The challenges faced by public health in North Carolina and by states in much of the country are intense. Newly emerging infectious diseases, changing population demographics, increasing chronic ailments, changes in public health funding, and a shift in health care delivery are all affecting the many facets of core public health functions. While many of these risks pose new challenges to our systems, we also have never before had such profound opportunities to affect the health of our citizens and emphasize the cost-savings approaches that our prevention strategies support and new technologies provide.

As a provider of public health laboratory services to our public health partners, the North Carolina State Laboratory of Public Health (NCSLPH) is not immune to these challenges. Collectively, NCSLPH strives to assure that the laboratory provides high confidence scientific data to drive decision making used to protect and improve the health of our constituents and the communities where we reside. However, as funding streams diminish, it is imperative that we prioritize our objectives and find the means to do more with less.

To that end, the NCSLPH has embarked on a path to develop a strategic plan that will be used to provide a clear picture of defining where the lab is headed in the next three to five years, what the lab will plan to achieve, the methods by which we plan to succeed, and the metrics by which we will measure our progress. Our strategic planning process will seek the input of staff and the laboratory system’s stakeholders to establish the foundation of the strategic plan. We will seek a robust and relevant response from our partners,
collaborators, colleagues, and others that affect the NCSLPH.

As with any strategic planning program, we intend to focus on a quality improvement element utilizing a variety of proven assessment tools. NCSLPH will use a tool developed through a collaborative effort between the Association of Public Health Laboratories (APHL) and Centers for Disease Control and Prevention (CDC) to facilitate the improved performance of state and local public health laboratory systems, with a goal of continuous quality improvement. The tool, known as the Laboratory Systems Improvement Program (L-SIP), targets improvements to the public health laboratory system through the collaborative work of partners to assess the system’s performance, plan for system improvements, implement improvement strategies, evaluate effects of the strategies, and re-assess system performance. Furthermore, NCSLPH will explore opportunities through CDC’s Laboratory Efficiencies Initiative (LEI) that will help achieve and maintain sustainability to continue to conduct vital services in the face of unprecedented financial and other pressures. The LEI focuses on stimulating substantial gains in laboratories’ operating efficiency and cost efficiency through the adoption of proven and promising management practices.

As a performance-based organization, it is essential that NCSLPH establish a direction and ensure that our resources are working toward the same goals of our partners. We value our partners and their input to achieving common goals. Therefore, I encourage your input and recommend you share your thoughts and opinions with my staff and me. Together, with your help, I believe we will be able to establish a sustainable public health laboratory system in North Carolina that will continue to provide the high-confidence scientific data that drives evidence-based decision making.

Submitted by:
Dr. Scott J. Zimmerman
Director
North Carolina State Laboratory of Public Health
N.C. Department of Health and Human Services

The North Carolina State Laboratory of Public Health
and
The North Carolina Public Health Foundation
present
The 10th Annual Clinical Laboratory Day
Start Taking Defense:
The Battle Against Sexually Transmitted Diseases
Friday, October 3, 2014

Flyer and program description may be found at http://slph.ncpublichealth.com

Register online by September 19, 2014
at https://www.surveymonkey.com/s/ClinicalLabDay2014
New Testing Protocol to Detect Hemoglobinopathies

Since 1986, the State Laboratory of Public Health (SLPH) has been screening newborns for sickle cell disease and other hemoglobinopathies. Originally started as part of a sickle cell program pilot project, the program screened non-white infants born at seven hospitals in North Carolina. At that time, the screening protocol used both cellulose acetate and citrate agar electrophoresis procedures. This accompanied the two other disorders on the panel, phenylketonuria and congenital hypothyroidism. By 1987, non-white infants were being screened statewide. In 1994, universal screening began, resulting in every infant being screened for hemoglobinopathies. By then, the laboratory had added congenital adrenal hyperplasia and galactosemia to the newborn screening panel. These advances were due to innovations in testing methodologies and improved disorder management.

Prior to May 6 of this year, SLPH utilized isoelectric focusing (IEF) electrophoresis for first tier hemoglobinopathies screening of more than 140,000 blood spot samples annually on newborns. The methodology, while robust, required visual interpretation of hemoglobin bands. The training of staff in band interpretation was longer in duration and turn-around-time was a concern due to the hands-on process. With this system, presumptive abnormal results were confirmed with high performance liquid chromatography (HPLC).

To improve the efficiency of newborn result reporting and offer the best technology, SLPH has revised its workflow so that HPLC is the first tier of testing for sickle cell disease and other hemoglobinopathies. The use of four VARIANT™nbs instruments for sickle cell screening allows for walk-away automation and a decrease in time needed to train new staff. New primary screening software enables instrumentation to process HPLC data automatically, reducing reliance on visual interpretation of hemoglobin bands. The change to HPLC first tier testing also allows the reporting of hemoglobin D, in addition to hemoglobin F, A, S, C, E, and Barts hemoglobin. Confirmation is now done by IEF.

With these changes, screening is done overnight and normal results are ready for reporting the next morning. This new workflow brings the hemoglobinopathy laboratory in line with the other newborn screening laboratories in providing normal results the day after receipt of the sample. Presumptive abnormal hemoglobinopathy results by HPLC are confirmed with IEF the day after receipt and are reported to the sickle cell follow-up program. This has improved the turn-around-time by 24 hours and accelerates notification of the healthcare provider in cases of abnormal results. After 28 years, the hemoglobinopathies screening program at SLPH continues to develop and change its testing technologies to offer accurate and rapid testing. This ultimate goal is

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to enable newborns to be identified and in treatment as soon as possible.

Submitted by:
Ann Grush, NBS Consultant
Dr. Koon Lai, Hemoglobinopathies/Cystic Fibrosis Supervisor

Acknowledgment is given to Ms. Robbi Safko, former supervisor of the Hemoglobinopathies Laboratory, for her articles in the February 1986 and September 1989 issues of Lab-Oratory. Appreciation is extended to the staff of the Hemoglobinopathies/Cystic Fibrosis laboratory for their efforts to produce a successful implementation.

Keeping Extended Family Members Safe!

Pets are often considered members of the family. These adorable creatures are loved and valued to such an extent that we take care of them as we take care of each other. We even have the option to obtain insurance for them so they can have regular checkups and even surgery. For example, taking your child to have required vaccinations is something you must do for your pet as well. This will prevent a series of serious and sometimes fatal diseases or infections. There are general guidelines to follow when vaccinating a pet. When you have a new pet, the earliest you can vaccinate is about six to eight weeks after birth. If you don’t know your pet’s history because it’s an adoptee or rescue animal, you should seek the advice of your local veterinarian because there are many variables that play a huge role in the decision of what should be administered. Because many stray animals were abandoned, they often have not been vaccinated and are likely susceptible to diseases.

According to information from the Centers for Disease Control and Prevention (CDC) website www.cdc.gov/rabies, “Rabies is a preventable viral disease of mammals most often transmitted through the bite of a rabid animal.” Most rabies cases reported to CDC occur in wild animals such as raccoons, skunks, foxes and bats. The central nervous system can be infected by the rabies virus, resulting in disease in the brain and death. If left untreated, the virus can be fatal to all mammals, including humans, as there is no cure for the infection. The only way to definitively test for rabies is from the brain tissue of a dead animal. There is no way to test for the infection from a live animal. Immediate medical attention is required to safely escape the infection without it becoming fatal. It is not only important to have your pet vaccinated, but it is also the law. N.C. general statute 130A-185 requires owners of dogs, cats and ferrets to have their pets vaccinated against rabies beginning at four months of age. Receiving this vaccine is for the protection of your pet and others who may come in contact with them.

There are core (universally recommended and most commonly given) and non-core (optional) vaccines. Among the non-core vaccines for dogs are canine bordetella (kennel cough) and canine parainfluenza. Exposure risks, boarding/kennel plans and indoor versus outdoor environments are among the considerations

Cont. on page 5
to be made when deciding whether to administer non-core vaccines. The core vaccines for dogs considered necessary for the maintenance of your dog’s health are:

- rabies
- canine distemper
- canine hepatitis
- canine parvovirus

For cats, core vaccines are:

- rabies
- feline viral rhinotracheitis and feline calicivirus (FVRCP)
- feline panleukopenia

Rabies vaccines should be given as a re-boost every one to three years; however, your community regulations may differ, and you should follow their guidelines. Your pet can receive these vaccines from your family veterinarian. For dates and locations of low cost clinics offered in your area, contact your local animal control office or visit their website.

Remember, taking care of your pet is more than just feeding and bathing. Making sure you keep your pet healthy and safe can be as easy as a simple trip to your family veterinarian. This extended member of your family needs attention to stay happy and healthy.

Submitted by:
Danielle Biggs, Virology/Serology Unit

Lab Technology Day Keeps Environmental Technology at the Forefront

You wouldn’t believe the amount of technology present in a water laboratory! To keep all laboratory professionals current with the available technology, the North Carolina Waterworks Operators Association (NCWOA) created an annual seminar for training in the environmental field. The event is called Laboratory Technology Day (LTD), and it has been held each year for the past 16 years. The very first LTD was March 10, 1998 at Wake Technical Community College and was attended by more than 300 people. Over the years, the seminar has grown and at times shrunk, due largely in part to the numerous other training events NCWOA has organized.

The event is held each May at the McKimmon Center in Raleigh and is designed to bring together different segments of the environmental laboratory field. LTD is a daylong educational experience for drinking water plant personnel, commercial laboratories, and wastewater personnel from across the state. The program features technical presentations and an exhibit hall for both wastewater and drinking water laboratory issues and topics. Attendees can choose from two separate lecture halls; one for drinking water and one for wastewater. As an added bonus, the participants earn six continuing education credits for attending the entire day’s session. Laboratory analysts benefit from the information they receive in the technical presentations, as well as the opportunity to see the latest in technological advances on display by a variety of commercial vendors. Laboratorians also benefit from being able to discuss any problems or experiences with like-minded professionals in the industry. The exhibit hall has been at maximum capacity the past few years with some 32 exhibitors on display. The exhibitors range from providers of proficiency testing programs, scientific chemical and equipment...
providers, and commercial laboratories certified by the Laboratory Certification Office of the North Carolina State Laboratory of Public Health (NCSLPH).

Past members of the NCSLPH Laboratory Certification Office played a significant role in creating the event and today, Laboratory Certification employees carry on the tradition as seminar co-hosts. The entire Certification Office is utilized to make the day a success, from helping with registration of more than 250 attendees, emceeing the drinking water session, setting up the technical presentations, helping with vendor participation, and presenting participant certificates. Most years we are flooded with topics appropriate for the technical presentations, and each year we group with our fellow co-host to choose the best available technologies, most useful methodologies and techniques, as well as the most “current” hot topics to have presented during LTD. Popular topics include workforce issues, new lab technologies, data management systems, upcoming legislation, and new procedures.

To keep up with the ongoing changes in this field, LTD presentations over the past few years have covered nitrate by probe method, fracking, ion chromatography, hexavalent chromium, switching systems from chlorine to chloramines, water fluoridation and dental decay, electronic data storage, chemical threats to the watershed, cyanobacteria blooms in surface water, on-line purge and trap systems monitoring volatile organic compounds, and Cryptosporidium. Lab Technology Day is one of the few events created specifically for showcasing new technologies and sharing techniques and procedures with environmental laboratory professionals throughout the state.

Submitted by:
Michele Andrews,
Laboratory Certification Office
You Bring the Lunch, We’ll Bring the Learn!

Continuing education has become increasingly important to medical professionals striving to keep up with the constant changes occurring in the medical industry. Staying informed of new technologies and the latest information can sometimes be costly and time consuming. However, this does not have to be the case. The North Carolina State Laboratory of Public Health (NCSLPH), with assistance from the Laboratory Improvement Unit, has implemented an exciting, inexpensive way to provide continuing education for staff members. The program is called Lunch and Learn and brings people together to view presentations on popular topics during their lunch hour. By developing Lunch and Learn sessions, the laboratory has found a way to further utilize knowledgeable staff members, reduce the cost of providing continuing education, and create an internal morale boost while increasing confidence in our peers.

The Laboratory Improvement Unit has coordinated numerous Lunch and Learn programs over the past year. The state laboratory shares a facility with the Office of the Chief Medical Examiner (OCME), and employees from that organization participate as well. Topics have included alcohol and drug abuse, information on newborn hearing screenings, updates in gonorrhea testing, an overview of the Child Fatality Unit, and even health and nutrition tips for employee wellness. Each session consists of a one-hour presentation from internal or local state personnel. The speakers recruited are very experienced and knowledgeable in their subject matter and end each presentation with time for questions and answers.

When invited to participate, each presenter has been enthusiastic and open to discussing their work and sharing their knowledge with others. The staff has been very receptive to this format as a way of acquiring some of their continuing education credits. Participation numbers have been outstanding, with some sessions close to standing room only. Because of the overwhelming peer support, major interest has been expressed in providing future Lunch and Learn programs.

With budget cuts becoming more common and making it difficult to acquire the more expensive continuing education courses, using internal and local personnel is a creative alternative. Lunch and Learn programs require little to no additional expense in the form of materials or lecturers. This approach allows budgeted continuing education funding to be used for the purchase of programs that require outside expertise.

With the experience gained from developing our own Lunch and Learn series, the Laboratory Improvement Unit offers the following tips for other organizations wanting to create their own successful program:

- Seek out the trainers and educators in your facility, and work with them to provide instruction to staff who would like to enhance their speaking skills and learn how to develop effective PowerPoint slides. Employees that are well equipped and confident speakers will be more willing to accept an invitation to present in front of their peers.
You Bring the Lunch cont. from page 7

- Involve staff in making a list of suggested topics, and keep the programs varied. Employees enjoy learning about areas other than those they work in every day.

- Schedule the programs at the same time each month (e.g., third Thursday) so that employees can plan ahead to attend.

- Make sure you have a meeting space that will accommodate the anticipated number of attendees and is an acceptable area for food and beverage consumption.

- Advertise the sessions well in advance. Email listservs, flyers and electronic communication boards are all great ways to advertise an upcoming program.

- Have sign-in sheets available the day of the program, and provide attendees with certificates to document continuing education credit.

- After the program, send a note of thanks to your speakers, and let them know their time and efforts were appreciated.

The state laboratory has truly embraced the Lunch and Learn concept. This program has not replaced the use of teleconferences and other programs from outside providers, but instead has prompted organizers to tap into underutilized resources to further advance and educate staff in a creative and cost effective manner. When employees of NCSLPH and OCME see an advertisement with the phrase – You bring the lunch, and we’ll bring the learn! – they know they can look forward to an interesting presentation geared to educate and enhance the laboratory environment.

Submitted by:
Michaela Harvey-Creech,
Laboratory Improvement Consultant

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What’s New on the WEB??

If you bookmark the laboratory test results, you miss lots of great information on the State Laboratory website!

Such as: How many tests for blood lead were performed last year? How many laboratory workshops were presented? What does a normal and abnormal pap smear look like under the microscope?

http://slph.ncpublichealth.com

Each unit is updating the information on the web as it is completed, so you’ll have to keep checking or refreshing the page to see what’s new. Check it out and let us know how you like it!

If you have suggestions for the site, send those along, too, by clicking on User Comments and Questions at the top of the home page.

Thanks for all you do.
WNCPHA Annual Meeting: “Taking the Lead in Public Health”

On May 1, laboratorians from western North Carolina gathered for a great day of continuing education, networking, and FUN! The Western North Carolina Public Health Association (WNCPHA) held its annual meeting at the Lake Lure Inn and Spa in Lake Lure, N.C. The inn was beautiful and provided a wonderful space for the best WNCPHA meeting yet. The laboratory section had a full day of continuing education including:

- Overview of the Bioterrorism and Emerging Pathogens Unit,
- CD and STD/HIV Program Updates: Striking Harmony Between Lab and Clinical Services,
- An Inside Look at the N.C. State Lab of Public Health, and
- Case Studies in Microbiology.

An added bonus was the general session speaker, the State Laboratory of Public Health’s director, Dr. Scott Zimmerman. Dr. Zimmerman spoke on Partnerships in Public Health. With more than 30 participants, the attendance was the best we have seen in years. We ended the educational portion discussing future WNCPHA meetings and recruiting new members to the lab section committee. We are so thankful to those that volunteered to serve and plan future WNCPHA meetings.

The group will be meeting soon to determine roles and responsibilities. The conference wrapped up in the evening with a DJ and bonfire complete with roasted marshmallows and s’mores!

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Also, a special kudos goes to April Hill who is now president of the main WNCPHA Executive Committee. Kristy Main will serve as president-elect, so the lab section is taking over some major responsibilities.

WNCPHA is a great association for public health employees to join. The annual dues are only $10 and membership is free for new members. The registration fees for the annual meetings are always very, very low as well. It is a great time to obtain continuing education hours and network with peers. I have made lifelong friends through WNCPHA, and it’s always a joy to see old friends (and new) each year! In addition to WNCPHA, there is also a laboratory section in NCPHA. This group will hold their annual meeting in September in Wilmington, so there are opportunities all over the state to join these valuable associations. Please go to www.ncpha.com for more information.

If you are interested in joining the western association or would like more information, please go to www.wncpha.com. You can also contact Kristy Main at kristy.main@dhhs.nc.gov or (919) 733-7186.

Submitted by:
Kristy Main, BS
Laboratory Improvement Consultant
North Carolina State Laboratory of Public Health

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**Summer/Fall**

Laboratory Improvement
State Laboratory of Public Health
N.C. Department of Health and Human Services

**August-December**

**2014 WORKSHOP SCHEDULE**

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<tr>
<td>September 11, 2014</td>
<td>2014 Packaging &amp; Shipping Regulations</td>
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<td>September 17-18, 2014</td>
<td>Laboratory Methods in the Diagnosis of Gonorrhea</td>
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<td>Examination of a Vaginal Wet Mount</td>
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<td>November 5-7, 2014</td>
<td>Bacteriological Methods for the Analysis of Drinking Water</td>
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<td>Evaluation of a Stat Male Smear</td>
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<tr>
<td>December 11, 2014</td>
<td>Bioterrorism Preparedness for Clinical Laboratories</td>
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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
This quarter, we continue with our series, Laboratory Safety’s Frequently Asked Questions! The question for this issue is about dress code.

**During summer months, dress code in the lab tends to slack off a little bit. What is your advice on dress code policy?**

One of the biggest debates in the laboratory is dress code policies. Unfortunately, OSHA is very vague on the topic and does not give clear guidance. Laboratorians can at times be very lax when it comes to dress, especially in warm summer months.

Let’s talk footwear. Anyone entering the laboratory should save those flip-flops for the beach and wear shoes that cover the entire foot. CLSI states “shoes should be comfortable, rubber-soled, and cover the entire foot.” Remember, there is a potential of splashing blood or other potentially infectious materials as well as chemicals. The foot should be covered to safeguard from these hazards.

As far as the other attire goes, the more coverage you have, the better. The N.C. State Laboratory of Public Health has a dress code policy that requires long pants to be worn in the laboratory. Shorts and short skirts are not allowed. This protects the lower portion of the leg that is not covered by a lab coat. CLSI addresses dress code by stating, “In addition to complying with the facility’s overall dress code, clothing should be clean, neat, and in good repair.” Again, the guidance is vague so your facility must come up with a dress code that works for everyone and keeps everyone safe.

Keep in mind that these suggestions are not concocted to make lab employees miserable. It is to protect you, the laboratorian, from being harmed. If you have any questions regarding safety, please contact Kristy Main at kristy.main@dhhs.nc.gov or (919) 733-7186. Remember, your question may be featured in an upcoming Lab-Oratory!

**Submitted by:**
Kristy Main, BS
Laboratory Improvement Consultant

**References**
CLSI GP17-A2, Clinical Laboratory Safety; Approved Guideline-Second Edition
The State Laboratory welcomes the following new employees:

**Newborn Screening** – Laura Marley-Trotter, Tiffiny Bentley

**Microbiology/TB** – Tiffany Taylor

**Virology/Serology** – Kun Zhang

**Mailroom** – Gary Gurkin

**Operations** – Tanisha Bandy

Congratulations are extended to Marcia McGinnis of Newborn Screening who retired in May 2014.

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**CUSTOMER SERVICE TIP**

Great customer service is usually thought of as something that is extended to the external recipients of a company’s services. But what about the internal customers – the company workforce that makes these services possible? When employees are appreciated and treated well, they are motivated to perform quality work and have a higher regard for external customers. Appreciation begins at the top and results in satisfied employees that, in turn, results in satisfied customers.