Extracts from the Lab

A New Hampshire Public Health Laboratories Publication

Spring 2015 Volume 9, Issue 1

A New Focus for the FDA and How FERN Is Making It a Reality

Jayne Finnigan, FERN Microbiologist III and Alma Vazquez, FERN Laboratory Scientist III

The globalization of the food supply has led to a need for increased targeted surveillance to reduce the risk of illness from foodborne pathogens. Because of this, the U.S. Food and Drug Administration (FDA) has shifted its focus to more closely align with the priorities set by the Food Safety Modernization Act (FSMA). These new priorities include:[1]

- Mandatory produce safety standards and preventive controls for food production facilities
- Authority to prevent intentional contamination
- The establishment of a mandated inspection frequency
- FDA access to records
- Testing by accredited laboratories
- FDA authority to issue a mandatory recall, suspend production at a production facility, and/or deny food entry into the U.S.
- Accountability for safety verification of imported foods
- Enhanced collaboration with local, state, and international government agencies for monitoring of the food supply

The responsibility of assuring the nation's food supply does not rest entirely on the shoulders of the FDA. It is thanks to the national Food Emergency Response Network (FERN) that the task of prevention is delegated across all states. The FERN is comprised of federal laboratories such as the United States Department of Agriculture and the FDA, state laboratories including public health laboratories and agricultural laboratories, and local laboratories located in larger metropolitan areas. It is envisioned that these collaborations will add to and strengthen the mission of the FERN system in that it will be a network that performs food surveillance, checks for compliance, responds to biological and chemical food emergencies, and provides scientific plans for risk assessment and resources allocation.

In the past, the FDA's sampling practices have included testing a relatively small number of a large variety of foods. Although this allowed for the detection of some contamination and the ability of the FDA to take action to prevent disease, the small numbers of data were not statistically significant. For example, avocado sampling in the last 12-year period for microbiological testing by the FDA was limited to a total of 429 avocado samples, 18% of which did not comply with FDA standards. The new focus of the FDA is moving from a traditional surveillance and compliance mode to a more proactive process that can identify risks and implement preventive controls. Risk

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assessment is possible when more data are available and analyzed to identify and monitor high-risk foods and answer specific questions to support FDA decision making. Once risks are identified, the FDA will have the information to better allocate its limited resources to areas where preventive measures will have the highest impact.

For this reason, the FDA is piloting a new microbiological surveillance project involving high-risk commodities based on the aggregate score of risk factors (see box) that make each of them more likely to be the source of foodborne outbreaks. The goal of this study is to explore new processes and parameters for sample collection and analysis that will enhance the current system. Additionally, the study will determine the prevalence of *Salmonella*, *Listeria monocytogenes*, and *Escherichia coli* associated with these foods since these organisms can cause severe illness or death. This will, in turn, increase the knowledge of the microbiological hazards associated with these high-risk commodities.

Avocados ready for testing

The New Hampshire Public Health Laboratories (NH PHL), along with 14 additional FERN laboratories across the nation, is participating in this surveillance-sampling pilot by testing avocados for *Salmonella* and *L. monocytogenes*. By the end of June 2015, the nation-wide pilot program plans to collect a total of 9,600 domestic and 22,400 imported avocados. A large number of samples are required to provide the agency with significant data that is statistically representative of the true numbers of pathogens present on those products. As of May 8, 2015, the NH PHL had tested 1,320 avocados for *Salmonella* species and *L. monocytogenes*. This study by the NH PHL Food Safety Unit has enhanced its response capabilities by testing large quantities of food samples at once, assuring correct sample collection, timely delivery, and improving the time in which accurate results are given so that avocado shipments, which do not contain target pathogens, can be released by the FDA and enter U.S. commerce. Also, this large-scale collection and testing of domestic and imported avocados has allowed the FDA–FERN partnership to make changes in its communication protocols, reporting algorithms, and testing procedures between its federal and state agencies. These changes will, in the near future, be adapted to other surveillance work as well as other commodities.

Reference

1. Food Safety Modernization Act. U.S. Food and Drug Administration. 4/3/15 (April 2, 2015). http://www.fda.gov/Food/GuidanceRegulation/FSMA/ucm247546.htm.

FDA ranked foods on a variety of criteria that pose the greatest public health risk:

- Food consistently causing illness or linked to several outbreaks in the past
- High consumption level and/or consumed by a high risk population
- Fresh, minimally processed food (ready to eat)
- Food which regularly comes in contact with contaminated sources (water, soil, or equipment)
- Food intended to be cooked by consumer
- Food processed or manufactured in a manner without a "kill step"

Commodities selected for the pilot include:

- Avocados (whole pit fruit)
- Sprouts
- Cheese (raw milk aged 60 days)

Director's Corner: NEEPHLD Collaborates for Laboratory Efficiency

Christine Bean, PhD, MBA, MT(ASCP), Laboratory Director

In 2014, the Northeast Environmental and Public Health Laboratories Laboratory Directors (NEEPHLD) meetings focused on laboratory

sustainability and gaining efficiencies through shared tests and services. Eight states (New Hampshire, Vermont, Massachusetts, New York, Rhode Island, Connecticut, Maine, and New Jersey) and one local laboratory (New York City) participated in the year-long effort to formalize plans for both routine and emergency service sharing. The Laboratory Efficiency Initiative (LEI) was funded by the Centers for Disease Control and Prevention (CDC). Specific tests were chosen as pilots to study and included arbovirus serology, hepatitis C nucleic acid amplified testing, and gross alpha radionuclides. A new test being developed by Rhode Island for algal toxins associated with harmful algal blooms was also included as a pilot. New testing methods such as this one could be offered to others in the region to utilize the lab's capacity and improve cost per test through test sharing. The NH PHL will offer HCV testing to the region and build on the expertise gained during the 2012 outbreak response. For each shared test, there will be two NEEPHLD labs providing the service in order to have back up. Sustainability of laboratory services will improve through cost savings when low volume tests do not have to be maintained by each lab in the region.

Issues examined using these pilot tests include cost accounting, legal issues, information technology and information exchange, billing, specimen transport, and turnaround time. Tools created and utilized as part of the LEI included a cost accounting tool, informatics self-assessment, and LEI test service directory. The test service directory will allow for searches of tests, methods, and instruments and will also improve sharing of services.

A survey of training programs was also conducted in 2014, which led to sharing of resources and identification of the need to conduct a training needs assessment (TNA) for all levels of employees in the public health laboratories. NH PHL requested and was awarded Epidemiology and Laboratory Capacity LEI funds to conduct this TNA at the NH PHL. The assessment tool will be developed and administered by an outside contractor and then will be available for other states in the region to use. Training was examined as a possible shared service in the region. The NEEPHLD meetings have typically included one training per year and these will continue. For example, in March 2015 New York State's Wadsworth Center hosted next generation sequencing training for laboratory administrators in NEEPHLD.

For questions regarding NEEPHLD collaboration for lab efficiency, please contact Dr. Christine Bean, NH PHL Director, at clbean@dhhs.state.nh.us.

Speaker Addresses Climate Change and Red Tide

Sheila Heath, Laboratory Scientist IV, Water Analysis Lab

Last spring, the NH PHL invited Dr. Donald M. Anderson, senior scientist in the Biology Department of the Woods Hole Oceanographic Institution (WHOI), to speak to a variety of NH academia, environmentalists, and State employees on climate change and red tide.

Dr. Anderson earned a bachelor of science degree in mechanical engineering and both master of science and doctoral degrees in civil and environmental engineering from the Massachusetts Institute of Technology. He joined the WHOI in 1978 and has been granted a number of prestigious awards throughout the years. In 1993, he was awarded the Stanley W. Watson Chair for Excellence in Oceanography and was named a National Oceanic and Atmospheric Administration Environmental Hero in 1999. In 2006, he received the Yasumoto Lifetime Achievement Award for the International Society for the Study of Harmful Algae. Dr. Anderson is the former director of WHOI's Coastal Ocean Institute and presently serves as the Director of the Cooperative Institute for North Atlantic Research. He also serves as the Director of the U.S. National Office

Keynote speaker Don Anderson from the Woods Hole Oceanographic Institute.

for Marine Biotoxins and Harmful Algal Blooms. He has authored, co-authored, or edited over 250 scientific papers and 14 books.

The focus of Dr. Anderson's research is harmful algal blooms (HABs), commonly called "red tides." These algal blooms occur in both fresh and marine water systems and are responsible for the toxin-contamination of drinking water, paralytic shellfish poisoning in human consumers, and massive fish-kills. His presentation discussed the increase in frequency, severity, and magnitude of HABs over the last 30 years, both in this country and globally. Dr. Anderson attributed this increase in HABs to several factors: global climate change, which has led to changes in the salinity of ocean water and increases in water temperature, agricultural practices, which have led to the nutrient loading of aquatic systems, over-fishing practices, and improvement in scientific instrumentation and methodology.

Dr. Anderson's presentation detailed the challenges of, and the potential for, an operational red tide forecasting system in the Gulf of Maine. He summarized the current plans for improved forecasts of red tides with the use of autonomous, moored- and mobile-sensors for cells and toxins, as well as improved cyst mapping methodologies.

The speaker was well received by the audience and patiently answered the many questions that followed his presentation.

For more information on the causes of red tide, read "Of Mice, Men, and Mussels" in our Spring 2010 issue at http://www.dhhs.nh.gov/dphs/lab/documents/spring2010.pdf.

New Hampshire Begins Five-Year Biomonitoring Grant

Julie Nassif, MS, Chemistry Program Manager

New Hampshire is one of six states recently awarded a State Based Public Health Laboratory Biomonitoring Programs cooperative agreement from the U.S. Centers for Disease Control and Prevention (CDC) in 2014. The five-year award will provide technical assistance and resources to enhance New Hampshire's biomonitoring capability and capacity.

The initial focus of the program will be to measure arsenic, speciated arsenic, and uranium in urine of residents living in southern New Hampshire who are reliant on deep bedrock wells for drinking water. Geologic formations in this region are suspected of leaching these toxic elements into the groundwater. As the biomonitoring program develops, a state-wide surveillance effort will be initiated to test for several contaminants in both blood and urine of New Hampshire residents. These data will be very helpful in understanding chemical exposures in New Hampshire, to investigate concerns, identify emerging issues, and prioritize limited environmental health resources. Biomonitoring data are especially useful in evaluating the effectiveness of public health interventions. Two well-known examples of this are the sharp decline of pediatric lead levels following removal of tetraethyl lead from gasoline and significantly decreased levels of blood cotinine following prohibition of smoking in indoor public spaces. Cotinine is the marker of exposure to environmental tobacco smoke.

The New Hampshire Public Health Laboratories is excited to be engaged in this important program and in using the information gathered to improve the health of all New Hampshire residents.

"Biomonitoring is a scientific technique that assesses a person's exposure to natural and synthetic chemicals." http://www.biomonitoringinfo.org/biomonitoring-in-brief/

That's Some High Quality H-2-O!

Kim Beers, Toxicologist II, Chemistry Unit

Do you remember how much fun it was to take a field trip in grade school and get some major hands-on experience in the real world? That's just what 400

Water Filtration Apparatus

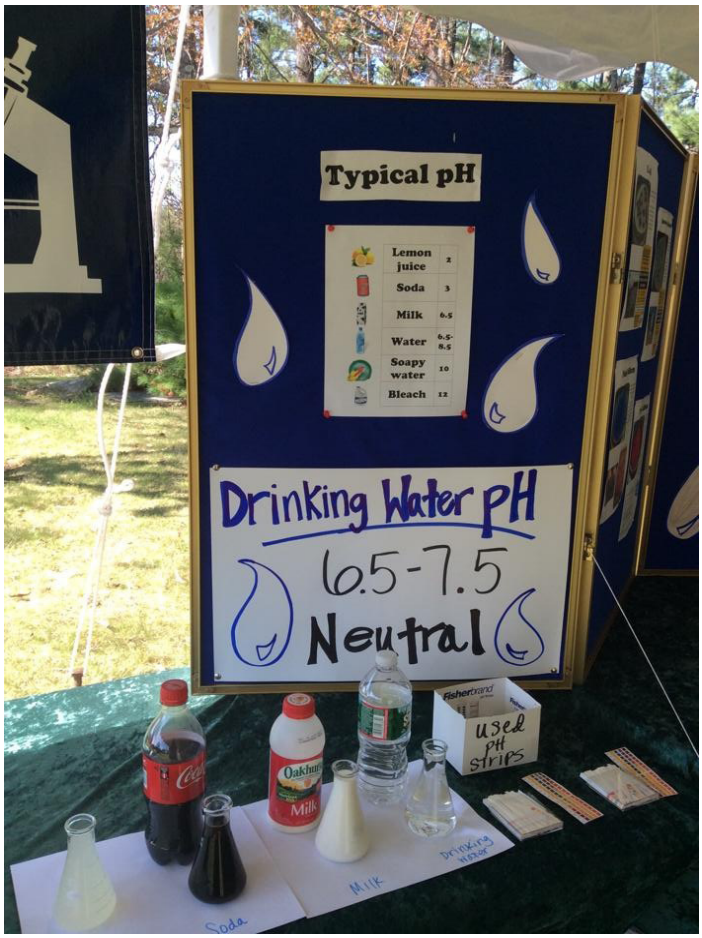
Manchester, NH, third and fourth graders were able to do while attending the New Hampshire Drinking Water Festival and Fourth Grade State Water Science Fair on May 7, 2014 at the Manchester Water Works facility. The event was sponsored by the New Hampshire Drinking Water Coalition to encourage future leaders and scientists to participate in learning about one of the world's most precious resources, water!

The festival has been held annually since 1992 to celebrate National Drinking Water Week. The goals of the festival are to heighten awareness of water resources, help students recognize water's relationship with other resources, promote environmental awareness, and emphasize that individual actions CAN make a difference in protecting these resources.

There were over 25 exhibits and presentations this year, including the NH PHL Water Analysis Laboratory's (WAL) interactive tables. The WAL had two hands-on exhibits that were a huge hit with the students:

1. Wendy Locke (WAL Program Assistant) used a microscope and filter apparatus to show students how it's possible for a glass of water to be contaminated even when it appears clean and clear to the naked eye. Locke filtered water samples, which allowed for the visualization of iron particles from the water on the filter using a microscope. The students loved manipulating the microscope and seeing the iron particles! It helped show them the importance of having their well water tested. Some students thought it was a trick or magic, but Wendy happily said it was "Science!"
2. Kim Beers (Toxicologist II) taught the students about pH. Beakers of lemon juice, soda, milk, and drinking water were lined up on the "lab bench" and students were given their own pH strips and guide. Not only was it a way for them to get excited about how pH strips work, but it also showed them why their dentists and parents tell them to stay away from soda (which erodes tooth enamel due to its low pH). Students were given take-home packets with a mini pH kit attached. Some kids even used their take-home kit at lunch to test their drinks!

Other exhibits included the water cycle, watershed animals, rain barrel demonstrations, the history of waterworks, how to test for a leaky toilet, creating a bottle cap mosaic, a drinking water taste test (bottle vs. local tap water), and water-themed music and performances. It was a great opportunity to work with other state agencies and grade school students. The NH PHL can't wait to participate again!



Students loved using pH strips to determine the acidity of some of their favorite drinks!

New Hampshire Public Health Labs: The Hostess with the Mostess

Hepatitis C Workshop

Dr. Fengxiang Gao, MD, MS, MPH, Virology & Molecular Diagnostics Program Manager

The Association of Public Health Laboratories (APHL) and the Centers for Disease Control and Prevention, Division of Viral Hepatitis (CDC DVH), in cooperation with the NH PHL, conducted a two-day hepatitis C virus (HCV) testing workshop in Concord, NH on May 15–16, 2014. The purpose of this workshop was to improve the understanding of the newly released HCV testing algorithm and to promote HCV testing among persons born from 1945 to 1965.

On the first day, speakers from the CDC, Massachusetts General Hospital, Veterans Affairs Medical Center, and other public health laboratories provided updated information on the virus, viral infection, and treatment. HCV testing, the new HCV testing algorithm and its implementation, as well as the validation of HCV testing were discussed. Dr. Fengxiang Gao, MD, MS, MPH and Dr. Christine Bean, PhD, MBA, MT(ASCP) from the NH PHL, and Christine Adamski, RN, MSN from the NH Division of Public Health Services shared New Hampshire's experience in responding to the 2012 NH HCV outbreak. Over 50 people from public health laboratories, clinical laboratories, and the CDC Laboratory participated in this workshop.

Dr. Fengxiang Gao describes New Hampshire's experiences with testing during the 2012 HCV outbreak.

On the second day, the NH PHL offered laboratory training on HCV testing including the HCV rapid test, HCV RNA test, and HCV sequencing. Fourteen participants from public health laboratories and clinical laboratories from 12 states attended the laboratory training on HCV testing.

Environmental Health Conference

Julie Nassif, MS, Chemistry Program Manager

On May 1, 2014, the NH PHL hosted an all-day meeting that brought together public health, environmental, and community representatives. Entitled "Improving Environmental Health through Innovation, Practice and Policy," this effort was initiated and supported by the Association of Public Health Laboratories. It had four broad goals:

- Identify and prioritize community environmental health concerns,
- Evaluate existing ways for communities to engage the environmental health system,
- Explore opportunities for enhancement or improvement of the system, and
- Identify effective outreach and engagement techniques.

After presentations describing how and where the environmental health system operates in New Hampshire and a video laboratory tour that showcased the spirit and capabilities of the NH PHL, the forty-one participants reviewed two hypothetical environmental situations. The first involved naturally occurring arsenic contamination in a private well. Drinking water quality is a critical environmental health concern in New Hampshire because it is estimated that 46% of the population is reliant on bedrock wells. Several important topics were discussed related to this scenario, including jurisdictional authority, privacy, education, and outreach.

The second scenario involved a multi-state foodborne illness related to intentional mercury contamination of common table salt. While the investigation of the incident was complex, given the

number of products in which the salt was used, the discussion highlighted the effectiveness of existing protocols, relationships, and notification systems currently in place.

Several practical recommendations emerged from these discussions, including plans for the formation of a multi-agency environmental health team who will meet regularly to discuss environmental health issues, investigations, and problems; the development of written protocols to respond to community environmental health concerns; and an increased awareness of the capabilities of the NH PHL among environmental health partners and community members.

A detailed summary of the meeting and a similar one held at the Iowa PHL can be found at http://www.aphl.org/AboutAPHL/publications/Documents/EH_CommunityAccesstoEnvironmentalHealthLabs_82014.pdf.

With the goal of continuous quality improvement, the NH PHL hopes that through community outreach, stakeholder engagement, and clear protocols, the environmental health system will be even better than it currently is.

Members of the NH PHL Chemistry Lab enjoyed working with their public health colleagues at the conference (from left to right: Melissa McNamara, Mamta Dua, and Betzy Wallace).

Still on Guard: Wet Lab Training for Sentinel Labs

Maureen Collopy, Bioterrorism Coordinator

On May 1, 2014, the NH PHL sponsored a training to discuss the identification of potential agents of bioterrorism for sentinel laboratories. Six people from around the State were able to attend this day-long event, including five microbiologists/technologists from five area hospitals and one student intern. The laboratorians attended a PowerPoint lecture in the morning led by Maureen Collopy, NH PHL Bioterrorism Coordinator. One topic of discussion was the change in current guidelines regarding the criteria used to rule out organisms as potential bioterrorism agents. In the afternoon wet lab, led by Jayne Finnigan, NH PHL Food Safety Unit Microbiologist, participants became familiar with Gram stain morphology, culture characteristics, and biochemical tests used in the identification of these potential bioterrorism organisms.

The next BT wet lab will be held at the NH PHL on June 4, 2015. Please contact Maureen Collopy at (603) 271-7391 for more information.

Outreach Event Brings Visit from Governor

Jill Power, MS, M(ASCP), CMQ/OE(ASQ), Quality Manager

The first State (of NH) Employee Appreciation Day was attended by two NH PHL staff members on a rainy day in October. This event was sponsored by the NH State Employees Association (SEA) to bring attention to the hard work and dedication of public service workers. The NH PHL had a great spot on the State House lawn in Concord, NH, and had many people stop by the booth. There wasn't quite the traffic that was expected, probably due to the poor weather, but visitors included the general public, State Representatives, political hopefuls, fellow State employees, SEA members, and the Governor herself, Margaret (Maggie) Wood Hassan.

NH PHL staff set up on the State House lawn to talk with the public about the important work we do.

Most people did not know who the Public Health Labs were, but they did recognize us when we called ourselves the "State Lab." Many had a story to relate to from one of our posters and almost all of them had either a personal experience with a bat, food poisoning, "cruise ship" sickness, well-water testing, or had heard about one of our investigations on the news.

An interesting highlight was during the opening remarks from Diana Lacey, (then) SEA President, who mentioned that New Hampshire State agencies, like the Public Health Labs, fight to keep our state healthy and the employees of the lab work very hard performing testing to keep food safe.

The Governor stopped by the booth and thanked the Laboratory for the great work we do and promised she would come for a tour in the future or perhaps hold a Governor and Executive Council meeting at our facility (we would have to provide breakfast though!).

The SEA President stopped by to thank us for being there and told us she had worked hard on pandemic planning not only for State processes, but also for State employees. She had remembered working with staff from the NH PHL.

This event was for teaching others about the many services the PHL offers and, in turn, we learned about other State agencies. Hopefully, next year it will be a bright, sunny day with more visitors!

Two weeks later, we learned the Governor and her Executive Council would be holding their monthly meeting within our building. Early one autumn morning, the PHL escorted Gov. Hassan and approximately ten Council members around the laboratory. They made their way through the labs, each looking around and asking us some great questions, including, "What can we do for you?" At that moment, we knew just how important attending that outreach event was to the continued success of the lab.

Our division director said he tried for four years to get a governor to come visit, and in one outreach event, we were able to accomplish this goal. The NH PHL enjoys every chance we get to emphasize the great work we do and we look forward to attending this event again!

Dr. Christine Bean, NH PHL Director (center) speaks to Gov. Hassan (right), former NH Division of Public Health Services Director José Montero (left), and members of the NH Executive Council about molecular testing for outbreak detection and response.

PHL staff welcome Gov. Hassan to the lab (from left to right): Dr. Fengxiang Gao, Amanda Cosser, Lou Barinelli, Jill Power, Gov. Hassan, Dr. Christine Bean, and Julie Nassif.

NH PHL Updates

Extracts from the Lab *Wins National Award*

The NH PHL Newsletter, "Extracts from the Lab" Spring 2014 edition, received the Bronze Medal Award in the newsletter category of the Excellence in Public Health Communication Awards from the National Public Health Information Coalition. Over 250 entries were judged by University of Georgia faculty members, journalists, broadcasters, advertisers, a CDC emergency risk communications specialist, a former news director, and a health literacy professional. Awards were given to those projects that used creativity to reach a broader audience and were information dense while telling a good story. This edition highlighted the chicken jerky pet treat investigation (*A Jerky Ride in New Hampshire*), which was a collaborative effort between the Bureaus of the PHL, Infectious Disease Control, and Food Protection at the NH Department of Public Health Services and the University of New

Hampshire Veterinary Diagnostic Lab. The award-winning newsletter and previous editions can be found on the DHHS web site at http://www.dhhs.nh.gov/dphs/lab/publications.htm.

Members of the award-winning edition of Extracts from the Lab *(clockwise from front center): Amanda Cosser, Kim Beers, Jill Power, Sheila Heath, Sandra White, and Sue Desrosiers (member Peggy Sweeney was not available at the time this picture was taken).*

NH PHL Wins FDA Award

The PHL Radioanalytical Chemistry Unit received the US FDA Office of Regulatory Affairs' Collaboration of the Year award in May 2014 for the RadEx Alpha/Beta Intercomparison Study in Food Matrices. According to the FDA, this award was "for outstanding collaboration and dedication resulting in the development of enhanced radionuclide detection capabilities." The radioanalytical staff attended the award ceremony on Sept. 11, 2014 at the FDA's Winchester Engineering and Analytical Center in Winchester, MA.

Members of the PHL Radioanalytical Chemistry Unit receive their award (holding certificates): Debanond Chakraborty and Melissa McNamara (front) and Brian Scherer (back center).

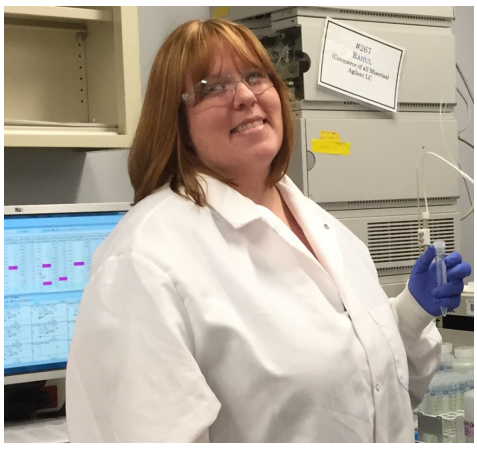
Emerging Leader Program

In September 2014, Amanda Cosser, Microbiologist II, Virology and Special Diseases Unit, was accepted into the 7th Emerging Leader Cohort of the National Center for Public Health Laboratory Leadership. The Association of Public Health Laboratories (APHL) Emerging Leader Program is a year-long leadership development program for emerging leaders from public health laboratories. Over the next twelve months, the cohort will participate in multiple seminars to enhance their skill set as well as collaborate on a distance-based project that addresses PHL workforce issues. Twelve states are represented in the 7th cohort as well as members from the APHL and from the Centers for Disease Control and Prevention. Amanda is the fourth NH PHL employee to participate in the APHL Emerging Leader Program. Other lab employees who have participated include Wendy Lamothe, Denise Bolton, and Carol Loring.

Amanda Cosser

Staff Updates

Kim Beers - Promotion



With great pleasure we announce that Kimberly Beers accepted the Toxicologist II position in the Food Emergency Response Laboratory within the NH

PHL Chemistry Unit on June 6, 2014. She has been applying her skills to food chemistry, surveillance, and method extension activities. Kim was formerly a Lab Scientist III in the Water Analysis Lab and had been working in the Water Testing Program since September of 2005. Congratulations, Kim!

Daniel Hagenbuch - Welcome

The NH PHL would like to welcome Daniel Hagenbuch to the lab. Danny is a former summer intern who worked in the PHL Water Analysis Lab and has now been promoted to a full-time Laboratory Scientist Trainee. Dan will be working in the Virology and Molecular Diagnostics Program where he will be trained in pulsed-field gel electrophoresis and virological testing methods. Danny completed his Bachelor of Science degree in biology and Spanish from the University of New Hampshire. Music, travel, and sports are some of Danny's main interests; however he admits that new interests arise every day. We are pleased to have Danny join the team!

Sue Desrosiers - Retirement

Many things happened in 1986: the first holiday honoring Martin Luther King Jr. was observed, the 24th space shuttle mission Columbia-7 was launched, 'Take My Breath Away' by Berlin was a top five singles hit, 'Family Ties' was in the top five TV shows, and Sue Desrosiers joined the NH PHL family.

Sue graduated in 1970 from Salve Regina College (Newport, RI) with a major in biology and a minor in chemistry. After college she worked in the Surgical Research Lab at Rhode Island Hospital and then in the lab at Grace Hospital in Richmond, VA. Before coming to NH PHL she worked at the Concord Clinic for New England Clinical Laboratories.

Sue began her journey with the NH PHL working in the Virology and STD Unit and remained there, for the most part, throughout her years of service. When she started, the lab was just beginning to test for the new "plague," human T-lymphotropic virus (a.k.a., HIV). She did take a couple of side trips along the way and helped out in the Rabies and Arbovirus Units. She was more than willing to learn anything new and jumped at the chance to learn lead testing in the Inorganic Chemistry Unit. A few months before her retirement, Sue even took on the task of processing specimens for influenza and norovirus testing. Sue was one of our local "vampires" (a.k.a., phlebotomist) and was a valuable member of the award-winning NH PHL Newsletter Committee.

Sue belongs to a choral group in Concord, NH, and while at the NH PHL she could be heard in the halls singing softly while rehearsing for upcoming shows. She was always one of the first to welcome new employees and she always had a kind word for her co-workers.

Sue Desrosiers retired in April 2014 from the NH PHL after 28 years of State service. In retirement, Sue plans to continue her singing, enjoy time in her garden, and visit with her friends and family. The halls at the NH PHL seem quieter since her retirement, but we wish her all the best on this part of her journey.

More Staff Updates

It is with mixed feelings that we relate the following staff updates. Sad, for us, for losing these dedicated workers and happy, for them, in their new adventures.

In July, Katie Brown left to work for the NH Lottery and, NO, it doesn't give us any 'inside' information. Oh, rats!! Katie worked mainly in our Laboratory Information Management System Unit, but was more than willing to help out with various technological needs. Also in July, Barbara Purington retired to spend some time "down on the farm," literally, since she owns a farm and works the fields. Barbara was a Laboratory Assistant in our glassware and media prep areas. She also spent some time supporting the Water Analysis and Toxicology Labs during her fifteen years at the NH PHL.

August and September saw the usual lazy, hazy days of summer and fall vacations. Then, in the first week of October, Joanne Pollock retired from the Mycobacteria

Unit after working with us part-time for over 20 years!! Joanne worked as a Lab Assistant and did all the 'behind the scenes' work so that we technologists could shine. Her hard work and willingness to help with any task was very much appreciated. Wendy Lamothe left to go up (or, is it 'down') to Bar Harbor, Maine to work at Jackson Laboratory. She is working on their lab information management system for the entire organization. Wendy started here at the NH PHL in the Mycobacteria Unit setting up media before leaving the lab to teach chemistry at Notre Dame College in Manchester, NH. She came back to us in 2000 and worked her way up to the position of Clinical Microbiology Supervisor and then to our LIMS expert. We, and the computers, miss her.

In the second week of October, Jenny Mahoney, supervisor of the Molecular Diagnostics Unit, left the PHL to work as a quality control specialist at a pharmaceutical company in southern New Hampshire. During her three-year tenure, she was instrumental in moving the unit forward by implementing both quality assurance and technical policies and procedures. Jenny demonstrated her strong project management skills by validating several new molecular methods and was an integral part of the PHL's response to the hepatitis C outbreak in 2012. We will miss Jenny, but wish her well in all of her future endeavors!

Also in October (see, I wasn't kidding), Katie Zinc left the Water Analysis Lab after two and a half years to work for the NH Department of Environmental Services. Her new position includes collecting private well water samples for methyl tertiary butyl ether (MTBE) testing.

Keep an eye open for future job postings to fill these important positions on our website at http://das.nh.gov/jobsearch/employment.aspx. We would love to welcome you to our NH PHL family!

NH PHL Spotlight: Denise Bolton

Microbiologist IV, Arbovirus & Emergency Preparedness Unit Supervisor

Extracts: How did you come to work at the NH PHL? What changes have you seen over the years?

Denise: I got my degree in microbiology at the University of New Hampshire in 1983 and started working at the NH PHL shortly thereafter. When I began my career here, the Virology Unit was brand new. There were only two of us in the unit—my supervisor and me. Building the lab from the ground up was a great experience and I learned all about lab testing and how the State System works.

I have been with the Department of Health and Human Services for 30 years. During that time, I worked in various units including Virology, Molecular Diagnostics, and Emergency Response. I also spent seven of those 30 years in the Childhood Lead Program. I like working in public health because I find the disease investigation process intriguing. The NH PHL provides the test results that drive the decision-making process of whether a health issue is considered

NH PHL SUDOKU

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Fresh avocados make a wonderful addition to many sandwiches and dips. Wash your avocados well before using.

I'll bring the chips!!!

Complete the grid so that each row, column, and 3X3 box contains every letter of the word GUACAMOLE.

Answer on page 12

NH PHL SUDOKU Answer

O	G	E	A	U	A	M	L	C
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A	U	A	L	M	C	O	G	E
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U	E	G	M	L	A	C	O	A
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Denise and her family on top of Mt. Adams

containable or a crisis. During my tenure here, some of the more "exciting" issues that I've worked on include the anthrax investigation at UNH, the 2009 influenza pandemic, and the hepatitis C outbreak caused by a health-care worker who diverted drugs.

Some of the biggest changes I've seen in my career are instrument automation and the advent of molecular technology. Polymerase chain reaction (PCR) was invented during the year I graduated from college and it has changed the landscape of clinical lab testing. When I first started, we were diagnosing influenza based on growing the virus in culture, which could take seven to ten days. After the virus grew, we would subtype it using a tedious and time-consuming method called hemagglutination inhibition. Today we can type and subtype influenza in one PCR run which only takes a few hours!

Away from the lab, I live in Plymouth with my husband and one of my four children (I'm almost an empty nester!). I recently finished hiking all 48 of the 4,000+ foot mountains in New Hampshire. It was a feat that took me 35 years to accomplish while I raised my family. When I hiked my final two mountains, my husband and kids were able to finish with me. As you can see from the photo, we made some great family memories!

Reaching Out for Discover Wild New Hampshire Day

Karen Appleyard, Program Specialist II

The focus of the NH PHL Outreach Team is to educate New Hampshire citizens about health hazards, to let them know who we are and what we do, and to promote the laboratory sciences. One annual event the Outreach Team participates in is Discover Wild New Hampshire Day.

For the last 26 years, the New Hampshire Department of Fish and Game has sponsored this event at the Fish and Game facility in Concord, NH. It is usually held the third Saturday in April and is free and open to the public. The event has grown over the years from several hundred to almost 7,000 visitors this past April. The NH PHL has participated since its inception. Some displays and demonstrations include detection of lead, mercury, and radioactive contamination in the environment; the incidences of tick- and mosquito-borne illnesses and ways the public can protect

PHL staff had a great time talking with Discover Wild NH Day attendees (from left to right): Karen Appleyard, Cheryl Myers, Tina Wells, Sheila Heath, Brian Scherer, Melissa McNamara, and Wendy Locke (not pictured: Alma Vazquez, Jill Power, and Xinglu Zhang).

themselves; the dangers of red tide and rabies; and recommendations for testing private drinking water wells.

A lot of time and work goes into preparation for Discover Wild New Hampshire Day, which the Outreach Team believes is an important platform for raising awareness of public health concerns.

NH PHL Staff Give Back

Becky Lovell, Micrbiologist I, Clinical Microbiology Unit

The NH PHL participated in the 12th annual Rock 'N Race run/walk that was held here in Concord, NH on Thursday, May 15, 2014. This is an annual community-wide event sponsored by Merrimack County Savings Bank to benefit the Concord Hospital Payson Center for Cancer Care. The NH PHL team was named "Lula's NH PHL Peeps" in honor of a coworker's late sister, Lula. Our group of both runners and walkers helped to contribute to the record breaking 6,595 participants and almost $500,000 raised. The Rock 'N Race has become an annual event for the NH PHL family and we already look forward to this year's race!

Lula's NH PHL Peeps contributed to the almost $500,000 raised for the Payson Center for Cancer Care.

New Hampshire Department of Health and Human Services

Nicholas Toumpas, Commissioner

Christine Bean, PhD, Director
Public Health Laboratories

To join communities and families in providing opportunities for citizens to achieve health and independence.

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The NH PHL Newsletter Committee would like to thank those who contributed to this publication—not only do they have their everyday tasks to tend to, but they graciously agreed to write an article (or two!) and we sincerely appreciate their willingness to help.

The NH PHL Newsletter Committee: Kim Beers, Amanda Cosser, Sheila Heath, Jill Power, Peggy Sweeney, and Sandie White