtheria Antitoxin Acts
Diphtheria antitoxin is now administered for two distinct purposes: First, to immunize or prevent a person, who has recently been, or is liable to be exposed to diphtheria, from contracting the disease; and, second, to cure the disease after it has once become established. The only difference between these two methods of treatment is that the immunizing or preventive doses are considerably smaller than curative doses.

The immunizing or preventive process may well be compared to a man locking the doors of his house to prevent the entrance of a burglar; while the curative measures correspond to several men arresting the intruder after he has once gained admittance. The immunizing dose merely locks the doors of entrance of the body against the disease for a few weeks, while the curative dose arrests the disease before it can accomplish its dire results. Medical authorities assert that no ill effects are found to result from the use of diphtheria antitoxin.

W. H. B.

An excerpt from
Danger in Wells with Bucket and Chain
By Dr. C. A. Shore, Director North Carolina State Laboratory of Hygiene

In the State Laboratory of Hygiene we have examined in the last three and one-half years over 4,000 specimens of water, and the results can have only one explanation. The supplies of the towns and cities have been impure in about 5 per cent; the pump wells were polluted in 20 per cent; while the open-top bucket wells were definitely unclean in 60 per cent of the cases. If you use a bucket well, the chances are six to four that you are drinking dirty water.

If open wells and open springs are unclean when used by one family, their danger is multiplied when used by the public. Every such well or spring, at school or church, is a constant source of danger, and may be the means of an epidemic at any time.

Submitted by:
Kristy Osterhout, BS, SLS(ASCP)
Safety Officer, NCSLPH
Customer Advocate Team

Hello! This is the CAT speaking. You may have also heard that my name stands for Customer Advocate Team. I’m the symbol for a new process improvement team whose goal is to improve customer service both inside and outside the State Laboratory of Public Health (SLPH). Members of the team are: Patty Atwood (Laboratory Improvement), La’Vonda Benbow and Marion Alston (Bioterrorism), Kathy Carlton (Operations), Ann Grush (Newborn Screening), Shadia Rath (Molecular/Epidemiology), and Karen Sanderson (QA).

The team recently conducted a customer service survey among employees in the SLPH. Approximately 40 percent of employees responded to questions asking them to rate their knowledge of the SLPH website, SCOPE, telephone transfer procedure and functions of different laboratory units. The survey also asked for feedback about the current employee recognition program and a place for general comments.

The team is just now evaluating the responses so it’s too soon to spill the beans on specifics. My guess is they will develop resources for staff and set up training on how to transfer telephone calls in addition to other items that come from the survey responses.

The team plans to conduct a customer satisfaction survey among our external customers (local health departments, hospitals, etc.) later in the spring, so stay tuned. It will be your chance to make your voice heard.

And speaking of voice, the team asked me to pass along this new slogan:

M (motivation)  E (empowerment)  O (ownership) in the  W (workplace) !!

Submitted by:
Karen Sanderson, MT(ASCP)SC
QA Manager, NCBLPH
A Personal Newborn Screening Story

Most of the samples received at the State Laboratory of Public Health (SLPH) are received from persons or places that are not known to its staff. They are, in a sense, anonymous. Sometimes, however, a sample becomes more personal and there is a story behind the sample. This is the case for a newborn screening sample received in January of 1985.

In that month, a baby girl was born to Bonita Edwards, who later became the clerical supervisor of the Newborn Screening Laboratory. A heelstick specimen for newborn screening was sent to the State Laboratory for testing. At that time, the only disorders screened for were Phenylketonuria, Congenital Hypothyroidism and Hemoglobinopathies. Bonita's baby, Tiffany, was diagnosed shortly after birth with sickle cell anemia. Tiffany's parents knew that there was a chance that their child would have sickle cell anemia, as both were carriers. Bonita was notified by the pediatrician within one week after birth and was advised to bring Tiffany in for further testing and follow-up. She was seen for follow-up at a major medical center's sickle cell program.

After diagnosis, Bonita began research and education into Tiffany's sickle cell anemia. She knew that the best tool she could give both herself and her child was information and planning for the present and future. As a parent, she was given much information about symptoms to be aware of and the genetics of sickle cell anemia, and she had the resources of a sickle cell counselor. Bonita diligently conducted her own research, using the Internet, her local library as well as a national sickle cell magazine.

At six to eighteen months of age, Tiffany experienced the painful swelling in the fingers about five days each month. The landmark studies with hydroxyurea had not yet taken place. Studies culminating in 1995 showed that the severity and frequency of sickle cell crises was reduced with the use of hydroxyurea, previously used with chemotherapy patients. Penicillin was the drug option at this time. At 18 months, Tiffany was hospitalized with sepsis but experienced only sporadic problems thereafter.

As she grew older, Tiffany began reading and being educated about her sickle cell anemia and by age 12, Tiffany was managing her daily care. This included pain management, keeping well-hydrated and having an awareness of the effect of exertion on her condition. Sometime in her childhood, Tiffany has had an undetected stroke and, as a result, she receives apheresis every four-six weeks. Apheresis involves a complete replacement of blood volume by donor blood.

Now Tiffany herself is a mother, and her daughter's newborn screening heelstick was also tested at the SLPH. Universal screening for hemoglobinopathies was begun in 1994 and many more disorders are on the newborn screening panel. With the news that baby Loveleigh is a carrier for sickle cell anemia, Tiffany has begun to build upon the educational base her mother established years ago. She has learned about the future implications for her daughter of being a carrier and will be ready to educate her as she grows up. Tiffany is very involved in public speaking about her sickle cell disease and has given several presentations at the SLPH for staff and a state-wide web conference.

Two newborn screening specimens for our Clerical Supervisor— one her daughter's and one her granddaughter's— are very special. They enabled her and her daughter to know early in life about a genetic disorder and make informed plans for the present and the future. Each of the heelstick specimens received at the SLPH belongs to a baby that is important to many people across our state. Each day the staff of the Newborn Screening Laboratory approaches its responsibilities with this in mind.

Submitted by:
Ann Grush
Laboratory Improvement Consultant
Newborn Screening
NCSLPH Employee Recipient of PulseStar Award

The North Carolina State Laboratory of Public Health (NCSLPH) is a PulseNet Participant. PulseNet is a national network of public health laboratories, local health departments and federal agencies (CDC, FDA, USDA/FSIS). Participants perform molecular subtyping (or “fingerprinting”) of foodborne disease-causing bacteria isolated from humans and suspected contaminated foods, such as *Escherichia coli* O157:H7, *Salmonella*, and *Listeria* by pulsed-field gel electrophoresis (PFGE). DNA “fingerprints” or patterns are submitted electronically to a national database located at the CDC. The database can be accessed by all PulseNet participating laboratories and agencies. This facilitates real-time identification of common source outbreaks and assist epidemiologists in outbreak investigations.

At the 15th Annual PulseNet Update Meeting in Long Beach, California, Denise Griffin, laboratory specialist in the Molecular Diagnostics and Molecular Epidemiology Program PFGE laboratory at the NCSLPH, received the 2011 PulseStar Award for Outstanding Achievement in 2010/2011 for PulseNet. Denise has worked for over 10 years to help the NCSLPH develop and expand the PFGE laboratory. During those 10 years, the PFGE laboratory has grown from one to five laboratory staff members.

Denise has actively and enthusiastically provided PFGE laboratory support to the N.C. Communicable Disease (CD) Branch for numerous *E. coli*, *Salmonella*, and *Listeria* outbreaks in NC, nationally, and internationally. Some of these outbreaks include the *E. coli* 0157:H7 NC State Fair outbreak associated with petting zoos and the *Salmonella* outbreak associated with contaminated Con-Agra peanut butter. More recently, Denise has been involved in PulseNet laboratory support to the epidemiologists of the NC CD branch in several different multistate investigations of *Salmonella* outbreaks linked to contaminated egg whites, to ducklings and chicks, to contaminated ground turkey and the international *E. coli* 104:H4 outbreak associated with travel to Germany.

Denise works diligently to meet the PulseNet program goals. She has also mentored and trained several students and staff members. Her award nominator stated that Denise’s “...dedication to providing accurate and timely outbreak information to the health department, neighboring states and the CDC is exceptional.”

Congratulations Denise!

Submitted by:
Shermalyn R. Greene, Ph.D.
Molecular Diagnostics and Epidemiology Program Manager
Tech Talk

Question: Why didn’t the lab test the Chlamydia/Gonorrhea specimen we submitted?

All of the NCSLPH labs have requirements to ensure that specimens are properly identified and suitable for testing. In addition, specimens submitted for Chlamydia/Gonorrhea testing must meet certain testing criteria due to the limited funding available for testing. As with any specimen submission, it is important to make sure that the name and a unique numerical identifier are clearly marked on both the submission form and the specimen. Care should be taken to follow these important steps regarding collection and submission of Chlamydia/Gonorrhea specimens to the lab, thereby reducing the chance of receiving an “Unsatisfactory” test report:

1. Check expiration date on vaginal specimen transport tube before collection. We cannot perform tests on samples that have been submitted in expired media.

2. Endocervical specimens are no longer accepted for Chlamydia/Gonorrhea testing at the SLPH. Please download and use the current submission form DHHS #4011 available at our website [http://slph.ncpublichealth.com/forms/4011-20110608.pdf](http://slph.ncpublichealth.com/forms/4011-20110608.pdf) which has a “vaginal” check-off box for specimen source.

3. Break off the vaginal swab carefully at the gray scoreline—not above or below it! Incorrectly broken swabs will cause damage to the testing instrument, and will therefore be deemed unsatisfactory for testing. Laboratory staff cannot open the transport tubes to correct the length of the swab due to the risk of sample contamination.

4. Check to make sure that the proper swab is placed into the sample transport tube. Only the pink-shafted vaginal swab that is part of the Gen-Probe specimen collection kit is acceptable for testing.

5. Make sure the cap is screwed on tight so that no leakage of transport fluid occurs.

6. As always, fill out the submittal form completely for all patients, regardless of the clinic where the patient was seen. Information in the middle section of the form (titled “This Section Must Be Completed”) is especially important to help determine if the patient meets testing criteria, as well as being a requirement for continued funding of the testing program.

7. For those sites wishing to utilize the patient self-collection option, posters with collection instructions in English and Spanish are available by contacting the Bacterial STD Laboratory Supervisor at 919-733-7544.

SLPH has developed and posted an instructional PowerPoint presentation on our website at [http://slph.ncpublichealth.com](http://slph.ncpublichealth.com) (What’s New…) that details the steps to properly collect and submit a vaginal swab specimen, along with specific instructions on how to complete the submission form. Local Health Departments should find this presentation useful in training new staff, and as a refresher for existing staff, a short quiz follows for those wanting continuing education credit.

Unsatisfactory specimens delay testing and often require that a patient make a return visit for recollection. Reducing the number of unsatisfactory submissions ensures that all patients are diagnosed and treated as soon as possible.
The Safety Corner
Laboratory Safety’s “Top Ten” List: Opportunities for a Safer Workplace
Safety Showers and Eyewashes

OSHA is vague when discussing the topic of safety showers and eyewashes. OSHA relies on ANSI (American National Standards Institute) to guide them when inspecting facilities. It is up to us to understand ANSI Z358.1-2009 and comply with their regulations.

According to ANSI Z358.1, all safety showers and eyewashes must be inspected and flushed weekly. In our inspections, we found laboratories either failed to perform these tasks completely or did not document performance. Remember, “If it is not documented, it never happened!” Activate all eyewashes and safety showers to ensure they are operational in case of an emergency. Also, activation clears any sediment that may have collected in the water pipes. Safety shower test kits (available from most scientific supply companies) can aid in the inspection of showers, especially those with no drains. Keep in mind, if safety equipment is present, it must be in working condition. If not in working condition, the equipment must be repaired immediately or completely removed. “Do Not Use” signs are acceptable only as a temporary solution.

A few more requirements to consider include:

- **Tepid water**
  While flushing the equipment, note the temperature of the water. A suitable range is 16-38ºC or 60-100ºF. Exceptionally hot temperatures may lead to chemical reactions with the skin and cause more damage. At cooler temperatures, hypothermia becomes the main concern.

- **Location**
  Both the eyewash and safety shower should be easily accessible and never blocked. They must take no more than 10 seconds to reach and the path must not be hindered with any obstructions. Yes, this means safety showers may not be used as a storage closet! Many facilities claimed they do not use their shower so it has been made into a closet. This is not acceptable. If the shower is not needed, it must be completely removed so it does not cause confusion in case of an emergency.

- **Signs and Lighting**
  ANSI requires a “highly visible sign” to identify the location of any safety equipment. Keep in mind, one’s vision may be impaired during an emergency situation so these signs must be easily recognized for quick identification. Also, ensure lighting is adequate in the surrounding area.

- **Training**
  All employees must be aware of the location of any safety equipment as well as how to operate it. Facilities must have a clear plan on who is responsible for flushing the safety shower and eyewash each week and how to document these safety checks.

If you have any questions regarding safety, please contact Kristy Breedlove at kristy.breedlove@dhhs.nc.gov or (919) 733-7186. Look for the next installment of The Safety Corner when we will continue with the series, “Laboratory Safety’s “Top Ten” List: Opportunities for a Safer Workplace”!

Submitted by:
Kristy Breedlove, BS
Laboratory Improvement Consultant
NCSLPH
Who’s Who in the Preparedness Unit at the State Laboratory of Public Health

The Bioterrorism and Emerging Pathogens (BTEP) Units and the Chemical Terrorism and Threat (CTAT) Units at the North Carolina State Laboratory of Public Health (NCSLPH) are collectively known as the Preparedness Unit. It provides both testing and consultative services to sentinel laboratories and law enforcement entities throughout the state. Each member of these units brings special talents and knowledge that ultimately help to strengthen terrorism crisis response and testing within the Division of Public Health.

Bioterrorism and Emerging Pathogens (BTEP) Unit

The BTEP Unit strives to accomplish its mission to maintain laboratory capacity for the detection of biological weapons and emerging infectious diseases. The Bioterrorism Unit consists of a twelve member team, including a bioterrorism unit coordinator, a public health scientist, a business services coordinator, a laboratory improvement consultant/training coordinator, four laboratory medical specialists and four medical laboratory technologist IIs.

Royden Saah leads the bioterrorism group. Royden joined the group in Sept. 2002 as a public health scientist and the Bioterrorism Unit’s first full-time employee. Soon after Royden’s hire, the anthrax letters were discovered and the race was on to test the hundreds of samples being received by the State Laboratory. Royden quickly rose through the ranks and was promoted to bioterrorism coordinator in 2004. He holds a Master of Science degree in Microbiology from North Carolina State University. Royden is responsible for the administrative and managerial tasks of the unit as well as the coordination of important activities associated with sample testing and external unit relations.

Anne Hutchins, Ph.D., provides technical guidance and assay troubleshooting as the unit’s public health scientist. She acts as technical consultant as well as assistant bioterrorism coordinator and conducts special scientific projects for the CDC. Anne began working with the unit in April 2009 at the beginning of a very memorable circumstance – the novel H1N1 influenza event. Anne was integral in providing technical guidance during the H1N1 response. She received her Ph.D. in Immunology in 2003 and has over 16 years of molecular biology experience. Most recently, Anne directed the BTEP unit’s participation in a Homeland Security Exercise and Evaluation Program (HSEEP) two-day functional laboratory exercise.

The business services coordinator for the unit is Marion Alston. She has over 20 years of administration experience. Marion became a member of the team in August 2009 after leaving an administrative position at St. Augustine’s University. She received her bachelor of science in business and organizational management from St. Augustine’s College and her masters of business administration from the University of Phoenix and works tirelessly to ensure the efficiency of BTEP administrative processes. Marion provides oversight of the unit’s office functions, monitors the spending of the Public Health Preparedness and Response for Bioterrorism grant funds and securely maintains confidential personnel, immunization and other records. In addition, Marion is responsible for coordinating special meetings and providing administrative support for
La’Vonda Benbow began working with the unit in April 2009 and currently serves as the bioterrorism laboratory improvement consultant/training coordinator. La’Vonda received her bachelor of science in biology from Old Dominion University, her associate in applied science from Wake Technical Community College and is currently taking graduate courses in the field of biomedical laboratory operations management. She has an extensive background in sales and training. La’Vonda strives to maintain her MLT(ASCP)CM certification by participating in numerous continuing education activities. Just like other laboratory improvement consultants at the SLPH, La’Vonda’s primary responsibilities are to identify training opportunities for laboratory personnel and develop trainings to meet the needs of sentinel laboratories throughout the state. She is the workshop director for the Preparedness Workshop for Clinical Laboratories. La’Vonda acts also as the outreach coordinator and unit quality assurance coordinator, and also serves as a testing staff member. La’Vonda has over eight years of laboratory experience working in laboratories at Duke University Health Systems and in the HIV/Hepatitis laboratory at the SLPH.

The laboratory medical specialist based at the SLPH in Raleigh is Brenda Mickens. She has achieved over 14 years of laboratory experience after receiving her bachelor of science degree in biology education from Saint Paul’s College. Most recently, she received her masters of public administration from Strayer University. Brenda began her career in the BTEP unit as a medical laboratory technologist II in April 2006 after working over nine years in various laboratories and positions in the Water Quality Division at the North Carolina Department of Environment and Natural Resources. Brenda was promoted to laboratory medical specialist in 2008 and assumed not only the lead testing personnel position but also the responsibility of being Raleigh BTEP’s primary investigator for the select agent program.

The position of medical laboratory technologist II is currently vacant.

Three Bioterrorism and Emerging Pathogens Regional Response Laboratories are strategically located throughout the State. These laboratories are located in Asheville, Charlotte and Greenville. At each of these three laboratories are a laboratory medical specialist and a medical laboratory technologist II.

Barbara (Barbie) Page is the laboratory medical specialist at the laboratory in Greenville. The laboratory is housed at the Pitt County Health Department. Barbie joined the unit in November 2004 after working at Pitt County Memorial Hospital in blood bank/transfusion services. She holds a bachelor of science degree in medical technology from East Carolina University and recently received her master of science in securities studies. She is an ASCP certified medical technologist. Barbie has over 14 years of laboratory experience and serves as the laboratory lead scientist. She is responsible for the administrative tasks associated with the efficient performance of the laboratory as well as managing daily operations.

Lisa Hawkins acts as the medical laboratory technologist II for the Regional Response Laboratory in Pitt County. Lisa came to the BTEP unit in Oct. 2007 with a bachelor of science degree in animal science and currently boasts 15 years of laboratory experience. Some of Lisa’s laboratory positions include a stint at Goldsboro Milling Al Lab where she conducted and trained personnel in swine artificial insemination procedures; a period as laboratory manager at Southeastern Medical Oncology in Goldsboro; and later as a laboratory technician II at the Wilson/Wayne County Health Department. Lisa’s responsibilities in the BTEP unit include, but are not limited to, the accurate testing for agents of bioterrorism and infectious diseases, sample processing, evidence receipt and chain of custody documentation. Lisa acts as the lead representative for the unit’s Turn-Around-Time Quality Improvement Initiative Project.

The Regional Reference Laboratory in Buncombe County (RRL-BC) is headed by Mary Edwards. Mary began her time in the BTEP unit in Sept. 2002 as the laboratory medical specialist and has been providing expert advice ever since. She currently serves as the laboratory lead scientist as well as the alternate responsible official for the RRL-BC. She holds a bachelor of science degree in zoology from North Carolina State University, received her medical technologist certification from Duke University and is an
ASCP-certified medical technologist. Mary holds a masters of public health from UNC-Chapel Hill. She has worked as a generalist and assistant supervisor at Cannon Memorial Hospital and Babies Hospital in Wrightsville Beach; an MLT program instructor at West Piedmont Community College; an assistant professor in the medical technology program at Western Carolina University; and a microbiology technologist and QA specialist at VA Medical Center in Asheville. Mary will soon be retiring after working 42 years as a medical technologist – 23 years in the clinical laboratory setting, 10 years teaching and more than nine years working in public health.

Kristi Jenkins joined the unit in July as the medical laboratory technologist at the RRL-BC, bringing a wealth of knowledge and over 19 years of laboratory know-how. Kristi received both a bachelor of arts in biology and a bachelor of science in medical technology and is ASCP-certified. Kristi has extensive hospital laboratory experience, including two and one-half years as a hematology supervisor. She has also worked as a generalist in a major reference laboratory and spent more than nine years at the South Carolina Department of Health and Environmental Control in the virology laboratory specializing in rabies, West Nile Virus and influenza testing. Some of Kristi’s responsibilities at the RRL-BC include performing quality control on reagents, testing of clinical and environmental samples, and the organization of laboratory policies and procedures.

Justin Edwards leads the team at the Mecklenburg Regional Response Laboratory as the laboratory medical specialist. Justin joined the BTEP unit in April 2006 as the medical technologist II and left in July 2007 to gain industry experience at both GlaxoSmithKline and LabCorp. Justin returned in July 2008, bringing with him knowledge that proved to be very valuable by allowing him opportunities to verify and validate new assays being brought online in the unit. He has a bachelor of science degree in biochemistry from North Carolina State University and more than five and one-half years of laboratory experience.

The Mecklenburg Regional Response Laboratory’s medical laboratory technologist II is Jason McMillan. Jason received his bachelor of science in microbiology from Clemson University. He attended The McLeod School of Medical Technology where he earned MT(ASCP) certification. Jason has over eight years of laboratory experience. Before joining the BTEP unit in Oct. 2009, Jason worked as a medical technologist at Presbyterian Hospital in Charlotte. Currently, Jason is responsible for sample testing and instrument troubleshooting, as well as other laboratory related duties. He also is the lead representative for the unit’s 24/7 Duty Phone Drill Quality Improvement Initiative.

Chemical Terrorism and Threat (CTAT) Unit

The Chemical Terrorism and Threat (CTAT) Unit continues to maintain its ability to identify and quantitate levels of chemical agents and their metabolites in blood and urine of patients exposed to chemical agents. The CTAT Unit is made up of four team members – a chemical terrorism unit coordinator and an assistant coordinator and two chemist IIs. All are trained by and work closely with the Centers for Disease Control and Prevention (CDC) in assay methodology and instrumentation procedures.

The CTAT coordinator is Kaye Flood. She received her degree in chemistry from East Carolina University and has over 38 years of experience in various state laboratories. Before joining the unit in April 2004, Kaye worked at the North Carolina Department of Agriculture and Consumer Services where she performed testing in the pesticide residue and food areas. She worked as the supervisor in the fertilizer and feed sections of that laboratory. At the State Laboratory, Kaye ensured the regulatory compliance and proper training of all CTAT unit employees. She is also the chemical hygiene officer for the State Laboratory.

The assistant coordinator is William “Tex” Parks. Tex has a bachelor of science in chemistry and over 21 years of experience working in various chemistry laboratories, with more than 20 years experience with gas chromatography (GC), gas chromatography/Mass Spectometry (GC/MS) and High Performance Liquid Chromatography (HPLC) methodologies. He spent four years designing custom chromatography instrumentation. Tex joined the unit in Aug. 2007 as a chemist II and was promoted to assistant coordinator in 2010. Tex acts as the quality assurance officer for the unit as well as lead testing personnel.
The bioterrorism and chemical terrorism units work to ensure that sentinel laboratories and external partners in the state are ready by delivering contact, testing and training information during outreach visits, offering packaging and shipping and other trainings and workshops, and providing consultative services.

To learn more about the Bioterrorism and Chemical Terrorism and Threat Units, visit the websites or call:

**Bioterrorism Unit:**
http://slph.ncpublichealth.com/bioterrorism/default.asp#agents
919-807-8765 / 919-807-8600 (24/7)

**Chemical Terrorism Unit:**
http://slph.ncpublichealth.com/chemical-terrorism.asp
919-807-8771 / 919-602-2481 (24/7)

Submitted by:
La'vonda Benbow BS, MLT(ASCP) CM
Lab Improvement Consultant/BT
Training Coordinator

Kate Mason serves as one of two chemist IIs. She has more than 17 years of laboratory experience – 15 spent at the SLPH. After working in the mycobacteriology laboratory and then the environmental laboratory in the organics section, Kate moved to the chemical terrorism unit in May 2006. Kate attended North Carolina State University and received degrees in both zoology and chemistry. She currently is the lead chemist for the inductively coupled plasma mass spectrometry (ICP-MS) instrumentation.

Bernard Barrameda joined the unit in Nov. 2010 as a chemist II. Bernard received a bachelor of science degree in chemistry from North Carolina State University and has over 13 years of laboratory experience. His laboratory career began at the North Carolina Department of Agriculture and Consumer Services where he spent 12 years testing for pesticide residue in fresh commodities. At SLPH, Bernard is responsible for laboratory testing of blood and urine for chemical agents and their metabolites and performing instrument troubleshooting. As with other members of the team, Bernard participates in numerous proficiency tests issued by the CDC and undergoes constant training to ensure technical adeptness.
Employee of the Quarter

The State Laboratory employee of the fourth quarter is La’Vonda Benbow. La’Vonda is recognized in the categories of service excellence and significant contributions to the morale of the laboratory.

La’Vonda holds a unique position within the NCSLPH as she acts as Laboratory Improvement Consultant and Training Coordinator for the Bioterrorism and Emerging Pathogens (BTEP) Unit as well as Quality Assurance lead. Since joining the BTEP Unit, she has revitalized the Bioterrorism Workshop which serves as the platform to educate clinical laboratorians in North Carolina about bioterrorism biological agents. She leads the effort to determine outreach goals, as well as regularly visits sentinel laboratories to educate and promote information about the BTEP Unit. La’Vonda also coordinates the CAP-LPX Proficiency Testing exercises in North Carolina and tracks the CAP-LPX results to determine the needs of the sentinel labs. As the training coordinator, La’Vonda has introduced novel methods to conduct the BTEP Unit’s annual trainings and she continues to find new ways for the four BTEP laboratories to function more cohesively. Prior to holding this position, she worked in the serology section of the Virology/Serology Unit.

Beyond her job responsibilities, La’Vonda is an active member of the State Laboratory’s Happiness Committee. She is always willing to participate in any activity with joyful enthusiasm. She is the instigator of many potluck lunches and always goes above and beyond expectations to make and share special dishes. Outside of the lab, La’Vonda volunteers at Urban Ministries as a medical technologist bringing much needed health care to a large and growing community in need.

La’Vonda consistently exceeds the expectations of her colleagues, whether it is preparing a new lab procedure or a shared dessert! Thank you, La’Vonda for your dedication and many contributions to the SLPH.

Special Kudos

Congratulations to Donna Goodmond, SLPH business service coordinator, for graduating from the Administrative Professionals Certificate Program. This is a 22-week program offered through the Office of State Personnel and partnered with Wake Technical Community College. It is designed to develop and reinforce skills in computers, business relationships, and customer service. Thank you, Donna, for all you do for the NCSLPH and congratulations!

New Employees

David Livingston – Environmental Sciences
Robbie Hall – Molecular Diagnostics
Joe Ortiz – Operations

Retiring/Separating

Annette Jay – Environmental Sciences
Tamara Locke – Operations

If you would like to recognize a co-worker at your facility or introduce a new employee, please contact Janice West at (919)733-7186 or janice.west@dhhhs.nc.gov.

Kudos!
DO YOU KNOW WHO TO CALL AT THE STATE LABORATORY?

NC State Laboratory of Public Health
306 N. Wilmington Street
P.O. Box 28047
Mail Service Center 1918
Raleigh, North Carolina 27611-8047

OFFICE OF DIRECTOR
(919) 733-7834  Fax (919) 733-8695

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Inorganic Chemistry
Lab Certification
Organic Chemistry
Radiochemistry

LABORATORY IMPROVEMENT
(919) 733-7186  Fax (919) 715-9243
Training, Consultation and Control Cultures

LABORATORY PREPAREDNESS
Bioterrorism/Emerging Pathogens
(919) 807-8765  Fax (919) 715-1840
24/7 Emergency: (919) 807-8600
24/7 Emergency pager: (919) 310-4243

Regional BT Staff:
Asheville  (828) 250-6105
Charlotte  (704) 432-1514
Greenville  (252) 902-2291

Chemical Terrorism
(919) 807-8771  Fax (919) 715-7787

MOLECULAR DIAGNOSTICS/EPIDEMIOLOGY
(919) 807-8978

SUPPORT SERVICES
Mailroom Main Number: (919) 733-7656
Orders for mailers, supplies, and influenza kits

MICROBIOLOGY
(919) 733-7367
Atypical Bacteriology
Enteric Bacteriology and Foodborne Illness
Mycology
Parasitology
Special Bacteriology
Tuberculosis

NEWBORN SCREENING/CLINICAL CHEMISTRY
(919) 733-3937  Fax (919) 715-8610
Biotinidase Deficiency, Galactosemia,
Hypothyroidism, and Congenital Adrenal Hyperplasia
Sickle Cell and Cystic Fibrosis
Tandem Mass Spectrometry (MS/MS) Screening
Blood Group/Antibody Screen and Blood Lead

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(919) 733-7544  Fax (919) 715-7700
Viral Culture/Rabies
Serology
Bacterial STD
Special Serology

INFORMATION TECHNOLOGY
(919) 733-7837  Web Reporting Helpdesk

Safety Officer-Kristy Osterhout
(919) 807-8755
Safety/Biosafety
Packaging & Shipping

WEB SITE: http://slph.ncpublichealth.com/
# 2012 Workshop Schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>TITLE</th>
<th>APPLICATION DEADLINE</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 18</td>
<td>Microscopy: Viewing &amp; Reviewing (Advanced)</td>
<td>March 18</td>
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<tr>
<td>April 19</td>
<td>Examination of a Vaginal Wet Mount</td>
<td>March 19</td>
</tr>
<tr>
<td>May 16-17</td>
<td>Laboratory Methods in the Diagnosis of Gonorrhea</td>
<td>April 17</td>
</tr>
<tr>
<td>May 24</td>
<td>2012 Packaging &amp; Shipping Regulations</td>
<td>April 24</td>
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<tr>
<td>June 7</td>
<td>Syphilis Serology</td>
<td>May 7</td>
</tr>
<tr>
<td>July 25</td>
<td>Microscopy: Viewing &amp; Reviewing (Basic)</td>
<td>June 25</td>
</tr>
<tr>
<td>July 26</td>
<td>Examination of a Vaginal Wet Mount</td>
<td>June 26</td>
</tr>
<tr>
<td>Aug. 7-10</td>
<td>Bacteriological Methods for the Analysis of Drinking Water</td>
<td>July 10</td>
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<tr>
<td>Aug. 16</td>
<td>Bioterrorism Preparedness for Clinical Laboratories</td>
<td>July 16</td>
</tr>
<tr>
<td>Aug. 29-30</td>
<td>Basic Urinalysis</td>
<td>July 30</td>
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</tbody>
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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

http://slph.ncpublichealth.com

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**EDITORIAL board**

- Patty Atwood, Editor, Lab Improvement
- La’Vonda Benbow, Bioterrorism and Emerging Pathogens
- Vacant, Cytology
- Michele Andrews, Environmental Sciences
- Kristy Osterhout, Administration/Safety Officer
- Jennifer Anderson, NBS/CC
- Kristy Breedlove, Lab Improvement
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- Savitri Mullapudi, Molecular