

# Extracts from the Lab

## A New Hampshire Public Health Laboratories Publication

José Montero, M.D.  
Director  
Division of Public Health Services

Christine Bean, Ph.D.  
Laboratory Director  
Public Health Laboratories

Volume 6, Issue 1

Winter 2011/2012



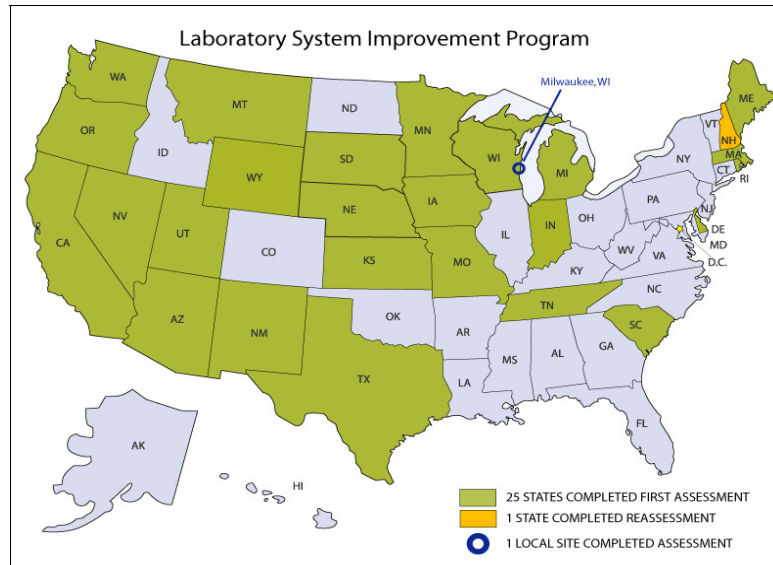
### Is Public Health Working for You? An Evaluation of Past Performances of Public Health Services

Jill Power, MS, M(ASCP), CQA(ASQ), Quality Manager, NH PHL

The New Hampshire Public Health Laboratories (NH PHL) System was the first in the nation to conduct a reassessment of their performance of the essential public health services using the Laboratory System Improvement Program (L-SIP). This reassessment is a public health laboratory system performance measurement project developed by the Association of Public Health Laboratories (APHL) in conjunction with the Centers for Disease Control and Prevention (CDC). It is based on the Eleven Core Functions of Public Health Laboratories and designed within the framework of the Ten Essential Public Health Services (EPHS). As one of nine pilot states, New Hampshire performed the initial assessment on March 26, 2007 and this reassessment occurred four years later on May 4, 2011.

#### Inside this issue:

<b>Nucleic Acid Amplified Test</b>	<b>4</b>
<b>NH Environmental &amp; PHL Merge</b>	<b>5</b>
<b>Whoop, There It Is!</b>	<b>6</b>
<b>Keeping Guard Over NH</b>	<b>6</b>
<b>Getting Your Genes on at the NH PHL</b>	<b>7</b>
<b>NH PHL Reaches Out to the Public</b>	<b>8</b>
<b>Laboratory Updates</b>	<b>9</b>
<b>Staff Spotlight</b>	<b>10</b>
<b>Sudoku</b>	<b>12</b>



*States that have completed a public health laboratory system assessment or reassessment<sup>1</sup>*

The assessment brings together partners such as customers, clients, vendors, policy makers, healthcare providers, and others who benefit from public health laboratory services to determine the overall performance of the state laboratory system. It also is used to measure capacity and performance of the system in addressing national standards and provides results for system improvement. Partners invited to the New Hampshire reassessment were those individuals and agencies (stakeholders) determined to utilize and/or contribute to the laboratory system in some capacity.



## Tool

The New Hampshire reassessment required the use of a recently revised performance measurement “tool.” This tool underwent a major revision in 2010 when it was evaluated for conciseness, redundancy, and accuracy in correlation to the EPHS. The tool is comprised of each EPHS outfitted with model standards of excellence. Key ideas and points of discussion are given to system partners to help them evaluate whether they are meeting the EPHS standard. Participants then vote on the performance of the public health laboratory system on each key idea. Scoring of each key idea leads to overall semi-quantitative results within each EPHS. This information can then be used to identify areas in need of improvement.

## Reassessment Day

There were 51 participants in the reassessment. In an initial group plenary session, all worked together on one EPHS to learn the evaluation process. They later separated into three prearranged groups, each assigned to review three EPHS. To maintain continuity, a core participant group was created to ensure certain stakeholders were included in each breakout group. This group was comprised of a public health laboratory manager, a public health administrator, a hospital laboratory director, a NH Laboratory Response Network (LRN) representative, a public health nurse, a NH Bureau of Disease Control representative, a public health laboratory technical supervisor, and a public health laboratorian. Each group also had a core-facilitated cohort that included a professional facilitator, a system theme taker, and an APHL theme taker. The system theme takers assisted the facilitator and captured the information conveyed in the discussion throughout the reassessment and the scores, while the APHL theme takers captured the validity and efficacy of the assessment tool.



In the opening session, Karen Breckenridge from the APHL gave an overview of the genesis of the L-SIP with a PowerPoint presentation. As a collaboration of the CDC and APHL, the assessment was created to increase awareness of system partnerships and to provide a process to improve the system that supports public health by evaluating the EPHS.

Christine Bean, PhD, NH PHL Laboratory Director, defined the concept of a public health laboratory system by describing the roles of partners and stakeholders during statewide efforts in New Hampshire involving an anthrax event in 2009, the 2009 H1N1 pandemic activities, and the response to a tritium leak at a local nuclear power plant in 2010. Dr. Bean’s examples reinforced the importance of collaboration at the local and state level and how everyone is an important part of a larger public health laboratory system. She also stressed how the shortage of skilled workers in all of these areas will have a negative impact on quality healthcare, and thus we must all work together to assure a competent public health workforce.

## Scoring

Each EPHS had key ideas that were evaluated on the rate of performance within the system (Figure 1). A scoring program was used to calculate the results voted upon in each EPHS. The total scores were tabulated to arrive at a final score for an EPHS. At the end of the day, the voting results were displayed to the entire group, and the 2007 initial assessment scores were compared with the 2011 reassessment scores.

Although it is difficult to obtain a true objective score, two of the EPHS had scores that remained the same, three showed a decrease, and five resulted in an increase (Figure 2).

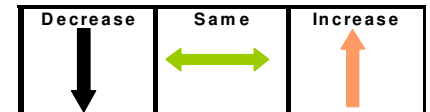
Figure 1. A description of the L-SIP scoring tool.

NONE	MINIMAL	MODERATE	SIGNIFICANT	OPTIMAL
NONE	0% or absolutely none of the performance described is met within the public health laboratory system.			
MINIMAL	Greater than zero, but no more than 25% of the performance described is met within the public health laboratory system.			
MODERATE	Greater than 25%, but no more than 50% of the performance described is met within the public health laboratory system.			
SIGNIFICANT	Greater than 50%, but no more than 75% of the performance described is met within the public health laboratory system.			
OPTIMAL	Greater than 75% of the performance described is met within the public health laboratory system.			

Figure 2. The Ten EPHS with a description of how the 2011 assessment compared to the 2007 assessment for each service.\*

Essential Public Health Services		Rating 2007 vs. 2011
1	<b>Monitor</b> health status to identify community health problems	↓
2	<b>Diagnose</b> and investigate health problems and health hazards in the community	↔
3	<b>Inform, educate, and empower</b> people about health issues	↑
4	<b>Mobilize</b> community partnerships to identify and solve health problems	↑
5	<b>Develop policies and plans</b> that support individual and community health efforts	↓
6	<b>Enforce</b> laws and regulations that protect health and ensure safety	↑
7	<b>Link</b> people to needed personal health services and assure the provision of health care when otherwise unavailable	↓
8	<b>Assure</b> a competent public health and personal health care workforce	↔
9	<b>Evaluate</b> effectiveness, accessibility, and quality of personal and population-based health services	↑
10	<b>Research</b> for new insights and innovative solutions to health problems	↑

\* A downward arrow = a decreased score, a flat arrow = no change, and an upward arrow = a higher score.



## Outcome

EPHS 2 and 8 did not show any changes from the 2007 assessment scores, indicating no loss of existing performance excellence. EPHS 3, 4, 6, 9, and 10 showed improvement in those areas since 2007 and EPHS 1, 5, and 7 showed no improvement or loss in performance excellence.


## Next Steps

The NH PHL will completely analyze each EPHS score and prioritize those that have the greatest impact on the public health laboratory system. In order to do this, a complete report will be collated and sent out to the participants. Those participants who expressed interest in future involvement will be invited for next step planning, including the formation of laboratory system workgroups to advance performance improvement. Work plans for each EPHS will be developed beginning with the three that scored lower in the reassessment, and a progress report will be due on each in early 2012.

## Conclusion

As laboratorians, we love data and want it to make decisions for us. The scores obtained during this reassessment allow us to see where we have been and where we need to go in the future. Two major points highlighted were that this assessment allows for a lot of flexibility and it has a greater impact when done in a stress-free, comfortable, and respectful environment.

The reassessment was a fulfilling quality improvement activity in which progress can be measured semi-quantitatively. All 50 states are encouraged to undergo the initial assessment with a follow-up reassessment when appropriate. All participants contributing to both assessments can skew or bias the results; the majority felt that being involved was the most important concept.

Many individuals felt that this exercise was a quality improvement project for their own institutions. It allowed an opportunity for partners to meet and create beneficial relationships. Doing an assessment can be time consuming and there may be some costs involved, but the positive energy and outcomes of the daylong event outweigh all. The overall EPHS performance presents the system with future goals leading to measurable objectives. The NH PHL and system partners will continue to improve the laboratory system, which in turn will support the citizens of our great state. 

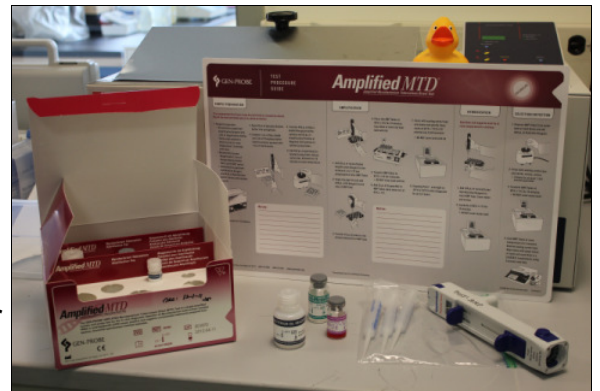
### Reference

1. Association of Public Health Laboratories. Laboratory System Improvement Program (PowerPoint). Retrieved August 17, 2011 from the World Wide Web: <http://www.aphl.org/search/Results.aspx?k=lsip>

## Nucleic Acid Amplified Test or “Newly Arrived Anticipated Test”


Margaret Sweeney, TB Unit Supervisor, TB Unit, NH PHL

Exciting news for the Mycobacteria (TB) Unit at the NH PHL! A new addition has just arrived at the laboratory. The APHL, a national nonprofit organization, recently distributed grant monies to allow qualified laboratories to update their testing capabilities. The newest update for the NH PHL TB Unit is Gen-Probe's Amplified *Mycobacterium tuberculosis* Direct Test. Training and internal validation of the procedure has been completed and on January 1, 2012 the NH PHL began offering this this additional test to aid in the diagnosis of *M. tuberculosis* complex.



The *Mycobacterium tuberculosis* Direct (MTD) Test is a target-amplified nucleic acid (rRNA) probe for the *in vitro* detection of *M. tuberculosis* complex in respiratory specimens. Those types of specimens include sputa, bronchoalveolar lavages, bronchial aspirates, and tracheal aspirates. This Food and Drug Administration (FDA) approved assay can be utilized on specimens from patients whose initial acid-fast (AFB) smear was positive or negative, although the sensitivity and specificity of the test for AFB smear negative patients is lower than that of AFB smear positive patients.

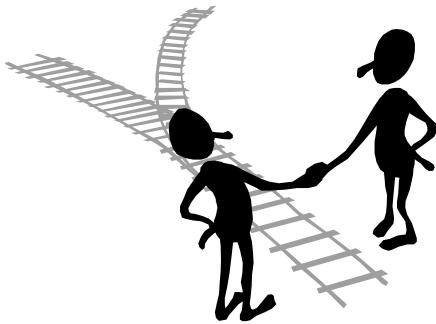
The results obtained by the MTD test should not be used as the sole method for the diagnosis or treatment of disease. Test results should be used in conjunction with patient clinical symptoms, radiography results, and mycobacterial culture. The MTD test does not differentiate among the members of the *M. tuberculosis* complex. Culture recovery is necessary to distinguish *M. tuberculosis* from other members of the complex, such as *M. bovis*.

This MTD testing methodology does have the advantage of providing a rapid preliminary result to physicians. It allows for an early start of antibiotic therapy and contact investigation, however it also has limitations other than those mentioned above. For more information, or to answer any questions, please contact Peggy Sweeney, TB Unit Supervisor, at [msweeney@dhhs.state.nh.us](mailto:msweeney@dhhs.state.nh.us) or call (603) 271-4785. 

## New Hampshire Environmental Laboratory and the Public Health Laboratories Merge

Patricia Bickford, Deputy Laboratory Director, NH PHL

On July 1, 2011, the Department of Environmental Services (DES) Laboratory merged with the NH PHL, a union that strengthens the lab's technical abilities, increases



its capabilities and capacities that are necessary to respond to emergencies, and provides an opportunity to streamline some administrative functions. The merge was an immediate outcome of budget reductions and of the governor's initiative to consolidate services where possible to reduce operating costs and to serve the public more effectively. Locating public health and environmental laboratory functions together is not unique; this organizational structure is common in states throughout the country including Maine, Connecticut, and Rhode Island.

The former DES Laboratory is now known as the Water Analysis Laboratory (WAL) section within the NH PHL. It brings additional chemical and microbiological expertise to the NH PHL including analyses for:

- inorganic metals, minerals, nutrients, and physical characteristics
- organic volatile and semi-volatile chemicals
- pesticides and herbicides
- analyses for radiochemical and microbiological parameters



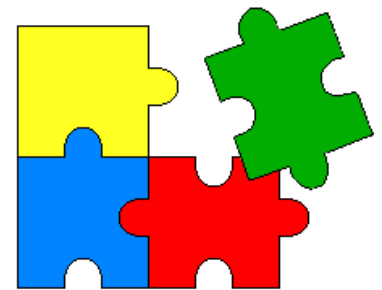
Testing is done primarily on water, but also on a variety of environmental matrices. The WAL maintains accreditation by The NELAC Institute (TNI) to ensure the quality of its testing services.


With the merge, the NH PHL now assumes responsibility as the primacy laboratory for New Hampshire. Primacy is an appointment by the Environmental Protection Agency (EPA) regional administrator whereby the laboratory must maintain the capability and capacity to perform all of the primary drinking water standards at all times in case of an emergency at any public water system. To maintain expertise as emergency responders for the environmental sector and to assist other municipal and state laboratories with their emergencies, the NH PHL maintains active membership in both the Water Laboratory Association (WLA) and the Environmental Response Laboratory Network (ERLN).

The new NH PHL is in a transition state that is expected to last through the spring.

We are currently busy merging business functions such as purchasing and accounting,

coordinating safety and hazardous waste obligations, and sorting out all the various informational technology crossovers. We recognize that there may be some confusion during the logistical changes, but be assured that the services we offer and the quality of testing will not be affected as a result of the transition. We view this merge as a positive outcome and together the NH PHL will be able to better serve the public, improve health, prevent disease, and reduce costs.



Until the transition is complete, please refer to the following website to order water analysis kits or obtain information about the WAL: <http://des.nh.gov/organization/commissioner/lisu/index.htm> 

## Whoop, There It Is!

Rebecca Adams, Microbiologist, Clinical Microbiology Unit, NH PHL


*Bordetella pertussis* and *Bordetella parapertussis* are fastidious, Gram-negative, rod-shaped bacteria known to cause pertussis (also known as whooping cough). Pertussis is a toxin-mediated disease in which the bacteria attach to the cilia of the respiratory epithelial cells. The epithelial cells become paralyzed, causing inflammation that interferes with the clearing of respiratory secretions. This results in a classic "whooping" cough that is characteristic of this disease. *B. parapertussis* tends to be a much milder infection, with a shorter coughing stage.

*B. pertussis* has an incubation period ranging from 4-21 days with three stages to the disease. The beginning catarrhal stage lasts 1-2 weeks before progressing on to the paroxysmal stage, when diagnosis is usually made. This stage can last from 1-6 weeks and consists of periods of coughing or whooping. The last stage of the disease (the convalescent stage), includes gradual recovery and subsiding cough. Recovery can take anywhere from weeks to months.



The NH PHL currently tests for pertussis by culture and real-time polymerase chain reaction (rt-PCR). The NH PHL recently changed their method from a singleplex to a multiplex rt-PCR assay. The new multiplex rt-PCR procedure will enable multiple targets to be amplified in a single assay. This will allow for the qualitative detection of *B. pertussis*, *B. parapertussis*, and *B. holmesii* DNA.

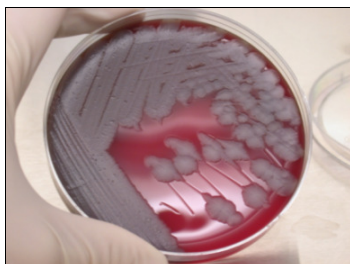
The optimal specimen is one nasopharyngeal (NP) swab, from one nostril, collected within the first two weeks of coughing. Specimens collected after four weeks of coughing have a higher probability of false negative results due to rapid degradation of the DNA. Dacron or polyester NP swabs must be used (not cotton). The specimen should be refrigerated and shipped to the NH PHL within five days of collection.

This pertussis rt-PCR assay allows for rapid detection of *B. pertussis*, *B. parapertussis*, and *B. holmesii* DNA; however, recovery by culture with Regan-Lowe media remains the gold standard for pertussis testing. For this reason, the NH PHL continues to offer pertussis testing by culture. For more information, please contact Wendy Lamothe, Clinical Microbiology Unit Supervisor, at [wendy.d.lamothe@dhhs.state.nh.us](mailto:wendy.d.lamothe@dhhs.state.nh.us) or call (603) 271-4663. 


## Keeping Guard Over New Hampshire

### *Sentinel Laboratory Annual Training on Bioterrorism Agents*

Maureen Collopy, MPH, MT(ASCP), Bioterrorism Coordinator, NH PHL



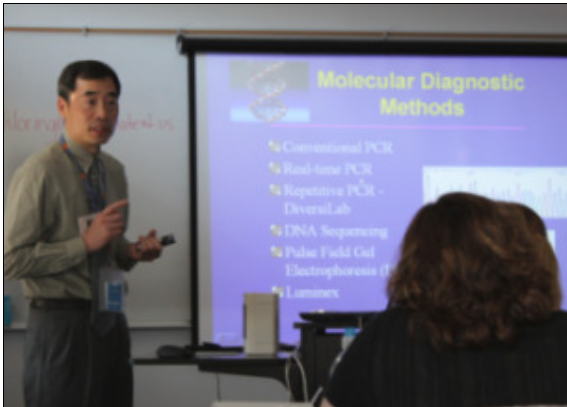
On May 19, 2011 the NH PHL conducted a training on potential agents of bioterrorism for sentinel labs. Seven people from six New Hampshire facilities were able to attend this day-long event.

The morning lecture portion consisted of PowerPoint presentations by NH PHL Food Microbiologist Jayne Finnigan and Bioterrorism Coordinator Maureen Collopy. These presentations focused on the role of sentinel labs when a potential agent of bioterrorism is identified in a food sample or clinical specimen. Descriptions of these organisms were given in detail, as well as the biochemical tests that should be utilized to rule-out or rule-in a suspect organism. In addition, the presentations included a history of bioterrorism, the role of the Laboratory Response Network, signs and symptoms of disease, epidemiology, and safe work practices. Recent individual and localized cases were discussed to demonstrate the vital role sentinel labs play in the identification and investigation of these agents. The afternoon session consisted of a wet lab training to familiarize laboratorians with Gram stain morphology, culture characteristics, and basic biochemical tests used to rule-out or refer these organisms to their LRN reference lab, the NH PHL. Thank you to the sentinel labs and the NH PHL staff members who made this workshop a success! 

## Getting Your Genes on at the NH PHL

Amanda Cosser, Microbiologist, Virology and Special Testing Unit, NH PHL

The NH PHL hosted their second Molecular Diagnostics Training Course on May 24-25, 2011. The participants enjoyed two days of lectures on molecular theory/techniques and hands-on experiences in the lab. The NH PHL was grateful to have Dr. Elise Sullivan from the Department of Molecular, Cellular, and Biomedical Sciences at the University of New Hampshire (UNH) as a guest speaker. This was the second year she was able to join us as a guest lecturer and was an excellent resource during question and answer periods. Participants from hospitals across the state as well as from the UNH Veterinary Diagnostics Lab, the Manchester Health Department, the NH PHL, and even a high school science teacher joined us to further their molecular education and learn about the testing methods they could implement in their own labs.




*Dr. Gao, Virology and Molecular Diagnostics Program Manager, presenting on the different types of molecular diagnostic methods.*

Students began the two-day course with a pre-assessment test and a general lab safety talk. Morning lectures on an overview of molecular diagnostics (MDX), nucleic acid extraction, and conventional polymerase chain reaction (PCR) were followed by an afternoon in the lab performing ribonucleic acid extractions on influenza and norovirus specimens. Conventional PCR was then performed on the norovirus specimens. Students began day two with lectures about MDX in public health and real-time PCR followed by performing a real-time PCR assay on their previously extracted influenza specimens. The afternoon consisted of lectures on pulsed-field gel electrophoresis and a general overview of how the LRN uses molecular methods for bioterrorism testing. These lectures



were followed by more lab experience, this time performing gel electrophoresis on their conventional PCR assay products. Students' real-time PCR results were also analyzed and discussed.

The NH PHL received great feedback from the students: "The lecture material was effectively translated into practical/clinical applications [which] gave an appreciation for the complexity of the work"; "The lectures were very informative, clear and concise, and an awesome refresher of old information. [It was] very well organized...fun and [a] really great learning experience"; and "Lecturers/lab staff were wonderful; So knowledgeable, accommodating, and friendly."

Thanks to all of the participants, Dr. Fengxiang Gao and other NH PHL staff, and Dr. Sullivan for helping to make this another successful course! We hope to offer a third course in the future! 



## "I Didn't Know You Did That Kind of Testing!"

### *NH PHL Reaches Out to the Public*

Alma Vazquez, Laboratory Scientist, Virology and Special Testing Unit, NH PHL

Discover Wild New Hampshire Day 2011 was held on Saturday April 30, 2011 at the New Hampshire Department of Fish and Game. It showcased more than thirty-five outdoor, wildlife, environmental, and conservation groups from every corner of the state. Demonstrations, talks, and hands-on activities exploring all that's WILD about New Hampshire were presented in many exhibits. The NH PHL was present at the event to inform and educate the community about our mission and function. Part of the mission is to protect the community through education and Discover Wild NH Day allowed us to do just that! The NH PHL took this as an opportunity to remind our community of our mission and core functions: to protect the public's health in NH through responsive, unbiased, quality laboratory testing; to actively participate in national and international surveillance networks; and to improve the quality of health and laboratory services in both the public and private sectors.



This was a fun-filled event for the entire family. With a combination of posters, group presentations, live demonstrations, games and plenty of printed informa-

tion, the NH PHL had something for everyone in attendance. For children and the curious child in each of us, the NH PHL had ticks to observe under a microscope after learning about Lyme disease. One of the highlights of the day was to see a girl bring her father close to the Lyme disease poster and explain to him what she had just learned. It was very exciting to see how our efforts to educate the younger members of the community will pay off exponentially as they share the knowledge they gained with their parents and peers. "Toss the Bacteria Down the Drain" was another popular activity for the younger members of the community. Through this hands-on activity children were reminded of the importance of washing their hands before they eat and handle food. It was a fun and easy way to learn how to prevent food-borne diseases.




As the children finished the activities or asked questions about the posters displayed, they were invited to make their own "Honorary NH Laboratory Scientist" badge. "Look, Mom, I'm a scientist!!!" boys and girls exclaimed as they were walking away.

The NH PHL, along with many other booths, participated as a stop point for a scavenger hunt. As children and their families learned about rabies, Lyme disease, West Nile virus, eastern equine encephalitis, radiation, and food safety, they exchanged the correct answer to a question for a stamp on their scavenger hunt list. Engaging the children allowed the parents to come and meet people that work at the laboratory and ask questions about our services.



*Melissa Levesque, a NH PHL Lab Scientist, helping children make their very own "Honorary NH Laboratory Scientist" badge.*

Overall, the NH PHL had a wonderful time interacting with members of the community. We hope to give the community tools to prevent disease and promote a healthy lifestyle by fulfilling our mission of service and education. 



## NH PHL Updates

Denise Bolton, Emergency Preparedness and Arbovirus Unit Supervisor, NH PHL

Susanne Desrosiers, Microbiologist, Virology and Special Testing Unit, NH PHL

Sandie White, Administrative Secretary, NH PHL



In May, the NH PHL welcomed **Trevor Lester** as a new laboratory scientist in the Virology and Special Testing Unit. He will be primarily responsible for arbovirus and emergency preparedness testing.

Trevor received his undergraduate degree in biology from Alfred University in New York and recently completed a PhD in molecular virology and microbiology at the University of Pittsburgh School of Medicine. His dissertation topic was "Interactions between ICP4 and the Cellular Transcription Machinery that Mediate HSV-1 Gene Expression." His skills and training in molecular diagnostics will certainly be an asset to our laboratory.

When not at the lab, Trevor enjoys yard work and activities with his dog, and he plans to continue learning to ski during his first winter in New Hampshire. It's great to have you as part of our team, Trevor!



The NH PHL welcomes **Melissa McMamara** to our Radiochemistry Unit as a Laboratory Scientist III Radiochemist. Melissa comes to us from the NH DES Watershed Assistance Section as an Environmentalist IV working as a Salt Reduction Coordinator.

Melissa obtained her bachelors degree in biological sciences at Keene State College.

Previous to working for NH DES, Melissa worked for New England Organics as a Project Manager and at Cookson Electronics-Polyclad Laminates as a Analytical Chemist/Research Scientist Engineer.

Melissa makes her home in Concord with her husband Phil and their three children, Julia (17) and fraternal twins Ava and Aidan (6). Their pet family includes one dog, three cats, and a chinchilla. In Melissa's free time she enjoys spending time traveling with her family; their next planned trip is to Disney World. The NH PHL is happy to hear she loves to bake fancy cakes (yum!).

**Gabriel Perreault** worked at the NH PHL as a laboratory helper in the Arbovirus Unit over the summer and during school breaks for the past four years.

He recently earned his bachelors degree in biology (with minors in molecular biology and medical anthropology) from the University of Rochester in New York.

Gabe is leaving to pursue a master's degree in medical anthropology at the University of Edinburgh in Scotland before attending medical school. He was a great asset to the lab and we will miss him. Good luck in your future endeavors, Gabe!




The NH PHL is pleased to welcome **Jennifer “Jenny” Mahoney** to the Molecular Diagnostics Unit as a Microbiologist IV. As the new unit supervisor, some laboratory projects Jenny will be overseeing include a new babesia assay, norovirus testing, and 16S sequencing.

This past May, Jenny obtained her PhD in microbiology from the University of New Hampshire. She completed her dissertation entitled, “Existing Regulatory Circuitries Govern Backbone and Acquired Host Association Factors in *Vibrio parahaemolyticus*” where she used molecular techniques to detect pathogens in water. This experience will help integrate the clinical and environmental sections of the NH PHL.



Jenny has worked as a clinical research laboratory manager at Massachusetts General Hospital (MGH) and as a senior research assistant at Brigham and Women’s Hospital. She was trained as a bioterrorism first responder at MGH and will be a valuable addition to our emergency response team.


When not working, Jenny enjoys spending time with her Weimaraner dog named Ava and running and baking. Welcome aboard, Jenny! We look forward to working with you and of course taste-testing any baked goods. 

## Best Career of 2011— Laboratory Technician

Amanda Cosser, Microbiologist, Virology and Special Testing Unit, NH PHL

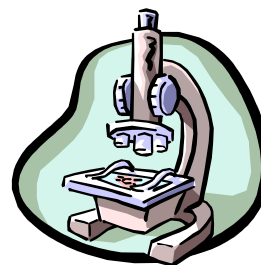
On December 6, 2010 *U.S. News & World Report* released their ranking of the top fifty careers of 2011.<sup>1</sup> To make the cut, job growth had to be at an above-average rate over the next decade and provide an above-average median income. Job satisfaction, turnover, and impending retirements were also considered. When all of those were taken into consideration, *Laboratory Technician finished as one of the best careers for 2011!*

Calling laboratory technicians and technologists the “unsung heroes of the healthcare industry,” jobs in this field are expected to grow 16% between 2008 and 2018. This means an additional 25,000 jobs, not including positions due to retirements and turnover.

So what does this mean? Tell your kids and grandkids, nieces, and nephews who are starting college (heck, even tell your friends and family who are looking for a career change) that the lab sciences are the way to go! 

### Reference

1. Grant, A. (12/6/10). *U.S. News & World Report*. The 50 Best Careers of 2011: Consider these high-opportunity jobs as you look for your next paycheck.



## Staff Spotlight

Susanne Desrosiers, Microbiologist, Virology and Special Testing Unit, NH PHL



**Debanond Chakraborty** is a toxicologist and the technical supervisor of the Radiological Chemistry Unit at the NH PHL. He started his career in Canada at The Ottawa Hospitals as Assistant Radiation Safety Officer and later worked as a health physicist in private industry. Before joining the NH PHL in November of 2006, Debanond worked at the NH Division of Public Health Services (DPHS) Radiological Health Program. The Radiological Chemistry Unit has done outstanding work in response to the tritium leak at the Vermont Yankee Nuclear Power Plant in 2010 and the recent radiation release at the Fukushima nuclear power station in Japan.

**Interviewer:** What part of your job fascinates you the most?

**Debanond:** Data interpretation is the most interesting and challenging aspect. Once we receive the radioanalytical report on a given sample from our instruments, the data must be analyzed to determine what the various peaks represent, particularly in the gamma spectroscopy. There is a radionuclide library of information available as a resource for this interpretation.

**Interviewer:** What are you most excited about that you and your staff have accomplished over the past few years?

**Debanond:** Our lab has been doing radiological environmental monitoring since 1979, but 2010 is the first year for which an annual report will be generated for this monitoring program. The 2010 annual report is now being finalized after extensive review and comments.


We are also very proud of our work analyzing precipitation samples in New Hampshire after the power plant crisis in Fukushima, Japan. These samples had never been tested in-house before this event. Managing questions from the media and the public was also a big challenge.

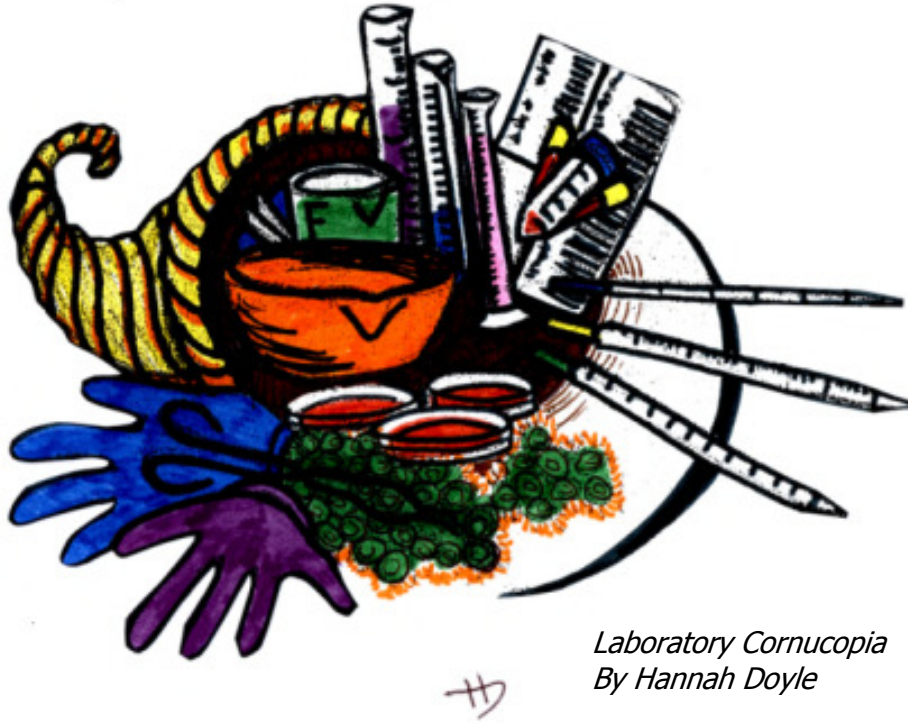


**Interviewer:** What would you like people to know about radiological chemistry that they may not appreciate?

**Debanond:** I would like to remind them that radiation is everywhere in our environment. It is part of our world; we live with it and breathe it every day. Without radiation, we would not have evolved as we have. The word 'radiation' usually induces fear in people, but it is generally not something to fear.

That said, it is still important to study the different types of radiation that are out there in order to learn what is dangerous to our health and what is not. For instance, we sometimes unexpectedly encounter 'orphan sources' of radiation that have been discarded or stored at a time when less was known about how they can harm us. We need to have the ability to find these objects and deal with them safely.

Our unit has a close working relationship with the NH Radiological Health Program. Their staff has extensive experience with the regulations surrounding radiological issues and we are privileged to be able to take advantage of their expertise and broad knowledge base in this field. 



Laboratory Cornucopia  
By Hannah Doyle

### Sudoku

Kimberly Beers, Laboratory Scientist, Water Analysis Laboratory, NH PHL

From the air we breathe to the food we eat, chemistry is found in our lives everyday.

Try your luck at adding a little more Chemistry to your life!

Complete the grid so that each row, column, and 3x3 box contains every letter of the word CHEMISTRY. No letter must be repeated in any one row, column, or box.



<u>CHEMISTRY</u>								
		S			E			I
	Y	T		H	M	S		E
			C		S		M	T
S	H		I					
		E			H	T	S	
	C	Y	M		R			H
			H	T	Y		R	
		C	E		I		T	
M	T				C	E	I	

# Contact us!!



New Hampshire Department of Health and Human Services  
Division of Public Health Services  
Bureau of Laboratory Services  
Public Health Laboratories

*The Department of Health and Human Services' mission is to join communities and families in providing opportunities for citizens to achieve health and independence.*

29 Hazen Drive, Concord, NH 03301-6527  
(800) 852-3345 TDD access: (800) 735-2964  
<http://www.dhhs.state.nh.us/>

Please call (603) 271-4661 to reach the lab directly or email Jill Power at [jill.j.power@dhhs.state.nh.us](mailto:jill.j.power@dhhs.state.nh.us) with any newsletter-related questions.

*Special thanks to the contributors to the newsletter—not only do they have their everyday tasks to tend to, but they had the Newsletter Committee constantly badgering them for their articles and asking them questions!*

*The NH PHL Newsletter Committee:*

*Rebecca Adams, Kimberly Beers, Amanda Cosser, Susanne Desrosiers, Jill Power, Peggy Sweeney, and Sandie White*

